OPERATING INSTRUCTIONS

and

LIST OF PARTS

Type 562.002

Electro-Hydraulic Carriage beam Cutting Machine

ORION

with sliding back head

1/5
10.10.67

S/N 68549

Mike Vickers

OPERATING INSTRUCTIONS

TYPE 562.002

Technical Details:

| | |
|---|---|
| cutting capacity | : 25.000 kp or 40.000 kp |
| stroke continuously adjustable from | : 20 - 120 mm 4,75" |
| utilisable table width | : 1055 mmor 1600 mm 41.5 OR 63" |
| utilisable table depth | : 610 mm or 810 mm 24" OR 32" |

electrical unit installed according to Sb-No.:
hydraulic oil required appr. 220 litres
weight of machine without additional devices, but with switch box: according to execution 4000 to 4200 kg

Description:

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Our carriage beam cutting machine with sliding back head is a very strong construction. The carriage (head) operated by a hydraulic piston is guided in special guide rails which are moved synchronically up- and downward. One each covering cylinder arranged underneath the columns. The cutting capacity is transmitted to the carriage by two piston rods and tensioning spindles via guide rails. The adjustment area of spindle nuts is automatically limited up and downwards so that the carriage resp. the guide rails cannot stick or run off tensioning spindles.

The machine has a specially designed compact synchronisation device, so that machine can also be operated with full capacity off center.

An automatic central lubrication system is lubricating all gliding and rotating parts.

The electro-hydraulic driving aggregate consists of a driving motor for high-pressure pump, the control and pressure limitation valves, split filter, pipes, and fittings. All pipes are enclosed in the press body and protected against outside influences.

All switching elements of the electrical plant are mounted in a separate switch case with additional operating panel and wired and installed according to VDE-instructions. All operating elements for the machine are arranged on an easily observeable switch board. The case is connected to the cutting press by steelflex cables and multi-pin plugs.

Transport:

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When the machine leaves our works four large ring screws are screwed to the carriage (machine head) into which ropes or chains are hanged in with hooks. So the transport by a crane can be carried out accident-safe. The movable head is also secured against gliding away sidewards by crewed on flat steels. When the transport has been carried out ring screws and flat steels must be removed and stored for a possible later transport.

Removal of rust protection

All bright parts have been covered with a rust protection before shipment which easily can be removed by cleaning oil or kerosene. Do not use gasoline. The vapours can easily cause fire by sparks of the electrical elements.

Installation:

The machine must be installed on a solid base the bearing capacity of which corresponds to the wheight of machine.

To set up the machine it is the best to use a water scale which should be placed onto the machine table cross- and lengthswise. With the hexagon screws in the machine base the machine can be installed properly.

Connection:

The electrical switch of our machines varies according to execution. Please take care of the switching diagram in the switch case. Check whether the operating voltage stated on the plate is in accordance with thevoltage available. Turn main switch to O. connect the cables with plug-ins coming from the distribution case with the switch case according to their descriptions on that case.

All clamping connections in switch case and distribution case must be re-drawn again.

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Now the switch case can be connected to the electrical circuit. Take care that the motor runs into correct direction when it is switched on.

Start motor only after hydraulic oil has been filled in.

Before the first run take care of the operating instructions for machines and plants with a hydraulic driving unit.

Starting:

When all preparational Works mentioned before have been carried out the machine can be started. It is operated in accordance with the electrical functioning description attached hereto.

Adjustment of Stroke

The stroke continuously adjustable from 2o - 12o depending upon the height of material can be adjusted with a turnable knob fitted to the right side of machine.

This knob can easily be turned in both directions if it is pressed against the machine stand. By turning clockwise the stroke is increased, by turning the other way it is reduced.

Pressure Adjustment

The pressure limitation valves are exactly adjusted in our works.

This adjustment cannot be changed. If it must be done this adjustment should be carried out by our experiences mechanics.

Maintenance

The oil level of the driving unit in the machine stand must be checked according to the special operating instructions for machines and plants with hydraulic driving aggregate.

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Two nipples in the drop beam resp. on the guide rails are for lubrication of the spindle nuts and the spindles. They should only be lubricated if necessary, thus avoiding an unnecessary collection of oil and an oil lack on the columns.

We refer your attention to "operating instructions for machines and plants with hydraulic driving unit".

# Spare Parts List

## Type 562.002

Electro-Hydraulic Two-Column Press with sliding-back carriage.

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When ordering spare parts we kindly ask you to adhere to the following indications:

In addition to the number inscribed or engraved on the part itself we also require the serial number of the machine embossed on the name plate. In case this number cannot be read properly then we require a sketch or a photograph of this part or an exact description where this part is located and with which other parts it is connected.

The numbers listed in the list of spare parts should be checked with the numbers engraved or embossed on the part itself. In case of doubt the valid number is always that engraved on the part.

If electrical parts are ordered we ask you to state - in addition to the machine number - the number of wiring diagram and the number this part bears in the diagram or in the list containing electrical elements.

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(Wiring diagram and list of electrical parts can be found in the switch case of machine).

## Group 02.3a Chain Adjuster

| | | |
|---|---|---|
| 8.328.2o.6.o2.o.4 | 4 | bolts |
| 8.328.2o.6.o3.o.4 | 4 | chain wheels |
| 6.o1268.o2.28.o | 4 | needle bearings NK 2o/28 ⌀ x 2o |

## Group 02.4 a roller chain for table depth of 81o mm

| | | |
|---|---|---|
| 4.o8187 | 8,8 | metres roller chain<br>1 x 12,7 x 6,4 x 7,75 |
| 4.o8187 | 1 | plug-in link (chain key)<br>1 E 12,7 x 6,4 |

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## Group 02.4 b roller chain for table depth of 61o mm

| | | |
|---|---|---|
| 4.o8187 | 8 | metres roller chain<br>1 x 12,7 x 6,4 x 7,75 |
| 4.o8187 | 1 | plug-in link (chain key)<br>1 E 12,7 x 6,4 |

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## Group o3.1 Guide for Column 16oo x 81o

| | |
|---|---|
| 8.562.o3.1.28.1.1 | 1 column guide right |
| 8.562.o3.1.29.o.1 | 1 column guide left |
| 8.562.o3.1.2o.o.2 | 1 traverse |
| 8.562.o3.1.o6.1.3 | 2 guide rails |
| 8.562.o3.1.32.o.3 | 1 guide rail, right |
| 8.562.o3.1.31.o.3 | 1 guide rail, left |
| 8.562.o3.1.33.o.3 | 1 guide rail, right |
| 8.562.o3.1.3o.o.3 | 1 guide rail, left |
| 8.562.o3.1.o7.o.4 | 4 guide rails |
| 8.562.o3.1.24.o.4 | 2 stops |
| 8.562.o3.1.23.o.4 | 1 stop, right |
| 8.562.o3.1.22.o.4 | 1 stop, left |
| 8.562.o3.3.11.o.3 | 4 excenter bolt |
| 6.o1285.o4.o6.o | 4 supporting rolls NATR 15 PPX |

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## Group 06.1 Tensioning spindle for 2o t - machine

| | |
|---|---|
| 8.4o9.o5.1.o2.o.3 | 1 tensioning spindle - 11oo mm with trapezoid thread Tr 48 x 3 |
| DIN 914 | 1 threaded pin M 8 x 2o |
| DIN 934 | 1 hexagon nut M 8 |
| DIN 7 | 1 cylinder pin 6 ø x 12 |

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## Group 07.2 Columns

| | |
|---|---|
| 8.562.07.2.01.0.4 | 2 columns 185 mm ø x 1008 mm long |
| 8.562.07.1.02.0.4 | 2 ring 186/200/240 ø x 15 mm high |
| DIN 912 | 8 cylinder screws M 6 x 15 |
| 6.0107 6.04.00.0 | 8 safety discs "Schnorr" |
| 6.01523.62.00.0 | 2 oil stripper made of plastic AS 185-200-10/14 = 185/200 ø |

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## Group 08.2 Cylinder for 12o mm stroke and 4o t pressure

| | |
|---|---|
| X9.0699o.1.oo.o.2 | 2 cylinders complete, with the following parts: |
| 8.562.o8.1.o2.o.3 | (1) cylinder |
| 8.41o.63.3.o1.o.3 | (2) piston rod |
| 6.o143o.37.oo.o | (3) O-ring (plastic packing) OR 99,2 - 5,7 - 99,2 inside dia. 5,7 ø |
| 8.41o.62.1.o4.o.3 | (4) cylinder flange |
| 6.o143o.18.oo.o | (5) O-ring OR 4o,2 - 3 = 4o,2 inside dia. x 3 ø |
| 6.o1435. 42.oo.o | (6) round-cord rings (plastic packing) R 11o-3 = 11o inside dia. x 3 ø |
| | cylinder screw M 12 x 35 with safety ring "Schnorr" 12 |

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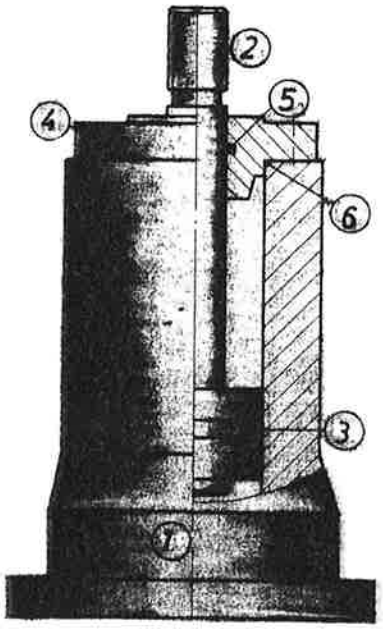

## Group 1o.1 b Stroke Adjustment for 12o mm Stroke

| | | |
|---|---|---|
| 8.562.1o.1.o7.o.3 | 1 | turn-handle complete, consisting of:- |
| 8.562.1o.1.o2.o.4 | 1 | guide |
| 8.562.1o.1.o1.o.4 | 1 | bolt |
| 6.o14oo.o7.oo.o | 1 | scale dial execution 1 |
| 8.4o9.1o.3.o5.o.4 | 1 | chain wheel |
| 6.o111o.o5.oo.o | 1 | pressure spring F 9 |
| 6.o1644.o1.o1.o | 1 | roller chain 1 x 5 x 2,5 x 245 mm |
| 8.4o9.o7.3.o1.o.4 | 1 | guide piece |
| 8.4o9.o7.3.o6.o.4 | 1 | guide |
| 8.562.1o.1.o4.1.4 | 1 | stop |
| 8.562.1o.1.o6.1.4 | 1 | stop |

## Group 1o.2a Parts for Group 1o.1

| | |
|---|---|
| 6.17o1.22.oo.o | 2 bowden cable |
| 8.562.1o.2.o6.o.4 | 1 plate |
| 8.562.1o.2.o5.o.4 | 1 stop |
| 8.562.1o.2.o7.1.4 | 1 holder |

## Group 11.2 Rectifier lever for 2o and 4o, t-machine

| | |
|---|---|
| 8.562.11.1.15.o.3 | 2 shafts 9o ø x 65o mm long |
| 8.562.11.1.o4.o.4 | 4 wedge head |
| 8.562.11.1.12.o.4 | 4 flange 17o dia. x 35 mm |
| 6.o1552.31.o1.o | 4 bush 7o/82 ø x 25 mm |
| DIN 912 | 16 cylinder screws M 6 x 25 with 16 safety discs "Schnorr" |
| 8.562.11.1.o1.o.3 | 2 lever with bore 9o ø |
| 8.562.11.1.o2.o.3 | 2 levers with bore 9o ø |
| 8.562.11.1.o5.o.4 | 8 bolt 4o ø x 78 mm long |
| 8.562.11.1.o6.o.4 | 4 joint bar 22o x 12o x 25 mm |
| 6.o1551.79.o1.o | 4 bush 5o/6o ø x 25 |
| 6.o1551.67.o1.o | 4 bush 4o/5o ø x 25 |
| 8.562.11.2.o1.o.4 | 2 connecting rod |
| 6.o1551.68.o1.o | 4 bush 4o/5o ø x 3o |
| 8.562.11.1.13.o.4 | 2 split ring 168/273 ø x 25 with 5 ea. screw holes |
| DIN 912 | 4o cylinder screws M 14 x 5o with safety discs "Schnorr" |
| 8.562.11.1.17.o.4 | 4 distance rings 5o/7o ø x 5 |
| DIN 471 | 4 safety rings 5o x 2 |
| 8.562.11.1.1o.o.3 | 2 ring 185/275 ø with 2 pins 5o ø |
| 8.562.11.1.11.o.4 | 2 separated rings 168/25o x 25 mm with 5 ea. screw holes |

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562 - 15.6c

## Group 15.6 c Column cylinder for 785 mm moving area

| | |
|---|---|
| 8.562.15.6.12.o.2 | 1 column cylinder complete, consisting of: |
| 8.562.15.6.o5.o.4 | 1 flange |
| 6.o1435.11.oo.o | 2 round-cordring (plastic packing) R 35 - 2 = 35 mm inside dia. x 2 mm dia. |
| 8.562.15.6.o4.o.4 | 2 ring |
| 6.o143o.13.oo.o | 1 O-ring (plastic packing) OR 3o,3 x 2,4 = 3o,3 inside dia. x 2,4 dia. |
| 8.562.15.6.o8.o.4 | 1 cylinder |
| 8.562.15.2.o2.2.4 | 1 piston |
| 8.562.15.6.o3.o.4 | 1 ring |
| 8.562.15.6.o2.o.4 | 1 bearing |
| 6.o1452.o5.oo.o | 1 grooved ring NIB 25-4o-1o = 25/4o dia. x 1o mm |
| 8.562.15.6.o1.o.4 | 1 flange |
| 6.o1522.11.oo.1 | 1 stripper AS 25-35-7/1o |
| 6.o1o76.o6.oo.o | 8 fuses "Schnorr" |
| 6.o15o4.15.oo.o | 1 packing (paper) |
| 6.o2511.o1.oo.o | 1 tube fitting CK 1/8" PK 6 |
| 6.o2512.31.oo.o | 1 tube clampingrail KK-6 |
| 6.o2512.o2.oo.o | 2,2 metres plastic tube PK-6 |
| 6.o2511.5o.oo.o | 1 F-fitting TCK 1/8" PK 6 |

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16.2

## Group 16.2 Clearance Adjustment by Motor

| | |
|---|---|
| 8.562.o2.2.o3.1.3 | 2 spindle nut |
| 6.o12.26.o1.1.9.o | 2 acial grooved ball bearings 51117 85/116 ø x 19 |
| 8.562.o2.2.o8.o.4 | 2 chain wheel |
| 8.562.o2.2.o9.o.4 | 2 guide |
| 8.562.o2.2.1.5.o4 | 4 bolt |
| 8.562.o2.2.14.o.4 | 4 bolt |
| 8.328.2o.6.o3.o.4 | 4 chain wheel |
| 6.o12.68.o2.28.o | 4 needle bearing NK 2o/2o 2o/28 ø x 2o |
| 8.562.o2.2.13.o.4 | 1 chainwheel |
| 6.o11.93.o7.oo.o | 2 grooved ball bearing 16oo8 4o/68 ø x 9 |
| 8.562.o2.2.16.o.4 | 1 switching spindle |

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# Hydraulic Drive Unit Type 25o
## Group 41.oe

Hydraulic wiring diagram : H 562.o1o.1.o
wiring diagram : R 562.oo9.1.2

This unit consists of the following groups :

| | |
|---|---|
| 28.3 j | valves, individual parts see separate specification ! |
| 24.7 t | drive, individual parts see separate specification ! |
| 33.4 k | tubes |

operating capacity : max. 145 kp/cm$^2$
column fedd capacity : max. 8o kp/cm$^2$

Oil required : litres



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## Group 24.7 t Drive

| | |
|---|---|
| 8.557.o7.1.o3.o.4 | 1 flange |
| 8.25o.24.7.32.o.3 | 1 clutch housing |
| 8.552.11.3.o3.o.4 | 1 fly-wheel |
| 8.25o.24.7.19.o.3 | 1 clutch half |
| 9.ooo23.16.oo.o | 1 clutch half CL 4 - 145 mm Ø bore = 38 mm Ø (bolt part) |
| 6.o1194.17.oo.o | 2 ball bearings (6o16) 8o/125 ø x 22 |
| 8.25o.24.6.13.o.3 | 1 flange |
| 6.o2143.o8.oo.o | 1 double-actuating pump V 3235 - 15 - 6 - 1 AA - 1o - S 214 |
| | 1 DC motor (5,5 resp. 7,5 kW drive capacity) |
| | see electrical parts list |

When ordering spare parts only the plate on the motor is binding!

Please mention all details of this plate in your order!

## Group 28.3 j valves for H 562.o1o.1.o

| | |
|---|---|
| X9.o149o.5.oo.o.2 | 1 5/3 way-valve, individual parts see separate specification! |
| | 1 pressure limitation valve SJ 31o |
| X9.o4327.1.oo.2.2 | 1 control unit, individual parts see separate specification! |
| | 1 throttle back-stroking valve DRR 18 |

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## 5/3 - ways valve X9.o149o.5.oo.o.2

| | | |
|---|---|---|
| X9.o149o.5.oo.o.2 | 1 | 5/3 - ways valve compl. (U 29578) with following parts: |
| X9.o149o.5.o1.o.2 | 1 | valve block |
| X9.o149o.5.o2.o.3 | 1 | slide |
| 6.o111o.26.oo.o | 1 | pressure spring F51 31Ø x 2,5Ø x 7o mm length x 9 windings |
| 9.ooo2o.o1.oo.o | 2 | trunnion M 6 x 97 |
| X9.o1623.7.o4.o.4 | 1 | supporting plate |
| 9.oo1o1.o2.oo.o | 1 | support |
| 9.oo1o2.o2.oo.o | 1 | angle |
| | 1 | twin solenoid 24 V 41523 - o9 - 1,832 - 1oo% ED |
| X9.o1623.7.o8.1.4 | 1 | support piece |
| X9.o1623.7.o9.o.4 | 1 | lever 2o x 6 x 144 |
| 9.ooo17.11.oo.o | 3 | bolt 8 dia x 3o with washer and split pin |
| 9.ooo66.11.o1.o | 2 | nut M 22 x 1,5 |
| X9.o1623.7.1o.o.4 | 1 | plate |
| 4.oo939 | 2 | trunnion M 6 x 75 |

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|---|---|
| X9.o4327.1.oo.2.2 | Control Unit |
| X9.o2484.1.oo.1.3 | 1 4/2 way-valve complete - individual parts see separate specification! |
| X9.o2484.7.oo.o.3 | 1 4/3 way-valve complete - individual parts see separate specification! |
| 6.o143o.42.oo.o | 2 O-ring (plastic packing) OR 9,3 - 2,4 = 9,3 inside dia. x 2,4 dia. |
| X9.o4327.1.o1.2.2 | 1 connecting plate |
| 6.o1431.o8.oo.o | 14 O-ring (plastic packing) OR 12,3 - 2,4 = 12,3 inside dia. x 2,4 dia. |
| X9.o35o2.1.oo.o.4 | 1 valve fitting complete, individual parts see separate specification! |
| 6.o143o.o6.oo.o | 1 O-ring (plastic packing) 2o,3 - 2,4 = 2o,3 inside dia. x 2,4 dia. |
| X9.o1153.4.oo.o.3 | 1 throttle return valve complete individual parts see separate specification! |
| 6.o1415.22.oo.o | 1 Usit-ring U 17,6 x 24 x 1,5 |
| 6.o1415.21.oo.o | 1 Usit-ring U 16,7 x 24 x 1,5 |

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## 4/2 - Way-valve X9.o2484.1.oo.1.3

This valve consists of the following parts:

| | |
|---|---|
| 9.o2484.1.o3.o.3 | 1 slide block |
| 9.o2484.1.o2.1.4 | 1 slide |
| 9.o2484.1.o1.o.4 | 1 cover |
| 6.o111o.1o.oo.o | 1 pressure spring F 19 15 ø x 1 ø x 6o mm, 12 coils |
| 6.o143o.11.oo.o | 2 O-ring OR 27,3 - 2,4 = 27,3 mm inside dia. x 2,4 mm dia. |
| | 1 DC single stroke solenoid 24 volts 1oo % ED GHNX - 055 - F 44 - A - 02 |

## 4/3 - Way-valve X9.o2484.7.oo.o.3

This valve consists of the following parts:

| | |
|---|---|
| X9.o2484.7.o2.o.4 | 1 slide |
| 5.o6o65.o6.o1.o | 2 DC-solenoids GNNX o55 AO2 24 V 1oo% ED |
| X9.o2484.7.o1.o.3 | 1 valve block |
| X9.o2484.1.o4.o.4 | 2 spring plate |
| X9.o2484.7.o3.o.4 | 2 bolts |
| 6.o111o.1o.oo.o | 2 pressure spring F 19 15 mm dia. x 1 dia. length 6o mm, 12 coils |
| 6.o143o.11.oo.o | 2 O-ring OR 27,3 x 24 = 27,3 inside dia. x 2,4 mm dia. |

## Valve Fitting X 9.o35o2.1.oo.o.4

consisting of:'

| | |
|---|---|
| X9.o35o1.1.o1.o.4 | 1 valve bush |
| X9.o35o1.1.o2.o.4 | 1 valve piston |
| 6.o143o.o3.oo.o | 1 O-ring OR 14,3 - 2,4 = 14,3 inside dia. x 2,4 mm dia. |
| 6.o11o1.13.oo.o | 28 platen springs 15 x 6,2 x o,7 mm thick |

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## X9.o1153.4.oo.o.3 Throttle back-stroke valve

| | |
|---|---|
| X9.o1153.4.oo.o.3 | 1 throttle back-stroke valve complete, consisting of:- |
| 4.o76o3 | 2 packings (ring) 1o x 13,5 |
| 4.o54o1 | 2 balls 5/16" |
| 6.o1415.17.oo.o | 4 Usit-ring U 12,7 x 18 x 1,5 |
| 6.o111o.13.oo.o | 2 pressure spring F 24 |
| 4.o76o3 | 4 packings 1o x 13,5 |
| 6.o143o.31.oo.o | 2 O-ring (plastic packing) OR 3,3 - 2,4 = 3,3 inside dia. x 2,4 dia. |
| X9.o1153.4.o1.o.3 | 1 valve block |
| 6.o143o.42.oo.o | 1 O-ring (plastic packing) OR 9,3 - 2,4 = 9,3 x 2,4 dia. |

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# S E R V I C E  M A N U A L

for

## Machines and Plants with Hydraulic Driving Unit

PAY ATTENTION TO BEFORE RUNNING MACHINE FOR THE FIRST TIME !

We supply our machines without oil filling !

Before switching-on the main motor it is necessary to put in

about litres of hydraulic oil

into the hydraulic oil container (stand of machine or container of the separate hydraulic drive unit), provided, however, that the stand or drive unit are thoroughly cleaned, outside as well as inside. Furthermore, care should be taken that all containers, cans, oil hand pumps, and funnels are absolutely clean, so that no foreign matter gets into the interior of the hydraulic systems. The oil level can be controlled on the oil level glass.

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24.2.67

For filling use a good, nonacid, age resistant hydraulic oil, with a viscosity of 3 - 5 degress ENGLER at 50 Centigrades.

Maintenance of Hydraulic Systems:

Oil level should be regularily checked before the start and also when the machine is still in operation. The oil quantity must not be reduced to any extent. Otherwise the machine must be stopped and the cause for the oil loss removed.

Minor loss of oil must immediately be compensated after the machine has been switched off. Oil to be re-filled should be of the same make. Even if only minor oil loss occurs check the plant and take the necessary steps to correct same.

Testing of Used Oil:

Oil should be checked regularily after every 1000 working hours, at least all six (6) months to its degree of dirtiness and its further usability. The result of a drop test will give some

information on the degree of dirt content. Immediately after having taken off oil from the bottom of the oil container let drop one or two drops on a piece of filter paper, using something like a small and clean stick. After a short while the extending drop will show whether the oil is clean (uniform colour shade) and may remain in the plant or if the oil is aged resp. contains dirt (dark core in the middle) and must be changed.

Change of Oil:

In case of one-shift operation hydraulic oil has to be renewed after every 2000 operational hours, i.e. practically every year. It is useless trying to improve aged or even dirty oil by re-filling new oil. Remove old oil by means of hand pump. It is recommendable to change oil immediately after the machine has been switched off, as then all particles are still moving and the bigger part of dirt content will flow out with the oil. After every oil change the suction filters in the pump must be cleaned. DO NOT RINSE WITH PETROL ! DANGER OF EXPLOSION ! DO NOT USE COTTON WASTE FOR CLEANING THE OIL CONTAINER BECAUSE FIBRES CAN STAY BEHIND AND MAY CAUSE DISTURBANCES !
The new oil is filled in the same way as the first filling.

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27.2.67

Disturbances and Remedies:

a) Machine does not get pressure:
   Pump, cylinder or pressure pipe might be leaking.
   Recognizable if oil is coming out. A plate spring can be broken one one of the pressure limitation valves.
   Pressure gauge indicates too little pressure.
   Solenoids of the directional valves (control slider) do not work properly. When pressing down the rubber caps the solenoids must be felt working.
   If this is not the case check electrical lines !

b) Heavy formation of foam can be caused by:
   air entrance by too low oil level
   air entrance through leaking pipe lines
   air entrance through damaged pump shaft packing
   and dirty suction basket in the pump.

c) Unusual noises can be due to:
insufficient oil quantity
damaged clutch halves between motor and pump
leaking pipes
defective pump wheels
damaged ball bearings in the gear.
Loose pipe clips and oil pipes which vibrate can also cause noises. Fittings are only to be tightened when motor is switched off and the plant is disengaged.

If the hydraulic system is not working with full capacity and possibly the head descends through its own weight this may be due to:

insufficient oil quantity
oil level foam
damaged packings
broken valve springs
dirty valves
damaged or broken pump parts
unsuitable oil which could be too thin or too thick or too hot.

3/3
24.2.67

In this case, please have plant only checked by experienced mechanics.

## Maintenance of the electric installation.

The electric switching elements are instruments of high sensefity and have to be regularly test to a proper function, or will be better removed if necessary. Switch contacts may not be filed.

The expected mecanic life of the individual switching elements is indicated by the supplier under normal operationg conditions as follows:

| | |
|---|---|
| felays: | 10 000 000 switchings. |
| feelers | 1 000 000 switchings |
| end switches | 10 000 000 switchings |
| Micro switches | 1 500 000 switchings. |

It is advisable to replace these instruments already befor the the indicated number of switchings has been atteined. By this way, disturbances on the electric installation may be avoided.

0.5.67

SANDT HYDRAULIK

# LUBRICATION CHART for Cutting Machines, Hydraulic and Mechanical Presses and Special Machinery

Reliability of operation and long service life of our machinery and hydraulic systems depend to a large extent on the use of suitable lubricants. In the chart below we have listed the lubricants and hydraulic oils which have proved to be most satisfactory in practical use.

| Application | Method of Lubrication Specification | ARAL | BP | Esso | Mobil | Shell | Sunoco | Texaco / DEA |
|---|---|---|---|---|---|---|---|---|
| Hydraulic machinery and hydraulic systems | Oil filled abt. 4–5 E/50° C | ARAL Oel HTX, ARAL Oel GFX, ARAL Oel TU 518 | BP ENERGOL HLP 100, BP ENERGOL HP 20 | ESSTIC 50, NUTO H 54 | MOBIL D.T.E. Oil Heavy Medium, MOBIL D.T.E. 26 | Shell Tellus Oil 29 | SUNVIS 931 or 831 WR | TEXACO Regal Oil PC R&O, DEA VISCOBIL Seramit 4 |
| High-speed spindles (anti-friction bearings) speed exceeding 6000 r.p.m. | Hand application abt. 3.1–3.7 E/20° C | ARAL Oel CMO | BP ENERGOL HP 3 | SPINESSO 34 | MOBIL VELOCITE Oil No. 6 | Shell Tellus Oil 15 | SUNVIS 807 | TEXACO Spindura Oil BB, DEA VISCOBIL Sera 1 |
| Anti-friction bearings, speed below 6000 r.p.m. as well as plain bearings and general lubrication points | Hand application abt. 4–5 E/50° C | ARAL Oel HTX, ARAL Oel CMU, ARAL Oel TU 518 | BP ENERGOL HP 20 | ESSTIC 50 | MOBIL D.T.E. Oil Heavy Medium, MOBIL D.T.E. 26 | Shell Tellus Oil 29 | SUNVIS 931 or 831 WR | TEXACO Regal Oil PC R&O, DEA VISCOBIL Seramit 4 |
| Plain bearings, highly loaded | Circulation system abt. 10–12 E/50° C | ARAL Oel CMA, ARAL Oel TU 528 | BP ENERGOL GR 200-EP | PEN-O-LED EP 2 | MOBIL Compound BB | Shell Macoma Oil 68 | SUNEP 1070 | TEXACO Meropa Lubricant 2, DEA VISCOBIL SMT 1 |
| Anti-friction bearings, grease packed | Grease packed Lithium base grease penetr. 265–295 | ARAL Fett HL 2 | BP ENERGREASE LS 2 | BEACON 2 | MOBILUX 2 | Shell Alvania Grease 2 | SUN MULTI DUTY Nr. 2 | TEXACO Marfak Multipurpose 2 DEA GLISSANDO FL 30 |
| Enclosed gears, grease packed | Grease packed Semi-fluid gear grease | ARAL Fett FD 0 | BP ENERGREASE HT 0, BP ENERGREASE A 0 | FIBRAX 370 | MOBILGREASE No. 480 | Shell Simnia Grease 0 | SUNAPLEX 990 EP | TEXACO Regal Starfak 2, DEA GLISSANDO FG 21 |
| Open gear wheels, chain wheels, chains | Hand application Adhesive lubricant | ARAL Sinit FZ 15 | BP ENERGOL GR 3000-2 | SURETT FLUID 30 | MOBILTAC A | Shell Cardium Fluid D | SUNSPRAY B-2 | TEXACO Crater 2-X Fluid, DEA VISCOBIL Trixolit 1 |

The grades mentioned above are of corresponding quality. The order of listing does not imply any superiority of one grade over the other. Lubricants listed are obtainable from the above Petroleum Companies throughout the world whose Technical Services are always available to give advice on lubrication matters free of charge and without obligation.

Electrical Functioning for 562 according to diagram Sb o41.o4.oo

The machine is switched on by 3-pole-main switch 1a1 indicated by control light 2 h 1.
By operating button 2 b 2 (main switch on) the main motor can be put into operation after a short starting time (star-delta-combination). When it switches over from star to delta the control is freed. When the key switch ( 2b25) is pressed this is indicated by control light 2 h 2.

## Setting

When the selector switch is brought to position "setting" the machine can be operated manually.

## Height Adjustment of Column

When key switch 2 b 15 is opened the column can be moved upwards by button 2 b 16 and by button 2 b 17 continuously downwards. The adjusting areas are limited upwards by end-position switch 3 b 2o8 and downwards by 3 b 2o9.

## Carriage feed-in

The starting position of carriage is pre-selected by adjustment switch 2 a 4

I = 6oo mm end-position switch 3 b 2o4 for stop
end position switch 3 b 2o6 switching over to gear-slow movement

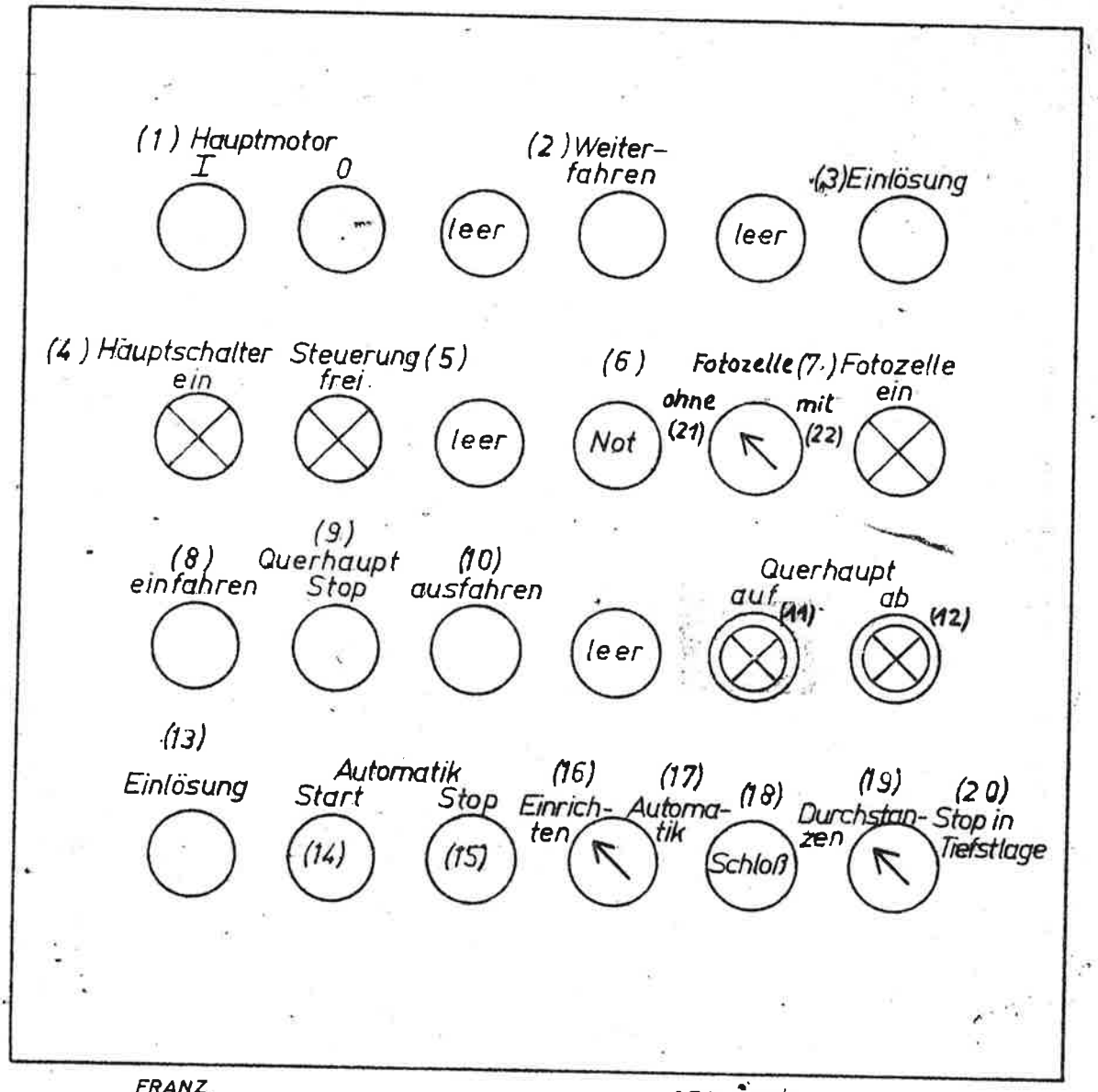
II = 45o mm = end-position switch 3 b 212 switching over to gear-slow movement

III = 3oo mm = end-position switch 3 b 211 for stop
end-position switch 3 b 213 switching over to gear slow movement.

Maschinenfabrik Pirmasens

# Beschriftungsschablone

BS 284




ENGL.

1. MAIN MOTOR
2. MOVE ON
3. RELEASE
4. MAIN SWITCH ON
5. CONTROL FREE
6. EMERGENCY
7. PHOTO CELL ON
8. GOING IN
9. HEAD STOP
10. GOING OUT
11. HEAD DOWN
12. HEAD UP
13. RELEASE
14. AUTOMATIC START
15. AUTOMATIC STOP
16. SETTING
17. AUTOMATIC
18.
19. CUTTING THROUGH
20. STOP IN DEPTH OF PENETRATION
21. WITHOUT
22. WITH

FRANZ.

1. moteur principal
2. continuer
3. declenchement
4. interrupteur principal enclenché
5. commande libre
6. secours
7. cellule photoelectrique prête
8. avance
9. traverse arrêt
10. recul
11. traverse en haut
12. traverse en bas
13. declechement
14. automatique départ
15. " arrêt
16. réglage
17. automatique
18.
19. decoupé
20. arrêt a la position la plus basse
21. sans
22. avec

spanisch

1) motor principal
2) continuar
3) disparo
4) interruptor principal conectado
5) mando libre
6) socorro
7) cellula photoelectrica preparada para
8) entrar
9) traversa
10) ahás
11) travesaño subir
12) travesaño bajar
13) disparo
14) automatica start
15) parada de la automática
16) instalar
17) automática
18) cerradura
19) troquelar a través
20) parada en la posicion más baja

Ausgabe 11.12.68 Name J. Glaser

Is the carriage in pre-selected starting position the two-end position switches are operated. When button 2 b 7 (feed-in) is operated the magnet 2 s 3 pulls via d 5, so that the carriage feeds forward overrunning end-position switch 3 b 2o7. Through this d 11 pulls so that the speed is reduced by magnet 2 s 5 and is completely switched off when end-position switch 3 b 2o5 is touched. Only in this position a cutting stroke can take place.

Cutting:

When buttons 2 b 3, 2 b 4 (release) are released at the same time the cutting stroke is carried out by air-relay d 2. d 2 is operating downwards magnet 2 s 1. Carriage is moved downwards as long as the two buttons 2 b 3 and 2 b 4 are pressed, resp. touch the end-position switches 2 b 2oo and 2 b 214. Through this d 4 is energized and the automatic holding is interrupted. Downwards magnet 2 s 1 is without circuit and downwards magnet 2 s 2 pulls and the carriage moves upwards. If one or both release buttons are freed the magnets 2 s 1 switches over to 2 s 2, 2 s 2 pulls until end-position switch 2 b 2o1 (d3) is pressed. Through this d 3 is de-energized and interrupts the upwards movement.

Safety switch 2 b 2o2 is serving as a protection against overrunning of stroke adjustment switch 2 v 2o1. A new release can only be carried out when both release buttons are cleared and the carriage is in stroke end-position.

Stop in end-position

Is the selector button 2 b 5 in "Stop in lowest end-position" the upwards magnet 2 s 2 does not pull. The carriage remains in end-position. Is, hoever, one of the two release buttons freed during the downwards movement then, even if 2 b 5 (stop in lowest end-position) is pressed an immediate switching over of magnets takes place and the carriage moves upwards.

Is the carriage in highest stroke end-position (stroke adjustment switch 2 b 2o1 is operated) then magnet 2 s 4 pulls via d 6 when button 2 b 8 is operated (feed-off) so that the feed-off movement is started. Depending on the pre-selection magnet 2 s 5 is energized by d 11 when the end-position switches 3 b 213, 3 b 212, 3 b 2o6 is overrun so that the speed is reduced. In gear slow motion the feed-off motion is stopped when the pre-selected end-position switches 3 b 211/ 3 b 21o/ 3 b 2o4 are touched.

Automatic

The selector button 2 a 3 is in position "Automatic". This is put in operation by a short interruption of the light barrier.

By operating push-button 2 b 1o (automatic-start) auxilliary relay d 7 is energized. D 7 is in automatic holding position by push-button 2 b 9 (automatic-stop).

After a new interruption of the light barrier the order for feeding-off is given. From the starting position (pre-selected end-position switch pressed) the carriage moves into cutting position, overrunning the end-position switch 3 b 2o7. This switches the magnet 2 s 5 by d 11 effecting a braking of feed-in motion, 3 b 2o5 (carriage feed-in) is pressed. Is 3 b 2o5 touched a cutting stroke is introduced by auxilliary relay d 1 (d 2). D 2 energizes 2 s 1. The carriage moves downwards until end-position switches 2 b 2oo and 2 b 2o1 are touched. These energize d 4 which is interrupting the automatic holding of d 2. Downwards magnet 2 s 1 is without current and upwards magnet 2 s 2 is energized. The carriage moves upwards. After releasing end-position switch 2 b 2o3 (freeing of transport) d 8 is energized and energizes 2 s 4 (feed-off). 2 s 4 causes a feed-off of carriage even during the upwards motion. The upwards motion is limited by end-position switch 2 b 2o1 (stroke adjustment) so that d 3 is de-energized and interrupts the upwards motion. End-position switch 2 b 2o2 serves as safety switch for the upwards motion. When feed-ing-off the carriage overruns one of the pre-selected end-position switches 3 b 2o6/

3 b 212/3b213 (throttle) so that d 11 is energized and magnet 2 s 5 (throttle) is energized. By the throttle the feed-off movement is slowly braked. When one of the pre-selected end-position switches 3 b 2o4/3 b 21o/ 3 b 211 (carriage fed-off) is reached 2 s 4 is interrupted and feed-off motion switched off. The carriage is in starting position. Is the light barrier 2 u 1 interrupted during the feed-in or cutting motion then a switching-over takes place and the carriage moves in starting position.

By operating the emergency button 2 b 12 all movements of carriage are interrupted. During the cutting stroke an immediate switching-over into the upwards movement takes place. The carriage remains in stroke end-position.

Only when button 2 b 11 (continue) is pressed the carriage is fed off in starting position.

Principally no cutting or feed-in motion of carriage can take place when the light barrier is interrupted.

Automatic working cycle without photo-electric control (2 b 19)

Is the carriage in starting position then it moves into cutting position when the two release buttons are pressed at the same time, carried out the cutting stroke, and returns to starting position.

Is one of the two buttons released before the magnets switch over immediately and the carriage returns to starting position.

Only when both buttons have been freed a new release can be carried out.

| 562 | SB.Nr. | 041 | 04 | 043 | 03 | 4 | 4 |
|---|---|---|---|---|---|---|---|

| Kurzbez. nach DIN | Anzahl Stck. | Typ Bestellreife - Angaben | Verwendung | Fabrikat | Strom-pfad | Ein-bau-ort 1) | Ver-schleiß-teil |
|---|---|---|---|---|---|---|---|
| 1a1 | 1 | shut-off switch NT 125 e | main switch | ET | | S | |
| a2 | 1 | motor safety switch Mbs 6 1,6 - 2,5 amp. | column adjust-ment | AEG | 5 | S | |
| c1 c2 c3 | 1 | star-delta-relay SDSLe 315 | main motor | Fanal | 19 2o | S | |
| e1 | 3 | safety elements 25A melting plugs inertia | main motor | 1 | S | | |
| e2 | 2 | safety elements 25A melting plugs 6 a quick | control | | 15 | S | |
| e 3 | 1 | thermal overload release K 15 8 - 16 amp. | main motor | Fanal | 1 | S | |
| 2m1 | 1 | D-motor V1 x 132 M x 4 x 1ooo | main motor | standard motor | 1 | M | |
| m2 | 1 | control transformer ET 32o - 32o VA | control | Rath-geber | 15 | S | |
| 3m2 | 1 | D-gear motor Id-F/D23-4,V1 o,37 kW, 3o rpm. | column adjust-ment | Bau-müller | 5 | M | |
| 2u1 | 1 | light barrier LVU 3oo | protection against acci-dents | Sick | 85 | M | |

1) S = Schaltschrank
M = Maschine
P = Pult
G = Schaltgalgen
V = Verteiler

SANDT HYDRAULIK
Maschinenfabrik Pirmasens

Änderungen
1. 2. 3. 4. 5. 6. 7. 8. 9.

Ersatz f. Blatt-Nr.:
Ersetzt d. Blatt-Nr.:
gez.: Tag:

| 5 6 2 | | | SB.Nr. | 0 4 1 6 4 0 0 0 - 1 6 | 4 | 2 |
|---|---|---|---|---|---|---|

| Kurzbez. nach DIN | Anzahl Stck. | Typ Bestellreife - Angaben | Verwendung | Fabrikat | Strom-pfad | Ein-bau-ort 1) | Ver-schleiß-teil |
|---|---|---|---|---|---|---|---|
| 2a3 | 1 | selector switch XB2- AD 33 | setting/autom. | Telemec. | 24 | SP | |
| 3a5 | 1 | adjustment switch BKJV 2o2 | feed-length adjustment | Fanal | 77 | SP | |
| 2b1 | 1 | push-button XB2 - AA 45 | main motor off | Telemec. | 19 | SP | X |
| 2b2 | 1 | push-button XB2 - AA 25 | main motor on | Telemec. | 19 | SP | X |
| 2b3 | 1 | push-button XB 2 - AA 25 | release | Telemec. | 41 | SP | |
| 2b4 | 1 | push-button XB2 - AA 25 | release | Telemec. | 41 | SP | |
| 2b5 | 1 | selector button XB 2 - AD 25 | stop in end-position | Telemec. | 1o4 | SP | |
| 2b6 | 1 | push-button XB 2 - AA 45 | column stop | Telemec. | 34 | SP | |
| 2b7 | 1 | push-button XB 2 - AA 25 | column feed-in | Telemec. | 54 | SP | |
| 2b8 | 1 | push-button XB 2 - AA 25 | column feed-off | Telemec. | 63 | SP | |
| 2b9 | 1 | push-button XB 2 - AA 45 | automatic stop | Telemec. | 64 | SP | |
| 2b1o | 1 | push-button XB 2 - AA 25 | automatic start | Telemec. | 64 | SP | |
| 2b12 | 1 | mushroom button XB 2 - AC 45 | emergency-off | Telemec. | 87 | SP | |
| 2b13 | 1 | push-button XB 2 - AA 45 | continue | Telemec. | 92 | SP | |

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SANDT HYDRAULIK
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Änderungen
1. 2. 3. 4. 5. 6. 7. 8. 9.

Ersatz f. Blatt-Nr.:
Ersetzt d. Blatt-Nr.:
gez.: Tag:

| 5 6 2 | | | SB.Nr. | 0 4 1 | 1 9 0 0 0 0 0 0 | 4 | 3 |
|---|---|---|---|---|---|---|---|

| Kurzbez. nach DIN | Anzahl Stck. | Typ Bestellreife - Angaben | Verwendung | Fabrikat | Strom-pfad | Ein-bau-ort 1) | Ver-schleiß-teil |
|---|---|---|---|---|---|---|---|
| 2b15 | 1 | key-button XB 2 - AG 25 | column locking | Telemec. | 29a | SP | X |
| 2b16 | 1 | illuminated push-button XB 2 - AW 1345 | column lifting | Telemec. | 28 | SP | |
| 2b17 | 1 | illuminated push-button XB 2 - AW 1345 | column lowering | Telemec. | 31 | SP | |
| b4o4 | 1 | plug-in device Han 16 B gs 1 | control | Harting | | S | |
| 2b2oo | 1 | end-position switch MK 4 Br 51o with lever roll CB | end-position | Burgess | 47 | M | X |
| 2b2o1 | 1 | end-position switch P 3 | stroke adjustment | Burgess | 46 | M | |
| 2b2o2 | 1 | end-position switch 3 SE 2 1oo - o | safety switching | Siemens | 53 | M | X |
| 2b2o3 | 1 | end-position switch P 3 | release of transport | Burgess | 66 | M | |
| 3b2o4 | 1 | end-position switch 3SE 2 1oo - o | column fed-off at 6oo mm | Siemens | 68 | M | |
| 3b2o5 | 1 | end-position switch 3SE 2 1oo - o | column fed-in | Siemens | 71 | M | |
| 3b2o6 | 1 | end-position switch 3 SE 2 1oo - o | column moved out slow motion at 6oo mm | Siemens | 72 | M | |

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SANDT HYDRAULIK
Maschinenfabrik Pirmasens

Änderungen
1. 2. 3. 4. 5.
6. 7. 8. 9.

Ersatz f. Blatt-Nr.:
Ersetzt d. Blatt-Nr.:
gez.: Tag:

| 562 | | SB.Nr. | 041 | 64 | 00 | 06 | 00 | 4 | 4 |
|---|---|---|---|---|---|---|---|---|---|

| Kurzbez. nach DIN | Anzahl Stck. | Typ Bestellreife - Angaben | Verwendung | Fabrikat | Strom-pfad | Ein-bau-ort 1) | Ver-schleiß-teil |
|---|---|---|---|---|---|---|---|
| 3b207 | 1 | end-position switch 3 SE 2 1oo - o | carrige moved in slow motion | Siemens | 75 | M | |
| 3b208 | 1 | end-position switch 3 SE 1 ooo - o | column end-po-sition upwards | Siemens | 28 | M | X |
| 3b209 | 1 | end-position switch 3 SE 1 ooo - o | column end-po-sition downwards | Siemens | 31 | M | |
| 3b21o | 1 | end-position switch 3 SE 2 1oo - o | column fed-off at 45o mm | Siemens | 69 | M | |
| 3b211 | 1 | end-position switch 3 SE 2 1oo - o | column fed-off at 3oo mm | Siemens | 7o | M | |
| 3b212 | 1 | end-position switch 3 SE 2 1oo - o | carriage moved out slow motion at 45o mm | Siemens | 73 | M | |
| 3b213 | 1 | end-position switch 3 SE 2 1oo - o | carriage moved out slow motion at 3oo mm | Siemens | 74 | M | |
| 2b214 | 1 | Micro-switch MK 4 Br 51o with lever roll CB | end-position | Burgess | 47 | M | |
| b4oo | 1 | plug-in device Han 6 HSb gs 1 | main motor | Harting | | S | |
| b4o1 | 1 | plug-in device Han 24 B gs 1 | control | Harting | | S | |
| b4o2 | 1 | plug-in device Han 6 B gs 1 | for motors | Harting | | S | |
| b4o3 | 1 | plug-in device Han 24 B gs 1 | control | Harting | | S | |
| c4 | 1 | air relay LS 8.12 | carriage lif-ting | AEG | 28 | S | X |
| c5 | 1 | air relay LS 8.12 | carriage lowe-ring | AEG | 31 | S | |

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SANDT HYDRAULIK
Maschinenfabrik Pirmasens

Änderungen
1. 2. 3. 4. 5. 6. 7. 8. 9.

Ersatz f. Blatt-Nr.:
Ersetzt d. Blatt-Nr.:
gez.: Tag:

| 562 | SB.Nr. 04164000000 | 4 | 5 |
|---|---|---|---|

| Kurzbez. nach DIN | Anzahl Stck. | Typ Bestellreife - Angaben | Verwendung | Fabrikat | Strom-pfad | Ein-bau-ort 1) | Ver-schleiß-teil |
|---|---|---|---|---|---|---|---|
| d1 | 1 | auxilliary relay LS o1.44 | release | AEG | 41 | S | X |
| d2 | 1 | auxilliary relay LS o1.44 | release | AEG | 42 | S | X |
| d5 | 1 | auxilliary relay LS o.55 | stroke adjust-ment | AEG | 46 | S | |
| d4 | 1 | auxilliary relay LS o.55 | end-position | AEG | 47 | S | |
| d5 | 1 | auxilliary relay LS o.55 | carriage feed-in | AEG | 54 | S | |
| d6 | 1 | auxilliary relay LS o.55 | carriage feed-off | AEG | 63 | S | |
| d7 | 1 | auxilliary relay LS o1.44 | automatic | AEG | 64 | S | |
| d8 | 1 | auxilliary relay LS o1.44 | release of transport | AEG 66 | 66 | S | |
| d9 | 1 | auxilliary relay LS o.55 | carriage feed-off | AEG | 68 | S | |
| d1o | 1 | auxilliary relay LS o1.44 | carriage feed-in | AEG | 71 | S | |
| d11 | 1 | auxilliary relay LS o.55 | throttle | AEG | 72 | S | |
| d12 | 1 | auxilliary relay LS o.55 | contact for safety device | AEG | 79 | S | |
| d13 | 1 | auxilliary relay LS o1.44 | emergency-off | AEG | 87 | S | |
| d14 | 1 | auxilliary relay LS o1.44 | control of safety device | AEG | 88 | S | |

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SANDT HYDRAULIK
Maschinenfabrik Pirmasens

Änderungen

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| 1. | | 6. | |
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Ersatz f. Blatt-Nr.:
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gez.: Tag:

| 5 6 2 | | | SB.Nr. | C 4 1 C 4 C 0 0 0 C C C | | 7 | | 6 |
|---|---|---|---|---|---|---|---|---|

| Kurzbez. nach DIN | Anzahl Stck. | Typ Bestellreife - Angaben | Verwendung | Fabrikat | Strom-pfad | Ein-bau-ort 1) | Ver-schleiß-teil |
|---|---|---|---|---|---|---|---|
| d15 | 1 | auxilliary relay LS. o.55 | continue after emergency-off | AEG | 91 | S | |
| d16 | 1 | auxilliary relay LS o.55 | setting | AEG | 23 | S | |
| d17 | 1 | auxilliary relay LS o.55 | automatic | AEG | 26 | S | X |
| d18 | 1 | auxilliary relay LS o.55 | automatic | AEG | 27 | S | |
| d19 | 1 | auxilliary relay LS o1.44 | safety end-position upwards | AEG | 53 | S | |
| d2o | 1 | auxilliary relay LS o1.44 | control of safety device | AEG | 83 | S | |
| d21 | 1 | auxilliary relay LS o.55 | parallel relay for D 16 | AEG | 24 | S | |
| d22 | 1 | auxilliary relay LS o1.44 | fed-off to 45o mm | AEG | 77 | S | |
| d23 | 1 | auxilliary relay LS o1.44 | fed-off to 3oo mm | AEG | 78 | S | |
| 1h1 | 1 | control light XB 2 - AV 44 | main switch on | Telemec. | 17 | S | X |
| 1h2 | 1 | control light XB 2 - AV 44 | control free | Telemec. | 29 | S | |
| 1h3 | 1 | control light XB 2 - AV 44 | photo-sell on | Telemec. | 7o | S | |
| k1-k5 | 5 | condensor o,47 uF with pre-resistance 5 Ohm | spark catching on magnets | Siemens | | S | X |
| u1 | 1 | DC rectifier C8o3 3 A | magnets | AEG | 91 | S | |

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SANDT HYDRAULIK
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Änderungen
1. 2. 3. 4. 5. 6. 7. 8. 9.

Ersatz f. Blatt-Nr.:
Ersetzt d. Blatt-Nr.:
gez.: Tag:

| 562 | | | SB.Nr. | C41 | 04 | 00 | 00 | 00 | 00 | C | 7 | | 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Kurzbez. nach DIN | Anzahl Stck. | Typ Bestellreife - Angaben | Verwendung | Fabrikat | Strom-pfad | Ein-bau-ort 1) | Ver-schleiß-teil |
|---|---|---|---|---|---|---|---|
| 2s1<br>2s2 | 1 | double-actuating stroke solenoid d1 523-o9 E 1oo% ED 24 V = | control slide | Binder | 1o1 | M | |
| 2s3 | 1 | DC-soleoid GHNX o55 F 44 A o2 8o% ED 24 V = | carriage feed-in | Schultz | 1o8 | M | |
| 2s4 | 1 | DC-solenoid GHNX o55 F 44 A o2 1oo% ED 24 V = | carriage feed-off | Schultz | 111 | M | |
| 2s5 | 1 | DC-solenoid GHNX o55 F 44 A o2 1oo% ED 24 V = | throttle | Schultz | 113 | M | |
| k6 r1 | 1 | extinguisher SK 43 w 28 | for d 12 | Sick | 8o | S | |
| k7 r 2 | 1 | extinguisher SK 43 w 28 | for d 2o | Sick | 84 | S | |
| d24 | 1 | auxilliary relay LS o.82 | automatic with/ without photo-cell | AEG | 25 | S | |
| d25 | 1 | auxilliary relay LS o.73 | release auto-matic with/ without photo cell | AEG | 43 | S | |
| 2b19 | 1 | selector button XB 2 - AD 25 | automatic with/without | Telemec. | 25 | S | |

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SANDT HYDRAULIK
Maschinenfabrik Pirmasens

Änderungen

| | | | |
|---|---|---|---|
| 1. | | 6. | |
| 2. | | 7. | |
| 3. | | 8. | |
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Ersatz f. Blatt-Nr.:
Ersetzt d. Blatt-Nr.:
gez.: Tag: