

MAINTENANCE MANUAL

YAMADA AIR-OPERATED DIAPHRAGM PUMPS NDP-05 NDP-15

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.

These maintenance manuals covers what you should know about maintenance of the Yamada NDP-05 series and NDP-15 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 10.1 "Specifications" in the Operating Manual. Also, remember that the pumps is heavy, and extreme care must be taken when lifting it.

Table of Contents

. Warnings and Cautions.....	1
. Table of Contents	2
1. Principles of operation	4
2. Tools, etc	
2.1 General tools.....	4
2.2 Special tools.....	4
2.3 Misc.....	4
3. Ordering Replacement Parts.....	4
4. Balls and Valve Seats	
4.1 Removal	
■ FAT, FST, BA□, BS□ types.....	5
■ FP□, FDT, FV□, OLD FTT, FXT types	6
■ FP□, FDT, FV□, NEW.....	7
4.2 Checking	
■ Ball valve types	8
■ Flat valve types Installation	8
4.3 Installation	8
5. Diaphragm and Centre Rod	
5.1 Removal	
■ FAT, FST, BA□, BS□ types.....	9
■ FP□, FDT, FV□, FTT, FXT types	10
5.2 Checking.....	10
5.3 Installation	
■ B□H, B□S, FPH, FPS types	11
■ B□C, B□E, B□N, B□T, FPC, FPN, FPE, F□T types.....	11
6. Pilot valve, Guide and Bushing	
6.1 Removal	
■ NDP-5	12
■ NDP-15	12
6.2 Checking.....	12
6.3 Installation	12
7. Seal ring and sleeve	
7.1 Removal.....	13
7.2 Checking.....	13
7.3 Installation	13
7.4 Retightening of tie rods.....	14
8. Exploded View and Parts List	
8.1 NDP-05-FAT, FST	15
8.2 NDP-05-FPT, FDT, FVT OLD	17
8.2N NDP-05-FPT, FDT, FVT NEW	19
8.3 NDP-05-FTT, FXT	21
8.4 NDP-15-BA□, BS□.....	24
8.5 NDP-15-FP□, FDT, FV□	27

8.6 NDP-15-FTT, FXT29

Diaphragm kits, valve kits, air motor kits, air motor seal kits

NDP-0523

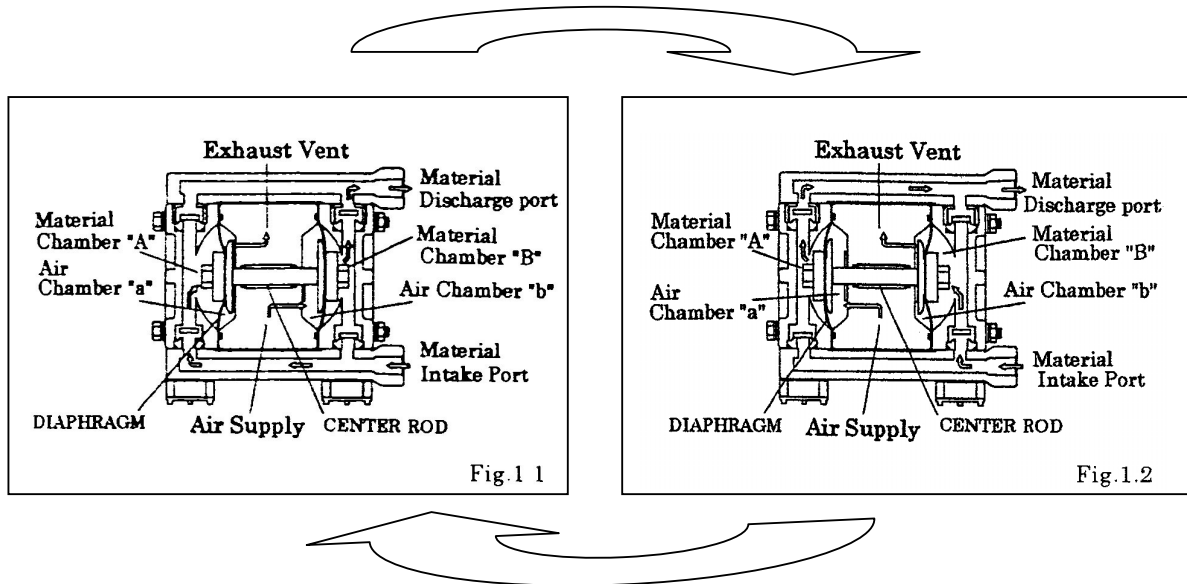
NDP-1531

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.

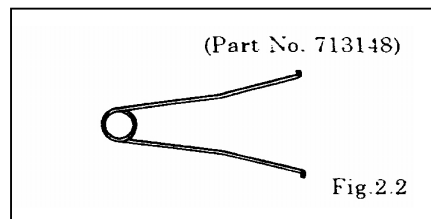
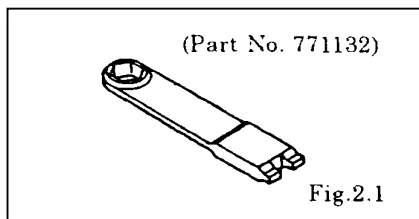
2.1 General tools

- Socket wrenches 10mm (NDP-5), 13mm (NDP-15)
- Open-end wrenches 10mm (NDP-5), 13mm (NDP-15), 21 mm (NDP-15)
- Plyer

2.2 Special tools

- Accessory tool (Accessories)
- Purpose: Removing the centre disk of FP□ and FVT and FDT types

- Sleeve remover (sold separately)
- Purpose: for removing sleeves



2.3 Misc.

- Lubricating oil Turbine oil equivalent to #32
- Nuts M6 x 1 (NDP-5), M8 x 1.25 (NDP-15)
- Grease Urea grease grade (NLGI) No.2

3. Ordering replacement parts

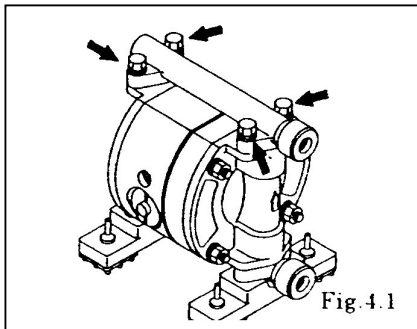
For accurate and speedy shipment of parts, be sure to order the right parts for your model to your dealer or one of our regional offices. Indicate the part number, descriptions, quantities and reasons for replacement, in as much detail as possible.

4. Balls and Valve seats

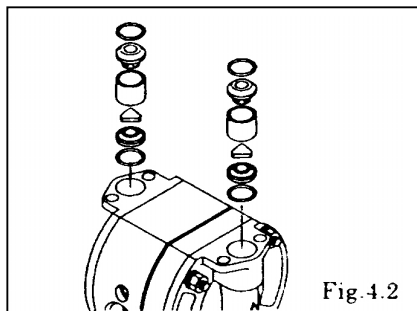
4.1 Removal

■ FAT, FST, BA□, BS□ types

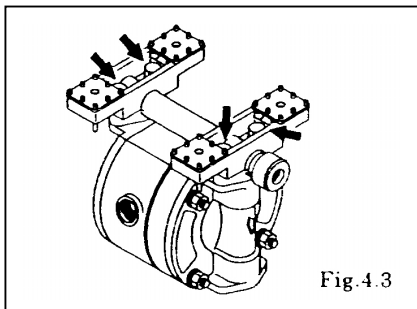
See [8. Exploded View] on and after p. 14. (Fig. 4.1, 4.2, 4.3 and 4.4 show the NDP-5 FAT.)



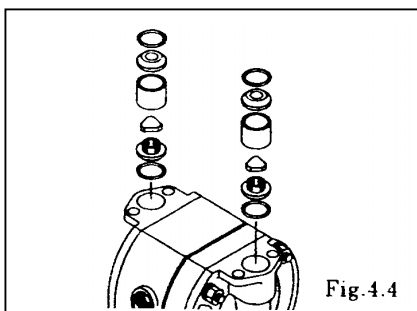
- Remove the 4 retainer bolts from the “out” manifold, and remove the “out” manifold. [Fig. 4.1.]



- Remove the O-ring, retainer, valve guide, flat valve and valve seat. (NDP-5) [Fig. 4.2]
- Remove the O-ring, valve guide, ball and valve seat. (NDP-15) [Fig. 4.2]



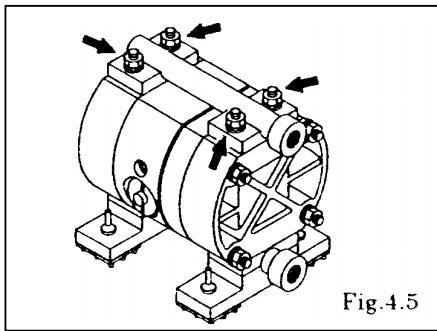
- Turn over the main body assembly. [Fig. 4.3]
- Remove the 4 retainer bolts from the “in” manifold, and remove the base and “in” manifold. [Fig. 4.3]



- Remove the O-ring, valve seat, flat valve, valve guide and retainer. (NDP-5) [Fig. 4.4]
- Remove the O-ring, valve seat, ball and valve guide. (NDP-15) [Fig. 4.4]

■ FP□, FDT, FVT old types UNTILL SERIAL No. 228480

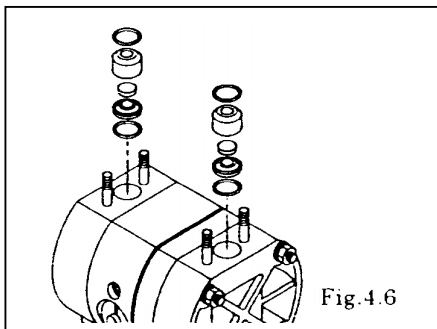
See [8. Exploded View] on and after p. 14. (Fig. 4.5, 4.6, 4.7 and 4.8 show the NDP-5 FPT.)



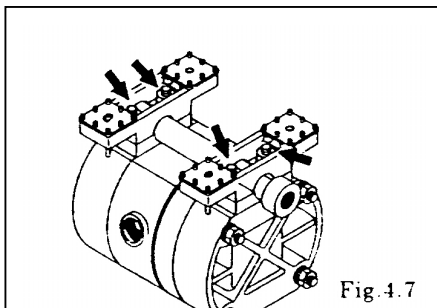
- Remove the 4 retainer nuts from the out manifold, and remove the “out” manifold. [Fig. 4.5]

<NOTE>

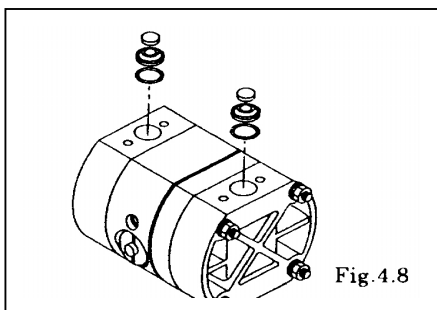
- When the retainer nuts on both sides of the tie rod are removed, the “in” manifold can be removed. (NDP-5)



- Remove the O-ring, retainer, flat valve and valve seat. [Fig. 4.6]



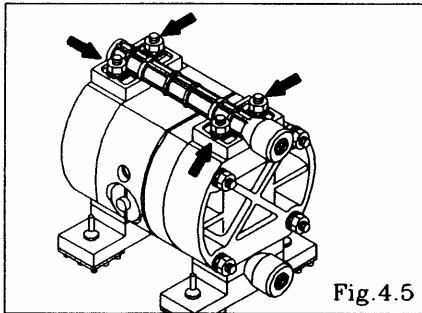
- Turn over the main body assembly. [Fig. 4.7]
- Pull out the bolt, and remove the base and “in” manifold. (NDP-5)
- Remove the 4 retainer bolts from the “in” manifold, and remove the base and “in” manifold. (NDP-15) [Fig. 4.7]



- Remove the O-ring, valve seat, and flat valve. (NDP-5) [Fig. 4.8]
- Remove the O-ring, valve seat, flat valve and valve guide. (NDP-15) [Fig. 4.8]

■FP□, FV□, FDT New types

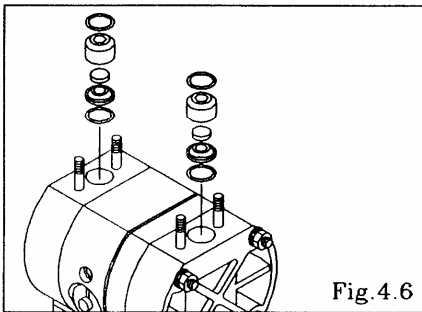
See [9.Exploded View] on after p.14. (Fig. 4.5, 4.6, 4.7 and 4.8 show the NDP-5 FPT.)



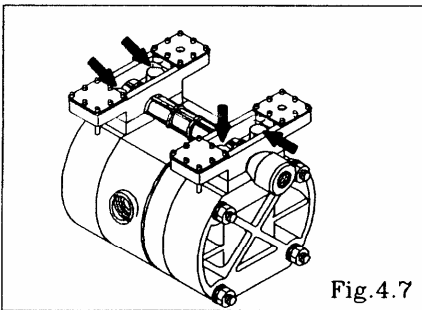
- Remove the 4 retainer nuts from the out manifold, and remove the out manifold. [Fig.4.5]

< NOTE >

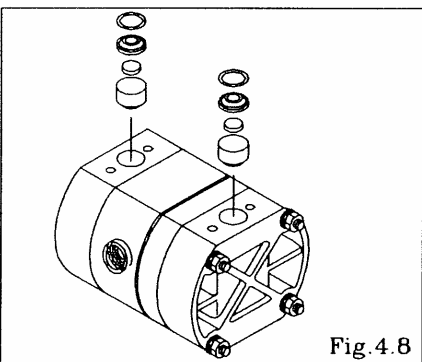
- When the retainer nuts both side of the tie rod remove, the in manifold removes.(NDP-5)



- Remove the O ring, valve stopper, flat valve and valve seat. [Fig.4.6]



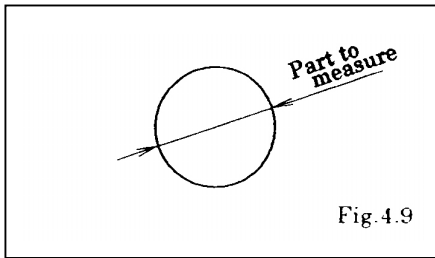
- Turn over the main body assembly. [Fig.4.7]
- Pull out the bolt, and remove the base and in manifold. (NDP-5)
- Remove the 4 retainer bolts from the in manifold, and remove the base and in manifold. (NDP-15) [Fig.4.7]



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

4.2 Checking

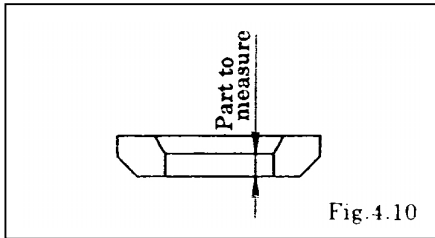
■ Ball valve type



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

Usable range of Ball

NDP-15	S ϕ 20.0 ~ S ϕ 22.8 mm
--------	----------------------------------

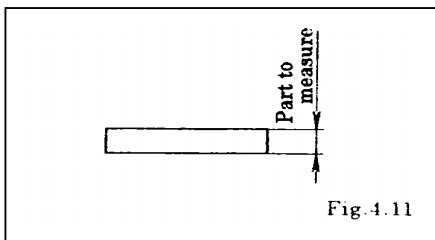


- Valve seat [Fig. 4.10]
Measure the dimension shown at left, and if it is outside the usable range, replace the valve seat.

Usable range of Valve seat

NDP-15	2.6 ~ 6.5 mm
--------	--------------

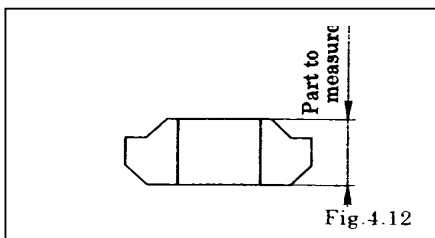
■ Flat valve type



- Flat valve [Fig. 4.11]
- Measure the dimension shown at left, and if it is outside the usable range, replace the seat. If the seal ring is worn out or cracked, replace it.

Usable range of Flat valve

NDP-05	2.5 ~ 3.1 mm
NDP-15	4.3 ~ 5.0 mm



- Valve seat [Fig. 4.12]
Measure the dimension shown at left, and if it is outside the usable range, replace the seat.

Usable range of Valve seat

NDP-05	5.8 ~ 7.1 mm
NDP-15	8.2 ~ 10.0 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. 14, and install in the reverse order of disassembly.

Tightening torque for manifold retainer bolts or nuts

NDP-05	7.5 N·m{75kgf·cm}
NDP-15	12 N·m{120kgf·cm}

<NOTE>

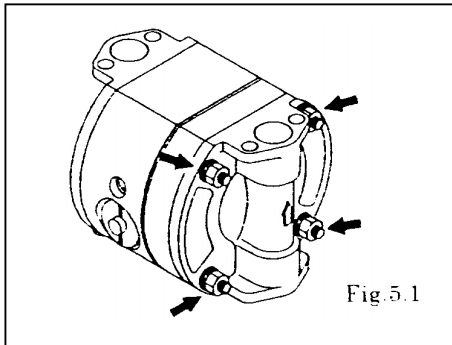
- Make sure there is no dust on the seal surface and the seal is not damaged.
- Replace the PTFE O-ring regardless of its condition.

5. Diaphragm and Centre rod

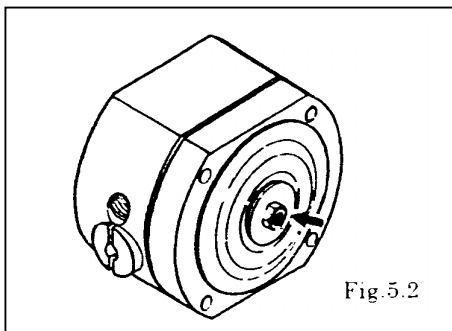
5.1 Removal

■ FAT, FST, BA□, BS□ types

See [8. Exploded View] on and after p.14. (Fig. 5.1, 5.2, and 5.3 show the NDP-5 FAT.)



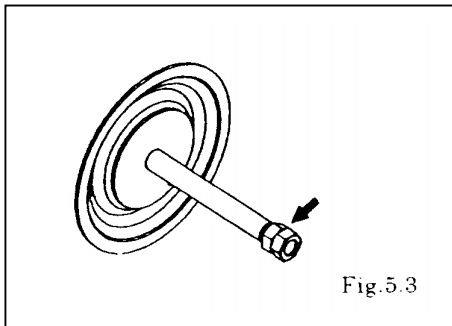
- Remove the ball or flat valve and valve seat. (see [4.1 removal FAT, FST, BA□, BS□, types] on p.4)
- Remove the 4 (6 on the NDP-15) retainer bolts from the “out” chamber, and remove the “out” chamber. [Fig. 5.1]



- 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 diaphragm, centre disk and centre rod from the opposite side of the main body.

<NOTE>

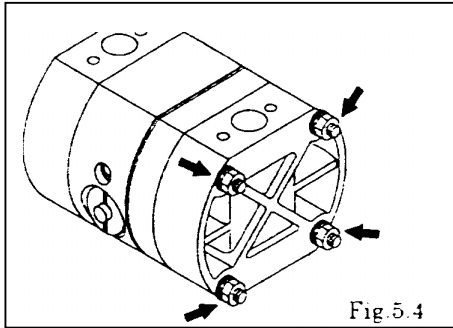
- When the diaphragms are removed, the main body is separated into 2 pieces. For easy work, leave the tie rods or bolts fastened temporarily before remove the diaphragms.



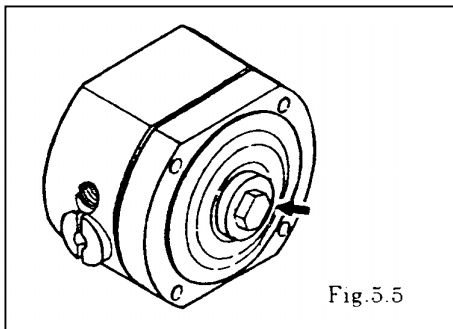
- Remove the nuts on the opposite side using the double nuts. [Fig. 5.3]
- Remove the coned disk spring, centre disk and diaphragm.

■ FP□, FDT, FV□, FTT, FXT types

See [8. Exploded View] on and after p.14. (Fig. 5.4, 5.5 and 5.6 show the NDP-5 FPT.)



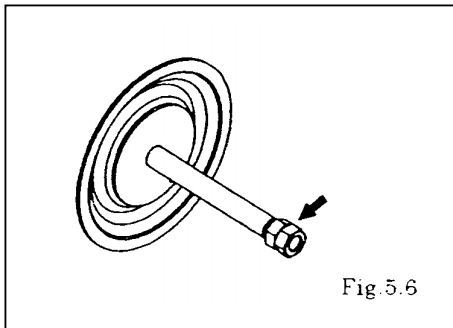
- Remove the flat valve and valve seat (see [4.1 Removal FP□, FV□, FDT, FTT, FXT types] on p.5)
- Remove the 4 (6 on the NDP-15) retainer nuts from the “out” chamber, and remove the “out” chamber. [Fig. 5.4]



- Remove the centre disk from one side using the accessory tool (special tool: Part No. 771132) (NDP-5). [Fig. 5.5]
- Remove the centre disk from one side. (NDP-15) [Fig. 5.5]
- After the centre disk (outside) has been removed, remove the diaphragm and the centre disk (inside).
- Remove the centre disk and centre rod from the opposite side of the main body.

<NOTE>

- When the diaphragms are removed, the main body is separated into 2 pieces. For easy work, leave bolts fastened temporarily before remove the diaphragms.



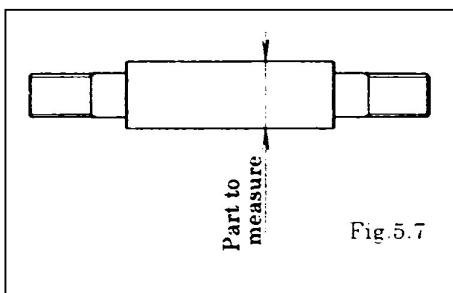
- Remove the centre disk and diaphragm from the opposite side using the double nut. [Fig. 5.6]

5.2 Checking

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

Guideline of diaphragm life

NDP-05	PTFE	30,000,000 strokes
NDP-15	CR, NBR, PTFE, EPDM	10,000,000 strokes
	TPEE, TPO	15,000,000 strokes



- Centre rod [Fig. 5.7]
Measure the diameter, and if it is outside the usable range, replace the centre rod.

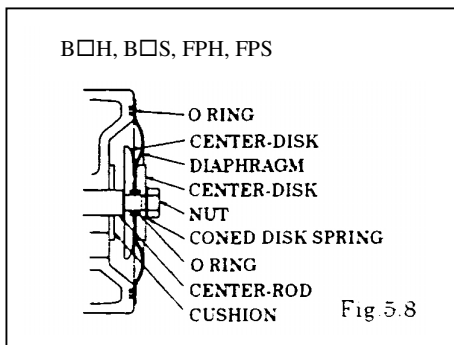
Usable range of centre rod

NDP-05	φ 9.95 ~ φ 10.0mm
NDP-15	φ 13.96 ~ φ 14.0mm

5.3 Installation

■ B□H, B□S, FPH, FPS types

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



- Apply lubricating oil to the centre rod, and insert it into the main body.
- Keep the convex side to the outside.
- Tighten the centre disk using the open-end wrenches for the NDP-15 FP□.
(No coned disk springs and nuts are needed.)
- 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 centre rod and out chamber

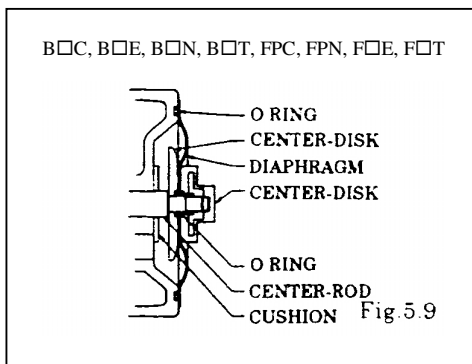
NDP-05	7.5 N·m {75 kgf·cm}
NDP-15	14 N·m {140 kgf·cm}

<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, FPC, FPN, F□T, types

For installation, see [8. Exploded View] on and after p. 13, and install in the reverse order of disassembly.



- Apply grease to the centre rod, and insert it into the main body.
- Keep the marking “LIQUID” to liquid end for CR, EPDM, NBR diaphragms.
- Keep the convex side to the outside for PTFE diaphragm.
- Install the O-ring (cf. Fig. 5.9).
- Tighten the centre disk using the accessory tool (special tool: Part No. 771132) for the NDP-5 FPT, FVT, FDT.
- Tighten the centre disk using the open-end wrenches for the NDP-15 FP□, FVT, FDT.
(No coned disk springs and nuts are needed.)
- 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

NDP-05	7.5 N·m {75 kgf·cm}
NDP-15	14 N·m {140 kgf·cm}

<NOTE>

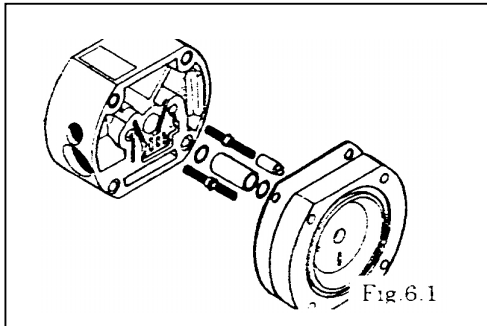
- Make sure there is no dust on the seal surface in order to prevent seal damage.
- Replace the PTFE O-ring by new one.
- Tighten the bolts so that the balance is equal from both sides on diagonal line with even torque.

6. Pilot valve, Guide and Bushing

6.1 Removal

■ NDP-5

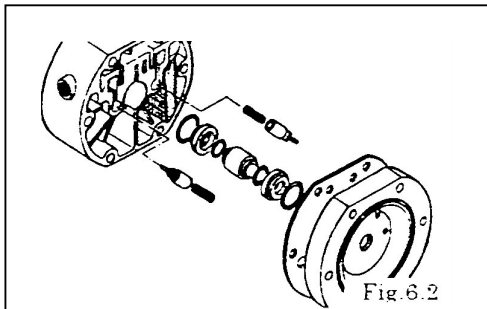
See [8. Exploded View] on and after p. 14.



- Remove the diaphragm and centre rod (see [5.1 Removal] on p. 7).
- Remove the main body. [Fig. 6.1]
- Draw out the pilot valve assembly. [Fig. 6.1]
- Remove the O-ring and bushing. [Fig. 6.1]

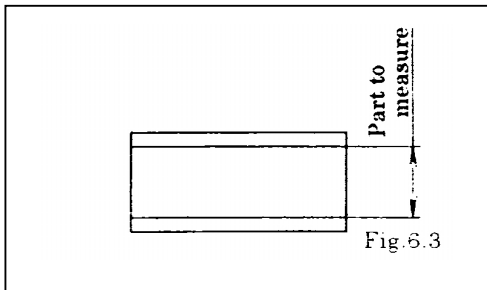
■ NDP-15

See [8. Exploded View] on an after p.13.



- Remove the diaphragm and centre rod (see [5.1 Removal] on p. 7).
- Remove the body B. [Fig. 6.2]
- Draw out the pilot valve assembly. [Fig. 6.2]
- Remove the O-ring, bushing and guide. [Fig. 6.2]

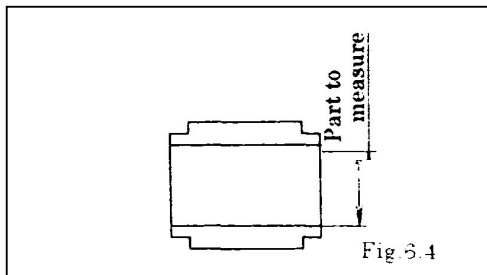
6.2 Checking



- Bushing (NDP-5) [Fig. 6.3]
Measure the inside diameter, and if it is outside the usable range, replace the bushing.

Usable range of bushing

ø 10.1 ~ ø 10.3mm



- Guide (NDP-15) [Fig. 6.4]
Measure the inside diameter, and if it is outside the usable range, replace the guide.

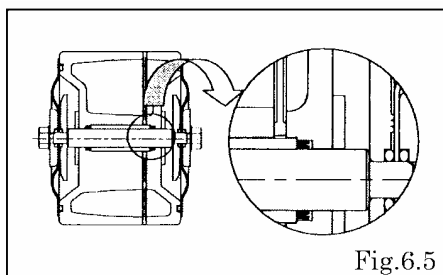
Usable range of guide

ø 14.1 ~ ø 14.2mm

- O-rings
If the O-ring is worn out or cracked, replace it.
- Pilot valve assembly
If the pilot valve is worn out or cracked, replace it.

6.3 Installation

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



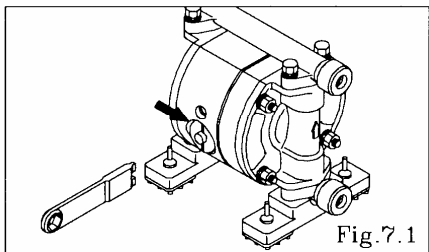
<NOTE>

- Make sure there is no dust on the seal surface and the seal is not damaged.
- The open side of the V-packing faces forward the diaphragm (air chamber) (Fig 6.5)

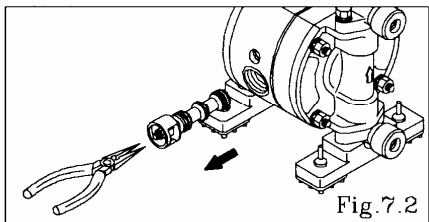
7. Seal ring and sleeve

7.1 Removal

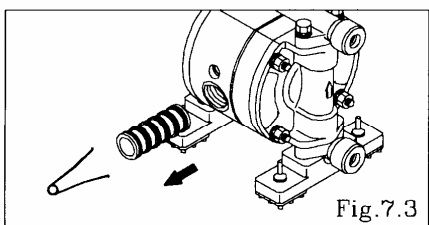
See [8. Exploded View] on and after p. 14. (Fig. 7.1, 7.2 and 7.3 show the NDP-5 FAT.)



- Remove the cap using the Accessory tool (special tool: Part No. 771132). [Fig. 7.1]

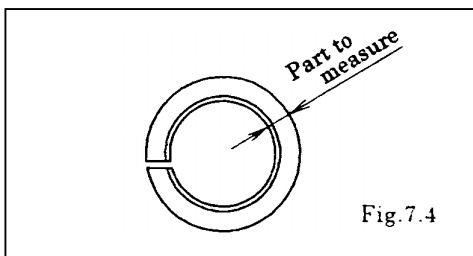


- Draw out the C spool valve assembly using the plyer, and remove the seal ring from the C spool valve assembly. [Fig. 7.2]



- Remove the sleeve using the sleeve remover (special tool: Part number 713148). [Fig. 7.3]

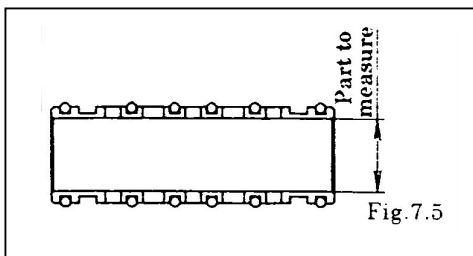
7.2 Checking



- Seal ring [Fig. 7.4]
Measure the inside thick diameter, and if it is outside the usable range, replace the seal ring.
If the seal ring is worn out or cracked, replace C-spool assembly.

Usable range of seal ring

NDP-05	1.40 ~ 1.45 mm
NDP-15	1.85 ~ 1.90 mm



- Sleeve assembly [Fig. 7.5]
Measure the inside diameter, and if it is outside the usable range, replace the sleeve assembly.

Usable range of Sleeve

NDP-05	∅ 9.5 ~ ∅ 9.55 mm
NDP-15	∅ 15.8 ~ ∅ 15.85 mm

- O-rings;** If the O-ring is worn out or cracked, replace it.
- C-spool assembly and sleeve assembly must be replaced as a complete set.

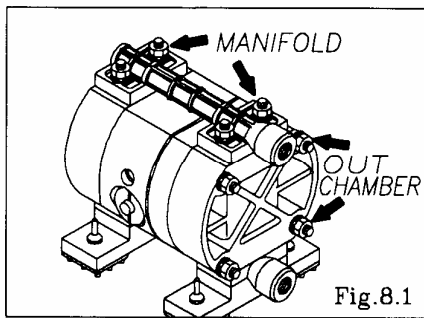
7.3 Installation

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

<NOTE>

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

7.4 Retightening of Tie rods



- The torque should be applied on the occasion of
 - (1) Right before the pump to use.
 - (2) There are any leaks of material on daily inspecting a pump.

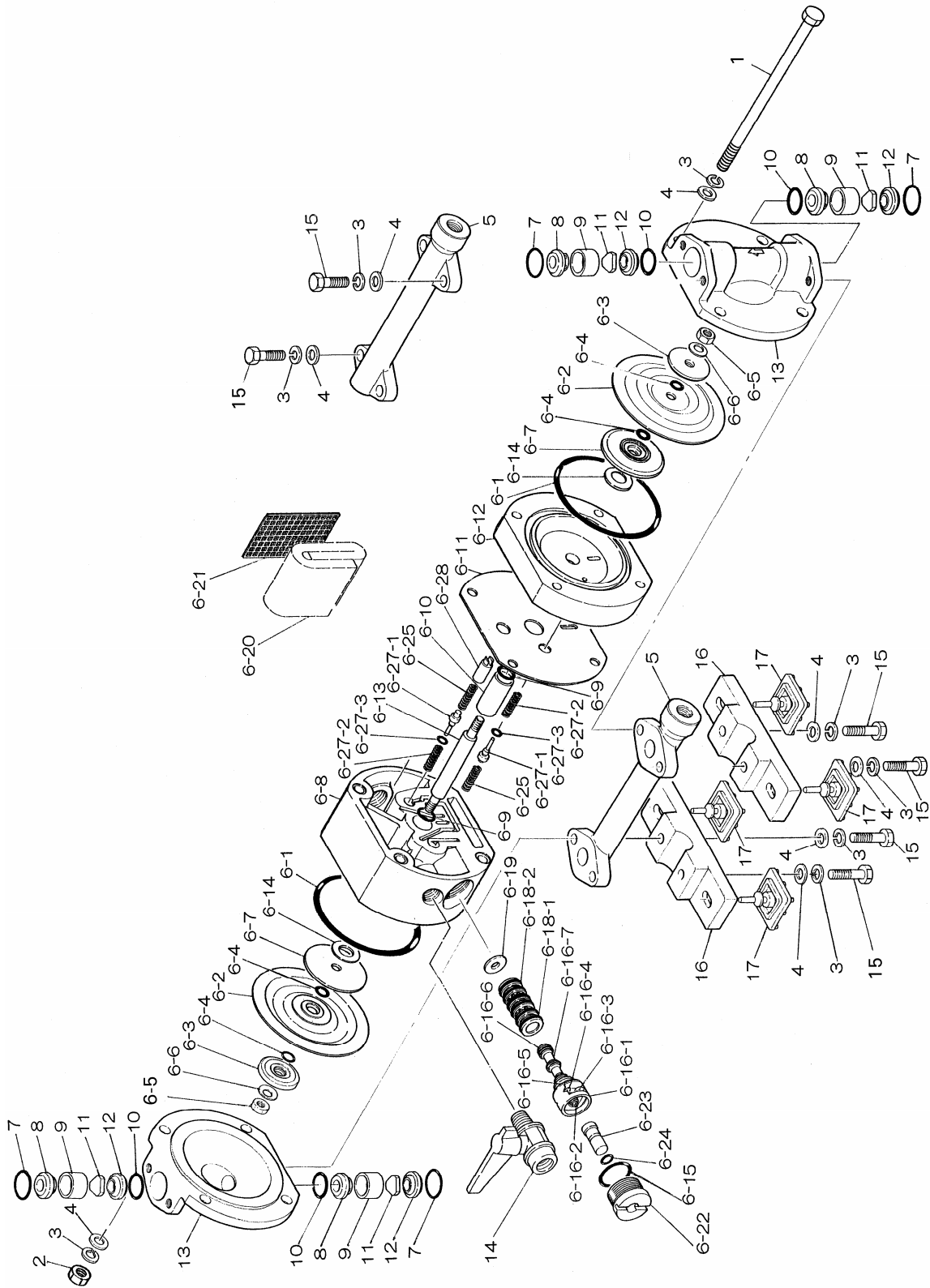
		Retainer bolts from the out chamber	Retainer bolts from the manifold
NDP-5	FPT, FVT, FDT	7.5 N•m	7.5 N•m
NDP-15	FP□, FVT, FDT	12N•m	12 N•m

<NOTE>

- Tighten the bolts that balance should be equal from both side on diagonal line with even torque.
- Retighten the Out chamber and then the manifold in this order. [Fig.8.1]

8.1 Exploded view

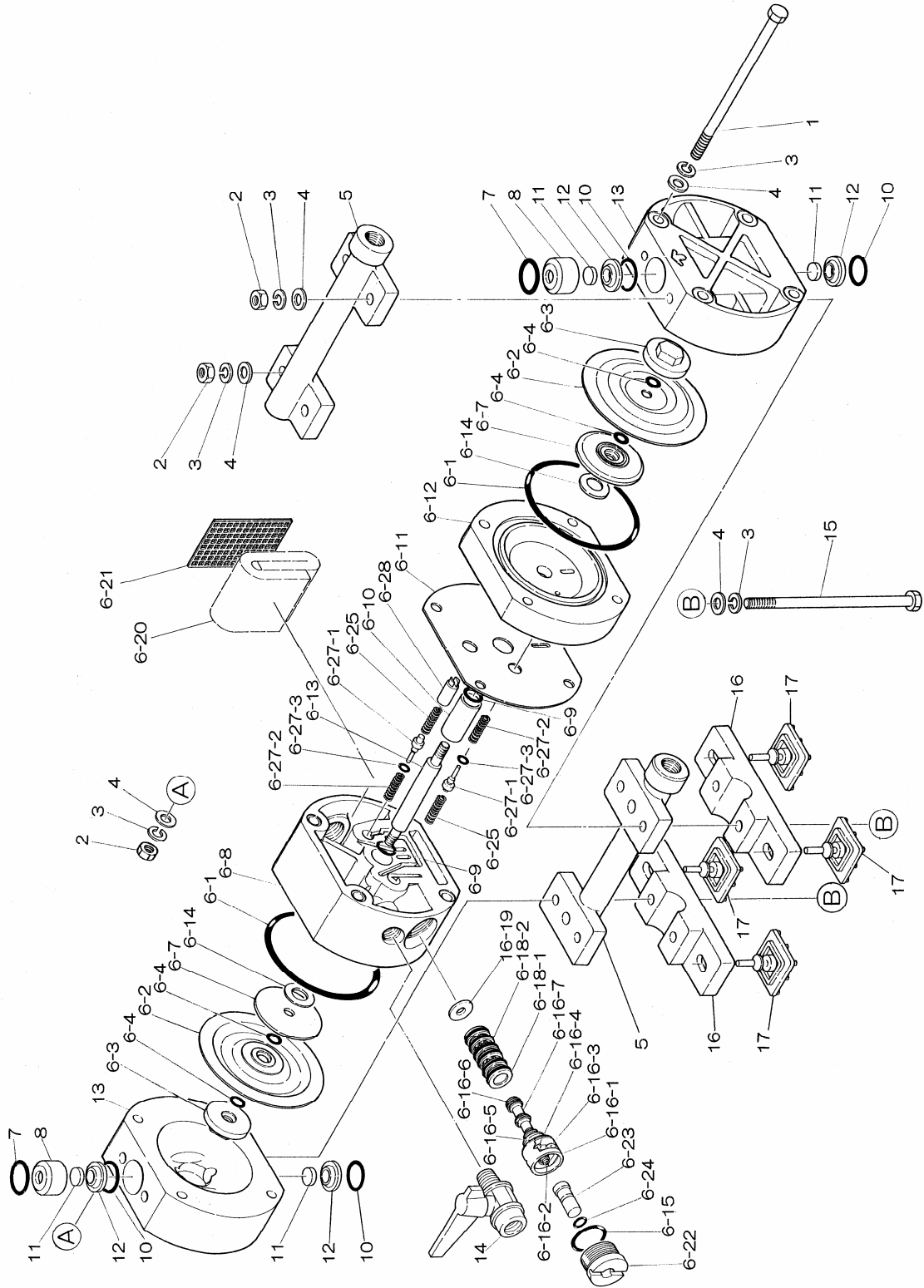
■NDP-05-FAT, FST



PARTS LIST					
NDP-05-FAT,FST					
No.	F A T	No.	F S T	DESCRIPTIONS	Q'TY
1	682-528	1	682-528	BOLT	4
2	683-391	2	683-391	NUT	4
3	681-855	3	681-855	SPRING WASHER	16
4	631-328	4	631-328	WASHER	16
5	709-470	5	831-274	MANIFOLD	2
6	802-047	6	802-048	BODY ASSY	1
6-1	640-139	6-1	640-139	O-RING	2
6-2	771-093	6-2	771-093	DIAPHRAGM	2
6-3	709-477	6-3	709-476	CENTRE DISC	2
6-4	643-003	6-4	643-003	O-RING	4
6-5	683-391	6-5	683-391	NUT	2
6-6	684-915	6-6	684-915	WASHER	2
6-7	709-317	6-7	709-317	CENTRE DISC	2
6-8	780-000	6-8	780-000	BODY	1
6-9	640-007	6-9	640-007	O-RING	2
6-10	771-088	6-10	771-088	BUSHING	1
6-11	771-980	6-11	771-980	GASKET	1
6-12	780-001	6-12	780-001	BODY	1
6-13	709-316	6-13	709-316	CENTRE ROD	1
6-14	771-239	6-14	771-239	CUSHION	2
6-15	640-017	6-15	640-017	O-RING	1
6-16	802-386	6-16	802-386	SPOOL ASSY	1
6-18	803-214	6-18	803-214	SLEEVE ASSY	1
6-18-1	771-097	6-18-1	771-097	O-RING	6
6-19	771-096	6-19	771-096	CUSHION	1
6-20	771-465	6-20	771-465	SILENCER	1
6-21	771-589	6-21	771-589	MESH	1
6-22	771-100	6-22	771-100	CAP	1
6-23	771-099	6-23	771-099	RESET BUTTON	1
6-24	640-002	6-24	640-002	O-RING	1
6-25	709-319	6-25	709-319	SPRING	2
6-27	803-510	6-27	803-510	PILOT VALVE ASSY	2
6-27-1	713-445	6-27-1	713-445	PILOT VALVE	1
6-27-2	712-971	6-27-2	712-971	SPRING	1
6-27-3	771-553	6-27-3	771-553	PACKING	1
6-28	771-095	6-28	771-095	STOPPER	1
7	643-015	7	643-015	O-RING	4
8	709-634	8	709-634	RETAINER	4
9	709-635	9	709-635	VALVE GUIDE	4
10	771-133	10	771-133	O-RING	4
11	771-152	11	771-152	FLAT VALVE	4
12	709-637	12	709-637	VALVE SEAT	4
13	709-469	13	709-467	PUMP CHAMBER	2
14	681-292	14	681-292	BALL VALVE	1
15	621-103	15	621-103	BOLT	8
16	771-101	16	771-101	BASE	2
17	771-102	17	771-102	CUSHION	4

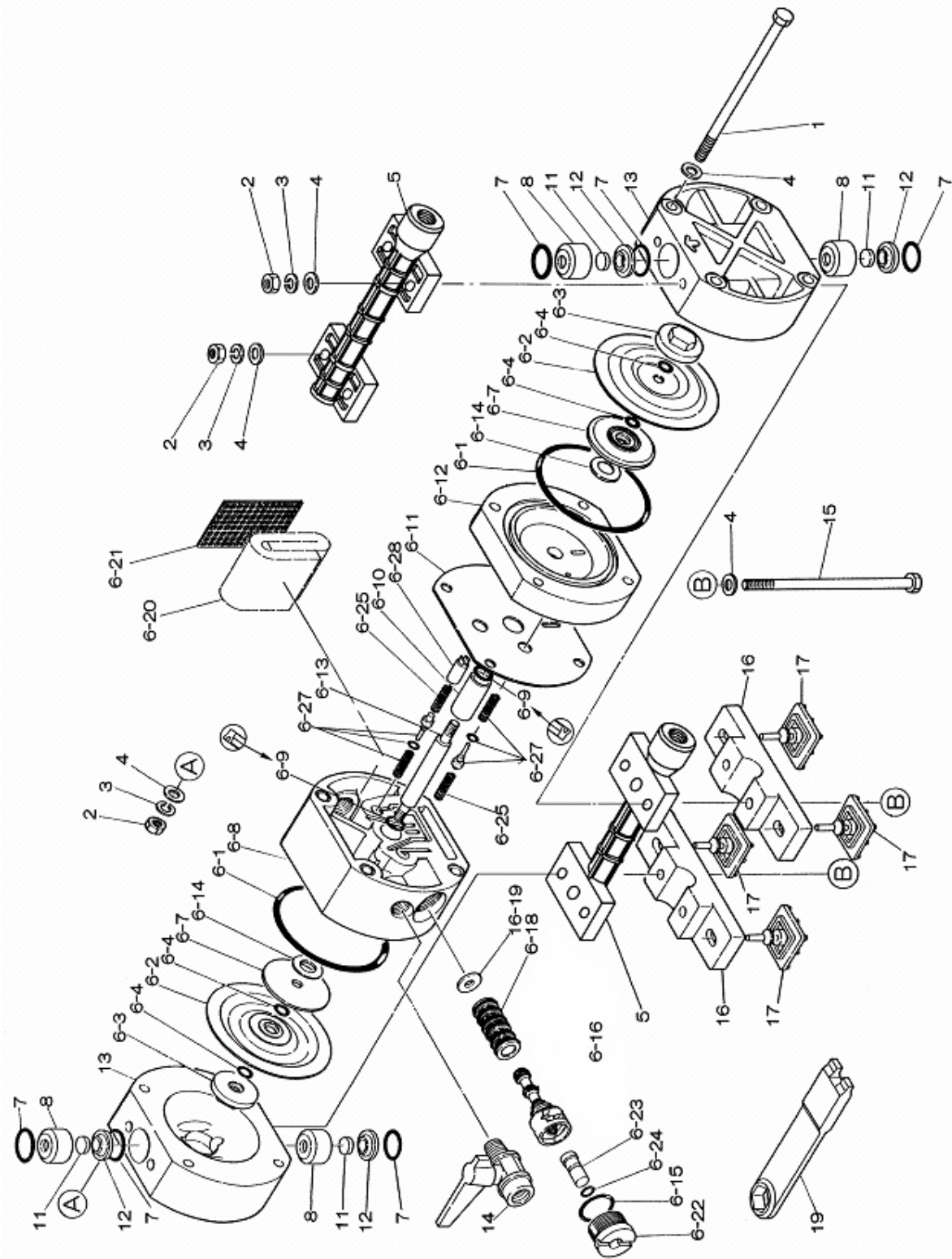
8.2 Exploded view old type

■NDP-05-FPT,FDT, FVT



PARTS LIST OLD TYPE							
NDP-05-FPT,FDT,FVT							
No.	F P T	No.	F D T	No.	F V T	DESCRIPTIONS	Q'TY
1	682-748	1	682-748	1	682-748	BOLT	4
2	683-391	2	683-391	2	683-391	NUT	8
3	681-855	3	681-855	3	681-855	SPRING WASHER	16
4	631-328	4	631-328	4	631-328	WASHER	16
5	780-167	5	780-203	5	780-168	MANIFOLD	2
6	802-321	6	804-391	6	802-849	BODY ASSY	1
6-1	640-139	6-1	640-139	6-1	640-139	O-RING	2
6-2	771-093	6-2	771-093	6-2	771-093	DIAPHRAGM	2
6-3	771-089	6-3	772-721	6-3	771-579	CENTRE DISC	2
6-4	643-003	6-4	643-003	6-4	643-003	O-RING	4
6-7	709-317	6-7	709-317	6-7	709-317	CENTRE DISC	2
6-8	780-000	6-8	780-000	6-8	780-000	BODY	1
6-9	640-007	6-9	640-007	6-9	640-007	O-RING	2
6-10	771-088	6-10	771-088	6-10	771-088	BUSHING	1
6-11	771-980	6-11	771-980	6-11	771-980	GASKET	1
6-12	780-001	6-12	780-001	6-12	780-001	BODY	1
6-13	709-316	6-13	709-316	6-13	709-316	CENTRE ROD	1
6-14	771-239	6-14	771-239	6-14	771-239	CUSHION	2
6-15	640-017	6-15	640-017	6-15	640-017	O-RING	1
6-16	802-386	6-16	802-386	6-16	802-386	SPOOL ASSY	1
6-18	803-214	6-18	803-214	6-18	803-214	SLEEVE ASSY	1
6-18-1	771-097	6-18-1	771-097	6-18-1	771-097	O-RING	6
6-19	771-096	6-19	771-096	6-19	771-096	CUSHION	1
6-20	771-465	6-20	771-465	6-20	771-465	SILENCER	1
6-21	771-589	6-21	771-589	6-21	771-589	MESH	1
6-22	771-100	6-22	771-100	6-22	771-100	CAP	1
6-23	771-099	6-23	771-099	6-23	771-099	RESET BUTTON	1
6-24	640-002	6-24	640-002	6-24	640-002	O-RING	1
6-25	709-319	6-25	709-319	6-25	709-319	SPRING	2
6-27	803-510	6-27	803-510	6-27	803-510	PILOT VALVE ASSY	2
6-27-1	713-445	6-27-1	713-445	6-27-1	713-445	PILOT VALVE	1
6-27-2	712-971	6-27-2	712-971	6-27-2	712-971	SPRING	1
6-27-3	771-553	6-27-3	771-553	6-27-3	771-553	PACKING	1
6-28	771-095	6-28	771-095	6-28	771-095	STOPPER	1
7	643-015	7	643-015	7	643-015	O-RING	2
8	771-091	8	772-712	8	771-581	RETAINER	2
10	643-013	10	643-013	10	643-013	O-RING	4
11	771-094	11	771-094	11	771-094	FLAT VALVE	4
12	771-112	12	772-713	12	771-582	VALVE SEAT	4
13	771-092	13	772-714	13	771-583	PUMP CHAMBER	2
14	681-292	14	681-292	14	681-292	BALL VALVE	1
15	682-747	15	682-747	15	682-747	BOLT	4
16	771-101	16	772-715	16	771-648	BASE	2
17	771-102	17	771-102	17	771-102	CUSHION	4

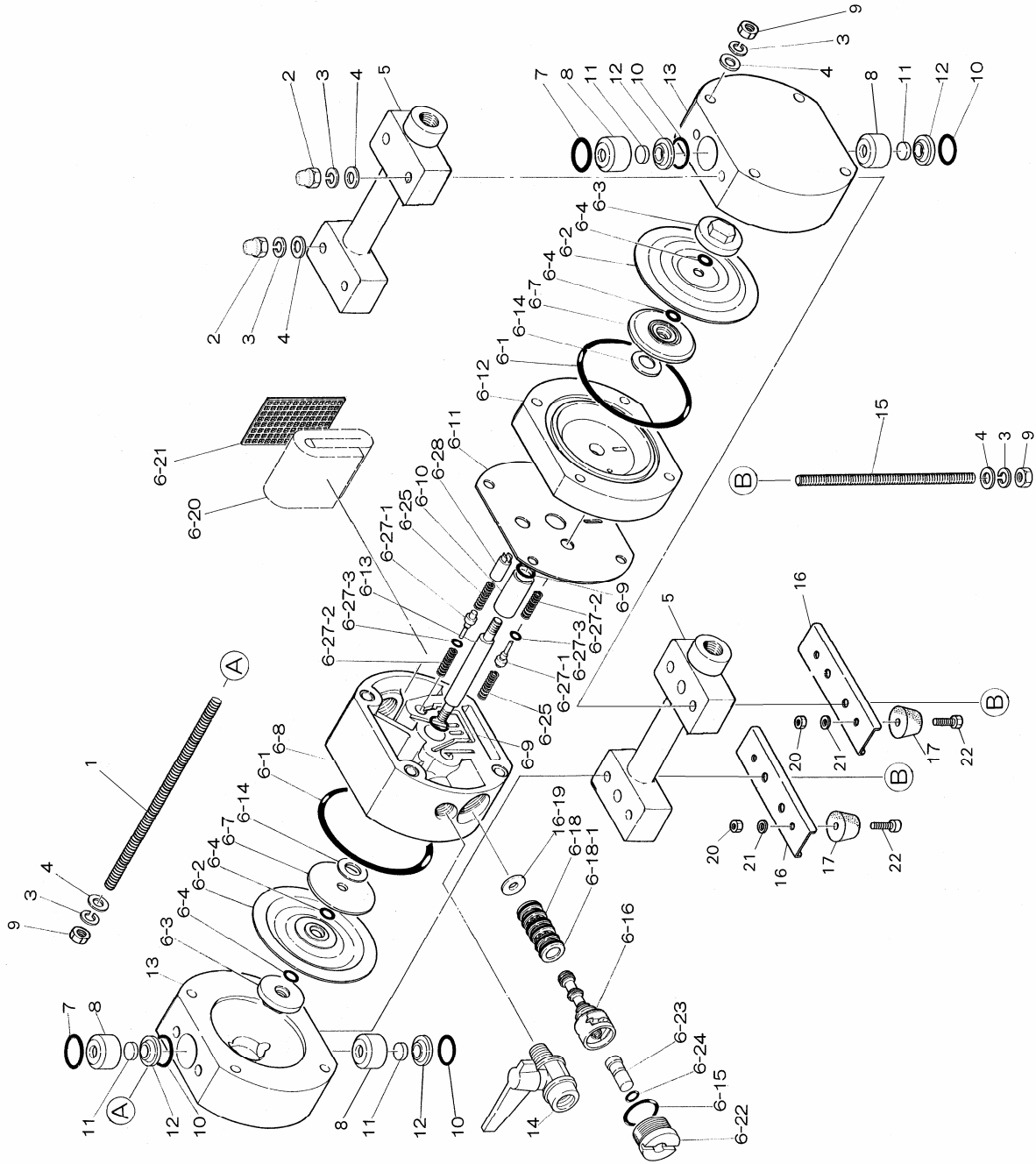
8.2N Exploded view new type ■NDP-05-FPT,FDT, FVT



PARTS LIST NEW TYPE							
NDP-05-FPT,FDT,FVT							
No.	F P T	No.	F D T	No.	F V T	DESCRIPTIONS	Q T Y
1	682-748	1	682-748	1	682-748	BOLT	4
2	683-391	2	683-391	2	683-391	NUT	8
3	681-855	3	681-855	3	681-855	SPRING WASHER	16
4	631-328	4	631-328	4	631-328	WASHER	16
5	780-167	5	780-203	5	780-168	MANIFOLD	2
6	802-321	6	804-391	6	802-849	BODY ASSY	1
6-1	640-139	6-1	640-139	6-1	640-139	O-RING	2
6-2	771-093	6-2	771-093	6-2	771-093	DIAPHRAGM	2
6-3	771-089	6-3	772-721	6-3	771-579	CENTRE DISC	2
6-4	643-003	6-4	643-003	6-4	643-003	O-RING	4
6-7	709-317	6-7	709-317	6-7	709-317	CENTRE DISC	2
6-8	780-000	6-8	780-000	6-8	780-000	BODY	1
6-9	640-007	6-9	640-007	6-9	640-007	O-RING	2
6-10	771-088	6-10	771-088	6-10	771-088	BUSHING	1
6-11	771-980	6-11	771-980	6-11	771-980	GASKET	1
6-12	780-001	6-12	780-001	6-12	780-001	BODY	1
6-13	709-316	6-13	709-316	6-13	709-316	CENTRE ROD	1
6-14	771-239	6-14	771-239	6-14	771-239	CUSHION	2
6-15	640-017	6-15	640-017	6-15	640-017	O-RING	1
6-16	802-386	6-16	802-386	6-16	802-386	SPOOL ASSY	1
6-18	803-214	6-18	803-214	6-18	803-214	SLEEVE ASSY	1
6-18-1	771-097	6-18-1	771-097	6-18-1	771-097	O-RING	6
6-19	771-096	6-19	771-096	6-19	771-096	CUSHION	1
6-20	771-465	6-20	771-465	6-20	771-465	SILENCER	1
6-21	771-589	6-21	771-589	6-21	771-589	MESH	1
6-22	771-100	6-22	771-100	6-22	771-100	CAP	1
6-23	771-099	6-23	771-099	6-23	771-099	RESET BUTTON	1
6-24	640-002	6-24	640-002	6-24	640-002	O-RING	1
6-25	709-319	6-25	709-319	6-25	709-319	SPRING	2
6-27	803-510	6-27	803-510	6-27	803-510	PILOT VALVE ASSY	2
6-27-1	713-445	6-27-1	713-445	6-27-1	713-445	PILOT VALVE	1
6-27-2	712-971	6-27-2	712-971	6-27-2	712-971	SPRING	1
6-27-3	771-553	6-27-3	771-553	6-27-3	771-553	PACKING	1
6-28	771-095	6-28	771-095	6-28	771-095	STOPPER	1
7	643-015	7	643-015	7	643-015	O-RING	6
8	772-655	8	772-712	8	771-581	RETAINER	4
11	771-094	11	771-094	11	771-094	FLAT VALVE	4
12	772-738	12	772-736	12	772-735	VALVE SEAT	4
13	780-231	13	780-233	13	780-232	PUMP CHAMBER	2
14	681-292	14	681-292	14	681-292	BALL VALVE	1
15	682-747	15	682-747	15	682-747	BOLT	4
16	771-101	16	772-715	16	771-648	BASE	2
17	771-102	17	771-102	17	771-102	CUSHION	4

8.3 Exploded view

■NDP-05-FTT, FXT



PARTS LIST					
NDP-05-FTT,FXT					
No.	F T T	No.	F X T	DESCRIPTIONS	Q'TY
1	000-109	1	000-109	THREAD END	4
2	000-091	2	000-091	CAP NUT	4
3	681-855	3	681-855	SPRING WASHER	12
4	000-069	4	000-069	WASHER	16
5	02-0065	5	000-103	MANIFOLD	2
6		6		BODY ASSY	1
6-1	640-139	6-1	640-139	O-RING	2
6-2	771-093	6-2	771-093	DIAPHRAGM	2
6-3	780-121	6-3	780-121	CENTRE DISC	2
6-4	643-003	6-4	643-003	O-RING	4
6-7	709-317	6-7	709-317	CENTRE DISC	2
6-8	780-000	6-8	780-000	BODY	1
6-9	640-007	6-9	640-007	O-RING	2
6-10	771-088	6-10	771-088	BUSHING	1
6-11	771-980	6-11	771-980	GASKET	1
6-12	780-001	6-12	780-001	BODY	1
6-13	709-316	6-13	709-316	CENTRE ROD	1
6-14	771-239	6-14	771-239	CUSHION	2
6-15	640-017	6-15	640-017	O-RING	1
6-16	802-386	6-16	802-386	SPOOL ASSY	1
6-18	803-214	6-18	803-214	SLEEVE ASSY	1
6-18-1	771-097	6-18-1	771-097	O-RING	6
6-19	771-096	6-19	771-096	CUSHION	1
6-20	771-465	6-20	771-465	SILENCER	1
6-21	771-589	6-21	771-589	MESH	1
6-22	771-100	6-22	771-100	CAP	1
6-23	771-099	6-23	771-099	RESET BUTTON	1
6-24	640-002	6-24	640-002	O-RING	1
6-25	709-319	6-25	709-319	SPRING	2
6-27	803-510	6-27	803-510	PILOT VALVE ASSY	2
6-27-1	713-445	6-27-1	713-445	PILOT VALVE	1
6-27-2	712-971	6-27-2	712-971	SPRING	1
6-27-3	771-553	6-27-3	771-553	PACKING	1
6-28	771-095	6-28	771-095	STOPPER	1
7	643-015	7	643-015	O-RING	2
8	02-0067	8	000-100	VALVE GUIDE	4
9	628-010	9	628-010	BOLT	12
10	643-013	10	643-013	O-RING	4
11	771-094	11	771-094	FLAT VALVE	4
12	02-0068	12	000-101	VALVE SEAT	4
13	02-0066	13	000-102	PUMP CHAMBER	2
14	681-292	14	681-292	BALL VALVE	1
15	000-110	15	000-110	THREAD END	4
16	710-586	16	710-586	BASE	2
17	000-551	17	000-551	STAND RUBBER	4
20	000-549	20	000-549	NUT	4
21	000-548	21	000-548	WASHER	4
22	000-550	22	000-550	BOLT	4

Service kits Diaphragm pumps (NDP-05)

DIAPHRAGM KITS (FAT,FST,FPT,FDT,FVT,FTT,FXT)

No.	DESCRIPTION	K05D-MT	Q`TY	K05D-PT	Q`TY
6-1	O-RING	640-139	2	640-139	2
6-2	DIAPHRAGM	771-093	2	771-093	2
6-4	O-RING	643-003	4	643-003	4
6-5	NUT	683-391	2		
6-6	CONED DISC SPRING	684-915	2		
7	O-RING	643-015	4	643-015	4
10	O-RING			643-013	2

**NOTE > 643-015 OLD TYPE 2PCS NEW TYPE 4 PCS
643-013 ONLY FOR OLD TYPE 2PCS**

VALVE KITS (FAT,FST,FDT,FPT,FVT,FTT,FXT)

No.	DESCRIPTION	K05V-AT/ST	Q`TY	K05V-PT old	Q`TY	K05V-VT old	Q`TY	K05V-TT	Q`TY	K05V-XT	Q`TY
7	O-RING	643-015	4	643-015	2	643-015	2	643-015	2	643-015	2
8	VALVE GUIDE	709-634	4	771-091	2	771-581	2	02-0067	4	000-100	4
10	O-RING	771-133	4	643-013	4	643-013	4	643-013	4	643-013	4
11	FLAT VALVE	771-152	4	771-094	4	771-094	4	771-094	4	771-094	4
12	VALVE SEAT	709-637	4	771-112	4	771-582	4	02-0068	4	000-101	4

No.	DESCRIPTION	K05V-DT old	Q`TY
7	O-RING	643-015	2
8	VALVE GUIDE	772-712	2
10	O-RING	643-013	4
11	FLAT VALVE	771-094	4
12	VALVE SEAT	772-713	4

VALVE KITS NEW TYPES

No.	DESCRIPTION	K05VN-PT	Q`TY	K05VN-VT	Q`TY	K05VN-DT	Q`TY
7	O-RING	643-015	6	643-015	6	643-015	6
8	VALVE GUIDE	772-655	2	771-581	2	772-712	4
11	FLAT VALVE	771-094	4	771-094	4	771-094	4
12	VALVE SEAT	772-738	4	772-735	4	772-736	4

K05-AM AIR MOTOR KIT FOR NDP-5

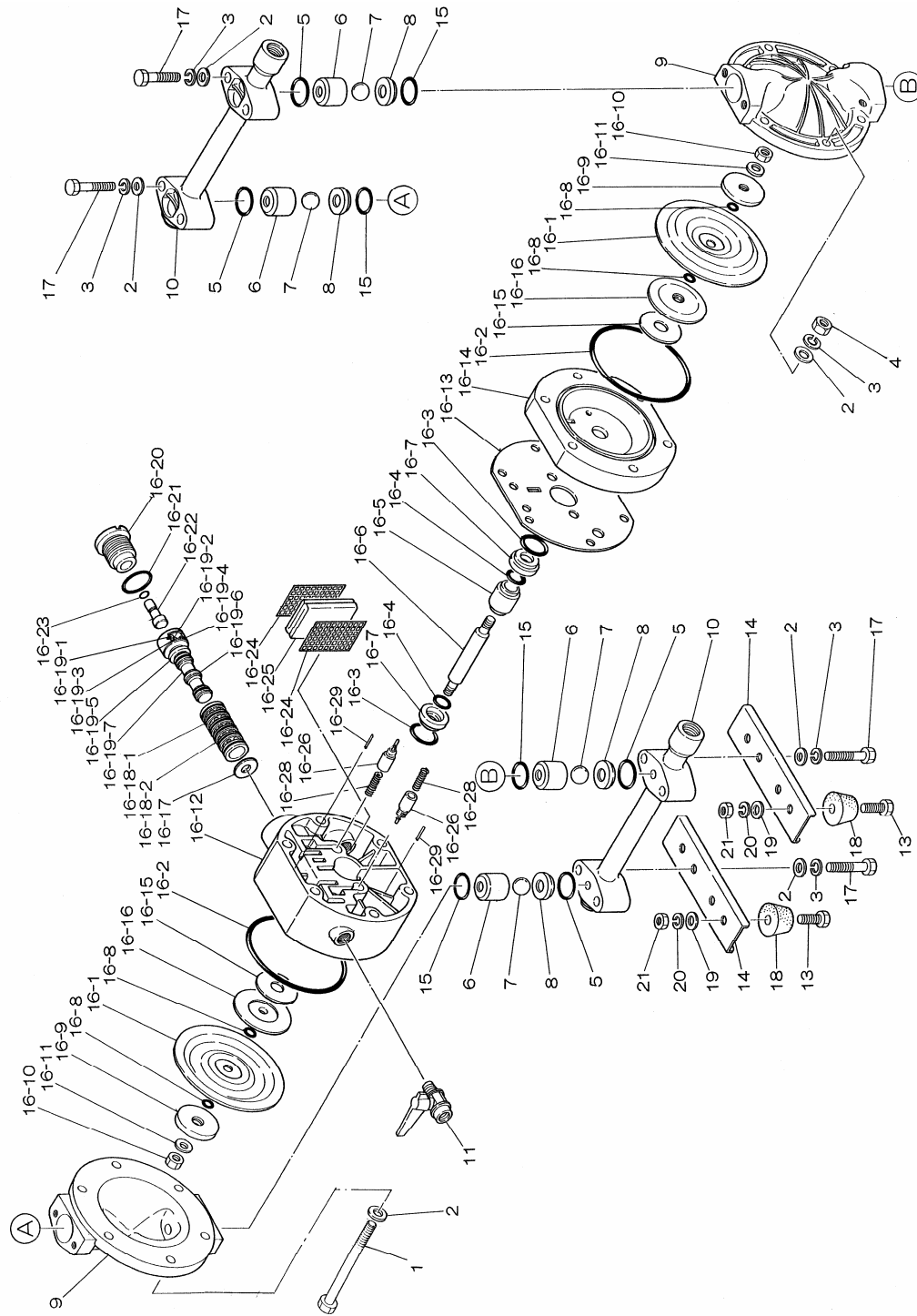
K05-AMS AIR MOTOR SEAL KIT FOR NDP-5

NO.	PART NO.	DESCRIPTION	K05-AM	K05-AMS
6-9	640-007	O-RING	2	2
6-10	771-088	BUSHING	2	
6-11	771-980	GASKET	1	1
6-15	640-017	O-RING	1	1
6-16	802-386	C SPOOL VALVE ASSEMBLY	1	
6-18	771-097	O-RING		6
6-19	771-096	CUSHION		1
6-20	771-465	SILENCER	1	
6-24	640-002	O-RING	1	1
6-25	709-319	SPRING	2	
6-27	803-510	PILOT VALVE ASSEMBLY	2	
6-27*	771-553	PACKING		2

(NOTE) *771553 PAKING IS A PART OF 803510 PILOT VALVE ASSEMBLY

8.4 Exploded view

■NDP-15-BA, BS

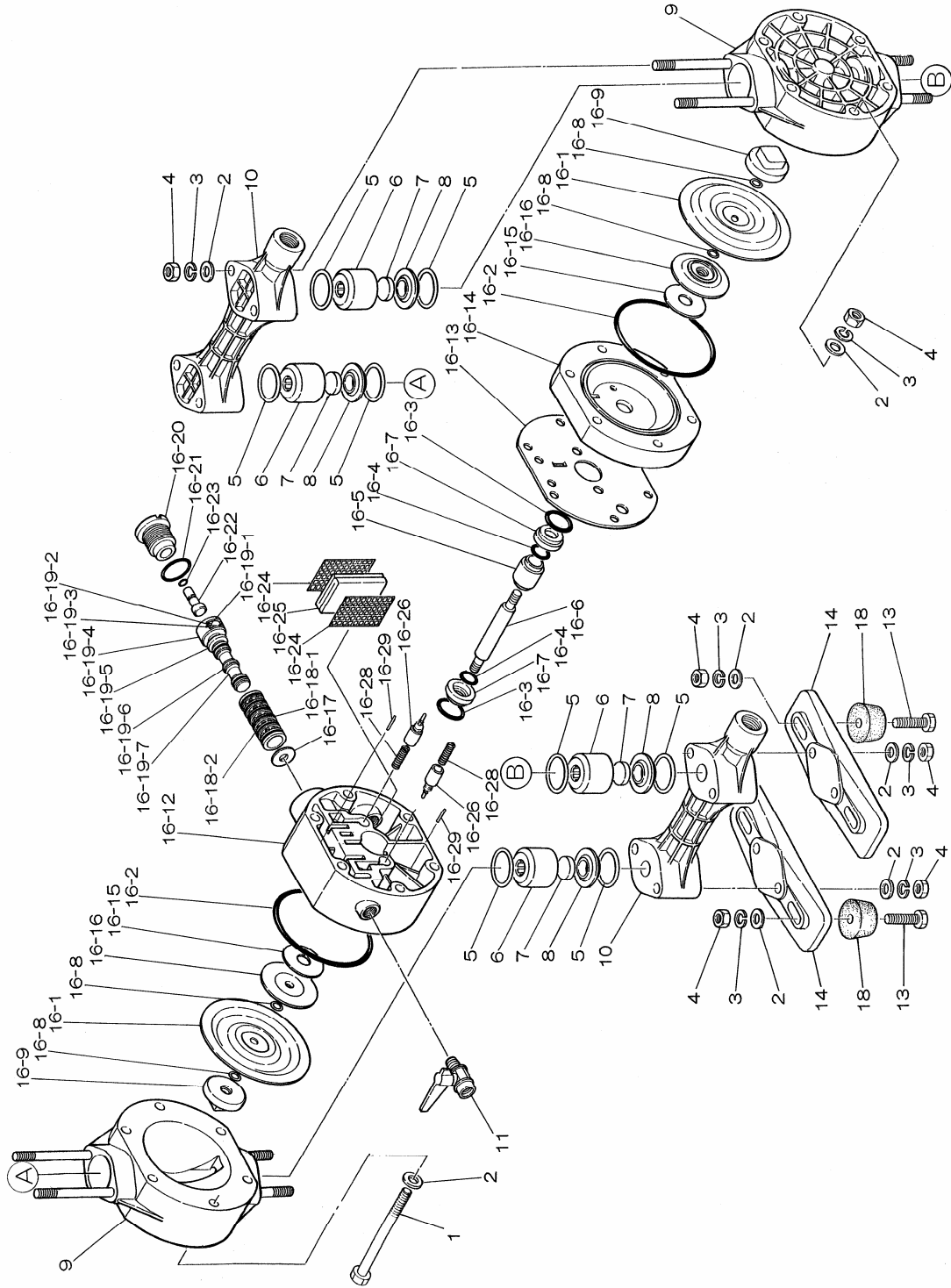


PARTS LIST					
NDP-15-BA..					
No.	B A C B A N B A H	No.	B A T B A E B A S	DESCRIPTIONS	Q`TY
1	683-171	1	683-171	BOLT	6
2	631-329	2	631-329	WASHER	20
3	681-300	3	681-300	SPRING WASHER	14
4	628-012	4	628-012	NUT	6
5C	640-025	5T	643-025	O-RING	4
N	640-025	E	684-114	O-RING	4
H	643-025	S	684-114	O-RING	4
6	771-523	6	771-523	BALL GUIDE	4
7C	771-526	7T	771-524	BALL	4
N	771-525	E	771-979	BALL	4
H	771-524	S	771-979	BALL	4
8	711-227	8	711-227	VALVE SEAT	4
9	711-226	9	711-226	PUMP CHAMBER	2
10	802-707	10	802-707	MANIFOLD	2
11	681-292	11	681-292	BALL VALVE	1
13	621-102	13	621-102	BOLT	4
14	711-405	14	711-405	BASE	2
15C	640-130	15T	643-130	O-RING	4
N	640-130	E	684-113	O-RING	4
H	643-130	S	684-113	O-RING	4
16	02-0010	16	02-0010	BODY ASSY	1
16-1C	770-971	16-1T	770-933	DIAPHRAGM	2
N	770-973	E	771-848	DIAPHRAGM	2
H	771-372	S	771-972	DIAPHRAGM	2
16-2	640-144	16-2	640-144	O-RING	2
16-3	640-020	16-3	640-020	O-RING	2
16-4	640-013	16-4	640-013	O-RING	2
16-5	771-337	16-5	771-337	GUIDE	1
16-6	710-578	16-6	710-578	CENTRE ROD	1
16-7	771-336	16-7	771-336	BUSHING	2
16-8C	640-005	16-8T	643-005	O-RING	4
N	640-005	E		O-RING	4
H		S		O-RING	4
16-9	708-770	16-9	708-770	CENTRE DISC	2
16-10	681-849	16-10	681-849	NUT	2
16-11	684-916	16-11	684-916	WASHER	2
16-12	780-028	16-12	780-028	BODY	1
16-13	771-347	16-13	771-347	GASKET	1
16-14	780-030	16-14	780-030	BODY	1
16-15	771-342	16-15	771-342	CUSHION	2
16-16	771-344	16-16	771-344	CENTRE DISC	2
16-17	771-483	16-17	771-483	CUSHION	1
16-18	683-089	16-18	683-089	SLEEVE ASSY	1
16-18-1	683-123	16-18-1	683-123	O-RING	6
16-19	802-835	16-19	802-835	SPOOL ASSY	1
16-20	771-695	16-20	771-695	CAP	1
16-21	640-022	16-21	640-022	O-RING	1
16-22	771-350	16-22	771-350	RESET BUTTON	1
16-23	640-002	16-23	640-002	O-RING	1
16-24	771-589	16-24	771-589	MESH	2
16-25	771-465	16-25	771-465	SILENCER	1
16-26	832-141	16-26	832-141	PILOT VALVE ASSY	2
16-28	710-577	16-28	710-577	SPRING	2
16-29	632-753	16-29	632-753	SPRING PIN	2
17	682-727	17	682-727	BOLT	8
18	771-123	18	771-123	STAND RUBBER	4
19	631-328	19	631-328	WASHER	4
20	681-855	20	681-855	SPRING WASHER	4
21	628-010	21	628-010	NUT	4

PARTS LIST					
NDP-15-BS..					
No.	B S C B S N B S H	No.	B S T B S E B S S	DESCRIPTIONS	Q`TY
1	683-224	1	683-224	BOLT	6
2	631-329	2	631-329	WASHER	20
3	681-300	3	681-300	SPRING WASHER	14
4	628-012	4	628-012	NUT	6
5C	640-025	5T	643-025	O-RING	4
N	640-025	E	684-114	O-RING	4
H	643-025	S	684-114	O-RING	4
6	711-502	6	711-502	BALL GUIDE	4
7C	771-526	7T	771-524	BALL	4
N	771-525	E	771-979	BALL	4
H	771-524	S	771-979	BALL	4
8	711-382	8	711-382	VALVE SEAT	4
9	711-380	9	711-380	PUMP CHAMBER	2
10	711-501	10	711-501	MANIFOLD	2
11	681-292	11	681-292	BALL VALVE	1
13	621-102	13	621-102	BOLT	4
14	711-405	14	711-405	BASE	2
15C	640-130	15T	643-130	O-RING	4
N	640-130	E	684-113	O-RING	4
H	643-130	S	684-113	O-RING	4
16		16		BODY ASSY	1
16-1C	770-971	16-1T	770-933	DIAPHRAGM	2
N	770-973	E	771-848	DIAPHRAGM	2
H	771-372	S	771-972	DIAPHRAGM	2
16-2	640-144	16-2	640-144	O-RING	2
16-3	640-020	16-3	640-020	O-RING	2
16-4	640-013	16-4	640-013	O-RING	2
16-5	771-337	16-5	771-337	GUIDE	1
16-6	710-578	16-6	710-578	CENTRE ROD	1
16-7	771-336	16-7	771-336	BUSHING	2
16-8C	640-005	16-8T	643-005	O-RING	4
N	640-005	E		O-RING	4
H		S		O-RING	4
16-9	708-506	16-9	708-506	CENTRE DISC	2
16-10	681-849	16-10	681-849	NUT	2
16-11	684-916	16-11	684-916	WASHER	2
16-12	780-028	16-12	780-028	BODY	1
16-13	771-347	16-13	771-347	GASKET	1
16-14	780-030	16-14	780-030	BODY	1
16-15	771-342	16-15	771-342	CUSHION	2
16-16	771-344	16-16	771-344	CENTRE DISC	2
16-17	771-483	16-17	771-483	CUSHION	1
16-18	683-089	16-18	683-089	SLEEVE ASSY	1
16-18-1	683-123	16-18-1	683-123	O-RING	6
16-19	802-835	16-19	802-835	SPOOL ASSY	1
16-20	771-695	16-20	771-695	CAP	1
16-21	640-022	16-21	640-022	O-RING	1
16-22	771-350	16-22	771-350	RESET BUTTON	1
16-23	640-002	16-23	640-002	O-RING	1
16-24	771-589	16-24	771-589	MESH	2
16-25	771-465	16-25	771-465	SILENCER	1
16-26	832-141	16-26	832-141	PILOT VALVE ASSY	2
16-28	710-577	16-28	710-577	SPRING	2
16-29	632-753	16-29	632-753	SPRING PIN	2
17	621-155	17	621-155	BOLT	8
18	771-123	18	771-123	STAND RUBBER	4
19	631-328	19	631-328	WASHER	4
20	681-855	20	681-855	SPRING WASHER	4
21	628-010	21	628-010	NUT	4

8.5 Exploded view

■NDP-15-FP., FD., FV.

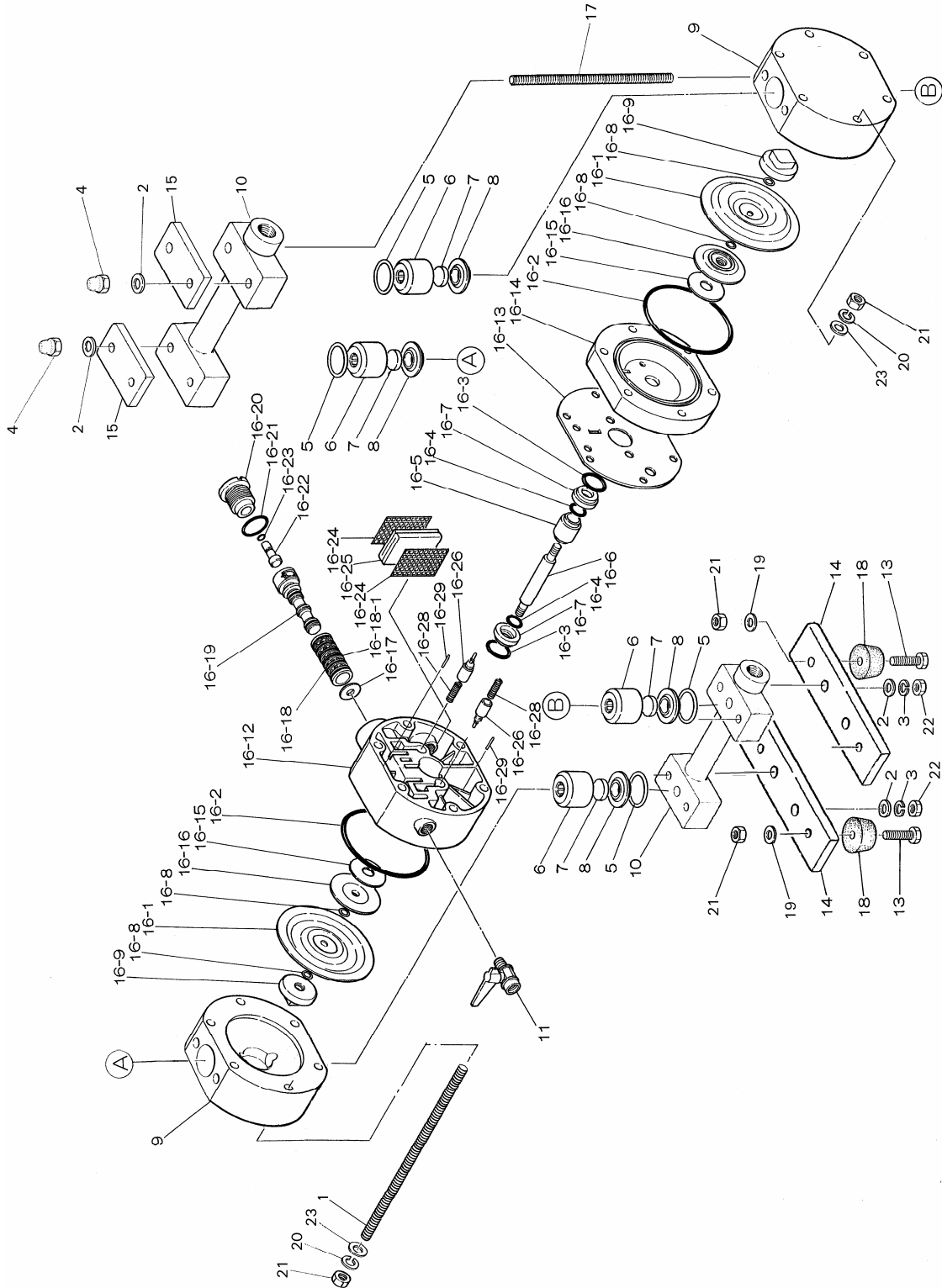


PARTS LIST									
NDP-15-FP.,FD.,FV..									
No.	F P C F P N F P H	No.	F P T F P E F P S	No.	F D T	No.	F V T F V S	DESCRIPTIONS	Q T Y
1	684-310	1	684-310	1	684-310	1	684-310	BOLT	6
2	631-329	2	631-329	2	631-329	2	631-329	WASHER	18
3	681-300	3	681-300	3	681-300	3	681-300	SPRING WASHER	18
4	628-012	4	628-012	4	628-012	4	628-012	NUT	24
5C	640-027	5T	643-027	5T	643-027	5T	643-027	O-RING	8
N	640-027	E	684-115					O-RING	8
H	643-027	S	684-115			S	684-115	O-RING	8
6	771-341	6	771-341	6	772-718	6	771-632	VALVE GUIDE	4
7	771-340	7	771-340	7	771-340	7	771-340	FLAT VALVE	4
8	771-345	8	771-345	8	772-719	8	771-633	VALVE SEAT	4
9	780-119	9	780-119	9	780-199	9	780-120	PUMP CHAMBER	2
10	780-078	10	780-078	10	780-204	10	780-169	MANIFOLD	2
11	681-292	11	681-292	11	681-292	11	681-292	BALL VALVE	1
13	621-153	13	621-153	13	621-153	13	621-153	BOLT	4
14	771-352	14	771-352	14	772-720	14	771-635	BASE	2
16		16		16		16		BODY ASSY	1
16-1C	770-971	16-1T	770-933	16-1T	770-933	16-1T	770-933	DIAPHRAGM	2
N	770-973	E	771-848					DIAPHRAGM	2
H	771-372	S	771-972			S	771-972	DIAPHRAGM	2
16-2	640-144	16-2	640-144	16-2	640-144	16-2	640-144	O-RING	2
16-3	640-020	16-3	640-020	16-3	640-020	16-3	640-020	O-RING	2
16-4	640-013	16-4	640-013	16-4	640-013	16-4	640-013	O-RING	2
16-5	771-337	16-5	771-337	16-5	771-337	16-5	771-337	GUIDE	1
16-6	710-578	16-6	710-578	16-6	710-578	16-6	710-578	CENTRE ROD	1
16-7	771-336	16-7	771-336	16-7	771-336	16-7	771-336	BUSHING	2
16-8C	640-005	16-8T	643-005	16-8T	643-005	16-8T	643-005	O-RING	4
N	640-005	E		E				O-RING	4
H		S		S		S		O-RING	4
16-9	770-968	16-9	770-968	16-9	772-722	16-9	771-631	CENTRE DISC	2
16-12	780-028	16-12	780-028	16-12	780-028	16-12	780-028	BODY	1
16-13	771-347	16-13	771-347	16-13	771-347	16-13	771-347	GASKET	1
16-14	780-030	16-14	780-030	16-14	780-030	16-14	780-030	BODY	1
16-15	771-342	16-15	771-342	16-15	771-342	16-15	771-342	CUSHION	2
16-16	771-344	16-16	771-344	16-16	771-344	16-16	771-344	CENTRE DISC	2
16-17	771-483	16-17	771-483	16-17	771-483	16-17	771-483	CUSHION	1
16-18	683-089	16-18	683-089	16-18	683-089	16-18	683-089	SLEEVE ASSY	1
16-18-1	683-123	16-18-1	683-123	16-18-1	683-123	16-18-1	683-123	O-RING	6
16-19	802-835	16-19	802-835	16-19	802-835	16-19	802-835	SPOOL ASSY	1
16-20	771-695	16-20	771-695	16-20	771-695	16-20	771-695	CAP	1
16-21	640-022	16-21	640-022	16-21	640-022	16-21	640-022	O-RING	1
16-22	771-350	16-22	771-350	16-22	771-350	16-22	771-350	RESET BUTTON	1
16-23	640-002	16-23	640-002	16-23	640-002	16-23	640-002	O-RING	1
16-24	771-589	16-24	771-589	16-24	771-589	16-24	771-589	MESH	2
16-25	771-465	16-25	771-465	16-25	771-465	16-25	771-465	SILENCER	1
16-26	832-141	16-26	832-141	16-26	832-141	16-26	832-141	PILOT VALVE ASSY	2
16-28	710-577	16-28	710-577	16-28	710-577	16-28	710-577	SPRING	2
16-29	632-753	16-29	632-753	16-29	632-753	16-29	632-753	SPRING PIN	2
18	770-551	18	770-551	18	770-551	18	770-551	STAND RUBBER	4

*NOTE FD PUMPS CAN ALSO BE PROVIDE WITH DIFFERENT DIAPHRAGMS

8.6 Exploded view

■NDP-15-FTT, FXT



PARTS LIST					
NDP-15-FTT,FXT					
No.	F T T	No.	F X T	DESCRIPTIONS	Q`TY
1	000-111	1	000-111	THREAD END	6
2	631-328	2	631-328	WASHER	8
3	681-855	3	681-855	SPRING WASHER	4
4	000-091	4	000-091	CAP NUT	4
5	643-027	5	643-027	O-RING	8
6	02-0040	6	000-104	VALVE GUIDE	4
7	771-340	7	771-340	FLAT VALVE	4
8	02-0042	8	000-105	VALVE SEAT	4
9	02-0041	9	000-106	PUMP CHAMBER	2
10	02-0039	10	000-107	MANIFOLD	2
11	681-292	11	681-292	BALL VALVE	1
13	621-153	13	621-153	BOLT	4
14	000-080	14	000-080	STANDSTRIP	2
15	000-983	15	000-983	PROTECTOR PLATE	2
16		16		BODY ASSY	1
16-1	770-933	16-1	770-933	DIAPHRAGM	2
16-2	640-144	16-2	640-144	O-RING	2
16-3	640-020	16-3	640-020	O-RING	2
16-4	640-013	16-4	640-013	O-RING	2
16-5	771-337	16-5	771-337	GUIDE	1
16-6	710-578	16-6	710-578	CENTRE ROD	1
16-7	771-336	16-7	771-336	BUSHING	2
16-8	640-005	16-8	640-005	O-RING	4
16-9	780-122	16-9	780-122	CENTRE DISC	2
16-12	780-028	16-12	780-028	BODY	1
16-13	771-347	16-13	771-347	GASKET	1
16-14	780-030	16-14	780-030	BODY	1
16-15	771-342	16-15	771-342	CUSHION	2
16-16	771-344	16-16	771-344	CENTRE DISC	2
16-17	771-483	16-17	771-483	CUSHION	1
16-18	683-089	16-18	683-089	SLEEVE ASSY	1
16-18-1	683-123	16-18-1	683-123	O-RING	6
16-19	802-835	16-19	802-835	SPOOL ASSY	1
16-20	771-695	16-20	771-695	CAP	1
16-21	640-022	16-21	640-022	O-RING	1
16-22	771-350	16-22	771-350	RESET BUTTON	1
16-23	640-002	16-23	640-002	O-RING	1
16-24	771-589	16-24	771-589	MESH	2
16-25	771-465	16-25	771-465	SILENCER	1
16-26	832-141	16-26	832-141	PILOT VALVE ASSY	2
16-28	710-577	16-28	710-577	SPRING	2
16-29	632-753	16-29	632-753	SPRING PIN	2
17	000-108	17	000-108	THREAD END	4
18	000-551	18	000-551	STAND RUBBER	4
19	631-329	19	631-329	WASHER	4
20	681-300	20	681-300	SPRING WASHER	12
21	628-012	21	628-012	NUT	16
22	683-391	22	683-391	NUT	4
23	000-076	23	000-076	WASHER	12

Service kits Diaphragm pumps (NDP-15)

DIAPHRAGM KITS (BA⁰⁰,BS⁰⁰)

No.	DESCRIPTION	K15D-MN	Q`TY	K15D-MH	Q`TY	K15D-MC	Q`TY	K15D-ME	Q`TY	K15D-MT	Q`TY
5	O-RING	640-025	4	643-025	4	640-025	4	684-114	4	643-025	4
16-1	DIAPHRAGM	770-973	2	771-372	2	770-971	2	771-848	2	770-933	2
16-2	O-RING	640-144	2	640-144	2	640-144	2	640-144	2	640-144	2
16-8	O-RING	640-005	4			640-005	4			643-005	4
16-10	NUT	681-849	2	681-849	2	681-849	2	681-849	2	681-849	2
16-11	CONED DISC SPRING	684-916	2	684-916	2	684-916	2	684-916	2	684-916	2

DIAPHRAGM KITS (FP⁰⁰,FDT,FVT,FTT,FXT)

No.	DESCRIPTION	K15D-PN	Q`TY	K15D-PH	Q`TY	K15D-PC	Q`TY	K15D-PS	Q`TY	K15D-PE	Q`TY
5	O-RING	640-027	4	643-027	4	640-027	4	684-115	4	684-115	4
16-1	DIAPHRAGM	770-973	2	771-372	2	770-971	2	771-972	2	771-848	2
16-2	O-RING	640-144	2	640-144	2	640-144	2	640-144	2	640-044	2
16-8	O-RING	640-005	4			640-005	4				

No.	DESCRIPTION	K15D-PT	Q`TY
5	O-RING	643-027	4
16-1	DIAPHRAGM	770-933	2
16-2	O-RING	640-144	2
16-8	O-RING	643-005	4

VALVE KITS (BA⁰⁰,BS⁰⁰)

No.	DESCRIPTION	K15V-AN	Q`TY	K15V-AT	Q`TY	K15V-AC	Q`TY	K15V-AS	Q`TY	K15V-SN	Q`TY
5	O-RING	640-025	4	643-025	4	640-025	4	684-114	4	640-025	4
6	BALL GUIDE	771-523	4	771-523	4	771-523	4	771-523	4	711-502	4
7	BALL	771-525	4	771-524	4	771-526	4	771-979	4	771-525	4
8	VALVE SEAT	711-227	4	711-227	4	711-227	4	711-227	4	711-382	4
15	O-RING	640-130	4	643-130	4	640-130	4	684-113	4	640-130	4

No.	DESCRIPTION	K15V-ST	Q`TY	K15V-SC	Q`TY	K15V-SS	Q`TY
5	O-RING	643-025	4	640-025	4	684-114	4
6	BALL GUIDE	711-502	4	711-502	4	711-502	4
7	BALL	771-524	4	771-526	4	771-979	4
8	VALVE SEAT	711-382	4	711-382	4	711-382	4
15	O-RING	643-130	4	640-130	4	684-113	4

VALVE KITS (FP⁰⁰,FDT,FVT,FTT,FXT)



No.	DESCRIPTION	K15V-PN	Q`TY	K15V-PT	Q`TY	K15V-PE	Q`TY	K15V-VT	Q`TY	K15V-TT	Q`TY
5	O-RING	640-027	8	643-027	8	684-115	8	643-027	8	643-027	4
6	VALVE GUIDE	771-341	4	771-341	4	771-341	4	771-632	4	02-0040	4
7	FLAT VALVE	771-340	4	771-340	4	771-340	4	771-340*	4	771-340	4
8	VALVE SEAT	771-345	4	771-345	4	771-345	4	771-633	4	02-0042	4

No.	DESCRIPTION	K15V-DT	Q`TY	K15V-XT	Q`TY
5	O-RING	643-027	8	643-027	4
6	VALVE GUIDE	772-718	4	000-104	4
7	FLAT VALVE	771-340	4	771-340	4
8	VALVE SEAT	772-719	4	000-105	4

NOTE) *REPLACEMENT FOR PVDF TYPE

K10/15-AM AIR MOTOR KIT NDP-15				
K10/15-AMS AIR MOTOR SEAL KIT NDP-15				
NO.	PART NO.	DESCRIPTION	K10/15-AM	K10/15-AMS
16-3	640-020	O-RING	2	2
16-4	640-013	O-RING	2	2
16-5	771-337	GUIDE	1	
16-7	771-336	BUSHING	2	
16-13	771-347	GASKET	1	1
16-17	771-483	CUSHION		1
16-18-1	683-123	O-RING		6
16-19	802-835	SPOOL ASSEMBLY	1	
16-21	640-022	O-RING	1	1
16-23	640-002	O-RING	1	1
16-25	771-465	MUFFLER	1	
16-26	832-141	PILOT VALVE ASSY	2	
16-28	710-577	SPRING	2	
	771-338	O-RING(PILOTE VALVE)		2

Yamada Europe BV
 Aquamarijnstraat 50
 NL-7554 NS Hengelo
 The Netherlands

 +31.74.242 2032
 +31.74.242 1055
 company@yamada.nl
 www.yamada.nl