

INSTRUCTION MANUAL



LW 200 E

-

NAUTIC



Lenhardt & Wagner GmbH
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Technical Data

Type of Compressor:	LW 200 E - Nautic
Capacity:	200 l/min
Max. Pressure:	225 / 330 bar - 3200 / 4700 psi
Compressor rpm:	1760 min ⁻¹
Number of Cylinders:	3
Ø Cylinder Bores:	75.5 / 28 / 13 mm
Stroke:	39 mm
Drive Motor:	5.5 kW; 400 V; 50 Hz
Oil Capacity of Compressor:	0.95 litre
Tank Connection:	std. specification: 2 x DIN - <i>INT as option</i>
Dimensions:	length: 1030 mm height: 730 mm width: 500 mm weight: LW 200 E - Nautic : 127 Kg
Manufacturer:	Lenhardt & Wagner GmbH Im Taubenfang 4 64653 Lorsch Germany Tel.: + 49 6251 54850 Fax: + 49 6251 54805 E-mail: info@lenhardt-wagner.de

S A F E T Y P R E C A U T I O N S

General Remarks

CAUTION: Do not open pressure loaded, unconnected filling- or block valves due to high risk of accident.

CAUTION: Always make sure that intake-air is free of toxic gases and exhaust fumes.

CAUTION: Use only filling hoses which are in perfect condition; special attention should be paid to the connecting fittings, check rubber jacket for damage. Immediately replace hoses in case of any faults.

CAUTION: All work on compressors must be carried out while unit is plugged off and depressurized.

Safety Regulations

Note the following orders for operating a compressor unit as a filling unit within Germany:

a - Druckbehälterverordnung (DruckbehV) vom 21.04.1989.

b - Technische Regeln Druckgase (TRG 400, 401, 402, 730).

Note the following orders if a high-pressure compressor unit is used for industrial applications within Germany:

c - die gesetzlichen Unfallverhütungs-Vorschriften (UVV) der Berufsgenossenschaften:

- UVV Verdichter (VBG 16)
- UVV Druckbehälter(VBG 17)

If an industrial compressor unit is used as a filling device, regulations a & b must also be considered.

The manufacturer has payed attention to all the previous mentioned regulations - concerning the manufactur of high pressure compressors - all products are confirm with those regulations.

According to §10 Druckbehälterverordnung, appointed types of pressure tanks must be tested at given intervals:

- Pressure tanks of groups IV & V must be checked by an expert at intervals stated in paragraphs 4 to 9.
- Pressure tanks of groups II, III & IV must be checked by an expert, at intervals stated by the operators experience.
- Repeated checks consist in internal checks and pressure checks. Internal checks according to §1 must be complemented by pressure checks (or other suited checks) if they can not be carried out as desired. Pressure checks according to §1 must be substituted by anti-destructive test procedures, if they can not be carried out due to design features of the pressure tank.
- §9 Paragraph 9 is applied.

According to §15 Druckbehälterverordnung, a portable pressure tank should only be filled if:

- it is signed with: test sign, test date & date of next test
- the test date stated on the tank is still valid
(see §23 DruckbehV for test intervals)
- it is free of faults which can affect operators or others (damaged valve etc.)

It is only allowed to fill compressed-air tanks - never fill oxygen tanks -
By the use of different threads (DIN 477) it is not possible to connect oxygen bottles directly.

The use of adaptors is strictly prohibited!

According to TRG 402 - Operation of Filling Units -

2. Employees and their Instruction

2.1 Filling devices should only be operated by persons which:

- are at least 18 years of age
- have the required knowledge
- do their work in expected good manner

2.2 Insignificant work can also be done by persons who do not have the experience stated at 2.1 item 1 & 2.1 item 2

2.3 All employees have to be trained prior any work and in adequate intervals - at least once a year - in reference to:

- Danger by handling with pressurized gases
- Safety precautions (especially TRG)
- Instructions in case of accidents, faults & damage
- Handling of safety- & fire-fighting equipment
- Operation & maintenance of filling devices, in reference to the instruction manual.

2.4 All necessary instructions of employees must be recorded (according to 2.3) and confirmed by signature.

2.5 Nummers 2.3 & 2.4 are also valid for short-time employees.

3. Operation

3.1 There must be an instruction manual available for every filling unit. It should be easy to understand, and has to contain all safety relevant informations. Copies and translations should be available to the operator(s).

3.2 Especially dangerous work (repairs, maintenance etc.) which can not be listed in the instruction manual referring to 3.1, can only be done on

written order of the manufacturer or an authorized representative person.

5. Filling

5.1 Pressure tanks can only be filled by the medium, to pressure, weight & capacity stated on its housing (see §15.2 DruckbehV).

6. Measures after Filling

6.1 Checking pressure tanks for leaks.

All blocking devices and their connections have to be checked, after the filling process, in a suitable way with foambuilding medium or under water, for any air leaks.

6.3 Faults on pressurized tanks.

If there are any signs for air leaks or other faults (referring 6.1), which can not be corrected instandy, the tank has to be deflated immediately to avoid any kind of danger (see §21.1 DruckbehV).

9. Inspection & Maintenance of Filling Devices

9.1 Check filling devices for air leaks.

9.1.1 Filling devices or parts of any filling devices can only be put into first-time operation (after repairs, technical changes etc.) if they were checked for leaks by an expert or an authorized person stated by the manufaturer.

9.1.2 Test medium has to be pressure gas (in gas form).

9.1.3 Pressure has to be increased slowly and in steps till maximum working pressure of unit is achieved.

9.1.4 Test proceedings have to be recorded and stored. They must contain:

- Date of Test
- Name of Supervisor
- Name of Expert
- Designation of Unit (or part of unit)

- Test Medium
- Description of Procedure
- Notice of Faults
- Notice of Faults Elimination

9.2 Inspection of Flexible Pressure Lines

9.2.1 Flexible lines (hoses & joints) must be checked for their condition prior first use, at least once a year, by an expert of the operating company or the manufacturer.

9.2.2 Test Procedure (referring to 9.2.1) consists of:

1. Examination of external and internal condition
2. Pressure test (1.5 x max. working pressure)

9.2.3 Pressure tests of hoses have to be done by water as test medium. Maintain test pressure for at least 10 minutes. Hoses have to be checked in straight and in rolled condition (roll diameter: 30 x outer dia. of hose).

9.2.4 Test certificates from the manufacturer must be present prior first use, additional ones - verified by an expert of the operating company - at given intervals. All certifications have to be stored and must contain:

- Date of Test
- Name of Expert
- Designation of Unit
- Test Medium
- Description of Procedure
- Notice of Faults
- Notice of Faults Elimination

Test certifications of the manufacturer must further state material, working pressure, and in the case of hoses, a confirmation that they are suitable for pressurized gas.

9.3 Maintenance

9.3.1 Rarely used pressure block devices should be checked in adequate periods of time.

10. Putting Units out of Operation / Reports of Accidents & Damage

10.1 Filling devices must be put out of operation if they are in irregular condition or of danger to the operator (see §34 DruckbehV).

10.2 Everyone who operates a filling device, has the duty to report of accidents, fatal injuries and so on, to responsible supervisory authorities (see §34 DruckbehV).

10.3 No.10.2 is valid if a pressure tank (capacity 1 ltr. +) bursts or cracks in-/outside a filling device (see §34 DruckbehV).

Additional Remarks

- Read the operation manuals of your compressor and its drive engine carefully
- Allow only qualified personell to run the compressor
- Do not place any objects on compressor while in operation
- Make sure no person or object can accidentally touch any moving parts while running
- Take care that the intake-air is pure and free of toxic gases and exhaust fumes
- All work on compressor must be carred out while compressor is plugged off and depressurized
- Check regulary for leaks by brushing all fittings and coulings with a soup solution
- Never weld high-pressure tubing
- Filling-hoses must be in perfect condition; special attention should be paid to the connecting fittings, check rubber jacket for damage, immediatly replace hoses in case of any faults
- On units with an electric motor disconnect the power-cable prior to any work
- Make sure no person is within one meter of the drain-hoses before draining the condensate
- Do not touch the exhaust while the engine is running and within ten minutes after shut-down (on engine-driven units)

- The operator should wear ear protection if exposed to noise of the running compressor for extended periods of time

General Notice

This operation manual contains the operating and maintenance procedures necessary to safely run your **L&W** compressor. We strongly recommend that you read this manual thoroughly prior to operation and follow all the safety precautions precisely. Damage resulting from any deviation from these instructions is excluded from warranty and liability for this product. Be sure to pay attention to the following points:

- Fill only tanks with a valid hydrostatic test date
- Never exceed the working-pressure rating indicated on the tank
- Do proper maintenance of the filtration system
- Do regular drainage of the condensate system
- Avoid contaminated air to reach the air intake
- Do not exceed maximum rpm

Description of Function

The **L&W** compressor is a 3-stage compressor designed to fill scuba tanks with compressed air. The air-intake is via filter. The air then enters the 1st stage together with a tiny quantity of oil-vapour and is compressed to 9 bar. From there it passes a cooling pipe to the 2nd stage, where it is compressed to 65 bar. After that the water and oil are removed in a (mechanical-expansional) separator and the air is cooled in the next cooling-pipe before entering stage 3. There it is compressed to the final pressure of 330 bar and then led to the next filter, where again oil and water are separated through expansion before the air passes through an activated carbon filter. The filter exit-port is connected to a high-pressure hose, which ends with a pressure-gauge and a tank-connection (filling-valve assembly).

Each stage has its own safety valve, set and sealed by the manufacturer. The final one is adjusted to either 225 or 330 bar, depending on specification.

Safety Precautions

- Read the operation manuals of your compressor and its drive engine carefully
- Allow only qualified personell to run the compressor
- Do not place any objects on compressor while in operation
- Make sure no person or object can accidentally touch any moving parts while running
- Take care that the intake-air is pure and free of toxic gases and exhaust fumes
- All work on the compressor must be carred out with compressor shut down and depressurized
- Check regulary for leaks by brushing all fittings and coulings with a soup solution
- Never weld high-pressure tubing
- Filling-hoses must be in perfect condition; special attention should be paid to the connecting fittings
- Disconnect the power-cable prior to any work
- Make sure no person is within one meter of the drain-hoses before draining the condensate
- The operator should wear ear protection if exposed to the noise of the running compressor for extended periods of time

Installation

LW 200 E - *Nautic*

The compressor is to be connected to an 16 Ampere plug.

NOTE: Check direction of rotation immediately after the first start. If the direction of rotation is wrong the pistons may cease tue to lack of lubrication! Furthermore the unit would not be cooled properly. When facing the front of the compressor (water separator side), the direction of rotation should be clockwise (check arrows on compressor block and cover). Don't place compressor closer than 0.5 m to any walls and ensure good ventilation.

NOTE: Pure air intake is very important!

Filling process

Fill only air tanks which are:

suitable for final pressure and hydro static tested (check last testing date).

LW 200 E - Nautic:

- Close filling valves
- Close drain valves of water separators
- Start compressor by push botton **1**
- Check direction of rotation immetiately after start - *change if necessary* -
- Run compressor to max. pressure and check final safety valve
- Connect tank to compressor. Filling valves and tank still closed
- Slowly open filling valve
- Slowly open tank valve
- Fill tank to desired pressure
- Close tank valve first
- Close filling valve (- *selfventing type* -)
- Disconnect tank from compressor
- Turn off compressor by push botton **0**

Intake filter

A micro filter cartridge is used as an air intake filter. The filter cartridge has to be checked regulary and should be replaced if necessary - at least once a year.

A dirty contaminated filter restricts the airflow, reduces the compressor's capacity and causes overheating.

Cylinder heads and valves

Inlet and outlet valves of the 1st stage are located under the 1st stage valve cover. The inlet valve opens on the down-stroke, the outlet one on the up-stroke. To reach the 2nd and 3rd stage valves it is necessary to remove the cylinder heads first. Then the valves can be pulled out of theit seat and held in a bench-vice with the alloy valve holder (table D) for further dismantling. The valves should be replaced after 1000 working hours due to normal wear and tear.

Lubrication

0.95 litre of synthetic oil (order no. L&W 9001) is required for an oil change.

NOTE: The oil level should always be above the red oil level marking (located on the left hand side of the oil filling plug).

Starting the compressor for the first time

- Place compressor in a distance of at least 20 inches to any walls (air temperature max. 40 degree centigrade)
- Check connections
- Check oil level on compressor
- Check if air filter cartridge is in place
- Make sure filling valves are closed
- Start compressor
- Run compressor to max. pressure
- Check if safety valve opens at max. pressure
- Check compressor unit for air leaks
- Check drain valves of water separators
- Turn off compressor
- Release pressure by filling valves

Safety valves

Every pressure-stage is equipped with its own safety valve. They protect the unit from over-pressure / load.

The valves are adjusted to:

1st Stage: 15 bar

2nd Stage: 72 bar

3rd Stage: final pressure

If a safety valve blows it indicates problems with either inlet or outlet valve of the next stage.

<p>NOTE: A faulty safety valve should always be replaced!</p>
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Removing the compressor cover

The GRP compressor cover is held in place by three allen screws (M8). One is placed on top of it, two are mounted to the frame. In order to reach them, tilt the unit and loose screws by 6 mm allen key.

Pressure maintaining / non-return valve

A pressure maintaining / non-return valve is fitted between water separator / filter housing and filling valves. It is adjusted to provide a pressure of at least 160 bar to the filling hose, optimising the effectiveness of the filter to ensure the best possible air quality.

Changing the mole carbon cartridge

The mole carbon cartridge lasts for 18 hours at an average humidity and at 25 degree centigrade. The cartridges are packed airtight. We recommend that they should be opened just before they are fitted to the compressor, as they could be saturated with moisture just being exposed to high humidity. To change the filter cartridge stop the compressor and release all pressure by opening the drain and filling valves. Once the unit is free of pressure the filter housing cap can be unscrewed using the filter tool delivered with the compressor. If pressure remains in the housing, it is almost impossible to open the filter housing cap. Pull out used filter cartridge and replaced it by a new one. Make sure O-ring is in place and in useable condition. Fit spring on top of filter. Screw cap on hand tight. Check filter housing for air leaks during the next filling process.

Conservation of compressor

If the compressor will not be used for a long period of time the following steps should be carried out:

- Run the compressor for about 10 minutes
- Open filling valves and let the compressor run for another five minutes
- Turn the compressor off
- Release all remaining pressure and condensate
- Close filling valves
- Compressor should be stored dry and dust free

Before restarting the compressor, the following steps should be carried out:

- Change oil (if the compressor was out of use for more than 12 months)
- Check air intake filter
- Replace mole carbon filter cartridge
- Check oil level
- Check condition of filling hoses
- Start compressor
- Run compressor with open filling valves for 5 minutes
- Close filling valves
- Drive compressor close to 200 bar and control connections for air leaks
- Release pressure and drain water separators

The compressor is now ready for use

Remarks for the Operator

The fittings (safety equipment) of the particular pressure vessels have been tested.

The pressure vessels have to be submitted to an inspection of the local conditions at site by a competent expert before being taken into operation.

According to the German pressure vessel regulation § 10 (Druckbehälter-Verordnung) the pressure vessel has to be subjected to re-examination by a competent expert.
(Valid in the F.R.G.)

Additional Remarks

- Water Separator 2nd Stage -

This pressure vessel is released for 50,000 loading cycles at a pressure fluctuation range of 60 bar.

After reaching this figure the pressure vessel has to be renewed. It is the duty of the operator to record the actual loading cycles.

- High Pressure Filter Housing -

This pressure vessel is released for 3,800 / 40,000 loading cycles at a pressure fluctuation range of 330 / 225 bar.

After reaching this figure the pressure vessel has to be renewed.

It is the duty of the operator to record the actual loading cycles.

Warranty

<p>Twelve Months Limited Warranty</p>
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Important:

For warranty claims this Warranty Registration form must be presented

L&W compressors are warranted against defects in workmanship and materials for a period of twelve months after purchase by the original owner, provided the compressor is run with synthetic compressor oil - subject to and in accordance with the terms and conditions set forth below:

This warranty does not cover damage to the product resulting from improper useage, improper maintenance, neglect of care, alteration or unauthorised repair. The warranty will automatically become void if proper preventive maintenance procedures have not been followed as outlined in the operations manual for this product.

If a claim under this warranty appears to be necessary, return the product, freight repaid, to your **L&W** dealer. Include your name, address and warranty registration. The claim will be honoured and the product repaired at no charge and returned in what your **L&W** dealer determines a reasonable amont of time, provided all necessary parts are in stock. All repairs not covered under the terms of this warranty will be made at the owners expense.

This warranty is non-transferable from the original owner.

The warranty will be extended for the time the product has been in warranty repair. This warranty and operations manual should be kept with the compressor at all times.

Warranty Registration

This warranty only covers compressors which have been bought from an authorised **L&W** dealer, set up as a complete unit with frame and engine or electric motor.

Compressor Type :

Serial Number :

Engine / Motor Number :

Compressor Options :

Date of Purchase :

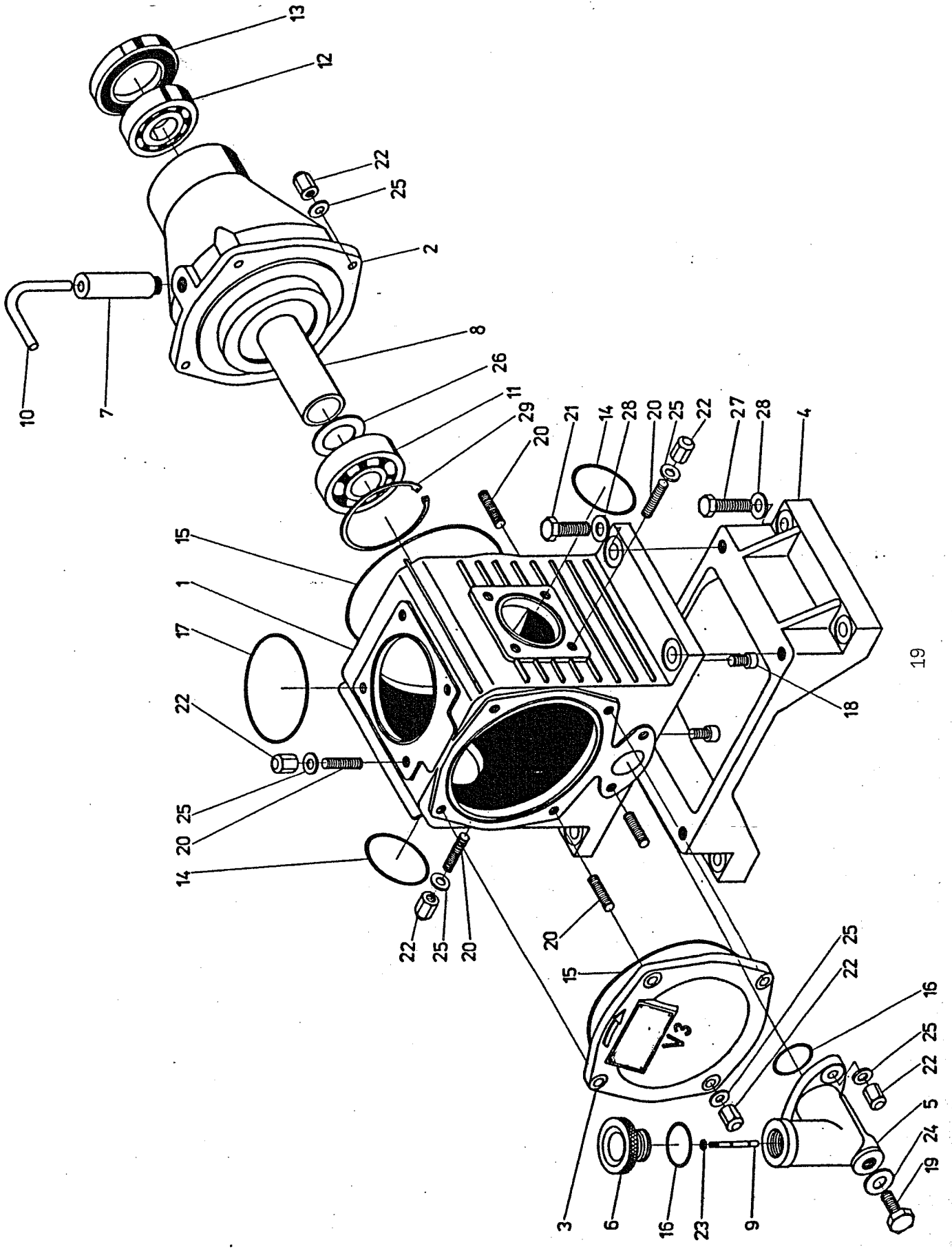
Name of **L&W** Dealer :

Dealer Address :

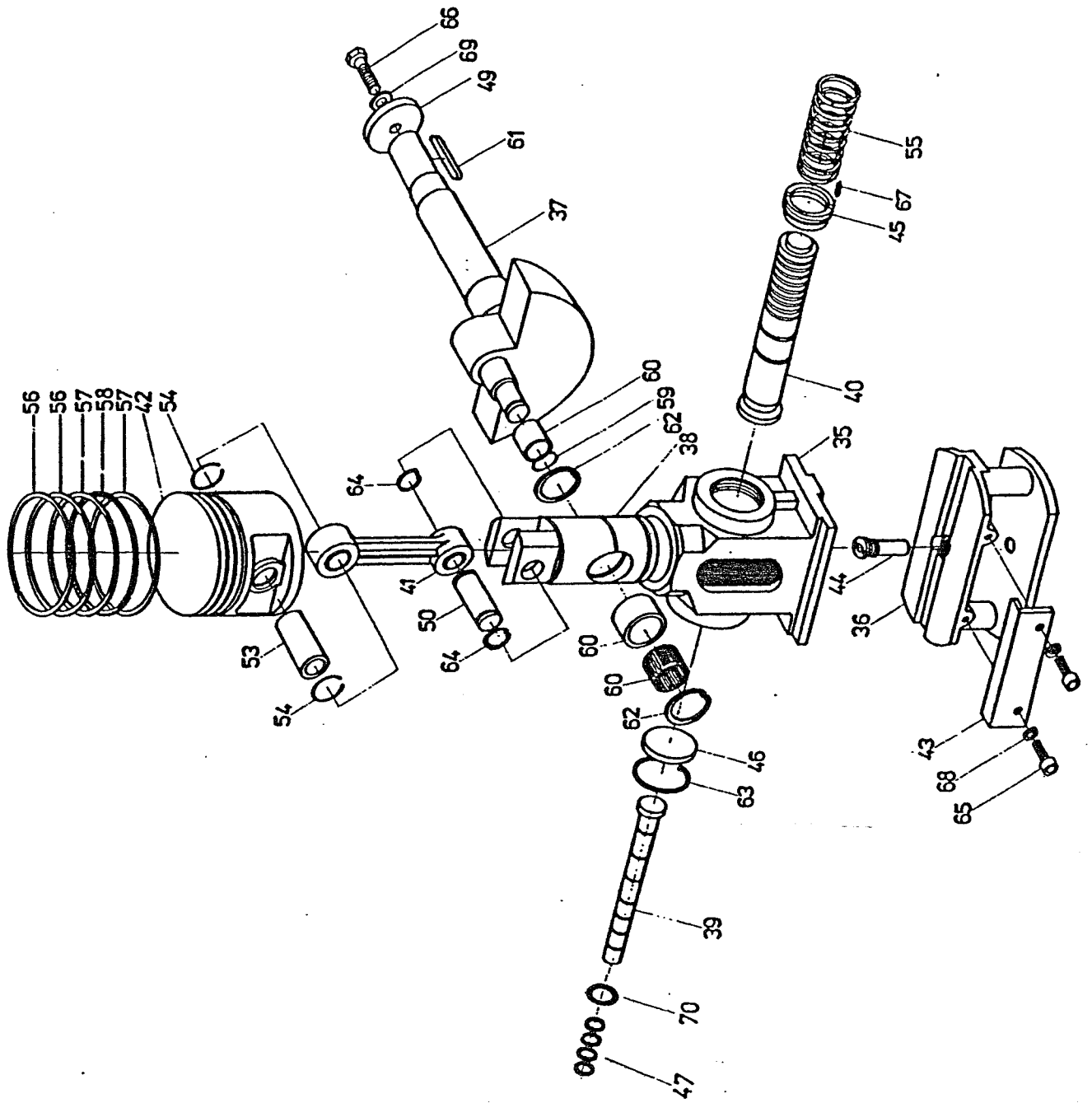
Name of Buyer :

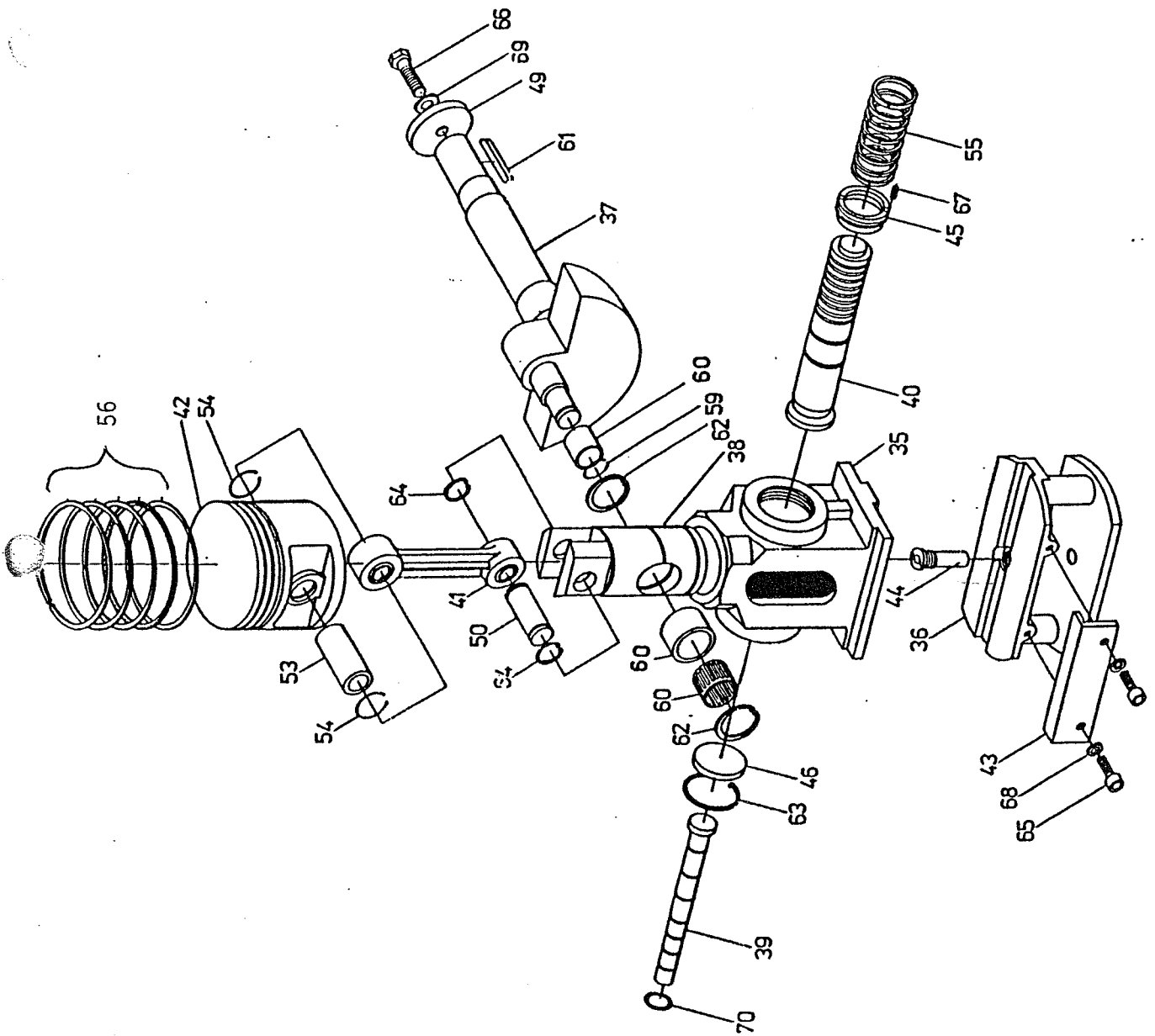
Signature L&W Dealer

Signature Buyer

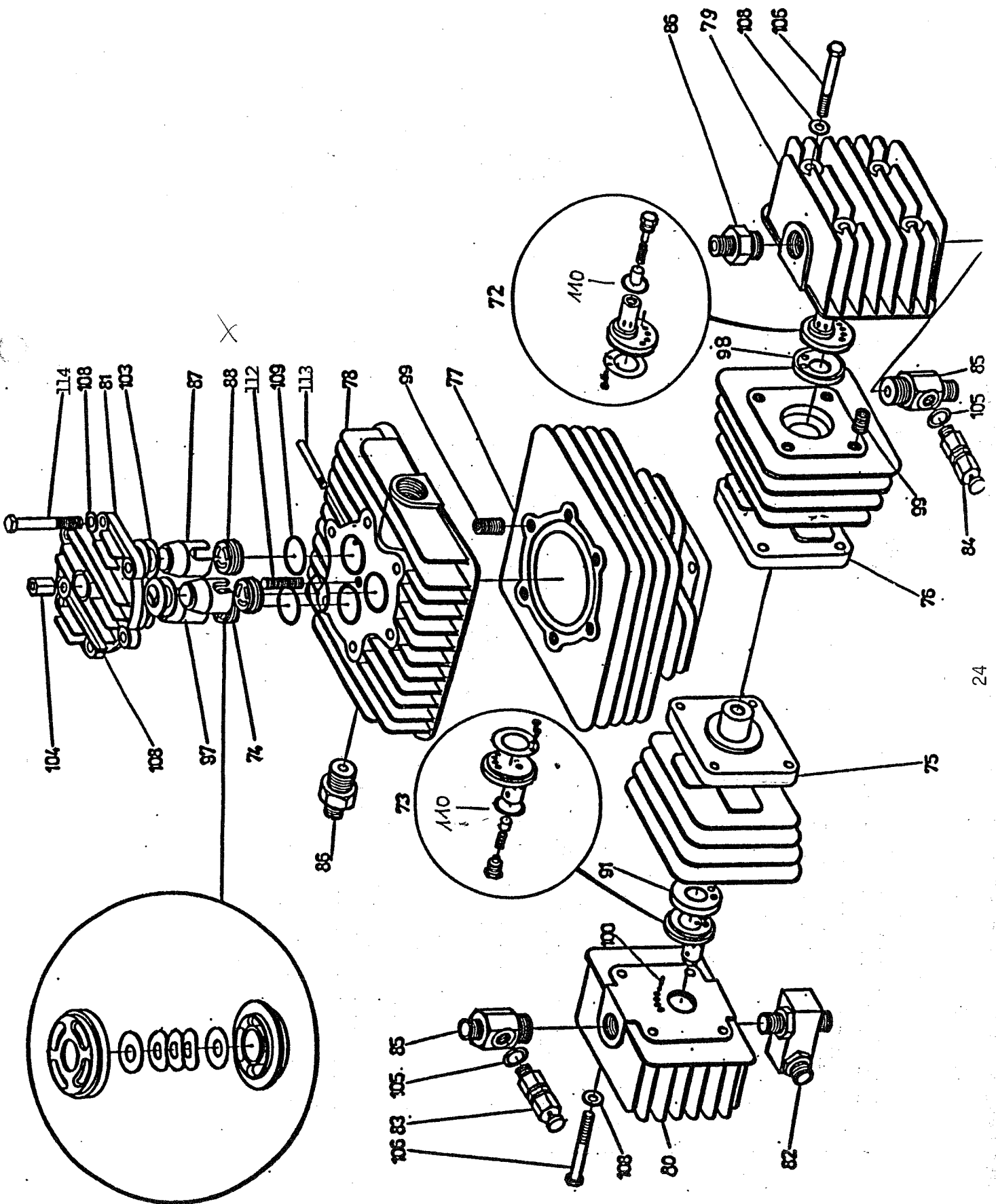


COMPRESSOR BLOCK - LW 200 E - Nautic			
Part No.	Description	Qyt.	Remarks
LW 225 / 245 1	Crankcase	1	
LW 225 / 245 2	Front Cover	1	
LW 225 / 245 3	Backcover	1	
LW 225 / 245 4	Mounting Stand	1	
LW 225 / 245 5	Oil-Fill	1	
LW 225 / 245 6	Oil-Cap	1	
LW 225 / 245 7	Breather	1	
LW 225 / 245 8	Spacer	1	
LW 225 / 245 9	Dipstick	1	
LW 225 / 245 10	PVC Hose	1	
LW 225 / 245 11	Bearing 6306	1	
LW 225 / 245 12	Bearing 6305	1	
LW 225 / 245 13	Gasket	1	
LW 225 / 245 14	O-Ring Ø 52 x 2 mm	2	
LW 225 / 245 15	O-Ring Ø 130 x 3 mm	2	
LW 225 / 245 16	O-Ring Ø 530x 2 mm	2	
LW 225 / 245 17	O-Ring Ø 85x 2 mm	1	
LW 225 / 245 18	Allen Bolt M8 x 30 mm	2	
LW 225 / 245 19	Drain Plug M12 x 20 mm	1	
LW 225 / 245 20	Stut M8 x 20 mm	22	
LW 225 / 245 21	Bolt M10 x 35 mm	4	
LW 225 / 245 22	Nut M8	22	
LW 225 / 245 23	Dome Nut	4	
LW 225 / 245 24	Plastic Washer Ø 12 x 26 x 3 mm	1	
LW 225 / 245 25	Washer Ø 8.4 mm	22	
LW 225 / 245 26	Washer	1	
LW 225 / 245 27	Bolt M10 x 40 mm	4	
LW 225 / 245 28	Washer Ø 10.5	8	
LW 225 / 245 29	Circlip Ø 72 mm	1	

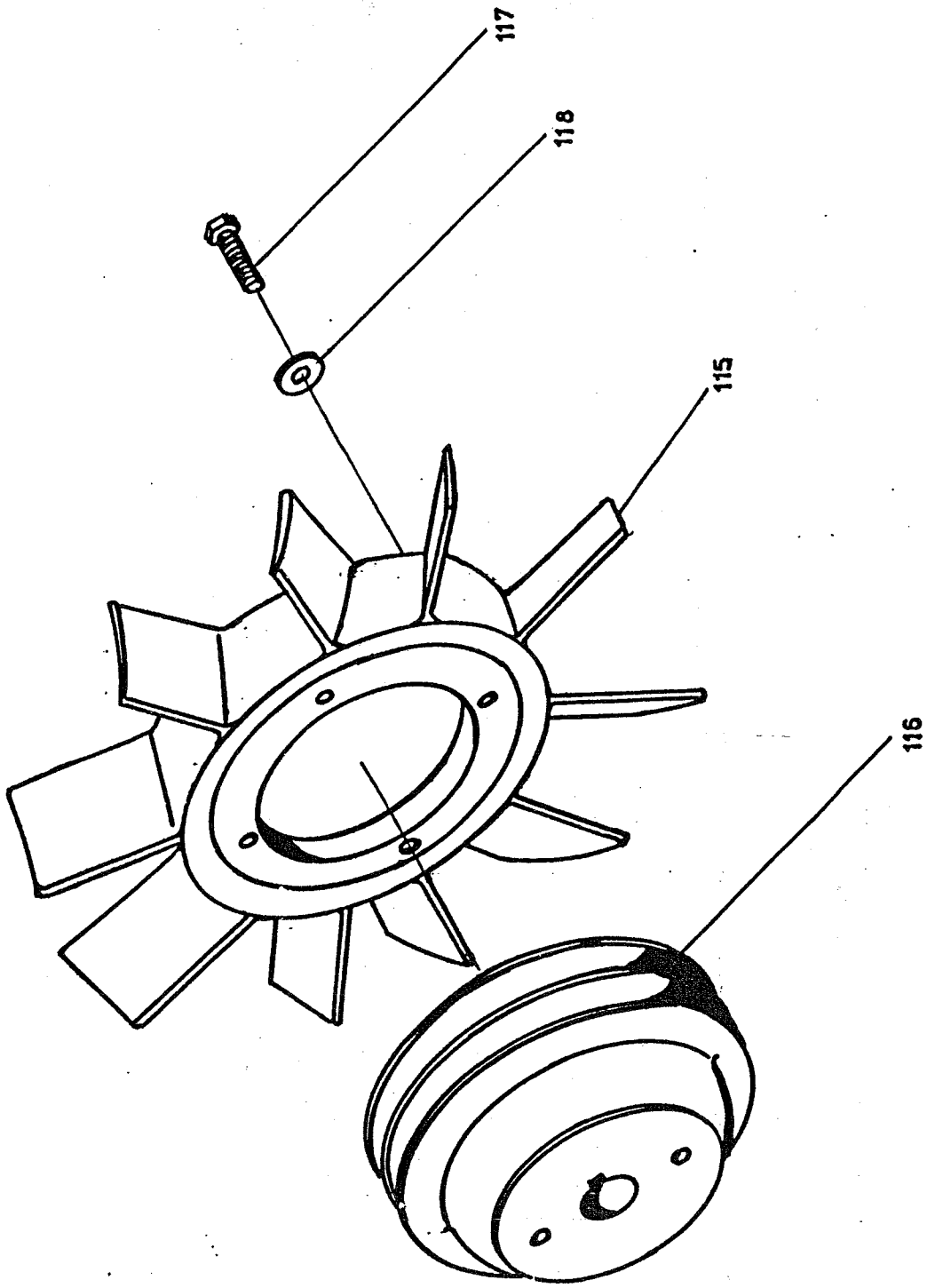


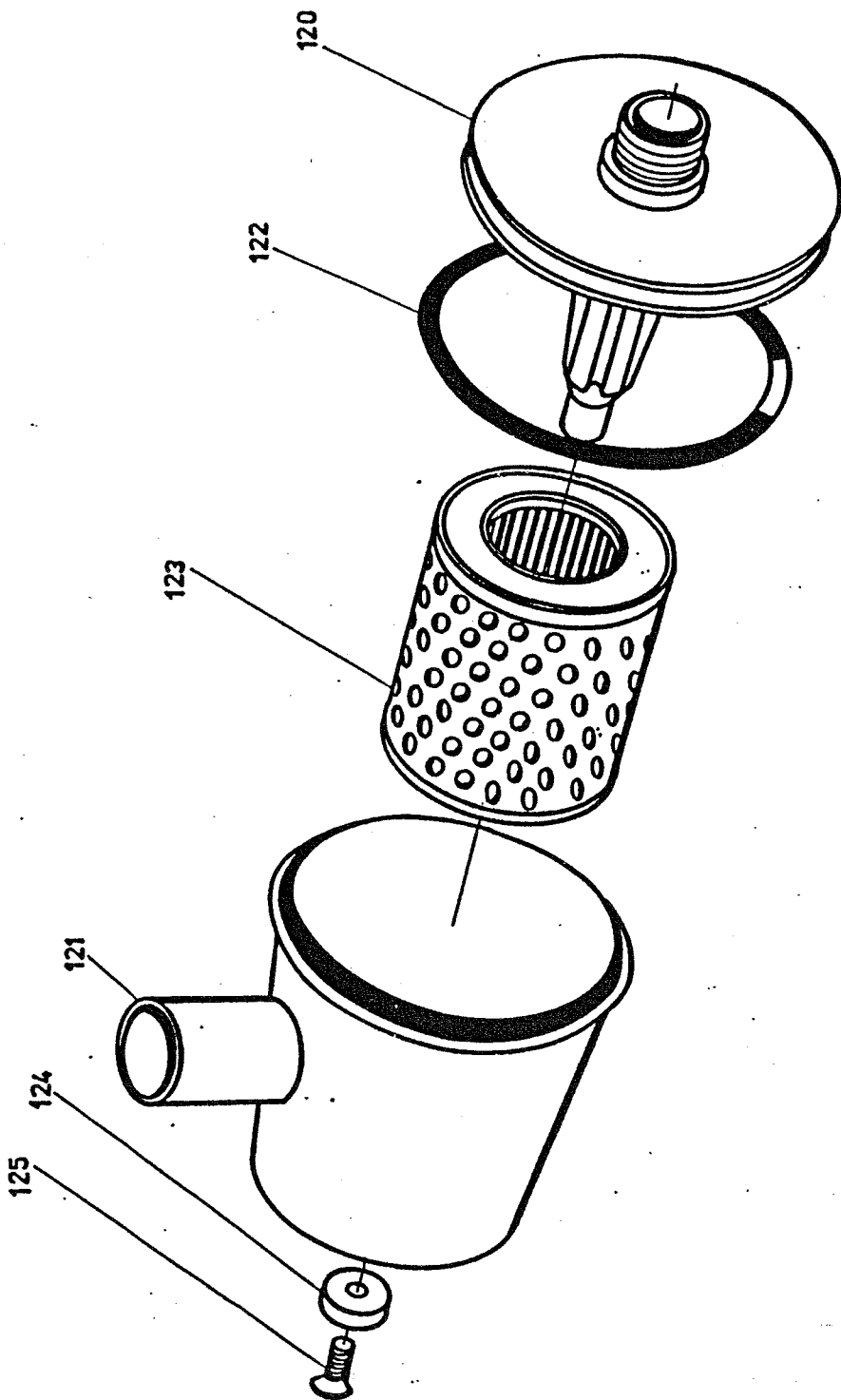


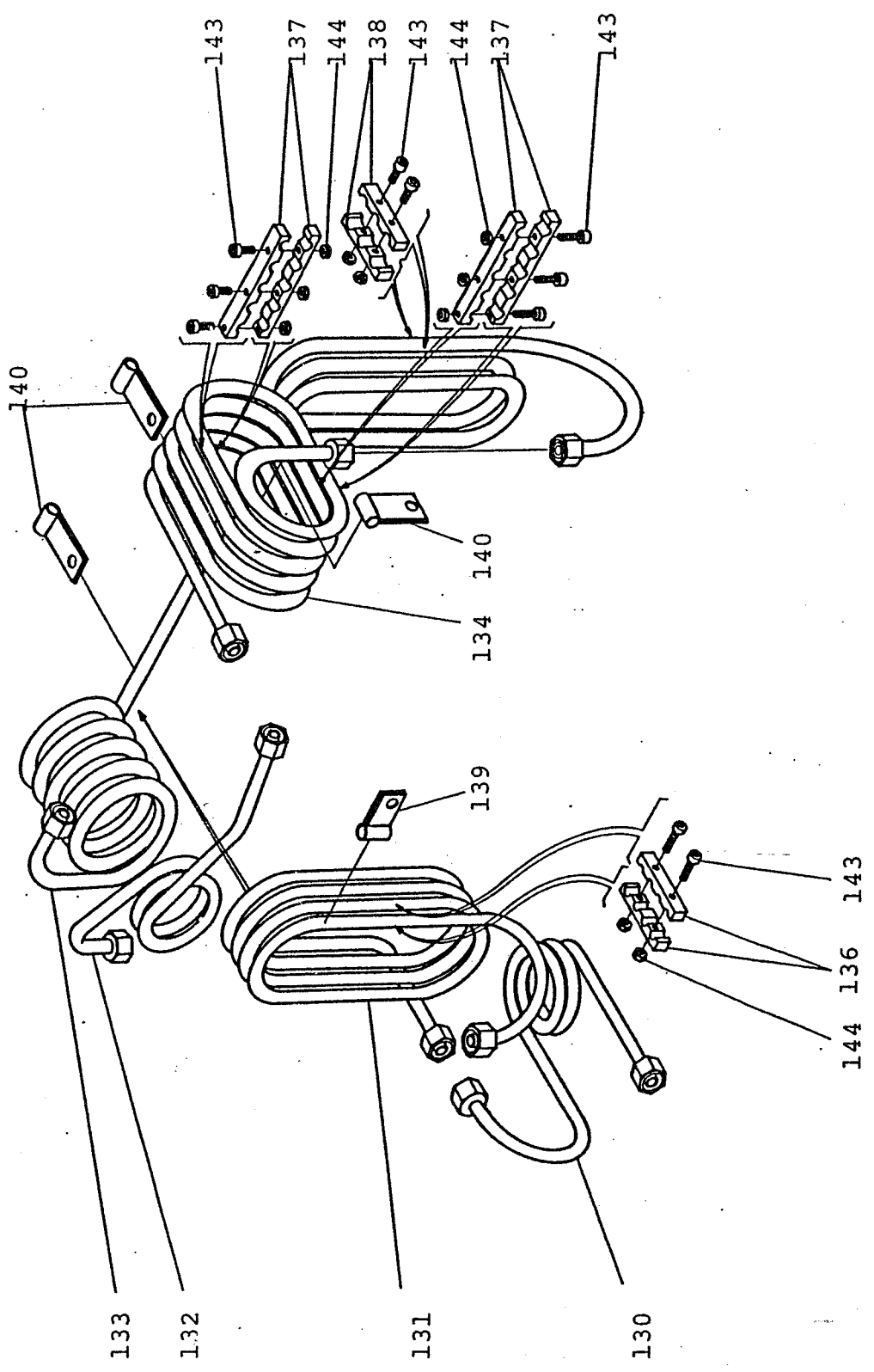
COMPRESSOR BLOCK - LW 225 E V3 / LW 245 B V3			
Part No.	Description	Qty.	Remarks
LW 225 / 245 35	Slider	1	obtainable only in combination with part no. 38
LW 225 / 245 36	Bridge	1	
LW 225 / 245 37	Crankshaft	1	
LW 225 / 245 38	Plunger	1	obtainable only in combination with part no. 35
LW 225 / 245 39	Piston 3 rd Stage	1	obtainable only in combination with part no. 75
LW 225 / 245 40	Piston 2 nd Stage	1	
LW 225 / 245 41	Connecting Rod	1	
LW 225 / 245 42	Piston 1 st Stage	1	
LW 225 / 245 43	Guide Bar	1	
LW 225 / 245 44	Oil Jet	1	
LW 225 / 245 45	Piston Nut (2 nd Stage)	1	
LW 225 / 245 46	Piston Base 2 nd Stage	1	
LW 225 / 245 49	Retaining Washer Pulley	1	
LW 225 / 245 50	Pluner Pin 1 st Stage	1	
LW 225 / 245 53	Piston Pin 1 st Stage	1	
LW 225 / 245 54	Circlip Piston Pin 1 st Stage	2	
LW 225 / 245 55	Piston Rings \varnothing 28 x 1.5 mm (2 nd Stage)	1 Set	
LW 225 / 245 56	Piston Rings \varnothing 75.5 x 1.5 mm (1 st Stage)	1 Set	
LW 225 / 245 59	Circlip \varnothing 17 mm	1	
LW 225 / 245 60	Needle Bearing INA 17 / 20	1	
LW 225 / 245 61	Key 8 x 7 x 32 mm	1	
LW 225 / 245 62	Circlip \varnothing 30 mm	2	
LW 225 / 245 63	Circlip \varnothing 35 mm	1	
LW 225 / 245 64	Circlip \varnothing 16 mm	2	
LW 225 / 245 65	Bolt M6 x 20 mm	2	
LW 225 / 245 66	Bolt M8 x 30 mm	1	
LW 225 / 245 67	Bolt M4 x 5 mm	1	
LW 225 / 245 68	Washer M6	2	
LW 225 / 245 69	Washer M8	1	
LW 225 / 245 70	O-Ring \varnothing 12 x 3 mm	1	

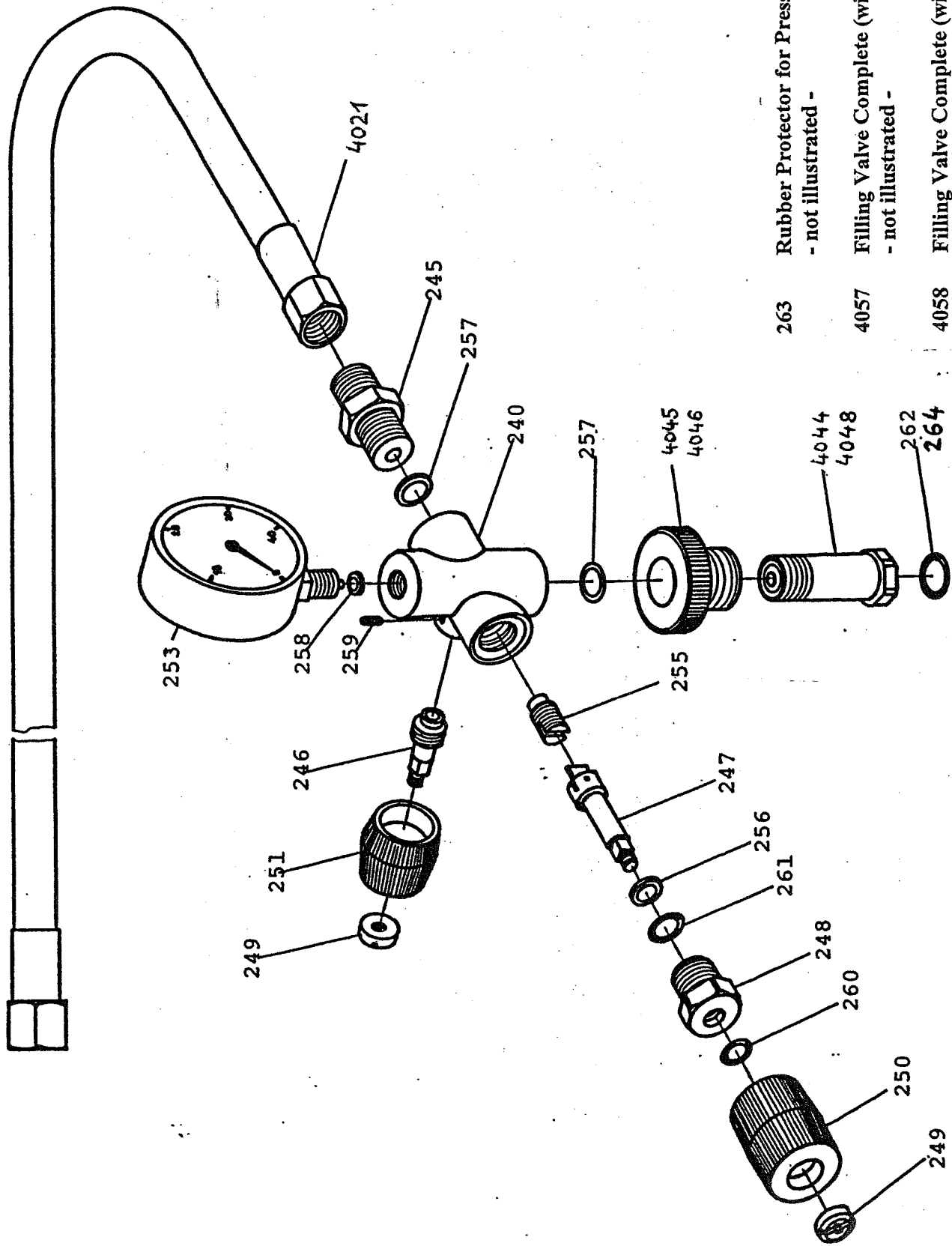


COMPRESSOR BLOCK - LW 225 E V3 / LW 245 B V3			
Part No.	Description	Qyt.	Remarks
LW 225/245 72	Valve 2 nd Stage (compl.)	1	
LW 225/245 73	Valve 3 rd Stage (compl.)	1	
LW 225/245 74	Outlet Valve 1 st Stage	1	
LW 225/245 75	Cylinder 3 rd Stage	1	obtainable only in combination with part no. 39
LW 225/245 76	Cylinder 2 nd Stage	1	
LW 225/245 77	Cylinder 1 st Stage	1	
LW 225/245 78	Valvehead 1 st Stage	1	
LW 225/245 79	Valvehead 2 nd Stage	1	
LW 225/245 80	Valvehead 3 rd Stage	1	
LW 225/245 81	Valvecover 1 st Stage	1	
LW 225/245 82	Pipe Junction 3 rd Stage	1	
LW 225/245 83	Safety Valve 2 nd Stage	1	
LW 225/245 84	Safety Valve 1 st Stage	1	
LW 225/245 85	Pipe Coupling - Inlet 2 nd Stage	2	
LW 225/245 86	Pipe Coupling - Outlet 1 st Stage	2	
LW 225/245 87	Inlet Valve Housing 1 st Stage	2	
LW 225/245 88	Inlet Valve 1 st Stage	2	
LW 225/245 91	Valve Cap 3 rd Stage	1	
LW 225/245 97	Outlet Valve Housing 1 st Stage	1	
LW 225/245 98	Valve Cap 2 nd Stage	1	
LW 225/245 103	Spring Washer 1 st Stage	6	
LW 225/245 104	Nut M8	1	
LW 225/245 105	Washer Copper Ø 14 x 20 x 1 mm	2	
LW 225/245 106	Bolt M8 x 70 mm	8	
LW 225/245 108	Washer M8	15	
LW 225/245 109	O-Ring Ø 36 x 2 mm Silicon	3	
LW 225/245 110	O-Ring Ø 24 x 2.5 mm Viton	1	
LW 225/245 111	O-Ring Ø 25 x 2 mm Viton	1	
LW 225/245 112	Stut M8 x 20 mm	1	
LW 225/245 113	Vent Pipe	1	
LW 225/245 114	Bolt M8 x 80 mm	6	





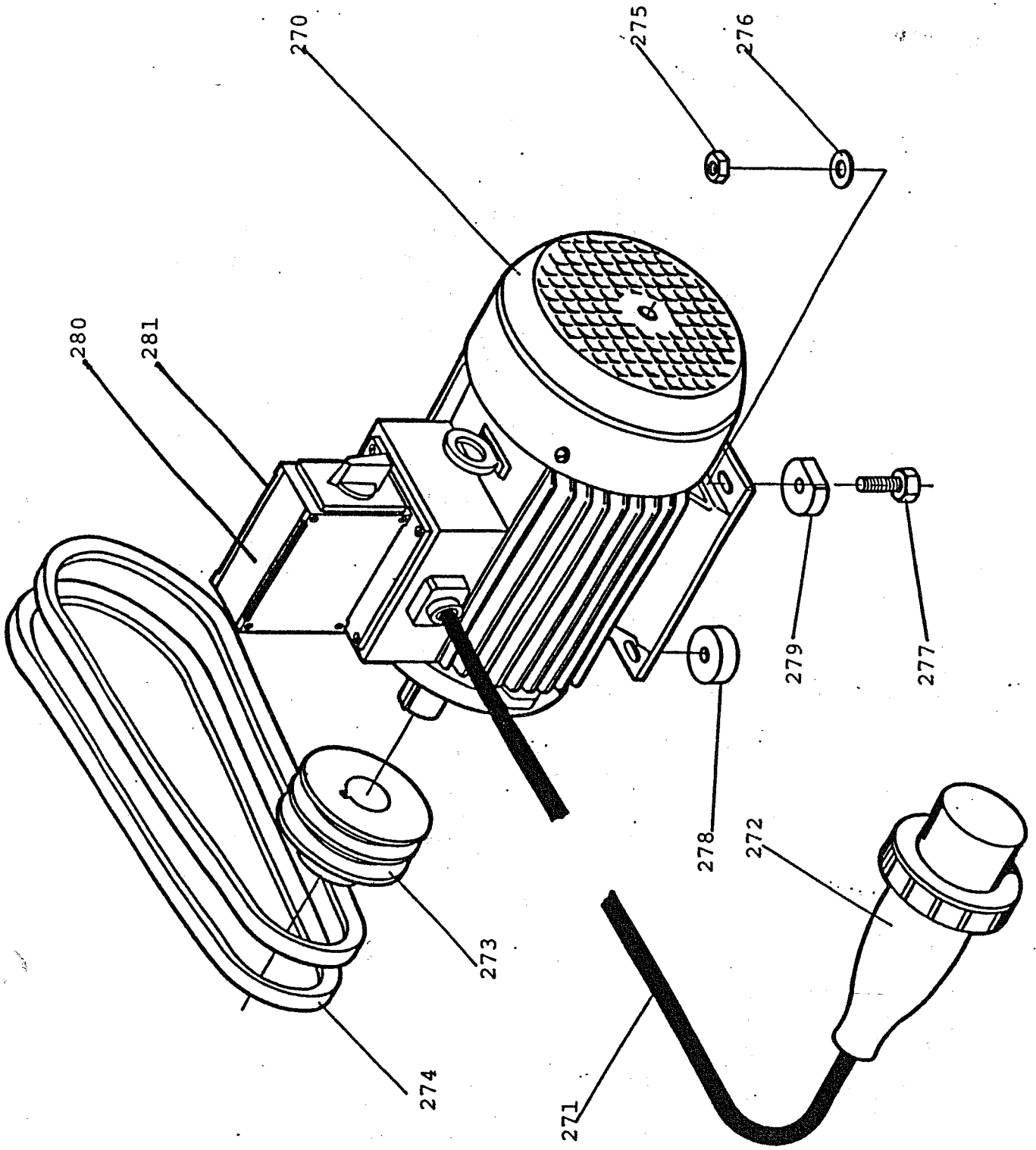




- 263 Rubber Protector for Pressure Gauge
- not illustrated -
- 4057 Filling Valve Complete (without hose)
- not illustrated -
- 4058 Filling Valve Complete (without hose & pressure gauge)
- not illustrated -

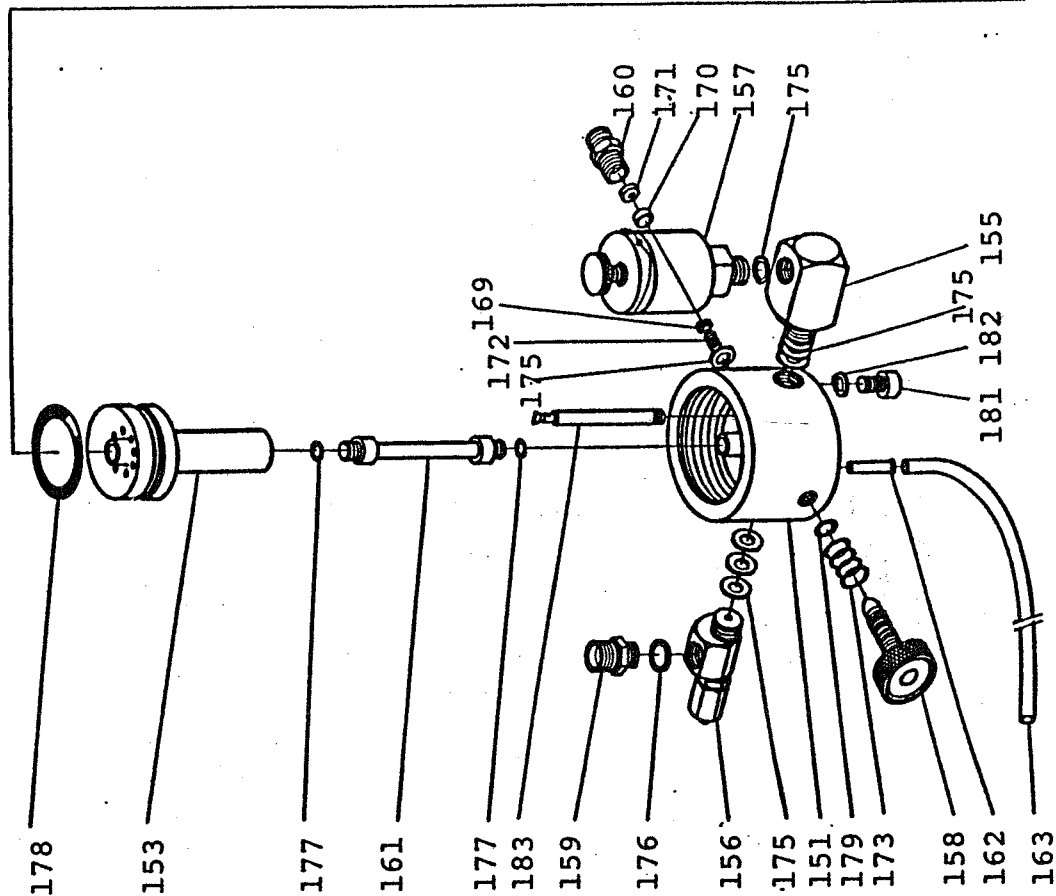
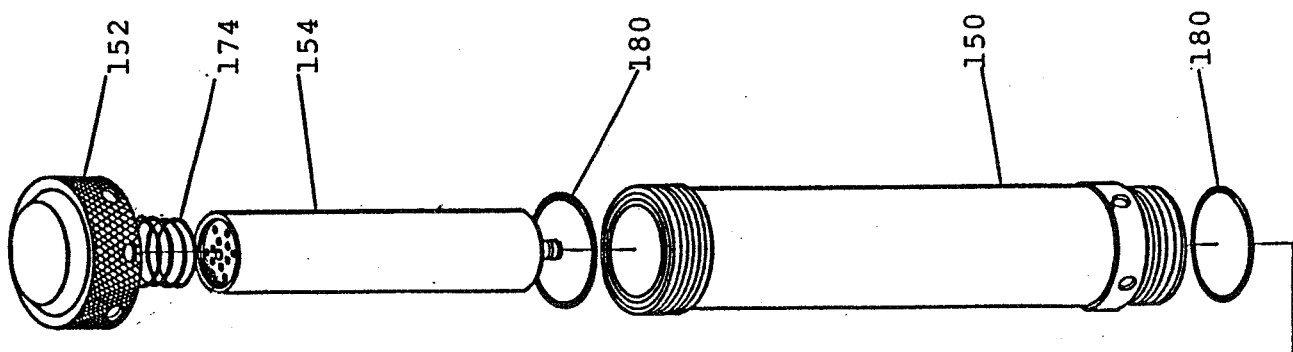
FILLING VALVE ASSEMBLY - LW 225 E V3 / LW 245 B V3

Part No.	Description	Qty.	Remarks
LW 225 / 245 240	Filling Valve Body	1	
LW 225 / 245 4044	Filling Valve Neck 200 bar	1	
LW 225 / 245 4045	DIN Hand Wheel 200 bar - black	1	
LW 225 / 245 4046	DIN Hand Wheel 300 bar - red	1	
LW 225 / 245 4048	Filling Valve Neck 300 bar	1	
LW 225 / 245 245	Connection M16 x 1,5 mm / 10 L	1	
LW 225 / 245 246	Bleed Valve Stem	1	
LW 225 / 245 247	Shut-Off Valve Stem	1	
LW 225 / 245 248	Shut-Off Valve Collar	1	
LW 225 / 245 249	Hand Wheel Nut	2	
LW 225 / 245 250	Filling Valve Wheel Ø 35 mm	1	
LW 225 / 245 251	Bleed Valve Wheel Ø 27 mm	1	
LW 225 / 245 4021	Filling Hose M16 x 1,5 mm Length: 1 m	1	
LW 225 / 245 253	Pressure Gauge 0-400 bar G1/4"	1	
LW 225 / 245 255	HP Seat	1	
LW 225 / 245 256	Packing Washer	1	
LW 225 / 245 257	Washer Copper Ø 8 x 14 x 1 mm	1	
LW 225 / 245 258	Washer Copper Ø 4 x 6 x 3 mm	1	
LW 225 / 245 259	Worm Screw M3 x 8 mm	1	
LW 225 / 245 260	O-Ring	1	
LW 225 / 245 261	O-Ring	1	
LW 225 / 245 262	O-Ring Filling Valve Neck 200 bar	1	
LW 225 / 245 263	Protector Pressure Gauge	1	
LW 225 / 245 264	O-Ring Filling Valve Neck 300 bar	1	
LW 225 / 245 4057	Filling Valve compl. (without Filling Hose)	1	
LW 225 / 245 4058	Filling Valve compl. (without Filling Hose & Pressure Gauge)	1	

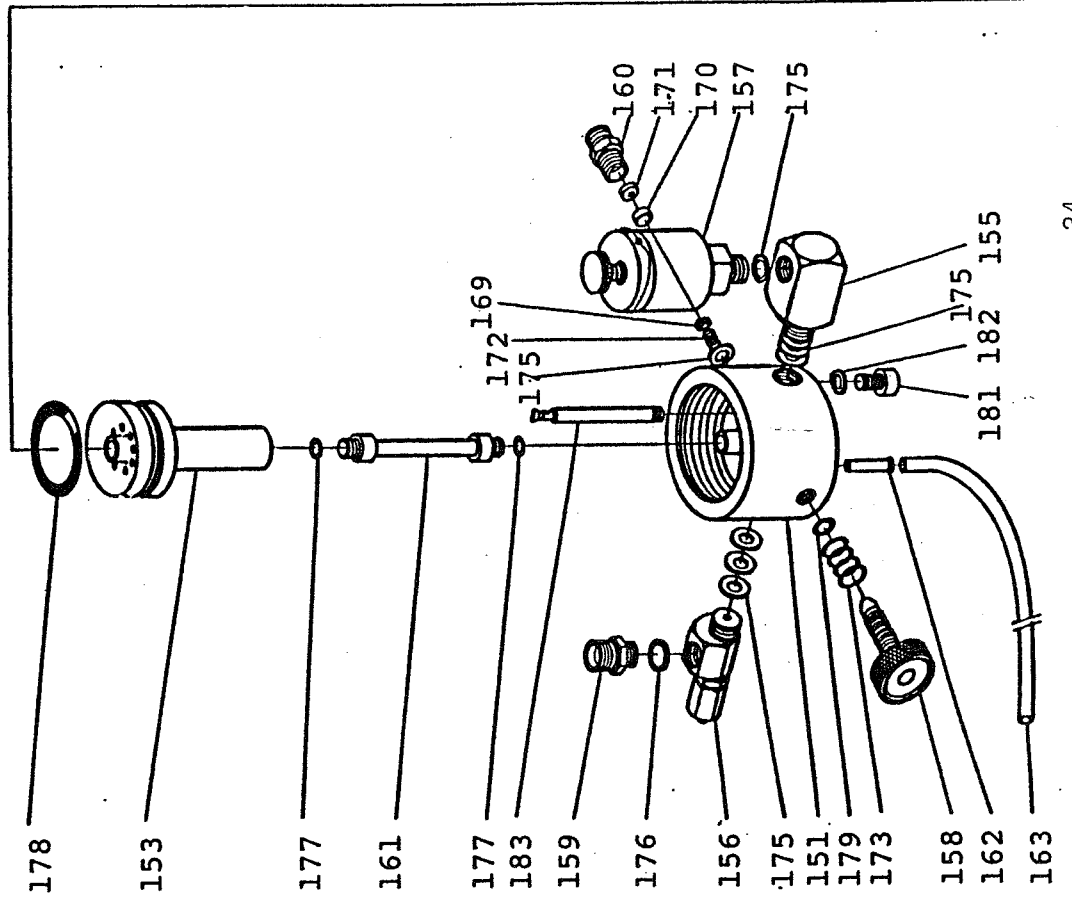
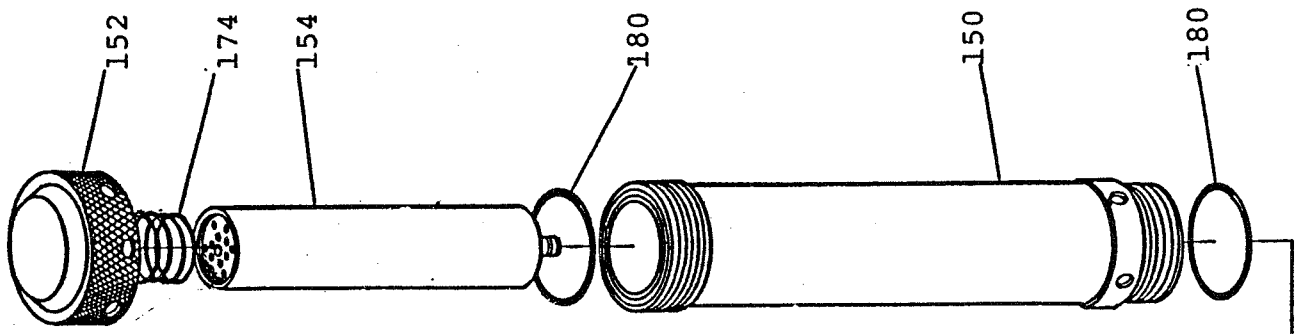


ELECTRIC MOTOR - LW 225 E V3 / LW 245 B V3

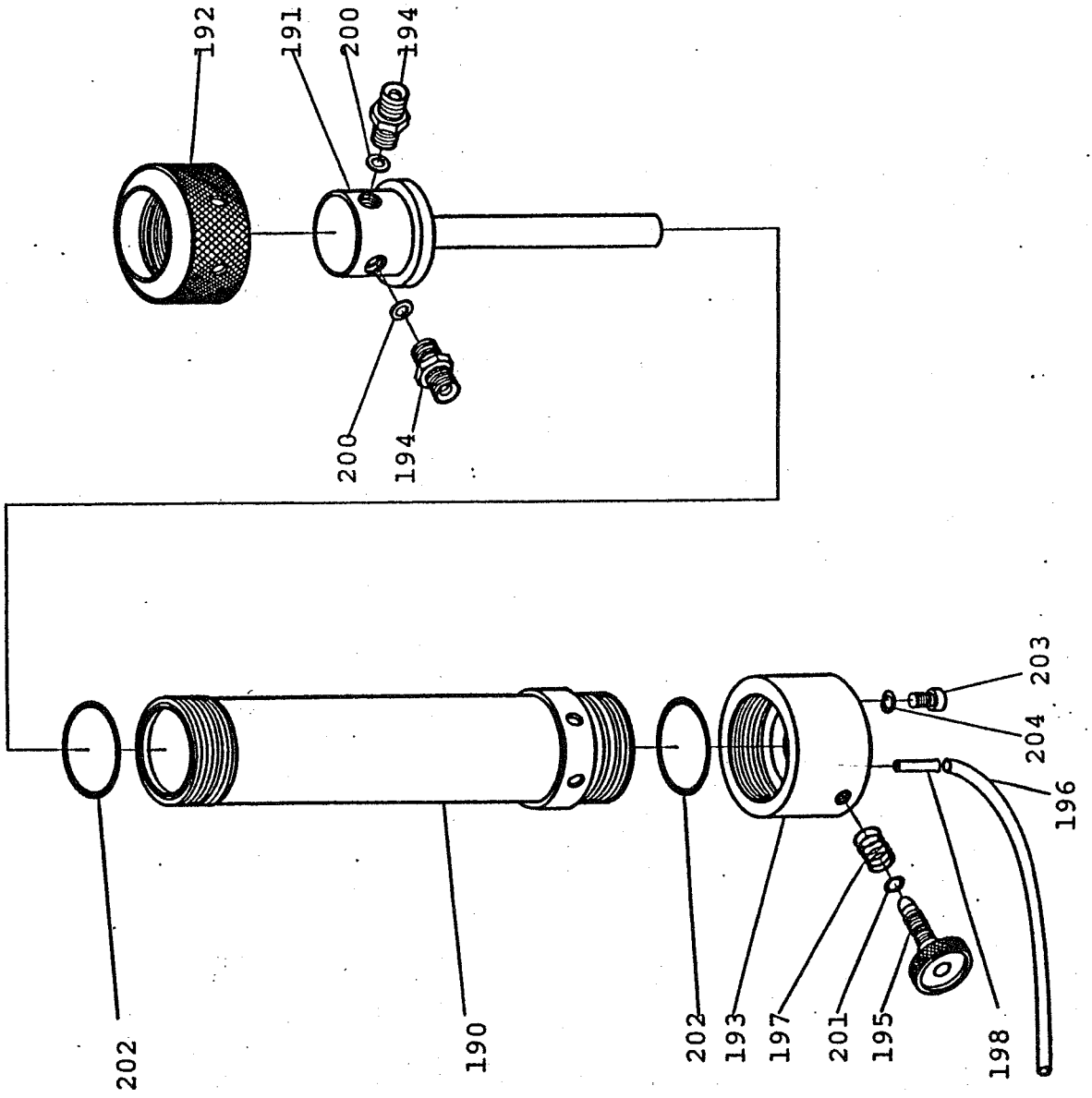
Part No.	Description	Qty.	Remarks
LW 225 / 245 270	Electric Motor 400 V / 50Hz / 5.5 KW	1	
LW 225 / 245 271	Cable	1	
LW 225 / 245 272	Plug 16 A	1	
LW 225 / 245 273	Pulley Ø 126 mm	1	
LW 225 / 245 274	V-Belt for 5.5 KW E-Motor	2	
LW 225 / 245 275	Nut M10	4	
LW 225 / 245 276	Washer M10	4	
LW 225 / 245 277	Bolt M10 x 50 mm	4	
LW 225 / 245 278	Spacer Alloy	3	
LW 225 / 245 279	Spacer Alloy modified	1	
LW 225 / 245 280	Power Switch	1	
LW 225 / 245 281	Power Switch Housing	1	



FILT ER HOUSING / WATERSEPARATOR - LW 225 E V3 / LW 245 B V3			
Part No.	Description	Qyt.	Remarks
LW 225 / 245 150	Filter Housing Tube*	1	*Parts no. 150, 151 & 152 only available as a complete unit
LW 225 / 245 151	Filter Housing Base*	1	
LW 225 / 245 152	Filter Housing Top*	1	
LW 225 / 245 153	Inner Manifold	1	
LW 225 / 245 154	Molecular Filtercartridge	1	available only as a complete unit
LW 225 / 245 155	Base Safety Valve M16 x 1.5 mm / G3/8"	1	
LW 225 / 245 156	Pressure Maintaining Valve	1	
LW 225 / 245 157 a	Endpressure Safety Valve 225 bar	1	
LW 225 / 245 157 b	Endpressure Safety Valve 330 bar	1	
LW 225 / 245 158	Condensate Drain Wheel	1	
LW 225 / 245 159	Connection M14 x 1,5 mm / 10 L	1	
LW 225 / 245 160	Cooling Tube Coupler	1	
LW 225 / 245 161	HP Inter Coupler	1	
LW 225 / 245 163	Drain Hose	1	
LW 225 / 245 173	Spring Drain Valve	1	
LW 225 / 245 174	Spring Filter Cartridge	1	
LW 225 / 245 175	Washer Copper Ø 8 x 14 x 1 mm	7	
LW 225 / 245 176	Washer Copper Ø 6 x 12 x 1 mm	1	



FILTER HOUSING / WATERSEPARATOR - LW 225 E V3 / LW 245 B V3			
Part No.	Description	Qty.	Remarks
LW 225 / 245 177	O-Ring Filter Cartridge	1	
LW 225 / 245 178	O-Ring Manifold	1	
LW 225 / 245 179	O-Ring	1	
LW 225 / 245 180	O-Ring Filter Housing	2	
LW 225 / 245 181	Allen Bolt M8 x 16 mm	3	
LW 225 / 245 182	Spring Washer	3	
LW 225 / 245 183	Jet	1	



WATERSEPARATOR 1. & 2. STAGE - LW 225 E V3 / LW 245 B V3			
Part No.	Description	Qty.	Remarks
LW 225 / 245 190	Waterseparator Tube*	1	*Parts no. 190, 191, 192 & 193 only as a complete unit available
LW 225 / 245 191	Manifold*	1	
LW 225 / 245 192	Manifold Cap Waterseparator*	1	
LW 225 / 245 193	Waterseparator Base*	1	
LW 225 / 245 194	Cooling Tube Coupler	2	
LW 225 / 245 195	Condensate Drain Wheel	1	
LW 225 / 245 196	Drain Hose	1	
LW 225 / 245 197	Spring	1	
LW 225 / 245 200	Washer Copper Ø 8 x 14 x 1 mm	2	
LW 225 / 245 201	O-Ring Drain Wheel	1	
LW 225 / 245 202	O-Ring Ø 54 x 3 mm	2	
LW 225 / 245 203	Allen Bolt M8 x 16 mm	4	
LW 225 / 245 204	Spring Washer M8	4	