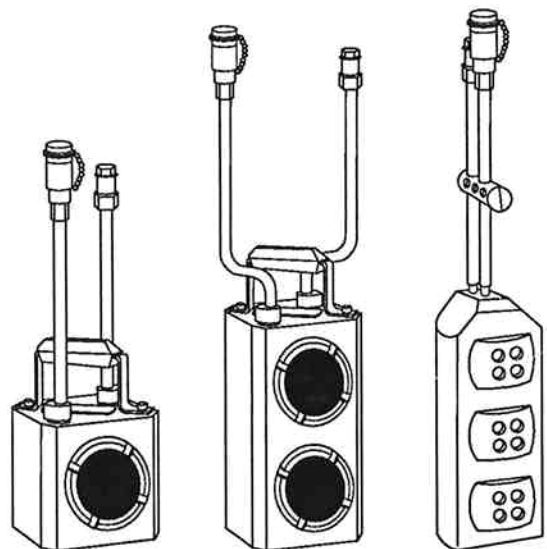
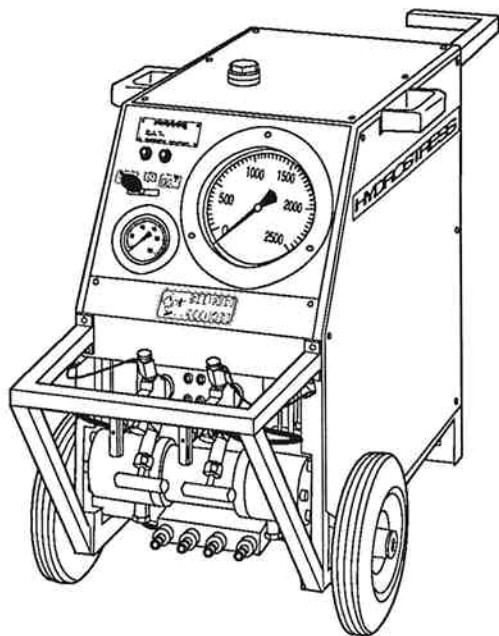


OPERATING INSTRUCTIONS

AND

SPARE PARTS LIST



CONCRETE BURSTING SYSTEM AU/SP/CP

PREFACE

Dear customers,

congratulations on having decided to buy a HYDROSTRESS system - you acquired a highly sophisticated and reliable state-of-the-art unit.

Due to our special efforts in the field of quality assurance, the concrete bursting system AU/SP/CP is a further Swiss, top-of-the-range product:

- unmatched weight per unit of drive
- reliable operation
- high mobility
- easy handling

This manual contains any information required for operation, maintenance, and ordering of spare parts. The exclusive use of genuine HYDROSTRESS spare parts ensures quality and interchangeability.

In the case of neglected or inappropriate maintenance, we refuse to accept any warranty commitment as specified in our terms of delivery.

Any repair work is to be carried out by trained specialists exclusively.

Should you need to know more details concerning your HYDROSTRESS system in order to keep it in perfect condition, please contact our after-sales service for further information.

We would be pleased to hear that working with your HYDROSTRESS system was without any difficulties and troublefree.

HYDROSTRESS[®] AG

The Management

These instructions are only valid for the concrete bursting system AU/SP/CP, mutation code 002 (see type plate). Technical modifications reserved that do not affect handling and function.

3. Edition July 1992, mutation code 003

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Voltage is supplied to the electric motor M (1, Fig. 2-6) via the switch case. The electric motor permanently drives the radial piston pump (2).

Via the suction filter (6) the radial piston pump sucks the hydraulic oil from the oil reservoir (24) and supplies three connected hydraulic circuits via two outputs (main and secondary output):

- the ND circuit for driving the motor of the control unit (11) and for the piston return;
- the booster circuit for driving the booster (13);
- the HD circuit for bursting.

The circuits are controlled by means of the control valve (10):

**Control valve in position 0
(circulation):**

The hydraulic oil is pumped over without pressure: from the secondary output via control valve (10), from the main output via the directional control valve 3/2 (9) into the oil reservoir (24).

**Control valve in position I
(bursting):**

Via the secondary output the motor of the control unit (11) and the directional control valve 3/2 (9) are operated. When the directional control valve 3/2 (9) is activated, the hydraulic oil flows from the main output to the booster (13) via the valve of the control unit (12). Via the control unit the motor of the control unit activates the valve of the control unit (12) which in turn controls the operation of the booster (13).

When the red shut-off valve (15) of the HD cock (14) is open and the blue shut-off valve is closed, the piston of the burster element is impinged with pressure and extends.

Return into the oil reservoir is carried out via the plug-type nipple (21) and the control valve (10). The burster elements can individually be impinged with pressure or be relieved by means of the red shut-off valve (15) or the blue pressure controller (16).

**Control valve in position II
(return):**

Via the secondary output and the control valve (10) the pistons of the burster elements (26) are impinged with pressure at the low-pressure side and retract. The hydraulic oil from the main output flows back to the oil reservoir without pressure via the directional control valve (9).

The accumulator (7) in the booster circuit neutralizes pressure variations. The indication of the pressure gauge (18) (booster or ND circuit) is controlled via the shuttle valve (19).

OPERATING ELEMENTS/CONNECTIONS AU/SP/CP

3 OPERATING ELEMENTS AND CONNECTIONS

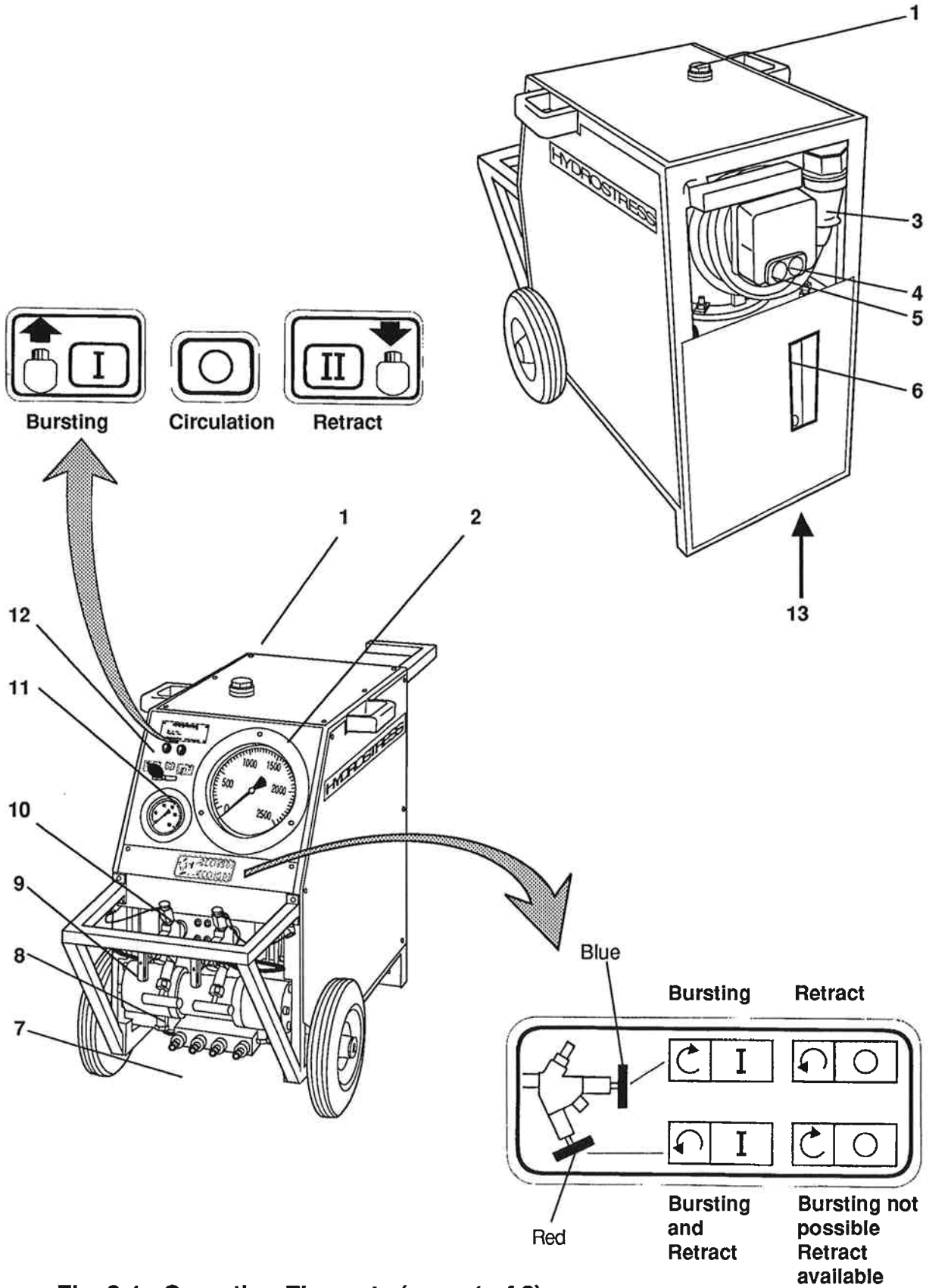


Fig. 3-1 Operating Elements (page 1 of 2)

In this manual we use the following remarks:

CAUTION

This headline indicates that any inappropriate compliance or noncompliance of instructions or procedures may cause injuries or fatal accidents.

IMPORTANT

This headline indicates that any inappropriate compliance or noncompliance of instructions or procedures may damage the unit.

NOTICE

The headline indicates an important feature.

Please observe any instructions and safety regulations attached to the unit.

Abbreviations:

- ETL - Spare parts list
- NA - Not shown in the illustration
- Fig. - Figure
- Tab. - Table
- HD - High pressure
- ND - Low pressure
- SW - Opening of the spanner
- ∅ - Diameter

In the following description the power pack AU will only be referred to as the "unit".

AU/SP/CP OPERATING ELEMENTS/CONNECTIONS

Pos.	Designation	Marking	Function/Indication
1	Reservoir cap	HYDRAULIC	Filling in hydraulic oil
2	HD pressure gauge	bar/P1	Indication of pressure in the HD circuit
3	Mains cable		Mains supply 380 V/50 Hz, CEE 16
4	Switch ON	GREEN	Switches the unit on
5	Switch OFF	RED	Switches the unit off
6	Oil level indicator	MIN/MAX	Level of hydraulic oil in oil reservoir
7	Plug-type nipple of return connection		Connection of ND hose
8	Shut-off valve RED	RED	Open: HD cock is opened Bursting and Retract possible Closed: HD cock is closed Bursting not possible
9	Pressure control valve BLUE	BLUE	Open: The pressure in the HD circuit is reduced to zero Closed: Pressure build-up in the HD circuit
10	HD connection Plug-type nipple		Connection of the HD hose with protective cap
11	ND pressure gauge	bar/P2	Indication of pressure in the ND range or in the booster circuit
12	Control valve	I/0/II	Position I: Bursting Position 0: Pressureless circulation Position II: Retract
13	Oil drain plug		Draining the hydraulic oil from the oil reservoir

Fig. 3-1 Operating Elements (page 2 of 2)

GENERAL SAFETY REGULATIONS

Please read these safety regulations very **CAREFULLY!**



The concrete bursting system must only be used for crushing concrete. **HYDROSTRESS** refuses any warranty and liability if the unit is not used for its intended purpose.



This unit operates at high pressure (2000 bar). Check the unit as well as the burster elements before starting your work according to our instructions (see cap. 5).



Make sure that the hydraulic lines cannot be damaged by falling concrete pieces.



Never connect or disconnect hoses or handle the burster elements when the unit is running or is under pressure.



Before carrying out any maintenance and repair works make sure that the unit is currentless and that there is no pressure in the hydraulic system.



Connect only **HYDROSTRESS** equipment to the unit. **HYDROSTRESS** refuses any liability if other than genuine equipment was used.



Only genuine **HYDROSTRESS** spare parts will ensure the perfect operation of the unit. **HYDROSTRESS** declines any liability for damages resulting from the use of other than genuine components.



Observe all general and specific regulations for prevention of accidents of the relevant professional and insurance associations.

SAFETY REGULATIONS FOR PREVENTION OF ACCIDENTS**CAUTION**

Nonobservance of the following safety regulations implies risk of accident.



Only instructed personnel, familiar with the system, are allowed to operate the bursting system.



Protect the working area from concrete pieces which come falling down. Secure the danger area by information signs or by barriers.



Do not lift the unit by means of a hemp rope (95 kg).

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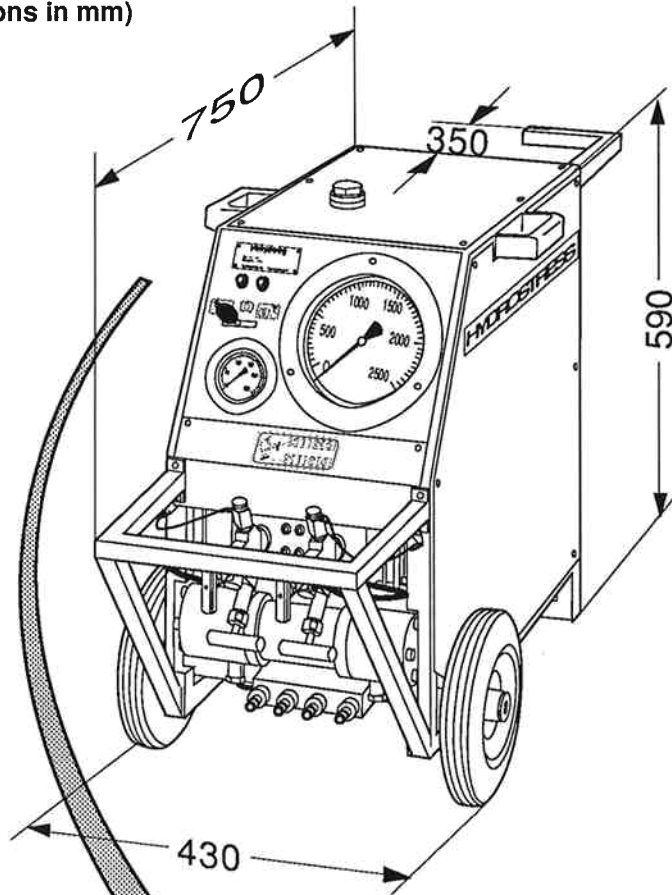
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TECHNICAL DATA AU

Total weight:	95 kg
Driving motor	Electric motor
- Power supply	380 V/50 Hz, 5-lead cable, 2.5 mm ²
- Power consumption	10 A at maximum load
- Output	2.2 kW (3 HP)
- Type of protection	IP 44
- Revolutions/min	2850 rpm
- Overload protection	Protective motor switch
Electric control:	
- Protective motor switch	Thermal type (heat package)
- Operation	On/Off switch on protective motor switch
Hydraulic design:	
- Tank capacity	13 l
- Flow rate	30 l/h, 2000 bar
- Hydraulic circuits	3 closed circuits
	- HD circuit 2000 bar max.
	- Booster circuit 80 bar max.
	- ND circuit 150 bar max.
- Possible connections	5 burster elements max. (with HD 4-way distributor)
- Force of pressure	2000 bar max.
- Radial piston pump	Prim. output: 14.4 l/min, 80 bar
	Sec. output: 2,4 l/min, 150 bar
- Filter refinement	10 µm
- Oil quality	Recommended: - Mobilfluid 316 or - Mobil D.T.E. 15
- Length of hose packages	For further details please refer to section „Maintenance“ 5 m

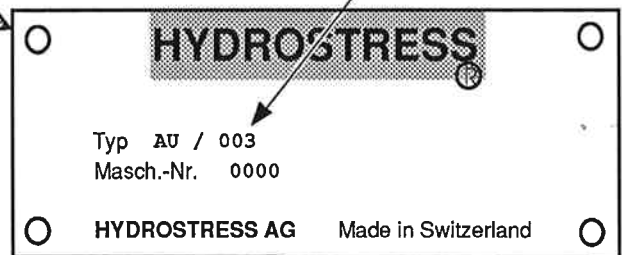
TECHNICAL DATA AU

(Dimensions in mm)



Power Unit AU
Total weight: 95 kg

Mutationscode



Type Plate AU

Fig. 0-1 Dimensions and Type Plate AU

TECHNICAL DATA SP/CP

Burster element	SP 140	SP280	CP110
Length of burster element	135 mm	265 mm	250 mm
Width of burster element	200 mm	200 mm	108 mm
Height of burster element	130 mm	130 mm	100 mm
Weigth of burster element	16 kg	32 kg	15 kg
Weight of compression plate	7 kg	7 kg	2 kg
Overall length incl. lines	430 mm	1020 mm	555 mm
Required boring	200 mm	200 mm	110 mm
Max. force of pressure	125 t	250 t	110 t
Number of pistons	1	2	3
∅ Pistons	70 mm	70 mm	40 mm
Piston stroke	60 mm	60 mm	25 mm
Piston surface under pressure	63,6 cm ²	127,2 cm ²	54,3 cm ²
Length of compression plate	265 mm	265 mm	250 mm
Max. working pressure	2000 bar	2000 bar	2000 bar
Max. return pressure	150 bar	150 bar	150 bar

Tab. 0-1 Technical Data of Burster Elements

TECHNICAL DATA SP/CP

(Dimensions in mm)

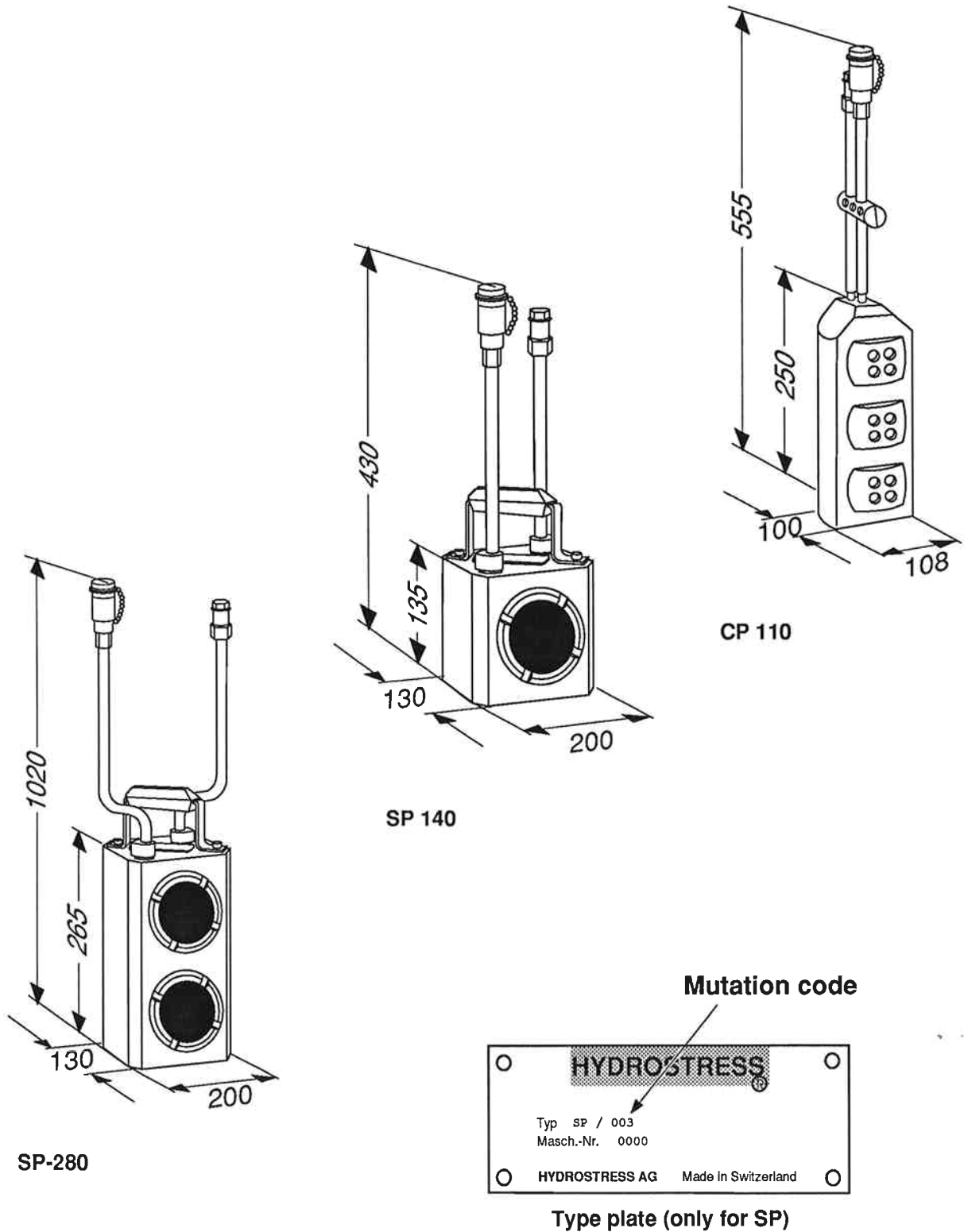


Fig. 0-2 Dimensions, Type Plate Burster Elements

1 RANGE OF APPLICATION

1.1 Connectable Burster Elements

Up to 5 burster elements can be connected to the unit (see Tab. 1-1).

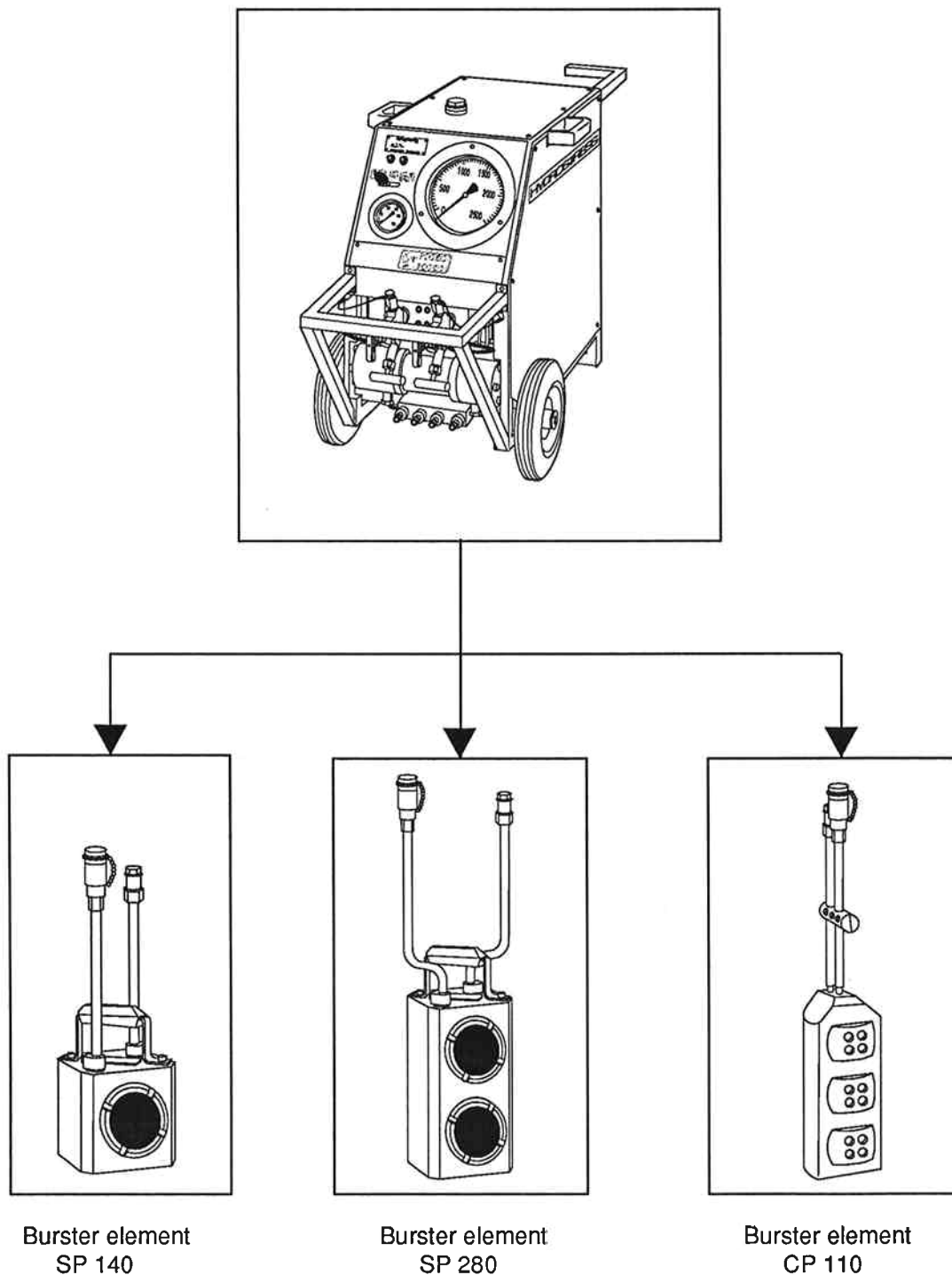


Fig. 1-1 Connectable Burster Elements

1.2 Connectable Units

The burster elements SP/CP can be operated by the unit described in this manual or by the petrol-operated power unit 4B-3000.

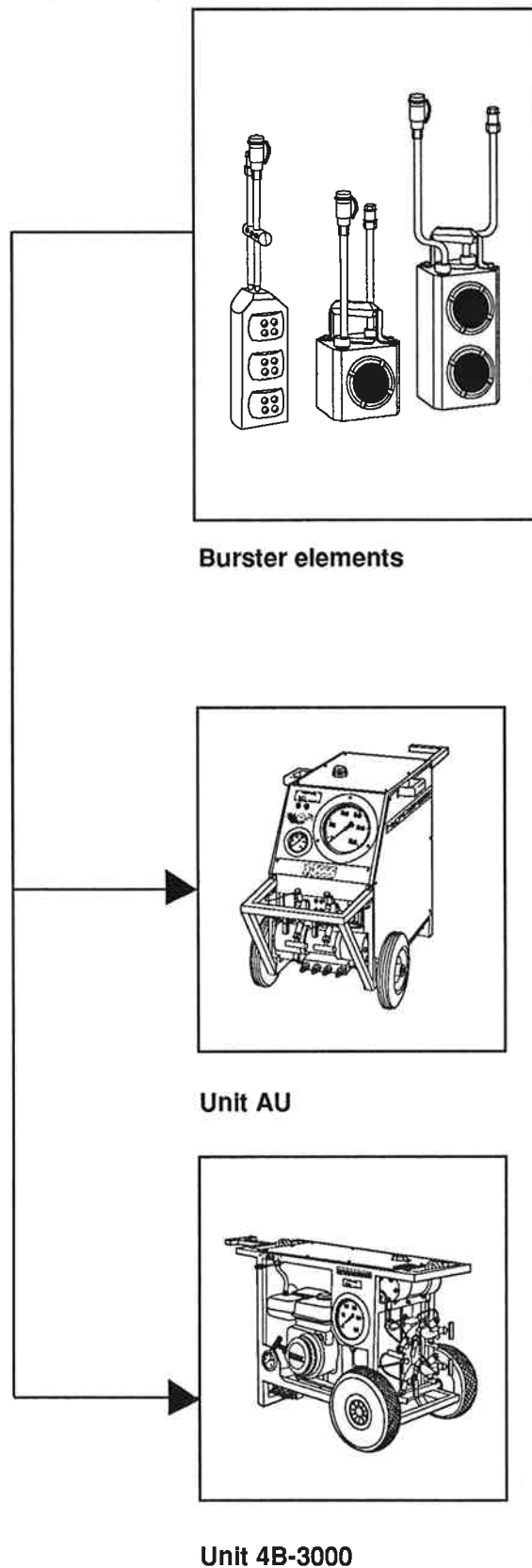


Fig. 1-2 Connectable Units

1.3 Possible Applications

- Demolition of walls
- Enlarging of cutouts in walls and floors
- Removal of foundations, piers, and bearers.

Number	SP 140	SP 280	CP 110
1	max. 125 t	max. 250 t	max. 110 t
2	max. 250 t	max. 500 t	max. 220 t
4*	max. 500 t	max. 1000 t	max. 440 t
8*	max. 1000 t	max. 2000 t	max. 880 t

* only with HD 4-way distributor

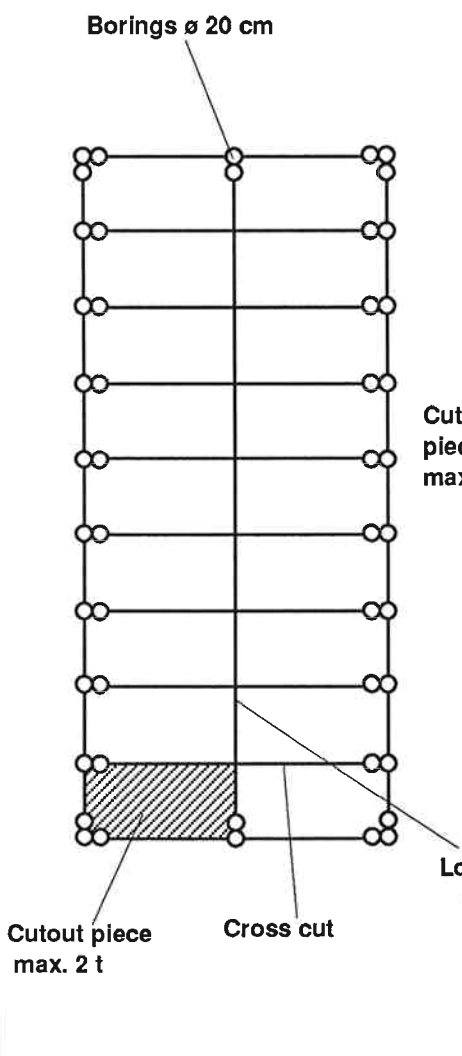
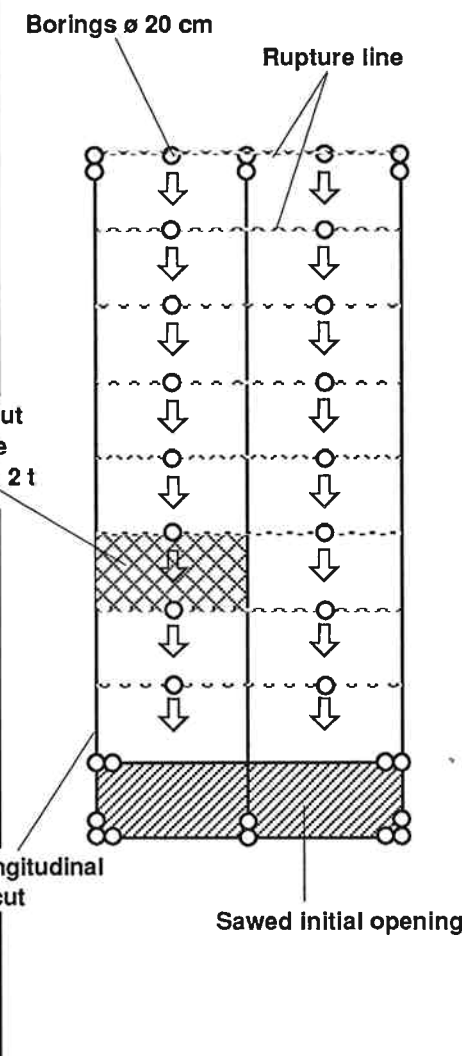
Tab. 1-1 Connection to Unit AU

1.4 Example of Application

An opening of a length of 10 m and a width of 3 m is to be cut out of a concrete floor showing a thickness of 50 cm. The fragments cut out must not be heavier than 2 t. The cuts must not exceed beyond the corners. Two variants are shown for the expenditure of work concerning the cutout of the opening (see Tab. 1-2)

Results of the example of application:

	Drilled depth	Sawed surface
Work expenditure without concrete bursting system	24 m	30 m ²
Work expenditure with concrete bursting system	17 m	18 m ²
Saving with concrete bursting system	7 m	12 m ²

Work	Without concrete bursting system	With concrete bursting system
<p>Drilling</p> <p>Depth 50 cm \varnothing 20 cm</p>	<p>40 borings for cross cuts 8 borings for longitudinal cuts</p> <p>Total: 48 borings x 0,5 m = 24 m</p>	<p>8 borings for cross cuts 10 borings for longitudinal cuts</p> <p>16 borings for burster element</p> <p>Total: 34 borings x 0,5 m = 17 m</p>
<p>Sawing</p> <p>Longitudinal and cross cuts at a depth of 50 cm</p>	<p>3 longitudinal cuts of 10 m = 30 m 10 cross cuts of 3 m = 30 m</p> <p>Total length: 60 m</p> <p>Total sawed surface: 30 m²</p>	<p>3 longitudinal cuts of 10 m = 30m 2 cross cuts of 3 m = 6 m</p> <p>Total length: 36 m</p> <p>Total sawed surface 18 m²</p>
	 <p>Borings \varnothing 20 cm</p> <p>Cutout piece max. 2 t</p> <p>Cross cut</p> <p>Longitudinal cut</p>	 <p>Borings \varnothing 20 cm</p> <p>Rupture line</p> <p>Cutout piece max. 2 t</p> <p>Sawed initial opening</p>

Tab. 1-2 Cutouts With and Without Burster Element

2 DESIGN AND FUNCTION

2.1 Design AU

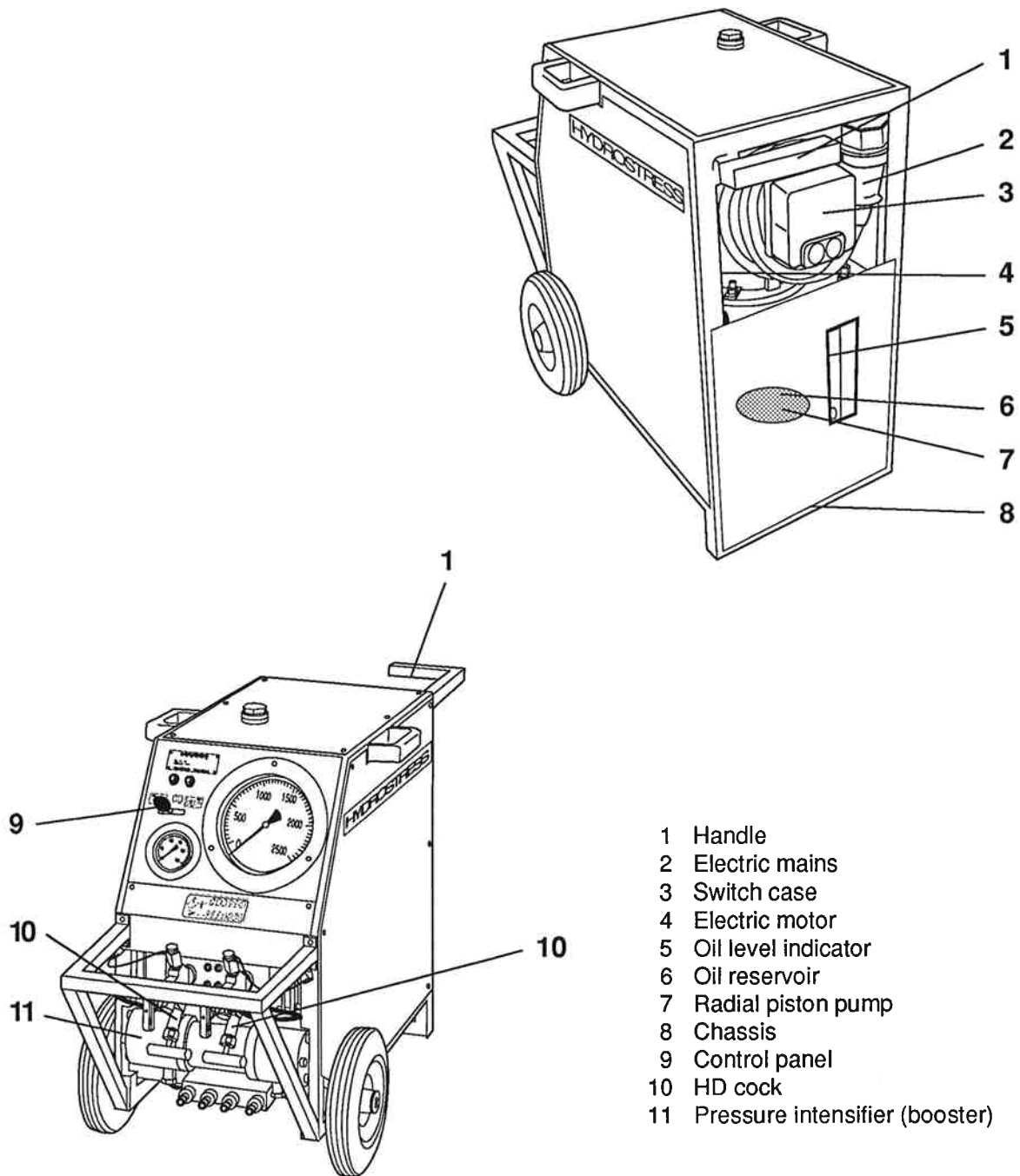


Fig. 2-1 Design AU

The unit is mounted into a chassis (8, Fig. 21-) consisting of a robust steel tube frame. The control panel (9) and the two HD cocks (10) are located at the front side, the switch case (3), the electric mains (2), the oil level indicator (5) and the sliding handle (1) are on the rear side.

- Drive Unit:** The drive unit is mounted in the rear part of the chassis. It consists of the electric motor (4) and the radial piston pump (7).
- Control panel:** The control panel comprises the operating and indication elements for the control of the hydraulic system (see section 3). The two HD cocks (10), the booster (11), and the hydraulic connections are placed beneath the control panel.
- Oil reservoir:** It is mounted in the lower part of the chassis. The filling neck with filter is located on top of the cover plate. The radial piston pump (7) with suction filter and further components of the hydraulic system are installed in the oil reservoir (6).
- Switch case:** The On/Off switches (red/green) for the electric motor and the mains cable (2) are fixed to the switch case.
- Hoses:** Required for each burster element:
 - 1 high pressure hose (HD)
 - 1 low pressure hose (ND)
- Booster:** The booster is a pressure intensifier. It increases the working pressure of the booster circuit at a rate of 1:25. This means that the pressure within the booster circuit increases to a pressure of 2000 bar in the high pressure circuit.

2.2 Design SP/CP

NOTE

The number of burster pistons excepted, the construction principle of the burster elements SP 140, SP 280, and CP 110 is the same. An example for the design is given by burster element CP 110.

The burster element CP 100 consists of the casing (3, Fig. 2-2), the three burster pistons (4), and the two connection lines (1, 2) for the high and low pressure circuits. The burster heads (5) of the CP 100 are screwed to the burster pistons and can easily be replaced. The burster piston is sealed by a piston sealing ring (7), the O-ring (8) and the oil wiper ring (11).

For SP 140 and SP 280 the two connection lines (1, 2) are available in two lengths.

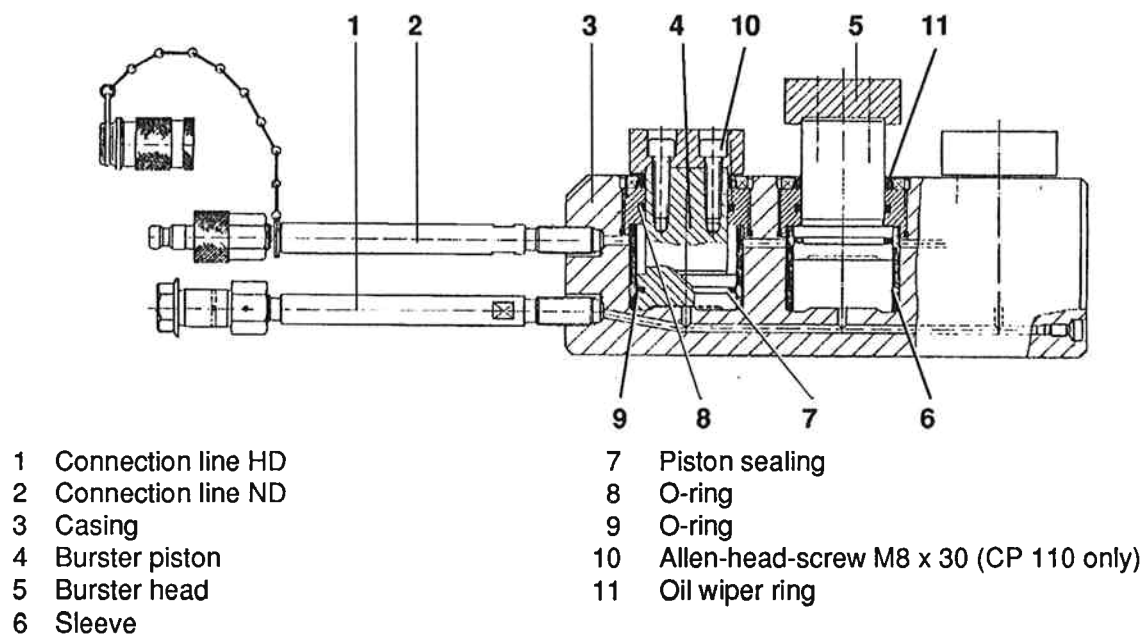
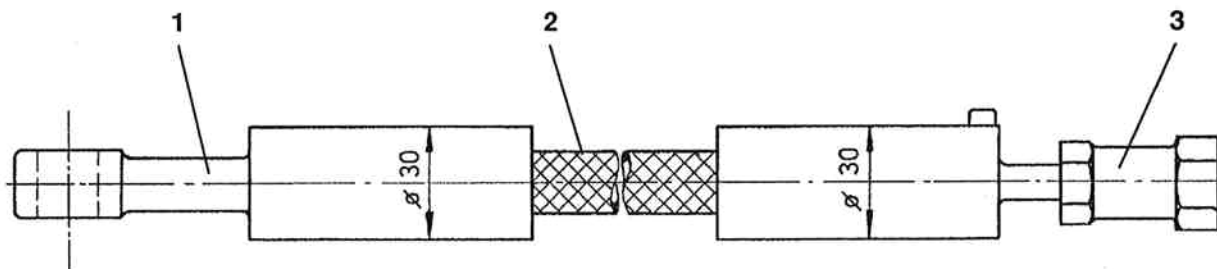


Fig. 2-2 Design of Burster Elements SP/CP

2.3 Design HD Hose

The HD (high pressure) hose is a hose with double shell (2, Fig. 2-3). In case of leakages or even rupture of the inner shell the hydraulic oil and the existing pressure are caught and retained by the outer shell. At the connection side to the unit the HD hose is provided with a screw-type HD fitting (3) and the connection side to the burster element with a plug-type HD fitting (1). These fittings need special care when in use. The plug-type fitting can be replaced by a screw-type fitting.



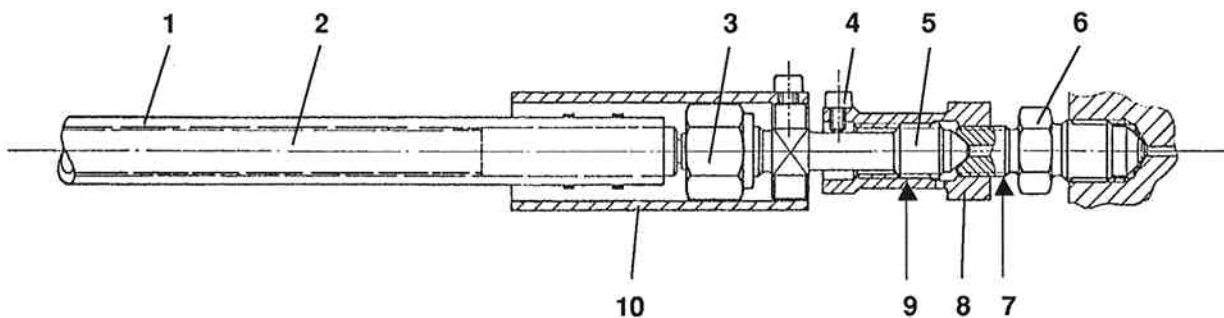
- 1 Plug-type fitting
- 2 Double shell hose
- 3 Screw-type fitting

Fig. 2-3 HD Hose

SCREW-TYPE FITTING

The screw-type fitting consists of the plug-type nipple (5, Fig. 2-4), the gripping tube (10) and the tensioning nut (8). The inside of tensioning nut with left-handed thread sits on the plug-type nipple (5). The stop screw (4) prevents the tensioning nut (8) from being screwed off.

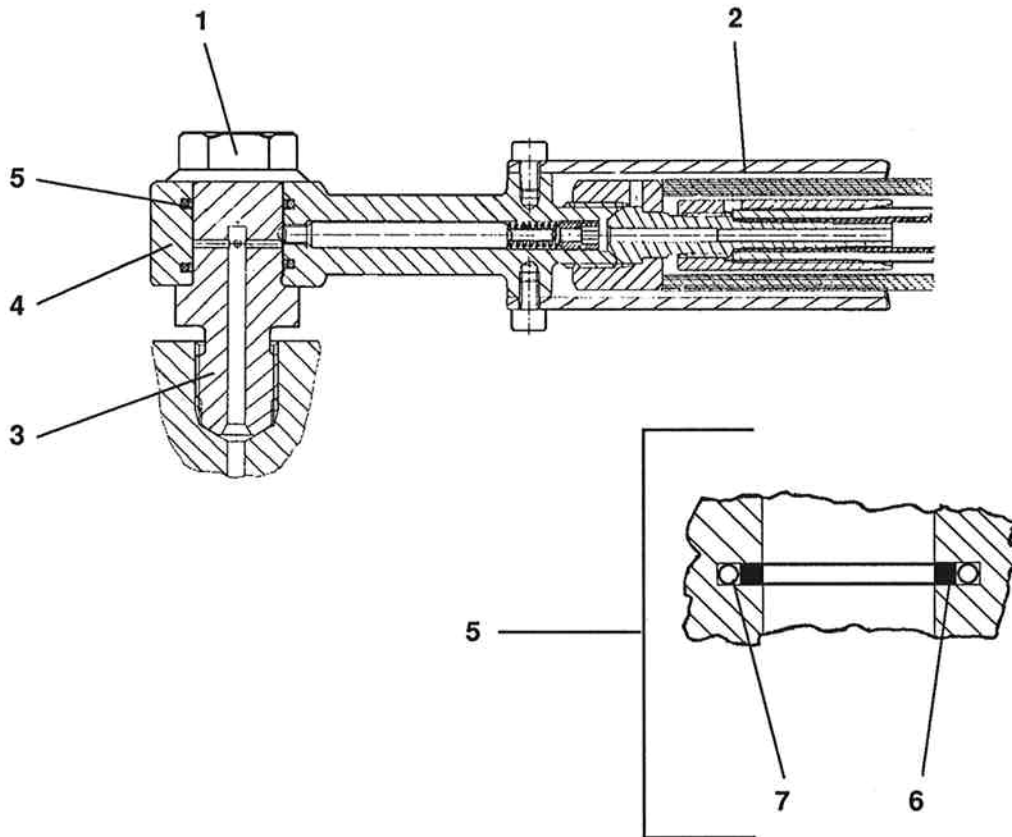
The tensioning nut is screwed onto the HD connection with its right-handed thread (7). Left-handed and right-handed thread are working in opposite direction, thus enabling an especially frictional connection of the sealing surfaces.



- | | |
|--------------------|----------------------------|
| 1 Outer hose shell | 6 HD connection at HD cock |
| 2 Inner hose shell | 7 Right-handed thread |
| 3 Union nut | 8 Tensioning nut |
| 4 Stop screw | 9 Left-handed thread |
| 5 Plug-type nipple | 10 Gripping tube |

Fig. 2-4 HD Screw-Type Fittings

HD PLUG-TYPE FITTINGS



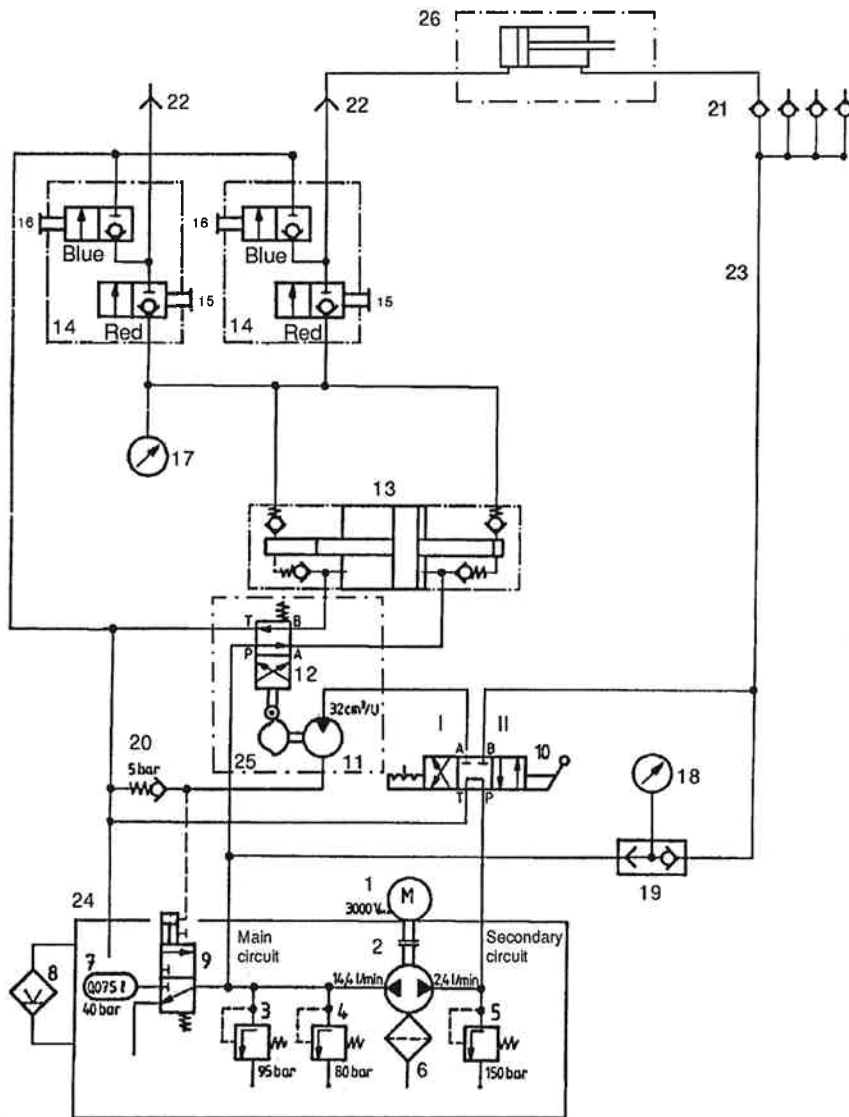
- 1 Nut
- 2 Gripping tube
- 3 Plug-type nipple
- 4 HD plug-type coupling

- 5 KSD Sealing, 2 parts
- 6 Sealing
- 7 O-ring

Fig. 2-5 HD Plug-Type Fittings

The plug-type fitting consists of the HD plug-type coupling (4, Fig. 2-5) with the sealings (5) and the gripping tube (2). The plug-type fitting can very easily be attached and removed again. This represents a considerable advantage when handling the burster elements. The HD plug-type coupling (4) and the plug-type nipple (3) match perfectly. Together with the two-piece KSD sealing they form a rotatable hydraulic connection.

2.4 Function



- | | |
|-----------------------------------|--|
| 1 Electric motor M | 14 HD cock |
| 2 Radial piston pump | 15 Shut-off valve, red |
| 3 Pressure control valve, 95 bar | 16 Pressure controller, blue |
| 4 Pressure control valve, 80 bar | 17 Pressure gauge, 0 - 1500 bar |
| 5 Pressure control valve, 150 bar | 18 Pressure gauge, 0 - 250 bar |
| 6 Suction filter | 19 Shuttle valve |
| 7 Accumulator | 20 Back pressure valve |
| 8 Oil level indicator | 21 Plug-type nipple, return connection |
| 9 Directional control valve 3/2 | 22 Screw-type HD nipple |
| 10 Control valve | 23 ND line |
| 11 Motor of control unit | 24 Oil reservoir |
| 12 Valve of control unit | 25 Control unit |
| 13 HD booster, 1:25 | 26 Burster element |

Fig. 2-6 Functional Scheme of Hydraulic System

4 TRANSPORT

The unit can easily be transported, since it is light-weighted, has good dimensions (see Technical Data) and features a user-friendly technical design.

Please observe the following when transporting unit:

General: Make sure that the HD cocks do not touch any obstacles. Damages may lead to difficulties when operating the cocks. Close the hydraulic lines of the burster elements and the HD connections at the unit with dust caps. Slide the handle in for transport purposes. Do not tilt the unit for transport purposes.

The hydraulic system is a closed circuit. There are no leakages during transport.

CAUTION

Do not use a hemp rope for lifting the unit. Total weight: 95 kg.

Transport by crane: For lifting the unit fix the lifting device at at the two transport handles on top of the chassis.

Transport by car: Secure the unit against shifting and tilting on the loading area. Because of its small dimensions it can also be transported in normal station wagons.

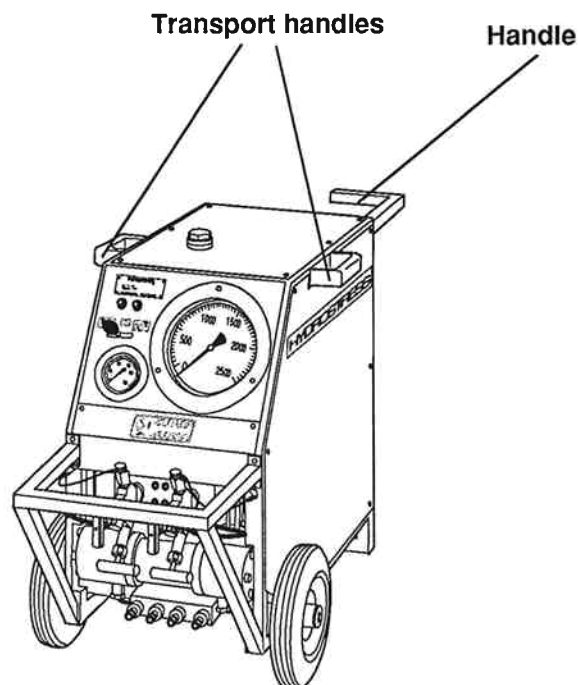


Fig. 4-1 Fastening for Transport

5 PREPARATORY OPERATIONS**5.1 General**

Proceed as follows:

1. Concrete reinforcement: Determine the thickness and the position of the iron reinforcement:
 - architect's plan or reinforcement plan
 - test borings
2. Force of pressure: Which force of pressure is needed?
Determine the minimum force of pressure (see 5.2.1)
3. Built volumes: Make sure that the built volumes to be maintained cannot be damaged or destroyed.
4. Fragments:
 - Which is the maximum admissible weight or size of the fragments?
 - Where can the pieces fall? Consider the weight of concrete (1 m³ weighs approximately 2.6 t).
5. Construction site: Secure the danger area. No access for unauthorized persons.
6. Maintenance: Carry out the prescribed checks of the unit before starting the works.

5.2 Burster elements

Number and type of the appropriate burster elements as well as number and position of the borings are determined on the basis of an example of a concrete wall which has a thickness of 60 cm and is provided with iron reinforcement (Fig. 5-1).

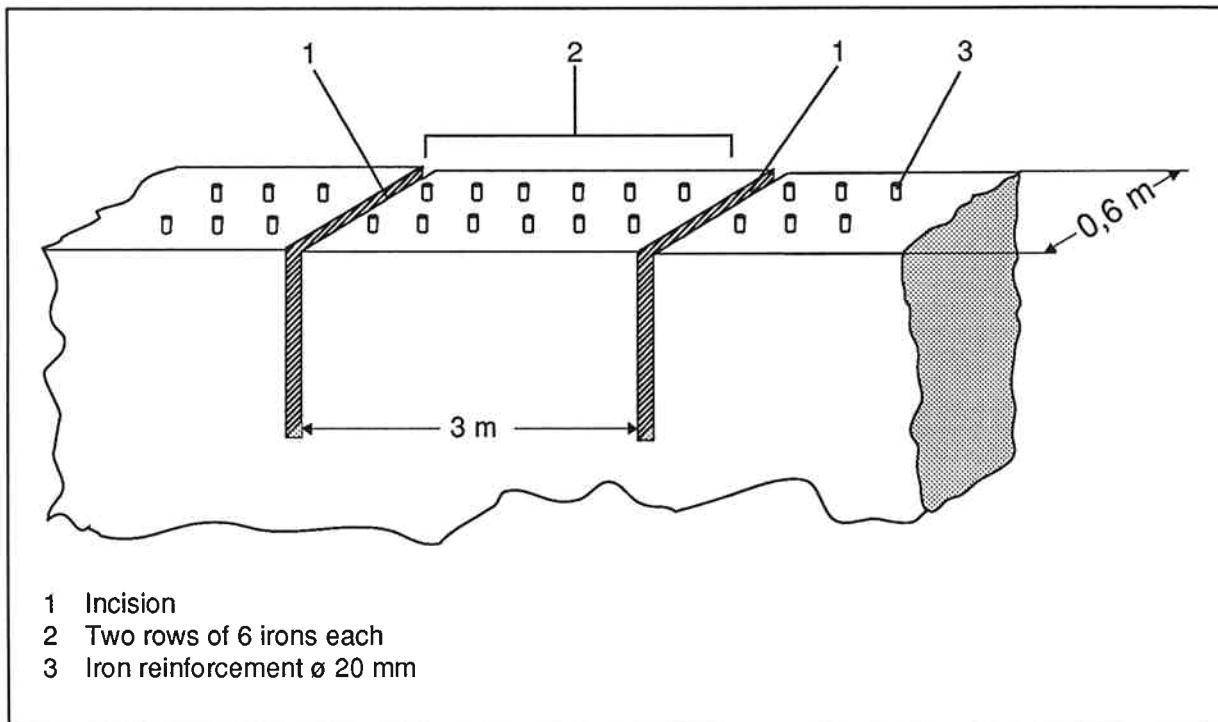


Fig. 5-1 Concrete Wall with Iron Reinforcement

5.2.1 Calculation of the Minimum Force of Pressure

The required minimum force of pressure must exceed the tensile strength of the iron reinforcement and that of the concrete.

Minimum force of pressure = tensile strength of iron + tensile strength of concrete

Share of iron reinforcement = tensile strength of iron x surface of iron
 Share of concrete = tensile strength of concrete x surface of concrete

Tensile strength of iron = max. 80 kg/mm²
 Tensile strength of concrete = max. 15 t/m²

Surface of iron = $2 \times 6 \times (20 \text{ mm} / 2)^2 \times \pi = 3768 \text{ mm}^2$
 Surface of concrete = $3 \text{ m} \times 0.6 \text{ m} = 1.8 \text{ m}^2$

Share of iron reinforcement = $80 \text{ kg/mm}^2 \times 3768 \text{ mm}^2 = 301440 \text{ kg} \approx 300 \text{ t}$
 Share of concrete = $15 \text{ t/m}^2 \times 1.8 \text{ m}^2 = 27 \text{ t}$

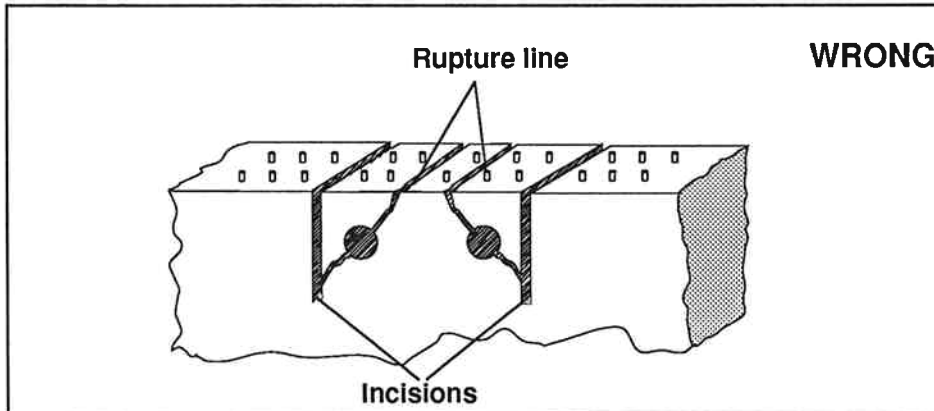
Minimum force of pressure = $300 \text{ t} + 27 \text{ t} = 327 \text{ t}$

This means that a force of pressure of at least 327 t will be required in order to demolish a piece of wall which has a surface of 1.8 m² and is provided with 12 reinforcement irons of \varnothing 20 mm. According to tab. 1-1 either 3 burster elements type CP 110 or 2 burster elements type SP 280 can be applied for this purpose

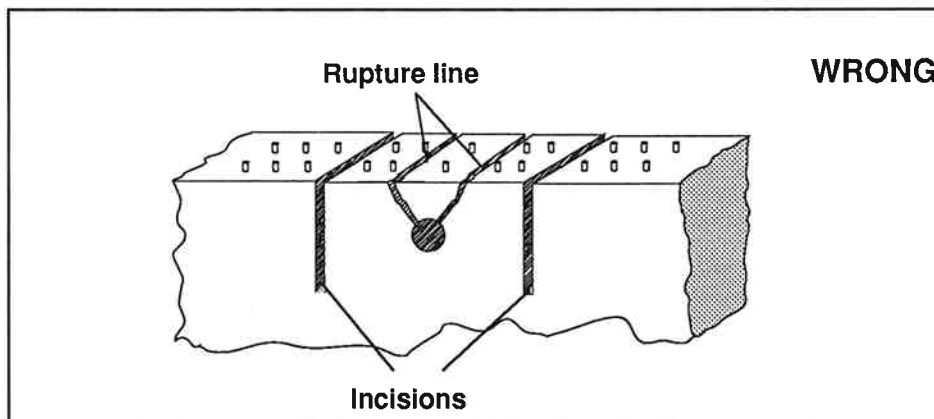
5.2.2 Position of the Burster Borings

Observe the following indications in order to obtain a defined rupture line for the bursting process:

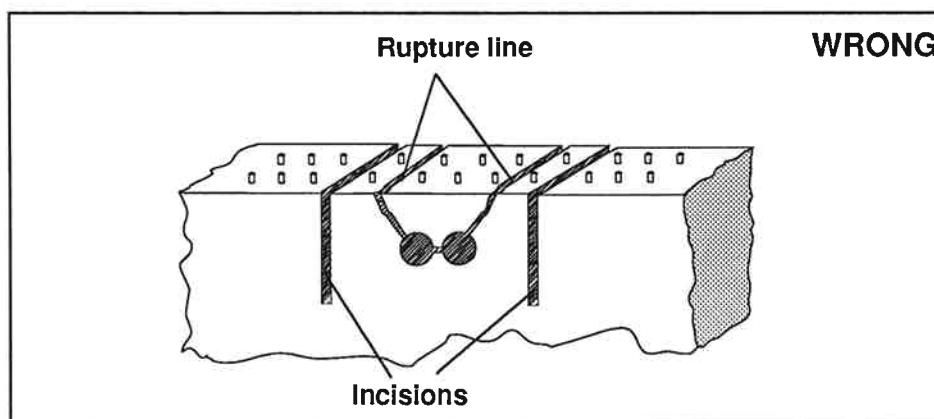
1. Do not position the borings too near the edges of the concrete piece to be cut out. When the distance to the edges is not sufficient, the material between the boring and the surface can break off (see Fig. 5-2).
2. Do not position the borings too near to one another. When the distance is not sufficient, only the central part is broken off and the edges might be maintained.



Borings too near to the incision edges



Borings too near to the surface



Borings too near to one another

Fig. 5-2 Wrong Position of Burster Borings

3. The best position of the burster borings is shown in Fig. 5-3 for two, and in Fig. 5-4 for 3 burster elements.

NOTE

- Position the borings regularly along the ideal rupture line (only by doing so you will obtain a constant contact pressure on the overall surface).
- Make sure that the minimum distances are observed ($1/4 L$ for two burster elements, $1/6 L$ for three burster elements).
- Make sure that the desired rupture line is in perpendicular position to the iron reinforcement.

4. The borings must have a depth which allows the complete insertion of the burster elements into the borings (Fig. 5-4).

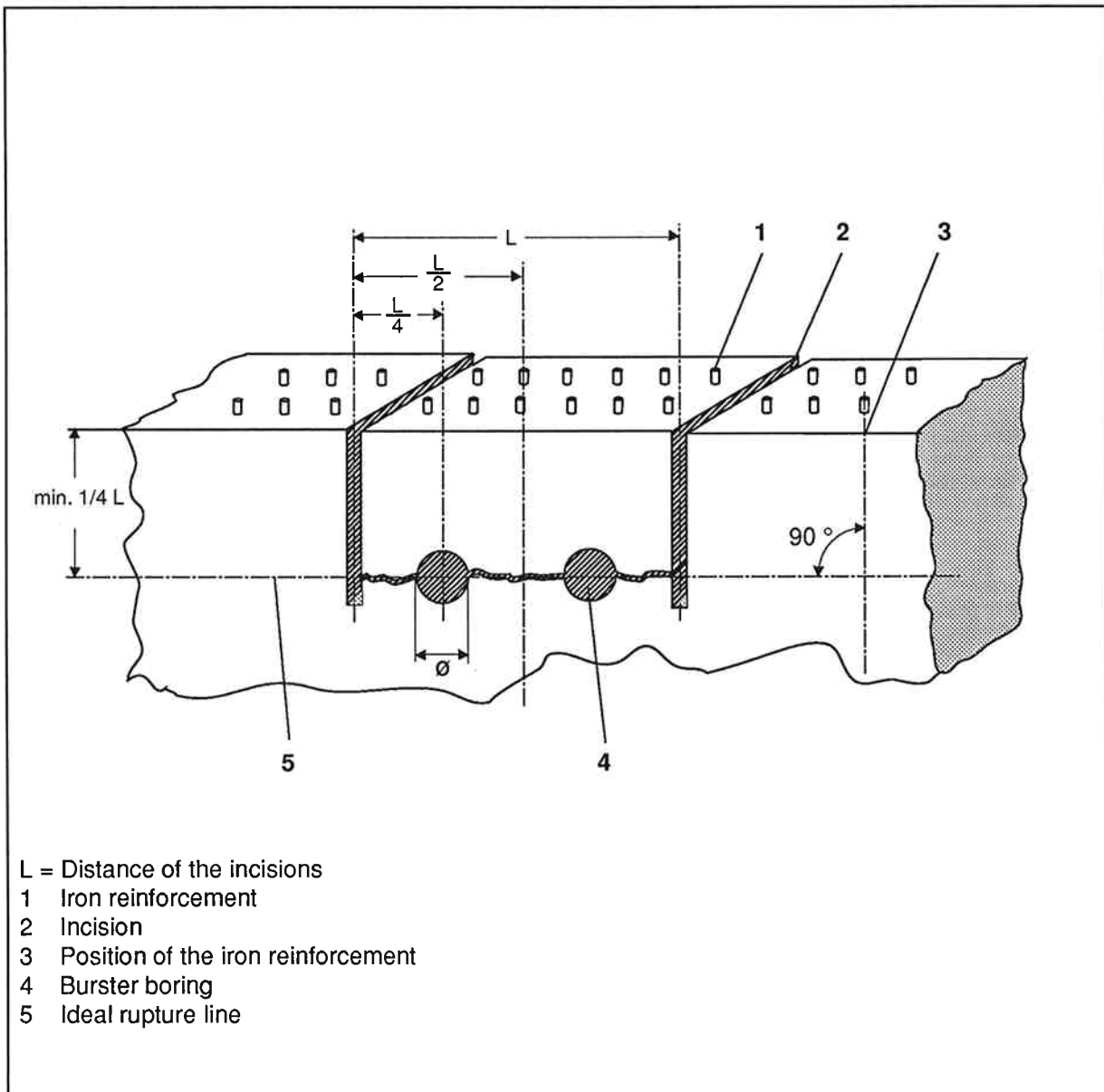


Fig. 5-3 Burster Borings for Two Buster Elements

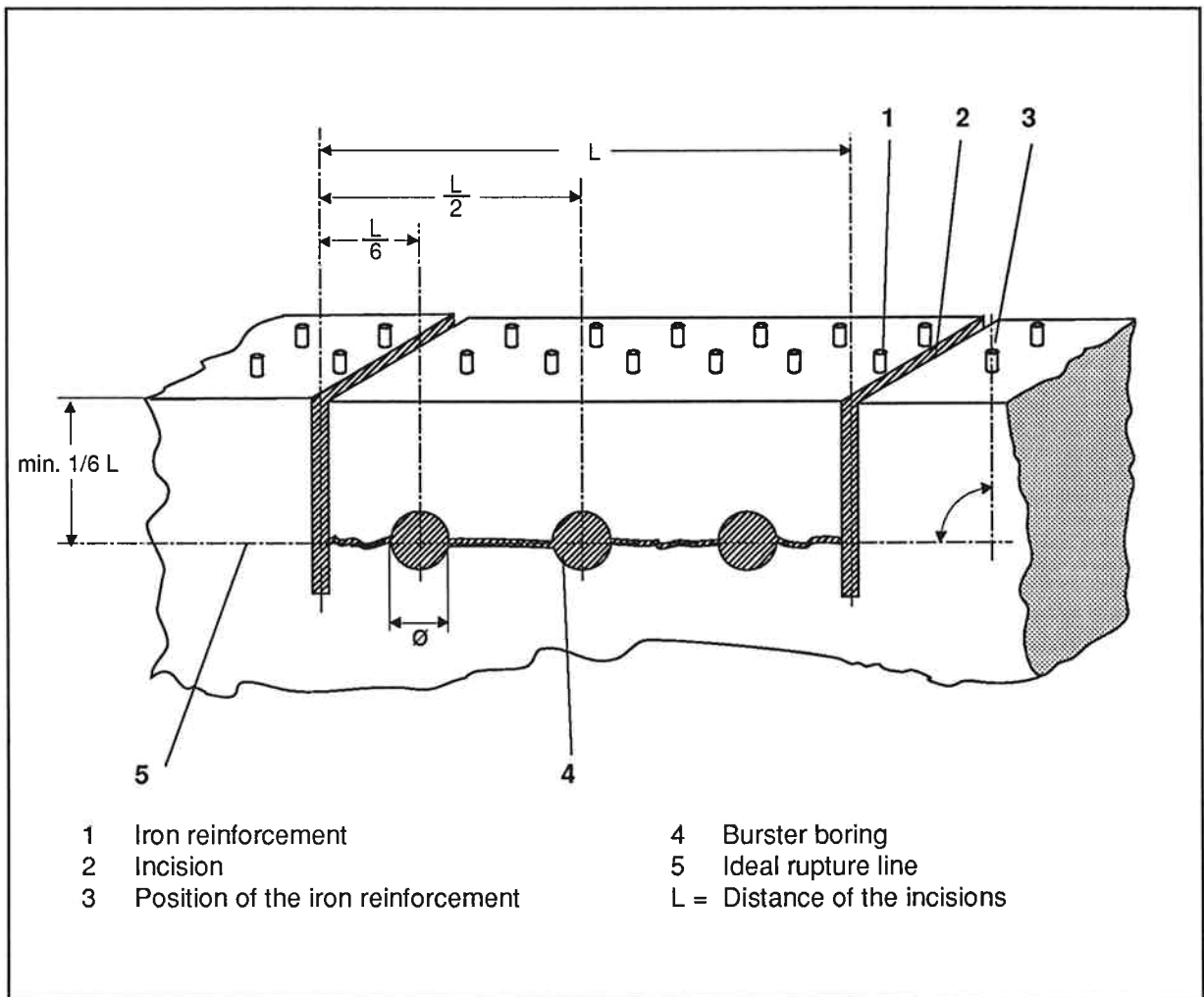


Fig. 5-4 Burster Borings for Three Burster Elements

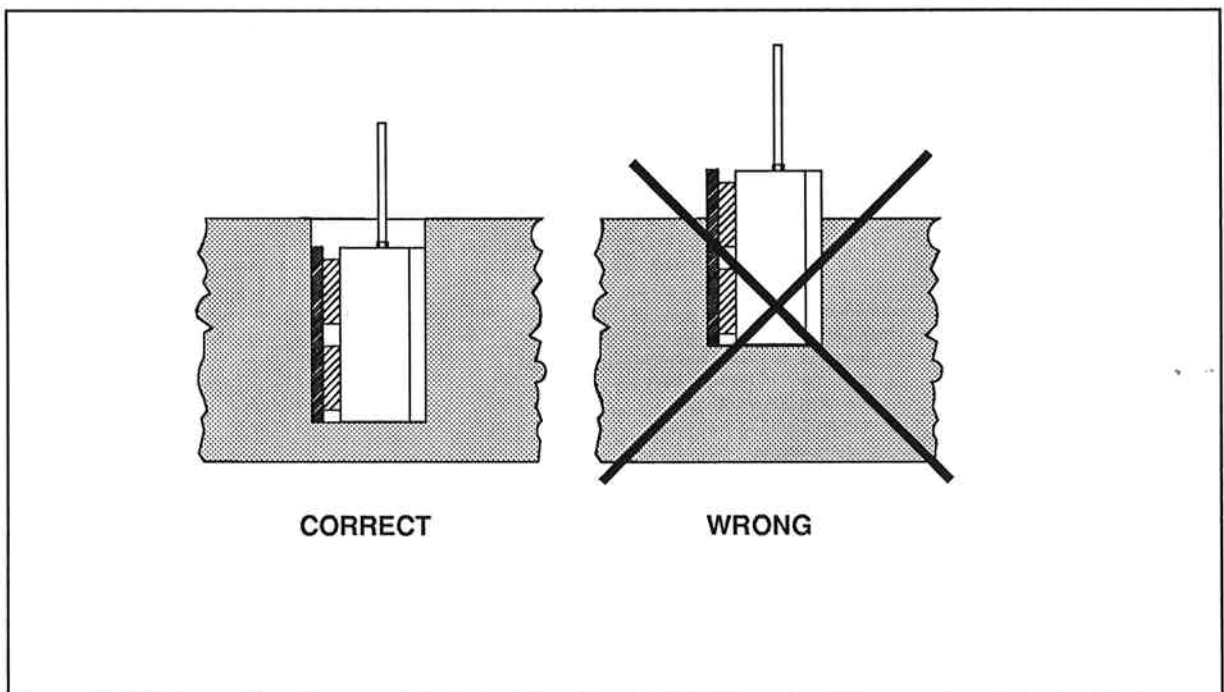


Fig. 5-5 Depth of Burster Borings

5.2.3 Application of the Burster Elements

IMPORTANT

- Make sure that the reaction power of the burster elements cannot damage the built volumes to be maintained (foundations). Before working with the burster elements have the statics checked by a structural engineer.
- HYDROSTRESS declines any liability when the burster elements are not used appropriately.
- Insert the burster elements into the borings so that the pistons are in perpendicular position to the rupture line (see Fig. 5-6).

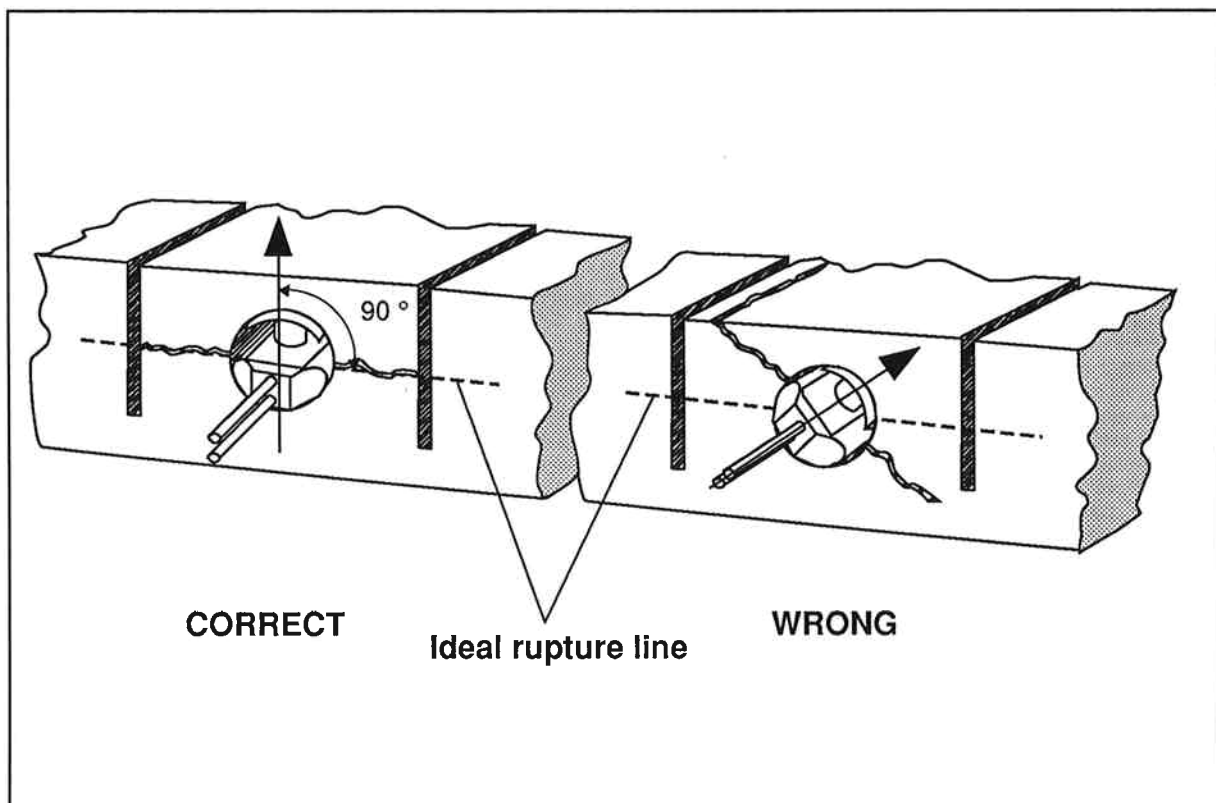


Fig. 5-6 Insertion of Burster Elements into Borings

IMPORTANT

Insert burster elements SP 140 and SP 280 only together with compression plate.

5.3 Unit AU

- | | | |
|----|---|--|
| 1. | Power supply connection: | Minimum fusible cutout: 16 A
Required connection cable: 5-lead x 2.5 mm ² cross section |
| 2. | Daily visual inspection
(see section 7): | - Oil level (do not fill above maximum level!)
- Oil loss
- Dirt accumulation
- Damages of and dirt accumulations on couplings and HD fittings
- Damaged hoses |

5.4 Hose Connections**CAUTION**

Never connect or disconnect hoses when the unit is running or under pressure. Never force connections.

IMPORTANT

Always connect the return hose of the burster element first. Keep the couplings always clean.

Every burster element is connected to the unit by means of a HD hose which is provided with special couplings, and by means of a ND hose.

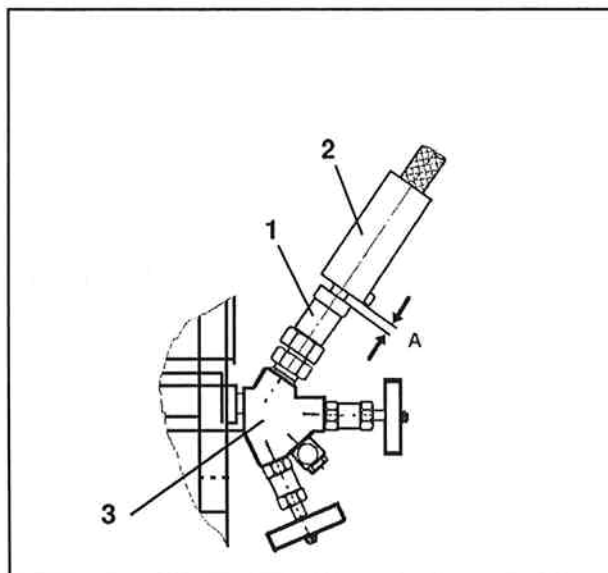
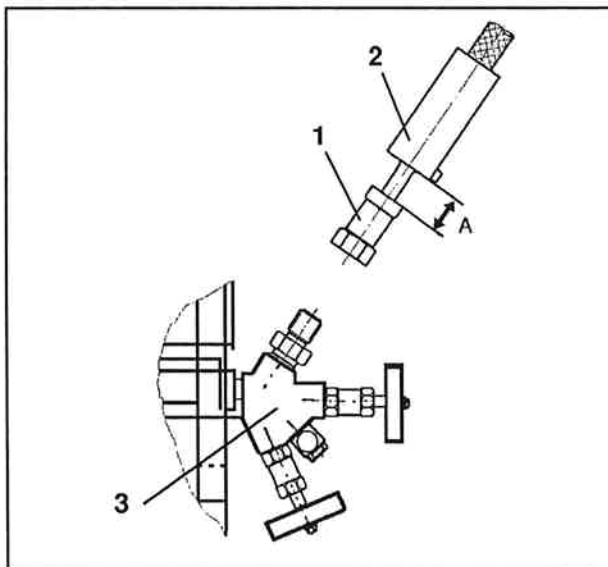
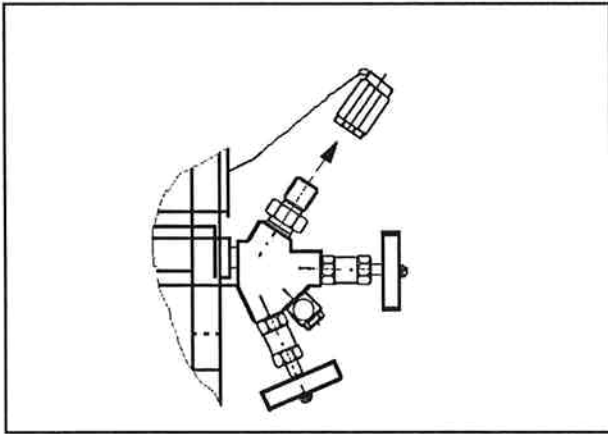
5.4.1 Connecting the Return Hose

Connect the return hose to the unit and to the burster element. Push the hose couplings onto their counter-part until they are audibly locked into place.

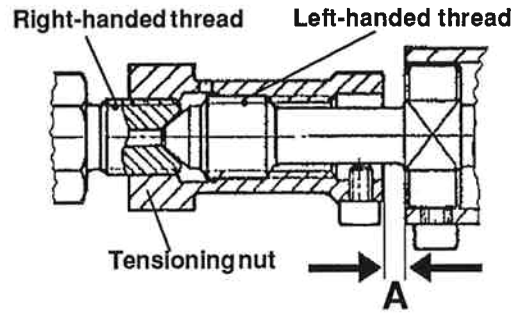
IMPORTANT

Make sure that the couplings of the return hose are correctly locked into place.

5.4.2 Connecting HD Hose to the Unit



NOTE



1. Remove the protective cap (SW22) from the HD cock.
2. Unscrew the tensioning nut (1) of the HD hose (2) by turning it clockwise until its stop (maximum distance A).
3. Screw the tensioning nut (1) of the HD hose (2) onto the HD cock (3) and tighten it by means of the fork wrench (SW22) hand-tightly (minimum distance A).

IMPORTANT
 If, after having tightened the tensioning nut, there is no distance A, tensioning nut and screw-type nipple must be replaced.

Fig. 5-7 Connecting HD-Hose to the Unit

5.4.3 Connecting High Pressure Hose to the Burster Element

IMPORTANT

For perfect functioning plug-type fittings and plug-type nipple must be in absolutely perfect condition.

1. Check whether
 - the sealing rings of the plug-type fittings are correctly positioned and that they are not damaged;
 - the plug-type nipple at the burster element ist clean and that it is not damaged.

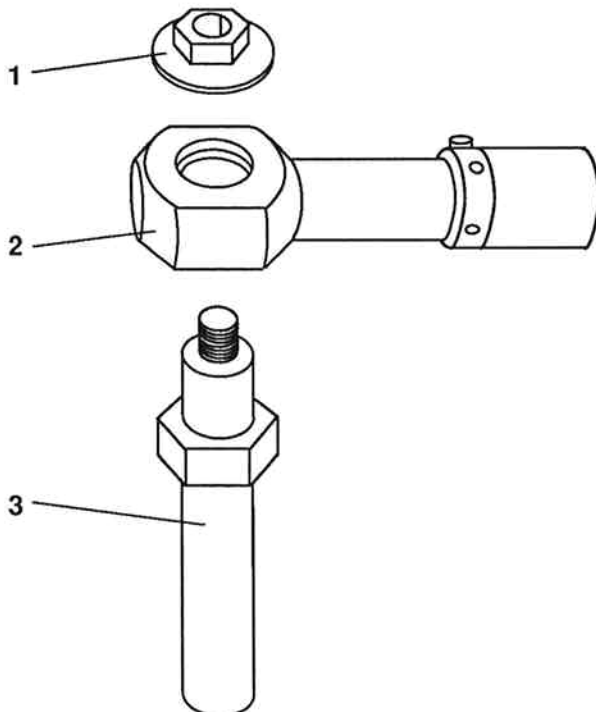
Damaged sealings are to be replaced according to 7.2.1.

2. Remove the securing nut (1, Fig. 5-8).

IMPORTANT

- Do not force. Do not jam the connections.
- Tighter securing nut (1) only manually.
- In case of oil losses replace the sealings of the HD plug-type fittings (2) (see 7.2.2)

3. Push the HD plug-type fittings (2) cautiously onto the plug-type nipple (3).
4. Fix the securing nut (1) and tighten it manually.



- 1 Securing nut
- 2 HD plug-type fittings
- 3 Plug-type nipple at the burster element

Fig. 5-8 Connecting HD Hose to the Burster Element

5.4.4 Prolonging HD Hose

Two or more HD hoses can be coupled together in order to obtain a greater hose length. For this purpose the plug-type fitting of the first and every further HD hose must be replaced by a screw-type fitting. By means of the HD double nipple (see Fig. 5-9) the two HD hoses can be screwed together. Order numbers, see Fig. 11-5.

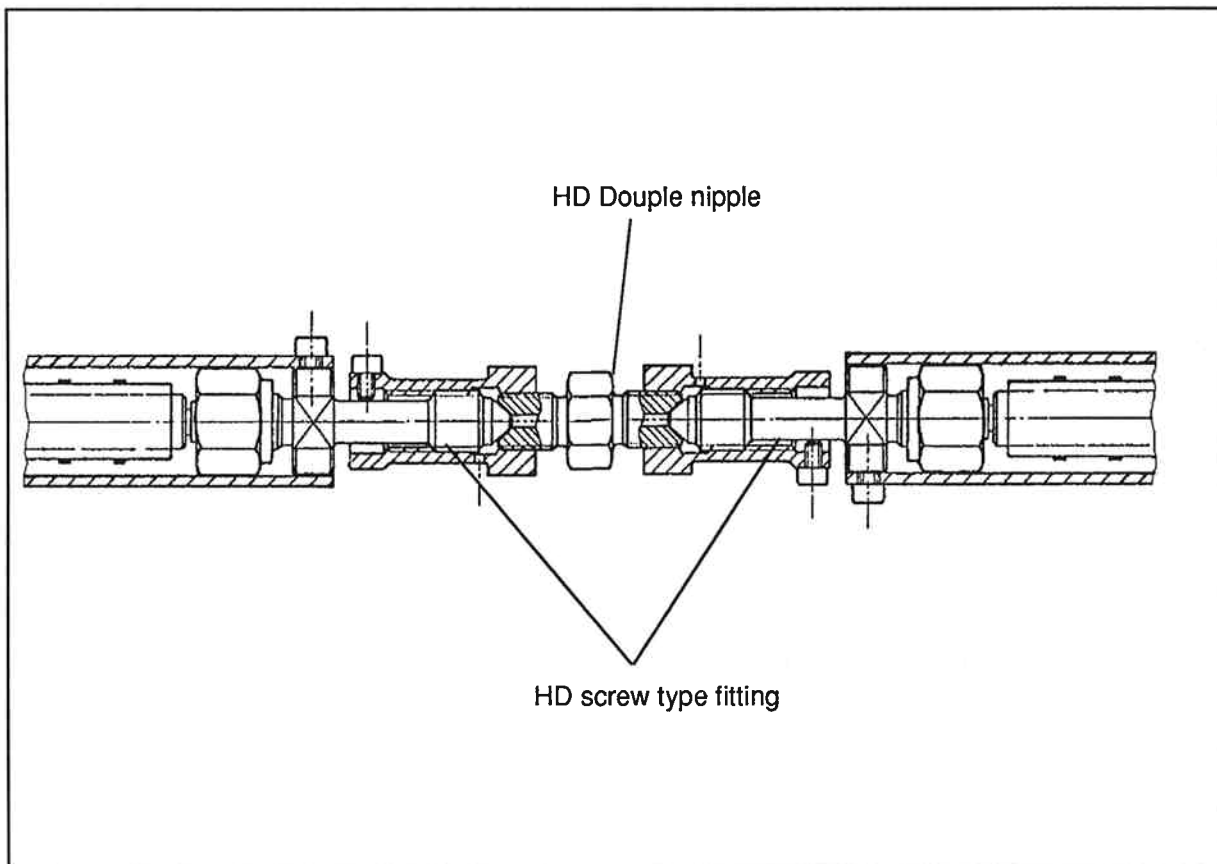


Fig. 5-9 Prolonging HD Hose

5.4.5 Prolonging ND Hose

The connection of the ND hoses can be carried out by means of the ND double nipple (order number, see Fig. 11-5).

6 OPERATION

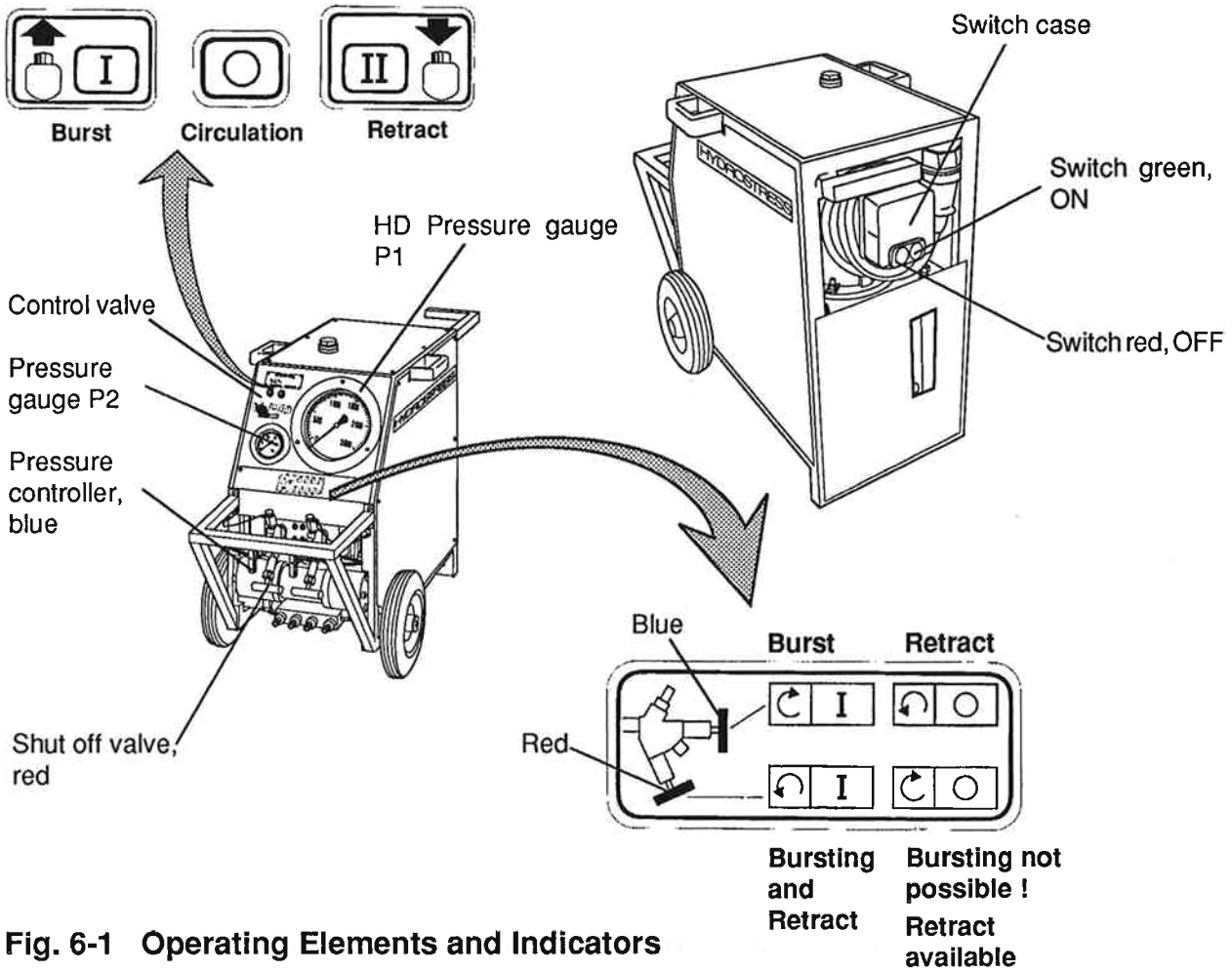


Fig. 6-1 Operating Elements and Indicators

IMPORTANT

Do not close the shut-off valve RED and the pressure controller BLUE by force. Only tighten them slightly with two fingers.

BEFORE STARTING

IMPORTANT

When one of the HD cocks is not in use, its shut-off valve (RED) must be closed.

1. Set the control valve into position 0.
2. Pressure controller BLUE is open.
3. Shut-off valves RED of the connected HD circuits are open.
4. Shut-off valves RED of the disconnected HD circuits are closed.

STARTING

Depress the switch (GREEN) at the switch case. The unit starts running.

OPERATION

1. Set the control valve into position I, BURST.
2. Slowly close the pressure controller (BLUE): The burster element is supplied with pressure and The burster pistons extend. Check the pressure indication at the pressure gauge P1. Maximum admissible pressure is 2000 bar.
3. After having finished the bursting procedure switch the control valve into position 0. (The pressure at the burster element is maintained).
4. Open the pressure controller (BLUE) in order to reduce the pressure at the burster element to zero.
5. Set the control valve to position II. The burster pistons retract. Check the pressure indication at the pressure gauge P2. Maximum admissible pressure is 150 bar.
6. Switch the control valve into position 0.
7. Reposition the burster elements and repeat working steps 1 through 6.

NOTE

When the piston stroke is not sufficient, repeat working steps 1 through 6 and use the compression plate.

SWITCHING OFF

1. Depress the switch (RED) at the switch case. The power unit is shut down.
2. Open the pressure controller (BLUE).

CAUTION

- Never disconnect the hydraulic hoses when the motor is still running.
- Before disconnecting the hoses switch the control valve several times from position I to II and vice versa. Thus it is ensured that there is no pressure in the return circuit.

IMPORTANT

- Keep the hose couplings always clean. Do not drop the hose couplings.
- In order to avoid damage to the hose couplings, never slide the hoses on the ground.

3. Remove the HD hose. Immediately place the dust caps on the HD cock.
4. Disconnect the ND hose. Immediately place the dust caps on the burster element.

CLEANING**IMPORTANT**

Cautiously clean the HD pressure gauge and the switch case.

Clean the unit, the burster elements and the hoses with water or by means of a high pressure cleaning apparatus.

7 SERVICING AND MAINTENANCE

Maximum performance and optimum reliability of the concrete bursting system are obtained as long as you carry out the necessary maintenance works - or have them carried out - at regular intervals indicated in the following tables.

These maintenance works are specified as being obligatory by the manufacturer. HYDROSTRESS will reject any liability for damages resulting from nonobservance of the maintenance intervals and of maintenance works.

CAUTION

Before carrying out any maintenance works make sure that the unit is currentless and that there is no pressure in the hydraulic system.

Maintenance Interval	Activity	Remarks
Daily	<ol style="list-style-type: none"> 1. Check for leakage. 2. Check the firm seat of the hydraulic lines and that they are not damaged. 3. Check the burster heads for damage, if necessary, replace them. 4. Check couplings for: <ul style="list-style-type: none"> - leakage - damage 5. Clean the piston surface. 	<p>Check cause of leakage and eliminate it.</p> <p>Tighten loose connections, replace defective parts.</p> <p>Have burster element SP with damaged burster heads repaired. Replace damaged burster heads of CP 110, see 7.2.1</p> <p>Replace or have replaced damaged couplings. Replace KSD sealings at leaking HD couplings, see 7.2.2</p> <p>Extend the pistons of the burster element. Clean the piston surface with an oilsoaked cloth.</p>

Tab. 7-1 Table of Maintenance Works SP/CP

Maintenance interval	Activity	Remarks
Daily	<ol style="list-style-type: none"> 1. Visual inspection of <ul style="list-style-type: none"> - leakage - dirt accumulation 2. Check screw connections for firm seat 3. Check level of hydraulic oil 4. Check couplings for <ul style="list-style-type: none"> - leakage - damage 	<p>Detect and eliminate cause Clean with water, steam jet etc.</p> <p>Tighten loose screw connections</p> <div style="border: 1px solid black; background-color: #cccccc; padding: 5px; text-align: center;"> <p>IMPORTANT Never operate the unit when the oil level is below minimum!</p> </div> <p>Do not refill above maximum!</p> <p>If necessary, replace couplings</p>
100 operating hours	<ol style="list-style-type: none"> 1. Change of hydraulic 2. Clean the suction filter or replace it if necessary 	<div style="border: 1px solid black; background-color: #cccccc; padding: 5px; text-align: center;"> <p>IMPORTANT Use only the prescribed hydraulic oils: Mobilfluid 316 or Mobil D.T.E. 15</p> </div>
200 operating hours	Major servicing	Is carried out either by HYDROSTRESS or an authorized HYDROSTRESS representation exclusively.

Tab. 7-2 Table of Maintenance Works AU

7.1 Oil Change and Cleaning of Filter

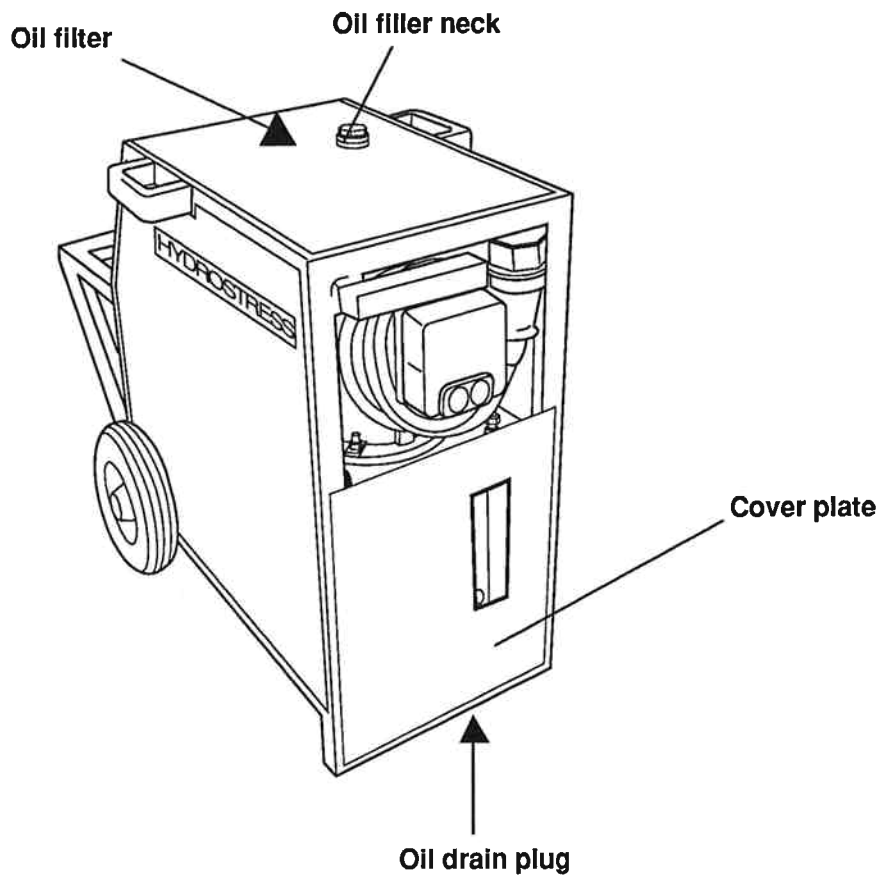


Fig. 7-1 Oil Change and Cleaning of Suction Filter

You need:

1. a collecting pan with a capacity of approx. 15 l for the old hydraulic oil;
2. a wrench, size 10 mm, for the oil drain plug;
3. oil filter band;
4. approx. 13 l hydraulic oil (see below);
5. a new filter.

Oil Quality:

HYDROSTRESS recommends the following hydraulic oils:

For Switzerland: - Mobilfluid 316
International: - Mobil D.T.E.15

After long years of experience these hydraulic oils have proved to be particularly long-lived and resistant.

IMPORTANT

- When these oils are not available, make absolutely sure to use branded hydraulic oil of equal quality. The following requirements must be met:
 - Pour point at least at -30 °C or lower
 - Viscosity index at least 150 or more
 - Viscosity class HLP VG 46 or ISO 3498 HV 46
 - Wearing protection according to DIN 51524, part 3 (HV 46)
- Replenish the oil reservoir with oil products of different brand only after having drained and cleaned the reservoir from the remaining oil, since mixtures of various hydraulic oils are subject to rapid aging.

CARRY OUT THE CHANGE OF THE HYDRAULIC OIL AND THE CLEANING OF THE FILTER AS FOLLOWS:

CAUTION

Avoid any direct contact with hydraulic oil. When it happens, however, wash the hydraulic oil off immediately.

1. Remove the rear cover plate.
2. Place the collecting pan.
3. Remove the cap from the oil filler neck.
4. Remove the oil drain plug and drain the hydraulic oil completely.
5. Fix the oil drain plug again.
6. Unscrew the oil filter.
7. Fix the new one.
8. Replenish with fresh hydraulic oil. Do not exceed the maximum level !
9. Dispose of the old hydraulic oil according to the legal regulations.

7.2 Replacement of Components

Hydraulic system: The replacement of components must only be carried out by personnel trained by HYDROSTRESS or similarly qualified staff. In the latter case please contact HYDROSTRESS or an authorized HYDROSTRESS representation prior to any replacement work.

Electric system: The replacement of components must only be carried out by qualified personnel (electrical engineers).

7.2.1 Replacing the Burster Head CP 110

NOTE

Only the CP 100 burster heads can be replaced by personnel at the construction site. When the burster heads of the burster elements SP 140 or SP 280 are damaged, these can only be repaired by HYDROSTRESS.

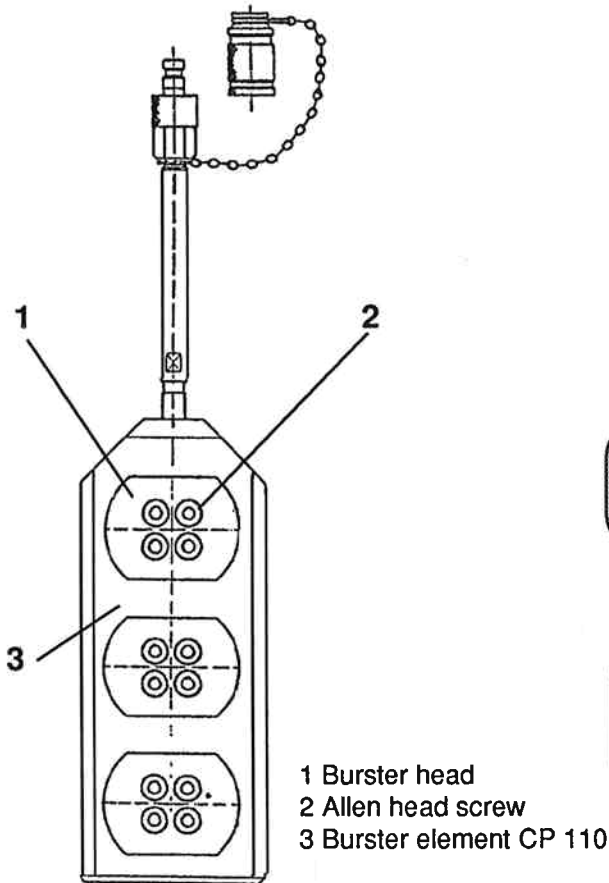


Abb. 7-2 Replacing the Burster Head CP 110

You need:

1. Allan key
2. Burster head (order no. 0001-53049-02)

Replacement:

1. Four Allen head screws M 8 x 30 (2, Fig. 7-2)
2. Remove the burster head (1).
3. Insert new the new burster head.

IMPORTANT

Insert the burster head by following exactly the instructions of Fig. 7-2.

4. Fix the new burster head by the four Allen head screws.

IMPORTANT

Tighten the screw connections in crosswise direction.

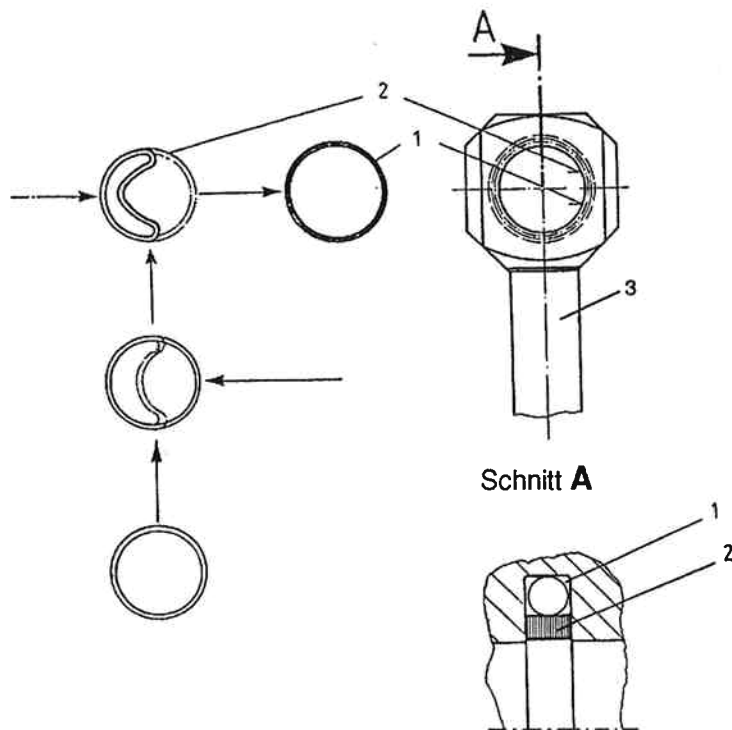
NOTE

The borings for the burster pistons of the burster elements SP 280 and SP 140 can be reworked up to three times. Order no. for oversized pistons see Fig. 11-7 and Fig. 11-6.

	BURSTER PISTONS	BORING IN THE BURSTER ELEMENT
Standard	$\varnothing 89,85 \pm 0,01$	$\varnothing 90,00 \begin{smallmatrix} +0,03 \\ 0 \end{smallmatrix}$
1st oversize	$\varnothing 90,05 \pm 0,01$	$\varnothing 90,20 \begin{smallmatrix} +0,03 \\ 0 \end{smallmatrix}$
2nd oversize	$\varnothing 90,25 \pm 0,01$	$\varnothing 90,40 \begin{smallmatrix} +0,03 \\ 0 \end{smallmatrix}$
3rd oversize	$\varnothing 90,45 \pm 0,01$	$\varnothing 90,60 \begin{smallmatrix} +0,03 \\ 0 \end{smallmatrix}$

Tab. 7-3 Sizes of Burster Pistons

7.2.2 Replacing the KSD Sealing



- 1 O-ring
- 2 KSD sealing
- 3 Plug-type coupling

Fig. 7-3 Replacing the KSD Sealing

You need:

1. O-ring and KSD sealing (order no. 05K5-00180-20)
2. Pointed tool (e.g. drawing pin, knife)

Replacement:

1. Withdraw the old KSD sealing (2, Fig. 7-3) and the O-ring by means of a pointed tool from the plug-type coupling (3).
2. Check the open groove for remaining rests of the sealing, if necessary remove them.
3. Insert the O-ring (1) into the groove.
4. Insert the KSD sealing (2) as follows:
 - Fold the KSD sealing to a reniform shape and insert it into the plug-type coupling (3).
 - Press the reniform KSD sealing carefully into the groove by means of an edgeless object.

8 TROUBLESHOOTING

Proceed systematically when looking for the cause of defects. For this purpose also use the hydraulic scheme (see section 10).

If you cannot find the defect or eliminate the faulty condition, please contact our after-sales service. Before calling us, please observe the following:

- The better you describe the defect, the better we can help you.
- Have the operating instructions (hydraulic scheme) at hand.
- Note machine type and machine number of your unit.

Unit AU

Trouble	Cause	Remedy
Unit does not run but power supply is connected.	The unit receives no voltage because - the power supply cable is defective. - power supply at the construction site is defective.	Replace the cable. Check power supply at the construction site.
The electr. motor hums after starting; no power.	Motor runs on two phases only.	Check the fuses. Consult an electrician.
The unit starts and then switches off.	Fuse protection of the construction site responds.	Fuse value is too low. Use another power supply source.
No pressure build-up in the HD circuit	1. Unit is defective 2. Burster element is defective	Connect HD hose to the HD connection and check pressure build up If yes: - burster element is defective If no: - unit is defective
No pressure build-up in the ND circuit	1. Unit is defective 2. Burster element is defective	Connect return hose to the ND connection and check pressure build up If yes: - burster element is defective If no: - unit is defective
Maximum power of the unit is not available.	Pump is defective. Electric defect.	Contact our aftersales service.

Fig. 8-1 Troubleshooting Chart, Unit AU (page 1 of 2)

Unit AU

Trouble	Cause	Remedy
<p>The unit stops running during operation.</p>	<p>Power supply is interrupted.</p> <p>Protective motor switch responds:</p> <ol style="list-style-type: none"> 1. Cross section of incoming cable too small 2. Defective plug connections 	<p>Check power supply.</p> <div style="border: 1px solid black; border-radius: 15px; padding: 5px; text-align: center; background-color: #e0e0e0;"> <p>CAUTION Before opening the control unit, check that the unit is currentless.</p> </div> <p>Use cable with specified cross section (see section 5.1).</p> <p>Check the plug connections, replace them, if necessary.</p>
<p>Hydr. coupling leaks</p>	<p>Coupling not screwmounted as specified</p> <ol style="list-style-type: none"> 1. Coupling defective 2. Sealing defective 	<p>Screw the coupling on according to 5.4.</p> <p>Replace hydraulic hose</p>

Fig. 8-1 Troubleshooting Chart, AU (page 2 of 2)

Burster head SP/CP

Trouble	Cause	Remedy
No pressure build-up	<ol style="list-style-type: none"> 1. HD screw connection is leaking or is not mounted correctly 2. Unit is defective 3. Burster element defective (inner leakage, HD sealing defective) 	<p>Check screw connection (oil leakage). Connect HD hoses according to 5.4. Replace connecting parts.</p> <p>Check the unit:</p> <p>Connect the hoses and build up pressure. Check whether a pressure of 1800 bar are reached. If not so, pump, booster or HD cock are defective.</p> <p>Have them replaced by HYDROSTRESS or by a HYDROSTRESS representation.</p> <p>Replace burster element.</p>

Fig. 8-2 Troubleshooting SP/CP

9 ACCESSORIES

The standard equipment comprises the following accessories:

- Hydraulic-Hoses
 - High pressure hose Quantity according to order
 - Return hose Quantity according to order

- Tool kit with following contents (see Fig. 11-9):
 - Ring/fork wrench SW19
 - Ring/fork wrench SW22
 - Ring/fork wrench SW24
 - Rod sealing 18 60%
 - Dust cap for nipple
 - 3 protective caps for internal screw thread 1/4"

Optionally available:

- 4-way distributor for HD cock
Order no. 99MP-51396-01
 - Possible connection of four burster elements to a HD cock

- Screw-type nipple to HD line
Order no. 0004-52578-0
 - Enables the direct screw connection of the HD hose to the HD line at the burster element (e.g. for SP 280) as follows:
 - Remove HD plug-type coupling (1, Fig. 11-5) and replace it by screw-type nipple (5) with tensioning nut (6).
 - Remove plug-type nipple (19, Fig. 11-6) and replace it by screw-type nipple (20).

- Double nipple for HD hoses
Order no. 0001-50771-04
 - Enables the screw-connection of two HD hoses (8, Fig. 11-5)

- Double nipple for ND hoses
Order no. 20HS-AU004
 - Enables coupling connection of two ND hoses (11, Fig 11-5)

NOTIZEN/NOTES

10 SCHALTPLÄNE

Inhalt:Seite
10-1 Hydraulikschema 10-2

Für die Bestellung der Ersatzteile aus den Schaltplänen sind die gleichen Angaben wie für die Ersatzteilbestellung, gemäß Seite 11-2 erforderlich.

10 CIRCUIT DIAGRAMS

Contents:Page
10-1 Scheme of hydraulic system 10-2

Ordering spare parts from the circuit diagrams requires the same specifications as ordering spare parts shown on page 11-2.

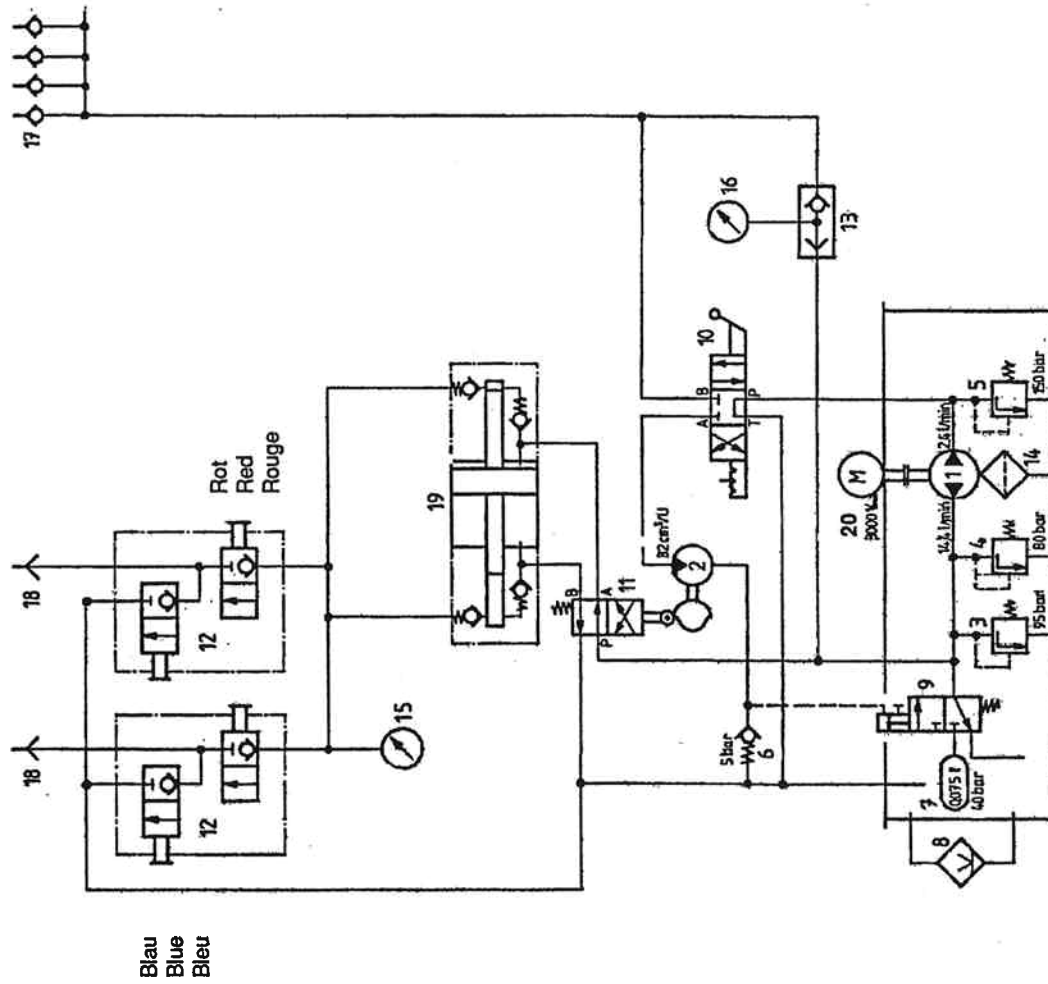
10 SCHEMAS DE CONNEXIONS

Table de matières:Page
10-1 Schéma hydraulique 10-2

Pour toute commande des pièces détachées indiquées sur les schémas de connexions, prière de communiquer les mêmes spécifications que celles décrites à la page 11-2.

HYDROSTRESS

AU/SP/CP SCHALTPLÄNE
 AU/SP/CP CIRCUIT DIAGRAMS
 AU/SP/CP SCHEMAS DE CONNEXIONS



Blau
 Blue
 Bleu

HYDROSTRESS

AU/SP/CP SCHALTPLÄNE
 AU/SP/CP CIRCUIT DIAGRAMS
 AU/SP/CP SCHEMAS DE CONNEXIONS

Pos.-Nr. Pos.-No.	Ersatzteil-Nr. Spare part-No.	Deutsch Bezeichnung	English Designation	Fransais Désignation	Menge Qty	Bemerkung Remark
1	07P1 - 72120 - 00	Radialkolbenpumpe	Radial piston pump	Pompe à piston radial	1	R 7,2-1,2
2	07M1 - 00006 - 32	Taktermotor	Hydraulic motor	Moteur hydraulique	1	OMM 32
3	07D1 - 41160 - 14	Druckbegrenzungsventil	Pressure control valve	Soupape de limitation de pression	1	MVS 41E
4	07A1 - 72120 - 92	Druckbegrenzungsventil	Pressure control valve	Soupape de limitation de pression	1	MVE 5F
5	07A1 - 72120 - 91	Druckbegrenzungsventil	Pressure control valve	Soupape de limitation de pression	1	MVE 5E
6	07R1 - RHD08 - 05	Rückschlagventil	Back pressure valve	Soupape de non-retour	1	RHD 08-PI, 5 bar
7	07Q1 - 25040 - 07	Druckspeicher	Accumulator	Accumulateur hydraulique	1	D 0,07 - 250
8	07L1 - 00133 - 74	Ölstand	Oil level	Niveau d'huile	1	LUM-1
9	07W1 - 32000 - 02	3/2-Wegeventil	Directional control valve 3/2	Distributeur 3/2	1	SG1R-NE
10	07W1 - 43014 - 04	4/3-Wegeventil	Directional control valve 4/3	Distributeur 4/3	1	SGOL-C
11	07W2 - 42000 - 06	4/2-Wegeventil	Directional control valve 4/2	Distributeur 4/2	1	AT4Z60a
12	99HP - 51088 - 00	Hochdruckhahn	High pressure valve	Robinet haute pression	2	
13	07R7 - 00008 - 00	Wechselventil	Shuttle valve	Sélecteur de circuit	1	WV8-PL
14	07O2 - 00021 - 00	Ansaugfilter	suction filter	Filtere d'aspiration	1	S21
15	99HP - 51796 - 00	Manometer	Pressure gauge	Manomètre	1	0 - 2500 bar
16	07N1 - 63250 - 00	Manometer	Pressure gauge	Manomètre	1	0 - 250 bar
17	07S3 - 06013 - 14	Stecknippel	Nipple male	Raccord mâle embrochable	4	2-WR013
18	0001 - 50771 - 05	HD-Schraubnippel 1/4"	High pressure nipple with male thread end	Raccord mâle fileté haute pression	1	
19	99HP - 51089 - 01	HD-Booster	High pressure booster	Booster haute pression	1	i = 1:2,5
20	11M1 - 10004 - A5	Elektromotor	Electric motor	Moteur électrique	1	2,2 kW, 380 V / 50 Hz

NOTIZEN/NOTES

HYDROSTRESS

AU/SP/CP ERSATZTEILLISTE
AU/SP/CP SPARE PARTS LIST
AU/SP/CP LISTE DES PIECES DE RECHANGE

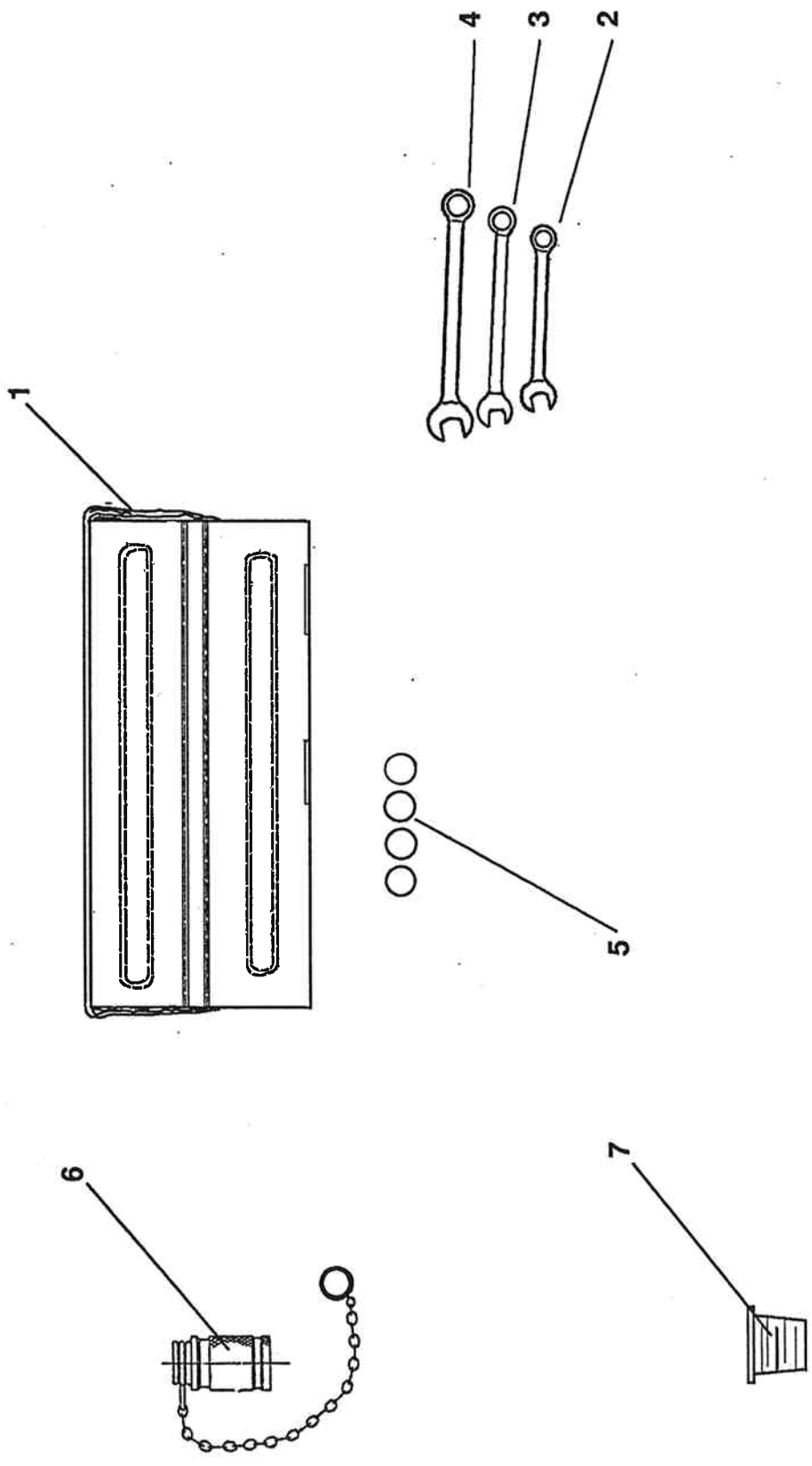


Abb. 11-9

Werkzeugkiste

Tool kit

Caisse à outils

HYDROSTRESS

AU/SP/CP ERSATZTEILLISTE
 AU/SP/CP SPARE PARTS LIST
 AU/SP/CP LISTE DES PIECES DE RECHANGE

Pos.-Nr. Pos.-No.	Ersatzteil-Nr. Spare part-No.	Deutsch Bezeichnung	English Designation	Fransais Désignation	Menge Qty	Bemerkung Remark
MPZU	- WZ000	- AU Werkzeugkiste AU/4B	Tool kit, AU/4B	Caisse à outils, AU/4B		
1	19W1	- WERKZ - K1 Werkzeugkiste lose	Tool kit, empty	Caisse à outils, en vrac	1	
2	19S2	- RIGAB - 19 Ringgabelschlüssel	Ring/fork wrench	Clè à fourche polygonale	1	SW 19
3	19S2	- RIGAB - 22 Ringgabelschlüssel	Ring/fork wrench	Clè à fourche polygonale	1	SW 22
4	19S2	- RIGAB - 24 Ringgabelschlüssel	Ring/fork wrench	Clè à fourche polygonale	1	SW 24
5	05K3	- 00180 - 20 Stangendichtung 18	Rod sealing 18	Joint en barre 18	4	60% Bronze
6	07S3	- 06000 - 19 Staupkappe zum Nippel	Dust cap for nipple	Chapeau antipoussière pour raccord mâle	1	5-19
7	02X4	- IGGEW - 14 Schutzst. für I-Gew.	Protective cap for internal screw thread	Protection pour filet femelle	3	1/4"

11 ERSATZTEILLISTE

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11 SPARE PARTS LIST

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11 LISTE DES PIÈCES DE RECHANGE

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Liste des illustrations	
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11-2 Unité de commande haute pression	11-6
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11-9 Caisse à outils	11-20

11.1 Bestellungen

Für Ersatzteilbestellungen benötigen wir folgende Angaben:

1. Maschinentyp gemäß Typenschild (z. B. BW 001)
2. Nennspannung und Frequenz gemäß Typenschild (z.B. 380 V - 3N ~ 50Hz)
3. Maschinennummer gemäß Typenschild (z. B. 2136)
4. Ersatzteilnummer (z. B. 08W7-75648-02)

Für Bestellungen, Fragen und Informationen wenden Sie sich bitte an unsere für Sie zuständige Niederlassung (siehe unten).

11.1 Description of orders

For spare part orders we need the following indications::

1. Type of machine, according to type plate (e.g. BW 001)
2. Standard voltage and frequency according to type plate (e.g. 380 V - 3N ~ 50Hz)
3. Number of machine, according to type plate (e.g. 2136)
4. Stock number of spare part (e.g. 08W7-75648-02)

For orders, inquiries and information, please refer to your responsible branch office (indicated below).

11.1 Spécifications effectuées à la commande

Prière d'indiquer les spécifications suivantes pour toute commande de pièces de rechange :

1. Type de machine selon plaque d'identité (p.ex. BW 001)
2. Puissance connectée selon plaque d'identité (p.ex. 380 V - 3N ~ 50Hz)
3. Numéro de machine selon plaque d'identité (p.ex. 2136)
4. Numéro de la pièce de rechange (p.ex. 08W7-75648-02)

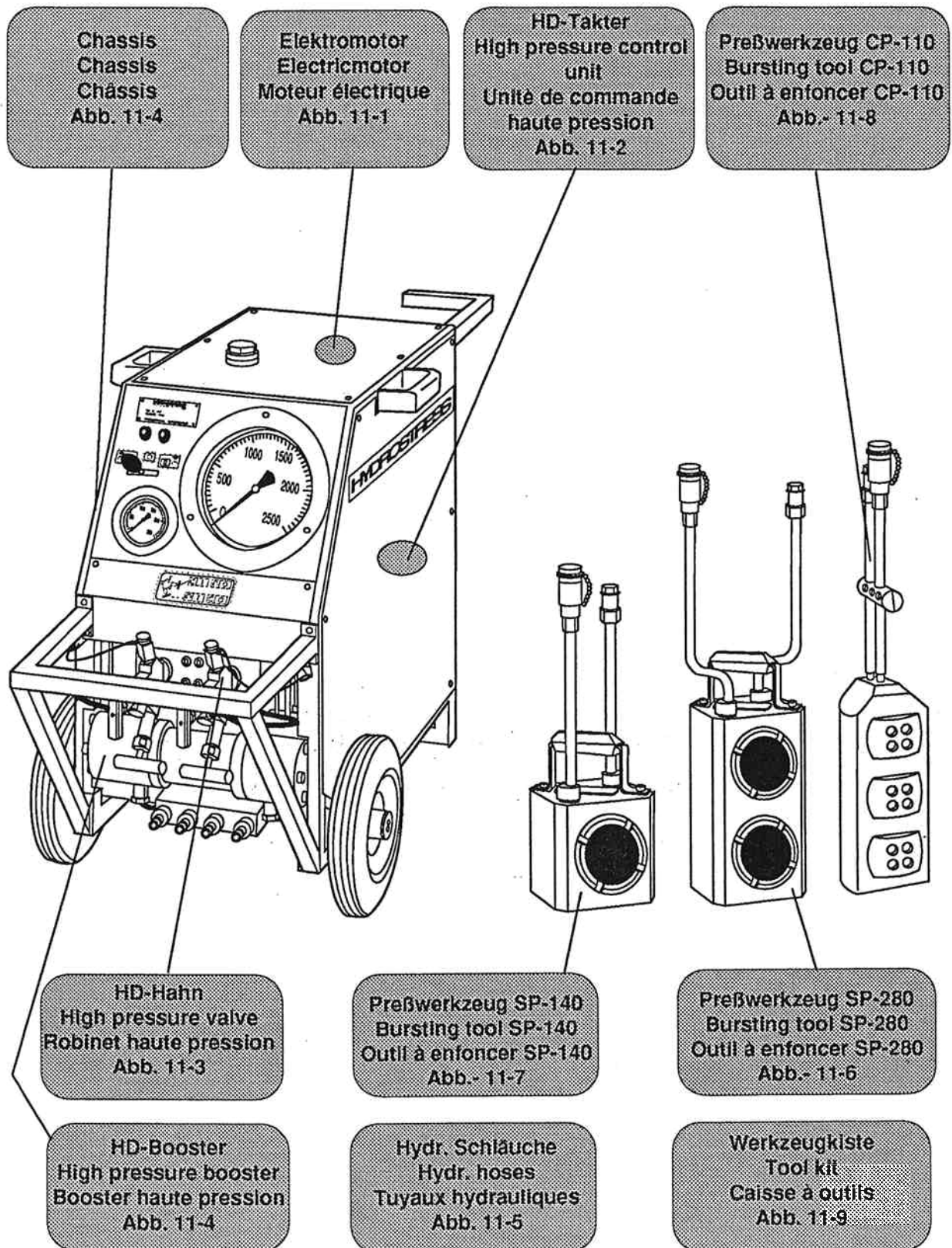
Prière de contacter notre filiale (voir ci-dessous) pour toute commande, question ou renseignement .

Unsere zuständige Vertretung

our branch office

notre filiale

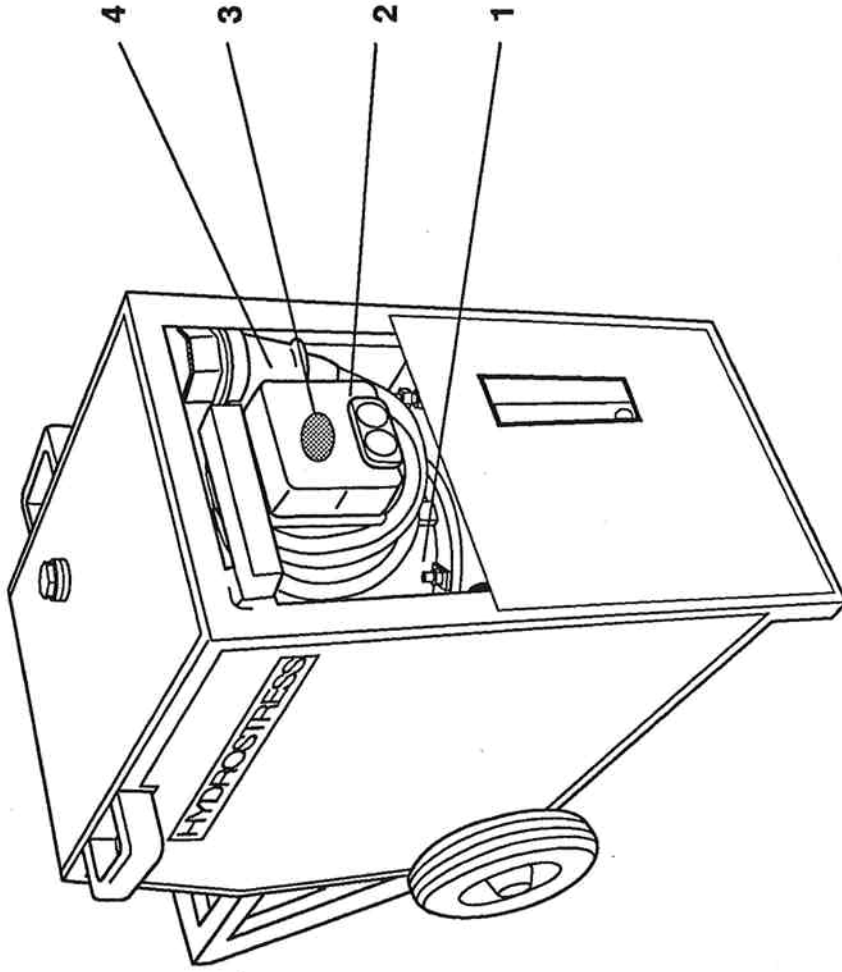
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**Abb. 11-0 Baugruppen-
übersicht AU**

**Outlay of
subassembly AU**

**Plan des
sous-groupes AU**



HYDROSTRESS

AU/SP/CP ERSATZTEILLISTE
 AU/SP/CP SPARE PARTS LIST
 AU/SP/CP LISTE DES PIECES DE RECHANGE

Pos.-Nr. Pos.-No.	Ersatzteil-Nr. Spare part-No.	Deutsch Bezeichnung	English Designation	Fransais Désignation	Menge Qty	Bemerkung Remark
1	11M1 - 10004 - A5	Elektromotor	Electric motor	Moteur électrique	1	2,2 kW 380 V/50 Hz
2	11S6 - 50024 - 00	Schaltkasten	Switch case	Coffret de commande	1	
3	11S6 - 15032 - 50	Schaltereinsatz	Switch insert	Insert de commutateurs	1	
4	11F3 - CEE16 - 05	Elektro-Stecker	Connector	Connecteur	1	CEE 16/5 Pol.

Abb. 11-1

Elektromotor

Electric motor

Moteur électrique

(Seite 2 von 2)

HYDROSTRESS

AU/SP/CP ERSATZTEILLISTE
AU/SP/CP SPARE PARTS LIST
AU/SP/CP LISTE DES PIECES DE RECHANGE

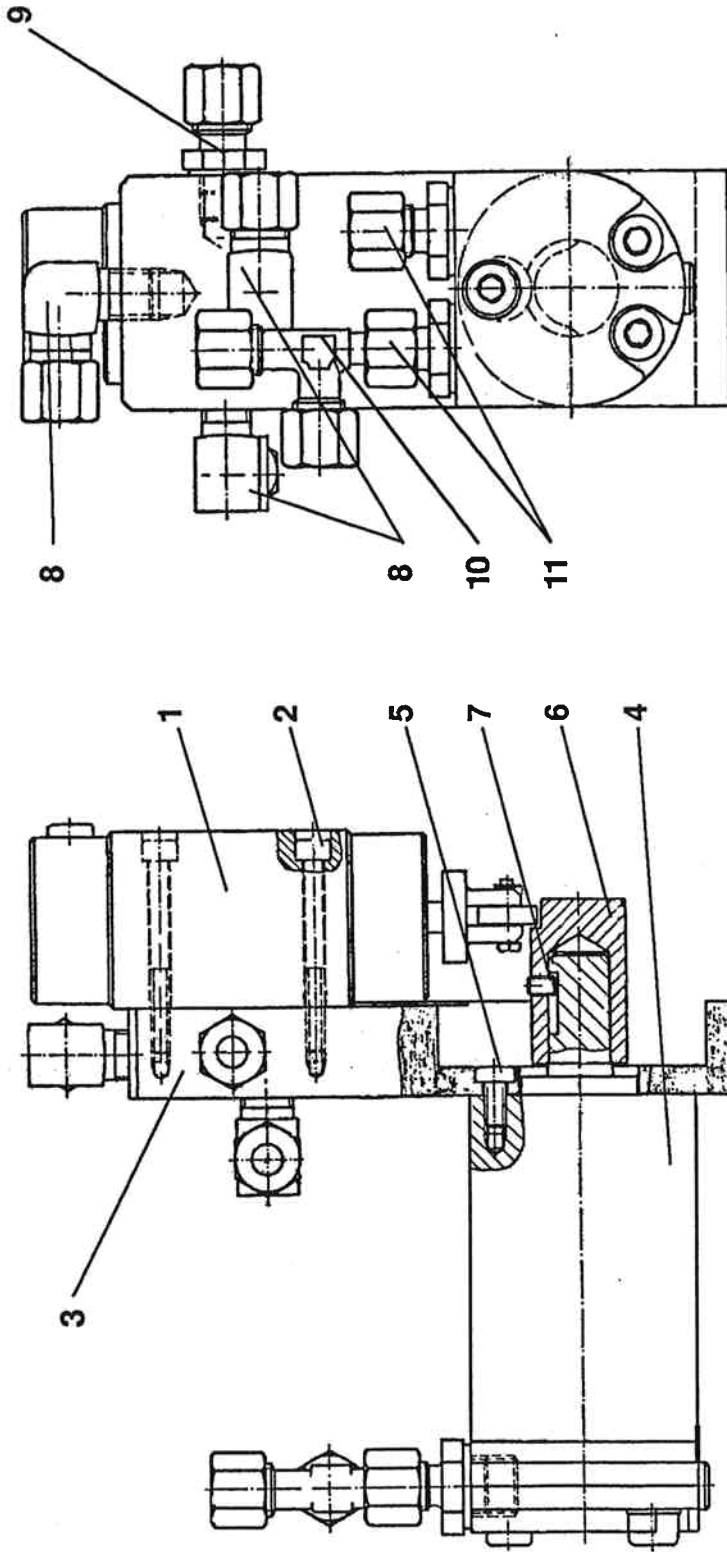


Abb. 11-2 HD-Takter

High pressure control unit

Unité de commande haute pression

(Seite 1 von 2)

HYDROSTRESS

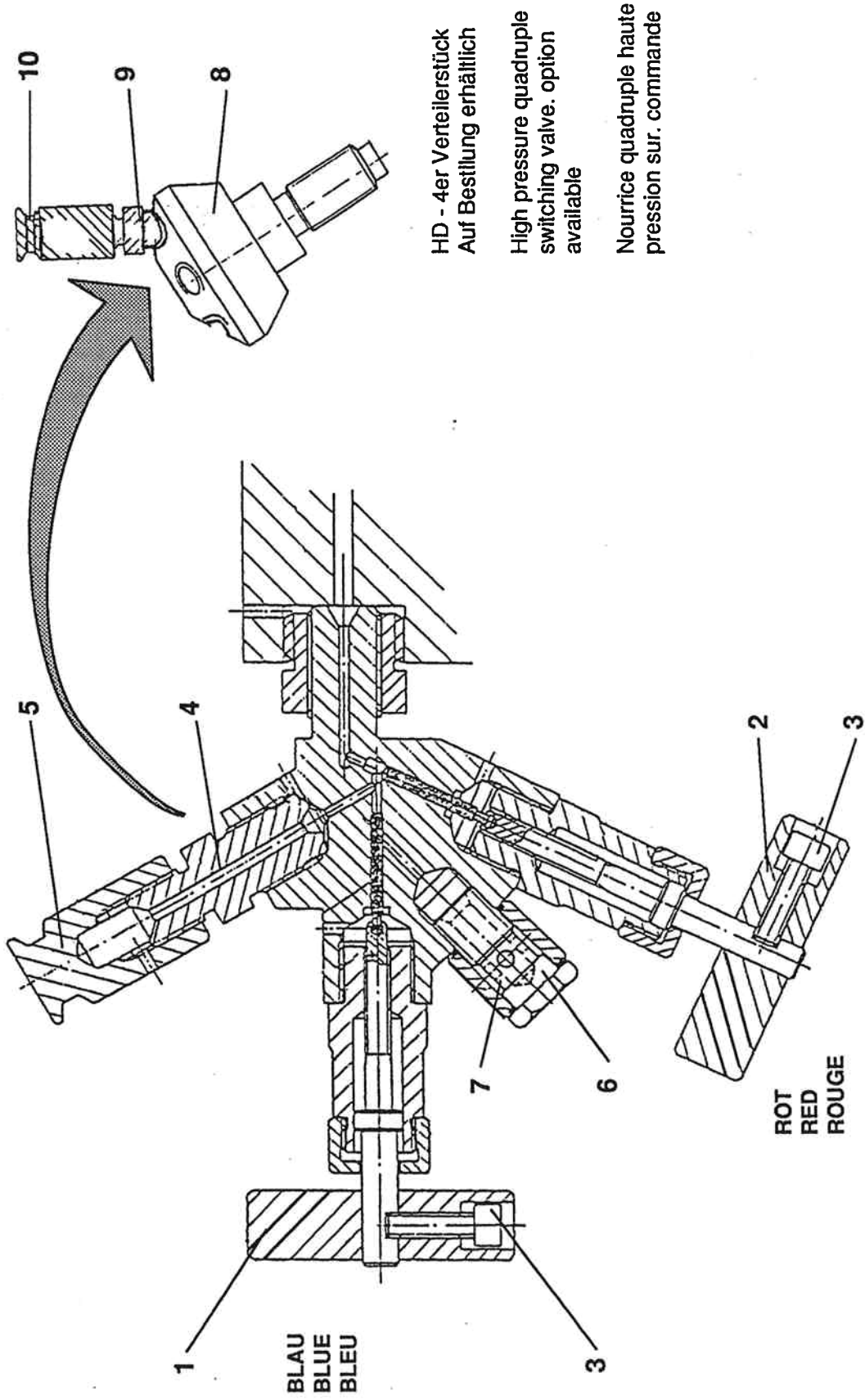
AU/SP/CP ERSATZTEILLISTE
 AU/SP/CP SPARE PARTS LIST
 AU/SP/CP LISTE DES PIECES DE RECHANGE

Pos.-Nr. Pos.-No.	Ersatzteil-Nr. Spare part-No.	Deutsch Bezeichnung	English Designation	Fransais Désignation	Menge Qty	Bemerkung Remark
NA	99HP - 52394 - 00	HD-Takter Danfoss	High pressure control unit	Unité de commande haute pression		Danfoss
1	07W2 - 42000 - 06	4/2-Wegeventil	Directional control valve 4/2	Distributeur 4/2	1	AT 4Z 60a
2	0111 - 05050 - 00	Inbusschraube	Allen head screw	Vis à six pans creux	4	M 5 x 50
3	0002 - 52392 - 01	Takterflansch	Flange of control unit	Bride de l'unité de commande	1	
4	07M1 - 00006 - 32	Takter Motor	Motor of control unit	Moteur de l'unité de commande	1	OMM 32
5	0112 - 06012 - 00	Inbusschraube	Allen head screw	Vis à six pans creux	3	M6 x 12
6	0002 - 52392 - 02	Kurvenzapfen	Crank pin	Bouton de manivelle	1	
7	01G1 - 05008 - 45	Gewindestift	Set screw	Vis sans tête	1	M5 x 8
8	08W3 - 18101 - 10	Winkel-Verschraubung	Angle screw connection	Raccord à vis coudé	3	1/4" Rohr 10
9	08H1 - 10101 - 10	Gerade-Verschraubung	Stright screw connection	Raccord à vis	1	1/4" Rohr 10
10	08L1 - 62071 - 08	L-Verschraubung	L-type connection	Raccord à vis en L	1	Rohr 8
11	08H1 - 73059 - 08	Gerade-Verschraubung	Stright screw connection	Raccord à vis	2	3/8" Rohr 8

HYDROSTRESS

11-8

AU/SP/CP ERSATZTEILLISTE
AU/SP/CP SPARE PARTS LIST
AU/SP/CP LISTE DES PIECES DE RECHANGE



HD - 4er Verteilerstück
Auf Bestellung erhältlich

High pressure quadruple
switching valve. option
available

Nourrice quadruple haute
pression sur. commande

Abb. 11-3 HD-Hahn

High pressure cock

Robinet haute pression

HYDROSTRESS

AU/SP/CP ERSATZTEILLISTE
 AU/SP/CP SPARE PARTS LIST
 AU/SP/CP LISTE DES PIECES DE RECHANGE

Pos.-Nr. Pos.-No.	Ersatzteil-Nr. Spare part-No.	Deutsch Bezeichnung	English Designation	Fransais Désignation	Menge Qty	Bemerkung Remark
NA	99HP - 51088 - 00	HD-Hahn	High pressure cock	Robinet haute pression		
1	0001 - 52008 - 01A	Griff HD-Hahn	Grip of high pressure cock	Poignée du robinet haute pression	1	Blau
2	0001 - 52008 - 01B	Griff HD-Hahn	Grip of high pressure cock	Poignée du robinet haute pression	1	Rot
3	0111 - 06020 - 00	Inbusschraube	Allen head screw	Vis à six pans creux	2	M6 x 20
4	0001 - 50771 - 05	HD-Schraubnippel	High pressure nipple with male thread end	Raccord mâle fileté haute pression	1	
5	0001 - 50771 - 06	Verschlusskappe	Sealing cap	Couvercle	1	
6	0001 - 52008 - 04	Hohlschraube	Banjo bolt	Boulon creux à filet femelle	1	
7	09L1 - 00006 - 14	L-Verschraubung	L-type connection	Raccord coudé	1	LCK 1/4"-PK-6
NA	99HP - 51396 - 00	HD-4er-Verteilstück	High pressure quadruple switching valve	Nourrice quadruple haute pression	1	2A77/AU
8	0003 - 51396 - 01	4er-Verteilstück	Quadruple switching valve	Nourrice quadruple	1	
9	0001 - 50771 - 05	HD-Schraubnippel	High pressure nipple with male thread end	Raccord mâle fileté haute pression	4	
10	0001 - 50771 - 06	Verschlusskappe	Sealing cap	Couvercle	4	
NA	04E1 - 09014 - 00	Zylinderrolle	Cylinder	Cylindre	4	ø 9 x 14
NA	0111 - 03010 - 00	Inbusschraube	Allen head screw	Vis à six pans creux	1	M3 x 10
NA	02Q1 - 00200 - 00	Schlüsselring	Key ring	Anneau de clé	4	ø 20
NA	06A1 - 00285 - 00	Befestigungshebel	Fixing lever	Levier de serrage	4	Ball-Lock

HYDROSTRESS

11-10

AU/SP/CP ERSATZTEILLISTE
AU/SP/CP SPARE PARTS LIST
AU/SP/CP LISTE DES PIECES DE RECHANGE

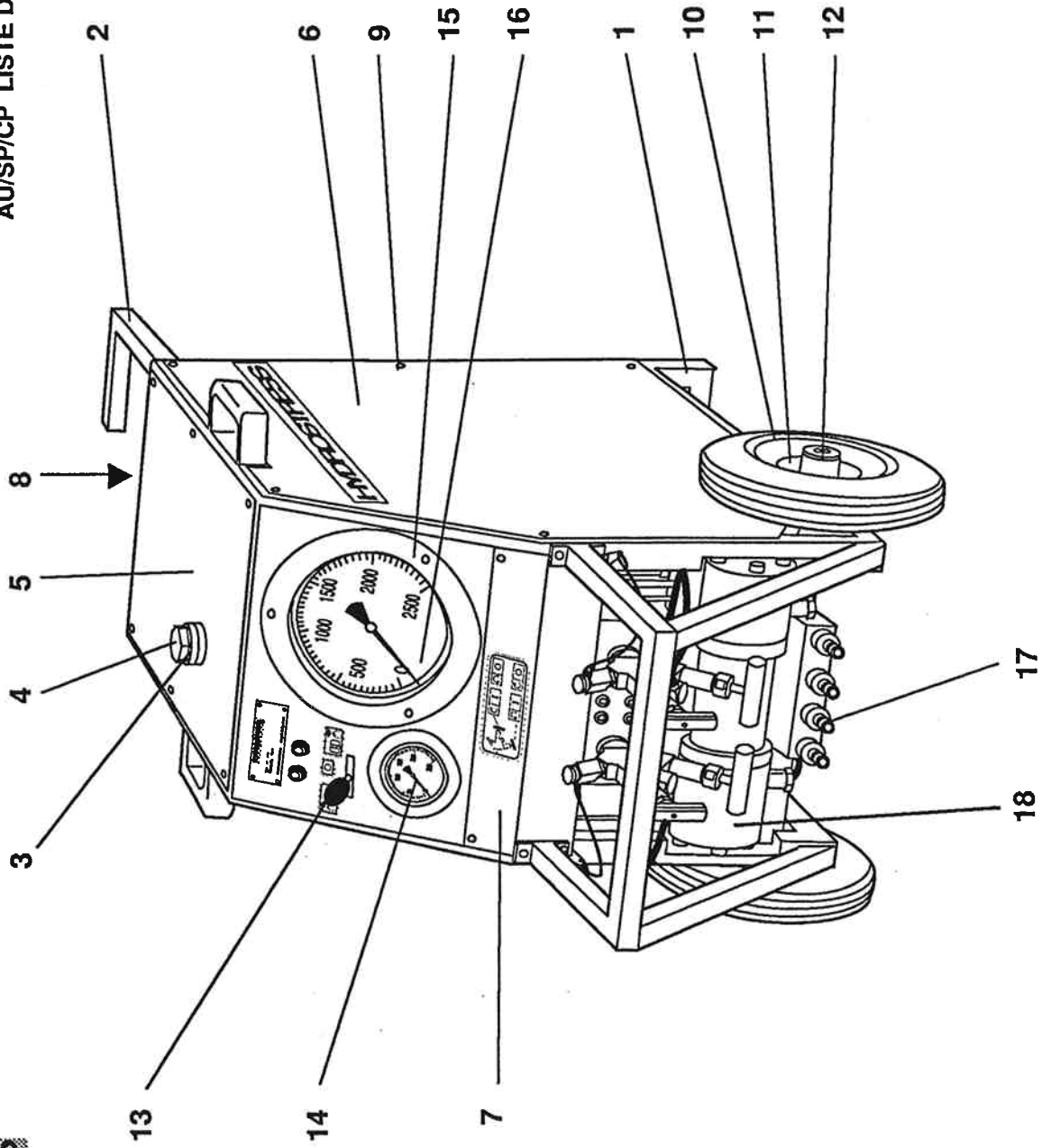


Abb. 11-4

Chassis

Chassis

Chassis

(Seite 1 von 2)

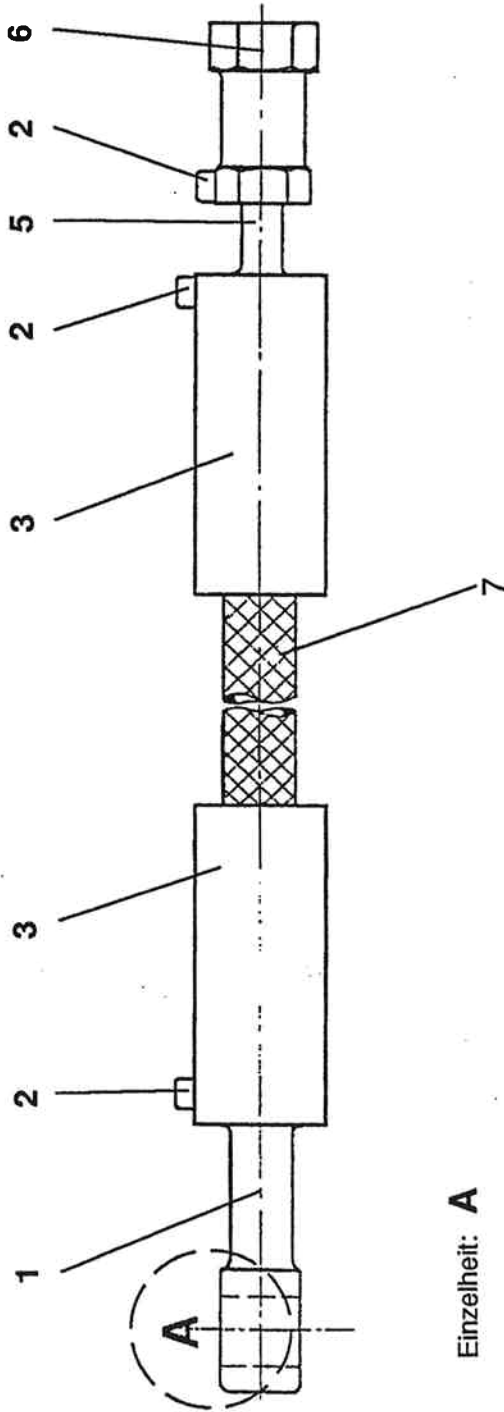
HYDROSTRESS

AU/SP/CP ERSATZTEILLISTE
 AU/SP/CP SPARE PARTS LIST
 AU/SP/CP LISTE DES PIECES DE RECHANGE

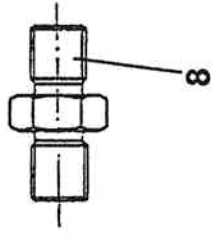
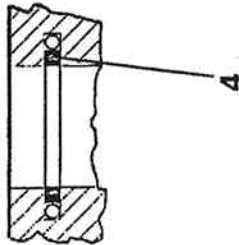
Pos.-Nr. Pos.-No.	Ersatzteil-Nr. Spare part-No.	Deutsch Bezeichnung	English Designation	Fransais Désignation	Menge Qty	Bemerkung Remark
1	0000 - 51770	- 01 Chassis	Chassis	Châssis	1	AU
2	0002 - 51705	- 01 Deichsel	Shaft	Timon	1	
3	13V1 - 13494	- 00 Verschlussdeckel	Sealing cap	Couvercle	1	1"
4	05D1 - 13494	- 00 Flachdichtung	Flat packing	Garniture plate	1	1"
5	0001 - 51707	- 03 Deckblech	Cover plate	Tôle de protection	1	
6	0001 - 51707	- 01 Seitenblech	Side plate	Tôle latérale	2	
7	0001 - 51707	- 04 Blende	Screen	Ecran	1	
8	0001 - 51707	- 02 Stirnblech, hinten	Front plate, rear side	Tôle frontale à l'arrière	1	
9	01Q1 - 05012	- 00 Pan-Head Schraube	Panhead screw	Tôle frontale, à l'arrière	30	M5 x 12
10	06R3 - 00200	- 20 Vollgummireifen	Solid tyre	Roue bandagée	2	200/50/20
11	0111 - 05008	- 00 Inbusschraube	Allen head screw	Vis à six pans creux	4	M5 x 8
12	0003 - 51660	- 02 Achsdeckel	Axle cap	Chape de l'axe	2	
13	07W1 - 43014	- 04 4/3-Wegeventil	Servo valve spool	Distributeur 4/3	1	SGOL-C
14	07N1 - 63250	- 00 Manometer	Pressure Gauge	Manomètre	1	0 - 250 bar
15	99HP - 51796	- 00 Manometer	Pressure gauge	Manomètre	1	0 - 2500 bar
16	0004 - 51796	- 90 Manometer Glas	Glas cover of pressure gauge	Couvercle vitré du manomètre	1	Verbundausführung 160
17	07S3 - 06013	- 14 Stecknippel	Nipple male	Raccord mâle embrochable	4	2-WR 013
18	99HP - 51089	- 01 HD-Booster	High pressure booster	Booster haute pression	1	Nur im Austausch
NA	20HS - AU002	Manometerleitung	Line of pressure gauge	Ligne du manomètre	1	kpl. gebogen
NA	20HS - AU003	Booster-Leitung	Booster line	Ligne du booster	2	kpl. gebogen

HYDROSTRESS

AU/SP/CP ERSATZTEILLISTE
 AU/SP/CP SPARE PARTS LIST
 AU/SP/CP LISTE DES PIÈCES DE RECHANGE



Einzelheit: A

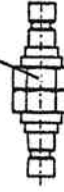


HD-Doppelnippel für das
 Zusammenschrauben von
 HD-Schläuchen

Double nipple HD for screw
 connection of HD hoses

Raccordo doppio per
 avvitare insieme i tubi HD

11



ND-Doppelnippel für das
 Zusammenkuppeln von
 ND-Schläuchen

Double nipple ND for coupling
 connection of ND hoses

Raccordo doppio per
 innestare insieme i tubi ND

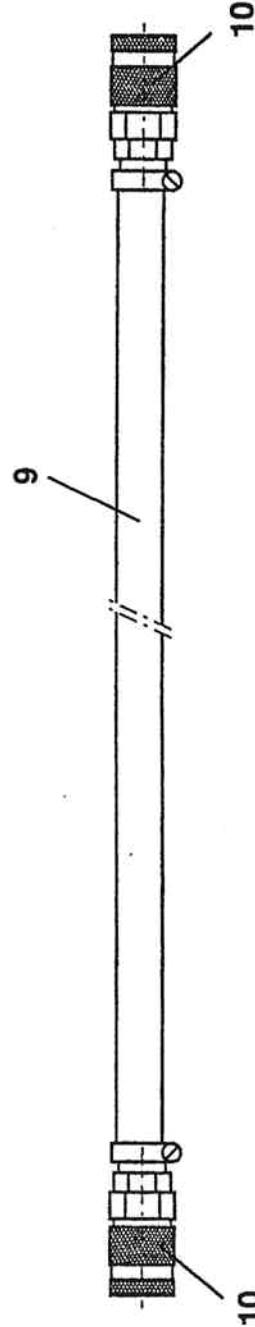


Abb. 11-5

Hydraulik Schläuche

Hydraulic hoses

Tuyau hydraulique

(Seite 1 von 2)

HYDROSTRESS

AU/SP/CP ERSATZTEILLISTE
 AU/SP/CP LISTA DEI PEZZI DI RICAMBIO
 AU/SP/CP LISTA DE PIEZAS DE RECAMBIO

Pos.-Nr. Pos.-No.	Ersatzteil-Nr. Pezzo di ricambio nr.	Deutsch Bezeichnung	Italiano Denominazione	Espanol Denominación	Menge Qtá	Bemerkung Nota
NA	HSHO - STSR5 - 00	HD-Schlauch kpl.	Tubi di alta pressione, compl.	Manguera de alta presión, compl.	1	5 m
1	0000 - 52003 - 01	HD-Steckkupplung	Giunto di contatto HD	Acoplamiento enchufable de alta presión	1	
2	0111 - 04006 - 00	Inbusschraube	Vite ad esagono cavo	Tornillo de cabeza hexagonal interior	9	M4 x 6
3	0002 - 51274 - 03	Griffrohr	Tubo della maniglia	Tubo de la empuñadura	2	
4	05K3 - 00180 - 20	Dichtung	Guarnizione	Empaquetadura	2	SD ø 18
5	0002 - 51274 - 01	Schraubnippel HS	Raccordo avvitabile HS	Boquilla roscada HS	1	
6	0002 - 51274 - 02	Spannmutter HS	Dado di regolazione HS	Tuerca tensora HS	1	
7	20HS - HP001	Hochdruckschlauch	Tubi di alta pressione	Manguera de alta presión	1	Verpresstoh.Armaturen siehe Zeichnung
8	0001 - 50771 - 04	HD-Doppelnippel	Raccordo doppio HD	Boquilla roscada doble HD	1	
9	HSNI - STST5 - 00	ND-Schlauch	Tubo di bassa pressione	Manguera de baja presión	1	
10	07S3 - 06818 - 08	Steckkupplung zu ND-Schlauch	Giunto di contatto per tubo di bassa pressione	Acoplamiento enchufable para manguera de baja presión	2	
11	20HS - AU0004	ND-Doppelnippel	Raccordo doppio HD	Boquilla roscada doble HD	1	Verlängern des ND-Schlauchs

HYDROSTRESS

AU/SP/CP ERSATZTEILLISTE
AU/SP/CP SPARE PARTS LIST
AU/SP/CP LISTE DES PIECES DE RECHANGE

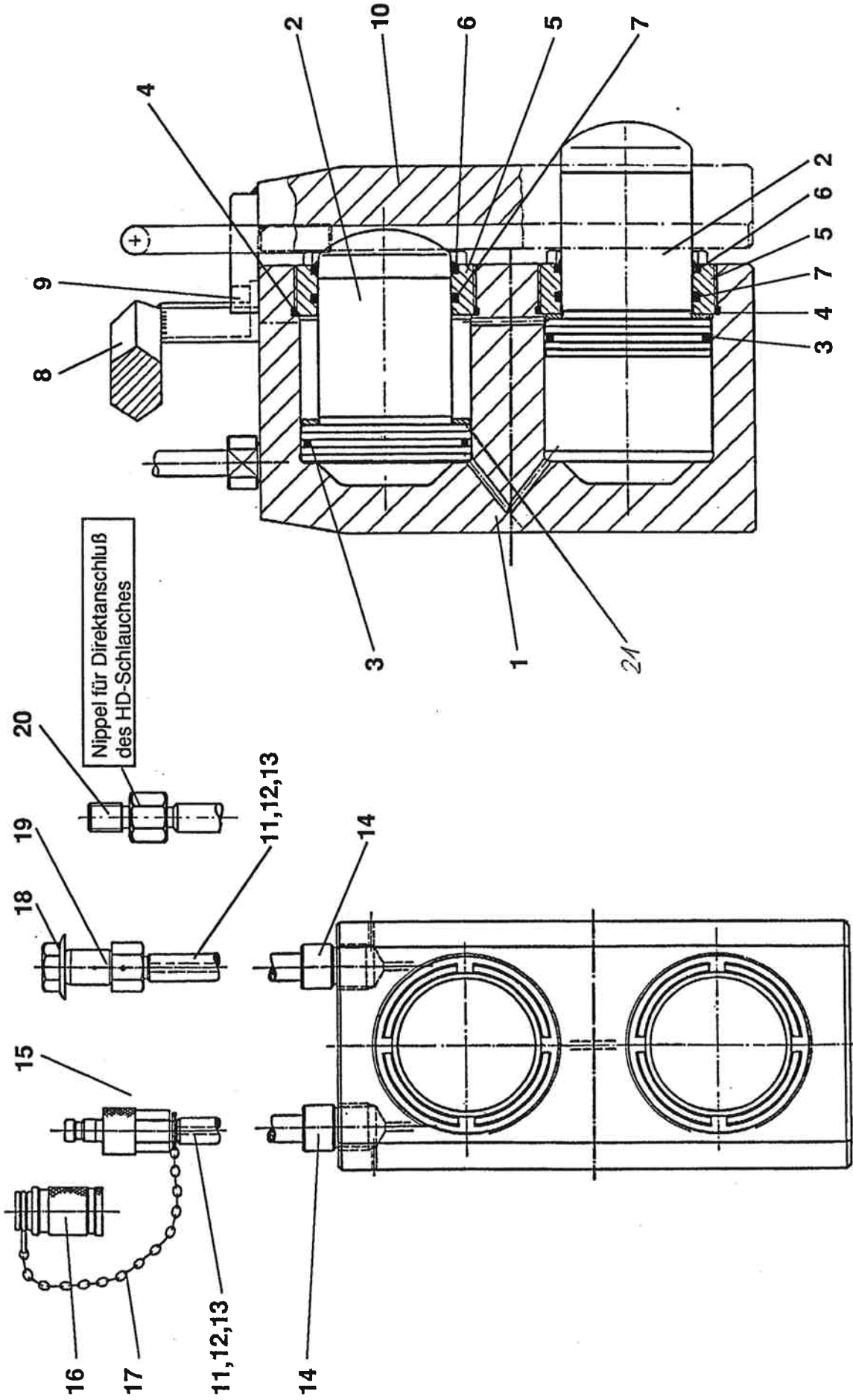


Abb. 11-6

Preßwerkzeug SP-280

Bursting tool SP-280

Outill á enfoncer SP-280

(Seite 1 von 2)

HYDROSTRESS

AU/SP/CP ERSATZTEILLISTE
 AU/SP/CP SPARE PARTS LIST
 AU/SP/CP LISTE DES PIECES DE RECHANGE

Pos.-Nr. Pos.-No.	Ersatzteil-Nr. Spare part-No.	Deutsch Bezeichnung	English Designation	Fransals Désignation	Menge Qty	Bemerkung Remark
	MPHY - SP280	Presswerkzeug SP-280	Bursting tool SP-280	Outil à enfoncer SP-280	1	ohne Leitungen
NA 99MP	- GERKU - 00	Leitungspaar, gerade kurz	Pair of lines, straight short	Pair de lignes, droite courte	1	
NA 99MP	- GERLA - 00	Leitungspaar, gerade lang	Pair of lines, straight long	Pair de lignes, droite longue	1	
NA 99MP	- GEBLA - 00	Leitungspaar, gebogen lang	Pair of lines, curved long	Pair de lignes, arque longue	1	
1	0000 - 51208 - 01	Presskörper zu SP	Bursting body of SP	Corps d'enfoncement SP	1	
2	0003 - 52862 - 01	Kolben SP standard	Piston SP standard	Piston SP standard	2	
NA 0003	- 52862 - 02	Übermaßkolben	oversized piston	Piston sarmersurés	-	90,05 mm
NA 0003	- 52862 - 03	Übermaßkolben	oversized piston	Piston sarmersurés	-	90,25 mm
NA 0003	- 52862 - 04	Übermaßkolben	oversized piston	Piston sarmersurés	-	90,45 mm
3	05K1 - 00900 - 40	Dichtung KSD 90	KSD 90 sealing	Joint KSD 90	2	60% Bronze
4	05O1 - 00950 - 30	O-Ring	O-ring	O-ring	2	95 x 3 N 70
5	0001 - 51209 - 03	Rückhaltermutter SP	Retaining nut SP	Ecrou de retenue SP	2	
6	05A1 - 00700 - 07	Abstreifring	Wiping ring	Segment racleur	2	70/78/7 RG38
7	05O1 - 00680 - 50	O-Ring	O-ring	O-ring	2	68 x 5
8	0003 - 51581 - 01	Tragbügel zu SP	Carrying bow of SP	Etrier porteur SP	1	
9	0111 - 08020 - 00	Inbusschraube	Allen head screw	Vis à six pans creux	2	M 8 x 20
10	0001 - 51260 - 05	Druckplatte	Pressure plate	Plaque de pression	1	
NA 20D2	- SPW00 - SP2Dichtsatz SP-280		Set of seals SP-280	Jeu de garnitures, SP-280	-	Besteht aus Pos. 3/467
11	0001 - 51211 - 05	HD-Leitung	High pressure line	Ligne haute pression	2	kurz, gerade
12	0001 - 51211 - 08	HD-Leitung	High pressure line	Ligne haute pression	2	lang, gerade
13	0003 - 51302 - 01	HD-Leitung	High pressure line	Ligne haute pression	2	lang gebogen
14	0001 - 51211 - 04	Differenz-Nippel	Differential fitting	Raccord mâle différentiel	2	M 24/G 1/4"
15	07S3 - 06513 - 14	Stecknippel	Nipple with male end	Raccord mâle embrochable	1	Va A2-WR013
16	07S3 - 06000 - 19	Staubkappe	Dust cap	Chapeau antipoussière	1	5-19
17	07S3 - 06000 - 91	Kette zur Staubkappe	Chain to dust cap	Chaîne du chapeau antipoussière	1	5-19
18	01M5 - 12000 - 00	Kombi-Mutter	Nut	Ecrou	1	M1
19	0001 - 52916 - 05	HD-Stecknippel	High pressure male coupling	Raccord femelle embrochable haute pression	1	
20	0004 - 52578 - 01	Schraubnippel	Nipple with male thread end	Raccord mâle fileté	1	1/4"
21	0001 - 51211 - 07	Distanzring SP				

Abb. 11-6

Preßwerkzeug SP-280

Bursting tool SP-280

Outil à enfoncer SP-280

(Seite 2 von 2)

HYDROSTRESS

AU/SP/CP ERSATZTEILLISTE
 AU/SP/CP SPARE PARTS LIST
 AU/SP/CP LISTE DES PIECES DE RECHANGE

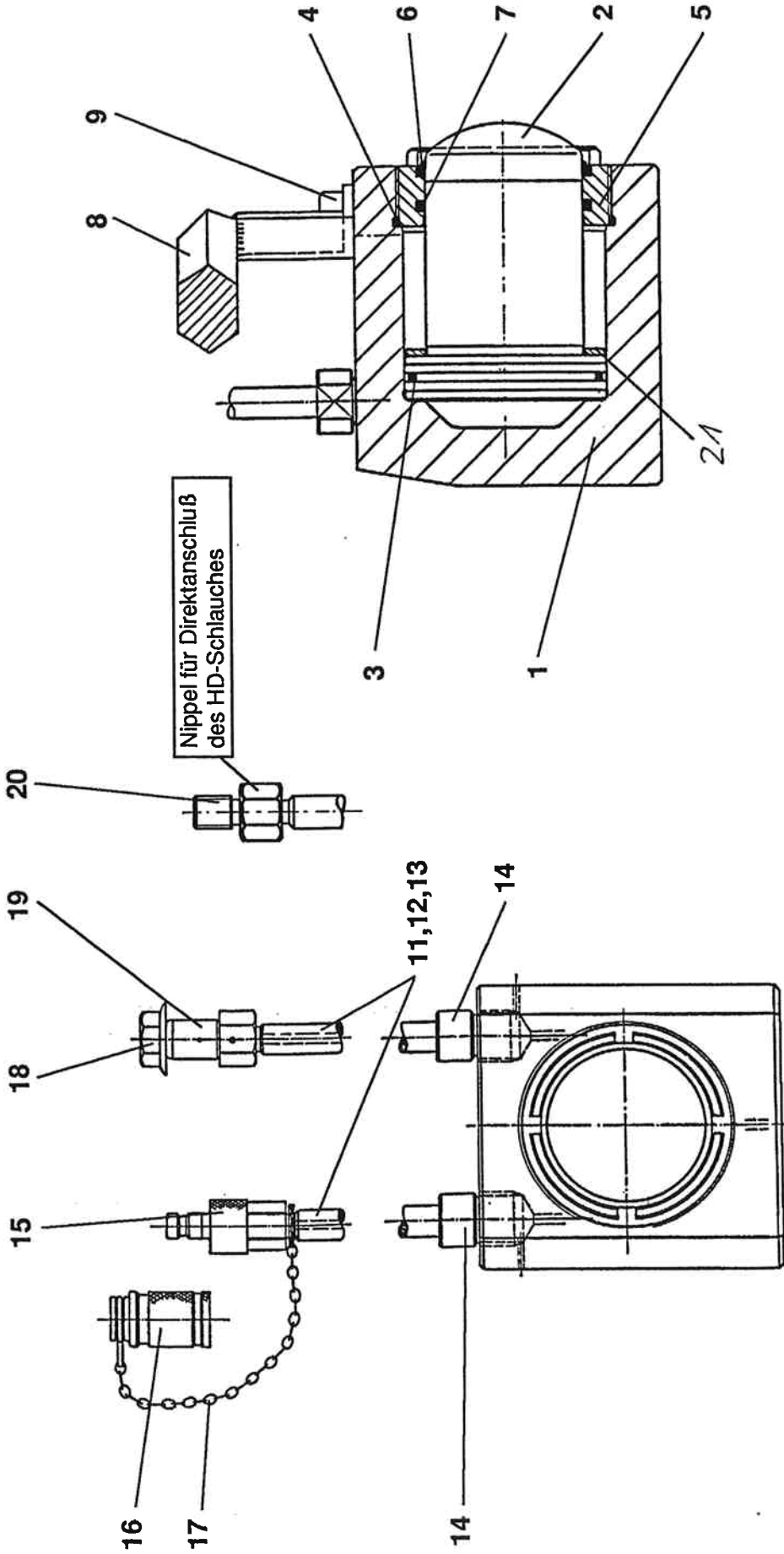


Abb. 11-7

Preißwerkzeug SP-140

Bursting tool SP-140

Outil à enfoncer SP-140

HYDROSTRESS

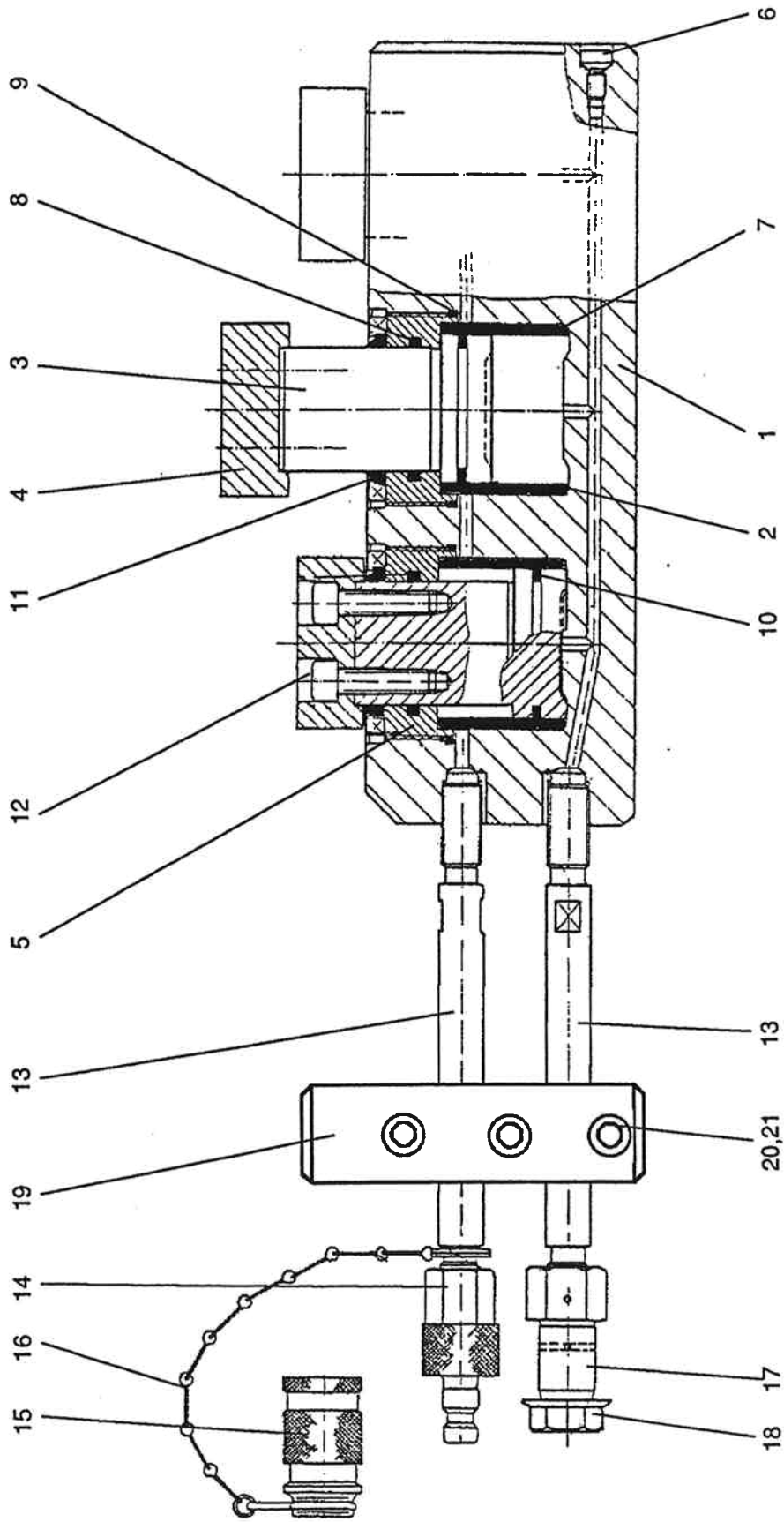
**AU/SP/CP ERSATZTEILLISTE
AU/SP/CP SPARE PARTS LIST
AU/SP/CP LISTE DES PIECES DE RECHANGE**

Pos.-Nr. Pos.-No.	Ersatzteil-Nr. Spare part-No.	Deutsch Bezeichnung	English Designation	Fransais Designation	Menge Qty	Bemerkung Remark
NA	MPHY - SP140	Presswerkzeug SP-140	Bursting tool SP-140	Outil à enfoncer SP140	1	ohne Leitungen
NA	99MP - GERKU - 00	Leitungspaar, gerade kurz	Pair of lines, straight short	Pair de lignes, droite court	1	
NA	99MP - GERLA - 00	Leitungspaar, gerade lang	Pair of lines, straight long	Pair de lignes, droite longue	1	
NA	99MP - GEBLA - 00	Leitungspaar, gebogen lang	Pair of lines, curved long	Pair de lignes, arque longue	1	
1	0001 - 51235 - 01	Presskörper zu SP-140	Bursting body of SP-140	Corps d'enfoncement SP-140	1	
2	0003 - 52862 - 01	Kolben SP standard	Piston SP standard	Piston SP standard	2	
NA	0003 - 52862 - 02	Übermaßkolben	oversized piston	Piston sarmersurés	-	90,05 mm
NA	0003 - 52862 - 03	Übermaßkolben	oversized piston	Piston sarmersurés	-	90,25 mm
NA	0003 - 52862 - 04	Übermaßkolben	oversized piston	Piston sarmersurés	-	90,45 mm
3	05K1 - 00900 - 40	Dichtung KSD 90	KSD 90 sealing	Joint KSD 90	2	60% Bronze
4	05O1 - 00950 - 30	O-Ring	O-ring	O-ring	2	95 x 3 N 70
5	0001 - 51209 - 03	Rückhaltermutter SP	Retaining nut SP	Ecrou de retenue SP	2	
6	05A1 - 00700 - 07	Abstreifring	Wiping ring	Segment racleur	2	70/78/7 RG38
7	05O1 - 00680 - 50	O-Ring	O-ring	O-ring	2	68 x 5
8	0003 - 51581 - 01	Tragbügel zu SP	Carrying bow of SP	Etrier porteur SP	1	
9	0111 - 08020 - 00	Inbusschraube	Allen head screw	Vis à six pans creux	2	M 8 x 20
10	0001 - 51260 - 05	Druckplatte	Pressure plate	Plaque de pression	1	
NA	20D2 - SPW00 - SP1	Dichtsatz SP-140	Set of seals SP-140	Jeu de garnitures, SP-140	-	Besteht aus Pos. 3/4/6/7
11	0001 - 51211 - 05	HD-Leitung	High pressure line	Ligne haute pression	2	
12	0001 - 51211 - 08	HD-Leitung	High pressure line	Ligne haute pression	2	
13	0003 - 51302 - 01	HD-Leitung	High pressure line	Ligne haute pression	2	
14	0001 - 51211 - 04	Differenz-Nippel	Differential fitting	Raccord mâle différentiel	2	M 24/G 1/4"
15	07S3 - 06513 - 14	Stecknippel	Nipple with male end	Raccord mâle embrochable	1	Va A2-WR013
16	07S3 - 06000 - 19	Staubkappe	Dust cap	Chapeau antipoussière	1	5-19
17	07S3 - 06000 - 91	Kette zur Staubkappe	Chain to dust cap	Chaîne du chapeau antipoussière	1	5-19
18	01M5 - 12000 - 00	Kombi-Mutter	Nut	Ecrou	1	M12
19	0001 - 52916 - 05	HD-Stecknippel	High pressure male coupling	Raccord mâle embrochable haute pression	1	
20	0004 - 52578 - 01	Schraubnippel	Nipple with male thread end	Raccord mâle fileté	1	1/4"
ZA	0004 - 51211 - 07	Distanzring SP				

HYDROSTRESS

11-18

AU/SP/CP ERSATZTEILLISTE
AU/SP/CP SPARE PARTS LIST
AU/SP/CP LISTE DES PIECES DE RECHANGE



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Abb. 11-8 Presswerkzeug CP-110

Bursting tool CP-110

Outil à enfoncer CP-110

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HYDROSTRESS

AU/SP/CP ERSATZTEILLISTE
 AU/SP/CP SPARE PARTS LIST
 AU/SP/CP LISTE DES PIECES DE RECHANGE

Pos.-Nr. Pos.-No.	Ersatzteil-Nr. Spare part-No.	Deutsch Bezeichnung	English Designation	Fransais Désignation	Menge Qty	Bemerkung Remark
NA	MPHY - CP110	Preßwerkzeug CP-110	Bursting tool CP-110	Outil à enfoncer CP-110	1	ohne Leitung
NA	99MP - GERKU - CP	Leitungspaar	Pair of lines	Pair de lignes	1	gerade kurz
1	0001 - 53048 - 01	Körper zu CP	Bursting body of CP	Corps d'enfoncement CP	1	
2	0001 - 53049 - 04	Laufbüchse zu CP	Bushing sleeve of CP	Boîte de glissement CP	3	
3	0001 - 53049 - 01	Kolben zu CP	Piston for CP	Piston CP	3	
4	0001 - 53049 - 02	Presskopf zu CP	Bursting head of CP	Tête d'enfoncement CP	3	
5	0001 - 53049 - 03	Haltemutter zu CP	Retaining nut of CP	Ecrou de retenue CP	3	
6	0001 - 53049 - 05	Dichtschaube CP	Sealing screw CP	Vis d'étanchéité CP	1	
7	05O1 - 00500 - 25	O-Ring	O-ring	O-ring	3	
8	05O1 - 00400 - 35	O-Ring	O-ring	O-ring	3	40 x 3,5 N70
9	05O1 - 00590 - 30	O-Ring	O-ring	O-ring	3	59 x 3 N70
10	05K1 - 00480 - 40	Kolbendichtring 48	Packing ring of piston 48	Anneau d'étanchéité du piston 48	3	60% Bronze
11	05A2 - 04840 - 07	Abstreifring	Wiping ring	Segment racleur	3	ø 40/48/7
12	0111 - 08030 - 00	Inbusschraube	Allen head screw	Vis à six pans creux	12	M 8 x 30
NA	0002 - 52923 - 01	Druckplatte	Pressure plate	Plaque de pression	1	
NA	20D2 - SPW00 - CP	Dichtsatz CP	Set of seals CP	Jeu de garnitures, CP	1	Besteht aus Pos.7/8/9/10/11
13	0001 - 51211 - 05	HD-Leitung	High pressure line	Ligne haute pression	2	gerade kurz
14	07S3 - 06513 - 14	Stecknippel	Nipple with male end	Raccord mâle embrochable	1	Va I 2-WR513
15	07S3 - 06000 - 19	Staubkappe	Dust cap	Chapeau antipoussière	1	5-19
16	07S3 - 06000 - 91	Kette zur Staubkappe	Chain to dust cap	Chaîne du chapeau antipoussière	1	5-19
17	0001 - 52916 - 05	HD-Stecknippel	High pressure nipple with male end	Raccord mâle embrochable haute pression	1	G 1/4" I
18	01M5 - 12000 - 00	Kombi-6kt-Mutter	Hexagon nut	Ecrou	1	M 12
19	0001 - 52916 - 01	Klemmhebel	Clamping lever	Levier de serrage		
20	0111 - 05020 - 00	Inbusschraube	Allen head screw	Vis à six pans creux	3	M 5 x 20
21	01M3 - 05000 - 60	Stop-Mutter	Stopnut	Ecrou d'arrêt	3	M 5

Abb. 11-8

Preßwerkzeug CP-110

Bursting tool CP-110

Outil à enfoncer CP-110

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