No. 1 SWING BEAM CUTTING MACHINE

SERVICE INSTRUCTIONS & LIST OF PARTS SEPTEMBER 1989

USM

UNITED SHOE MACHINERY

DVSM-1
2/42

USM NO.1 HYDRAULIC SWING BEAM CUTTING MACHINE - DVSM-1

The DVSM-1 represents a completely novel design principle which revolutionizes cutting on a Swing Beam Cutting Machine.

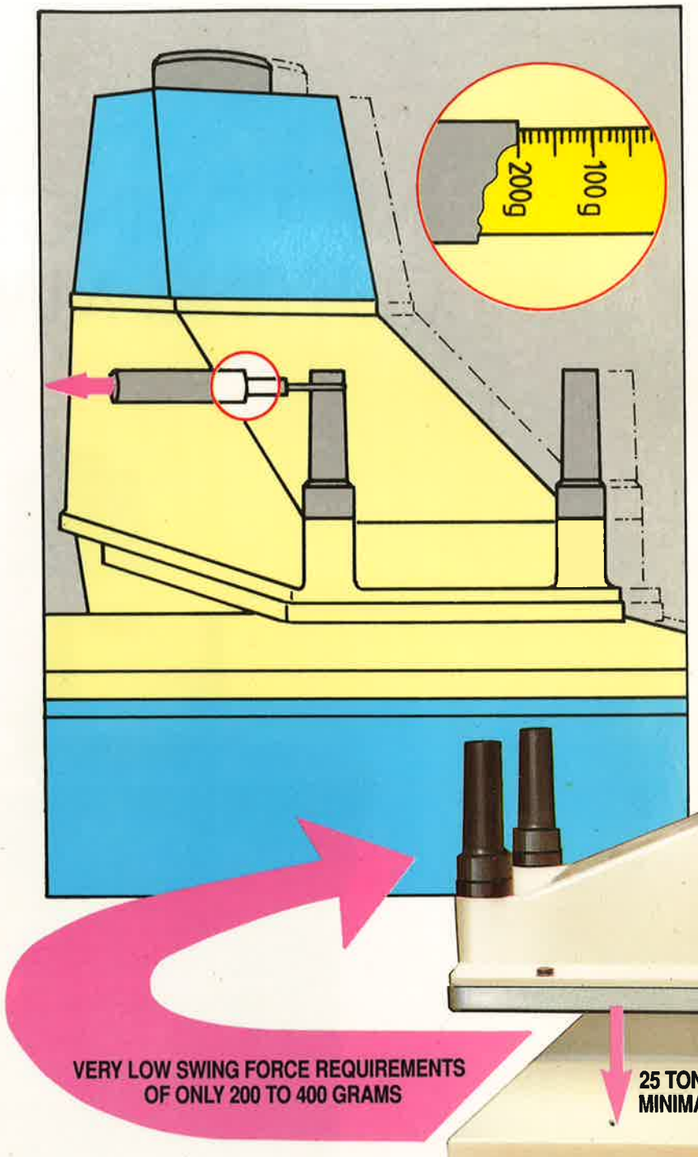
INNOVATIVE DESIGN

A robust swing beam is mounted on a stationary column by two special bushes and a balancing system. This produces minimal deflection of the swing beam during cutting and permits easy, fast and accurate beam positioning due to the very low swing force requirements.
The machine is controlled by a microprocessor.

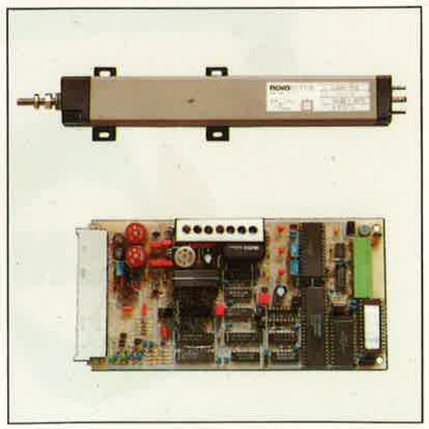
OPERATOR FRIENDLY

- Very low swing force requirements of only 200 to 400 grams (depending on width of beam) greatly reduce operator fatigue.
- Absolutely constant depth of cut at any position throughout the cutting area eliminates the need for double cuts.
- Adjustable working height resulting in optimal view of work and ergonomic working conditions for any operator.
- No oil on the column eliminates risk of oil stains on the work.
- Electronic operator controls with digital displays for
  - depth of cut
  - daylight
  - single or two-handed trip
  - cutting stroke counter
  - maintenance diagnostics

  are conveniently grouped on the swing beam.



VERY LOW SWING FORCE REQUIREMENTS OF ONLY 200 TO 400 GRAMS



MICROPROCESSOR CONTROLLED

25 TONS OF CUTTING FORCE
MINIMAL BEAM DEFLECTION

NO OIL ON THE COLUMN
ELIMINATES RISK OF OIL STAINS ON WORK

HIGH PRODUCTIVITY

- Very high cutting stroke (92mm/sec) and return stroke (150mm/sec) speeds.
- No need for double cuts.
- Greatly reduced operator fatigue.
- 98% utilization of cutting area can be achieved.

ACCURATE

- 25 tons of cutting force.
- Nearly no beam deflection combined with the machine control system and for exceptional cases the optional two trip buttons for different penetration depths give excellent cutting results for any size of cutting die and any kind of material with repeated accuracy.
- Substantially reduced wear of cutting pad, striking face, and cutting dies.

VERSATILE

- 3 widths of cutting beams are available - 380mm, 470mm, 550mm (15", 18½", 21½").
- Two optional bed sizes - 900mm x 450mm or 1000mm x 500mm (35½" x 18" or 39½" x 20").
- Low static and dynamic floor load.

SAFE

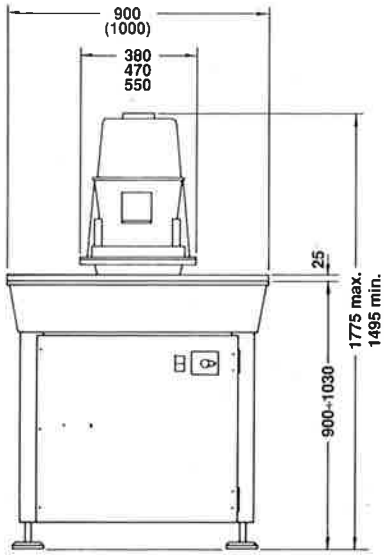
- The DVSM-1 has a single-handed trip facility for cutting strokes up to 8mm with automatic change-over to two-handed trip for strokes in excess of 8mm.
- Alternatively the machine can be fitted exclusively for two-handed trip operation by simply changing an E-PROM.

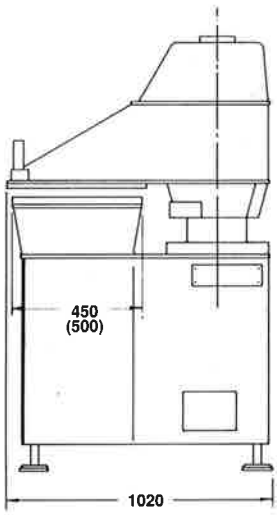
EASY MAINTENANCE

- The microprocessor control can be used for diagnostics and for calibrating the machine.
- Practically maintenance-free closed hydraulic system.

TECHNICAL DATA

Cutting Force	:	25 Tons
Bed size	:	900 x 450mm (35 1/2 " x 18") (1000 x 500mm) (39 1/2" x 20")
Swing Beam Widths	:	380mm, 470mm, 550mm (15", 18 1/2", 21 1/2")
Utilization of Cutting Area	:	98%
Working Height	:	adjustable from 900 mm (35 1/2 ") to 1030mm (40 1/2 ") (Plus 10mm (0.4") if anti-vibration mounts are fitted)
Cutting Stroke maximum	:	150mm (6")
Cutting Stroke minimum	:	7mm (0.3")
Daylight (without cutting pad)		
maximum	:	180mm (7")
minimum	:	30mm (1.2")
Downstroke Speed	:	92mm/sec (3 1/2"/sec)
Upstroke Speed	:	150mm/sec (6"/sec)
Weight (without oil)	:	800kg (1763 lb)
Noise Level	:	63dBA
Electrical Supply	:	3x 220v 50/60Hz 3x 380/220V 50/60Hz 3x 240V 50Hz 3x 415/240V 50Hz 3x 230V 60Hz 3x 208V 60Hz 3x 460V 60Hz
Electrical Consumption	:	2.4kW
Oil	:	54 litres (12 gallons)
Overall Width	:	900mm (35 1/2 ") (1000mm) (39 1/2")
Overall Width including swing beam range	:	1560mm (61 1/2 ")
Overall Depth	:	1020mm (40")
Overall Height max.	:	1775mm (70")
Overall Height min.	:	1495mm (59")
SEAWORTHY PACKAGING:		
Height	:	1800mm (71")
Width	:	1150mm (45 1/2")
Depth	:	1150mm (45 1/2")
Weight (without oil)	:	950kg (2094 lb)
ON PALLET:		
Height	:	1750mm (69")
Width	:	1100mm (43 1/2")
Depth	:	1150mm (45 1/2")
Weight (without oil)	:	870 kg (1918 lb)





The Company reserves the right to supply products which may differ slightly from those described and illustrated in this publication.

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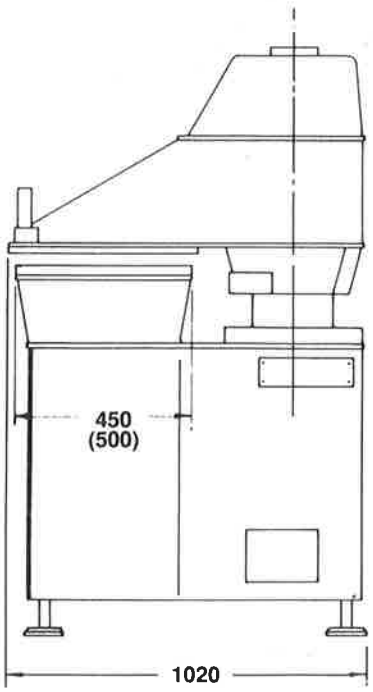
USM NO. 1 HYDRAULIC SWING BEAM CUTTING MACHINE (DVSM-1)

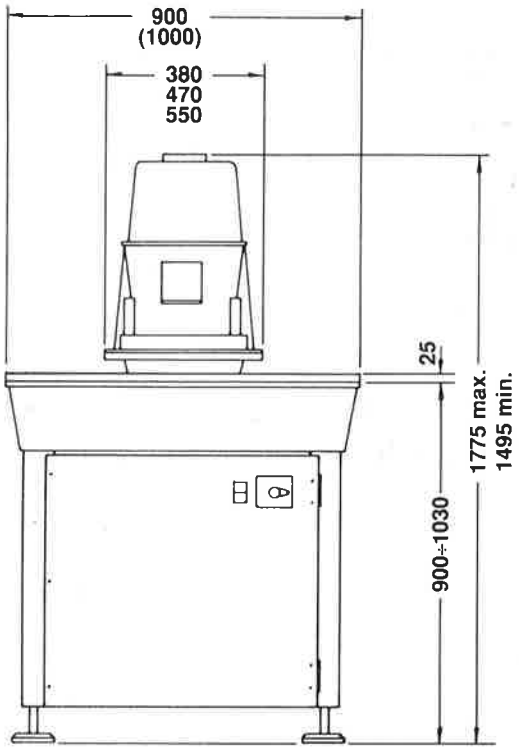
I N D E X

800-343-0772

ELECTRICAL HOOKUP
FOR 208-3Φ.

PHASE LEADS ARE: 2 BLKS & 1 BRN
GND IS YEL W/GRN TCR
(BLUE) LEAD NOT TO BE USED -





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Working Height	: adjustable from 900 mm (35 1/2 ") to 1030mm (40 1/2 ") (Plus 10mm (0.4") if anti-vibration mounts are fitted)
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maximum	: 180mm (7")
minimum	: 30mm (1.2")
Downstroke Speed	: 92mm/sec (3 1/2"/sec)
Upstroke Speed	: 150mm/sec (6"/sec)
Weight (without oil)	: 800kg (1763 lb)
Noise Level	: 63dBA
Electrical Supply	: 3x 220v 50/60Hz 3x 380/220V 50/60Hz 3x 240V 50Hz 3x 415/240V 50Hz 3x 230V 60Hz 3x 208V 60Hz 3x 460V 60Hz

Electrical Consumption	: 2.4kW
Oil	: 54 litres (12 gallons)
Overall Width	: 900mm (35 1/2 ") (1000mm) (39 1/2")
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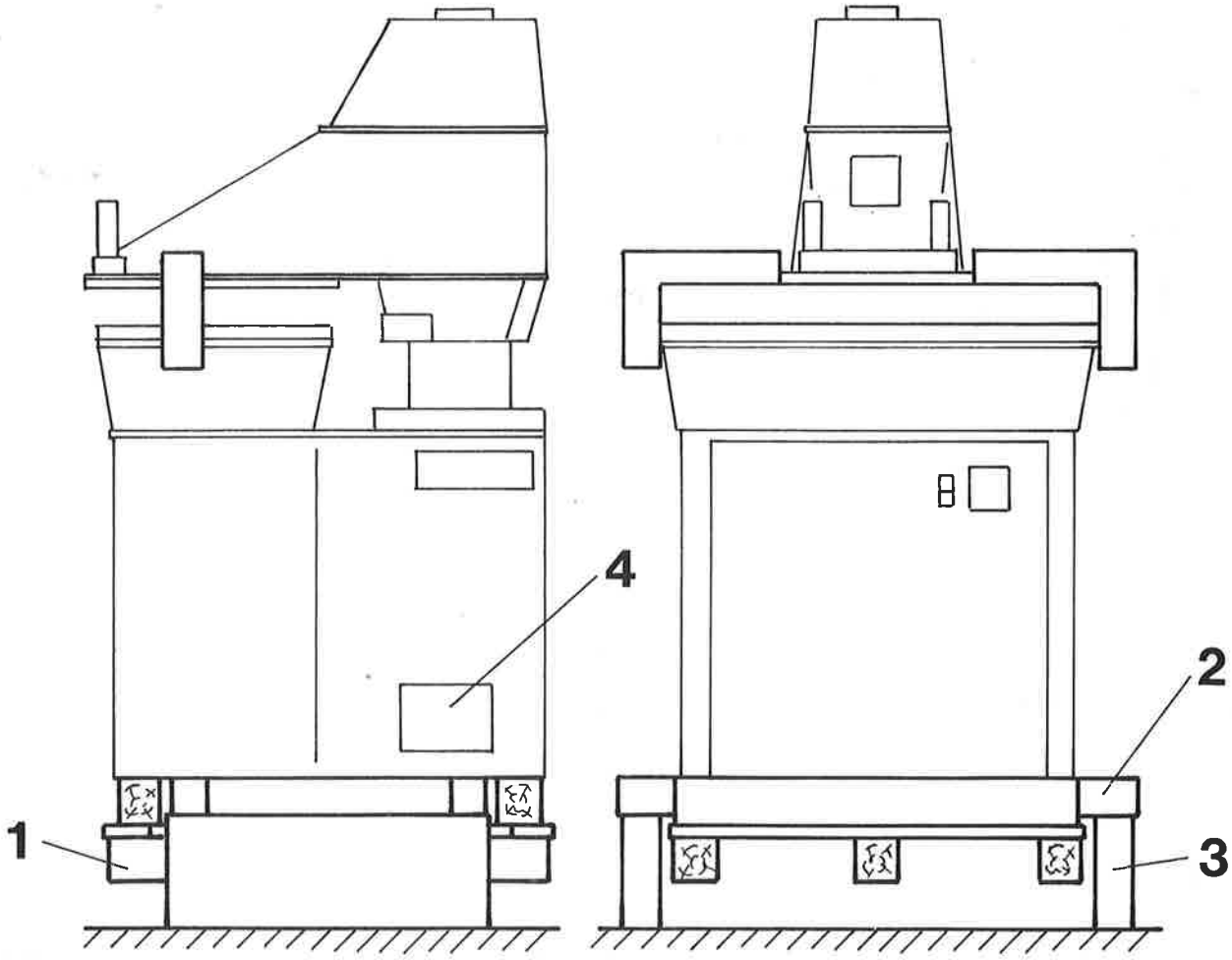
2.0 TRANSPORTATION AND INSTALLATION OF THE MACHINE

2.1 Transportation by forklift trolley

Machine to be approached from the rear or front only. Sidewise approaching by forklift truck only to lift the machine off the pallet. Use distance piece from soft material to prevent damage to the frame.

Lifting machine off the pallet using transportation device DVSM 1500:

- Approach pallet 1 from the rear using forklift trolley and lift machine off together with the pallet.
- Push two square carriers 2, as per Fig. 1, between machine and pallet and attach supports 3 upright to square carriers 2.
- Lower machine and pallet onto carriers 2 and supports 3.
- Remove pallet.
- Place distance blocks as height equalizer on forklift trolley and lift machine together with the carriers 2 using forklift trolley.
- Pull supports 3 off, place supports underneath turned by 90°, and lower machine again on to the square carriers 2 and supports 3.
- Open front door, unscrew cover 4 and adjust the three foot screws so that they jut out by abt. 90 mm.
- Lower machine onto the foot screws (aligning see 2.3).



2.2 Transportation by crane

- Use hemp rope 1 (diameter 25-30 mm) as shown in Fig. 1a (do not use a steel rope to prevent damage to the swing beam).

- Length of the rope must be sufficient to prevent that the hood is damaged by the lifting hook.

- ATTENTION ! Secure swing beam from swinging using locking 2.

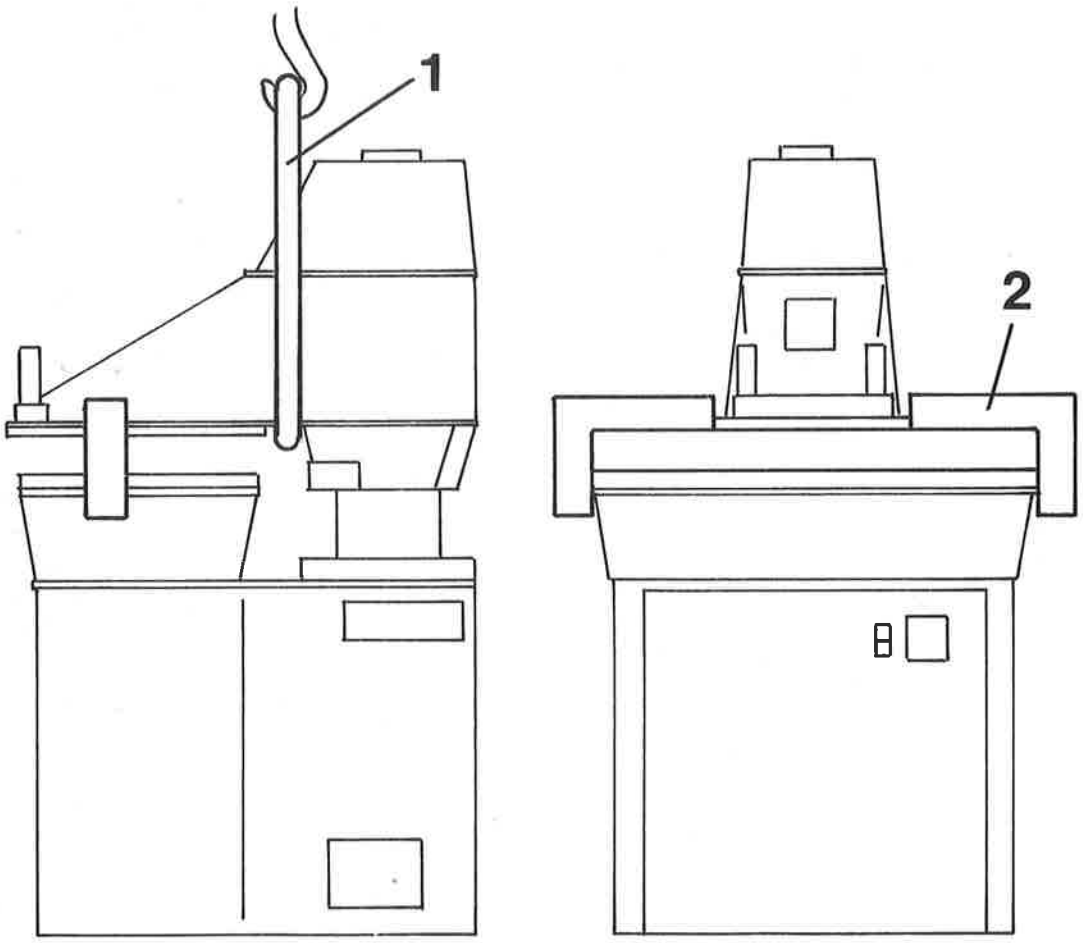


Fig.1a

2.3 Aligning the machine

By means of the foot screws machine is adjusted to the most convenient working height for the operator; align the machine horizontally. There must not be a slope in rearward direction to prevent that swing beam swings away.

2.4 Electric installation

Connect the machine to the electric mains in line with the regulations of the local Electric Supply Company. Voltages see TECHN. DATA.

2.5 Hydraulic system

Use hydraulic oil ZH 2030 RA (3 cans of 18 litres each); tradenames for instance BP ENERGOL HLP D 46
ARAL VITAM DE 46
SHELL HYDROL DO 46

Changing oil see 7.2

2.6 Bleeding the machine

see 6.4

3. Operator Controls

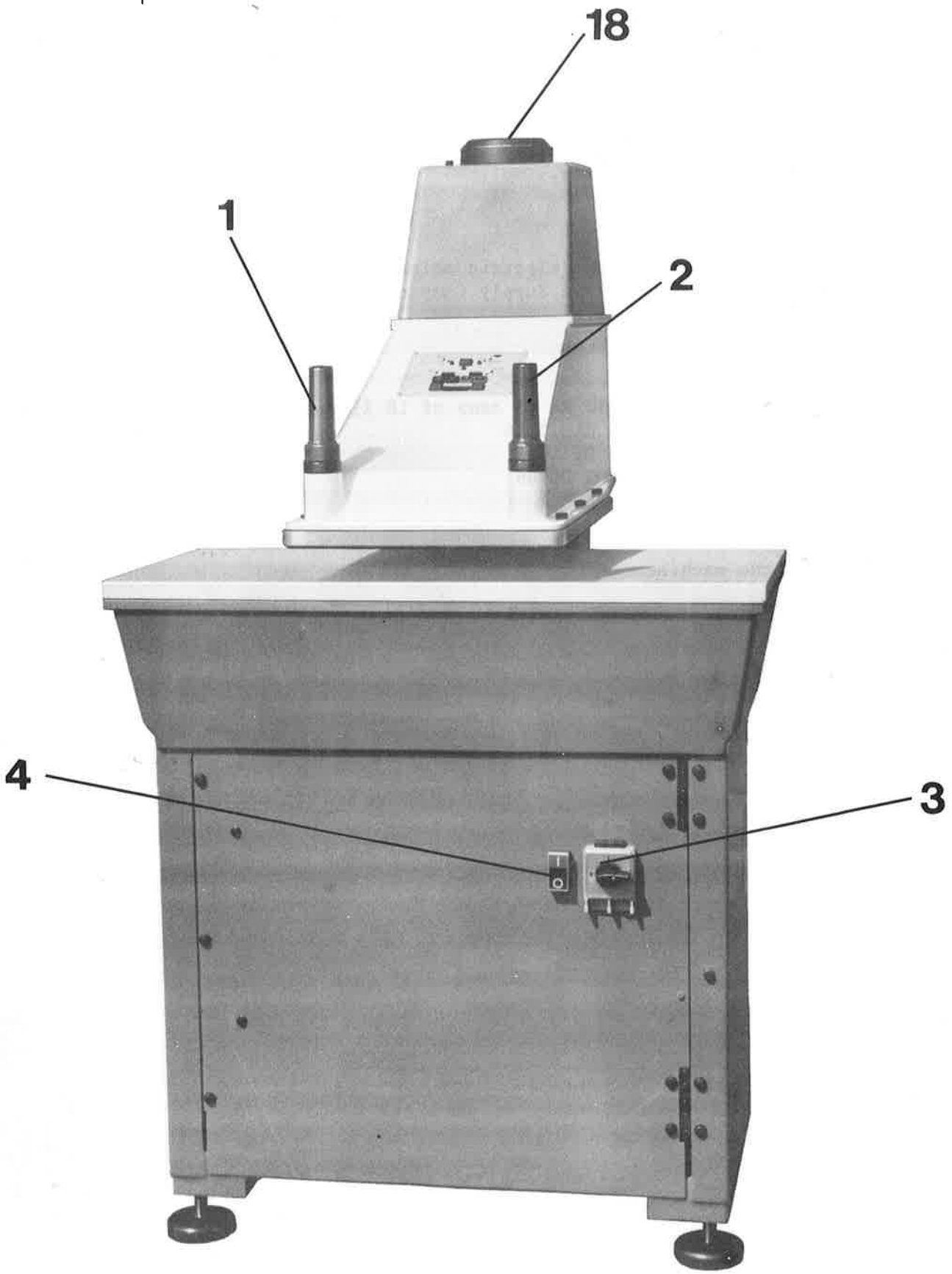


Fig.2

1	3.3.1	3.2	3.3.2
2	3.3.1	3.2	3.3.2
3	3.1		
4	3.1		
18	6.4		

3.0 OPERATING INSTRUCTIONS

1 LH Cutting Stroke Release Key Switch
2 RH Cutting Stroke Release Key Switch
3 Electric Mains Switch
4 Pump Motor ON/OFF Switch
18 Bleeding Screw

3.1 Starting the machine

- Turn electric mains switch 3 (Fig. 2) to operating position '1'. Flashing of single segments of the 7-segment-display is insignificant.

- Start pump motor via switch 4. The three LED's 5,7,8 (Fig. 3) are on and all 7-segment-displays show an 8 with decimal point for 3 seconds (lamp test).

- Flywheel rotating to the right.

- Abt. 5 seconds after starting the pump motor, the swing beam moves into its upper rest position.

- In case of invariable cutting die heights the machine is ready for the cutting operation; LED 7 is on.

  For the first cutting stroke from the upper rest position two-hand trip is always required.

  At this stage LED 8 is out, although single-hand trip has been pre-selected.

- If cutting dies of different heights are used or in case LED 5 'SETTING UP' flashes, caused by internal reasonableness test of the control (see 6.3.1 d), a SET UP procedure must be carried out (see 3.2).

- Error codes Er.1 through 5 see 3.7.

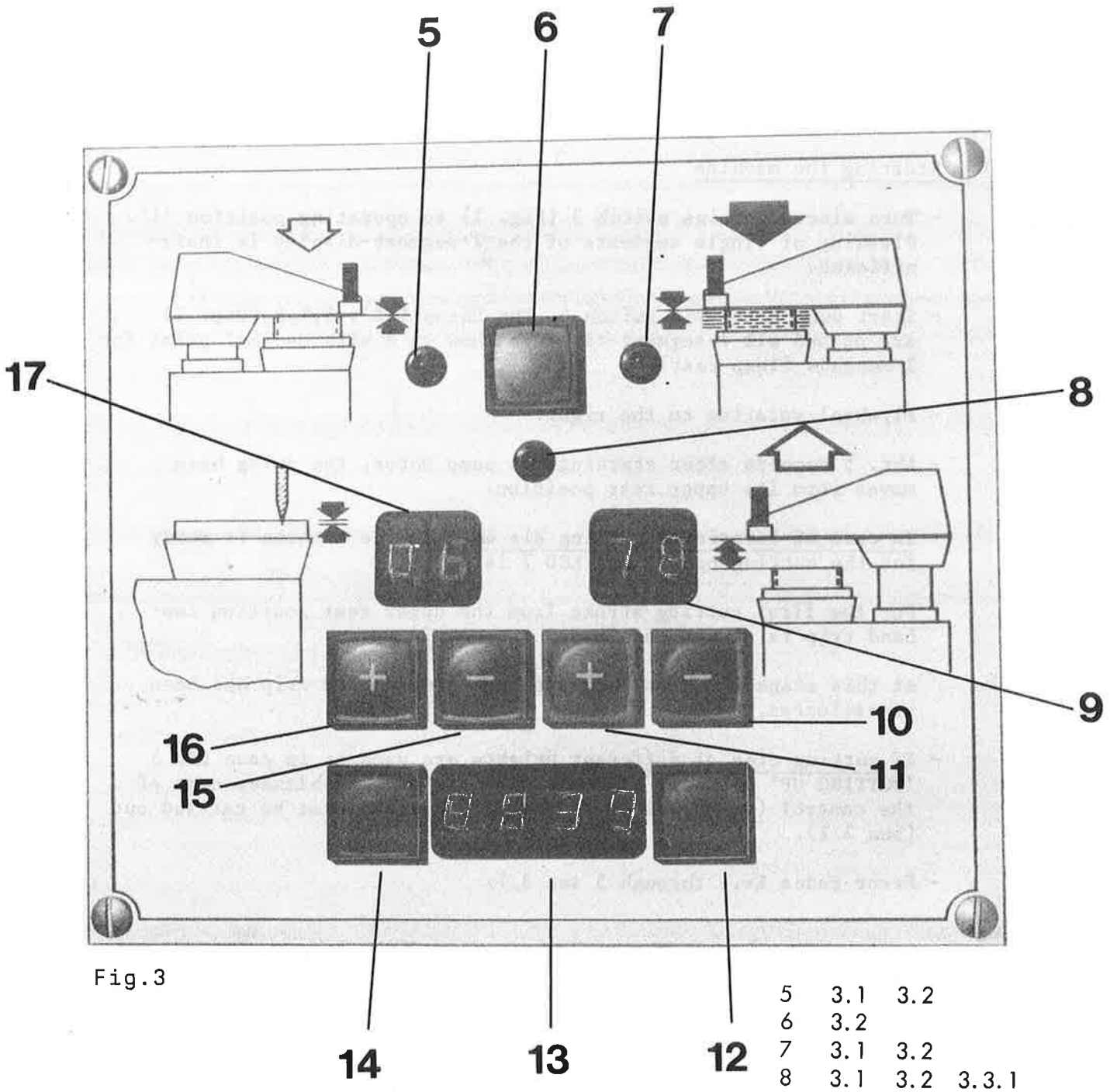


Fig.3

5	3.1	3.2	
6	3.2		
7	3.1	3.2	
8	3.1	3.2	3.3.1
9	3.4		
10	3.4	3.6	
11	3.4	3.6	
12	3.6	3.7	
13	3.6		
14	3.6		
15	3.5		
16	3.5		
17	3.5		

5 LED SET UP
6 Key Switch SET UP
7 LED Standby
8 LED Single-hand-trip
9 Display Daylight
10 Key Switch Daylight -, Counter -
11 Key Switch Daylight +, Counter +
12 Key Switch Counter ENTER
13 Display Counter
14 Key Switch Counter Actuation
15 Key Switch Depth of Cut -
16 Key Switch Depth of Cut +
17 Display Depth of Cut

3.2 Setting up for new cutting die height

- Place the cutting die in the center of the cutting pad, respectively rearward when large cutting dies are used (without material to be cut).

- Tip key switch 6, LED 5 lights, LED 7 goes out.
  If within 3 seconds a setting up stroke is not carried out, SETTING UP procedure is stopped, LED 5 goes out, LED 7 lights.

- Lower swing beam onto the cutting die via cutting stroke release key switches 1 and 2 (two-hand tripping), then release both switches.

- With the swing beam down, depth of cut (see 3.5) and the daylight (see 3.4) can already be adjusted.

  The depth of cut (display 17) is automatically set to 0.0, only the + key switch 16 is accepted at the beginning.

- First press key switch 6, then additionally cutting stroke release key switch 1 or 2. The swing beam moves up by the amount set for the daylight.

- The first cutting stroke can be tripped when LED 7 lights and 5 goes out.

- With a daylight up to max. 8 mm LED 8 also lights (single-hand trip).

3.3 Cutting stroke release

3.3.1 Single-hand trip up to max. 8 mm cutting stroke (adjustment see 3.4) by pressing cutting stroke release key switch 1 or 2.
Display of the single-hand range by LED 8.

3.3.2 With cutting strokes larger than 8 mm a cutting stroke is tripped (two-hand trip) only when the two cutting stroke release key switches 1 and 2 are pressed at the same time, or within 0.5 seconds.

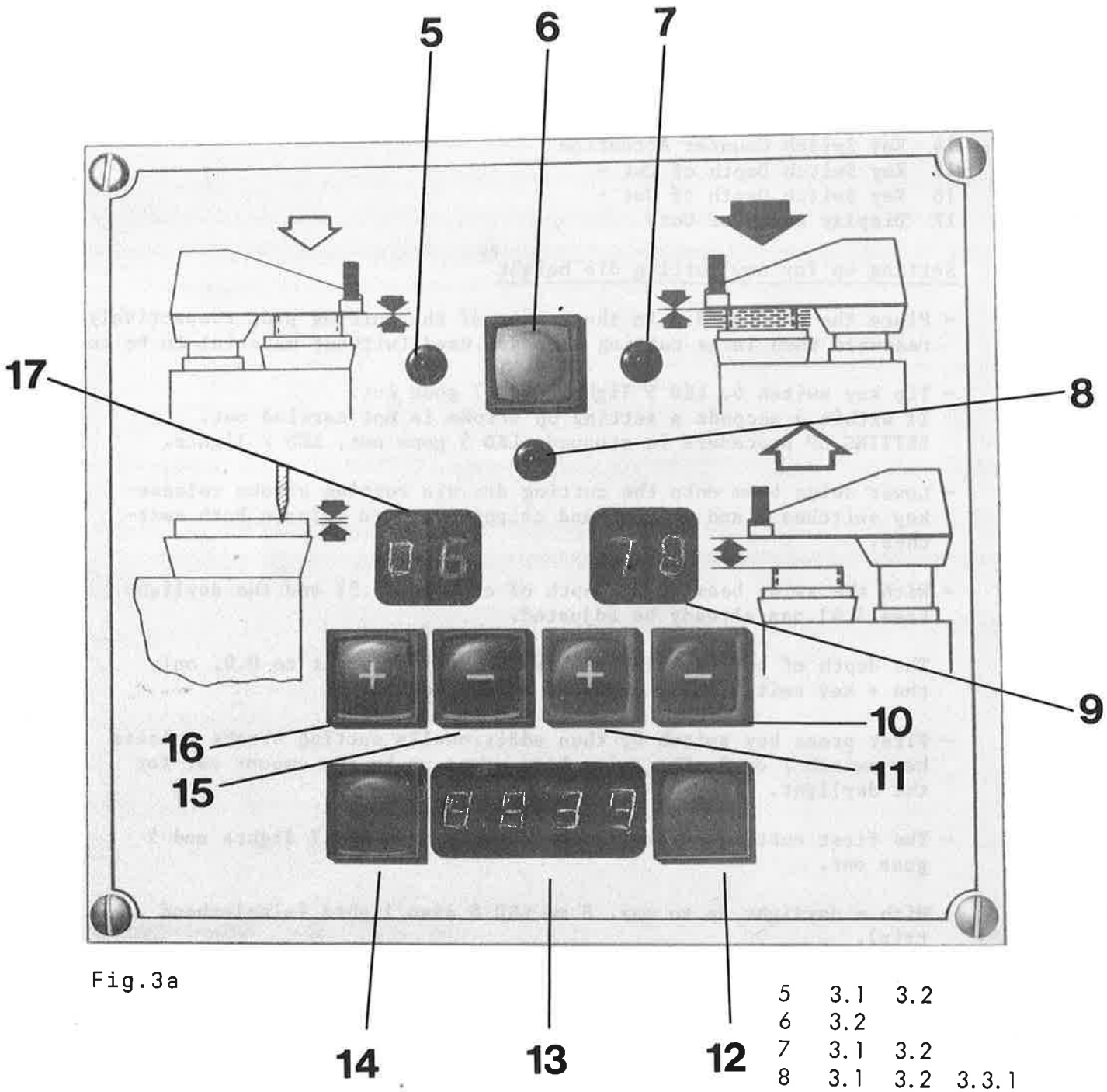


Fig.3a

5	3.1	3.2	
6	3.2		
7	3.1	3.2	
8	3.1	3.2	3.3.1
9	3.4		
10	3.4	3.6	
11	3.4	3.6	
12	3.6	3.7	
13	3.6		
14	3.6		
15	3.5		
16	3.5		
17	3.5		

3.4 Adjusting the daylight or cutting stroke, respectively

- The daylight setting MW determins the clearance between upper edge of cutting die and striking face at the end of the beam return stroke after cutting (see also Fig. 7, page 30).
- Adjustments carried out with the machine in standby status (pump motor on, swing beam at the pre-selected height) or during set-up (swing beam lowered onto the cutting die under low pressure).
  When carrying out adjustments with the machine in standby status, a cutting stroke must be tripped to reach the new daylight setting.
- The daylight setting - displayed in mm by display 9 - can be adjusted from 07 mm to 98 mm using '+' key switch 11 and '-' key switch 10.
- Number 99 means return stroke into upper rest position (maximum daylight).

- Example : Indicated value 11 press + key switch (shortly)
  12

  Indicated value 25 press + key switch (constantly)
  26... 99, 07 etc.

  Indicated value 07 press - key switch (shortly)
  99

  Indicated value 35 press - key switch (constantly)
  34... 07, 99 etc.

3.5 Adjusting penetration depth (see Fig. 6, page 28)

- When cutting, the swing beam must move below the level Ho reached during the setting up procedure, in order to compensate for beam deflection depending on cutting length of the cutting die and material strength as well as for potential unevenness of cutting pad or striking face.
- Adjustments to be carried out with the machine in standby status or during set up procedure (swing beam lowered onto the cutting die under low pressure).
- The setting of the depth of cut - displayed in mm by display 17 - can be adjusted from 0.0 mm to 6.9 mm using '+' key switch 16 and '-' key switch 15.

Example : Indicated value 0.0 press + key switch (shortly)
0.1

Indicated value 0.8 press + key switch (constantly)
0.9.. 6.9, 0.0 etc.

Indicated value 3.7 press - key switch (shortly)
3.6

Indicated value 0.3 press - key switch (constantly)
0.2, 0.1, 0.0, 6.9 etc.

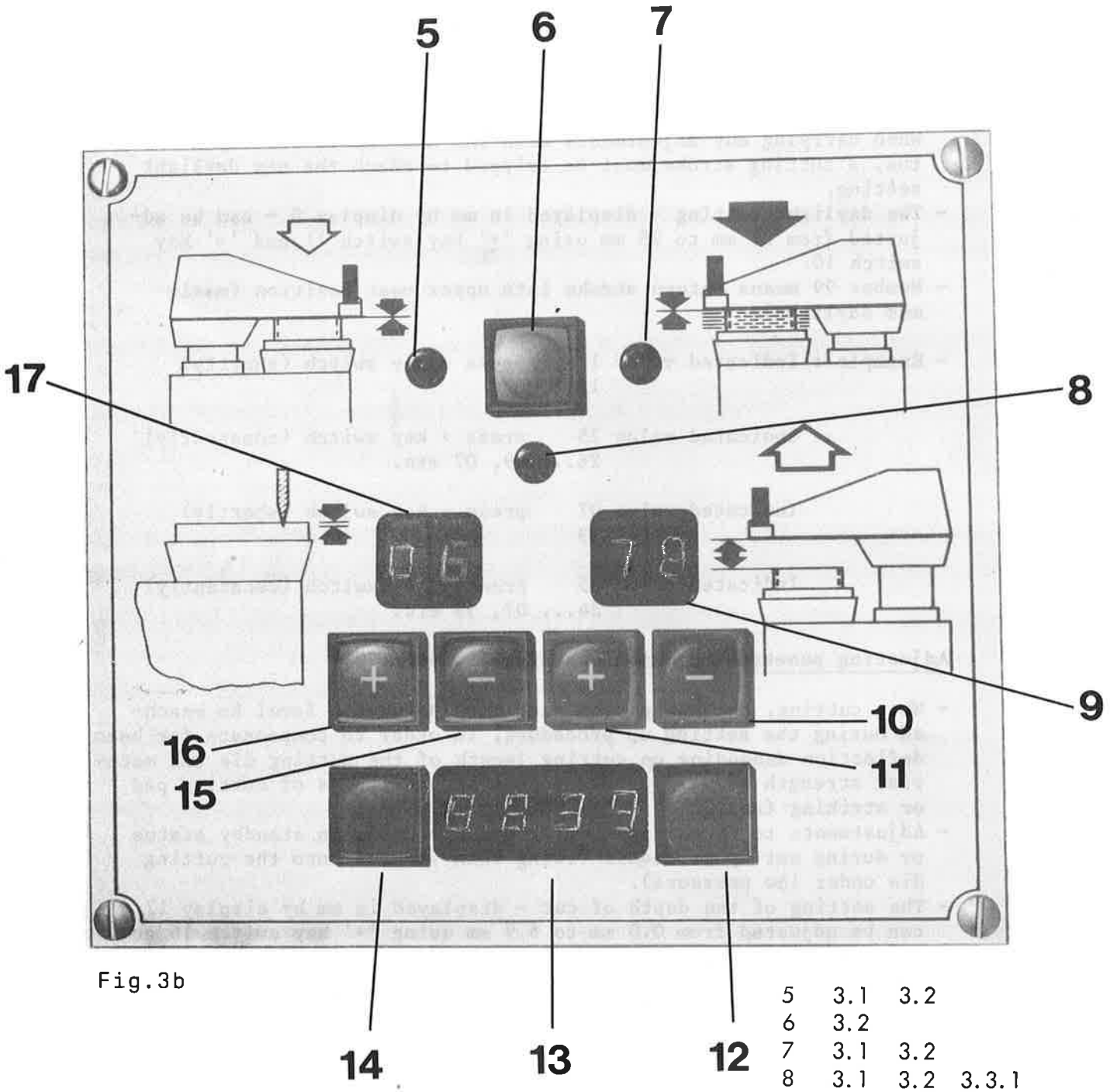


Fig.3b

5	3.1	3.2	
6	3.2		
7	3.1	3.2	
8	3.1	3.2	3.3.1
9	3.4		
10	3.4	3.6	
11	3.4	3.6	
12	3.6	3.7	
13	3.6		
14	3.6		
15	3.5		
16	3.5		
17	3.5		

3.6 Counter

After every completed cutting stroke the counter (display 13) counts less 1 from a pre-selected piece number of the workpiece to be cut.

If the counter is not used [0000] is displayed.

Adjustment (possible only with the machine in standby status) :

- Press key switch 14, display [0.000]

  The point shows that this decade value can be varied.

- If variation is required, enter digits using '+' key switch 11 or '-' key switch 10.

- Decade advancing by pressing key switch 12 (independently whether the first decade has been changed or not).

  Display for instance [00.00]

  The second decade value can be varied, etc.

- When the last decade has been defined (display for instance [0120.] the piece number [0120] will be shown without decade point, by pressing key switch 12. After the next cutting operation [0119] is displayed, etc.

- When 120 cuts have been carried out, [----] is displayed.

  No more cuts can be carried out.

- When pressing key switch 14 [0120] is displayed again, i.e. the last pre-set counter value.

  Again 120 cuts can be carried out, etc.

- If the counter is not to be used, press key switch 14 twice and return the display to [0000] :

  - Press key switch 14 twice, [0.000] is displayed.

  - Press key switch 12 four times.

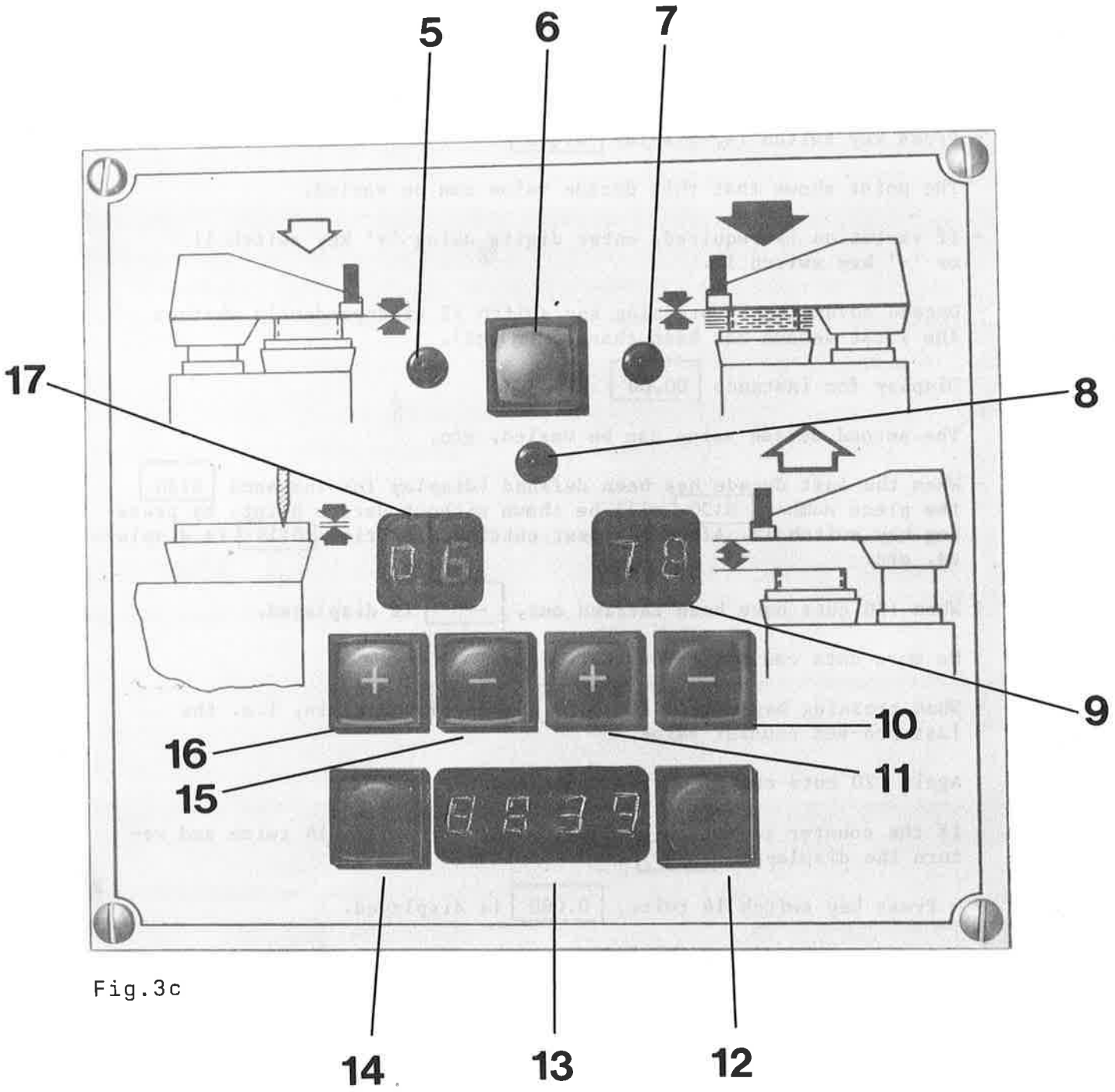


Fig.3c

3.7 Error display (see also 6.2)

5 errors (Er.1 to Er.5) are displayed at 13 :

Error 1 (Er. 1)

A cutting stroke cannot be tripped

Reason : - Thickness of striking face and cutting pad reduced too much

- Penetration value set too high

Remedy : - Reduce penetration value, if the cutting result permits

- Use thicker cutting pad or striking face. SET UP procedure required.

Error 2 (Er. 2)

A cutting stroke cannot be tripped, only daylight + can be operated.

Reason : - Daylight set too low

- Signal values (see 6.2.2) set too high.

Remedy : - Increase daylight value

- Serviceman should check signal values, if required.

Errors 3, 4, 5

No operation carried out, machine must be switched off.

Elimination of the fault carried out by a serviceman.

4.0 SAFETY EQUIPMENT

- The electrical main switch is at the same time the emergency switch and is lockable.
- Two-hand trip when cutting strokes exceed 8 mm.
- Striking face chamfered by 3 mm x 45 degrees.
- Safety switch-off (see 6.3) by control system.

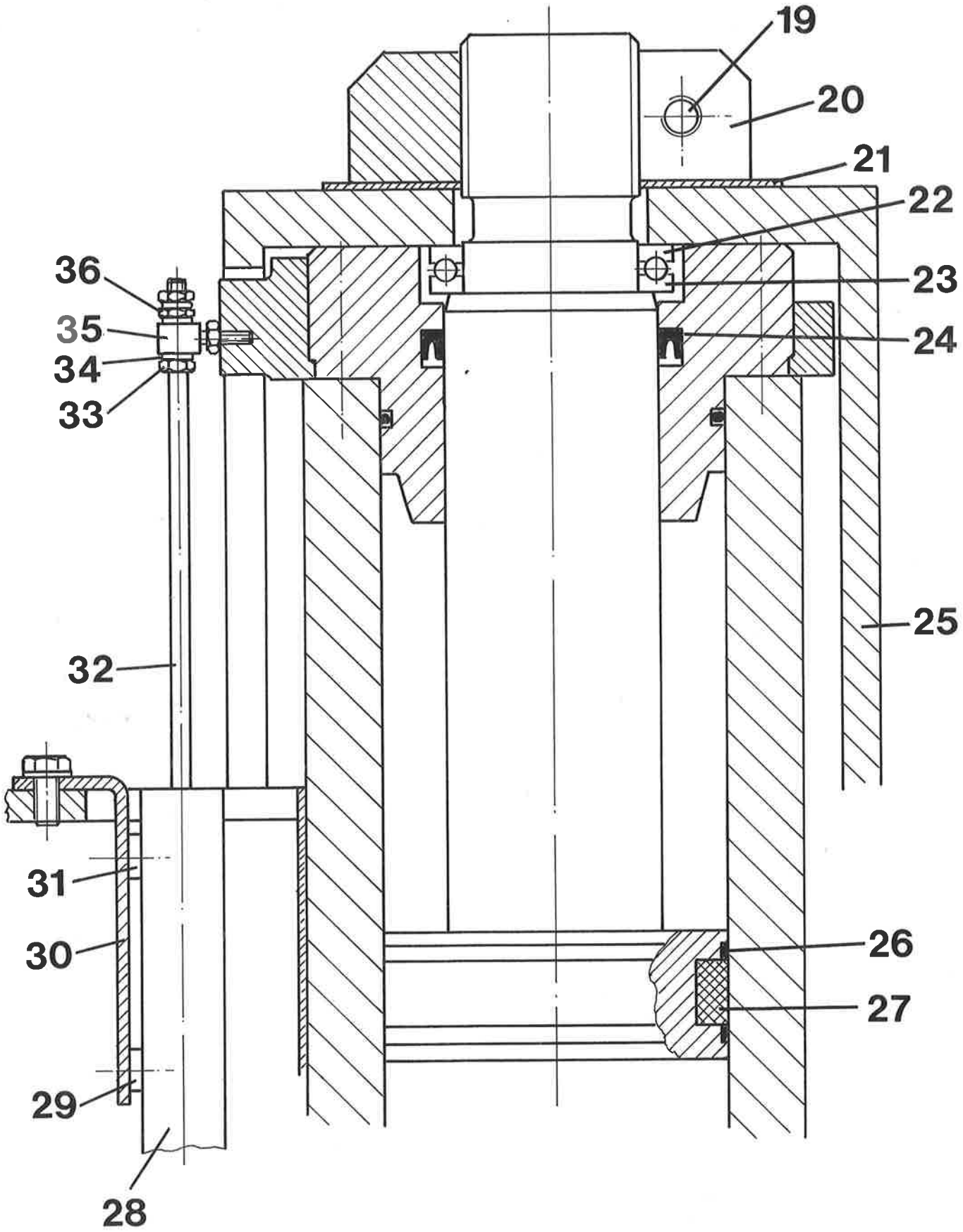


Fig. 4

5.0 BASIC ADJUSTMENTS, ASSEMBLY INSTRUCTIONS

5.1 First assemble piston ring 27, then the guide rings 26.

5.2 For assembling the grooved ring 24 use special pliers.

5.3 The two rings 22, 23 of the axial bearing have different inner diameters.
Lower ring 23 with smaller inner diameter (tight fit),
upper ring 22 with larger inner diameter (clearance).

5.4 Adjust axial play between nut 20 and disk 21 to 0.1 mm. Secure nut 20 with screw 19.

5.5 Assembly of the linear potentiometer :

- Push upper holder 31 in the groove of the linpot body into rod end limit position and clamp.
- Adjust lower holder 29 with a distance of 80 mm to the upper holder 31 and clamp the holder.
- Fasten linpot body 28 with holders 29, 31 on supporting angle 30 in lower end position (oblong hole) and screw supporting angle, as shown in Fig. 4, up with the swing beam. Note that linpot body 28 and catch 35 are in true alignment. Linpot rod 32 must not be charged radially.
- In axial direction the relative position of the linpot rod 32 to catch 35 is determined by nut 33 resting tightly in the end of the thread of the rod and 2 disks 34.
  Adjust axial play of the rod to 0.03 +0.02 mm and secure via counter-nuts 36.
- Test: When the swing beam has moved up for the first time (MW 99) the linpot value must be ⩽4060; see item 6.1.4. If needed, remove one disk 34.

5.6 Exchanging the stop bumpers for the swing movement :

- Lower swing beam on distance block by carrying out a Set Up stroke.
- Remove plastic hood.
- Loosen screw 19 and unscrew nut 20.
- Remove steel hood 25.

5.7 Ball-type bushes

Prestress pressure springs with the 380 mm wide arm by 6.5 mm, with the 470 mm and 550 mm wide beam by 7.0 mm - starting from the unstressed condition.

This is achieved by adding disks DVSM 1477 between spring bushing and spring, considering the existing space for installation.

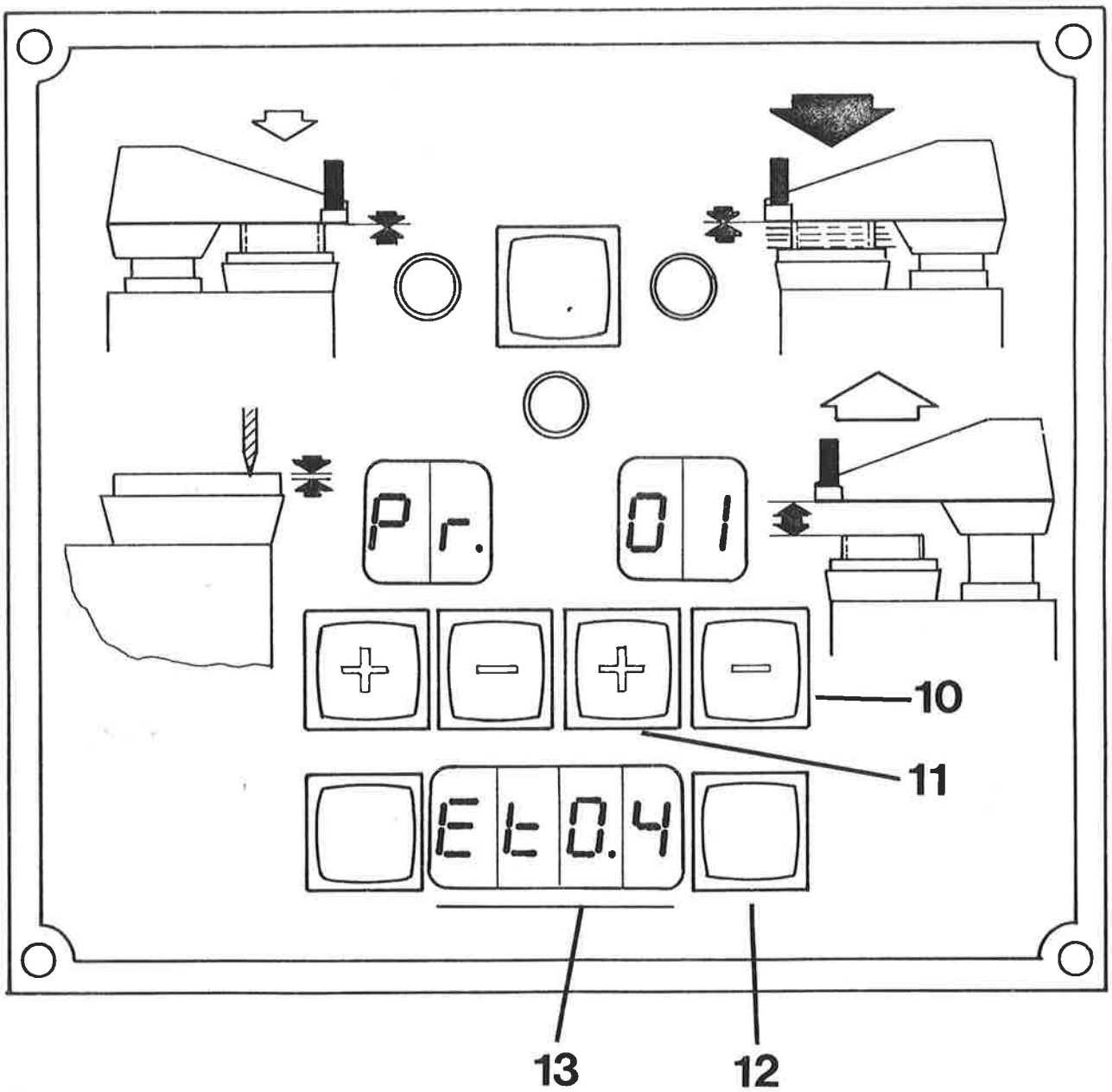


Fig. 5

6.0 SERVICE INSTRUCTIONS

Two service programs are available :

- Standard service program
- Program "Service First"

The standard service program is mainly used for checking and adjusting the penetration/daylight signal values and for checking the solenoid valves; "Service First" is preferrably used in case of breakdown.

6.1 Standard Service program

With the machine in standby status (pump motor ON) the standard service program is recalled by actuating the self-resetting service switch in the control enclosure. ("Service First" see item 6.1.9.)

Display [Pr.] [01] (Fig. 5)

Display 13 stays dark.

The program numbers 01 through 09 are changed via +/- key switches 11/10 (daylight) and recalled via key switch 12.

Then the value asked for is shown at 13, for instance [Et 0.2]

The following programs are available :

6.1.1 Program 01 Input or alteration of the penetration signal value vhet

Display (example) at 13 (Fig. 5) when pressing key switch 12 shortly :

[Et 0.2]

The value vhet 0.2 means that the electrical signal for the stroke reversal is already given, when the swing beam, during the cutting stroke, is positioned still 0.2 mm above the zero value Ho (see Fig. 6, page 28).

Alteration by means of +/- key switches 11/10 within 0.0 to 9.9 mm. To confirm the value and return into program 01, press key switch 12 shortly. Display 13 gets dark again.

The penetration signal value is adjusted on assembly so that differences between the individual machines resulting from tolerances in the component parts are compensated for to ensure that in case of identical operation, i.e. using the same cutting die and material, the same value for the penetration depth can be used on any machine.

Experience has shown that the vhet value ranges from 0.2 to 0.5 mm.

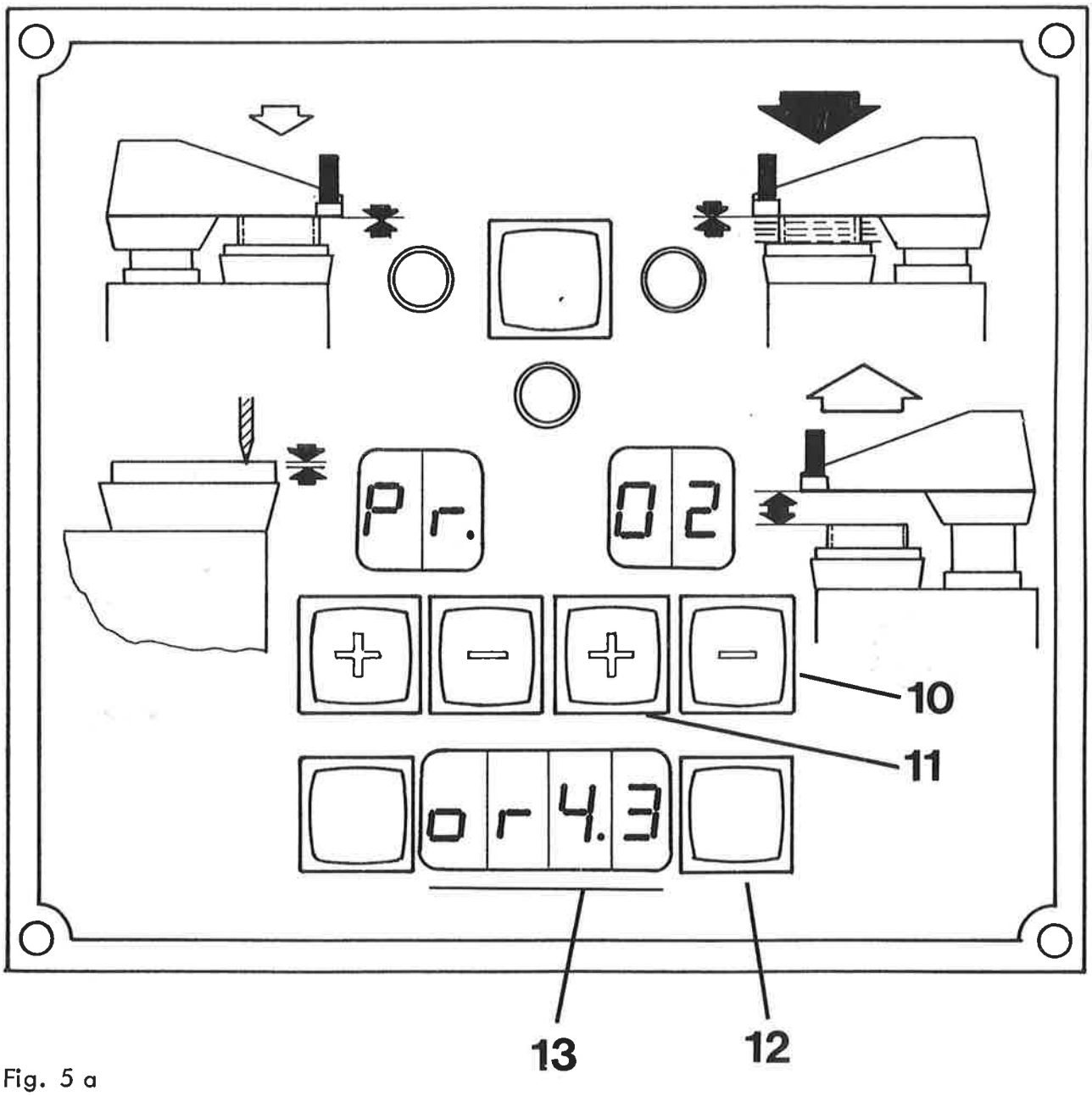


Fig. 5 a

6.1.2 Program 02 Input or alteration of the daylight signal value vhmw

Display (example)

| or 4.3 |

The value vhmw = 4.3 means that the electrical signal to stop the swing beam during return stroke is already given, when the swing beam has to move still 4.3 mm until reaching the adjusted daylight (see Fig. 7, page 30).

Alteration by means of +/- key switch 11/10 within 0.0 to 9.9 mm.

To confirm the value and return into program 01, press key switch 12 shortly.

The daylight signal value (values vary so far between 4.2 and 4.5) is adjusted in the factory so that the set daylight is really achieved.

6.1.3 Program 03 Checking the input devices (key switches, switches)

Actuate and hold the service switch and tip key switch 12 twice, 13 displays

| in 34 |

Release service switch and press key switch 12 shortly. Display 13 shows | in | .

Now the input devices can be tested as follows (example) :

- Press key switch 12 , immediately afterwards actuate additionally the component to be checked, for instance the LH cutting stroke release key switch, and at once thereafter release key switch 12. Keep LH cutting stroke release key switch pressed until (in case of correct operation) | in 1 | is displayed.

  If within 1 second nothing is displayed, the component or the connection to the component is defective.

- Clear display and checking procedure, respectively, via key switch 12.

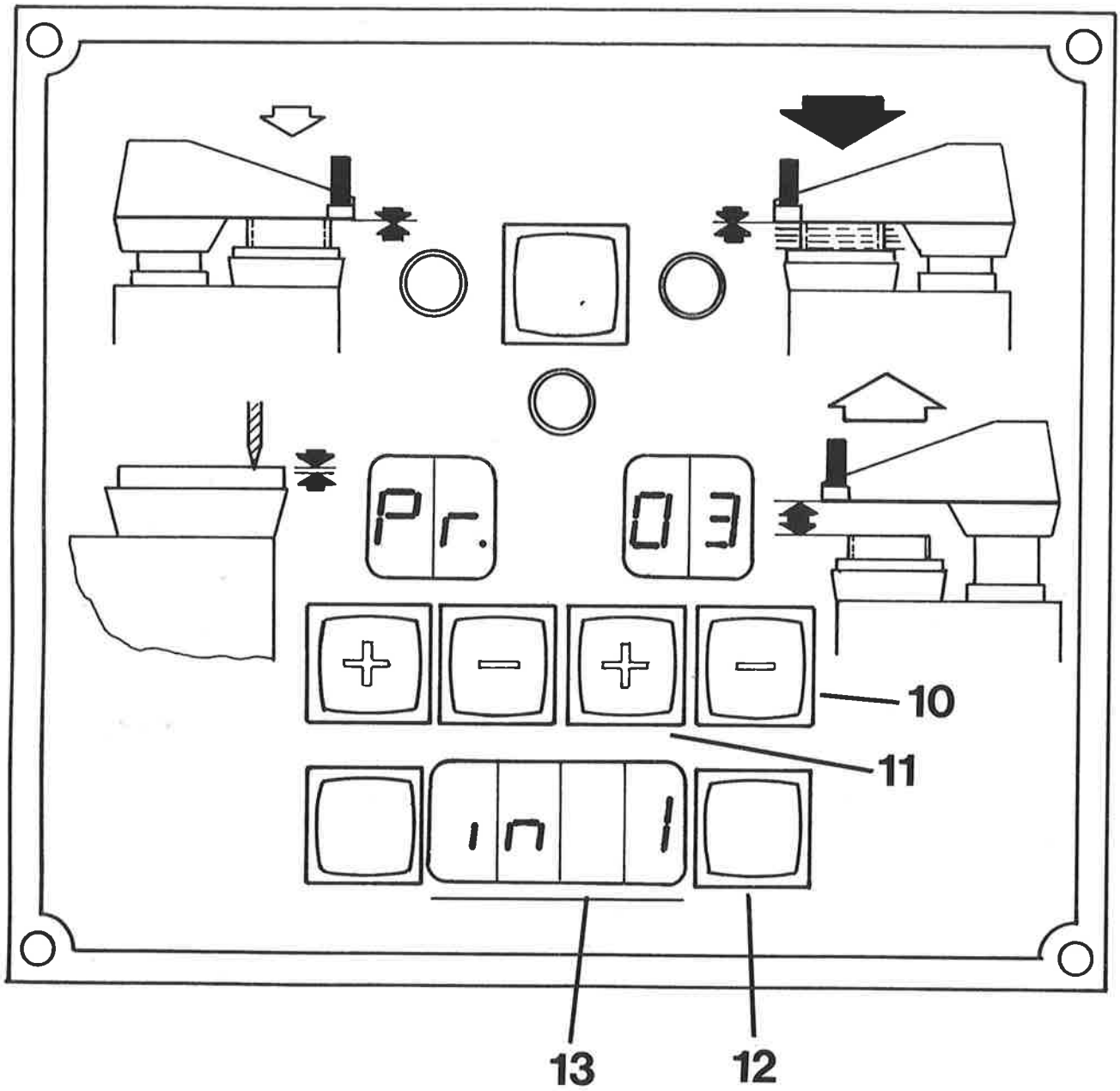


Fig. 5 b

6.1.3 Program 03 - continued :

The following displays are assigned to the components :

in 1	LH cutting stroke release key switch	
in 2	RH cutting stroke release key switch	
in 3	no function	
in 4	no function	
in 5	key switch 6 (Fig. 3)	SET UP
in 6	key switch 14	Set Counter
in 7	key switch 12	ENTER
in 8	no function	
in 9	key switch 16	+ adjustment of penetration depth
in 10	key switch 15	- adjustment of penetration depth
in 11	key switch 11	+ adjustment of the daylight
in 12	key switch 10	- adjustment of the daylight
in 34	service switch	

All input devices, except key switch 12 and service switch, can be tested as described.

Checking key switch 12 :

Press key switch 12 twice shortly. When the key switch is in order, [in 7] is displayed. When the key switch is defective, the display stays dark.

By actuating key switch 12 again, the display goes out resp. the checking procedure for key switch 12 is finished.

Completing program 03 and returning into program 01, respectively :

- Press key switch 12 twice shortly, [in 7] is displayed.

- Actuate service switch, thereby pressing key switch 12 shortly.

6.1.4 Program 04 Checking the linpot

With the program selected and confirmed the actual linpot value between 0006 and ≤4060 is displayed.

When for instance [2048] is displayed, the linpot is in a center position.

The values <0006/≥4060 can be tested only with the linpot removed.

Returning into program 01 by pressing key switch 12 shortly.

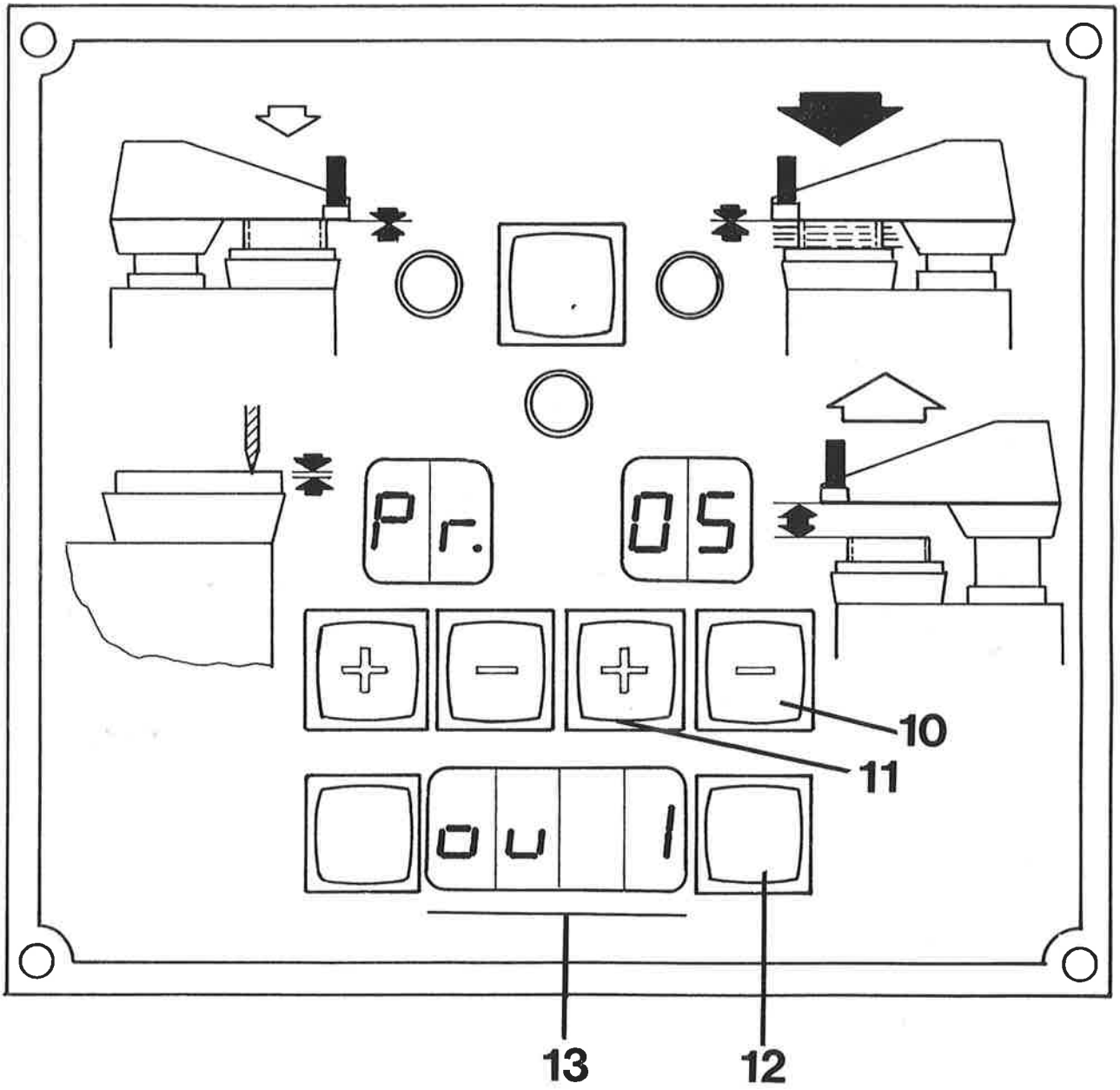


Fig. 5 c

6.1.5 Program 05 Testing the hydraulic valves SV1, 2, 3

This test is possible only in the standard service program.

ATTENTION ! Before testing hydraulic valve SV1 disconnect plug from coil, to prevent unwanted cutting stroke.

With the program selected and confirmed, [ou 1] is displayed, i.e. SV1 can be tested.

SV2 (display [ou 2]) or SV3 (display [ou 3]) can be recalled via +/- key switches 11/10 (daylight).

- Testing SV1 (display [ou 1]) :

  Pressing and holding a cutting stroke release key switch and thereafter touching key switch 12 shortly, applies voltage to the coil plug of SV1, in case of correct operation. Independently of the test result, the display shows [ou 1] .

  Touching key switch 12 shortly again, de-energizes coil plug of SV1.

  The display [ou 1] does not change.

  The switching operation can be repeated as often as desired.

  If only key switch 12 is actuated resp. the cutting stroke release key switch is actuated too late, when testing SV1, pump motor and control system are automatically switched off (see 6.3.10 Safety Control).

- Testing SV2 (display [ou 2]) :

  Solenoid coil may be left connected.

  Tipping key switch 12 energizes SV2 in case of correct operation; the switching click becomes audible. Independently from the test result the display shows [ou 2] .

  Tip key switch 12 again to de-energize SV2 (switching click). Display still shows [ou 2] .

  The switching operation can be repeated as often as desired.

- Testing SV3 (display [ou 3]) analogously to SV2.

Returning into program 01 :

Recall [ou 0] via +/- key switches 11/10 and tip key switch 12.

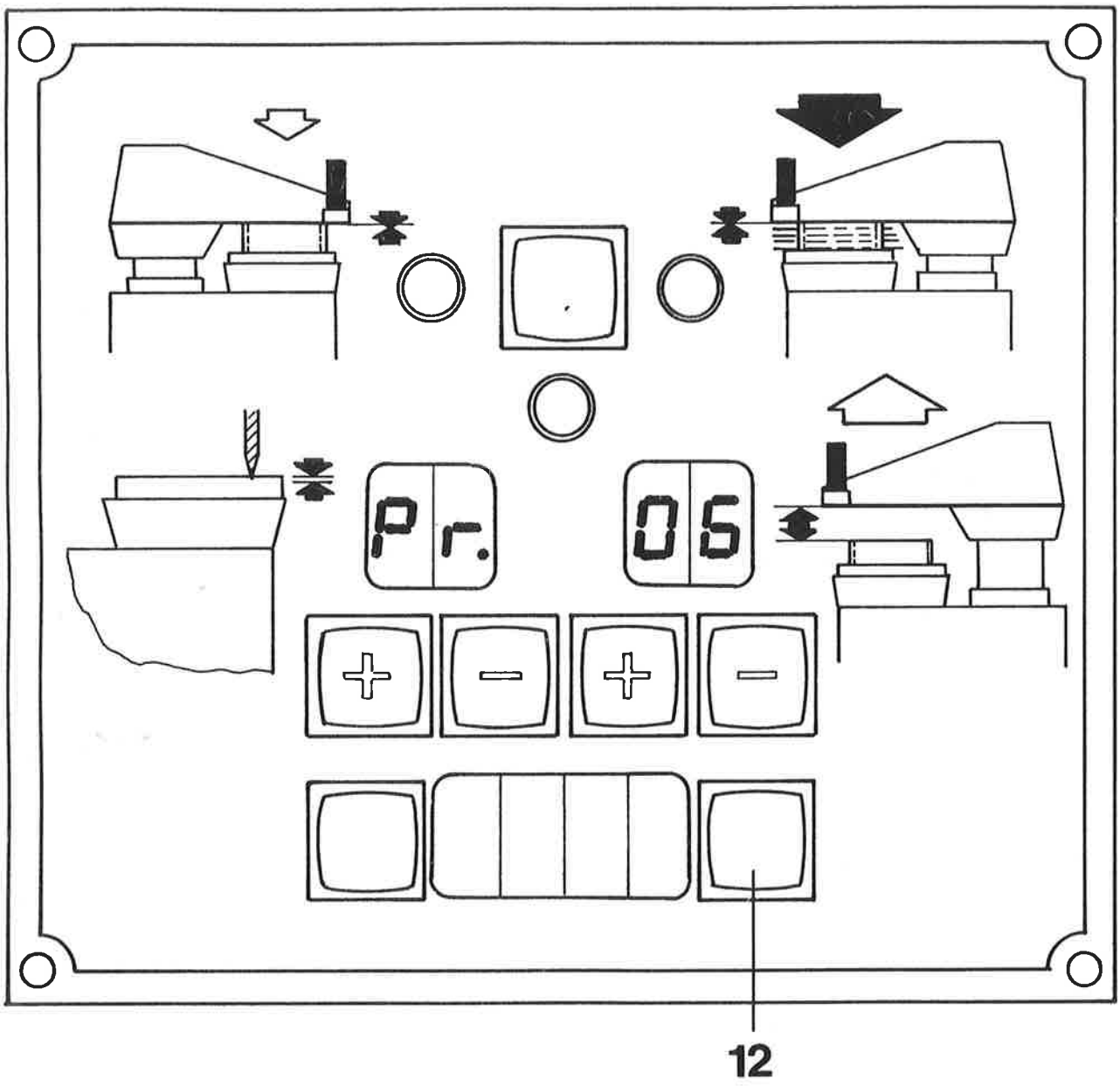


Fig. 5 d

6.1.6 Program 06 Lamp Test

Press key switch 12 to light the 3 LED's and all segments of the display including the decimal points.

Returning into program 01 by pressing key switch 12.

6.1.7 Program 07, 08

Without any function in the standard machine.

If machine is equipped with the option "two additional penetration depths" the values for the penetration depths are taught as follows:

- Recall program 07
- Shortly touching key switch 12 displays for instance in field 13

  [E1 1.0]
- Modify value ET1 = 1.0 mm via +/- key switches 10, 11. Range of adjustment 0.0 to 5.9 mm
- Touch key switch 12 shortly to confirm the value. Display 13 goes out.

Penetration depth ET2 is adjusted accordingly in program 08, and [E11 2.0] for instance, is displayed.

The range of adjustment for ET2 is 0.0 to 5.9 too.

The value of the penetration depth selected via ET1 or ET2 and the basic value ET are added up to make the total value ET_t. The total value is not displayed.

The total values [ETt1 = ET + ET1] and [ETt2 = ET + ET2] must not exceed 6.9 mm.

If the total values exceed 6.9 mm, ERR 1 is displayed.

In this case either reduce the basic value ET, with the machine in operation mode, as described under item 3.5, or the values ET1, ET2 must be reduced via Pr. 07, 08.

Standard values for the additional penetration depths are

ET1 = 1.0 mm
ET2 = 2.0 mm

In connection with these values a maximum value ET = 4.9 mm is possible.

6.1.7 continued :

The fault message ERR 1 is also displayed, when the value Ha, which is determined by the following equatation, falls below the minimum Ha = 0006.

$$Ha = Ho + vhet - ETt$$

(See item 6.2.1.)

Modified Recalling of the Service Programs in Connection with two additional penetration depths :

Recalling Standard Service Program : (with the pump running)

- Press and hold key switch 12 and immediately press and hold ET1 or ET2, until "Pr. 01" is displayed.

  Exit: From service program Pr. 09 by operating the key switch 12.

  Exception: Program 03

Completing the standard service program starting from program 03 :

- Press and hold ET1 and ET2
- Touch key switch 12 shortly. [Pr. 01] is displayed.
- Select program 09
- Touch key switch 12 shortly

Recalling "Service First" :

- Press and hold key switch ET1 or ET2
- Pump motor ON
- Release key switch ET1 or ET2 when "Pr. 01" is displayed.

  Exit: Pump motor OFF

6.1.8 Program 09 Completing the standard service program

- Select program 09
- Touch key switch 12 shortly. The values displayed for penetration depth, daylight and counter, before having changed over to the service program, re-appear.

Completing program "Service First" see item 6.1.9.

6.1.9 Program "Service First"

The "Service First" program is called for with the pump motor OFF. If, for instance, the swing beam does not move up after starting the pump motor and ERR 3 is displayed with the pump still running, the standard service program is non-accessible.

In this case "Service First" is called for as follows :

- Switch pump motor OFF.

- Turn service switch to SERVICE and hold the switch.

- Switch pump motor ON.

- Hold service switch until [Pr. 01] is displayed.

Individual programs in the "Service First" program, with the exception of program 05, same as the standard service program.

Program 05 is possible only in the standard service program, not in "Service First".

Completing "Service First" :

- Switch pump motor OFF.

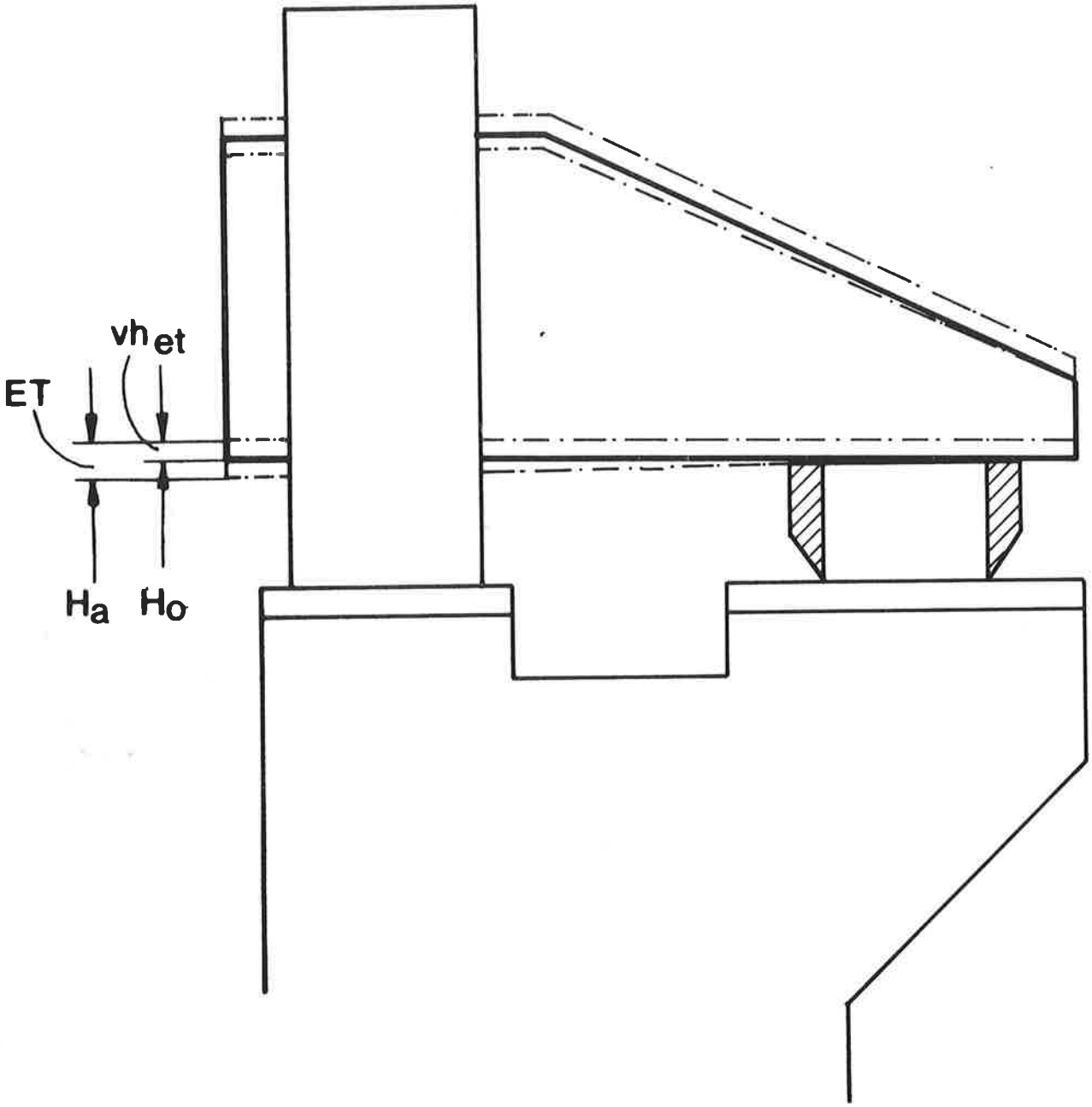


Fig. 6

6.2 Diagnostics

6.2.1 Error 1 (Er. 1)

When the swing beam carries out a stroke of 149.5 mm, the linpot values change from 0006 (swing beam down) to 4090 (swing beam up).

In case of falling below the minimum value Ha = 0006 (see equation below) or when exceeding the maximum value 4090, error 1 is displayed; the cutting stroke cannot be tripped.

This situation can occur, if in the lower stroke area (low cutting dies, worn striking face and cutting pad) cutting is done at high penetration depth.

The relation between adjusting variables (Fig. 6) is determined by the following equation :

$$Ha = Ho + vhet - ET$$

Ha Absolute value (stroke reversal value) :
Deepest point which the swing beam reaches during cutting operation. (The exact reference is the linpot, which for simplification is supposed to be identical with the rear area of the swing beam.)

Ho Zero value :
This dimension is reached by the swing beam, when it rests on the cutting die during the low pressure setting up procedure.

vhet Penetration signal value :
To calibrate for compensation of tolerances (see 6.1.1).

ET Penetration depth (see 3.5).

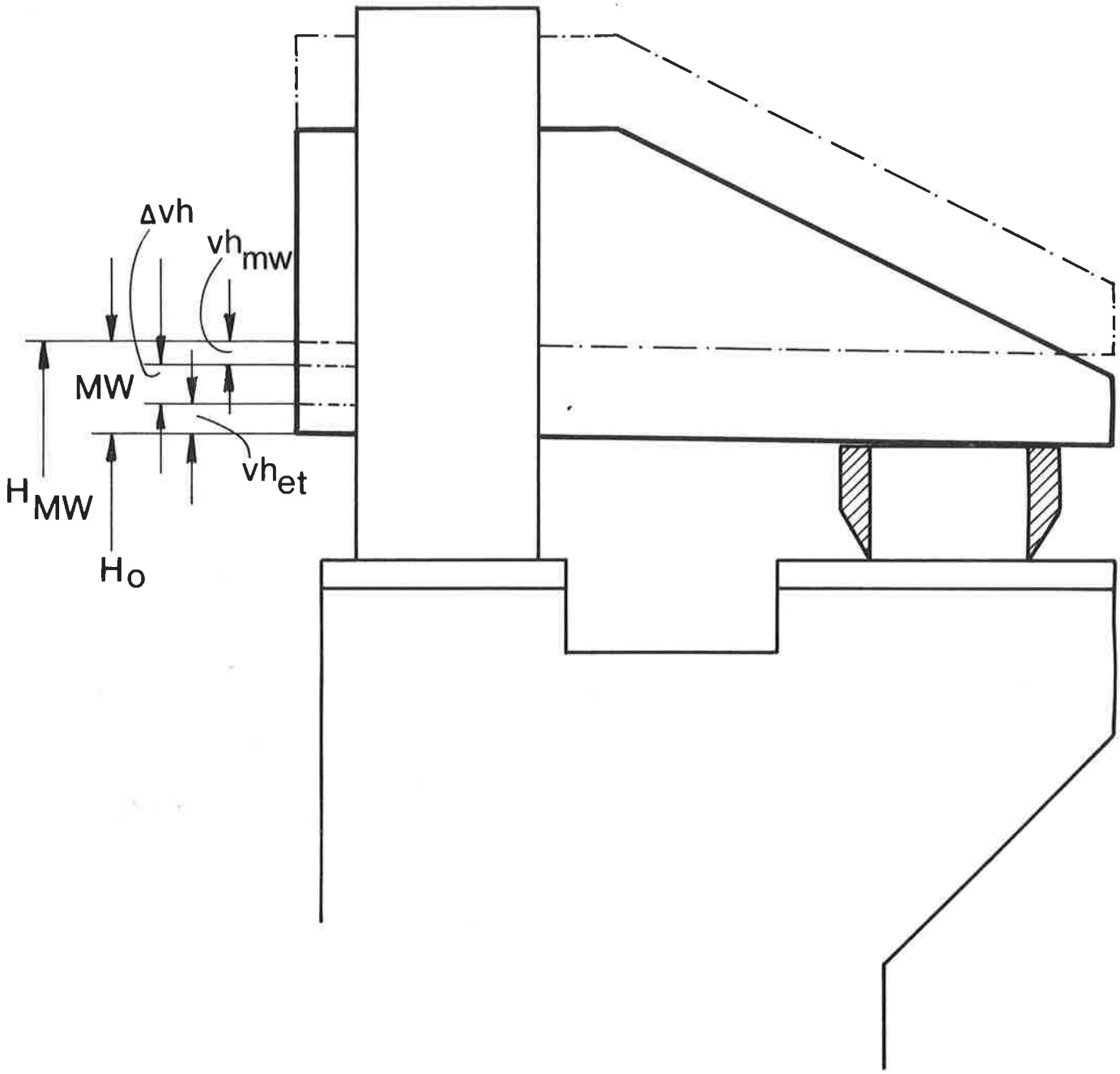


Fig. 7

6.2.2 Error 2 (Er. 2)

Error 2 is displayed, when

Δ vh $<$ 0.5 mm (see Fig. 7)

A cutting stroke cannot be tripped, only operation daylight + is permitted.

$$\Delta \text{ vh} = \text{MW} - \text{vhmw} - \text{vhet}$$

MW Daylight setting :
Minimum value 7 mm

vhmw Daylight signal value :
To calibrate compensation of tolerances (see 6.1.2)

vhet Penetration signal value :
To calibrate compensation of tolerances (see 6.1.1)

The value Δ vh $\geq$ 0.5 mm may be fallen below

a) if the daylight MW is set relatively low (minimum 7 mm),

b) if the daylight or penetration signal values vhet or vhmw are set too high.

6.2.3 Error 3 (Er. 3)

Error 3 is displayed, when a test routine which monitors the correct operation of valve SV3 (return stroke of the swing beam) delivers a negative message (see also 6.3.2).

Switching SV2 on and off, returns the hydraulic system to zero pressure simultaneously with the error display.

No operation is carried out, machine must be switched off.

Possible reasons :

- Air in the hydraulic system
- Spool of SV1, SV3 seezes
- Connection cables worked loose

6.2.4 Error 4 (Er. 4)

After having started the pump, the cutting stroke release key switches are tested for rest position. In case of a negative result error 4 is displayed.

No other operation is carried out, machine must be switched off.

6.2.5 Error 5 (Er. 5)

After having started the pump and before carrying out a cutting operation (check single-hand / two-hand trip) linpot values and the current supply for the linpot (+/- 15 V) are checked.

Error 5 is displayed, when

a) linpot supplies 0 V (linpot value $\leq$0006)

b) linpot supplies 10 V (linpot value $\geq$4090, voltage - 15 V failed)

c) linpot - probably incorrectly connected - supplies unlogical values

No other operation is carried out, machine must be switched off.

6.3 Safety Control

6.3.1 After starting the pump :

a) Cutting stroke release key switches returned to rest position ? YES / NO
YES - continue test program with linpot test
NO - error Err. 4 is displayed (6.2.4)
No operation is carried out !
Machine must be switched off.

b) Linpot values logical ? min. ≙ 0006 h ≙ 0.25 mm stroke
max. ≙ 4090 H ≙ 149.75 mm stroke
YES - continue test program (upward to the upper limit and SV3 test)
NO - error Er. 5 is displayed (6.2.5)
No operation is carried out !
Machine must be switched off.

c) The following data are checked for reasonableness :
ET, vhet, MW, vhmw, counter
If the battery has run-down, defined data are not available.
Set values are then ET, vhet = 0.0 mm
vhmw = 0.0 mm
MW = 07 mm
Counter = 0000
which are immediately displayed.

d) A reasonableness check of the stroke reversal value Ha (see 6.2.1) is carried out. If the battery has run-down, defined data are not available.
LED 5 (Fig. 3) SET UP flashes.
SET UP procedure must be carried out successfully. Thereafter there is another check and, if need arises, the flashing LED 5 SETTING UP indicates that the stroke reversal value has not been defined.
If acceptable data available, the computer waits for instructions.

6.3.2 With the first upward movement :

A cyclical time/linpot test is carried out which shows whether valve SV3 operates correctly.
Does linpot value grow ? YES / NO
YES - continue test program (machine in standby status)
NO - error Er. 3 is displayed (6.2.3)
No operation is carried out.
Machine must be switched off.

6.3.3 Before releasing cutting stroke :

a) Before starting the test single-hand/two-hand trip, check linpot for logical values (see 6.2.5).
b) Two-hand trip within 0.4 seconds only.

6.3.4 During cutting operation :

a) Cutting stroke release key switches are constantly checked.
b) In the same cycle (same as a) the linpot value is constantly compared with the stroke reversal value Ha.

6.3.5 After cutting operation :

Both cutting stroke release key switches must be in their rest position at the same time so that a new cutting operation can be tripped.

6.3.6 + 15 V fails :

- A/D converter and linpot voltage reference fail.
- Safety control: relay KT de-energizes (emergency stop).

6.3.7 - 15 V fails :

Er. 5 (see 6.2.5)

6.3.8 SV3 fails :

Er. 3 (see 6.2.3)

6.3.9 + 5 V fails :

Safety control: Relay KT via T9 de-energizes (emergency stop).

6.3.10 Unwanted energization of SV1 :

- with the machine in standby status without actuating the cutting stroke release key switch

- in the service program 05 when testing SV1 by actuating key switch 12 only (see 6.1.5)

In both cases pump motor and control mechanism are switched off.

6.4 Bleeding the Hydraulic System

With the first upward movement of the swing beam after starting the pump, a cyclical time/linpot test is carried out, which controls correct operation of hydraulic valve SV3, so finding out whether the swing beam moves up.

If the swing beam does not move up, Er. 3 is displayed; no operation is carried out.

In order to avoid this situation during bleeding procedure, i.e. to raise the swing beam to its upper rest position despite the air in the oil system and the delayed return stroke thus caused, key switch 6 must be pressed, before lamp test time of 3 seconds elapses, and held until the swing beam has reached the upper rest position.

Lamp test is finished only when releasing key switch 6.

Bleeding Procedure when first installing the machine or exchanging valves :

- Move swing beam into upper rest position, as described.
- Bleed cutting cylinder (piston end) via bleeding screw 18 (Fig. 2, page 6) - loosen only; re-tighten bleeding screw.
- Lower swing beam onto the cutting pad by carrying out a set up stroke.
- Set daylight to 90 mm (see 3.4) and perform abt. 10 strokes of 90 mm.
- Repeat bleeding via bleeding screw 18.
- Set daylight to value 99 and perform another 10 strokes.
- Set machine up and start cutting.
- Check after abt. 1/2 hour of operation that oil is free from bubbles and foam.
- Remove LH oil tank cover for this end.
- Replace oil tank cover.
- After one hour of operation repeat bleeding via bleeding screw 18.

Bleeding Procedure after longer stops (ERR 3 is displayed when machine is switched on the first time):

- Loosen bleeding screw, with the pump running, so far that oil escapes.
- Tighten bleeding screw when oil is free from bubbles.
- Switch motor off and on. Swing beam moves up.
- Position swing beam on cutting die by carrying out a Set up stroke.
- Loosen bleeding screw so far that oil escapes under Set up pressure.
- Tighten bleeding screw when oil is free from bubbles.

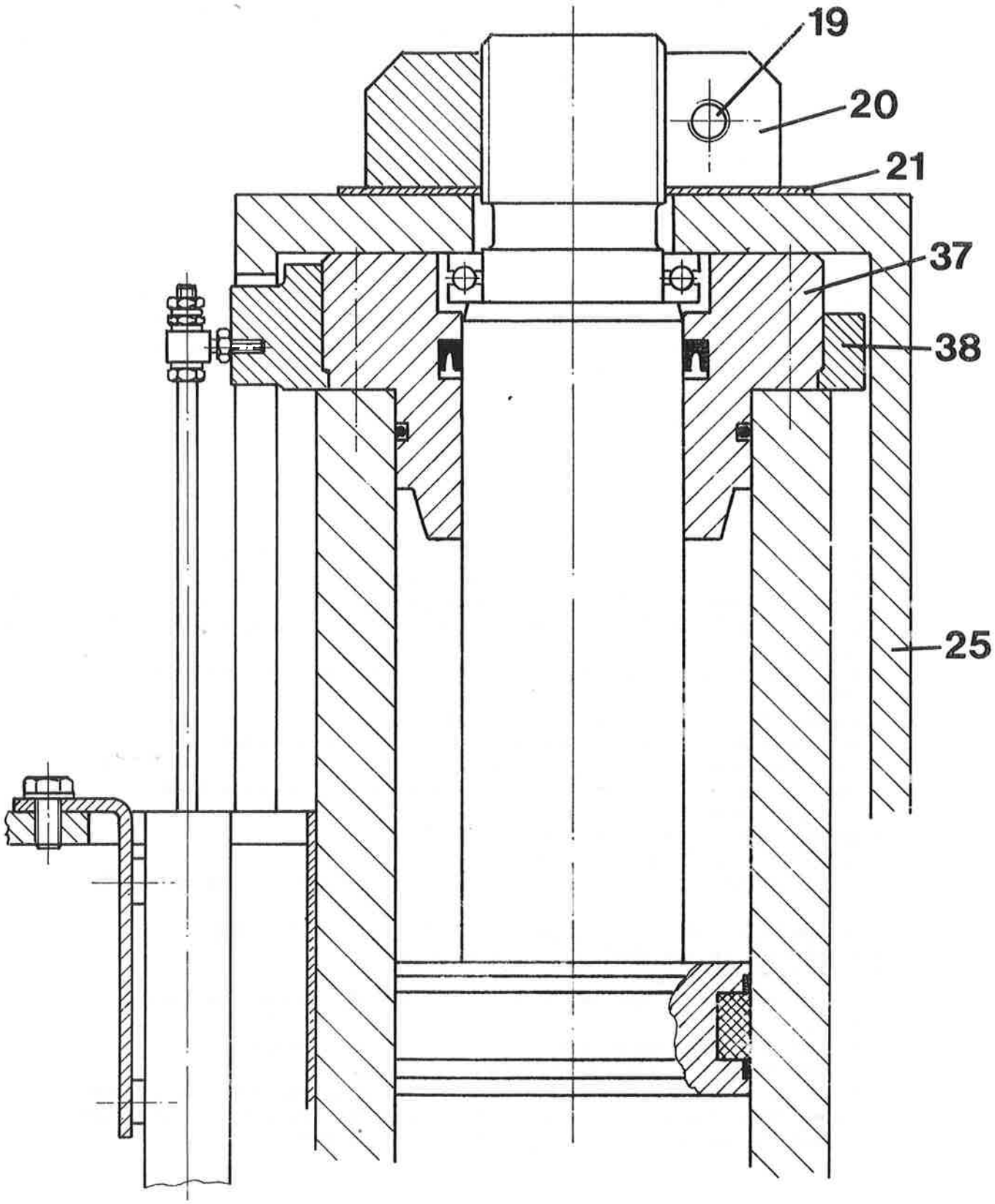


Fig. 8

7.0 MAINTENANCE

7.1 Column and special bearing bushes are maintenance-free and must not be greased.

Abrasion of the special bearing bushes produce a dark coating on the column, which improves the friction properties and which must by no means be polished or washed off.

Use a dry cloth to remove the dust.

7.2 After abt. 2000 operating hours resp. once a year :

- Change the oil (kind of oil and quantity see 2.5)
  unscrewing No: 18
  To empty the cylinder and lines, loosen bleeding screw 18, Fig. 2; unscrew hydraulic valve SV1.

- Clean the filter.

- Check pressure hose and replace same, if needed.

- Grease contact surfaces between disk 21 (Fig. 8) and nut 20, using heat resistant bearing grease. Loosen screw 19 and unscrew nut 20 for this end.

- Remove steel hood 25 and lubricate annular gap between cylinder head 37 and linpot catch ring 38 slightly, using pneumatic oil. Before unscrewing the steel hood 25 move swing beam down on to a distance block by carrying out a Set up stroke.

- Lubricate ball-type bushes ZH 10687 R every 6 months using hydraulic oil HLP-D 46. (Disassemble bushes; 1-2 drops of oil in bottom side lubricating bore.)

Oil ZH-2030 AA or BP Energol HLP-D46
3 Cans
Aral Vitam DE 46
Shell Hydrol DO 46

8.0 EXPLANATIONS RE: HYDRAULIC WIRING DIAGRAM NO. 2307

Rest Position

SV1, SV2 and SV3 are de-energized. The pump delivers the hydraulic oil pressureless to the tank via SV1-A-T.

The two cylinder chambers of the cutting cylinder are locked hydraulically :

- piston end via SV2/SV3-A-T and SV1-B
- rod end via SV1-P and SV2/SV3-P

The swing beam is in its set height position.

Cutting

SV1 is energized.

Cutting cylinder, rod end, is pressurized via SV1-A-P, and cutting cylinder, piston end, is connected to the tank via SV2/SV3-A-T and via SV1-B-T.

The swing beam moves down.

The pressure, built up when cutting the material through, is limited to max. 250 bar by the pressure relief valve.

Return Stroke

SV1 remains energized, SV3 is energized too.

The cutting cylinder, piston end, is pressurized via SV1-A-P and via SV2/SV3-P-A. At rod end the hydraulic oil is displaced into the pressure circuit and so carried to the cylinder, piston end, via SV2/SV3-P-A to increase return stroke speed.

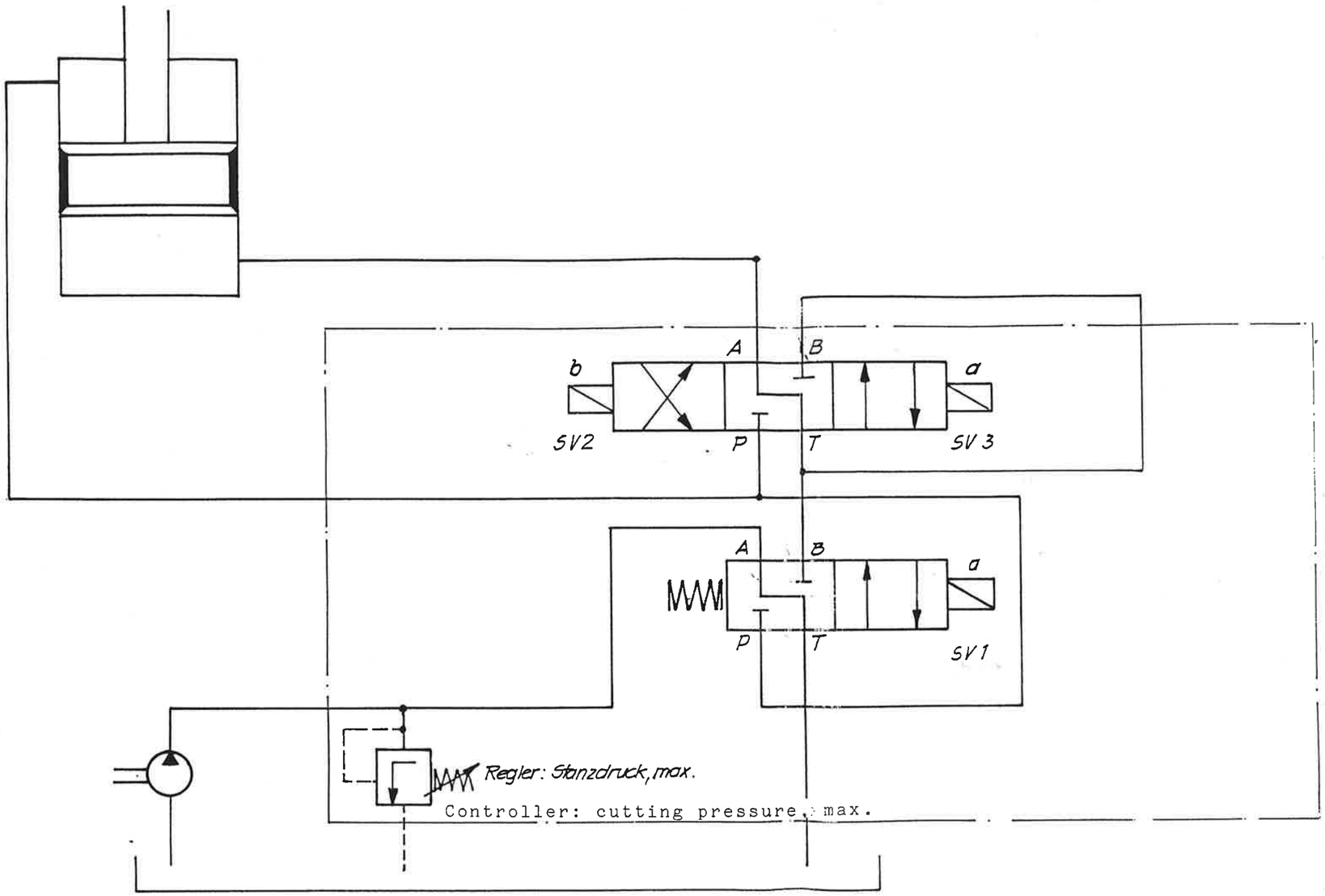
The swing beam moves up.

Setting Up

SV1 and SV2 are energized.

The cutting cylinder, rod end, is pressurized via SV1-A-P, and piston end is connected to the tank via SV2/SV3-A-T and SV1-B-T. At rod end, the pressure is reduced via SV2/SV3-P-B, fixed flow control valve and SV1-B-T.

The swing beam moves down and lowers onto the cutting die under reduced pressure.



Schaltstellung : Indexing position of switch:
Ruhestellung : Off-position

Passung	Ø mm	Abmaß 1/1000 mm	Passung	Ø mm	Abmaß 1/1000 mm

Achtung. Bemaßung und Darstellungsweise nach DIN

USM Maße ohne Toleranzangaben

bis 30 mm	über 30 mm bis 100 mm	über 100 mm bis 300 mm	über 300 mm bis 1000 mm	über 1000 mm
± 0,2	± 0,3	± 0,5	± 0,8	

Winkel:

Bearb. Flächen ohne Rauhigkeitszahl:

Werkst.-Nr.

Bem.

Arbeitsplan vorhanden:

Ähnl. Teile

kommt vor an:

Buchstabe	Buchstabe kommt vor im Quadrat	Änderung	Tag	Name

Konstr.
Gezeich. 15.1.86 Ko
Geprüft

Eigentum USM
Deutsche Vereinigte Schuhmaschinen
Gesellschaft mit beschränkter Haftung
Frankfurt a. M. Rödelheim

Maßstab 1:

DVSM. - Hydraulikplan Nr. 2307

Masch. Schwenkarmstanze

Gegenstand

C-

Ersatz für

Ersetzt durch

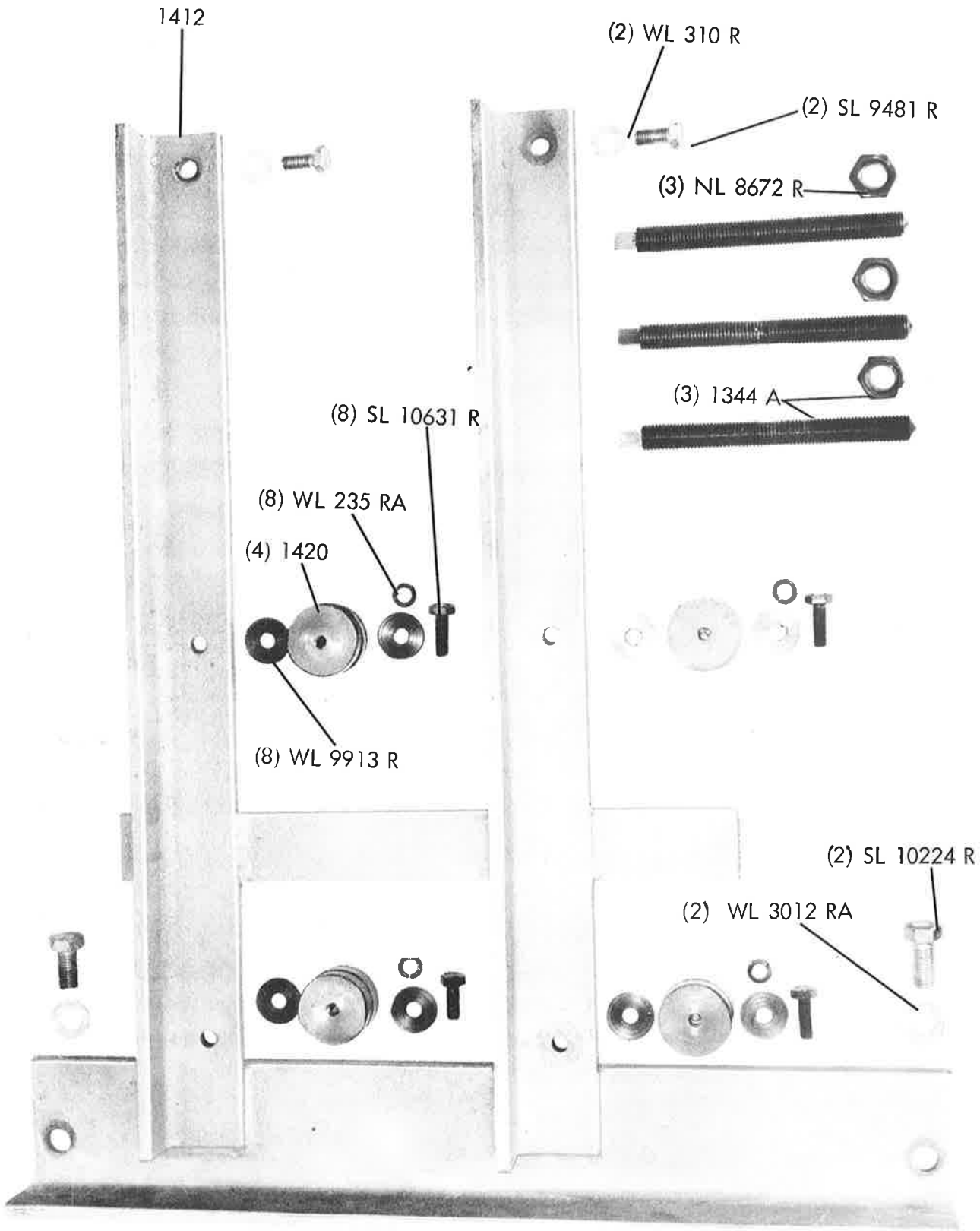


Fig. 1
Traverse u. Fußteile
Traverse and foot Parts

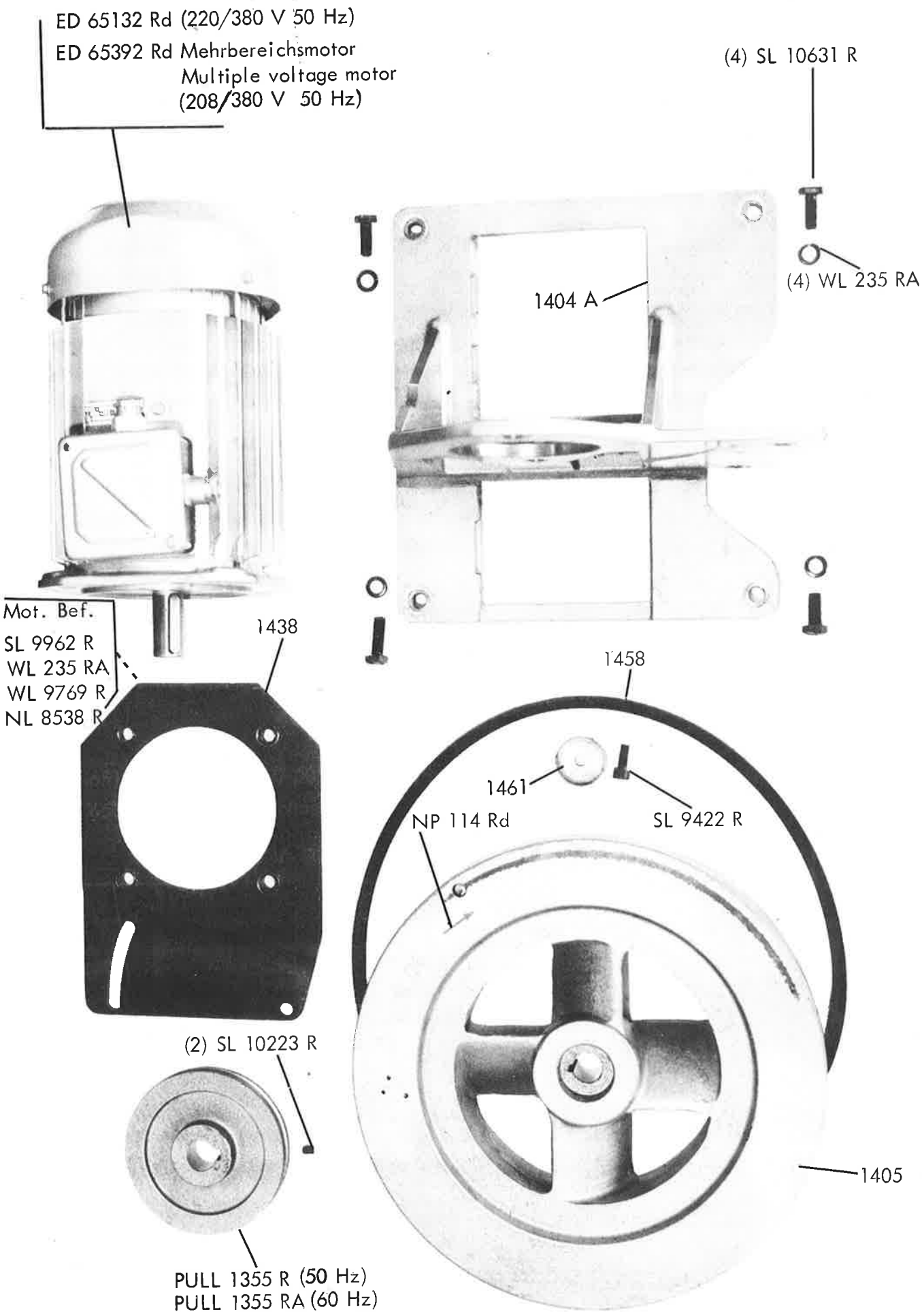


Fig. 2
Antriebsteile
Drive Parts

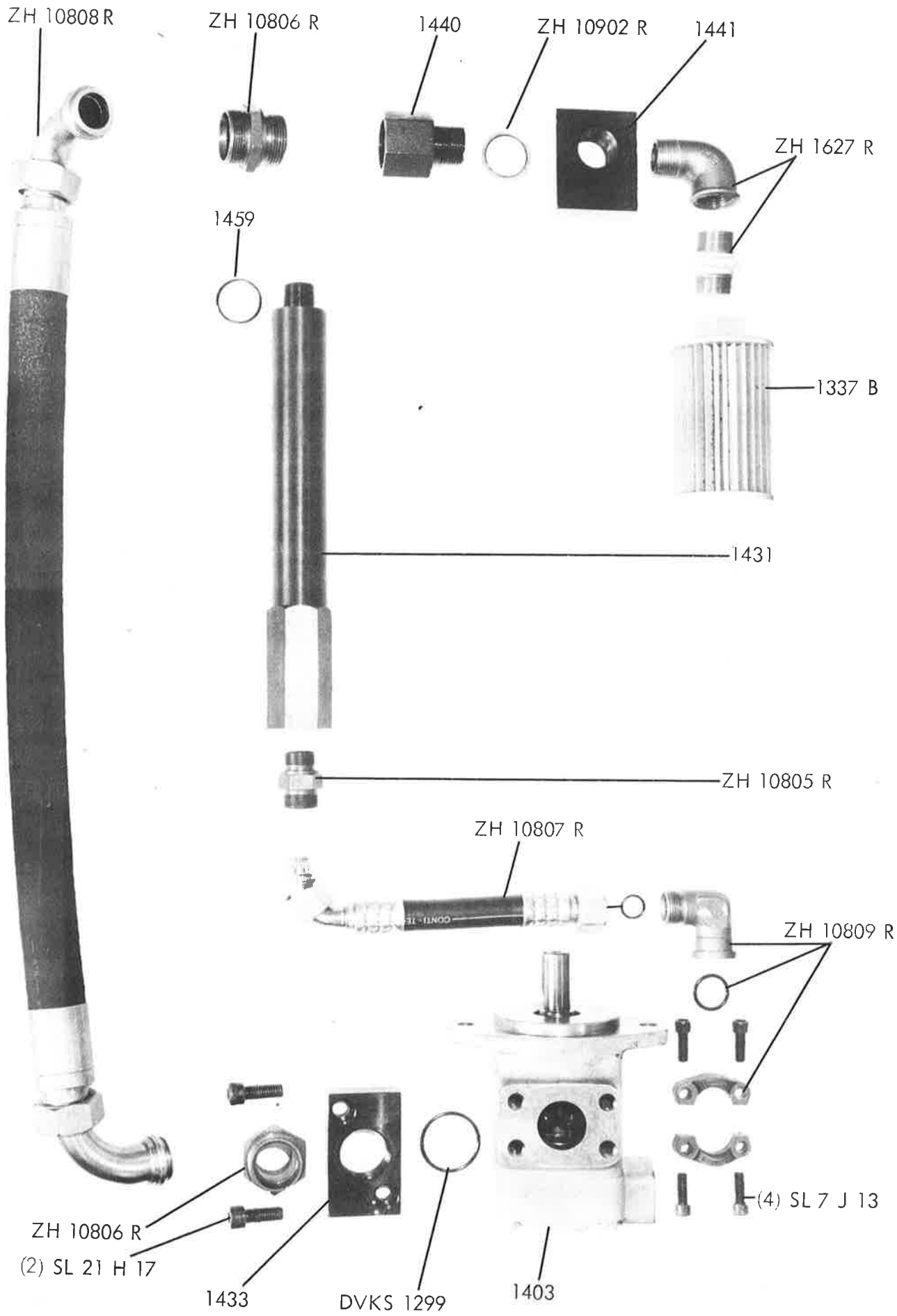


Fig. 3

Pumpe, Schlauch u. Filterteile
Pump, hose and filter Parts

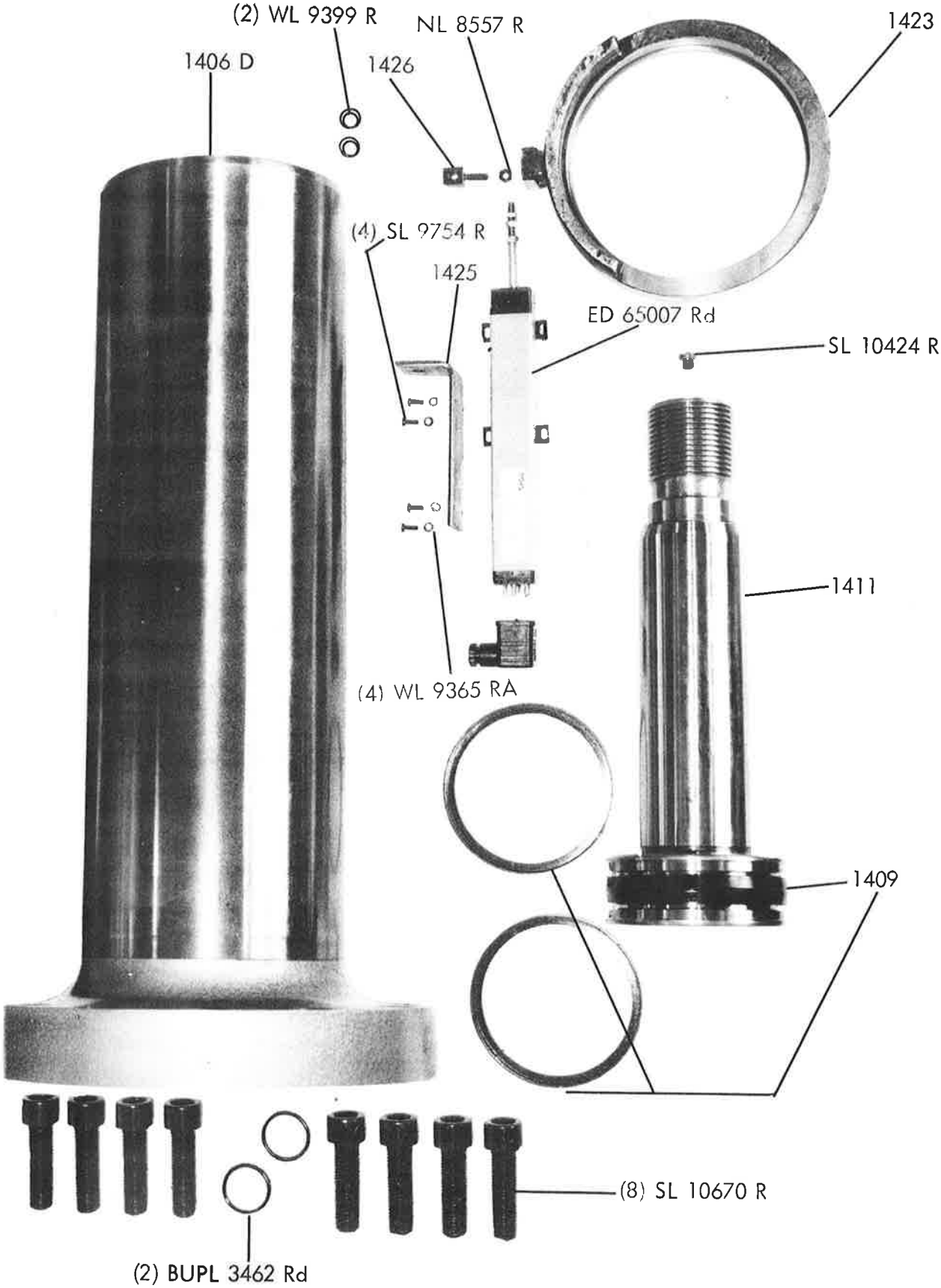


Fig. 4

Säule, Kolben, Linpotentiometer Teile

Column, Piston, Linearpotentiometer Parts

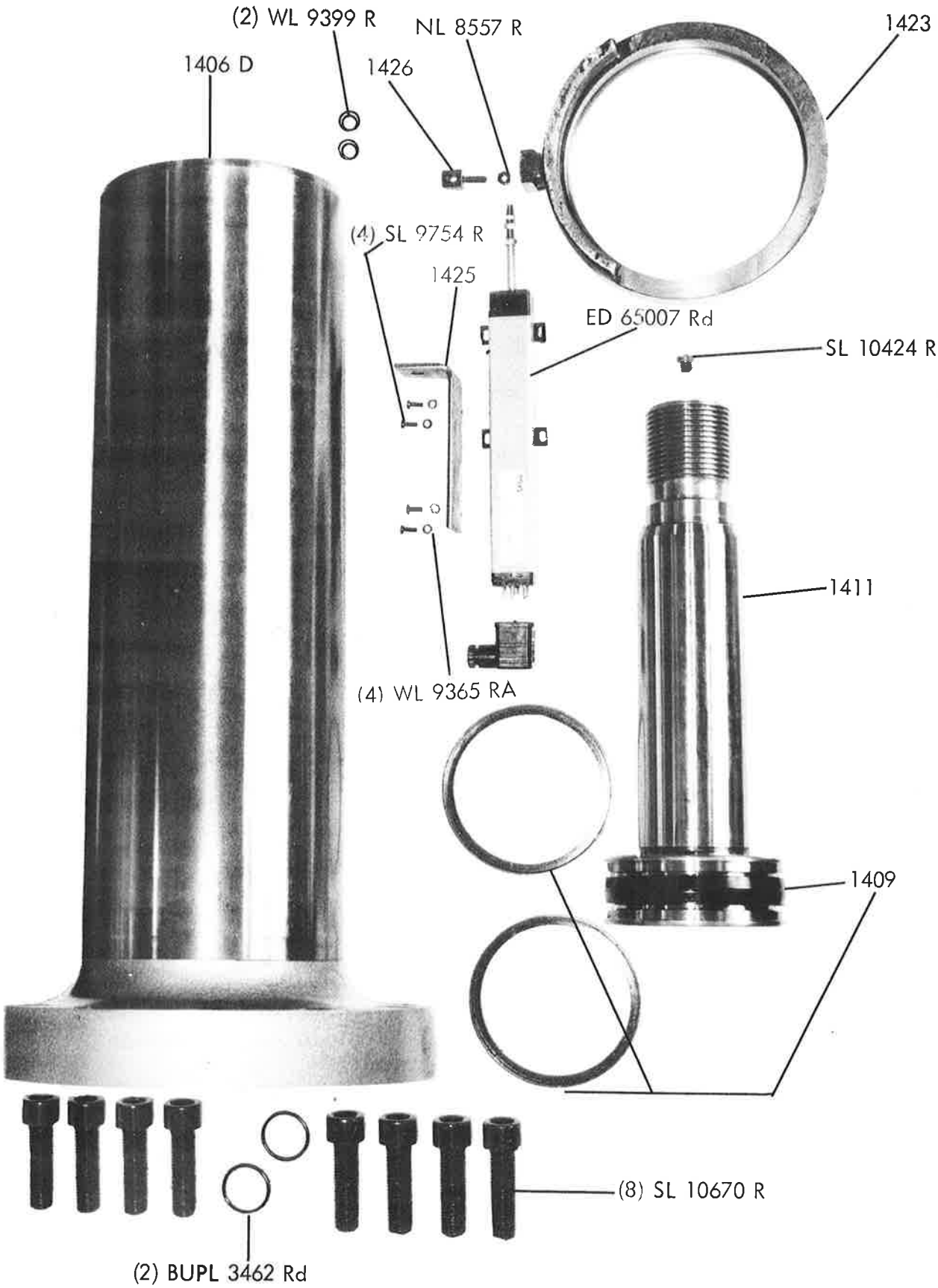


Fig. 4

Säule, Kolben, Linpotentiometer Teile

Column, Piston, Linearpotentiometer Parts

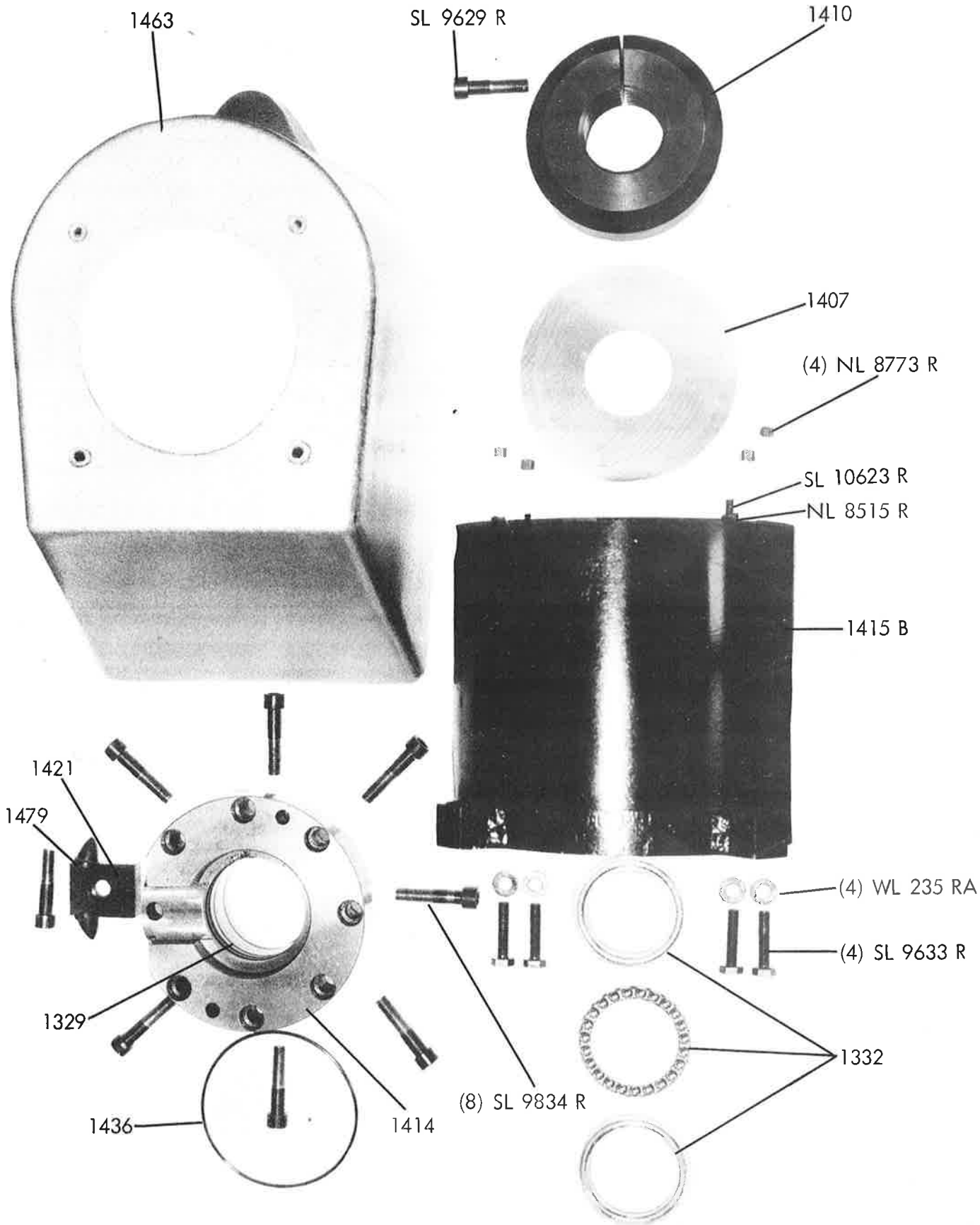


Fig. 5
Schwenkarm Kopfteile
Swing beam head Parts

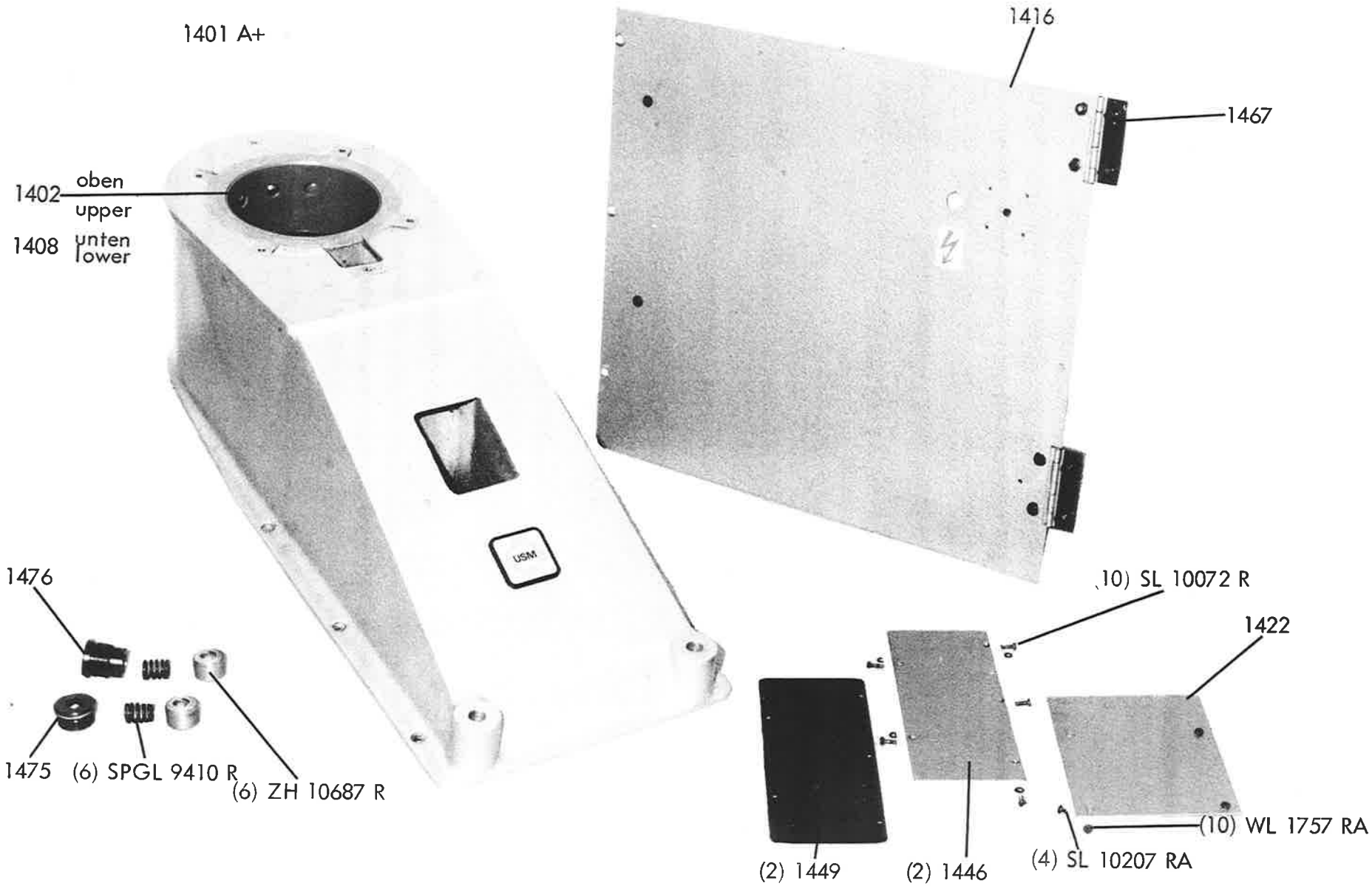


Fig. 6
Schwenkarm, Kugelrollen, Verkleidungsteile
Swing beam, ball type rolls, cover Parts

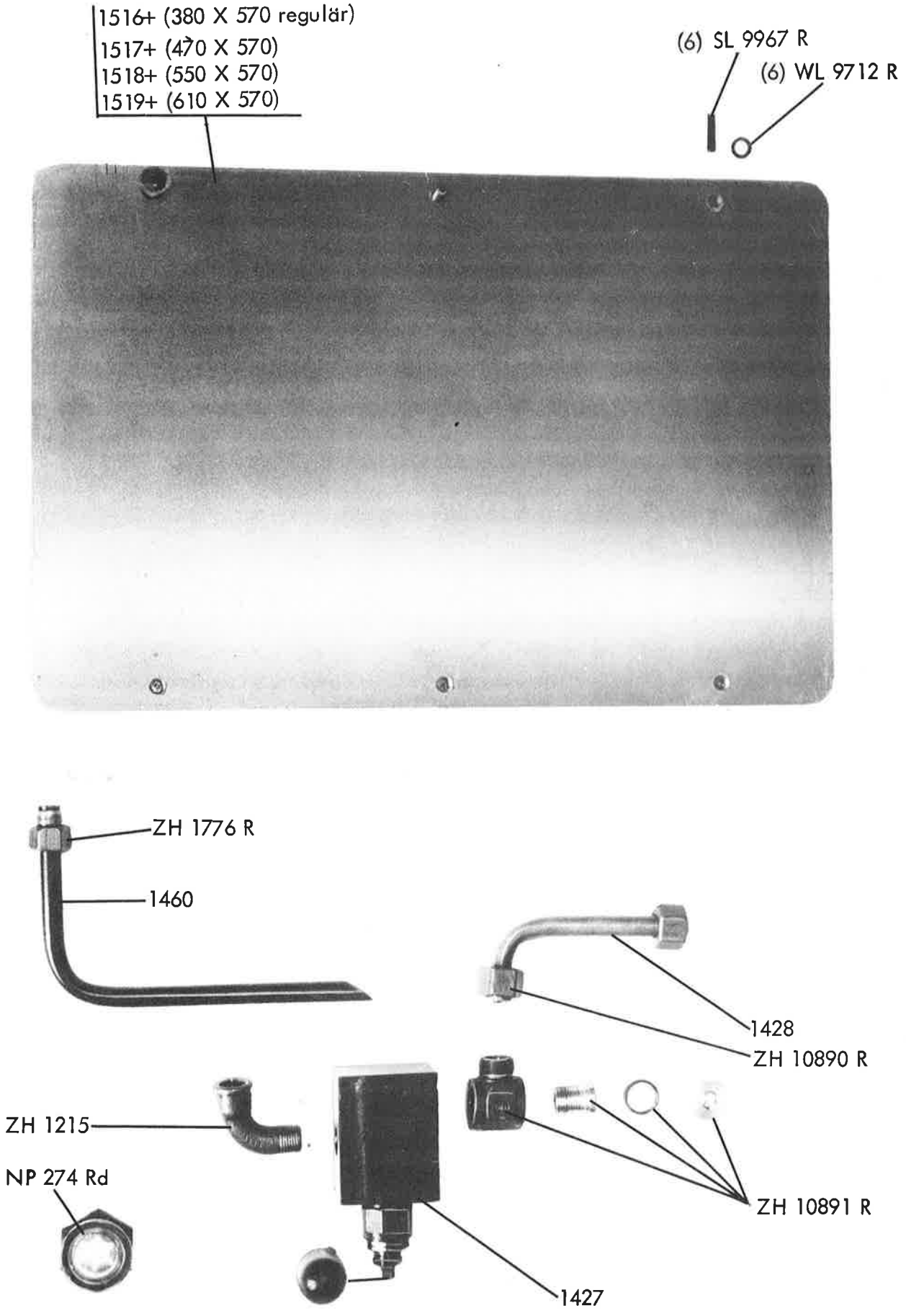


Fig. 7
Schlagplatte u. Druckbegrenzungsventil Teile
Cutting plate, relief valve Parts

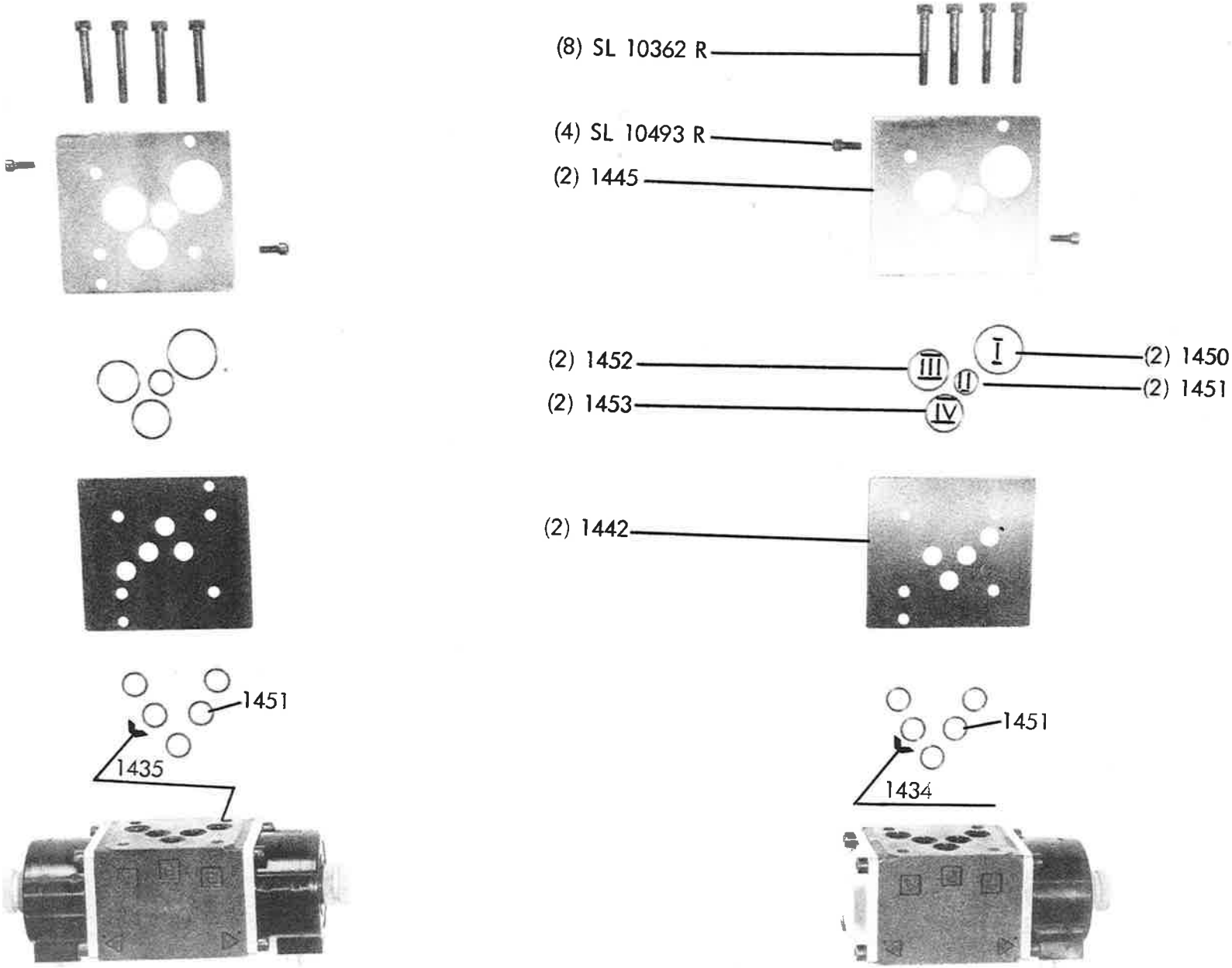


Fig. 8
Hydr. Ventil Teile
Hydraulic Valves

Ein- und Zweihand	ED 65003 Rd	ED 65282 Rd 1	One- and twohand
Nur Zweihand	ED 65003 Rd A	ED 65282 Rd 2	Twohand only
Ein- u. Zweihand + zus. Eindringtiefe	ED 65003 Rd B	ED 65282 Rd 3	One- and twohand + add. penetration
Nur Zweihand + zus. Eindringtiefe	ED 65003 Rd C	ED 65282 Rd 4	Twohand only + add. penetration
	Platine PCB	EPROM	

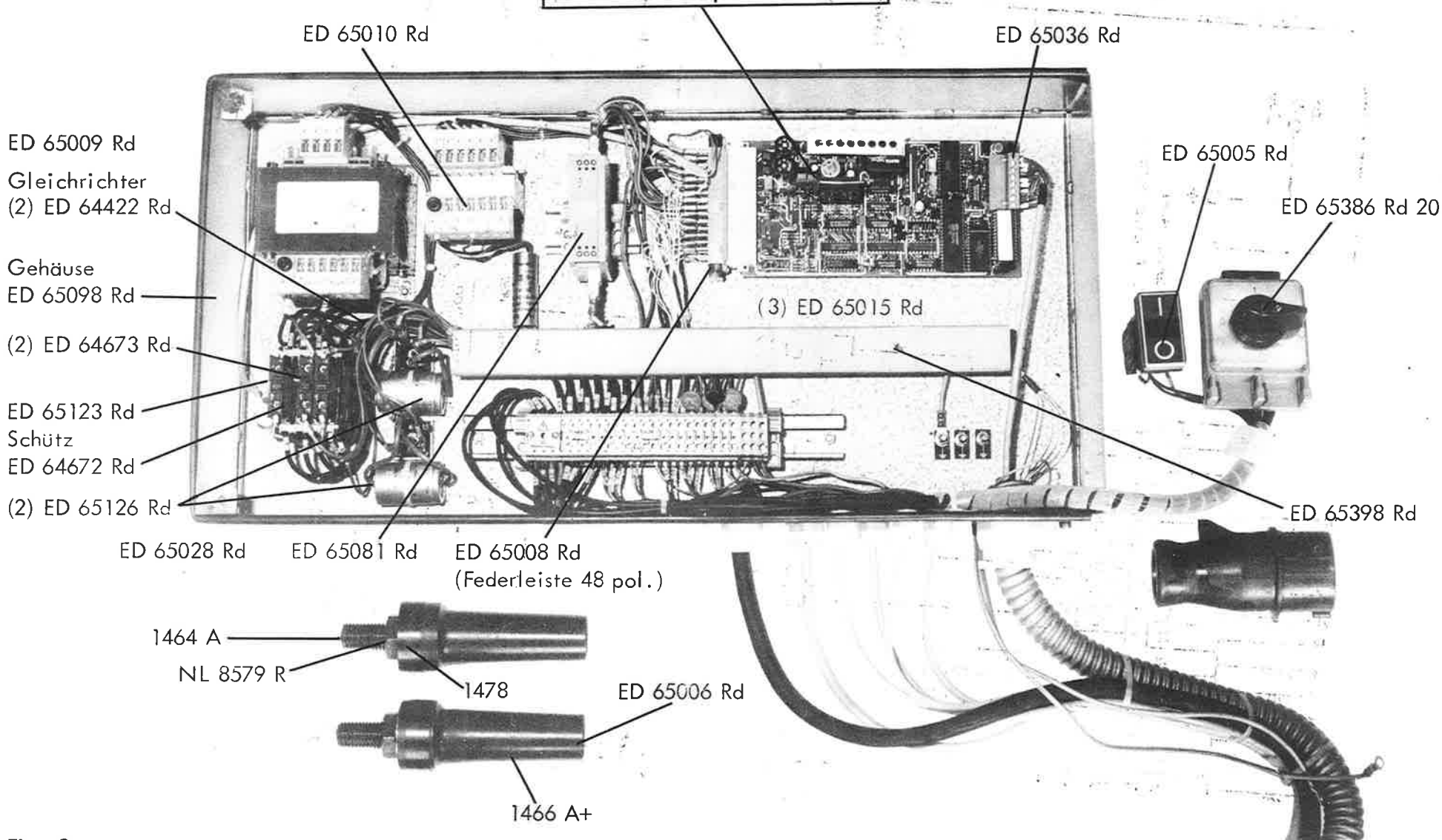


Fig. 9
E-Kasten Teile
Electric Control Enclosure and Handle Parts

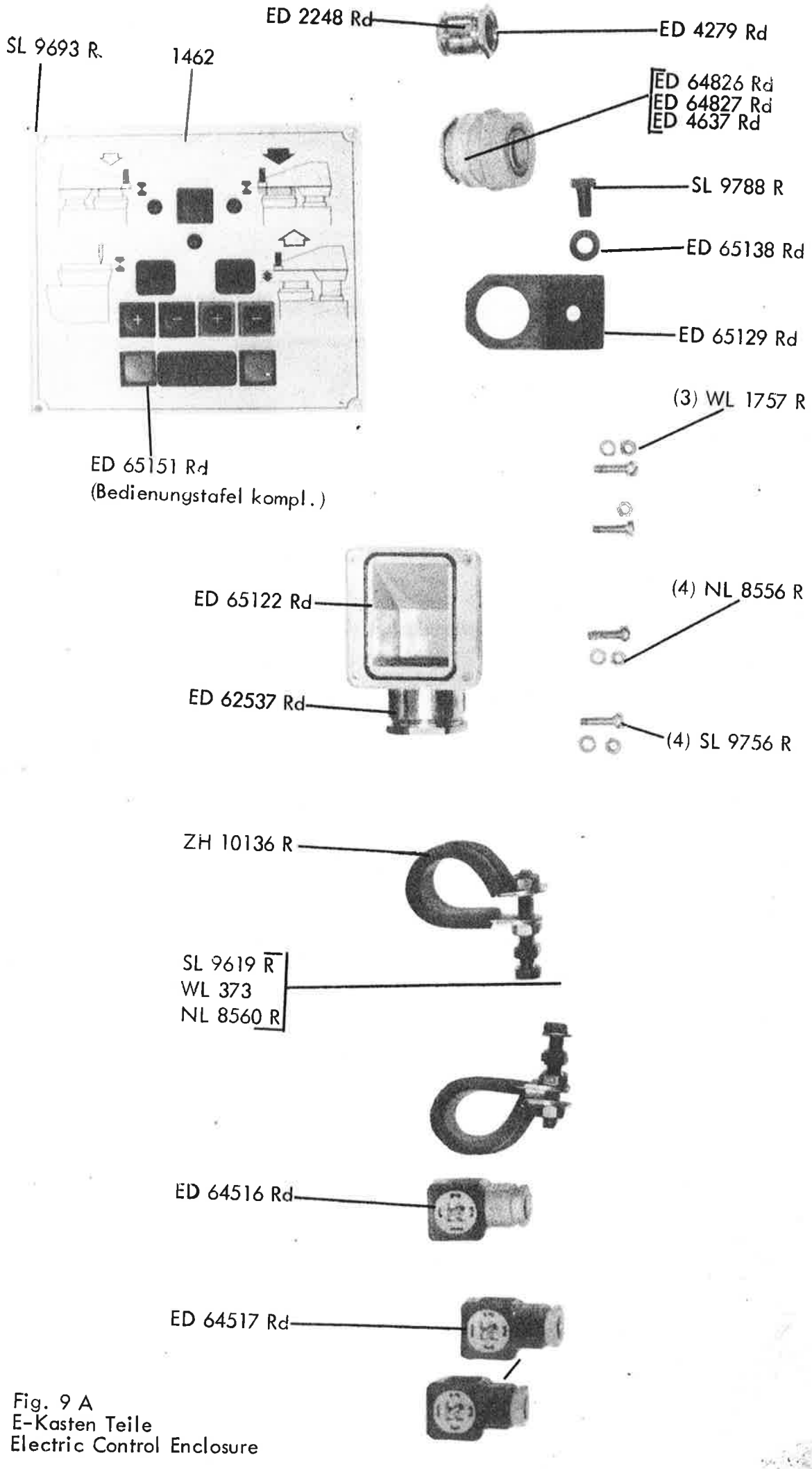


Fig. 9 A
E-Kasten Teile
Electric Control Enclosure

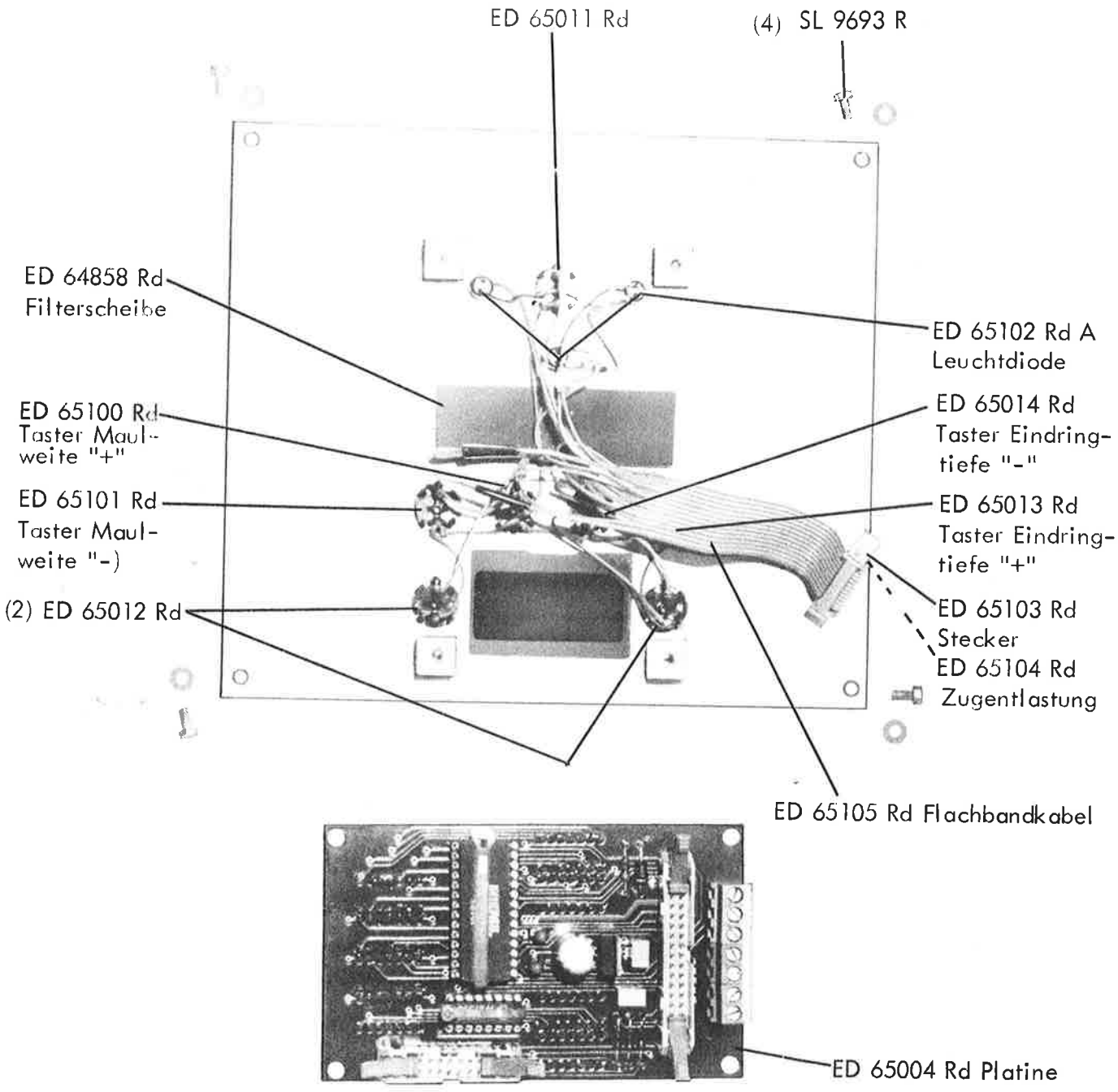


Fig. 10
Bedienungstafel
Control Panel

0 MACHINE NO.: DVSM -1*

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0 MACHINE NO.: DVSM -1*

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PARTNUMBER	PAGE	FIG.
DVSM 1517+	2	7
DVSM 1517	2	
DVSM 1518+	3	7
DVSM 1518	3	
DVSM 1519+	3	7
DVSM 1519	3	
ZH 1627R	1	3
WL 1757RA	4	6
WL 1757R	5	
WL 1757R	6	
WL 1757R	8	9A
ZH 1757R	7	
ZH 1776R	4	7
WL 1837	7	
WL 1837	8	
ZH 2122R	5	
ZH 2122R	6	
ZH 2122R	7	
ZH 2122R	8	
ED 2248RDB	7	
ED 2248RD	8	9A
ED 2267RDB	7	
ED 2512RD	7	
ED 2512RD	8	
WL 3012RA	1	1
WL 3012	1	
BUPL 3462RD	3	4
ED 4278RDB	7	
ED 4279RDB	7	
ED 4279RD	8	9A
ED 4331RDB	7	
ED 4332RDB	7	
ED 4513RD	7	
ED 4637RD	8	9A
ED 4932RD	7	
ED 5029RD	6	
ED 5029RD	7	
SL 5385R	5	
BUSH 8103R	5	
NL 8515R	3	5
NL 8538R	1	2
NL 8546R	5	
NL 8546R	6	
NL 8546R	7	
NL 8551R	2	
NL 8553R	5	
NL 8556R	5	
NL 8556R	6	
NL 8556R	8	9A
NL 8557R	4	4
NL 8557R	5	
NL 8560R	2	
NL 8560R	3	
NL 8560R	8	9A
NL 8579R	5	9
NL 8585R	7	
NL 8585R	8	
NL 8592R	5	
NL 8773R	3	5
WL 9200R	5	
WL 9365RA	4	
WL 9365R	5	
WL 9365R	6	
WL 9365R	7	
WL 9366R	4	
WL 9367R	5	
WL 9367R	6	
WL 9370R	5	
WL 9370R	6	
WL 9375R	5	
WL 9375R	6	
WL 9376R	2	
WL 9399R	3	
WL 9399RA	3	
WL 9399R	5	
SPGL 9410R	2	6
SPGL 9410R	3	
SL 9422R	1	2
SL 9481R	1	1
WL 9497R	7	
WL 9497R	8	
WL 9507R	4	
SL 9536R	4	
SL 9553R	6	
PL 9555R	1	
SL 9578R	2	
PL 9610R	5	
PL 9610R	9	
SL 9619R	8	9A
SL 9629R	3	5
SL 9633R	3	5
SL 9647R	5	
SL 9657R	4	
SL 9671R	5	
SL 9693R	9	9A
WL 9712R	2	7
WL 9712R	3	7
SL 9724R	7	
SL 9724R	8	
SL 9743R	6	
SL 9754R	4	4
SL 9756R	8	9A
WL 9769R	1	2
SL 9788R	8	9A
SL 9809R	5	
SL 9834R	3	5
WL 9913R	1	1
SL 9948R	5	
SL 9948R	6	
WL 9951R	5	
WL 9955R	5	9
SL 9962R	1	2
SL 9967R	2	7
SL 9967R	3	
WL 9977R	5	
PL 10000R	5	

0 MACHINE NO.: DVSM -1*

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0 MACHINE NO.: DVSM -1*

PARTNUMBER	PAGE	FIG.	PARTNUMBER	PAGE	FIG.
ED 65079RD	6				
ED 65080RD	6				
ED 65081RD	6	9			
ED 65082RD	6				
ED 65083RD+	6				
ED 65083RD	6				
ED 65084RD	6				
ED 65084RD+	6				
ED 65085RD	7				
ED 65086RD	7				
ED 65087RD+	7				
ED 65087RD	7				
ED 65088RD+	7				
ED 65088RD	7				
ED 65089RD	8				
ED 65089RD+	8				
ED 65090RD	8				
ED 65090RD+	8				
ED 65091RD	8				
ED 65091RD+	8				
ED 65092RD	8				
ED 65092RD+	8				
ED 65093RD+	8				
ED 65093RD	8				
ED 65094RD+	9				
ED 65094RD	9				
ED 65095RD+	9				
ED 65095RD	9				
ED 65096RD	8				
ED 65098RD	5	9			
ED 65100RD	9	10			
ED 65101RD	9	10			
ED 65102RDA	9	10			
ED 65103RD	9	10			
ED 65104RD	9	10			
ED 65105RD	9	10			
ED 65106RD	9				
ED 65108RD	7				
ED 65108RD+	7				
ED 65119RD	9				
ED 65120RD	8				
ED 65122RD	8	9A			
ED 65123RD	5				
ED 65124RD	7				
ED 65124RD+	7				
ED 65126RD	5	9			
ED 65129RD	8	9A			
ED 65132RD	8	2			
ED 65138RD	8	9A			
ED 65151RD	8	9A			
ED 65281RD	6				
ED 65386RD20	7	9			
ED 65392RD	9	2			
ED 65398RD	7	9			
ED 65466RD	9				

DVSG-TECHN. BÜRO **STRUKTURSTÜCKLISTE**

Maschine: DVSM -1* Benennung: NO.1 SWING BEAM CUTTING MACHIN Datum: 31.08.89

Name des Teiles	Fig.	ME	Menge	Sachnummer	Stufe
****** TABLE OF MECHANISMS ******					
FRAME PARTS			PAGE	0001	
PUMP AND PUMP DRIVE PTS.			PAGE	0001	
			PAGE	0002	
SWING BEAM PARTS 38 CM WIDE			PAGE	0002	
SWING BEAM PARTS / WIDTH 47 CM			PAGE	0002	
SWING BEAM PARTS WIDTH 55 CM			PAGE	0003	
COLUMN AND PISTON PTS.			PAGE	0003	
HYDRAULIC CONTROL UNIT			PAGE	0004	
COVER PTS.			PAGE	0004	
STROKE REVERSING PTS.			PAGE	0004	
TRIP HANDLE PTS.			PAGE	0005	
ELECTRIC EQUIPMENT			PAGE	0005	
			PAGE	0006	
			PAGE	0007	
			PAGE	0008	
			PAGE	0009	
ELECTRIC EQUIPMENT 208V - 460V			PAGE	0009	

Text:
01 Nur auf bes. Bestellung
02 Nicht einzeln senden
03 Siehe Arbeitsplan
04 Ersatzteil für vorgen. Teil
05 Zubehör
06 Je nach Bestellung

ME:
01 Stück
02 mm
03 ccm
04 pm
05 gr.

DVSG-TECHN. BÜRO

STRUKTURSTÜCKLISTE

Maschine: DVSM -1* Benennung: NO.1 SWING BEAM CUTTING MACHIN Datum: 31.08.89

Name des Teiles	FIG.	ME	Menge	Sachnummer	Stufe
FRAME PARTS			1	DVSM RFU1	
FRAME (900X450)			1	DVSM 1400	
FRAME (1000X500)			1	DVSM 1400A	01
SCREW			1	SL 10451R	
SCREW			1	SL 10425R	
PIN			2	PL 9555R	
MACHINE FOOT			3	DVTZ 9A	
ADJUSTING SCREW WITH NUT	1		3	DVSM 1344A	
VIBRATION ABSORBER				DVSM 1343	01
**********	**********	**********	**********	**********	**********
PUMP AND PUMP DRIVE PTS.			1	DVSM RFU2	
TRAVERSE	1		1	DVSM 1412	
SCREW	1		2	SL 10224R	
WASHER	1		2	WL 3012RA	
WASHER			2	WL 3012	
SCREW	1		2	SL 9481R	
DISC	1		2	WL 310R	
WASHER			2	WL 310	
MOTOR BRACKET	2		1	DVSM 1404A	
BEARING	1		4	DVSM 1420	
SCREW	1		8	SL 10631R	
WASHER	1		8	WL 9913R	
WASHER	1		8	WL 235RA	
WASHER			8	WL 235	
MOTOR FASTENING PLATE	2		1	DVSM 1438	
SCREW	2		1	SL 9962R	
SCREW			1	SL 9962R	
NUT	2		2	NL 8538R	
WASHER	2		3	WL 235RA	
WASHER			3	WL 235	
WASHER	2		1	WL 9769R	
SCREW	2		4	SL 9962R	
NUT	2		4	NL 8538R	
WASHER			8	WL 235RA	
WASHER			8	WL 235	
PULLEY	2		1	PULL 1355R	
SCREW	2		1	SL 10223R	
PULLEY	2		1	PULL 1355RA	06
V-BELT	2		1	DVSM 1458	
FLYWHEEL	2		1	DVSM 1405	
HOLDING DISC	2		1	DVSM 1461	
SCREW	2		1	SL 9422R	
SIGN	2		1	NP 114RD	
SUCTION FILTER	3		1	DVSM 1337B	
CONNECTOR	3		1	DVSM 1440	
BINDING NUT	3		1	DVSM 1441	
METAL RING	3		1	ZH 10902R	
CONNECTOR	3		1	ZH 10806R	
FILTER ELBOW	3		1	ZH 1627R	
PUMP	3		1	DVSM 1403	
CONNECTING FLANGE	3		1	ZH 10809R	
SCREW	3		4	SL 7J13	
HIGH-PRESSURE HOSE	3		1	ZH 10807R	
CONNECTING FLANGE	3		1	DVSM 1433	
O-RING	3		1	DVKS 1299	

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02 mm
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04 pm
05 gr.

Maschine: DVSM -1* Benennung: NO.1 SWING BEAM CUTTING MACHIN Datum: 31.08.89

Name des Teiles	FIG*	ME	Menge	Sachnummer	Stufe
PUMP AND PUMP DRIVE PTS.			1	DVSM RFU2	
SCREW	3		2	SL 21H17	
CONNECTOR	3		1	ZH 10806R	
SUCTION HOSE	3		1	ZH 10808R	
SCREW			2	SL 9578R	
NUT			2	NL 8551R	
WASHER			2	WL 9376R	
CONNECTING PIPE	3		1	DVSM 1431	
O - RING	3		1	DVSM 1459	
CONNECTOR	3		1	ZH 10805R	
**********	**********	**********	**********	**********	**********
SWING BEAM PARTS 38 CM WIDE			1	DVSM 1486A	06
SWINGING BEAM (38 CM WIDE)	6		1	DVSM 1401A+	
SPECIAL BEARING BUSH	6		1	DVSM 1402	
SPECIAL BEARING BUSH	6		1	DVSM 1408	
	6		6	ZH 10687RA	
SPRING	6		6	SPGL 9410R	
CLAMP SCREW, SHORT	6		3	DVSM 1475	
TENSIONING SCREW, LONG	6		3	DVSM 1476	
DISC			3	DVSM 1477	
STRIKING FACE 570 X 380 MM	7		1	DVSM 1516+	
ALU STRIKING FACE 30 MM THICK			1	DVSM 1516	
HELICOIL INSERT			6	ZH 10348R	
SCREW			6	SL 9967R	
SHIM RING	7		6	WL 9712R	
STRIKING PLATE/ ALU 15 MM			1	DVSM 1418C	01
SCREW			6	SL 10365R	01
WASHER			6	WL 373R	01
WASHER			6	WL 373	
NUT			6	NL 8560R	01
**********	**********	**********	**********	**********	**********
SWING BEAM PARTS / WIDTH 47 CM			1	DVSM 1487A	06
SWINGING BEAM (47 CM WIDE)			1	DVSM 1401B+	
SPECIAL BEARING BUSH			1	DVSM 1402	
SPECIAL BEARING BUSH			1	DVSM 1408	
			8	ZH 10687RA	
SPRING			8	SPGL 9410R	
CLAMP SCREW, SHORT			4	DVSM 1475	
TENSIONING SCREW, LONG			4	DVSM 1476	
DISC			4	DVSM 1477	
STRIKING FACE 570 X 470 MM	7		1	DVSM 1517+	
ALU STRIKING FACE 20 MM THICK			1	DVSM 1517	
HELICOIL INSERT			6	ZH 10348R	
SCREW	7		6	SL 9967R	
SHIM RING	7		6	WL 9712R	
STRIKING PLATE / ALU 15 MM			1	DVSM 1418E	01
SCREW			6	SL 10365R	01
WASHER			6	WL 373R	01
WASHER			6	WL 373	
NUT			6	NL 8560R	01

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Maschine: DVSM -1* Benennung: NO.1 SWING BEAM CUTTING MACHIN Datum: 31.08.89

Name des Teiles	FIG.	ME	Menge	Sachnummer	Stufe
SWING BEAM PARTS WIDTH 55 CM			1	DVSM 1488A	06
SWINGIN BEAM /55 CM WIDE			1	DVSM 1401C+	
SPECIAL BEARING BUSH			1	DVSM 1402	
SPECIAL BEARING BUSH			1	DVSM 1408	
			8	ZH 10687RA	
SPRING			8	SPGL 9410R	
CLAMP SCREW, SHORT			4	DVSM 1475	
TENSIONING SCREW, LONG			4	DVSM 1476	
DISC			4	DVSM 1477	
STRIKING FACE 570 X 550 MM	7		1	DVSM 1518+	
ALU STRIKING FACE 20 MM THICK			1	DVSM 1518	
HELICOIL INSERT			6	ZH 10348R	
SCREW			6	SL 9967R	
SHIM RING	.7		6	WL 9712R	
STRIKING PLATE /ALU 15 MM			1	DVSM 1418G	01
SCREW			6	SL 10365R	01
WASHER			6	WL 373R	01
WASHER			6	WL 373	
NUT			6	NL 856DR	01
STRIKING FACE 570 X 610 MM	7		1	DVSM 1519+	01
ALU STRIKING FACE 20 MM THICK			1	DVSM 1519	
HELICOIL INSERT			6	ZH 10348R	
**********	**********	**********	**********	**********	**********
COLUMN AND PISTON PTS.			1	DVSM RFU3	
CYLINDER	4		1	DVSM 1406D	
SCREW	4		8	SL 10670R	
O - RING	4		2	BUPL 3462RD	
PISTON	4		1	DVSM 1411	
PISTON			1	DVSM 1411-1	
PLATE			1	DVSM 1411-2	
PISTON SEAL	4		1	DVSM 1409	
SCREW	4		1	SL 10424R	
BUSH	5		1	DVSM 1414	
O RING	5		1	DVSM 1436	
SLEEVE	5		1	DVSM 1329	
SCREW	5		7	SL 9834R	
BALL BEARING	5		1	DVSM 1332	
CATCH RING	4		1	DVSM 1423	
BUMPER CARRIER	5		1	DVSM 1421	
SCREW			1	SL 9834R	
BUMPER	5		2	DVSM 1479A	
CAP	5		1	DVSM 1415B	
SCREW	5		4	SL 9633R	
WASHER	5		4	WL 235RA	
WASHER			4	WL 235	
SPACING DISC	5		1	DVSM 1407	
NUT	5		1	DVSM 1410	
SCREW	5		1	SL 9629R	
HOOD	5		1	DVSM 1463	
NUT	5		4	NL 8773R	
WASHER			8	WL 9399RA	
WASHER			8	WL 9399R	
NUT	5		4	NL 8515R	
SCREW	5		4	SL 10623R	

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Maschine: DVSM -1* Benennung: NO.1 SWING BEAM CUTTING MACHIN Datum: 31.08.89

Name des Teiles	FIG.	ME	Menge	Sachnummer	Stufe
HYDRAULIC CONTROL UNIT			1	DVSM RFU4	
O-RING RETAINING PLATE	8		2	DVSM 1445	
O - RING	8		2	DVSM 1450	
O - RING	8		2	DVSM 1451	
O - RING	8		2	DVSM 1452	
O - RING	8		2	DVSM 1453	
O-RING INTERMEDIATE PLATE	8		2	DVSM 1442	
SCREW	8		4	SL 10493R	
4/3 DIRECTIONAL VALVE	8		1	DVSM 1435	
4/2 DIRECTIONAL VALVE	8		1	DVSM 1434	
SCREW	8		8	SL 10362R	
CONNECTING PLUG-GREY	9A			ED 64516RD	
CONNECTING PLUG-BLACK	9A			ED 64517RD	
ELBOW PIPE	7		1	DVSM 1428	
ELBOW CONNECTOR R 1/2"	7		1	ZH 10891R	
CONNECTOR R 1/2"	7		1	ZH 10890R	
RELIEF VALVE	7		1	DVSM 1427	
ELBOW TUB	7		1	ZH 1215	
OIL RETURN PIPE	7		1	DVSM 1460	
CONNECTOR	7		1	ZH 1776R	
**********	**********	**********	**********	**********	**********
COVER PTS.			1	DVSM RFU5	
SIDE COVER PLATE,LH & RH.	6		2	DVSM 1446	
SEAL	6		2	DVSM 1449	
SCREW	6		10	SL 10072R	
WASHER	6		10	WL 1757RA	
COVER PLATE, RH.	6		1	DVSM 1422	
SCREW	6		4	SL 10207RA	
WASHER	6		4	WL 1757RA	
OIL- CONTROL GLAS	7		1	NP 274RD	
FRONT DOOR	6		1	DVSM 1416	
DOOR HINGE	6		2	DVSM 1467	
SCREW			8	SL 9536R	
WASHER			8	WL 373R	
WASHER			8	WL 373	
SCREW			3	SL 9536R	
WASHER			3	WL 373R	
WASHER			3	WL 373	
**********	**********	**********	**********	**********	**********
STROKE REVERSING PTS.			1	DVSM RFU6	
LINEAR POTENTIOMETER	4		1	ED 65007RD	
POTENTIOM.-BRACKET	4		1	DVSM 1425	
SCREW			1	SL 9657R	
WASHER			1	WL 9507R	
SCREW	4		4	SL 9754R	
DISC			4	WL 9365RA	
POTENTIOMETER CATCH	4		1	DVSM 1426	
NUT	4		1	NL 8557R	
LOCKWASHER			1	WL 9366R	

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Maschine: DVSM -1* Benennung: NO.1 SWING BEAM CUTTING MACHIN Datum: 31.08.89

Name des Teiles	FIG*	ME	Menge	Sachnummer	Stufe
TRIP HANDLE PTS.			1	DVSM RFU7	
TRIP HANDLE TUBE	9		2	DVSM 1464A	
TRIP HANDLE CPTE.	9		2	DVSM 1466A+	
TRIP HANDLE			2	DVSM 1466A	
BUSH			4	BUSH 8103R	
DISC	9		2	WL 9955R	
NUT	9		2	NL 8579R	
SLEEVE	9		2	DVSM 1478	
USM-SYMBOL			1	NP 159RD	
USM SYMBOL BASE PLATE			1	NP 160RD	
PIN			2	PL 10000R	
NAME PLATE			1	NP 238RD	
PIN			4	PL 9610R	
**********	**********	**********	**********	**********	**********
ELECTRIC EQUIPMENT			1	DVSM RFU8	
CONTROL ENCLOSURE	9		1	ED 65098RD	
SCREW			3	SL 9671R	
WASHER			3	WL 9399R	
NUT			3	NL 8557R	
SCREW			2	SL 9809R	
WASHER			2	WL 9951R	
NUT			2	NL 8592R	
TRANSFORMER	9		1	ED 65009RD	
SCREW			4	SL 10517R	
WASHER			4	WL 1757R	
LOCKWASHER			4	WL 9367R	
NUT			4	NL 8556R	
TRANSFORMER	9		1	ED 65010RD	
SCREW			4	SL 9647R	
WASHER			4	WL 9200R	
WASHER			4	WL 9370R	
NUT			4	NL 8553R	
WIDE BAND SUPPRESSOR	9		1	ED 65028RD	
CABLE END SLEEVE			4	ED 60129RD	
SCREW			1	SL 9948R	
WASHER			1	WL 9365R	
WASHER			1	WL 9375R	
NUT			1	NL 8546R	
TOOTH LOCK WASHER			1	WL 9977R	
CONTACTOR	9		1	ED 64672RD	
AUXILIARY SWITCH	9		2	ED 64673RD	
SCREW			2	SL 5385R	
WASHER			2	WL 9365R	
WASHER			2	WL 9375R	
NUT			2	NL 8546R	
AUXILIARY SWITCH			1	ED 65123RD	
RECTEFIER	9		2	ED 64422RD	
SCREW			2	SL 5385R	
WASHER			2	WL 9365R	
WASHER			2	WL 9375R	
NUT			2	NL 8546R	
CLAMP			4	ED 62459RD	
CAPACITOR	9		2	ED 65126RD	
CABLE CLIP			2	ED 63033RD	
CABLE BINDER 14CM LONG			2	ZH 2122R	

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Maschine: DVSM -1* Benennung: NO.1 SWING BEAM CUTTING MACHIN Datum: 31.08.89

Name des Teiles	FIG.	ME	Menge	Sachnummer	Stufe
ELECTRIC EQUIPMENT			1	DVSM RFUB	
AMP CABLE TERMINAL			4	ED 5029RD	
OPTO UNIT, COMPLETE	9		1	ED 65081RD	
OPTO UNIT			1	ED 65079RD	
OPTO UNIT CASING			1	ED 65080RD	
CARRIER RAIL			1	ED 62332RD7	
SCREW			2	SL 9948R	
WASHER			2	WL 9365R	
WASHER			2	WL 9375R	
NUT			2	NL 8546R	
END CLIP			2	ED 62181RDA	
BOARD,TWO-HAND TRIP ONLY	9		1	ED 65003RDA	06
BOARD,SINGLE + TWO- HAND TRIP	9		1	ED 65003RD	06
BOARD SINGLE + TWO-HAND TRIP	9		1	ED 65003RDB	06
BOARD, SINGLE TRIP, 2 DEPTHS	9		1	ED 65003RDC	06
PLUG BOARD - 48 POLES	9		1	ED 65008RD	
SUPPORTING BOLT			2	ED 65082RD	
WASHER			2	WL 9375R	
NUT			2	NL 8546R	
SCREW			2	SL 10644R	
DISTANCE BOLT			2	ED 65281RD	
WASHER			2	WL 9370R	
SCREW			2	SL 9553R	
SCREW			2	SL 10588R	
CABLE CLIP			2	ED 63033RD	
CABLE BINDER 14CM LONG			2	ZH 2122R	
PLUG-IN PART, 8-POLES	9		1	ED 65036RD	
CONNECTING CABLE			4	ED 65083RD+	
CABLE LIY 0,5 SQMM			4	ED 65083RD	
CABLE END SLEEVE			8	ED 61187RD	
MARKING STRIPS 1-10			1	ED 62859RD	
CABLE DUCT			1	ED 62321RDA39	
SCREW			2	SL 9948R	
WASHER			2	WL 9365R	
WASHER			2	WL 9375R	
NUT			2	NL 8546R	
TERMINAL SUPPORT RAIL			1	ED 61280RD27	
SCREW			2	SL 9743R	
WASHER			2	WL 1757R	
LOCKWASHER			2	WL 9367R	
NUT			2	NL 8556R	
TERMINAL			24	ED 62179RD	
CAP			1	ED 62180RD	
TERMINAL BRIDGE			2	ED 62183RD2	
GROUNDING TERMINAL			3	ED 62182RDA	
END CLIP			2	ED 62181RDA	
TERMINAL CAUTION PLATE			1	ED 62854RD1	
MARKING PLATE			1	ED 64510RD1	
MARKING PLATE			1	ED 64510RD6	
VARISTOR	9		3	ED 65015RD	
FUSE SOCKET			1	ED 63579RD	
PLUG			1	ED 63581RD	
FUSE 2 AMP, DELAYED ACT.			1	ED 60316RD16	
TRANSPARENT MARK HOLDER			1	ED 62814RD	
STICKING STRIP			1	ED 62814RD20	
CAP			1	ED 62180RD	
CONNECTING CABLE			1	ED 65084RD+	
CABLE NYAF 1,5 SQMM			1	ED 65084RD	

Text:
01 Nur auf bes. Bestellung
02 Nicht einzeln senden
03 Siehe Arbeitsplan
04 Ersatzteil für vorgen. Teil
05 Zubehör
06 Je nach Bestellung

ME:
01 Stück
02 mm
03 ccm
04 pm
05 gr.

Maschine: DVSM -1* Benennung: NO.1 SWING BEAM CUTTING MACHIN Datum: 31.08.89

Name des Teiles	FIG	ME	Menge	Sachnummer	Stufe
ELECTRIC EQUIPMENT			1	DVSM RFU8	
CABLE END SLEEVE			2	ED 60131RD	
MARKING SLEEVE			1	ED 62085RD	
EMERGENCY SWITCH	9		1	ED 65386RD20	
SCREW			4	SL 10363R	
WASHER			4	WL 9365R	
NUT			4	NL 8546R	
ON/OFF SWITCH	9		1	ED 65005RD	
SET OF MARKING PLATES			1	ED 65085RD	
SCREW			4	SL 9724R	
GROUNDING SCREW TAG			4	ED 2512RD	
WASHER			12	WL 9497R	
WASHER			4	WL 1837	
NUT			4	NL 8585R	
MICRO FLIP-SWITCH	9		1	ED 65398RD	
CONNECTING CABLE			1	ED 65108RD+	
CABLE LIFY 0,25 SQMM			1	ED 65108RD	
CABLE TERMINAL			2	ED 63449RD	
MARKING SLEEVE			2	ED 62085RD	
CONNECTING CABLE			1	ED 65124RD+	
CABLE LIYCY 4XD.25/25 SQMM			1	ED 65124RD	
CABLE END SLEEVE			2	ED 60130RD	
CABLE TERMINAL			2	ED 63449RD	
MARKING SLEEVE			4	ED 62085RD	
SET OF CABLE			1	ED 65086RD	
CABLE END SLEEVE			25	ED 60132RD	
CABLE END SLEEVE			4	ED 60131RD	
CABLE END SLEEVE			47	ED 60129RD	
AMP CABLE TERMINAL			21	ED 5029RD	
CABLE TERMINAL			16	ED 63449RD	
CABLE TERMINAL			5	ED 4513RD	
MARKING SLEEVE			110	ED 62085RD	
CABLE CONNECTOR PG29			1	ED 62537RDB	
CABLE CONNECTOR PG16			1	ED 2248RDB	
CABLE CONNECTOR PG 13,5			1	ED 2267RDB	
CABLE CONNECTOR PG9			4	ED 4331RDB	
BLANKING PLUG AG9			1	ED 60378RDB	
LOCKNUT PG 29			1	ED 62538RDB	
LOCKNUT PG16			1	ED 4279RDB	
LOCKNUT PG 13,5			1	ED 4278RDB	
LOCKNUT PG.9			5	ED 4332RDB	
SCREW			1	SL 10227R	
WASHER			2	WL 9497R	
WASHER			1	WL 1837	
NUT			1	NL 8585R	
PLASTIC SPIRAL			1	ED 60770RD65	
CABLE CLIP			2	ED 63033RD	
CABLE BINDER 14CM LONG			15	ZH 2122R	
PROTECTION ENVELOPE FOR DIAGRA			1	ED 60914RD	
WARNING SYMBOL			2	ZH 1757R	
CONNECTING CABLE			1	ED 65087RD+	
CABLE NMH 5X2,5 SQMM			1	ED 65087RD	
CABLE END SLEEVE			10	ED 60132RD	
MARKING SLEEVE			8	ED 62085RD	
CONNECTING CABLE			1	ED 65088RD+	
OIL-RESISTANT CABLE 4X1,5SQMM			1	ED 65088RD	
CABLE END SLEEVE			4	ED 60131RD	
AMP CABLE TERMINAL			4	ED 4932RD	

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04 pm
05 gr.

Maschine: DVSM -1* Benennung: NO.1 SWING BEAM CUTTING MACHIN Datum: 31.08.89

Name des Teiles	Fig.	ME	Menge	Sachnummer	Stufe
ELECTRIC EQUIPMENT			1	DVSM RFUB	
MARKING SLEEVE			6	ED 62085RD	
CONNECTING CABLE			1	ED 65089RD+	
OIL-RESISTANTE CABLE 2X0,75 SQ			1	ED 65089RD	
CABLE END SLEEVE			4	ED 60129RD	
MARKING SLEEVE			4	ED 62085RD	
CONNECTING CABLE			1	ED 65090RD+	
OIL-RESISTANT CABLE 2X0,75SQMM			1	ED 65090RD	
CABLE END SLEEVE			4	ED 60129RDA	
MARKING SLEEVE			4	ED 62085RD	
CONNECTING CABLE			1	ED 65091RD+	
OIL-RESISTANT CABLE 2X0,75SQMM			1	ED 65091RD	
CABLE END SLEEVE			4	ED 60129RDA	
MARKING SLEEVE			4	ED 62085RD	
CONNECTING CABLE			1	ED 65092RD+	
OIL-RESISTANT CABLE 2X0,75SQMM			1	ED 65092RD	
CABLE END SLEEVE			4	ED 60129RDA	
MARKING SLEEVE			4	ED 62085RD	
BAND CABLE			1	ED 65096RD	
PLUG			1	ED 64851RD	
STRAIN RELIEF			1	ED 64852RD	
CABLE TERMINAL			24	ED 63449RD	
MARKING SLEEVE			26	ED 62085RD	
CONNECTING CABLE			1	ED 65093RD+	
CABLE LIYCY 4X0,25/25SQMM			1	ED 65093RD	
CABLE END SLEEVE			4	ED 60129RD	
CABLE END SLEEVE			3	ED 61187RD	
PROTECTIVE HOSE			1	ED 64825RD270	
HOSE CONNECTOR	9A		1	ED 64826RD	
INTERNAL SLEEVE	9A		1	ED 64827RD	
LOCKNUT PG21	9A		1	ED 4637RD	
CARRIER PLATE	9A		1	ED 65129RD	
SCREW	9A		1	SL 9788R	
SPACER BLOCK	9A		1	ED 65138RD	
PLASTIC SPIRAL			1	ED 60770RD65	
CABLE CLIP			1	ED 63033RD	
CABLE BINDER 14CM LONG			1	ZH 2122R	
CABLE CONNECTOR PG29	9A		1	ED 62537RD	
ELBOW FLANGE	9A		1	ED 65122RD	
SCREW	9A		4	SL 9756R	
WASHER	9A		4	WL 1757R	
NUT	9A		4	NL 8556R	
MOTOR 2,2KW/3000 220/380V, 50	2		1	ED 65132RD	
SCREW			1	SL 9724R	
GROUNDING SCREW TAG			1	ED 2512RD	
WASHER			3	WL 9497R	
WASHER			1	WL 1837	
NUT			1	NL 8585R	
HOSE CLIP	9A		2	ZH 10136R	
SCREW	9A		2	SL 9619R	
WASHER	9A		4	WL 373	
NUT	9A		6	NL 8560R	
CABLE CONNECTOR PG16	9A		1	ED 2248RD	
COUNTER-NUT	9A		1	ED 4279RD	
CABLE CLIP			10	ED 62873RD	
CABLE BINDER 14CM LONG			10	ZH 2122R	
CONTROL PANEL, COMPLETE	9A		1	ED 65151RD	
FRONT-PLATE, COMPLETE			1	ED 65120RD	

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Maschine: DVSM -1* Benennung: NO.1 SWING BEAM CUTTING MACHIN Datum: 31.08.89

Name des Teiles	FIG*	ME	Menge	Sachnummer	Stufe
ELECTRIC EQUIPMENT			1	DVSM RFUB	
FRONT-PLATE	9A		1	DVSM 1462	
STUD			4	ED 65119RD	
SCREW	9A		4	SL 9693R	
L E D - RED	10		3	ED 65102RDA	
PUSH BUTTON SWITCH	10		1	ED 65011RD	
PUSH BUTTON SWITCH	10		1	ED 65013RD	
PUSH BUTTON SWITCH	10		1	ED 65014RD	
PUSH BUTTON SWITCH	10		1	ED 65100RD	
PUSH BUTTON SWITCH	10		1	ED 65101RD	
PUSH BUTTON SWITCH	10		2	ED 65012RD	
FILTER PANE - RED	10		1	ED 64858RD	
BAND CABLE, 14 POLE	10		1	ED 65105RD	
PLUG	10		1	ED 65103RD	
STRAIN-RELIVE BRIDGE	10		1	ED 65104RD	
FLEXIBLE CORD			1	ED 65106RD	
PC BOARD	10		1	ED 65004RD	
SCREW			4	SL 10454RA	
MARKING STRIPS 1-10			1	ED 62859RD	
TRIP BUTTON	9		2	ED 65006RD	
CONNECTING CABLE			1	ED 65094RD+	
CABLE LIYY 2X0,14/13SQMM			1	ED 65094RD	
CABLE END SLEEVE			2	ED 61187RD	
MARKING SLEEVE			4	ED 62085RD	
CONNECTING CABLE			1	ED 65095RD+	
CABLE LIYY 2X0,14/13			1	ED 65095RD	
CABLE END SLEEVE			2	ED 61187RD	
MARKING SLEEVE			4	ED 62085RD	
RATING PLATE			1	ED 60511RD	06
RATING PLATE, ENGLISH			1	ED 60511RDA	06
RATING PLATE, FRENCH			1	ED 60511RDF	06
PIN			4	PL 9610R	
**********	**********	**********	**********	**********	**********
ELECTRIC EQUIPMENT 208V - 460V			1	ED 65466RD	01
CONTROL TRANSFORMER			1	ED 65009RDA	
TRANSFORMER			1	ED 65010RDA	
WIDE BAND SUPPRESSOR			1	ED 65028RDA	
MOTOR 2,2 KW	2		1	ED 65392RD	

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760D

3 PE ~ 50 60 Hz, 208V.....460V

Q1

X1-L1 (L1) R U (1) X1-1
X1-L2 (L2) S V (2) X1-2
X1-L3 (L3) T W (3) X1-3
X1-N (N)
X1-PE

Z1 Filter
Drossel-seite
chockside

K1

M1 M 3~ X1-7 X1-8

A1

Platine
P.C. Board

Linear Potentiometer R4
Linearpoti
R4
brown braun
yellow gelb
green grün

S14 A-belt Service

z18 b18 b20 b12 b6 z10 z6 b8 d4 z8 d6 d8 z12 d14 b10 b14 d10 z14 d12 b22 a22 z4 z2 b24

Adjust/Cut
Einr./Arbeit
Adjust Einrichten H1
S3
Arbeit Cut H2
Depth of cut Eindringtiefe
8mm H3
Daylight Maulweite
S4 S5 S6 S7
Set stroke counter Setzen S8
Enter Bestätigung S9

ST1 ST2 +15V

A3
P.C. Board on swing beam
Platine am Schwenkarm

H1 H2 H3 S3 S4 S5 S6 S7 S8 S9

KL1

T1 -20V -10V 0 +10V +20V 220V 400V 440V
T2 +20V +10V 0 -10V -20V 220V 400V 440V

F1 4A träge Sek.1
F2 4A träge Sek.2
F3 0,5A träge Sek.1
F4 0,5A träge Sek.2
F5 0,5A träge Sek.3

d28 b28 d30 b30 d32 b32 z26 d26 z24 z32 GND

X1-10 X1-11 X1-12 X1-9

S1 S2 K1 K1 A1 A2

V1 V2 C1 C2

A2 +5V +24V GND
T1 T2 T3
Opto-Einheit
Opto-Unit

X1-13 X1-15 X1-17 X1-14 X1-16 X1-18

R1 316K30 Y1
R2 316K30 Y2
Y3 R3 316K30

S10 S11

· Einlösen links
LH trip button

Einlösen rechts
RH trip botton

DVSM-760D

(1) 1 2 (6)
(2) 3 4 (3)
(9) 5 6 (10)
(12) 13 14 (11)
(109) 21 22 (19)
(42) 43 44 (63)
(40) 53 54 (61)

Pin conectin for the following transformer version
Anschlußbelegung für nachfolgende Trafoausführung

+5% 0 -5% 210V 220V 230V 240V 380V 400V 415V 440V 460V
T1 F1 F2
T2 F3 F4 F5

Code 1···19
31···49
51···76
81···94
101···110

Adjust Anpressen: Y1, Y2 erregt energized
Cut Stanzen.: Y1 erregt energized
Up-stroke Rückhub: Y1, Y3 erregt energized

Werkstoff
related Point-to-Point Wiring Diagram No. 761D

Datum
zugeh. Schaltplan Nr. 761D

Anzeigeplan vorhanden

1987 26.4. Berny 2.5.89 Kachny

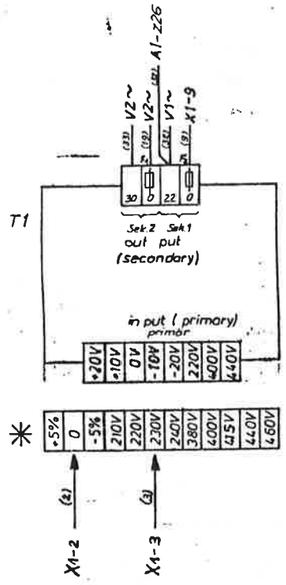
Eigentum USM

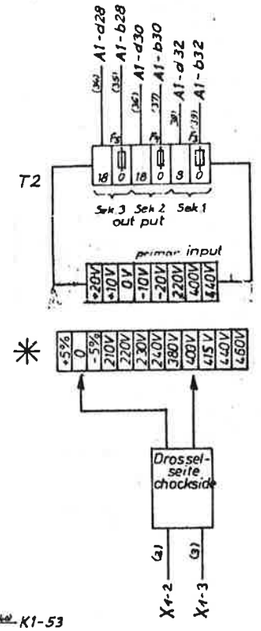
Schematic Wiring Diagram
Schaltplan

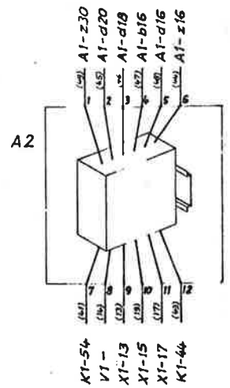
760D

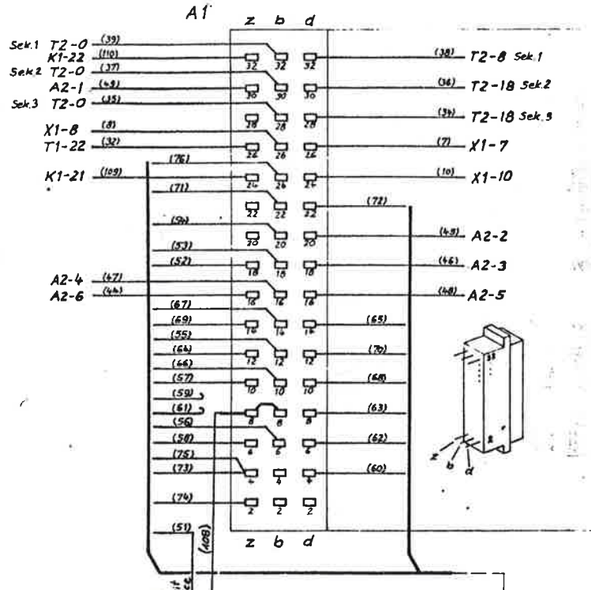
DVSM-RF

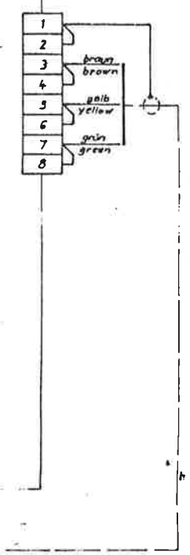
761D



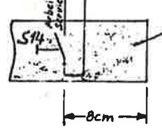


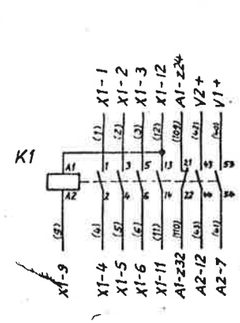


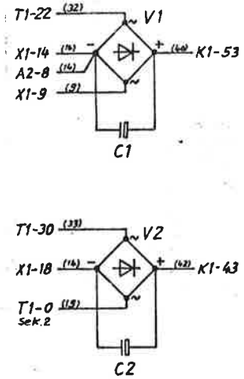


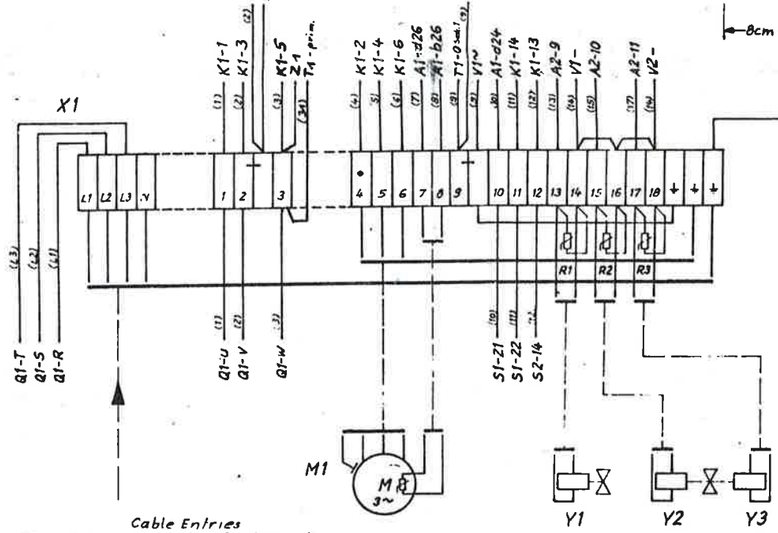


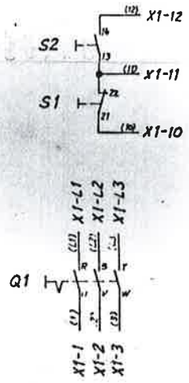
P.C. Board
Platine











Maschinenständer
Machine Frame

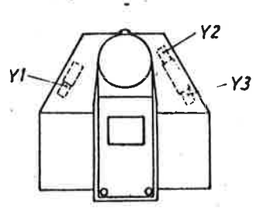
TDr
Door

Schaltkasten
Control Enclosure

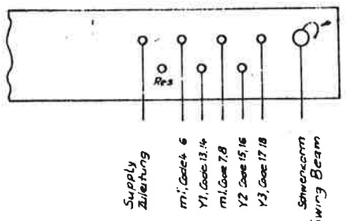
P.C. Board A3
Platine A3
Schwenkarm
Swing Beam

Linear Potentiometer R4
Linearpoti R4

✳ Anschlußbelegung für andere Trafoausführung
Pin conection for another transformer version



Cable Entries
(View into Control Enclosure)
Kabeleinführungen
(in den Schaltkasten gesehen)



Drahtwendel des Schutzschlauches mit Masse verbinden
Connect metal spiral of protective hose to earth

related Schematic Wiring Diagram No. 760D

zugeh. Schaltplan Nr. 760D

Anfertigung Maßtolerung und Darstellungsweise nach DIN

USM Maße ohne Toleranzangaben

Name Tag
1987 26.4. Barny
2.5.89 Kehn

USM
Deutsche Vereinigte Schuhmaschinen
Gesellschaft mit beschränkter Haftung
Frankfurt/M. Radilstraße

Point-to-Point Wiring Diagram
Schaltplan

761D

DVSM-RF

DVSM-761D