



1 GENERAL

1.1 INTRODUCTION

This manual has been compiled with the greatest care by Wolfking Belam B.V. and contains instructions and directions to provide as much information as possible for the user to enable him to use the machine as efficiently and safely as possible.

1.2 RANGE OF APPLICATION

The Wolfking Belam Meat Injectors have been developed for safe, efficient and accurate injection and tenderizing of meat, with or without bone - depending on execution, e.g. pork, beef, poultry and fish.

For all other applications the machine is not suitable.

1.3 DESIGN

Design and construction have been based on:

- The requirements of the Machinery Directive 89/392/EEG, including 91/368/EEG, 93/44/EEG and 93/68/EEG published by the NNI, 1 April 1994.
- Regulations of the Draft European Standard CEN/TC153 WG2/N 42.2 Curing injection machines.

1.4 SAFETY

The buyer/owner shall ensure that the operator(s), maintenance technician(s) and cleaning personnel are trained and informed sufficiently to enable them to operate, maintain and clean the machine safely in accordance with the requirements.

The Wolfking Belam Meat Injector is equipped with several safety and protective measures and installations:

- The safety distances, which comply to Draft European Standard CEN/TC153 WG2/N 42.2 Curing injection machines.
- Protective hoods and doors to prevent direct access to moving parts.
- The protective hoods at infeed and discharge side are fitted with safety switches; these immediately switch off the machine when the hoods or doors are opened.



- The control panel is fitted with a protective cover to protect the controls against impact of a water jet.
- Machine is earth grounded to prevent electric shock hazard.

1.5 GUARANTEE

Wolfking Belam B.V. shall not be bound to guarantee obligations other than those agreed upon in writing between Wolfking Belam B.V. and the buyer.

1.6 SERVICE

For maintenance actions and ordering spare parts a complete set of drawings and parts lists can be found in the last part of this manual.

Information about ordering parts and the details needed for spare parts orders can be found in the chapter "Ordering spare parts".

1.7 OPERATION

The meat is fed to the machine manually or automatically after which the transport system conveys the meat to the place under the needle head where it is injected. After injection the meat is transported to the discharge side where it is collected for further processing.

The brine pump pumps the brine via a suction filter from the brine tank to the needle head.

An mechanical drive provides the drive for the up and down movement of the needle head.

When the needles touch meat during the down stroke of the needle head, they are lifted 7 mm (until they touch the needle closing plate) and start to inject. If the machine is equipped with an air head, a needle which strikes bone stops injecting by retraction into the air head.

At the end of the down stroke all needles stop injecting and the needle head travels up with closed needles. The stripper bar ensures that the meat remains on the fixed bed during needle retraction.

The meat is transported by a walking beam. The beam travels up through the fixed bed, lifts the meat and transports it, after which it returns to its starting position, so that the next injection stroke can begin.

Return brine flows back into the brine tank through a series of filters.



2. TECHNICAL DETAILS MI-450

2.1 ELECTRICITY

- Drive	3 kw	50Hz	220-240/380-420V	
			12 / 6.9 A	
	3.6 kw	60Hz	255-280/440-500V	
			12,1 / 7 A	
- Brine pump	4 kw	50Hz	220-240/380-420V	(supplied by phase inverter)
			14.2 / 8.2 A	
		60Hz	250-280/440-480V	
			14.2 / 8.2 A	
- Servo motor	0.09 kw	50Hz	230-400V	
			0.78-0.45 A	

2.2 DRIVE SYSTEM

- Gear box			MR V 80U02D i=13
oil			BP SG-XP 220 1.3 ltr.
- Variator			MV E 4 FC1A RS i= 1.48:7.4
oil			SHELL DONAX TA 1.35 ltr.
- Servo			WDF 171 x i= 1:56

2.3 COMPRESSED AIR

- connection	$\frac{1}{2}$ " BSP
- main pressure	6 bar (85-90 psi)
- air head (optional)	approx. 3 bar (40-42 psi)
- needle closing cylinders	approx. 6 bar (85-90 psi)
- stripper bar blocking	approx. 6 bar (85-90 psi)
- consumption, max.	approx. 20 m ³ /h free air
- oil type	Fina: Finaroc 32

2.4 BRINE PUMP

- number of pumps	1
- brine pressure, adjustable	1.5 - 4 bar (22-58 psi)
- delivery	approx. 30 m ³ /h/pump (at 4 bar (58 psi)).

2.5 NOISE LEVEL

75 dB (A)



2.6 BRINE TANK

- capacity 185 l (49 US gallons)

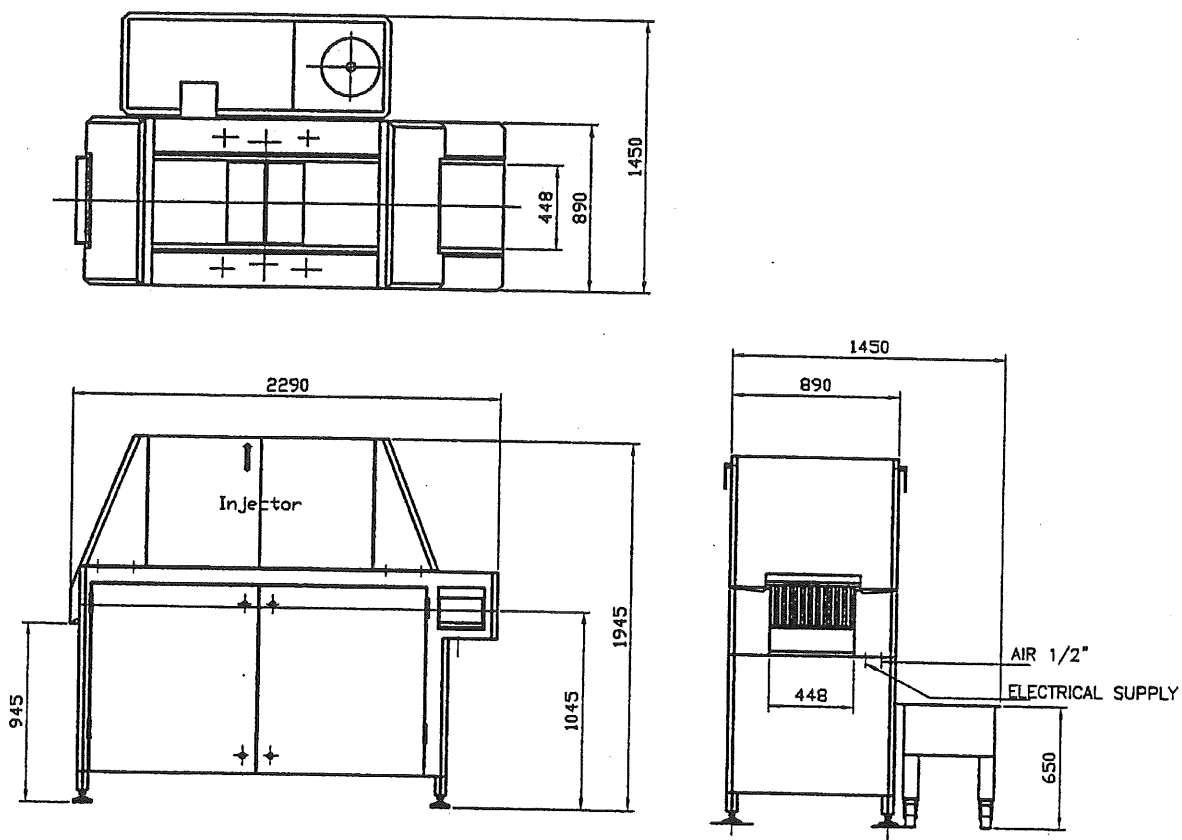
2.7 DIMENSIONS

- l x w x h complete machine 2290 x 1450 x 1945 mm

2.8 WEIGHTS

- complete machine 1150 kg
(incl. brine tank)
- machine 1040 kg
- brine tank 110 kg

2.9 DIMENSIONAL DRAWING





3 OPERATION

A green LED indicates that a function for one of the functions keys or arrow keys is available.

Start Menu

The start menu looks as follows.

WOLF KING BELAM BV MI450/650 Vxx.xx/xx.xx							
MAN		CIP				PSET	AUTO
F1	F2	F3	F4	F5	F6	F7	F8

- * F1 MAN = go to Manual mode
- * F3 CIP = start cleaning program
- * F7 PSET = go to the menu for setting parameters
- * F8 AUTO = go to Automatic mode

If a communication error between the PLC and the operating terminal occurs or if the PLC program is not active anymore, the display shows the following message:

WOLF KING BELAM BV MI450/650 Vxx.xx/01.02							
COMMUNICATION ERROR OR PLC NOT RUNNING!!							
F1	F2	F3	F4	F5	F6	F7	F8



Manual mode menu

The manual mode menu looks as follows:

MANU RPM=0 P1=0.0 ADV=37 INJ=1							
MENU STOP STRT STOP STRT							EDIT
F1	F2	F3	F4	F5	F6	F7	F8

This menu offers the following options:

- * F1 MENU : return to start menu;
- * F2 STOP : stop injector + transport, dry cycle;
- * F3 STRT : start injector + transport, dry cycle;
- * F4 STOP : stop brine pump;
- * F5 STRT : start brine pump;
- * F8 EDIT : edit actual parameters.

The parameters displayed show the values that were last used:

- "injector speed (RPM)",
- "brine pressure (P1)",
- "advance (ADV)",
- "injection mode (INJ)".

For explanation of injection modes see chapter 16.

If you press [F8] EDIT in this menu the display will show:

MANU RPM=0 P1=0.0 ADV=37 INJ=1							
STOP RPM STOP P1 ADV INJ EXIT							
F1	F2	F3	F4	F5	F6	F7	F8

In this mode the following options are available:

- * F6 ADV: to edit the advance.
- * F7 INJ: to edit the injection mode. (1..4)

An orange LED indicates the function key for these parameter. To change a parameter press the relevant function key - the LED will then blink.

Use the +/- keys to set the parameter. If you press [F8], or if no keys are pressed for 5 seconds, the program leaves the edit mode and returns to the previous menu.



Auto menu

When AUTO is selected in the start menu, the following example of a program is displayed:

```
AUTO  SELECT PROGRAM 05 +/-  INJ=1
MENU  STRT  RPM=22  P1=2.4  ADV=37
F1    F2    F3    F4    F5    F6    F7    F8
```

In this mode the following options are available:

- * F1 MENU : return to start menu;
- * F3 STRT : start automatic cycle.

Use the +/- keys to select a program number. To start the auto cycle press F3. The display then shows:

```
AUTO=05  RPM=22  P1=2.4  ADV=37
MENU STOP STRT          INJ=1  EDIT
F1    F2    F3    F4    F5    F6    F7    F8
```

The machine now uses the values of the program selected as actual parameters. During operation these parameters are shown:

- "injector speed (RPM)",
- "brine pressure (P1)",
- "advance (ADV)",
- "injection mode (INJ)".

In this mode the following options available:

- * F2 STOP : stop automatic cycle, return to Auto menu;
- * F8 EDIT : change actual parameters.

If you press [F8] in this menu the display will show:

```
AUTO=05  RPM=22  P1=2.4  ADV=37
MENU STOP  RPM          P1  ADV  INJ=1  EXIT
F1    F2    F3    F4    F5    F6    F7    F8
```



You can now change the parameters RPM and P1. An orange LED indicates the function keys for these parameters. To change a parameter press the relevant function key - the LED will then blink.

Use the +/- keys to set the parameter. If you press [F8], or if no keys are pressed for 5 seconds, the program leaves the edit mode and returns to the previous menu. The parameters that are changed are not saved in the parameter table of the program number involved.

CIP mode

If you select CIP in the start menu the following display is shown:

CIP RUNNING Automatic change of							
STOP speed to < 30 RPM RPM=35							
F1	F2	F3	F4	F5	F6	F7	F8

The automatic Cleaning cycle is started. You can stop the cycle at any time by pressing [F2]. When the normal cycle is run and the injector speed is higher than 30 rpm, the speed will first be reduced to < 30 rpm, after which the needle head stops in its top position. The display will then show the following message:

CIP RUNNING Remove fixed bed and							
STOP STRT place frame, press F3							
F1	F2	F3	F4	F5	F6	F7	F8

You can now press:

- * F2 STOP to stop the cleaning cycle and return to the start menu;
- * F3 STRT continue with the cleaning cycle after carrying out some operations.

The doors of the machine must be opened to carry out some operations. If you do this, the error message "safety doors NOT closed" is shown in the display. After closing the doors and clearing the error, the display returns to the above status. If you press [F3] the cleaning cycle continues.

The display then shows:



```
CIP          NEEDLE HEAD IS DOWN
STOP START Press F3 to start CIP
F1  F2  F3  F4  F5  F6  F7  F8
```

At this point it also possible to end the Cleaning cycle before it has finished by pressing [F2].
If you press [F3] the cleaning cycle continues.
The display then shows:

```
CIP RUNNING  TOTAL TIME LEFT=345 sec.
STOP          PRESSURE=3.0 bar
F1  F2  F3  F4  F5  F6  F7  F8
```

At this point it also possible to end the Cleaning cycle before it has finished by pressing [F2].
If the cycle is not interrupted, the following will be shown after the timer has run back:

```
CIP          CIP stopped
STOP EXIT    press F3 to EXIT
F1  F2  F3  F4  F5  F6  F7  F8
```

In this menu you can press:

- * F2 STOP : to interrupt the cleaning cycle:
- * F3 EXIT : to end the Cleaning cycle, and go to start menu.

PSET menu

The machine can work with a maximum of 21 program numbers with 10 parameters each, plus 1 program with 20 parameters. The programs are:

- * program no. 0 : parameters Cleaning cycle:
- * program no. 1 - 20 : programs injector,
- * program no. 21 : setting high and low limits.



To select a program number the following menu is shown after pressing [F7] in the start menu:

```
PSET  SELECT PROGRAM NUMBER=05 +/-PRESS
MENU  RPM=22   P1=2.2  ADV=75 INJ=  ENT
F1    F2     F3     F4     F5    F6     F7     F8
```

You can now press:

- * F1 MENU : to return to the start menu:
- * ENT EDIT : to edit parameters of the program selected.

Use the +/- keys to select a program number, then press ENT. If program number 0 has been selected, the following menu is shown:

```
PSET  SELECT PROGRAM NUMBER=05 +/-PRESS
MENU  CLEANING PROGRAM SELECTED  ENT
F1    F2     F3     F4     F5    F6     F7     F8
```

In this mode the following options are available:

- * F1 MENU : return to PSET menu
- * F8 ENT : the following menu is shown:

```
CLEANING      TCT  TPL  TPH      PRESS
PROG          450  1.6  3.8      ENT
F1    F2     F3     F4     F5    F6     F7     F8
```

In this menu you can use the arrow keys to select a parameter and then change it by using the +/- keys or the numerical keys. Press [ENT] to return to the previous menu. You can also use the arrow keys to scroll to the next set of parameters:

```
CLEANING PROG  PLO  PHI      PRESS
                1.0  6.0      ENT
F1    F2     F3     F4     F5    F6     F7     F8
```



Parameter table program 0

For the Cleaning cycle the parameters of program 0 have the following meaning:

no.	abbr.	parameter	minimum value	maximum value
1.	TCT	Total Cleaning Time	120 sec	600 sec
2	TPL	Time Pressure Low	5 sec	60 sec
3	TPH	Time Pressure High	5 sec	60 sec
4	PLO	Pressure Low	0.8 bar	4.5 bar
5	PHI	Pressure High	0.8 bar	4.5 bar

The setting range for the parameters is determined by the HIGH and LOW limits and is controlled by the PLC.

Press [ENT] to return to the program selection menu.

If you select a program number 1 to 20 incl. in that menu, the display will show:

<table border="1"> <tr> <td>PROG=08</td> <td>RPM</td> <td>ADV</td> <td>P1</td> <td>INJ</td> <td>PRESS</td> <td colspan="2"></td> </tr> <tr> <td></td> <td>45</td> <td>37</td> <td>4.6</td> <td>1</td> <td>ENT</td> <td colspan="2"></td> </tr> </table>								PROG=08	RPM	ADV	P1	INJ	PRESS				45	37	4.6	1	ENT		
PROG=08	RPM	ADV	P1	INJ	PRESS																		
	45	37	4.6	1	ENT																		
F1	F2	F3	F4	F5	F6	F7	F8																

In this menu you can use the arrow keys to select a parameter of the program selected and then change the parameter using the +/- keys or the numerical keys.

Parameter table programs 1 to 20 incl.

For the automatic cycle the parameters of programs 1 to 20 incl. have the following meaning:

no.	abbr.	parameter	range	min.value	max.value
1.	RPM	injection speed	0 - 65 rpm	18	65 rpm
2.	ADV	advance	37/75 mm	0=37 mm	1=75 mm
3.	P1	brine pressure, pump 1	0 - 6 bar	0.8	4.5 bar
4.		reserved			
5.		reserved			
6.		reserved			
7.		reserved			
8.		reserved			
9.		reserved			
10.		reserved			



The setting range for each parameter is determined by its HIGH and LOW limits.

Press [ENT] to return to the program selection menu.
If you select program number 21 in that menu, the display will show:

PSET SELECT PROGRAM NUMBER +/-PRESS							
MENU LIMIT SETTINGS SELECTED							ENT
F1	F2	F3	F4	F5	F6	F7	F8

In this mode the following options are available:

- * F1 MENU : return to PSET menu
- * F8 ENT : the following menu is shown:

LIM Hi RPM=65 ADV=75 P1=4.5 INJ=* PRES							
Lo		18	37	0.8	1	ENT	
F1	F2	F3	F4	F5	F6	F7	F8

Use the +/- keys to select the HIGH or LOW limits of the program parameters. Press [ENT] to return to the PSET menu.
Press F1 to go to start menu.



4 INSTALLATION

4.1 ON RECEIPT

- Check machine on in-transit damage. Any damage should be reported to the transporter and to your agent or Wolfking Belam B.V. immediately.
- Check accessories and spare parts against packing list.
- Remove the protective oil film on the machine with a cleaning or degreasing agent.

4.2 TRANSPORTATION

Use a sufficiently powerful fork-lift truck to lift and/or transport the machine. Put the prongs as far apart as possible, place them under the machine as far as possible and make sure they support the machine properly.

For the weight of the machine please see technical details.

4.3 POSITIONING

- Transport the machine to its place.
- Adjust the machine's height.
 - Slightly lift the machine when adjusting its height.
 - Level the machine (measure on fixed bed) by adjusting the 4 (6) feet with a spanner.
 - Lock the feet with the locknuts.
- Position the brine tank.
 - Insure that the gasket ring(s) are in the coupling connection(s).
 - Connect the level switch.
 - Adjust the height of the rotary filter drum drive (if fitted).



4.4 CHECKS

- Check whether supply voltage and frequency correspond to the data on the type plate. If not, do not connect machine and contact your agent or Wolfking Belam B.V.

4.5 CONNECTING

WARNING

THE PROCEDURE BELOW MAY ONLY BE CARRIED OUT BY SUFFICIENTLY TRAINED TECHNICAL PERSONNEL. MAKE SURE THAT THE CABLES AND HOSES CONNECTED DO NOT AFFECT PROPER AND SAFE USE OF THE MACHINE.

- Switch main switch to O (OFF). Switch located on front of switch box inside machine.
- Connect injector to power supply with approved connector. Follow local regulations.
- Connect compressed air supply. 1/2" BSP.
- Set main pressure at 6 bar. With reducing valve in machine; increase pressure slowly.



5 COMMISSIONING

WARNING

THE FOLLOWING PROCEDURES MAY ONLY BE CARRIED OUT BY SUFFICIENTLY TRAINED TECHNICIANS.

- Check the oil level in:
 - drive unit gear and variator. Refill as needed.
 - Make sure no parts or tools are left lying around in or on the machine.
 - Fill the brine tank with warm water of max. 45°C (113 F) to prevent damage to the pump seal(s).
 - Minimum filling height: the tank should be at least half-full.
 - Water temperature approx. 30°C (86 F).
 - Switch main switch to I (ON). The display will now show the following message:
" Belam MI-.50
ver. "
-

CAUTION

DO NOT PROCEED UNLESS BRINE TANK HAS BEEN FILLED WITH SUFFICIENT WATER.

- Check phase sequence In case of incorrect connection (or other power supply failure) an error message is displayed.
Change two voltage wires in plug to rectify sense of rotation.
- Start the manual cycle. (see page 3-2)
- Start pump (pumps)
- Check all movements.
- Stop the cycle.
- Pump stops automatically.



6 INJECTION SETTINGS

WARNING

FOR HEIGHT ADJUSTMENT OF THE KNIFE HEAD ONLY SPACER RING "0" AND RINGS MARKED "+" MAY BE USED. NEVER USE RINGS MARKED "-" TO PREVENT THE KNIFE TIPS FROM HITTING THE FIXED BED.

6.1 INJECTION POSITION (needle depth, see fig. 6.2)

The distance between the fixed beds and the brine outlet holes of the needles can be adjusted to the product by means of filler rings (3).

The marks on the filler rings indicate the injection position in millimeters relative to the top of the fixed beds. If the thinnest filler ring (+ 6) is used, the brine outlet hole will be 6 mm above the fixed beds. By using a thicker ring, lower injection positions are possible. If the thickest filler ring (- 4) is used, the brine outlet hole will be 4 mm in the bed.

Mounting filler rings (see fig. 6.2)

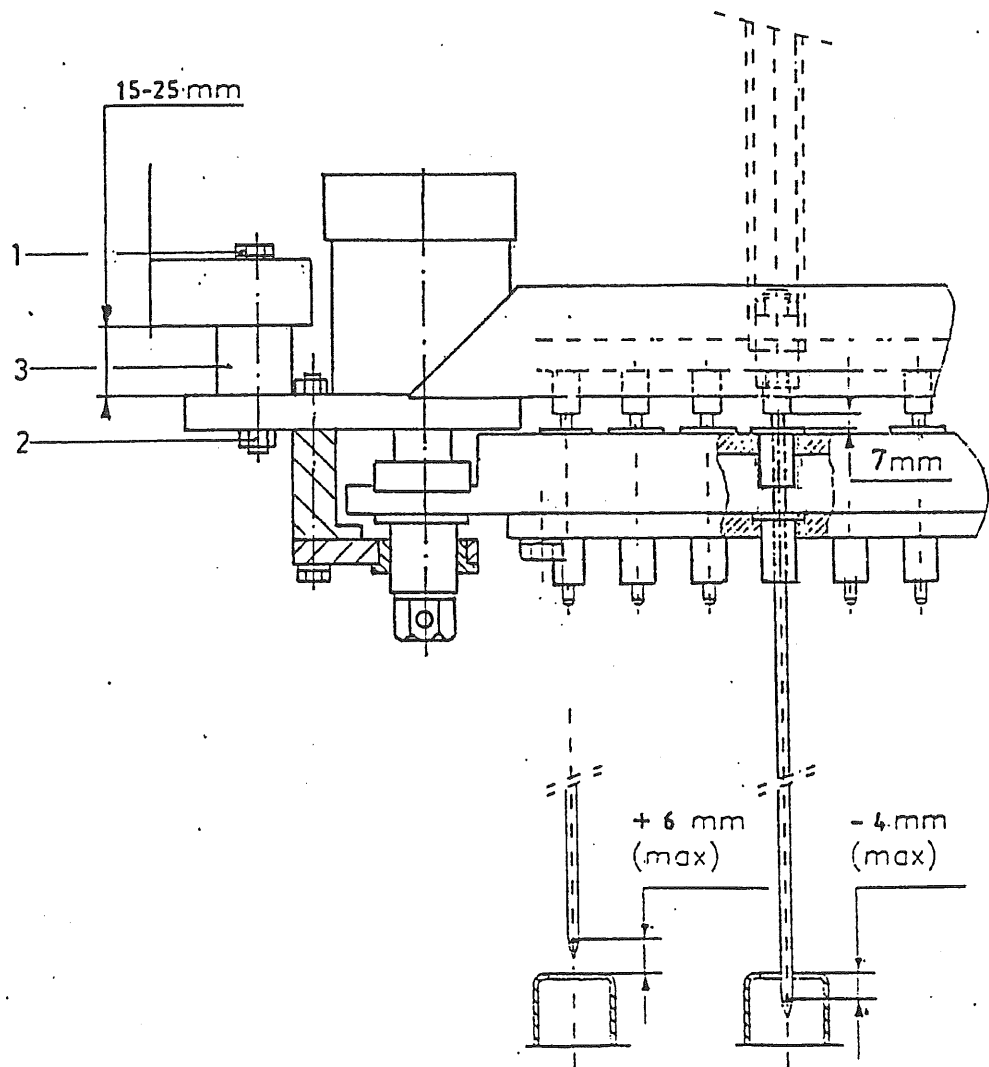
CAUTION!

THE BOLTS HAVE TO BE TIGHTENED OR LOOSENED ALTERNATELY AND UNIFORMLY.

- Loosen nuts (2).
- Loosen bolts (1)
- Remove the filler ring (3) to be replaced.
- Reposition the new filler ring.
- Fasten bolts (1).
- Tighten nuts (2).



6.2 FIGURE NEEDLE DEPTH/ADJUSTMENT





6.3 INJECTION HEIGHT

By changing to a short crank shaft (...mm), the injection stroke can be shortened. This adjustment can be used, for instance, for the injection of thin products like bellies. By shortening the stroke, production capacity will be increased. This option should be used only when the machine constantly runs with thin products.

6.4 INJECTION SPEED

Because the machine injects only during the down-stroke, the speed of the stroke is one of the factors determining the injection level:

low speed -> high injection percentage
high speed -> low injection percentage.

The injection speed can be changed in manual mode and in programs.

6.5 OTHER FACTORS

Injection speed (or: number of strokes per minute) and brine pressure are the most important factors. There is a close interplay between them. Which speed at which brine pressure gives the best results has to be determined by tests.

For good results and correct settings, however, the following factors have to be taken into account as well:

- viscosity of the brine
- brine composition (should be constant)
- brine temperature (should be constant)
- quality and composition of the meat
- meat temperature.

The optimum temperature for both meat and brine is 4 - 6 °C (39 - 43 F).



7 BRINE PUMP(S) AND BRINE PRESSURE(S)

7.1 BRINE PUMP

- The brine pump(s) is/are equipped with a mechanical seal.

THEREFORE, NEVER LET THE PUMP(S) RUN WHEN THERE IS NO WATER OR BRINE IN THE TANK. The machine will automatically stop if the brine level is too low

- The inside of the pump housing can be cleaned.

Remove the pump cover, which is located on the outside of the machine.

7.2 SETTING BRINE PRESSURE

CAUTION

PUMP SPEED/BRINE PRESSURE CAN ONLY BE ADJUSTED WHEN THE BRINE PUMP IS RUNNING!

7.3 BRINE SUPPLY AND PRESSURE DROPS

To assure optimum performance there should always be sufficient brine in the brine tank.

If the brine pressure drops too much, this may be due to one of the following causes:

- the suction filter is blocked
- insufficient brine in the brine tank
- air is being sucked in
- blockage of de-aeration hose
- the operating pressure is too high.



7.4 ASSEMBLY AND DISASSEMBLY OF PUMP PARTS

Adjusting the pump shaft

PLEASE NOTE

This has to be done only when the pump shaft or the motor is mounted or replaced. This is not needed when replacing the shaft seal.

- Place the back plate (1) against the coupling piece (2).
- Mount the impeller (3) on the pump shaft (4) without the seal.
- Grease the motor shaft with "ANTI SIZE PASTA".
- Push the pump shaft onto the motor shaft until the distance between the impeller and back plate is 4 to 5 mm.
(ONLY IF IT IS NECESSARY USE A SMALL PLASTIC HAMMER).
- Before tightening the setting screws (5), drill the holes 3 mm deep into the motor shaft to prevent axial dislocation of the shaft.

Disassembly of the pump shaft

- Remove impeller with shaft seal.
- Loosen setting screws (5).
- Slide the pump shaft from the motor shaft.
(If it is necessary heat the pump shaft a little).
(If it is necessary use a auxiliary appliance).

Mounting the impeller and seal (see drawing)

ATTENTION:

Avoid scratches and other damage to the sliding surfaces of the seal (B and C): keep away hard objects and never put the seal with the sliding surfaces face down on a workbench or table.

- Wet all rubber parts well with soapy water (5% solution washing-up liquid).

DO NOT use a lubricant (oil-based lubricants may attack some types of rubber).

- Mount the O-ring (A) on the stationary ring (B) and put this assembly in the chamber of the back plate (1).



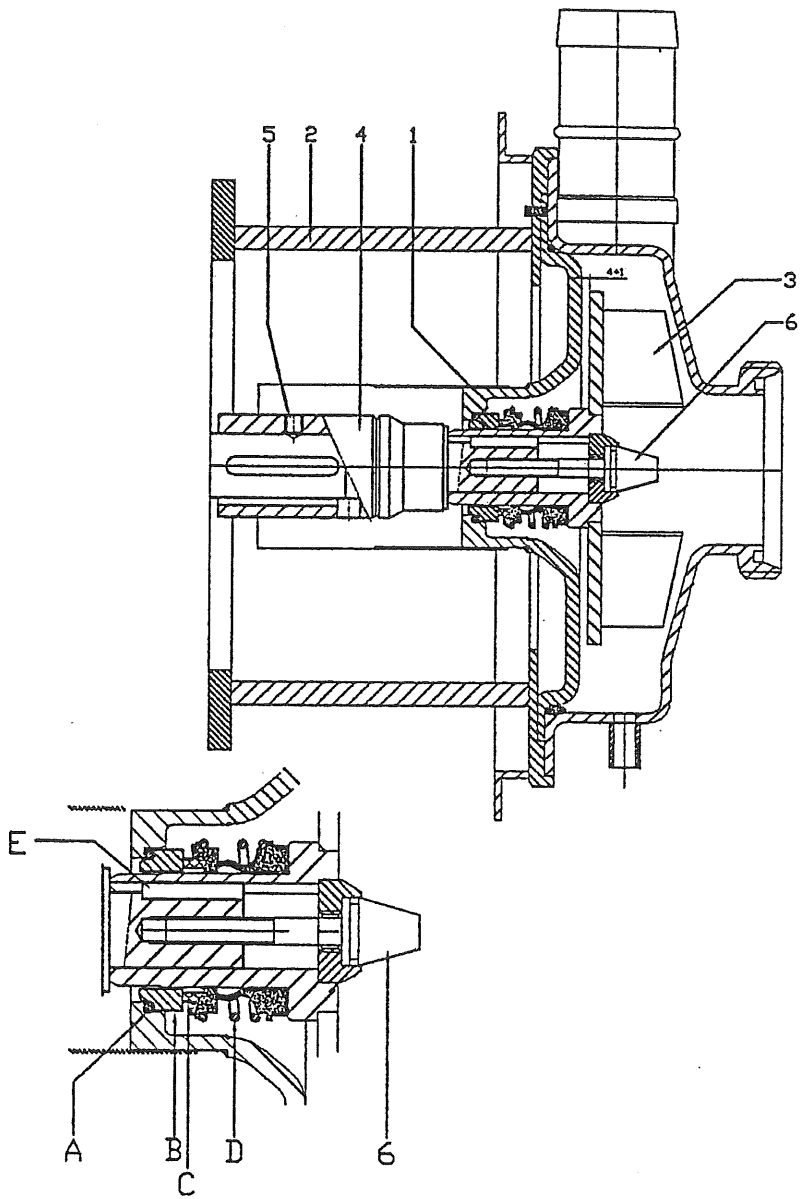
- Wet the impeller (3) well with soapy water. Then push (slightly turn while pushing) the rotating part (C and D have been pre-assembled) onto the impeller (3). Make sure this part is pushed completely against the collar of the impeller.
- Put key (E) in the keyway of the pump shaft (4).
- Push the impeller on which the rotating part has been fastened over the pump shaft with key.
- Fasten the impeller with the impeller screw (6).

Disassembly of the impeller with the seal

- Remove the impeller screw (6).
- Push the impeller from the pump shaft. If you cannot do this manually, use a M12 x 60 bolt, screw it into the impeller so that the impeller slowly slides off the pump shaft.

ATTENTION

Take care that the seal does not drop down.





8 AIR PRESSURES (see pneumatic diagram)

8.1 MAIN PRESSURE

approx. 6 bar (87 psi)

Adjust setting at air regulator unit.

8.2 NEEDLE CLOSING CYLINDERS

approx. 6 bar (87 psi)
(main pressure).

8.3 AIR HEAD (option)

1,5 - 3.2 bar (22-46 psi)
according to the product

This pressure should enable smooth injection; when needles strike bone, however, they must be pushed up against the air pressure.

Adjust pressure by means of reducing valve.

8.4 STRIPPER BAR BLOCKING

"Air" pneumatic

approx. 6 bar (87 psi)
Can be regulated from
1 bar to 6 bar,
(14,5-87 psi)

At stripper bar cylinder, so that the stripper bar can be blocked. Deblocking by air relief.



9 BRINE FILTRATION

During injection return brine flows through the brine outlet and the built-in filter bag back into the brine tank.

Injectors may feature one of the following filtration systems:

Tray sieve with 3 trays
("drawers") (coarse and/or
fine)

This system pre-filters return
brine before it flows into the
filter bag.

Rotating filter (Optional)

This continuously rotating drum
filter offers fine filtration
of return brine before it flows
into the filter bag.



10 MAINTENANCE

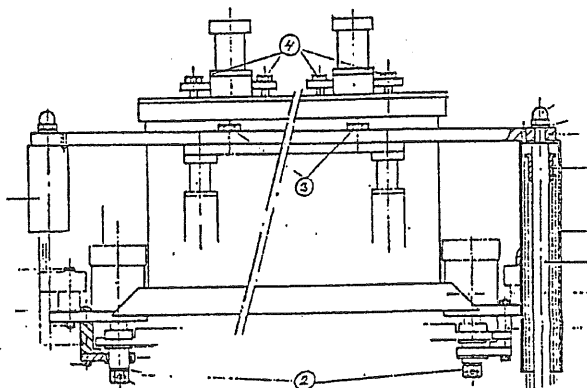
10.1 DAILY

Clean after use.
(See chapter 11.)

10.2 WEEKLY

May only be carried out by sufficiently trained personnel.

1. Removal of needles



- Remove the brine hose on the needle head.
- Loose the bolts of needle closing cylinders and the manifold (pos. 2)
- Remove the bolts on the cross bar for the stripper columns (pos.3).
- Loose and lift the bolts on top of the needle bridge (pos.4). (if this is mounted)
- Pull out the needle head.
- Remove the needles from the needle head.

2. Clean the needles:

- Clean the needles in e.g. a weak (3%) solution of citric acid in lukewarm water (approx. 35°C/95F) or a recommended diluted decalsifier.
- Wash the needles with clean hot water and blow them out by means of compressed air (use cleaning nozzle/blow pistol supplied as accessory).

3. Clean the air head, if applicable.

- Relieve the air pressure.
- Remove the airhead.
- Push the small pistons into the cylinders as far as possible.
- Clean cylinders with hot water (approx. 35°C (95 F)) and soap.
Use a pipe cleaner if they are very dirty.



- Clean the head with hot water (approx. 35°C (95 F)).
 - Dry all parts by means of compressed air.
 - Thinly spray the inside of the cylinders with food-grade oil approved for use in the meat industry.
4. Re-assemble all parts.
- Put back the needles, push them onto the needle guide seat.
 - Reposition the needle head.
- Only for machines with air head:
- Connect hose.
 - Open air supply.

CAUTION

FOR MACHINES WITH AIR HEAD: TO PREVENT DAMAGE TO THE SMALL PISTONS THE AIR PRESSURE HAS TO BE INCREASED SLOWLY

5. Check:
- Brine hoses, especially bleeding hose(s).
 - Operation of water separator of air preparation unit.
6. Check the gap between the needle collar and the top plate of the needle head at the four corners.
- This gap should always be 7 mm when the needles are pushed up against the pistons of the air head or against the needle closing plate.

This gap should be checked regularly and, in addition, after every disassembly of the needle head.

7. Check all moving parts on wear/tolerance. Replace parts as needed.



11 CLEANING AND DISINFECTION

11.1 CLEANING

The injector should be cleaned daily.

For cleaning use water of 45°C (113 F) max. to avoid protein coagulation.

Contact your local supplier for advice on suitable cleaning substances. Use only cleaning substances approved for use in the meat industry and take care to follow the safety measures for their use.

11.2 PREPARATION

- Close the hood over the control panel.
- Close the doors.
- Take the drain plug out of the brine tank.

CAUTION

DO NOT REMOVE THE ROUND SUCTION FILTER FROM THE BRINE TANK!

- Remove the filter system.
- Remove the fixed beds.
- Remove toothed bed only if there is a specific reason to do so
- it is not required for daily sanitation!

11.3 CLEANING PROCEDURE

- Clean the machine, toothed bed, fixed bed, brine tank and filter system.

CAUTION

NEVER DIRECT WATER JETS AT SEALS ETC.



12 LUBRICATION

12.1

Gearbox

First oil change after 400 operating hours after this, change the oil after every 10,000 hours.

Variator

First oil change after 400 operating hours. After this, change the oil after every 2,000 hours.

12.2 ONCE A WEEK

Check oil lubricator, refill as needed.

12.3 ONCE A MONTH

- Check oil level in variator/gear. Refill as needed.
- Lubricate the lift and transport shafts.

For oil type and quantity see 2.2

Use: Notox Graese HD1

12.4 EVERY 3 MONTH

Lubricate the uniball bearings.

Use: Esso - Nebula EP1"

12.5 EVERY 3000 HOURS

Lubricate the pillow blocks

Use: Shell "Retina A"



13 LIST OF EQUIVALENT OILS

IT IS VERY IMPORTANT THAT YOU DO NOT MIX ANY KINDS OF OILS.

Gear box	Fina	: Gyron S 220
Variator	Fina	: Finamatic II D
Pneumatic system	Esso	: Spinesso 22
	Mobil	: DTE 24
	Shell	: Tellus 32



14. ORDERING SPARE PARTS

When ordering spare parts please always state the following details:

- machine type
- serial number
- number of parts
- item number
- description.

Example

MI - 450

Machine type - MI-.../...

Serial number - ...-.... *SN 016-0055*

<u>quantity</u>	<u>item number</u>	<u>description</u>
2	M601081	seal
123	A1130	O-ring

Note

The details needed for spare parts orders can be found on the type plate of the machine and in the parts lists in the last part of this manual.

Abbreviations used in parts lists:

ASS. = assembly
MAS. = main assembly
MND. = manual drawing / figure manual text
MOD. = modifications
WAS. = welding assembly



15 FREQUENCY CONVERTER

The following parameters have been set specifically for this machine by Wolfking Belam and differ from the settings listed in the operating instructions of the frequency convertor.

Parameter	Setting
P002	003.0
P003	003.0
P006	0001
P007	0000
P009	0003
P013	056.0
P017	0001
P021	025.0
P022	058.0
P062	0006
P076	0004
P081	050.0
P082	2870
P083	011.2
P084	0400
P085	05.50
P087	0001
P0101	0001
P121	0001



16.1 DOWN AND UP INJECTION

This system is delivered as an option on the machine in such a way that it is possible to choose between:

- INJ. 1 - normal down injection and up with closed needles.
(Standard execution)
- INJ. 2 - normal down injection and positive up with open needles.
- INJ. 3 - positive down injection and up with closed needles.
- INJ. 4 - Positive down injection and positive up with open needles.

16.2 CHANGE INJECTION DOWN OR DOWN AND UP

Change is only possible if the motors are stopped.

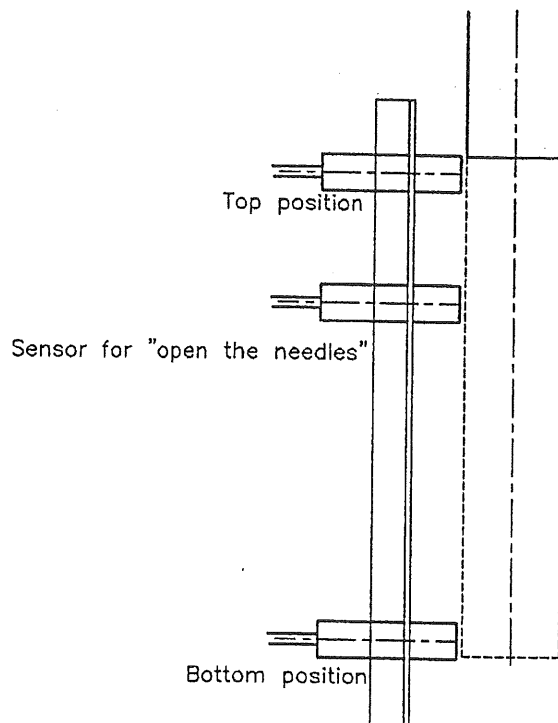
Change in Automatic programm go to PSET menu, see page 3-8.

Change in Manual go to Man. menu, see page 3-2.



16.3 STARTING INJECTION DURING DOWN STROKE

The time where the needles open and start the injection is determined by the sensor "open the Needles" (see fig.).

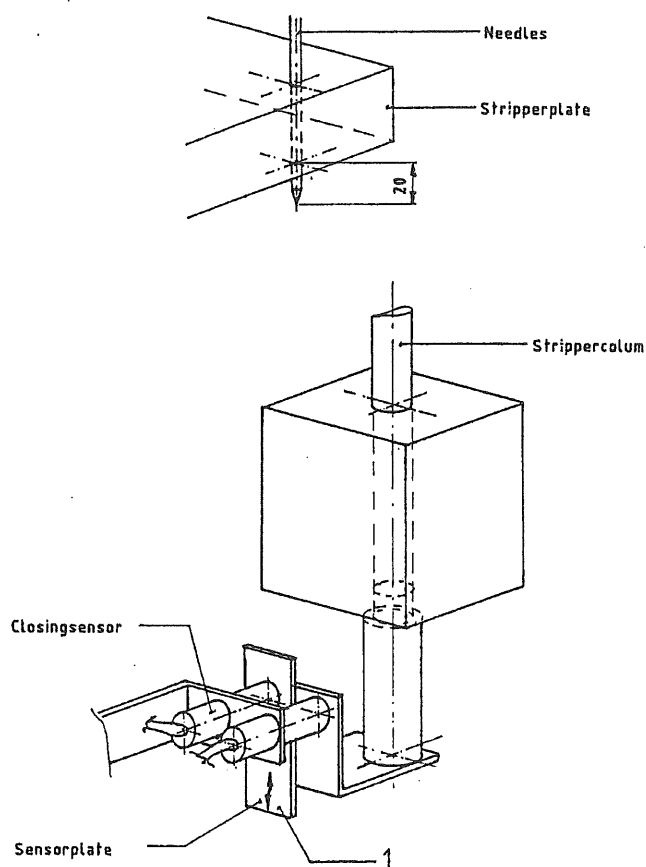


Adjustment of the above system is necessary if the meat height is altered significantly. To adjust the open time the sensor has to be adjusted down-upwards and giving an later/sooner signal to open the needles.



16.4 STOPPING INJECTION DURING UP STROKE

The time where the needles stop the injection is determined by the sensor "closing sensor" (see fig.), which is mounted in combination with a stripper plate column.



The machine will be preadjusted by Wolfking Belam at a speed of 30 stroke/min, for stopping the injection in the up stroke, when the needle tip is 20 mm below the stripper plate.

The 20 mm has been decided from a wish to protect the meat product from "blowing up" in the surface area, and to reduce the amount of return brine.

Adjustment of the above system is only necessary if the speed is altered significantly, which causes the reaction time of the pneumatic system to change, which may then require an adjustment of the closing time. The closing time can also be changed if for example less return brine is desired. To adjust the closing time for sooner/lower the sensor plate (pos.1) has to be adjusted downwards, giving an earlier signal to the closing sensor.

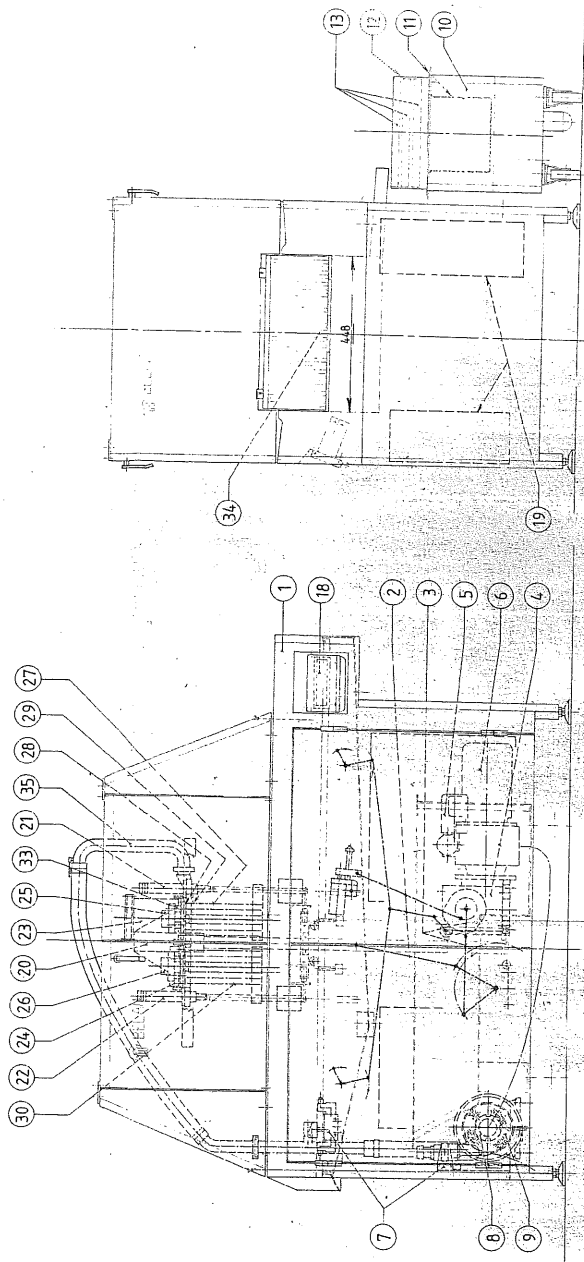
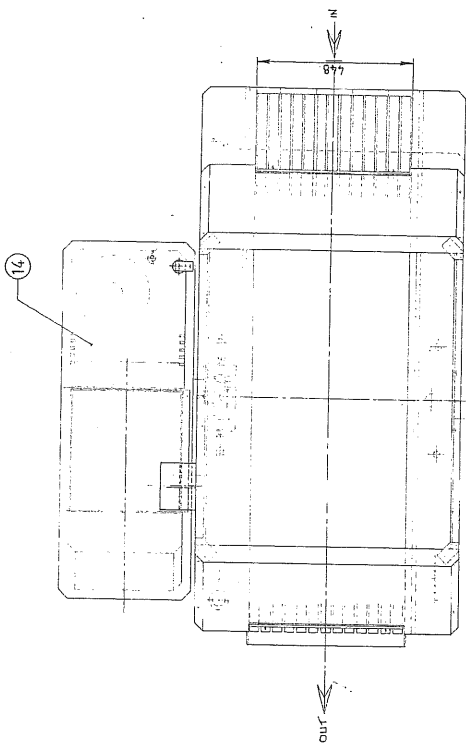
ITEMNUMBER
M623030

DESCRIPTION
MAS. MI-450

19-05-98

5MBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
	D1041	2	ST	KEY
	D1189	1	ST	SOCKET SPANNER
	D1337	1	ST	KEY
	D1346	1	ST	TOOL BOX
	D4003	1	ST	C-SPANNER
	D4005	1	ST	CLEANING NOZZLE
	E1004	500	CM	CABLE
	M619868	1	ST	ASS. WARNING DECALS
	M620254	2	ST	ASS. STRIPPER BAR SPRINGS
	M621870	2	ST	SOA. MI-450 UP/DOWN INJ.
	P1499	1	ST	PNEUMATIC DIAGRAM
MANU	M623723	1	ST	MAN. TEXT MI-.50 E AB
0001	M619576	1	ST	ASS. FRAME/ASSEMBLY COMP.
0002	M621685	1	ST	ASS. TRANSPORT/LIFT/MAIN MOV.
0003	M619884	1	ST	ASS. CHANGE PARTS
0004	T1412	1	ST	GEAR BOX
0005	E2347	1	ST	GEAR MOTOR
0006	E2325	1	ST	MOTOR
0007	M619731	1	ST	ASS. PNEUMATIC COMPONENTS
0008	M621942	1	ST	ASS. BRINE PUMP
0009	E2343	1	ST	MOTOR
0010	M622230	1	ST	ASS. BRINE TANK
0011	M619415	1	ST	ASS. ROTATING FILTER
0018	M622457	1	ST	ASS. LAUER DISPLAY
0019	E2584	1	ST	ASS. SWITCH BOX
0020	M619325	2	ST	ASS. HEAD FASTENING
0021	M621075	2	ST	ASS. NEEDLE HEAD
0023	M619080	2	ST	ASS. AIR HEAD
0025	M619320	4	ST	ASS. CYLINDER
0027	M620703	213	ST	NEEDLE
0028	M623060	210	ST	ASS. NEEDLE GUIDE
0029	M623061	210	ST	ASS. NEEDLE GUIDE
0033	M621282	4	ST	SPACER STRIP +6
0033	M621283	4	ST	SPACER STRIP 0
0033	M621284	4	ST	SPACER STRIP -4
0035	M622670	1	ST	DOUBLE INJECTION HEAD MI-650
1005	M621311	1	ST	ASS. FLOAT VALVE



MAIN ASS. MI/PE-450
 BY 22-05-95
 1.1.10
 A1
 WOLFFING ENGINEERING
 URBH - THE INVENTOR
 7/63030

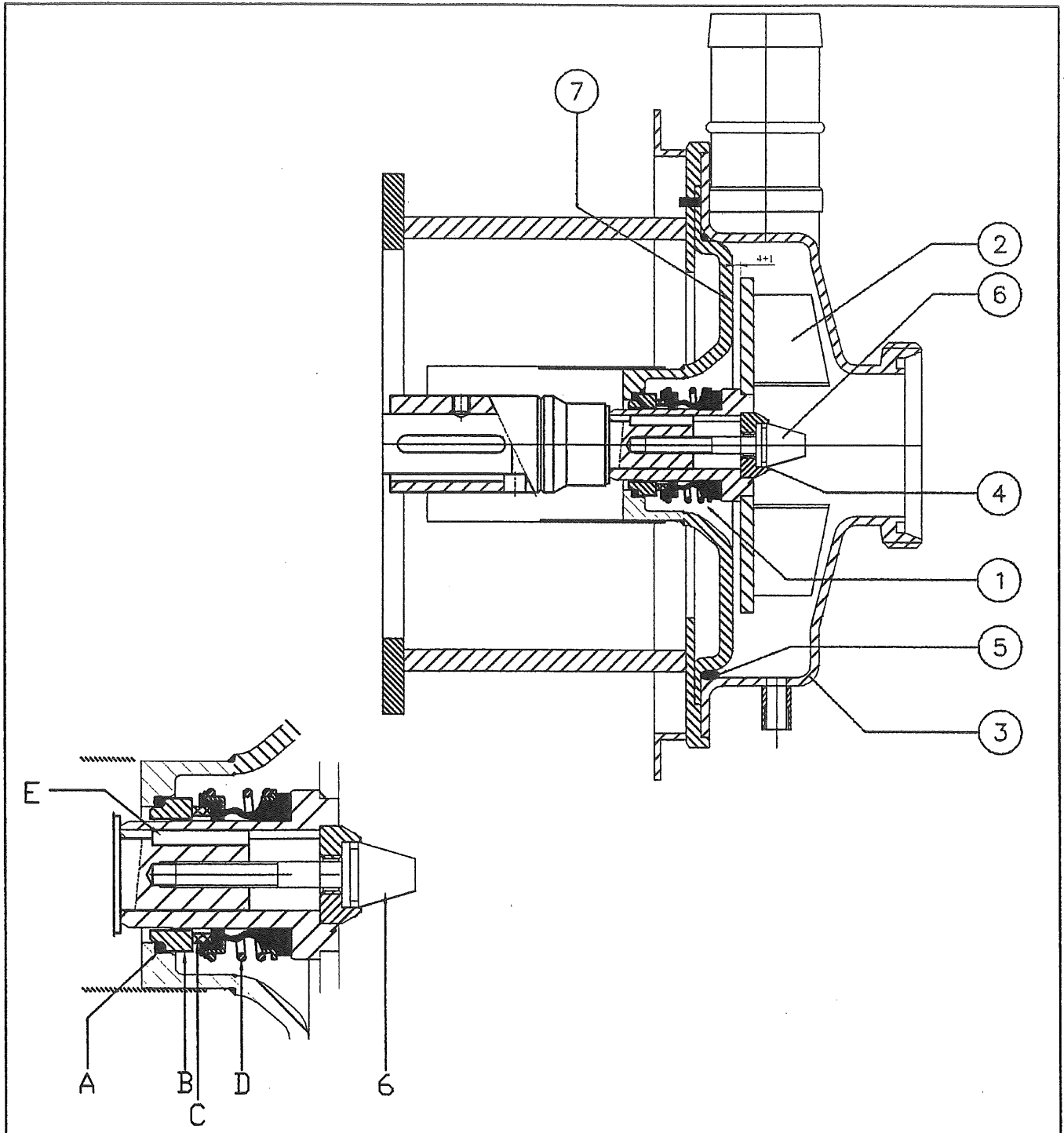
ITEMNUMBER
D1375


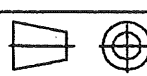
DESCRIPTION
PUMP

15-05-98

SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	D1377	1	ST	SEAL
0002	D1347	1	ST	IMPELLER
0003	D1393	1	ST	PUMP HOUSE
0004	D1348	1	ST	O-RING
0005	D1386	1	ST	O-RING
0006	D1349	1	ST	BOLT
0007	D1383	1	ST	BACK PLATE



			25=±0,5	25,0=±0,05	25,00=±0,005	Mat.
			25=±1	25,0=±0,1	25,00=±0,01	Prof.
Wijz.	Datum	Omschrijving:	25=±2	25,0=±0,2	25,00=±0,02	Art.Nr.
Benaming: Ass.Pump D1375						Afm.
						Order Nr.
 BELAM UDEN HOLLAND			Get. WV.		Tek.Nr. D1375	
			Datum 30-6-97			
			Schaal			
			A 4C			

ITEMNUMBER
E2584

DESCRIPTION
ASS. SWITCH BOX

15-05-98

SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
PLC.	E2552	1	ST	PLC CHASSIS
PLC.	E2553	1	ST	PLC POWER SUPPLY
PLC.	E2554	1	ST	PLC CPU
PLC.	E2555	1	ST	PLC ANALOG INPUT
PLC.	E2556	1	ST	PLC DIGITAL INPUT
PLC.	E2557	1	ST	PLC DIGITAL INPUT
PLC.	E2558	1	ST	PLC DIGITAL OUTPUT
PLC.	E2559	1	ST	PLC FLASH EEPROM
PLC.	E2574	2	ST	BLIND PLATE
1F0.	E2362	1	ST	SHORT-CIRCUIT CURRENT LIMITER
1F1.	E1746	1	ST	SAFETY SWITCH
1F1A.	E2305	1	ST	AUXILIARY CONTACT BLOCK
1F3.	E1969	1	ST	MOTOR SAFETY SWITCH
1F3A.	E2305	1	ST	AUXILIARY CONTACT BLOCK
1F5.	E1969	1	ST	MOTOR SAFETY SWITCH
1F5A.	E2305	1	ST	AUXILIARY CONTACT BLOCK
1F7.	E1745	1	ST	MOTOR SAFETY SWITCH
1F7A.	E2305	1	ST	AUXILIARY CONTACT BLOCK
1N7.	E2374	1	ST	FILTER
1N71	E2375	1	ST	FREQUENCY CONVERTER
1Q0.	E2410	1	ST	MAIN SWITCH
1Q0A	E2411	1	ST	HANDLE + LOCK + SHAFT
13F7	E2427	1	ST	GLASS FUSE
13F8	E2427	1	ST	GLASS FUSE
13Q1	E2404	1	ST	MAGNET SWITCH
13Q2	E2417	1	ST	MAGNET SWITCH
13Q4	E2407	1	ST	MAGNET SWITCH
14F1	E2427	1	ST	GLASS FUSE
14F2	E2427	1	ST	GLASS FUSE
14F3	E2427	1	ST	GLASS FUSE
14F4	E2427	1	ST	GLASS FUSE
14F5	E2427	1	ST	GLASS FUSE
14F6	E2427	1	ST	GLASS FUSE
14F7	E2427	1	ST	GLASS FUSE
14F8	E2427	1	ST	GLASS FUSE
2F4.	E1747	1	ST	SAFETY SWITCH
2F6.	E2353	1	ST	AUTOMATIC CUT-OUT
2F8.	E2352	1	ST	AUTOMATIC CUT-OUT
2F9.	E2353	1	ST	AUTOMATIC CUT-OUT
2N4.	E2361	1	ST	RELAY
2N6.	E2408	1	ST	TRANSFORMER
3N0.	E2369	1	ST	SAFETY RELAY

(NEXT PAGE)

ITEMNUMBER
E2584

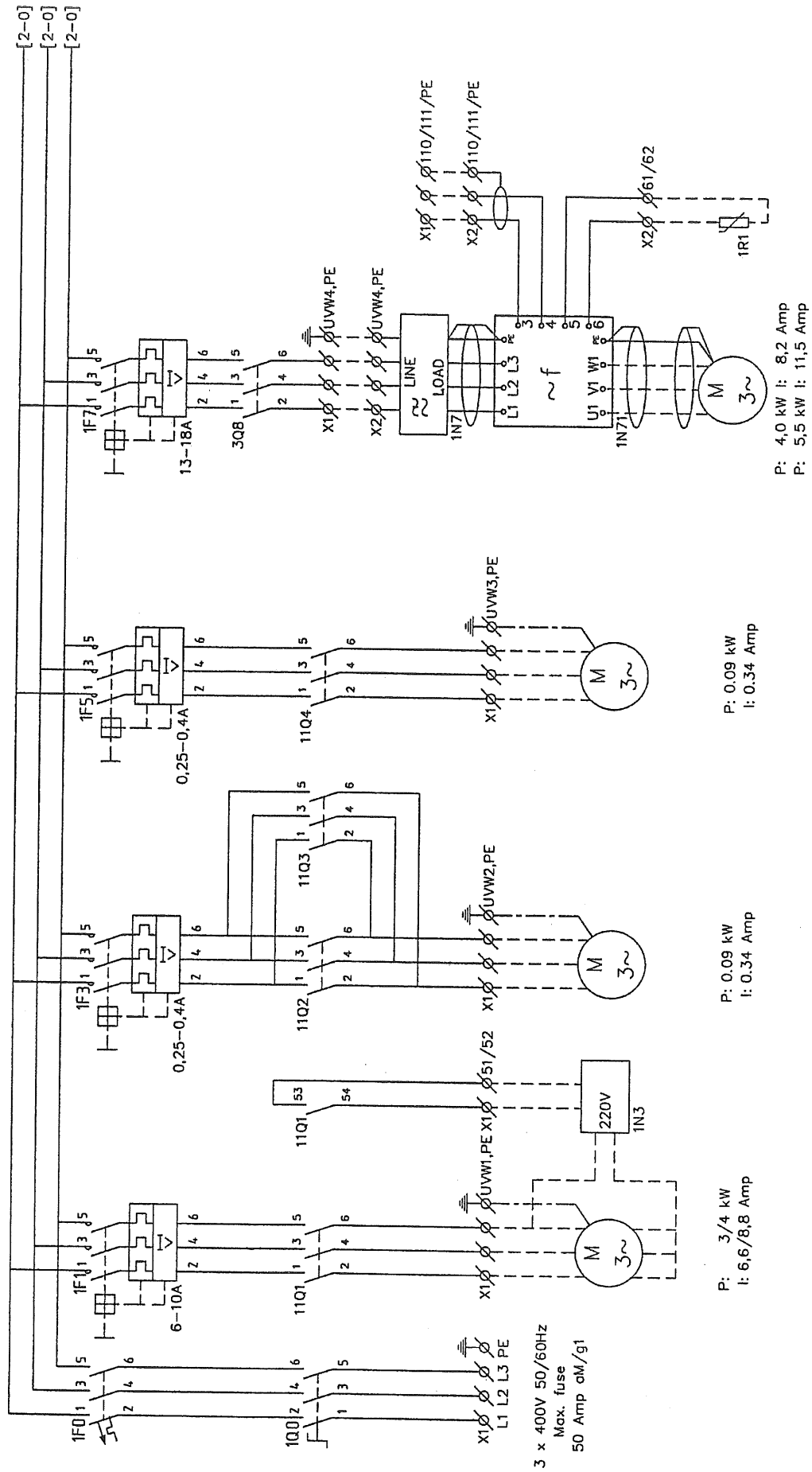
DESCRIPTION
ASS. SWITCH BOX

15-05-98

SMBA6
Page : 2

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
3Q8.	E2404	1	ST	MAGNET SWITCH
3Q8*	E2405	1	ST	ANTI-INTERFERENCE MODULE
5N4*	E2578	1	ST	SOCKET
5N41	E2560	1	ST	CONVERTER

0	1	2	3	4	5	6	7	8	9
SUPPLY	M1 MAIN MOTOR	BRAKE	M2 SERVO MOTOR POWER		M3 FILTER MOTOR POWER		M4 PUMP MOTOR		
3*400V 50/60Hz									
Max. fuse									
50 Amp aM/g1									



Description : MAIN CIRCUIT MI-450/650

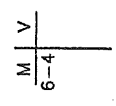
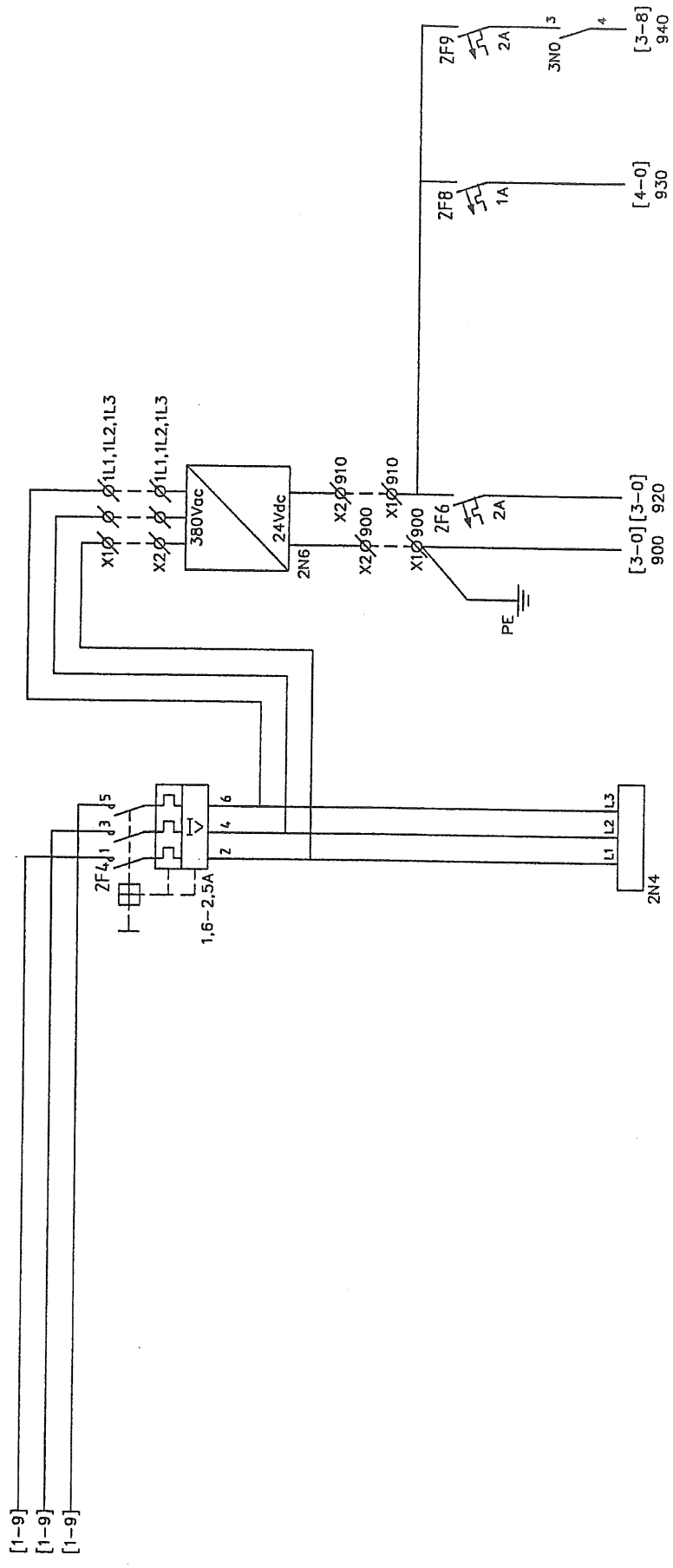


Drawn : M. Voesten
Date : 18-09-97
Order nr. :

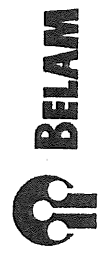
Drawing nr. : E2584
Page : 01 Next : 02

Last update :
File : E258401
Release : 18-09-97 12.04

0	1	2	3	4	5	6	7	8	9
				SUPPLY CONTROL CIRCUIT	CONTROL VOLTAGE PLC/DISPLAY 24Vdc	PLC DIGITAL INPUT 24Vdc	PLC DIGITAL OUTPUT 24Vdc		



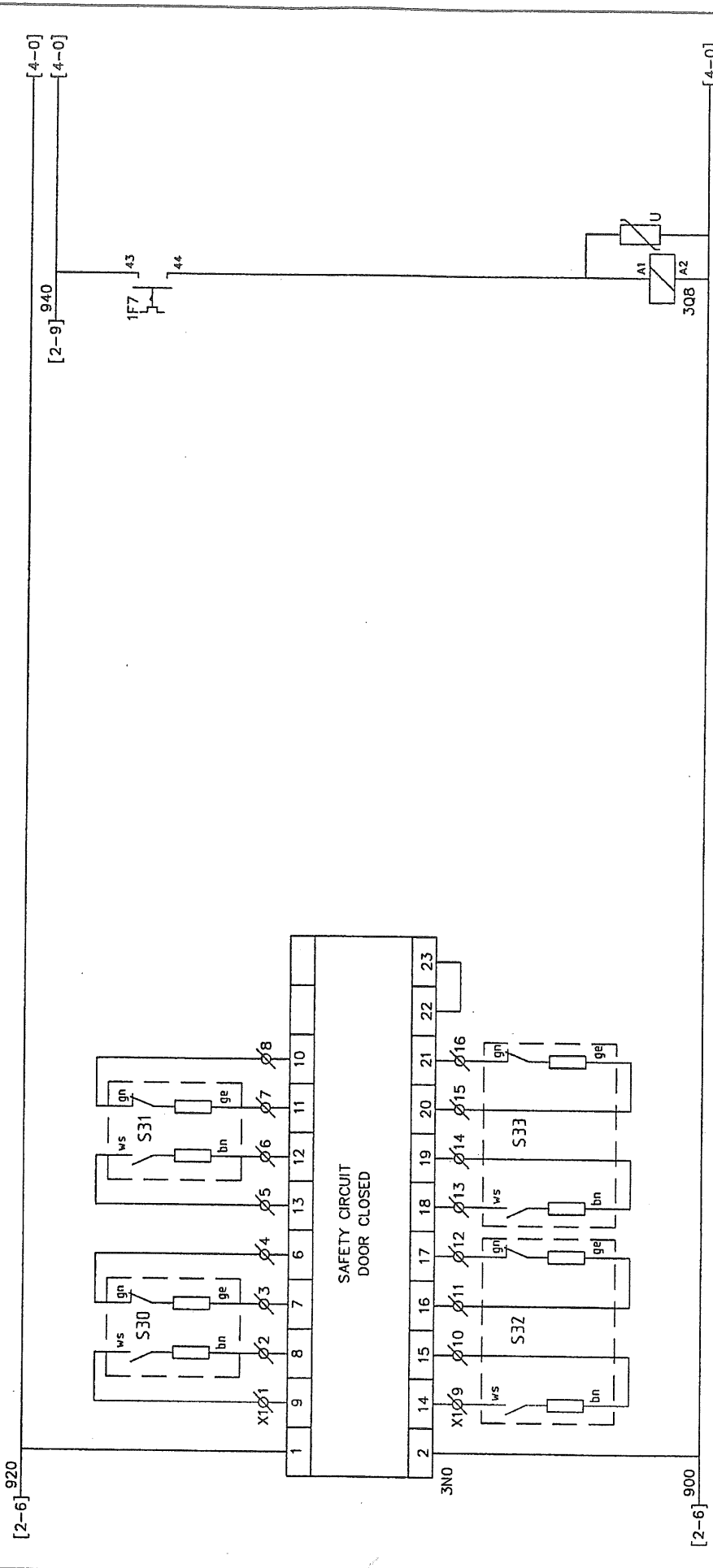
Description : MAIN CIRCUIT
 MI-450/650
 Last update :
 File : E258402
 Release : 18-09-97 11.06



Drawn : M. Voesten
 Date : 18-09-97
 Order nr. :

Drawing nr. : E2584
 Page : 02
 Next : 03

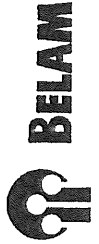
0	1	2	3	4	5	6	7	8	9
								CONTROL VOLTAGE PUMP MOTOR	



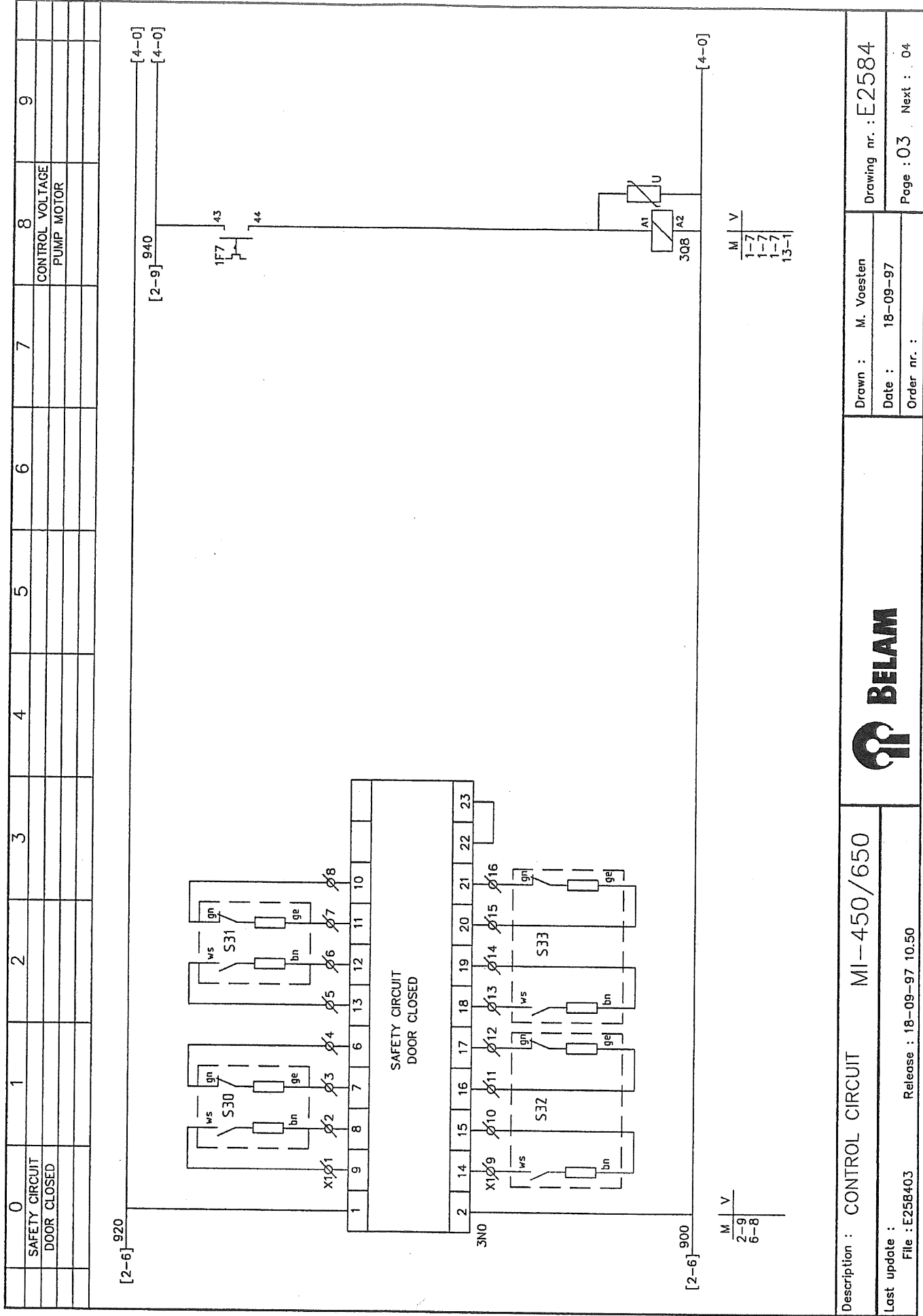
M	V
2-9	6-8

M	V
1-7	1-7
1-7	1-7
13-1	13-1

Description : CONTROL CIRCUIT MI-450/650
 Last update : File : E258403 Release : 18-09-97 10.50



Drawn : M. Voesten
 Date : 18-09-97
 Order nr. :
 Drawing nr. : E2584
 Page : 03 Next : 04



Description : CONTROL CIRCUIT MI-450/650

Last update : File : E258403 Release : 18-09-97 10.50



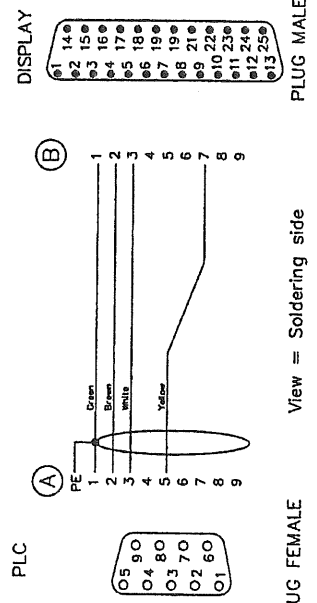
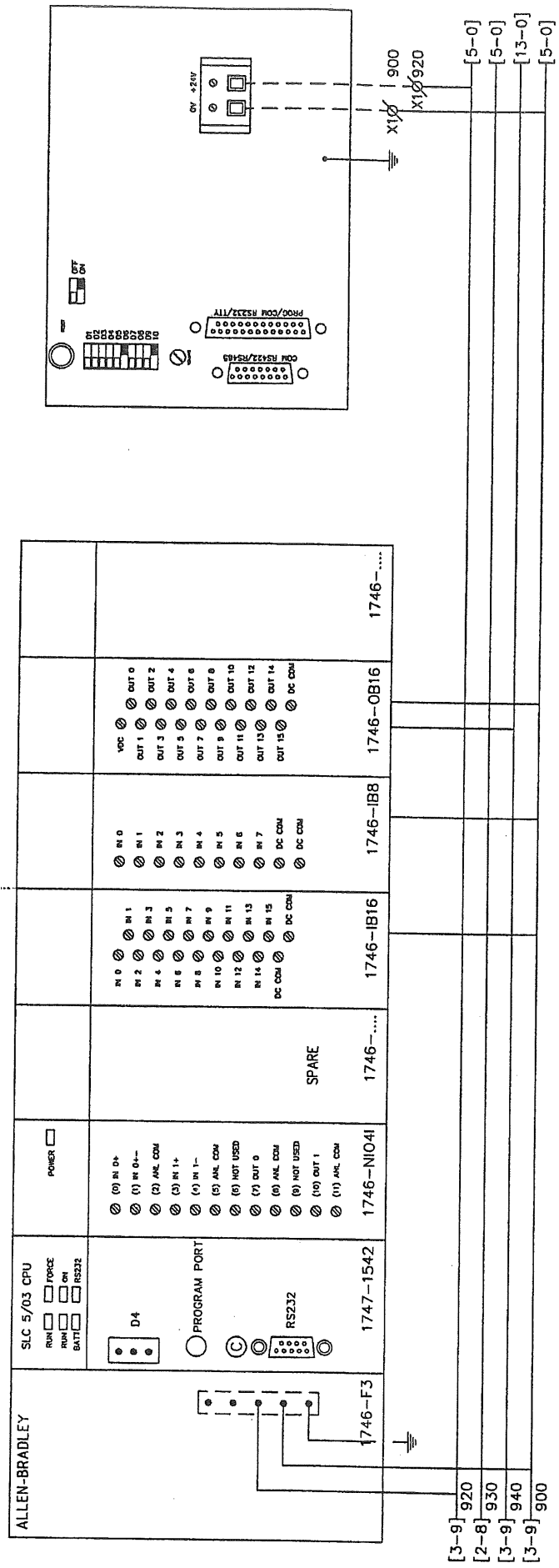
Drawn : M. Voesten
Date : 18-09-97
Order nr. :

Drawing nr. : E2584

Page : 03 Next : 04

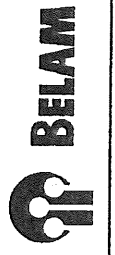
0	1	2	3	4	5	6	7	8	9
	PLC							DISPLAY	

PLC/SLOT1 BYTE 1 PLC/SLOT2 BYTE 2 PLC/SLOT3 BYTE 3 PLC/SLOT4 BYTE 4 PLC/SLOT5 BYTE 5 PLC/SLOT6 BYTE 6



PLUG FEMALE View = Soldering side PLUG MALE

Description : PLC CONFIGURATION MI-450/650



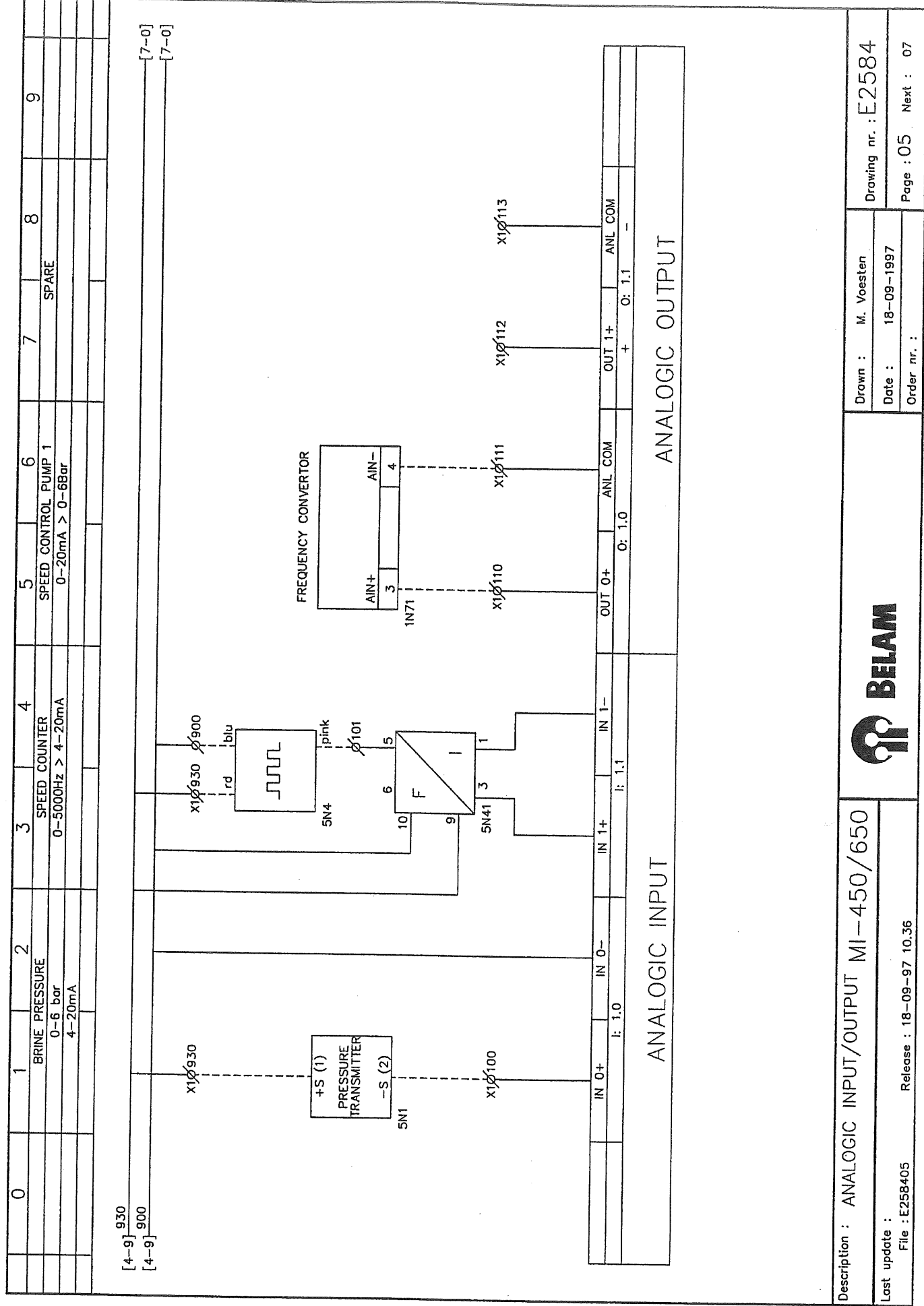
Drawn : M. Voesten Drawing nr. : E2584

Date : 03-04-1997

Order nr. :

Last update : File : E258404 Release : 18-09-97 13.46

Page : 04 Next : 05



Description : ANALOGIC INPUT/OUTPUT MI-450/650

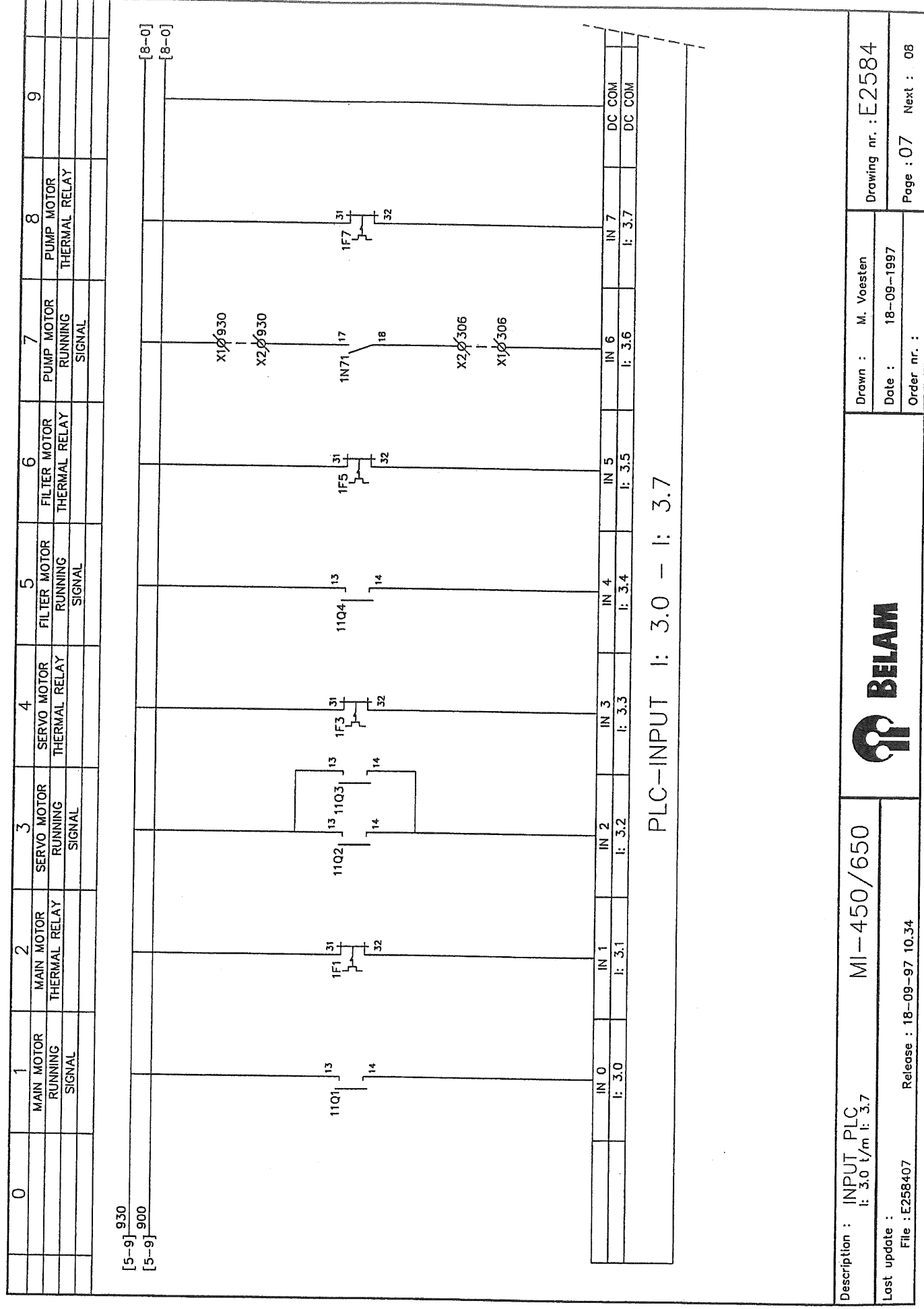
Last update :
File : E258405



Drawn : M. Voesten
Date : 18-09-1997
Order nr. :

Drawing nr. : E2584
Page : 05 Next : 07

Release : 18-09-97 10.36



Description : INPUT PLC
I: 3.0 I/m I: 3.7

Lost update :
File : E258407

MI-450/650



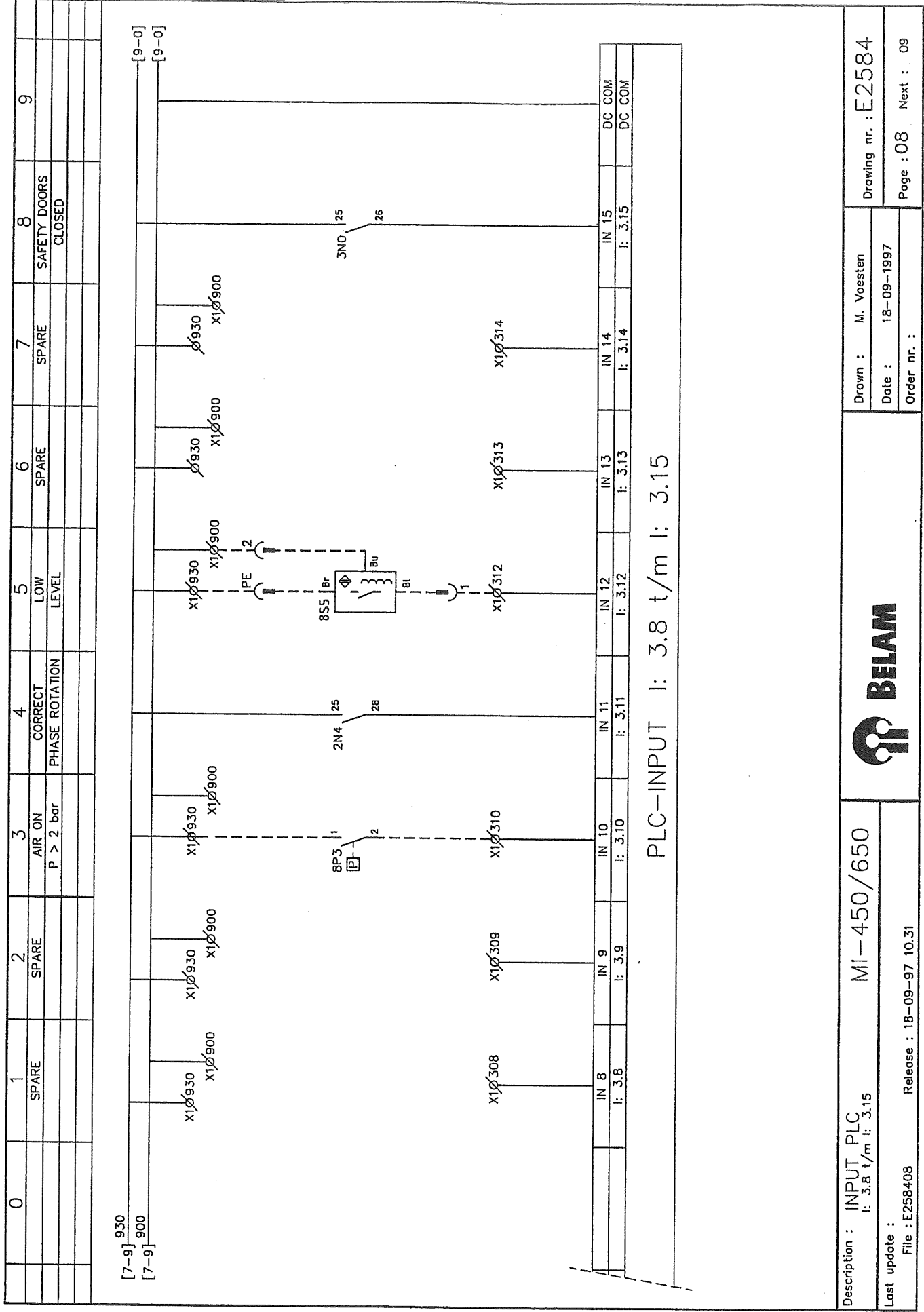
Drawn : M. Voesten

Date : 18-09-1997

Drawing nr. : E2584

Page : 07 Next : 08

Release : 18-09-97 10.34



Description : INPUT PLC
I: 3.8 t/m I: 3.15

Last update :
File : E258408 Release : 18-09-97 10.31



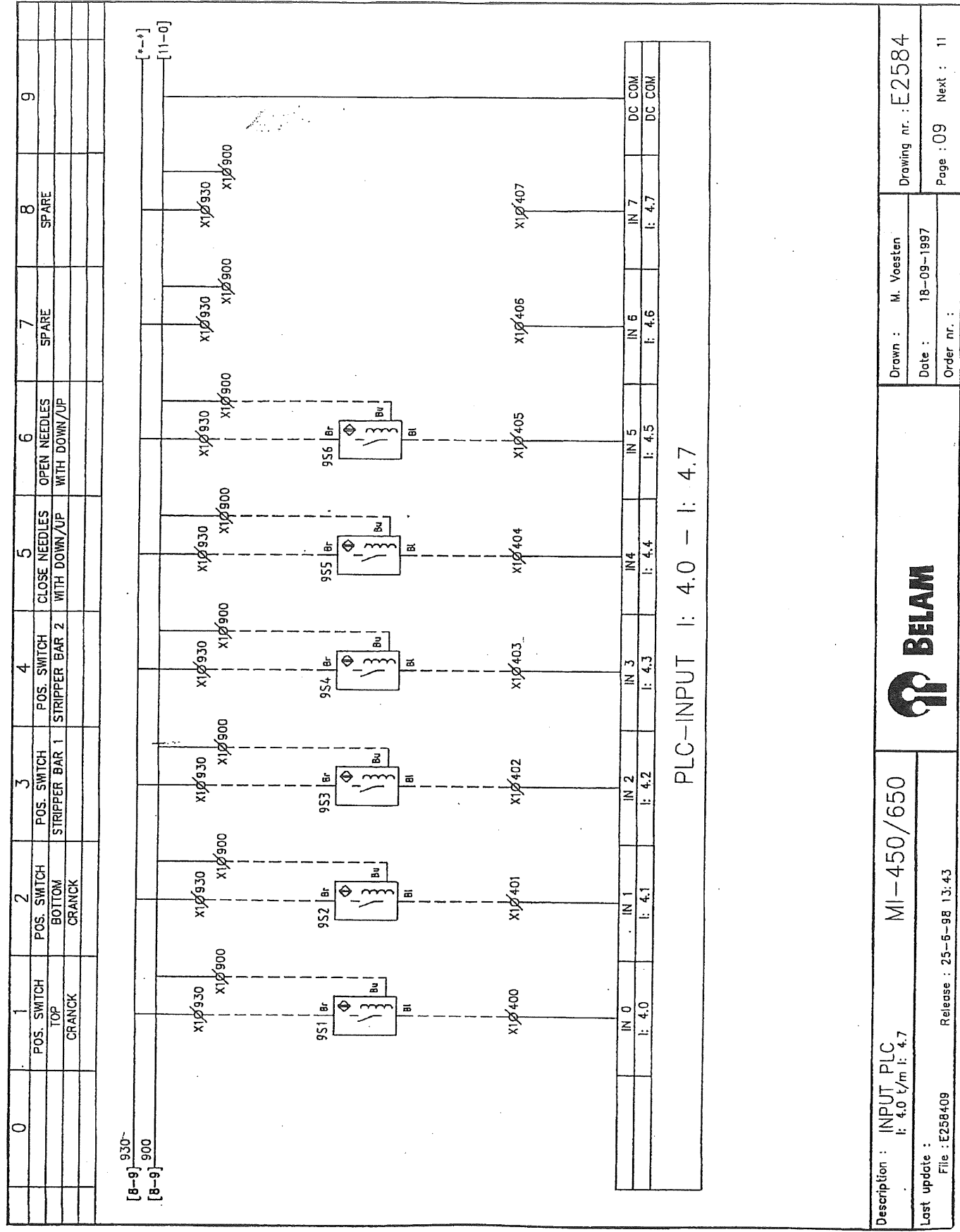
Drawn : M. Voesten

Date : 18-09-1997

Order nr. :

Drawing nr. : E2584

Page : 08 Next : 09



Description : INPUT PLC
I: 4.0 I/m I: 4.7

MI-450/650



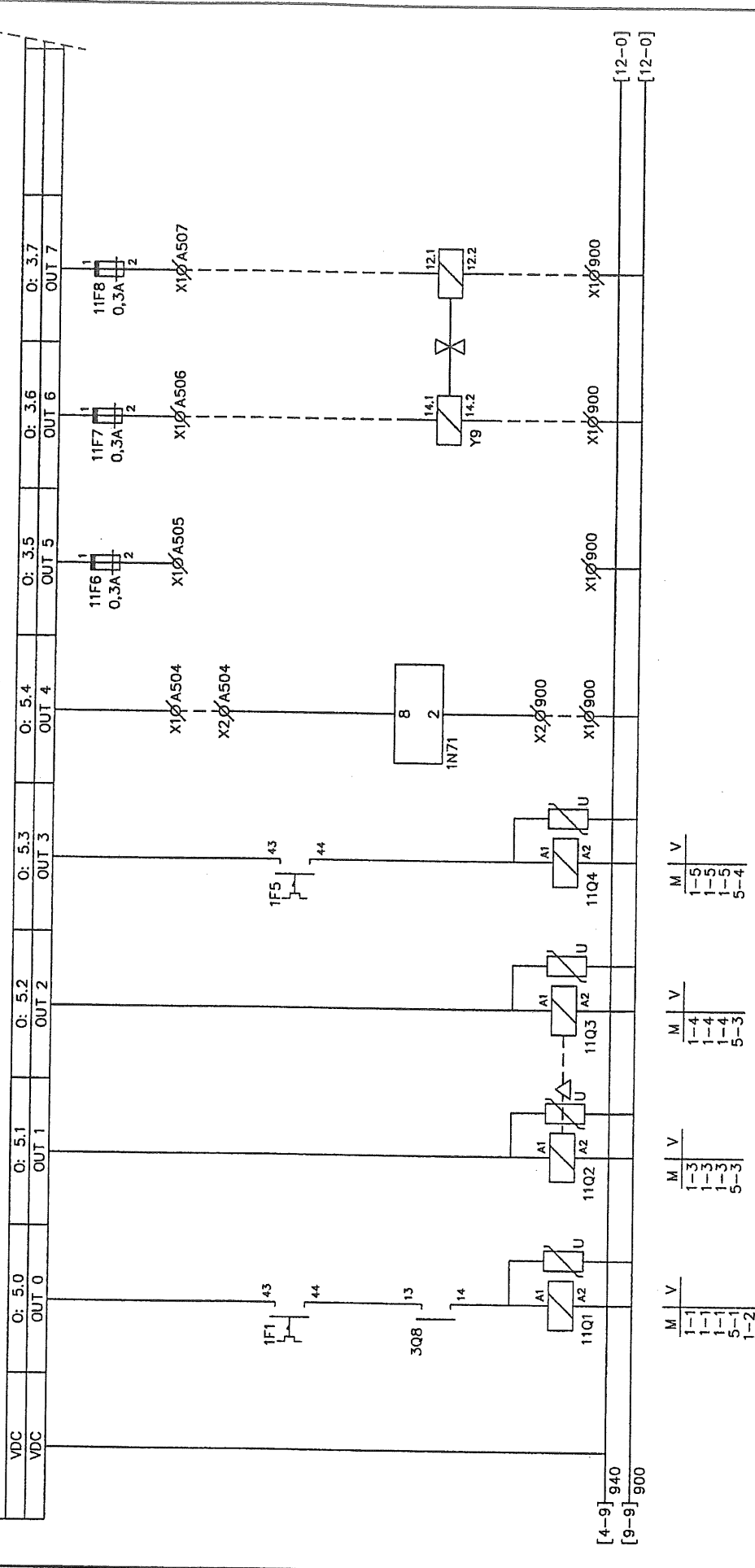
Drawn : M. Voesten
Date : 18-09-1997
Order nr. :

Drawing nr. : E2584
Page : 09 Next : 11

Lost update :
File : E256409 Release : 25-6-98 13:43

0	1	2	3	4	5	6	7	8	9
	CONTACTOR MAIN MOTOR	INCREASE SPEED RELAY	DECREASE SPEED RELAY	CONTACTOR FILTER MOTOR	START PUMP MOTOR	SPARE	STROKE 37,5mm	STROKE 75mm	

PLC-OUTPUT 0: 5.0 t/m 0: 5.7



Description : INPUT PLC
0: 5.0 t/m 0: 5.7

MI-450/650



Drawn : M. Voesten

Date : 18-09-1997

Order nr. :

Drawing nr. : E2584

Page : 11 Next : 12

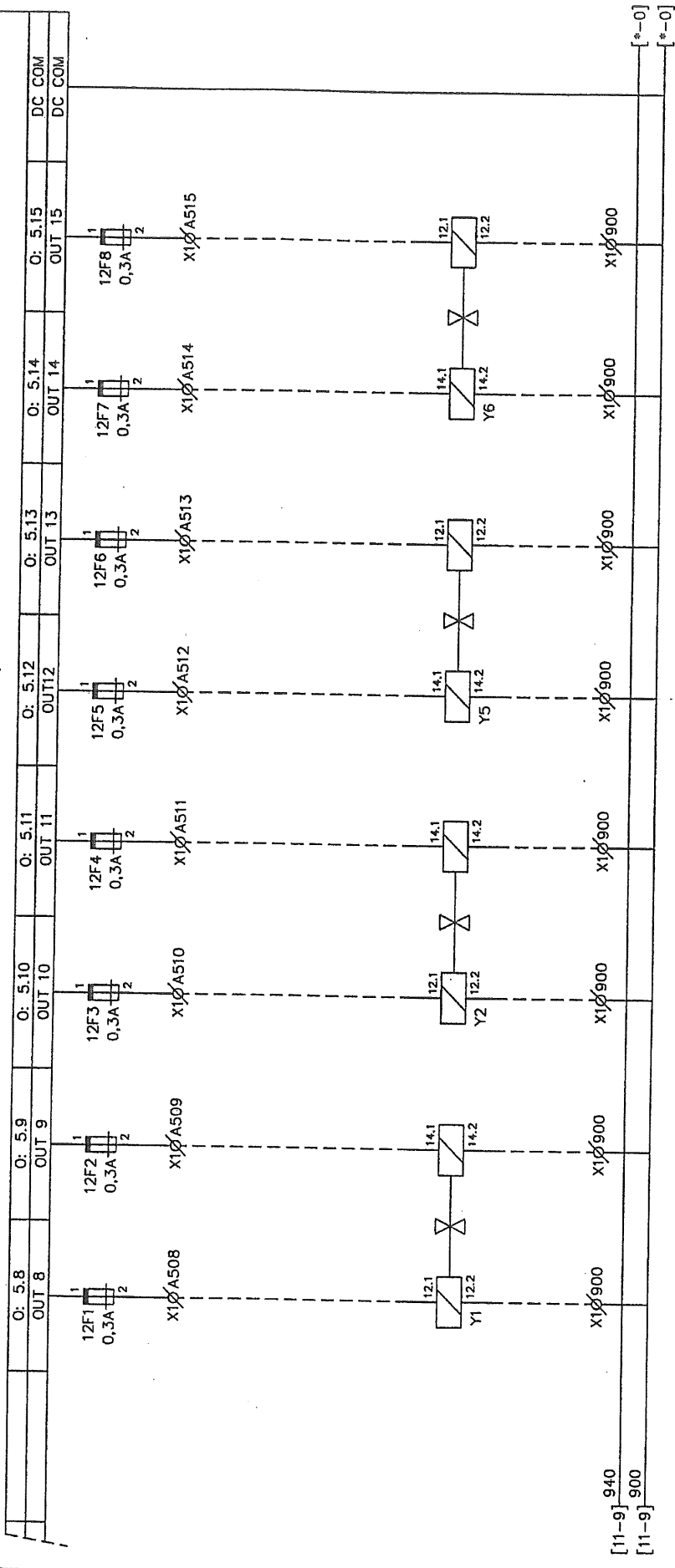
Release : 18-09-97 10.11

Last update :

File : E258411

0	1	2	3	4	5	6	7	8	9
	NEEDLE CLOSED	NEEDLE OPEN	NEEDLE UP	NEEDLE DOWN	STRIPPERBAR ON	STRIPPER BAR 1 OFF	STRIPPERBAR 2 ON	STRIPPER BAR OFF	

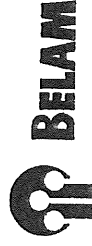
PLC-OUTPUT 0: 5.8 t/m 0: 5.15



Description : OUTPUT PLC

0: 5.8 t/m 0: 5.15

MI-450/650



Drawing nr. : E2584

Last update :

File : E258412

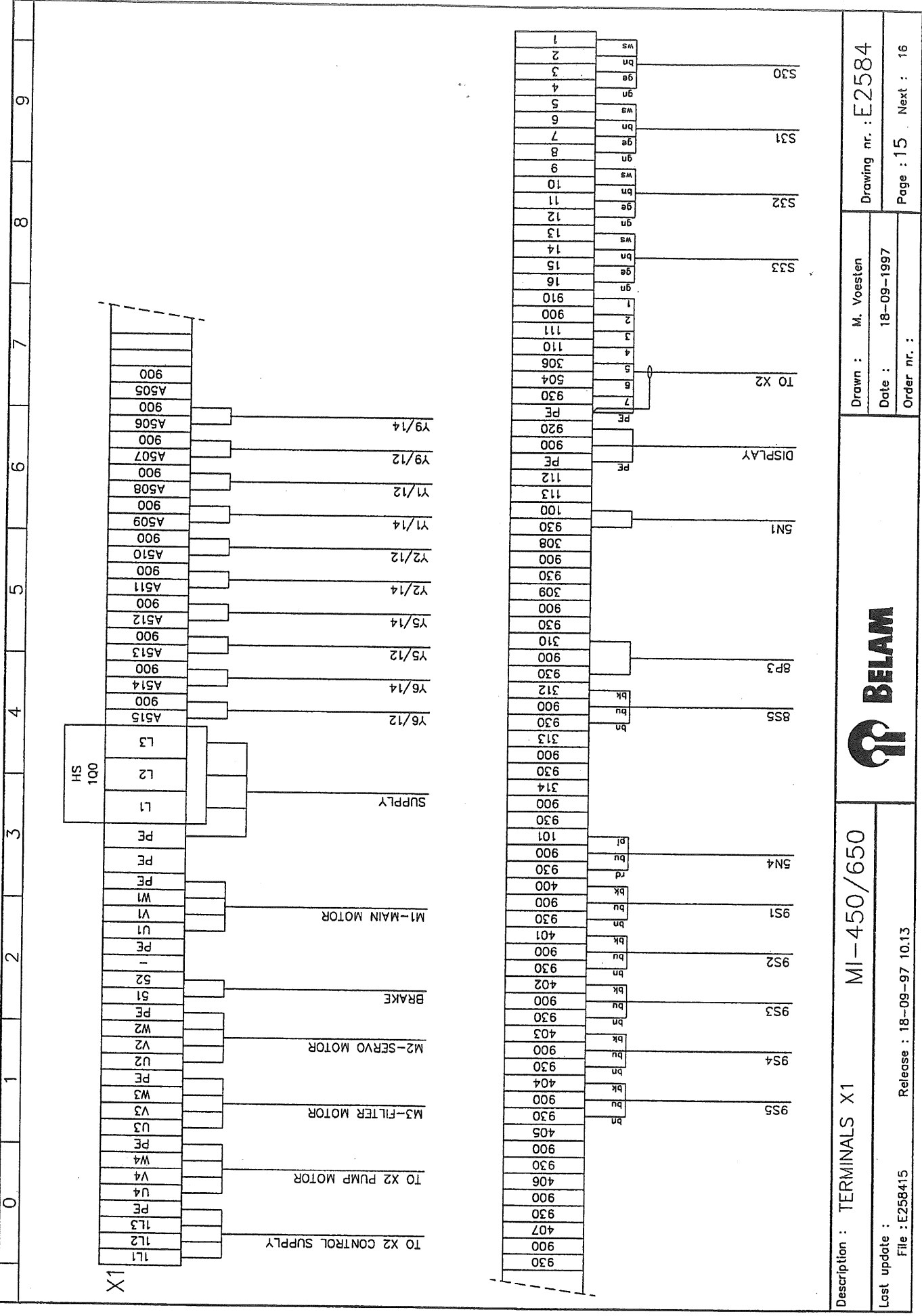
Release : 18-09-97 09.52

Drawn : M. Voesten

Date : 18-09-1997

Order nr. :

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Description : TERMINALS X1

MI-450/650



Drawn : M. Voesten

Date : 18-09-1997

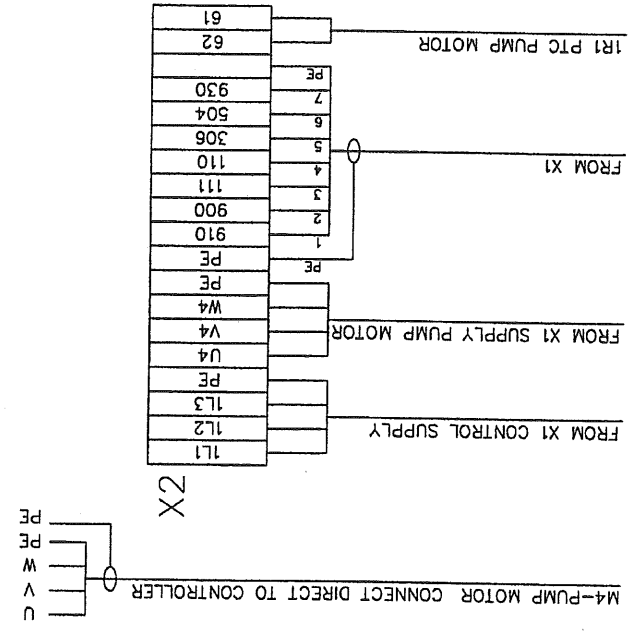
Order nr. :

Drawing nr. : E2584

Page : 15 Next : 16

Last update : File : E258415

Release : 18-09-97 10.13



Description : TERMINALS X2

MI-450/640



Last update :
File : E258416

Release : 18-09-97 09.42

Drawn : M. Voesten

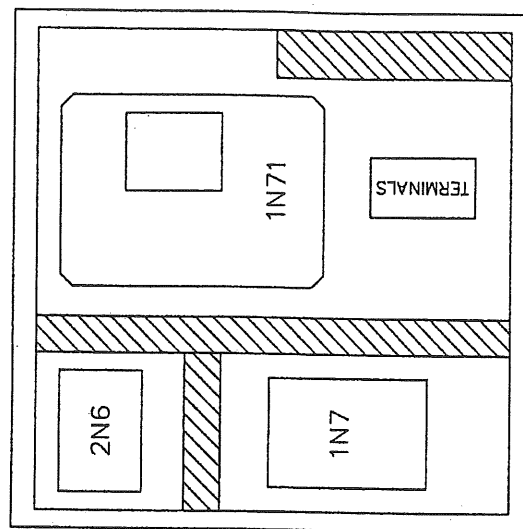
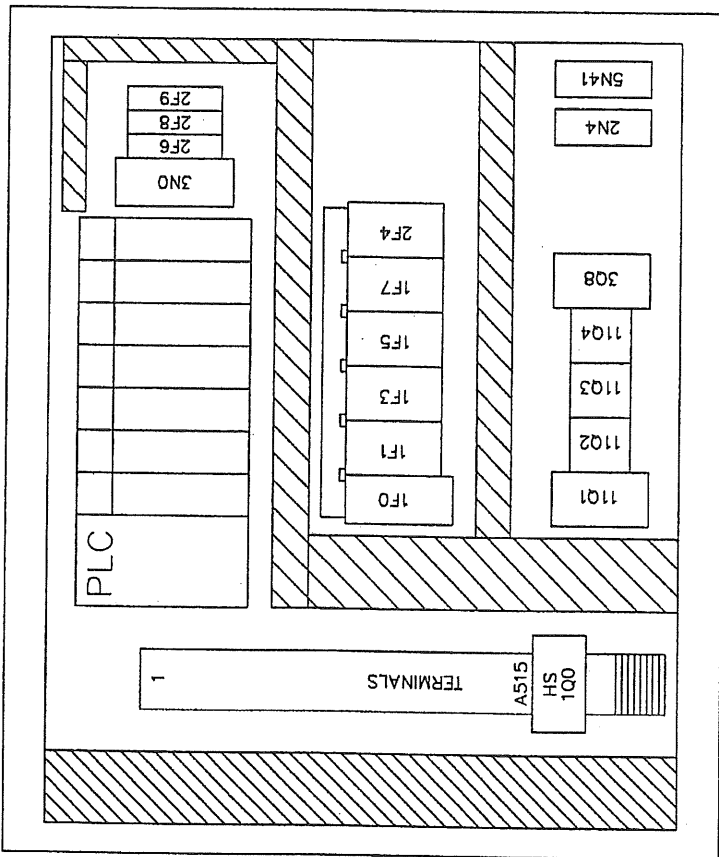
Date : 18-09-1997

Order nr. :

Drawing nr. : E2584

Page : 16 Next : 18

0 1 2 3 4 5 6 7 8



Description : PANEL VIEW

MI-450/650

Drawn : M. Voesten

Drawing nr. : E2584

Last update :

Date : 18-09-1997

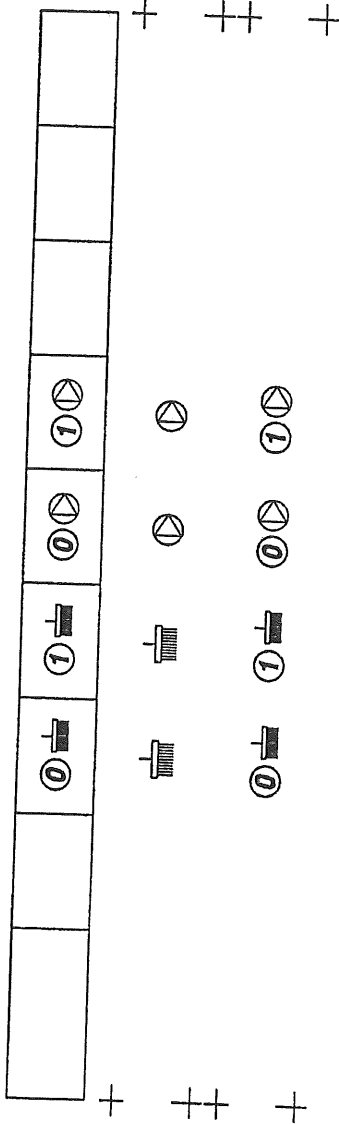
File : E258418

Release : 18-09-97 09.41

Order nr. :

Page : 18 . Next : --





Description : INSERTS LAUER MI-450/650 AB

Laet update :

File : E258419

Release : 18-09-97 09.40



BELAM

Drawn : M. Voesten

Date : 18-09-1997

Order nr. :

Drawing nr. : E2584

Page : 19

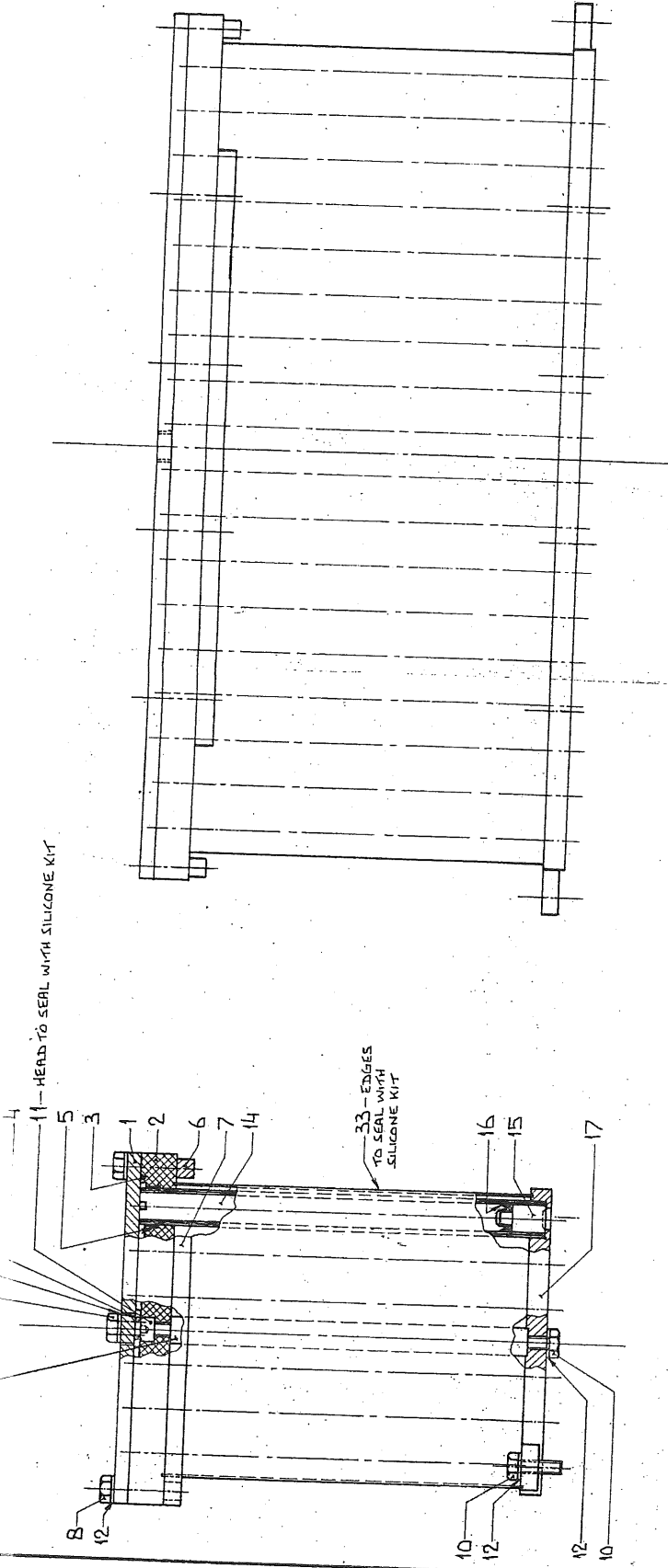
Next : ---

DESCRIPTION
ASS. AIR HEAD

15-05-98

SMBA6
Page : 1

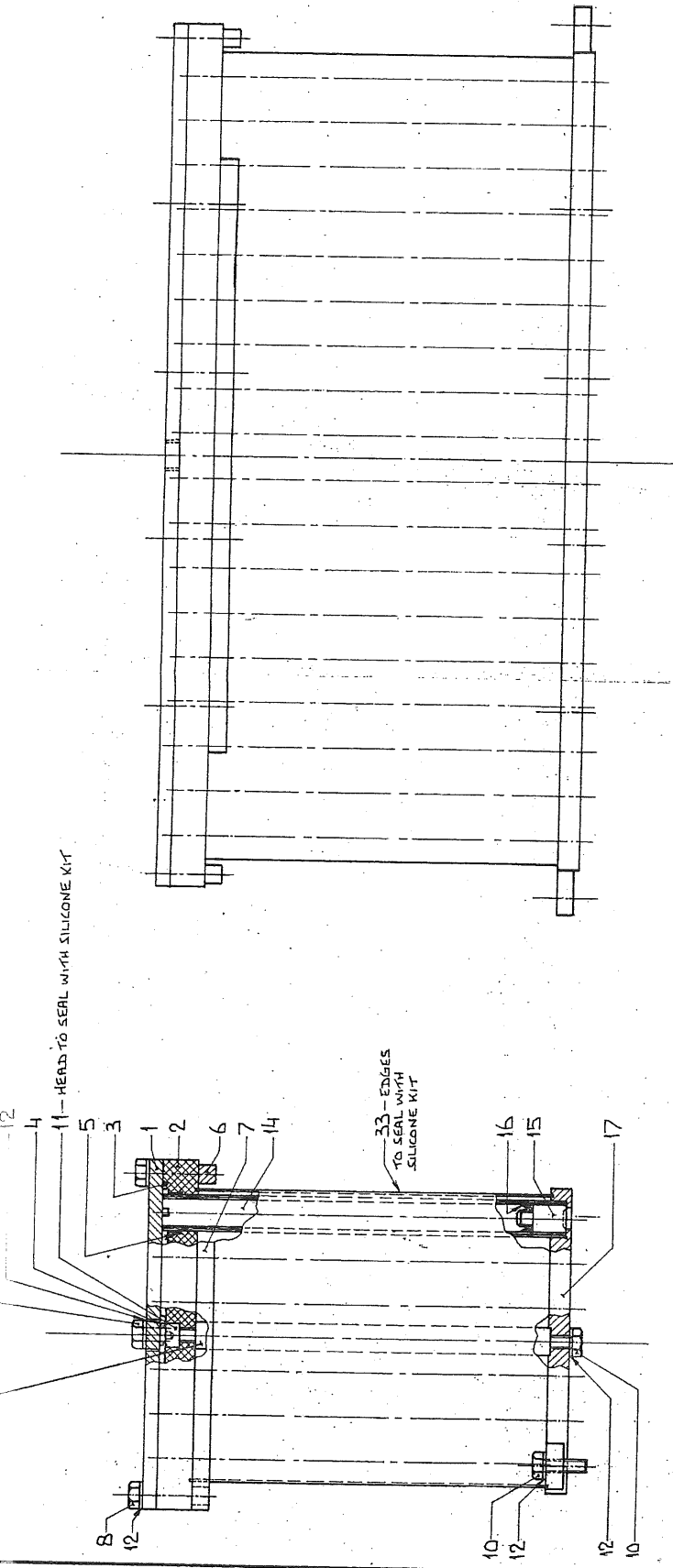
POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	M619079	1	ST	TOP PLATE
0002	M619082	1	ST	CYLINDER TOP PLATE
0003	A6019	125	CM	CORD
0004	A4083	4	ST	O-RING
0005	A1082	105	ST	O-RING
0006	M619084	2	ST	STRIP
0007	M618859	2	ST	STRIP
0008	B1119	14	ST	BOLT
0009	B1120	4	ST	BOLT
0010	B1114	9	ST	BOLT
0011	B1130	1	ST	BOLT
0012	B3009	27	ST	WASHER
0013	M618861	5	ST	INTERMEDIATE SHAFT
0014	M618862	105	ST	CYLINDER
0015	M618220	105	ST	PISTON
0016	A5007	105	ST	U-SEALING CUP
0017	M619086	1	ST	CYLINDER BOTTOM PLATE
0033	M619099	1	ST	FRAME



mat.		art. nr.		M619080	
wijz. datum omschrijving		afm.		artikel nr.	
benaming		order nr.		M619080	
ASS AIR HEAD MI/PE-450		A3			
		gel. <i>WH</i> dat. 08-01-96 sch. 1:2,5		aantal artikel nr.	
WOLFINGK BELAM B.V. UDEN - THE NETHERLANDS		Het is verboden deze tekening zonder onze toestemming te verspreiden of aan derde-ten te geven			

11 - HEAD TO SEAL WITH SILICONE KIT

33 - EDGES TO SEAL WITH SILICONE KIT



mat.		aantal	
art. nr.		artikel nr.	
afm.		M619080	
order nr.			
wijz.		25 ± 0.4 25.0 ± 0.05 25.00 ± 0.025	
datum omschrijving		25 ± 0.1 25.0 ± 0.1 25.00 ± 0.01	
Benaming		25 ± 0.2 25.0 ± 0.2 25.00 ± 0.02	
ASS AIR HEAD MI/PE-450		get. <i>WH</i>	
WOLFINGK BELAM B.V.		dat. 08-01-96	
UDEN - THE NETHERLANDS		sch. 1:2,5	
A3		☉	

Het is verboden deze tekening zonder onze toestemming te verspreiden of te kopiëren.

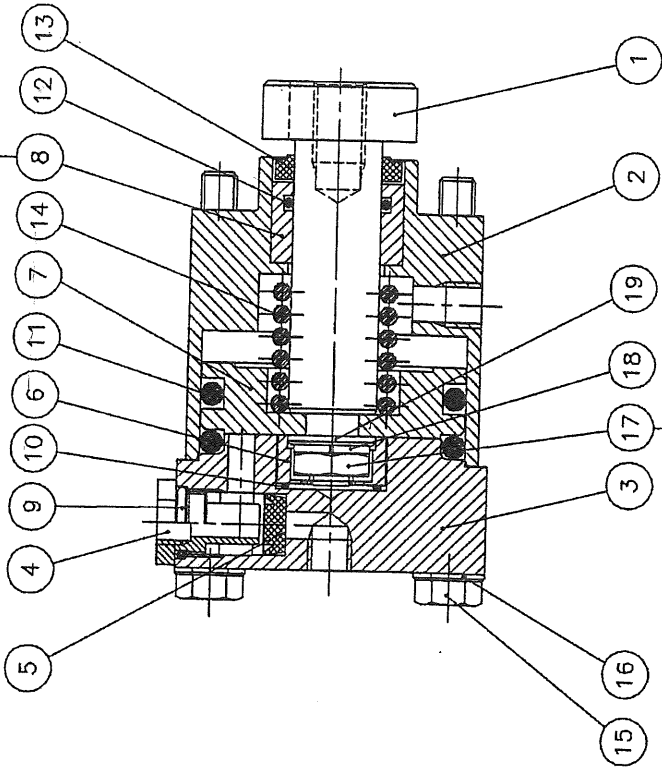
DESCRIPTION
ASS. CYLINDER

15-05-98

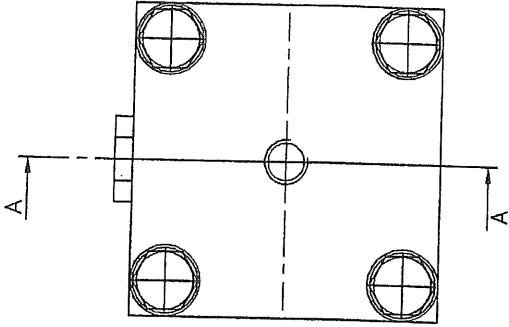
SMBA6
Page 1 1


POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	M619071	1	ST	PISTON ROD
0002	M619068	1	ST	CYLINDER HOUSING
0003	M607521	1	ST	CYLINDER BOTTOM
0004	M607925	1	ST	CONNECTING PLUG
0005	M607912	1	ST	SEAL
0006	M619556	1	ST	BUSH
0007	M619069	1	ST	PISTON
0008	M619070	1	ST	BEARING BUSHING
0009	A4096	1	ST	O-RING
0010	A4009	1	ST	O-RING
0011	A1118	2	ST	O-RING
0012	A4062	1	ST	O-RING
0013	A5048	1	ST	DIRT SCRAPER
0014	D1390	1	ST	COMPRESSION SPRING
0015	B1609	4	ST	BOLT
0016	B3009	4	ST	WASHER
0017	B1315	1	ST	NUT
0018	B3012	1	ST	SPRING WASHER
0019	B3011	1	ST	WASHER

Pos. 08 in 02 mount with Permabond



Nut M10 to lock with threadlock !!



20-003	20.00-00.00	20.00-00.00	Met.
20-01	20.00-00.01	20.00-00.01	Prof.
20-02	20.00-00.02	20.00-00.02	Art.Nr.
			Altm.
			Order Nr.
Wz. Datum Omschrijving: Benaming: Ass. Cylinder			Get. GB. Datum 2-5-95 Schaal 1:1
 BELAM UDEN HOLLAND			Tek.Nr. M619320

DESCRIPTION
ASS. HEAD FASTENING

15-05-98

SMBA6
Page : 1

PDS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	M619974	1	ST	WAS. STRIP
0003	M619053		ST	BUSHING
0004	M619966	1	ST	WAS. CARRIER
0005	M619059	2	ST	SHAFT
0006	M619098	1	ST	WAS. FRAME
0007	M619066	1	ST	WAS. SLIDWAY (R)
0008	M619065	1	ST	WAS. SLIDWAY (L)
0009	M619074	2	ST	BRAKE UNIT
0010	M618339	2	ST	COVER
0011	M618343	2	ST	PISTON
0012	M619075	2	ST	BRAKE PAD
0013	M619076	2	ST	BRAKE PAD
0014	M619072	2	ST	BEARING BUSH
0015	M619399	2	ST	BEARING BUSHING
0016	M619965	1	ST	WAS. CARRIER
0017	D1300	4	ST	VIBRATION ABSORBER
0018	B1102	2	ST	CAP NUT
0020	B1178	2	ST	CAP NUT
0021	B3013	4	ST	WASHER
0022	B1401	10	ST	WASHER
0023	B1352	2	ST	ALLEN SCREW
0024	B1588	8	ST	BOLT
0026	B1329	2	ST	WASHER
0027	B3012	2	ST	SPRING WASHER
0028	B1142	2	ST	BOLT
0029	B1118	8	ST	BOLT
0030	B3009	16	ST	WASHER
0031	M619345	4	ST	BOLT
0032	B1101	10	ST	NUT
0033	B1419	4	ST	BOLT
0034	M619073	2	ST	BOLT
0038	A4033	2	ST	O-RING
0039	A4014	2	ST	O-RING
0043	B1410	4	ST	PIN
0044	M622681	2	ST	RING

ITEMNUMBER
M619325

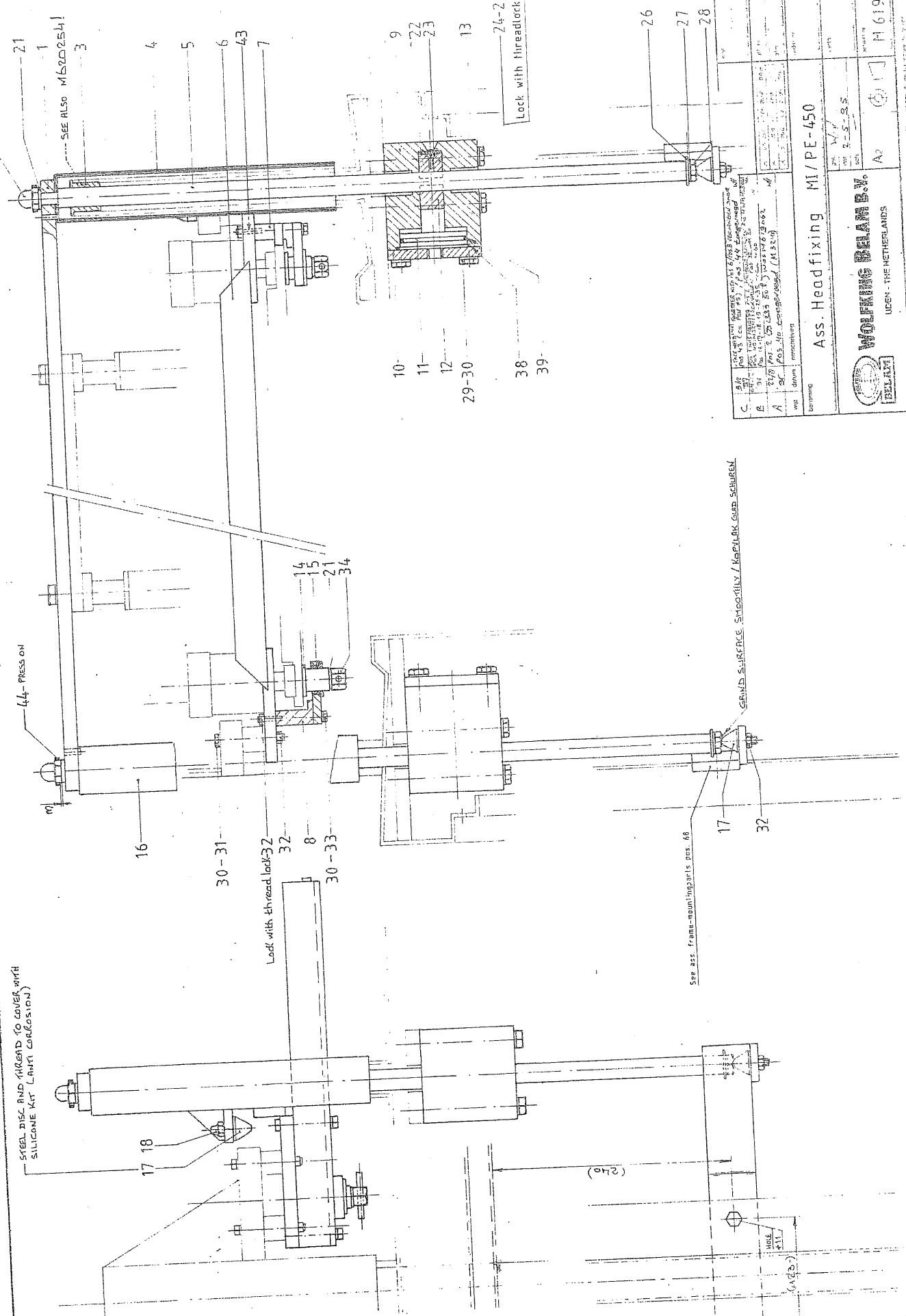
DESCRIPTION
ASS. HEAD FASTENING

15-05-98

SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	M619974	1	ST	WAS. STRIP
0003	M619053		ST	BUSHING
0004	M619966	1	ST	WAS. CARRIER
0005	M619059	2	ST	SHAFT
0006	M619098	1	ST	WAS. FRAME
0007	M619066	1	ST	WAS. SLIDEWAY (R)
0008	M619065	1	ST	WAS. SLIDEWAY (L)
0009	M619074	2	ST	BRAKE UNIT
0010	M618339	2	ST	COVER
0011	M618343	2	ST	PISTON
0012	M619075	2	ST	BRAKE PAD
0013	M619076	2	ST	BRAKE PAD
0014	M619072	2	ST	BEARING BUSH
0015	M619399	2	ST	BEARING BUSHING
0016	M619965	1	ST	WAS. CARRIER
0017	D1300	4	ST	VIBRATION ABSORBER
0018	B1102	2	ST	CAP NUT
0020	B1178	2	ST	CAP NUT
0021	B3013	4	ST	WASHER
0022	B1401	10	ST	WASHER
0023	B1352	2	ST	ALLEN SCREW
0024	B1588	8	ST	BOLT
0026	B1329	2	ST	WASHER
0027	B3012	2	ST	SPRING WASHER
0028	B1142	2	ST	BOLT
0029	B1118	8	ST	BOLT
0030	B3009	16	ST	WASHER
0031	M619345	4	ST	BOLT
0032	B1101	10	ST	NUT
0033	B1419	4	ST	BOLT
0034	M619073	2	ST	BOLT
0038	A4033	2	ST	O-RING
0039	A4014	2	ST	O-RING
0043	B1410	4	ST	PIN
0044	M622681	2	ST	RING

STEEL DISC AND (THREADS TO COVER WITH SILICONE KIT (ANTI CORROSION))



See ass. frame-mounting parts pos. 68

C	24/1	100.12.20.1000	100.12.20.1000	100.12.20.1000
B	24/2	100.12.20.1000	100.12.20.1000	100.12.20.1000
A	24/3	100.12.20.1000	100.12.20.1000	100.12.20.1000

Ass. Headfixing MI/PE-450

WOLFFING BELAM B.V.
UDEN - THE NETHERLANDS

M 619325

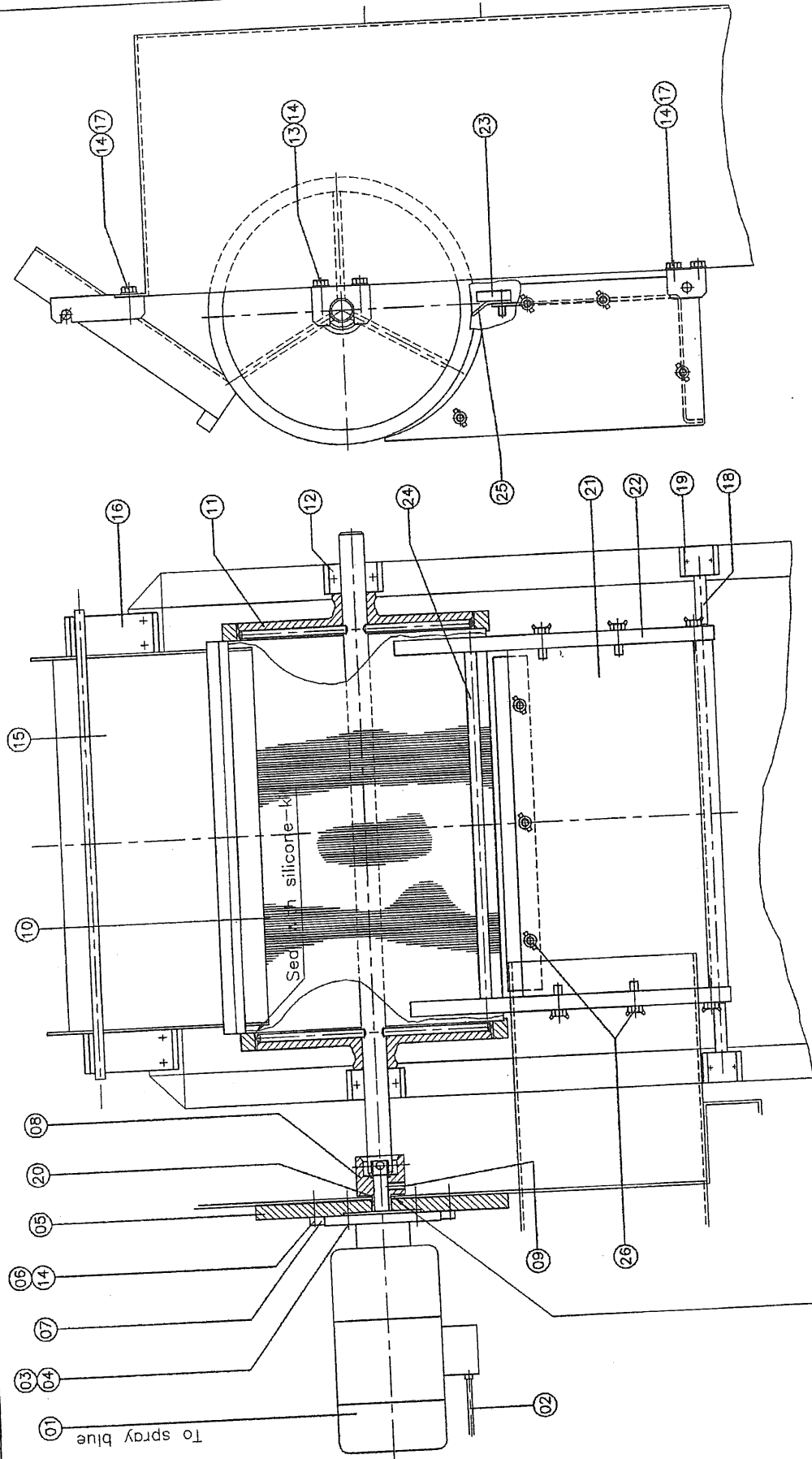
ITEMNUMBER
M619415

DESCRIPTION
ASS. ROTATING FILTER

15-05-98

SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
	M619300		ST	MOD. BRINE TANK
	M619411		ST	MOD. FRAME
0001	E2316	1	ST	GEAR MOTOR
0002	E1008	200	CM	CABLE
0003	B1084	4	ST	BOLT
0004	B3007	4	ST	WASHER
0005	M619409	1	ST	PLATE
0006	B1117	4	ST	BOLT
0007	M619313	2	ST	STRIP
0008	M619406	1	ST	WAS. CARRIER
0009	M619601	1	ST	SET SCREW
0010	M619301	1	ST	WAS. DRUM
0011	M619405	2	ST	DISC
0012	M619030	2	ST	BEARING BLOCK
0013	B1114	4	ST	BOLT
0014	B3009	16	ST	WASHER
0015	M619303	1	ST	WAS. SCRAPER
0016	M619414	2	ST	BEARING BLOCK
0017	B1113	8	ST	BOLT
0018	M619307	1	ST	SHAFT
0019	M619417	2	ST	BEARING BLOCK
0020	A2008	1	ST	V-RING
0023	M619586	1	ST	WAS. JACKET
0024	M619583	2	ST	SIDE
0025	M619595	1	ST	WAS. STRIP
0026	M619591	1	ST	SHAFT
0027	M619593	1	ST	SCRAPER BLADE
0028	B1642	11	ST	WING NUT



Mat.	25-20.5 25.0-20.05 25.00-20.005
Prof.	25-21 25.0-20.1 25.00-20.01
Art.Nr.	25-22 25.0-20.2 25.00-20.02
Arm.	
Order Nr.	
Wijz. Datum Omschrijving:	
Benaming: ASS. ROTATING FILTER MI-450/650	
Get.	RR.
Datum	15-12-1997
Schaal	1:4
	A3C
Tek.Nr.	M619415

BELAM
 UDEN
 HOLLAND

ITEMNUMBER
M619576

DESCRIPTION
ASS. FRAME/ASSEMBLY COMP.

15-05-98

SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
	B6009	10	ST	CABLE TIE
	B6010	15	ST	CABLE TIE
	B6011	15	ST	CABLE TIE
	D1158	15	ST	CABLE TIE
	D1343	1	DM	STICKING FOIL
	E1004	400	CM	CABLE
	E1008	300	CM	CABLE
	E1011	6000	CM	CABLE
	E1991	300	CM	CABLE
	E2328	300	CM	CABLE
	E2424	1700	CM	CABLE
	E2426	500	CM	CABLE
	M622054	1	ST	ASS. ELECTRO BOX
0001	M619275	1	ST	WAS. FRAME
0002	M619271	1	ST	WAS. HOOD
0003	M619203	2	ST	WAS. HOOD SUPPORT
0004	M619242	2	ST	WAS. DOOR
0005	M619241	2	ST	WAS. DOOR
0007	M619248	1	ST	WAS. DOOR
0008	M619240	1	ST	WAS. DOOR
0009	M619249	1	ST	WAS. DOOR
0013	M619263	1	ST	FIXED CONVEYOR BED
0014	M619671	2	ST	SPLASH RAIL
0015	M619670	2	ST	SPLASH GUARD
0016	M619222	2	ST	BRACKET
0017	M619225	1	ST	BRACKET
0018	M619223	1	ST	BRACKET
0019	M619224	1	ST	BLOCK
0020	M619668	1	ST	WAS. ANGLE
0021	M619672	1	ST	HOSE
0022	M619206	2	ST	QUARD
0023	M621711	1	ST	PACKINGPLATE
0024	B1014	4	ST	SCREW
0025	M619194	4	ST	HINGE BOLT
0029	M619717	2	ST	WAS. LOCK
0030	D1040	6	ST	LOCK
0031	E2098	4	ST	MAGNET
0032	E2320	4	ST	SENSOR
0033	A6001	1	ST	SEAL WASHER
0034	E2318	1	ST	PRESSURE TRANSDUCER ← NSW Part # 3000362
0035	E4047	4	ST	PROXIMITY SWITCH
0036	D1057	1200	CM	SEAL

(NEXT PAGE)

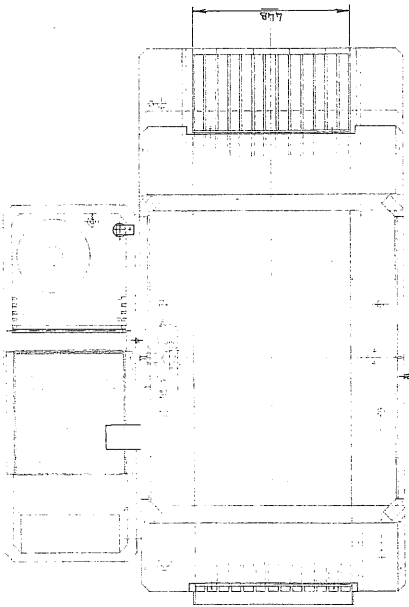
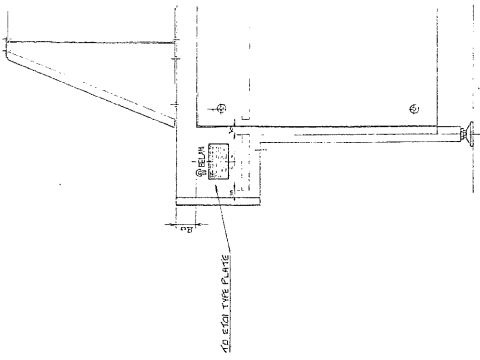
ITEMNUMBER
M619576

DESCRIPTION
ASS. FRAME/ASSEMBLY COMP.

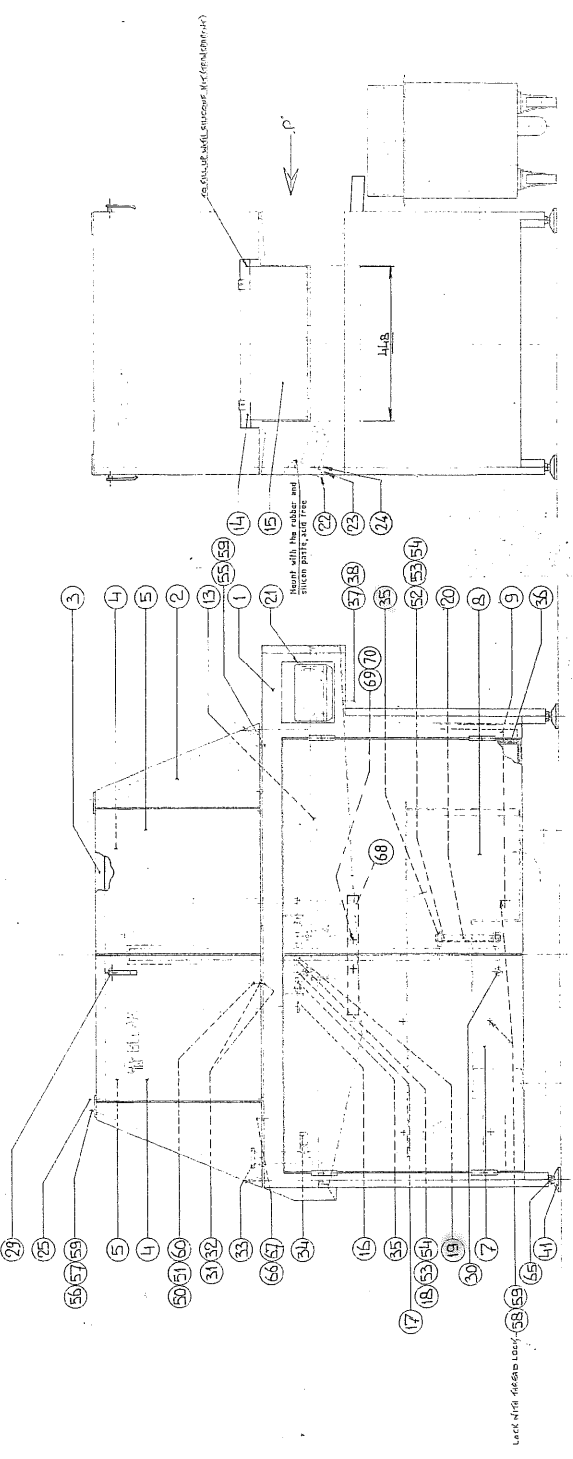
15-05-98

SMBA6
Page : 2

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0037	E2053	1	ST	CABLE COUPLING
0038	E2042	1	ST	LOCKNUT
0039	E2005	2	ST	CABLE COUPLING
0040	E2007	2	ST	LOCKNUT
0041	B1331	4	ST	THREADED FOOT
0050	B1314	4	ST	SCREW
0051	B1038	4	ST	CAP NUT
0052	B1082	2	ST	BOLT
0053	B1062	4	ST	NUT
0054	B3008	4	ST	SPRING WASHER
0055	B1111	4	ST	BOLT
0056	B1112	4	ST	BOLT
0057	B1637	4	ST	NUT
0058	B1268	7	ST	BOLT
0059	B3010	15	ST	SLEEVE WASHER
0060	B3005	4	ST	WASHER
0065	B1222	4	ST	NUT
0066	B1102	4	ST	CAP NUT
0067	B3009	4	ST	WASHER
0068	M619964	2	ST	WAS. STRIP
0069	B1144	4	ST	BOLT
0070	B1138	4	ST	NUT



FRONT VIEW



1. All parts of this assembly are to be assembled in accordance with the instructions on the drawings.
 2. All parts of this assembly are to be assembled in accordance with the instructions on the drawings.
 3. All parts of this assembly are to be assembled in accordance with the instructions on the drawings.

ASS. FRAME / MOUNTING PARTS MI_450
 21.05.06
 1.13

WOLFFING BELDEN
 IDENTIFY THE PARTS BY PARTS

M 619576

ITEMNUMBER
M619731

DESCRIPTION
ASS. PNEUMATIC COMPONENTS

15-05-98

SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	P3006	1	ST	FILTER/REDUCING COMBINATION
0002	P1430	3	ST	MANOMETER
0003	P1535	1	ST	FRAME
0004	P1536	1	ST	WALL MOUNTING
0005	P1026	2	ST	VALVE
0006	P1079	2	ST	FRAME
0007	P6007	2	ST	VALVE
0008	P2015	1	ST	SWITCH
0009	P1484	1	ST	CYLINDER
0010	P1087	4	ST	VALVE
0011	P4103	1	ST	ELBOW
0012	P1294	1	ST	MALE CONNECTOR
0013	P1292	1	ST	KNEE
0014	D3052	4	ST	ELBOW
0015	P4008	1	ST	REDUCING NIPPLE
0016	P4102	2	ST	T-FITTING
0017	P4006	4	ST	REDUCING NIPPLE
0018	P1264	1	ST	COUPLING
0021	P1265	1	ST	REDUCER
0022	P1167	1	ST	MALE CONNECTOR
0023	D3049	6	ST	BULKHEAD CONNECTOR
0024	D3050	6	ST	TEE
0025	D1330	4	ST	COUPLING
0026	D3053	4	ST	MALE CONNECTOR
0027	D1326	1	ST	COUPLING
0028	D1328	1	ST	COUPLING
0029	D1327	1	ST	COUPLING
0030	D1329	1	ST	COUPLING
0031	P1308	2	ST	COUPLING
0032	P1165	6	ST	KNEE
0033	P1422	2	ST	VALVE
0034	P1275	2	ST	KNEE
0035	P1263	2	ST	MALE CONNECTOR
0036	P1272	2	ST	TEE
0037	P4055	1	ST	SOCKET
0038	P4004	1	ST	NIPPLE
0039	B1112	4	ST	BOLT
0040	B3010	4	ST	SLEEVE WASHER
0041	B1101	4	ST	NUT
0042	B1320	4	ST	SCREW
0043	S0474	420	NM	TIE ROD
0044	B1037	8	ST	NUT

(NEXT PAGE)

ITEMNUMBER
M619731

DESCRIPTION
ASS. PNEUMATIC COMPONENTS

15-05-98

SMBA6
Page : 2

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0045	B3006	8	ST	SPRING WASHER
0046	P4105	2	ST	PLUG
0047	P5010	250	CM	TUBE
0048	P5006	220	CM	TUBE
0049	P5001	250	CM	TUBE
0050	P1242	600	CM	TUBE
0051	D3066	600	CM	HOSE
0052	P5016	150	CM	TUBE
0055	D1261	1	ST	HOSE COUPLING
0060	P5015	1000	CM	TUBE
0061	P1157	3	ST	CONNECTOR
0062	P1181	2	ST	COUPLING
0063	E2005	1	ST	CABLE COUPLING
0065	P3005	1	ST	LUBRICATOR
0066	P4013	1	ST	REDUCING RING
0067	P1261	1	ST	CONNECTOR
0068	P4005	1	ST	NIPPLE
0069	P1534	2	ST	CONNECTOR
0070	M619961	2	ST	BUSHING

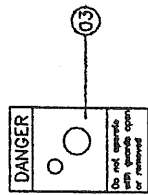
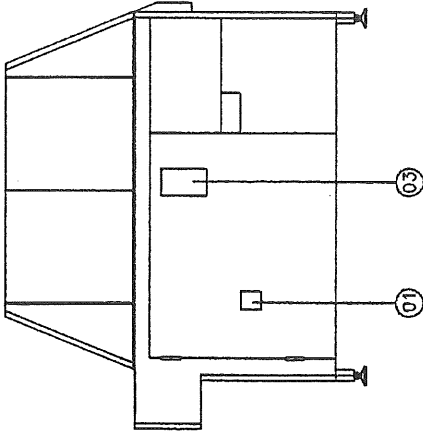
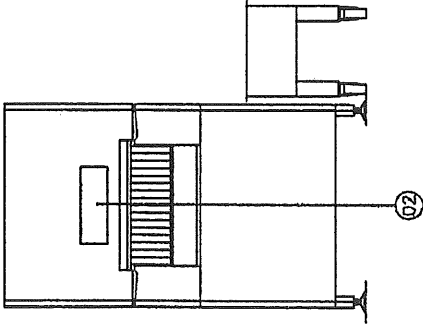
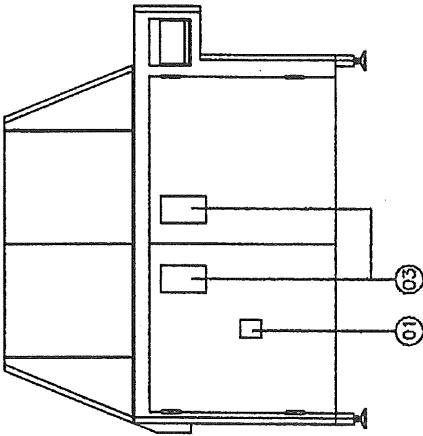
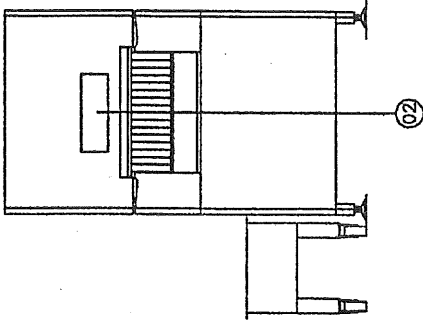
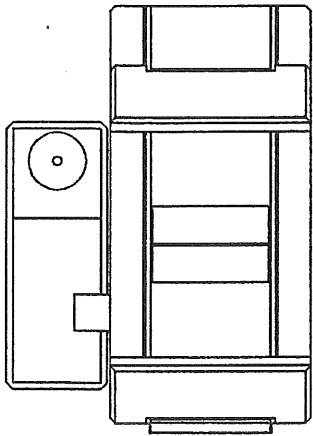
ITEMNUMBER
M619868


DESCRIPTION
ASS. WARNING DECALS

15-05-98

SMBA6
Page : 1

FOS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	D1279	2	ST	WARNING DECAL
0002	D1280	2	ST	WARNING DECAL
0004	D1282	3	ST	WARNING DECAL



25-50.2	25.00-50.05	25.00-50.09	Met.
25-51	25.05-50.1	25.05-50.01	Prof.
25-52	25.0-50.2	25.05-50.02	Art.Nr.
Benaming: SAM. WAARSCH. LABELS MI-450/650			Alfm.
Get. RR.			Order Nr.
Datum 09-12-1997			Tek.Nr. M619868
Schaal 1:25			
 BELAM			
UDEN HOLLAND			

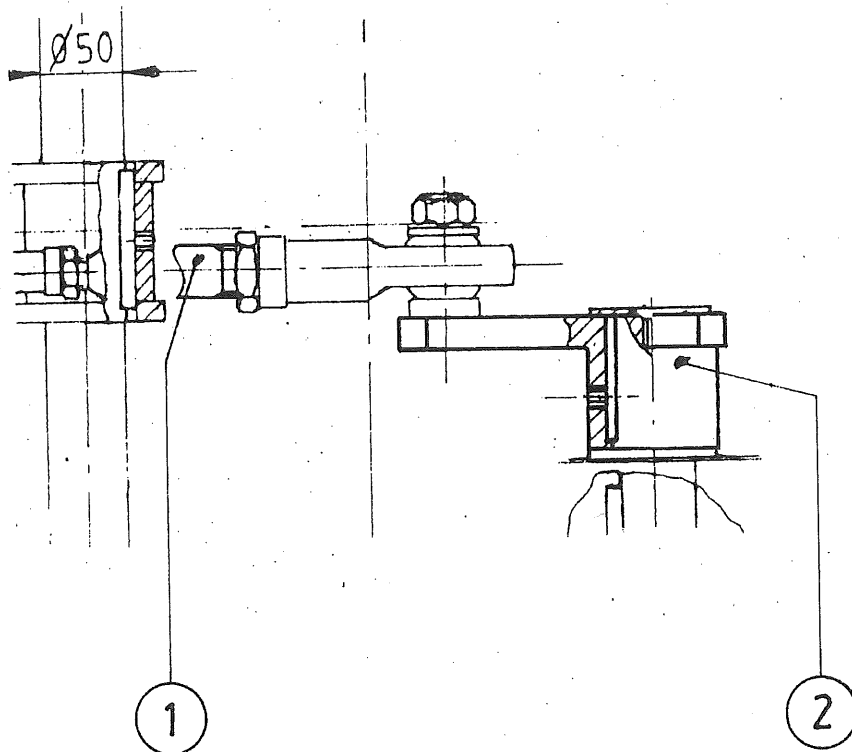
ITEMNUMBER
M619884

DESCRIPTION
ASS. CHANGE PARTS


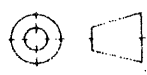
15-05-98

SMBA6
Page 1 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	M619213	1	ST	DRIVE SHAFT
0002	M619180	1	ST	WAS. LEVER



Remove bushing from stripperbar shaft when it's there (2 per head)

wijz datum omschrijving	get dat sch	maal art. nr. alm. order nr. aantal artikel nr.
benaming ASS. CHANGE PARTS MAIN MOVEMENT 250 MI 450		
 WOLF KING BELAM B.V. UDEN - THE NETHERLANDS	A4 	M 619884

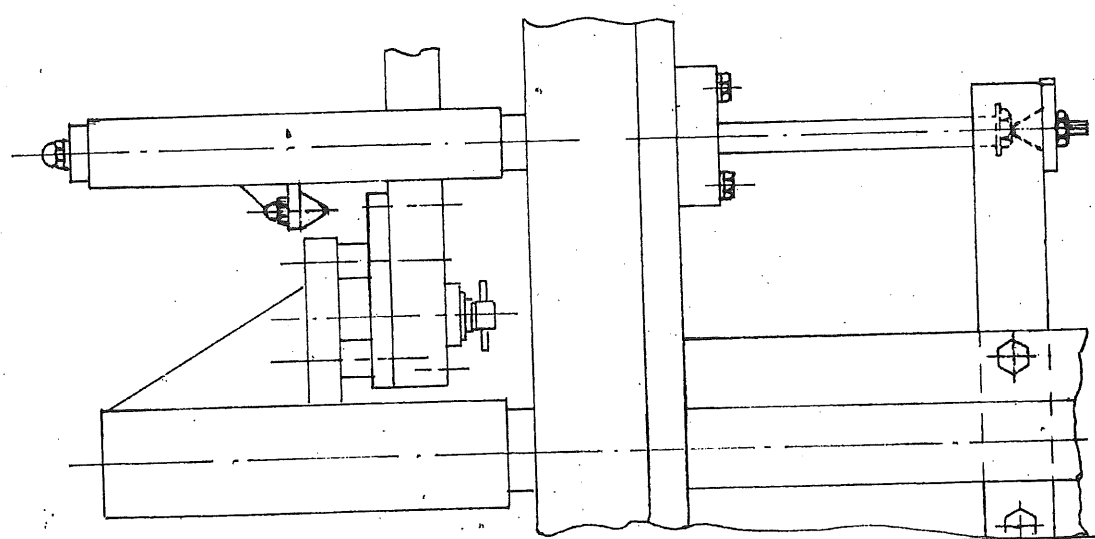
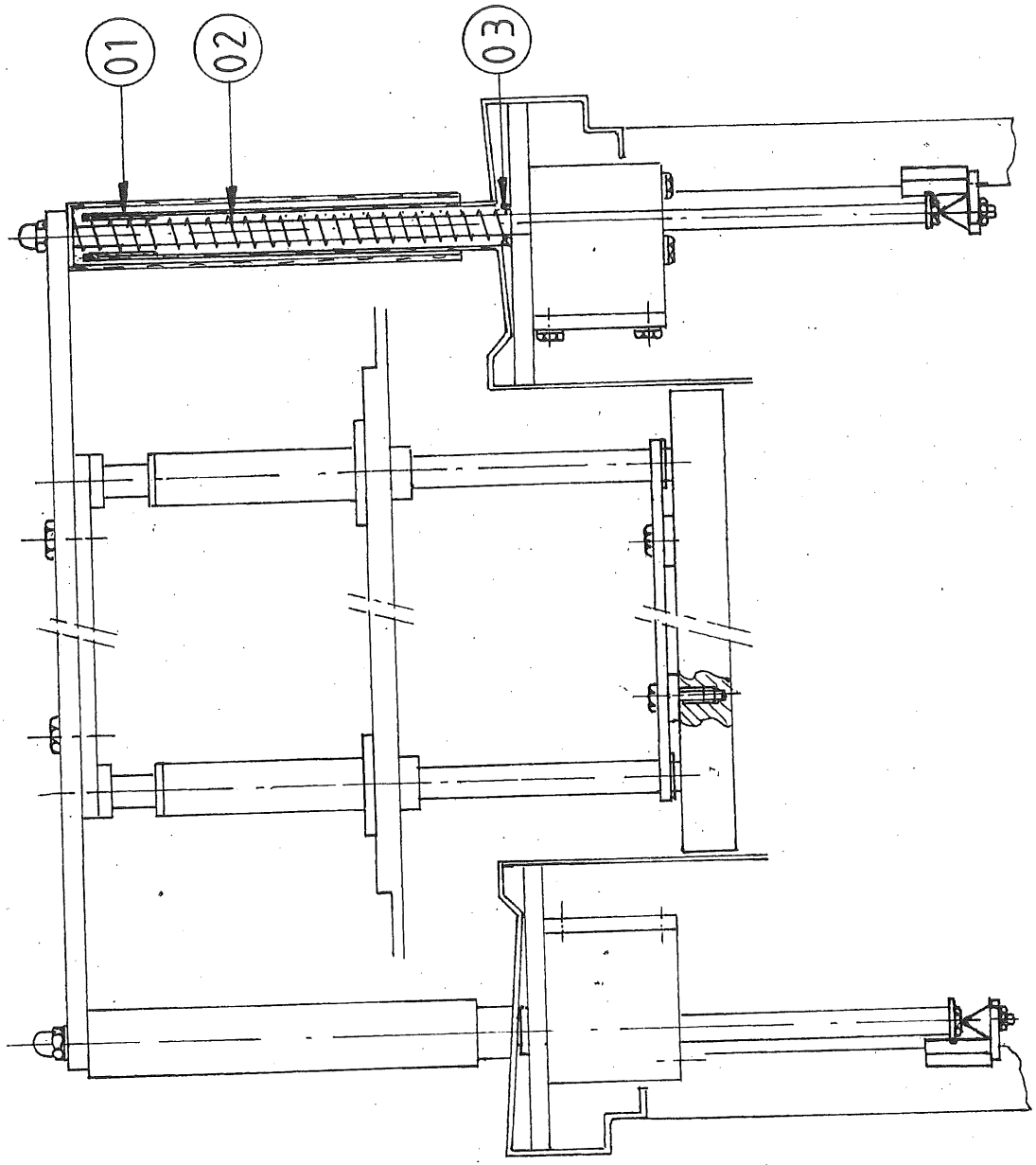
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M620254

DESCRIPTION
ASS. STRIPPER BAR SPRINGS

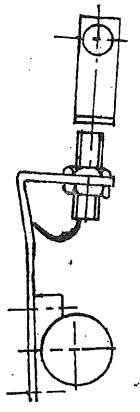
15-05-98

SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	M619969	2	ST	BEARING BUSH
0002	D1345	2	ST	COMPRESSION SPRING
0003	M619970	2	ST	SPRING HOLDER



SAM. DRUKVERLAGING TEGENHOUDER
M620254



ITEMNUMBER
M621075

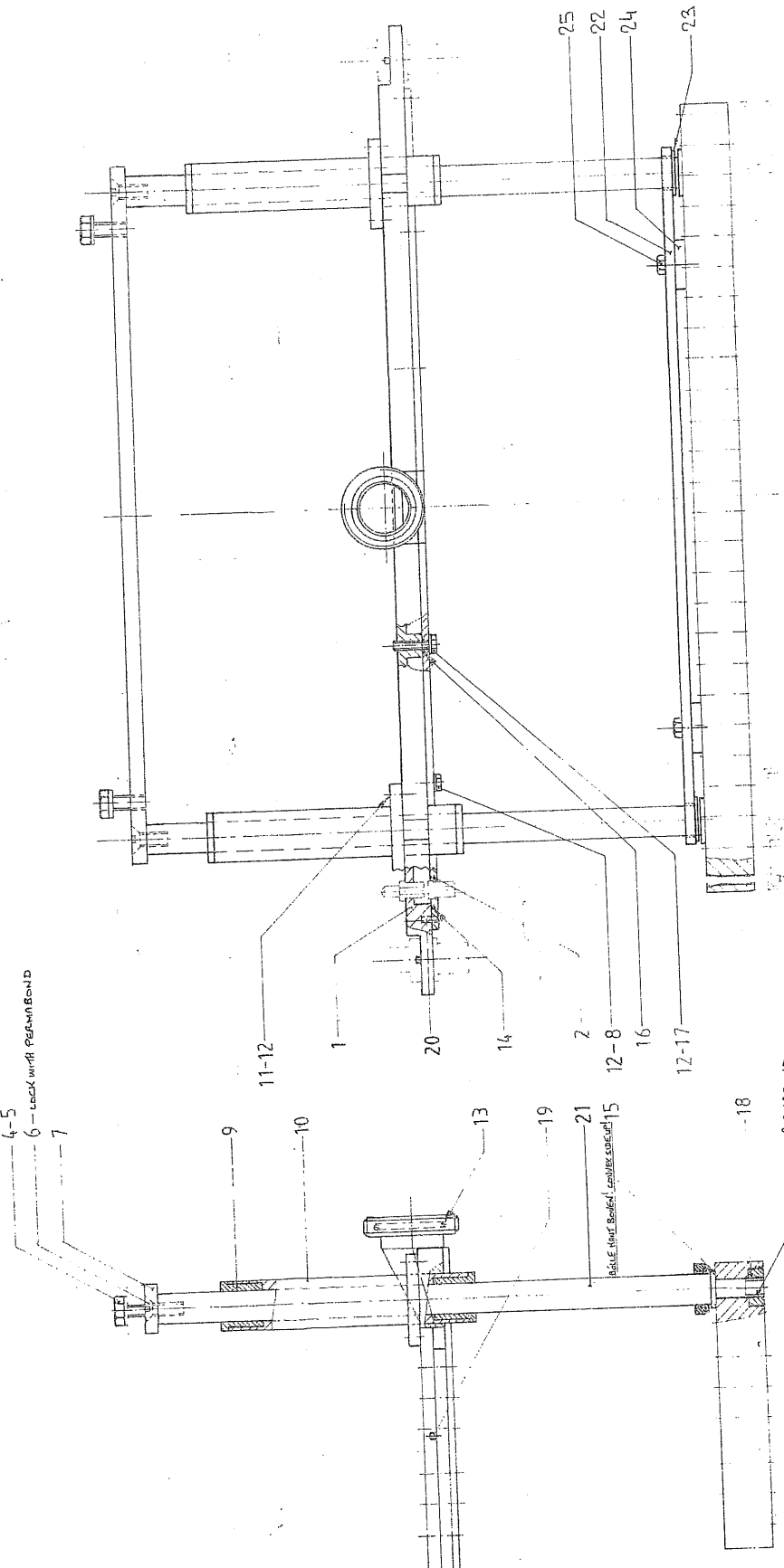
DESCRIPTION
ASS. NEEDLE HEAD

15-05-98

SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	M620991	1	ST	WAS. TOP PLATE
0002	M620993	1	ST	LOWERPLATE
0003	M619093	1	ST	STRIPPER BAR PLATE
0004	B1184	2	ST	BOLT
0005	B3013	2	ST	WASHER
0006	B1181	2	ST	ALLEN SCREW
0007	M619096	1	ST	STRIP
0008	B1115	14	ST	BOLT
0009	M619053	4	ST	BUSHING
0010	M619100	2	ST	WAS. PIPE
0011	B1114	6	ST	BOLT
0012	B3009	26	ST	WASHER
0013	A6001	1	ST	SEAL WASHER
0014	A6019	135	CM	CORD
0015	B3017	2	ST	WASHER
0016	A4083	6	ST	O-RING
0017	B7064	6	ST	BOLT
0018	M619055	2	ST	NUT
0019	B1410	2	ST	PIN
0020	B1421	2	ST	PIN
0021	M619052	2	ST	SHAFT
0022	M619976	1	ST	CENTRING STRIP
0023	M619978	2	ST	RING
0024	M619979	2	ST	RING
0025	B1118	2	ST	BOLT

4-5
6 - LOCK WITH PERMANENT BOND



LOCK WITH PERMANENT BOND

3

Ass. Needle Head MF-450		02-09-56	
WOLFFS BELAIR B.V.		AV	M621075
UDEN THE NETHERLANDS			
BELAIR			

... and the ...

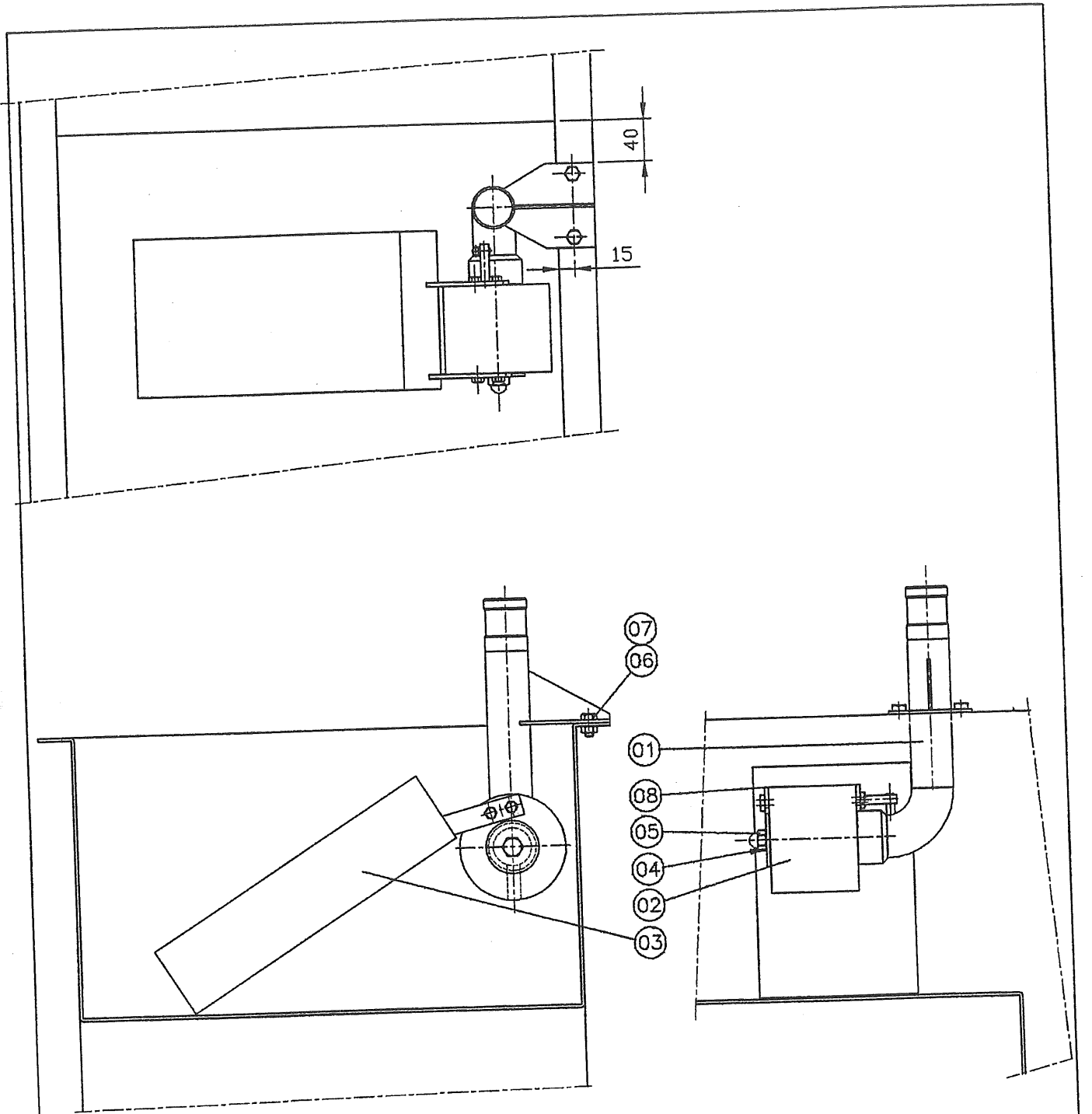
ITEMNUMBER
M621311


DESCRIPTION
ASS. FLOAT VALVE

15-05-98

SMBA6
Page : 1

PQS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	M621305	1	ST	WAS. INLET
0002	M620667	1	ST	BUSH
0003	M621298	1	ST	WAS. FLOAT
0004	M620666	1	ST	RING
0005	B1139	1	ST	CAP NUT
0006	B1112	2	ST	BOLT
0007	B1101	2	ST	NUT
0008	B1084	4	ST	BOLT



			25=±0,5	25,0=±0,05	25,00=±0,005	Mat.	—	
			25=±1	25,0=±0,1	25,00=±0,01	Prof.	—	
			25=±2	25,0=±0,2	25,00=±0,02	Art.Nr.	—	
Wijz.	Datum	Omschrijving:	Benaming: Sam. Vlotterafsluiter				Afm.	—
 BELAM						Order Nr.		
						Get. G.B.		
						Datum 16-06-1997		
UDEN HOLLAND [®]						Tek.Nr.	M621311	
A 4c								

ITEMNUMBER
M621685

DESCRIPTION
ASS. TRANSPORT/LIFT/MAIN MOV.

15-05-98

SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	T1405	1	ST	ROD END
0002	A1217	3	ST	SCRAPER
0003	T1401	5	ST	BEARING
0004	T1402	2	ST	BEARING
0005	T1403	2	ST	BEARING
0006	T1011	1	ST	CHAIN TIGHTENER
0007	B1176	3	ST	NUT
0008	B1206	9	ST	NUT
0009	B1177	2	ST	NUT
0010	B1442	11	ST	NUT
0011	B3013	14	ST	WASHER
0012	B1342	1	ST	NUT
0013	B3011	8	ST	WASHER
0014	B1143	5	ST	BOLT
0015	B1144	6	ST	BOLT
0016	B1156	1	ST	BOLT
0017	B1151	1	ST	BOLT
0018	B1315	2	ST	NUT
0019	B1118	4	ST	BOLT
0020	M621050	3	ST	BOLT
0021	B1066	12	ST	SCREW
0022	T1025	3	ST	KEY
0023	B1170	1	ST	BOLT
0024	B1328	2	ST	BOLT
0025	M619663	1	ST	BUSH
0026	T1423	1	ST	KEY
0027	M619662	1	ST	BUSHING
0028	B1083	4	ST	BOLT
0029	B1255	3	ST	SET SCREW
0030	M619217	1	ST	WAS. ECCENTRIC
0031	M619208	1	ST	WAS. CONNECTING ROD
0032	M619239	1	ST	CURVE
0033	M619165	1	ST	WAS. LEVER
0034	T1427	1	ST	SUPPORT
0035	M619166	1	ST	BOLT
0036	M621688	1	ST	WAS. STRIP
0037	M619220	1	ST	ROLL
0038	M619171	1	ST	STRIP
0039	M619170	1	ST	STRIP
0040	M619173	2	ST	STRIP
0041	M619172	2	ST	BOLT
0042	M619163	2	ST	WAS. LEVER

(NEXT PAGE)

ITEMNUMBER
M621685

DESCRIPTION
ASS. TRANSPORT/LIFT/MAIN MOV.

15-05-98

SMBA6
Page : 2

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0043	M619162	3	ST	RING
0044	M619179	3	ST	BUSHING
0045	M619178	3	ST	BUSHING
0046	M621686	2	ST	WAS. LIFTING SHAFT
0047	M619161	4	ST	WHEEL
0048	M621687	1	ST	WAS. TRANSPORT SHAFT
0049	M619157	1	ST	ROLL
0050	M619154	1	ST	TRANSPORT BLOCK
0051	M619152	1	ST	WAS. CYL. BLOCK TRANSPORT
0052	M619202	1	ST	THREADED BUSH
0053	M619151	1	ST	FORK
0054	M619204	1	ST	CLOSE TOLERANCE BOLT
0055	M619205	1	ST	BUSHING
0056	M619265	1	ST	WAS. CONVEYOR BED
0060	T1411	2	ST	BEARING BLOCK
0061	T1254	16	ST	BUSHING
0062	T1406	3	ST	ROD END
0064	T1408	1	ST	ROD END
0065	T1410	2	ST	BUSHING
0066	T1417	1	ST	KEY
0067	T1414	2	ST	KEY
0068	T1421	1	ST	KEY
0069	T1420	1	ST	KEY
0070	T1039	1	ST	KEY
0071	B1631	2	ST	CAP NUT
0072	B1632	2	ST	WASHER
0074	B3017	14	ST	WASHER
0075	B1639	1	ST	NUT
0076	B3019	2	ST	WASHER
0077	B1140	2	ST	ALLEN SCREW
0078	B5018	4	ST	SET SCREW
0079	B1186	2	ST	BOLT
0080	B1190	2	ST	BOLT
0081	B1211	4	ST	BOLT
0082	B1638	1	ST	NUT
0083	E2348	1	ST	ENCODER
0084	B5002	1	ST	SET SCREW
0085	B1634	4	ST	BOLT
0086	B3015	4	ST	WASHER
0090	M619190	8	ST	BUSHING
0091	M619192	8	ST	ECCENTRIC BOLT
0092	M619189	8	ST	BUSHING

(NEXT PAGE)

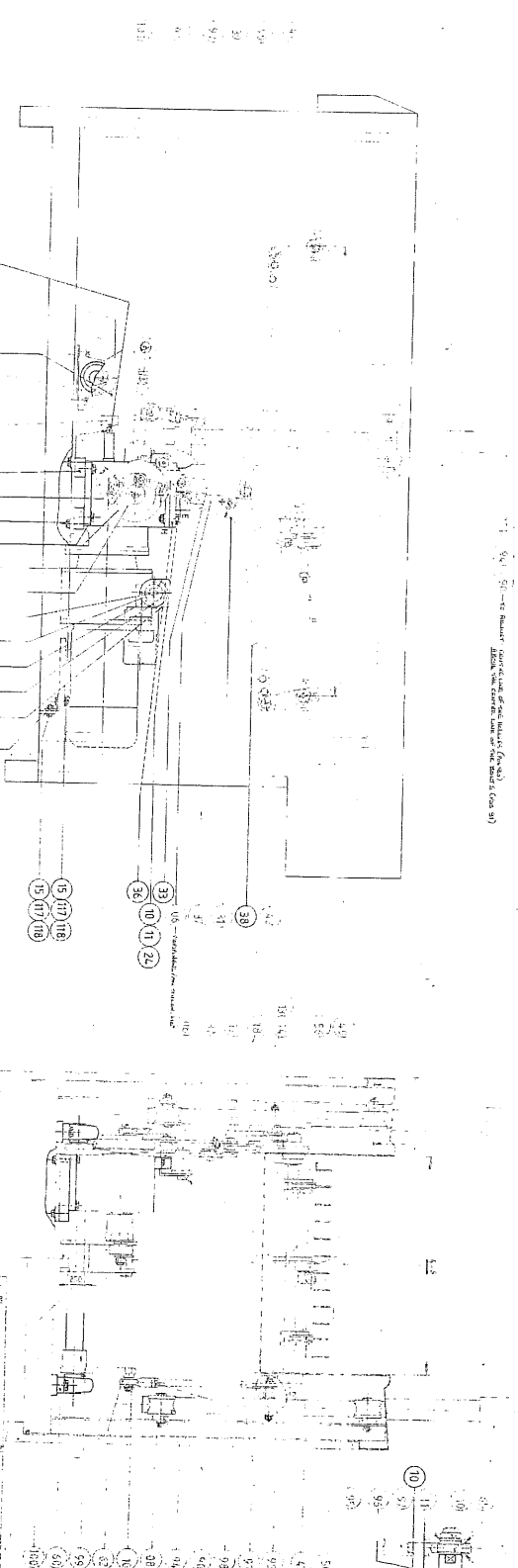
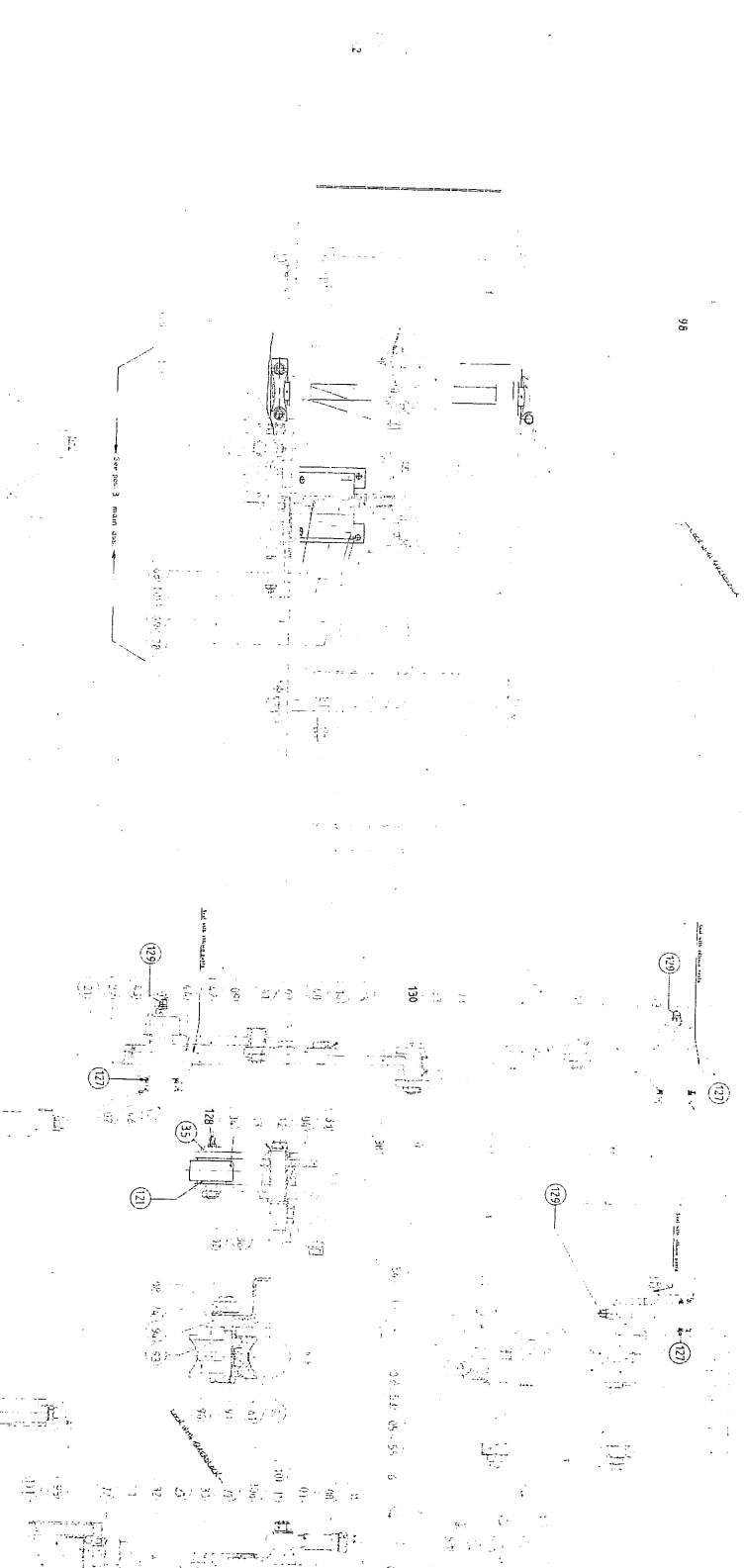
ITEMNUMBER
M621685

DESCRIPTION
ASS. TRANSPORT/LIFT/MAIN MOV.

15-05-98

SMBA6
Page : 3

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0093	M619191	8	ST	SPACER RING
0094	M619188	4	ST	STRIP
0095	M619613	2	ST	WAS. MAIN SHAFT
0096	M619614	2	ST	BOLT
0097	M619209	2	ST	WAS. CONNECTING ROD
0098	M619175	3	ST	NUT (R)
0099	M619187	2	ST	WAS. LEVER
0100	M619182	1	ST	DRIVE SHAFT
0101	M619186	1	ST	WAS. LEVER
0102	M619193	1	ST	CLOSE TOLERANCE BOLT
0103	M619181	1	ST	BUSHING
0104	M619198	2	ST	PLATE
0106	M619176	1	ST	NUT
0108	M619184	2	ST	RING
0109	M619167	1	ST	SHAFT
0110	M619227	1	ST	COULING
0111	M618871	2	ST	WAS. BRIDGE
0114	M619566	1	ST	PROFILE
0117	B1138	4	ST	NUT
0118	B3012	4	ST	SPRING WASHER
0121	M619871	2	ST	BUSHING
0126	B3014	2	ST	SPRING WASHER
0127	A1220	3	ST	O-RING
0128	H8037	1	ST	GREASE NIPPLE
0129	M621049	3	ST	GREASE NIPPLE
0130	M622194	1	ST	BOLT



ASS. LIFT / TRANSPORT - MAIN MOVEMENT
 NUMBERED BEARS B.M.
 H1450
 H071655

ITEMNUMBER
M621865

DESCRIPTION
ASS. MECH. INJECTOR UP/DOWN

19-05-98

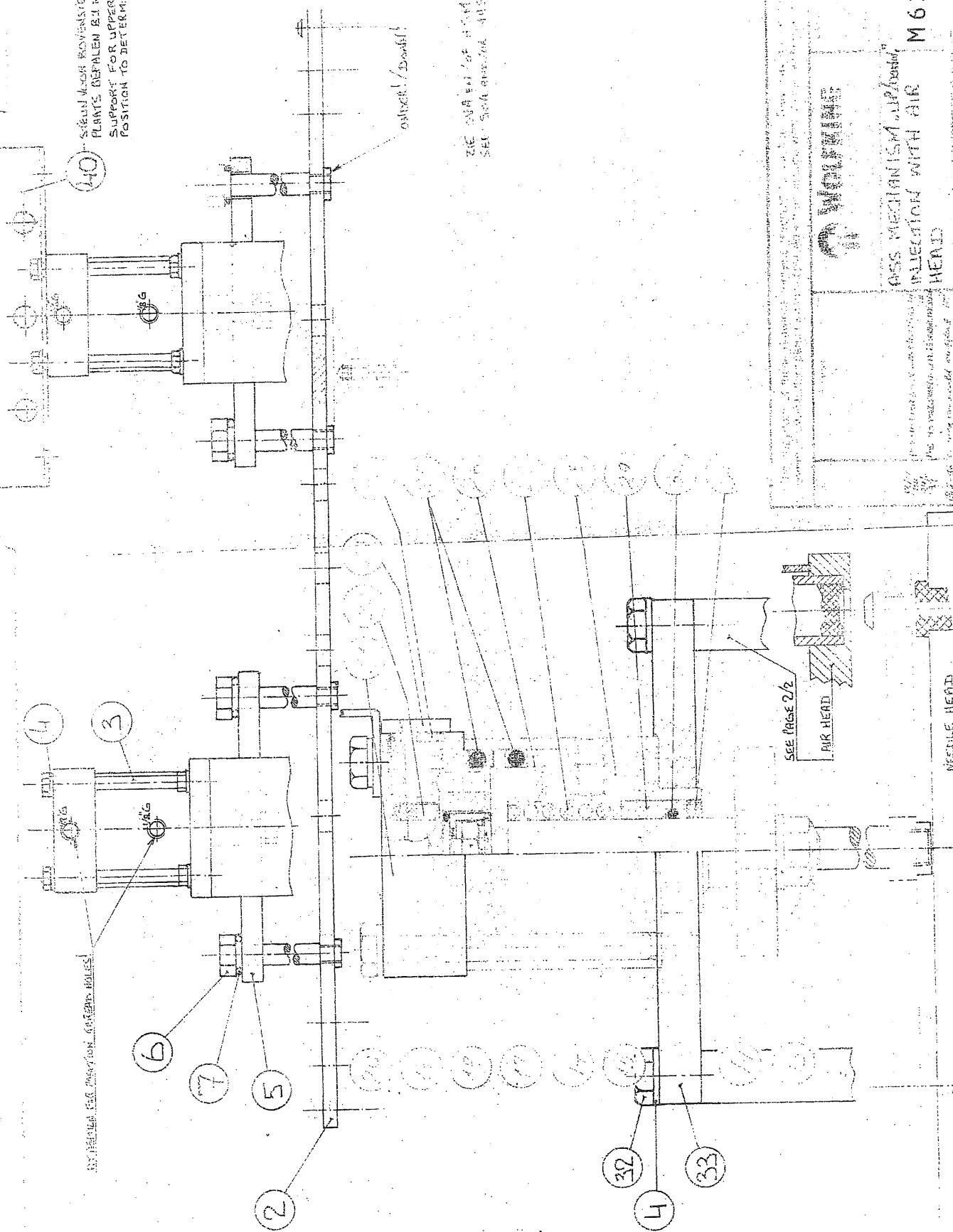
SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0002	M621866	1	ST	WAS. NEEDLE PLATE
0003	B1609	8	ST	BOLT
0004	B3009	16	ST	WASHER
0005	M620704	2	ST	STRIP
0006	M620952	4	ST	WAS. LIFTING BOLT
0007	A1222	4	ST	O-RING
0013	B1342	2	ST	NUT
0014	B3011	4	ST	WASHER
0015	M620674	2	ST	PISTON ROD
0017	B3012	2	ST	SPRING WASHER
0018	B1315	2	ST	NUT
0019	M619556	2	ST	BUSH
0020	A4009	2	ST	O-RING
0021	M607521	2	ST	CYLINDER BOTTOM
0022	M607912	2	ST	SEAL
0023	M607925	2	ST	CONNECTING PLUG
0024	A4096	2	ST	O-RING
0025	A1118	4	ST	O-RING
0026	M619069	2	ST	PISTON
0027	D1390	2	ST	COMPRESSION SPRING
0028	M619068	2	ST	CYLINDER HOUSING
0029	M619070	2	ST	BEARING BUSHING
0030	A4062	2	ST	O-RING
0031	A5048	2	ST	DIRT SCRAPER
0032	B1114	8	ST	BOLT
0033	M620953	2	ST	STRIP
0034	M620954	4	ST	PIPE
0035	M620956	4	ST	SEAL
0036	A1225	8	ST	O-RING
0037	M621868	1	ST	WAS. UPPERPLATE
0038	M621869	1	ST	CYLINDER UPPERPLATE
0039	M621871	1	ST	CYLINDER BOTTOM PLATE
0040	M623342	1	ST	SUPPORT

SEAL ALONG ROYENSTE BEVEL LINE IN PLANTS OF PALE IN PORTAGE SUPPORT FOR UPPER BOWME HOSE FASTEN TO DETERMINE BY ASSEMBLING

SEE DRAWING OF PART SET FOR DIMENSIONS

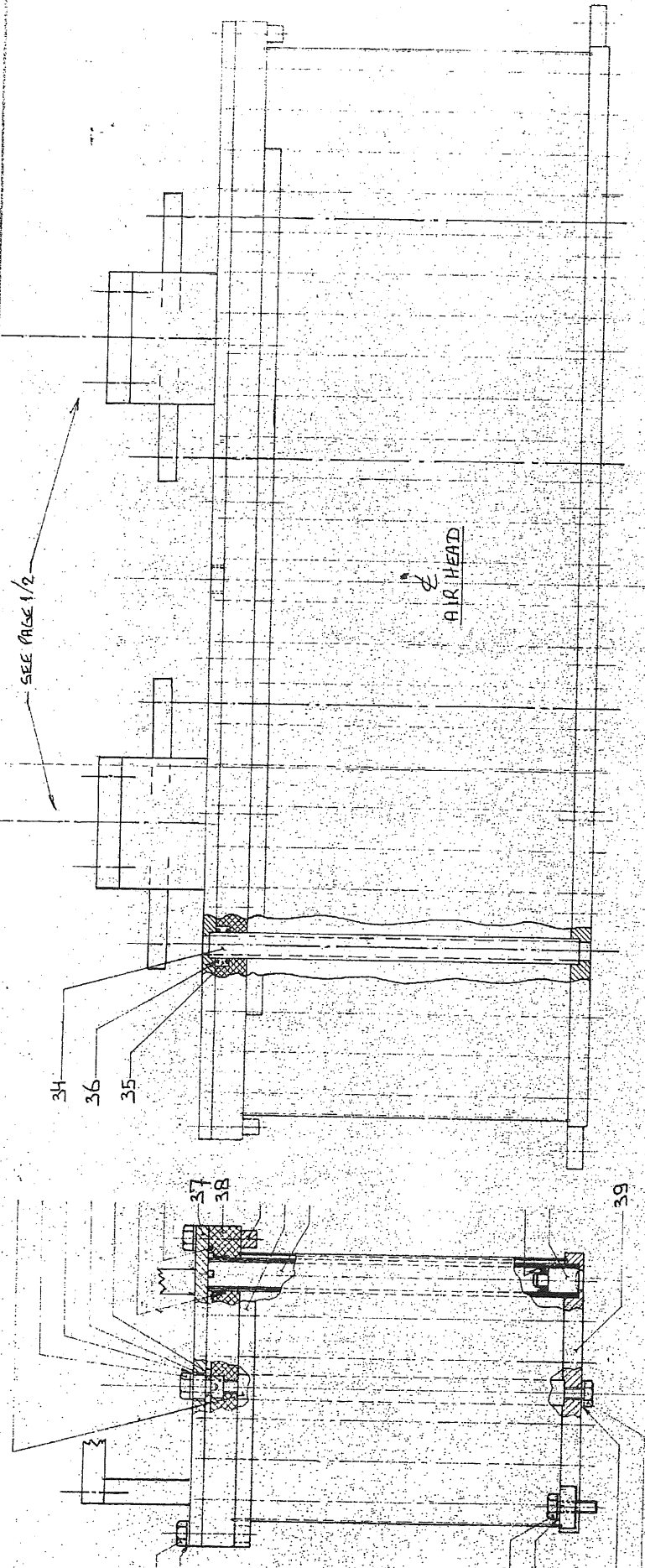
OUTLET / DOUBLE



WOLFF

ASS. MECHANISM AIR COLLECTOR
COLLECTION WITH AIR HEAD

NEEDLE HEAD



REMARK: FOR ALL OTHER PARTS SEE ASS AIR HEAD.

<p>WOLFGANG BELAM B.V. UDEN - THE NETHERLANDS</p>		001 WT 19.09.96 1:2.5 A3	0005 11.11 11.11 11.11
ASS - MECHANISM INJECTION "UP/DOWN" WITH AIR HEAD		001 WT 19.09.96 1:2.5 A3	0005 11.11 11.11 11.11
<p>WOLFGANG BELAM B.V. UDEN - THE NETHERLANDS</p>		001 WT 19.09.96 1:2.5 A3	0005 11.11 11.11 11.11
ASS - MECHANISM INJECTION "UP/DOWN" WITH AIR HEAD		001 WT 19.09.96 1:2.5 A3	0005 11.11 11.11 11.11

hier is verhoopen dat de afnemmer zal worden gecompenseerd door de afnemers van de andere pagina's te worden.

M621865

PAGE 2/2

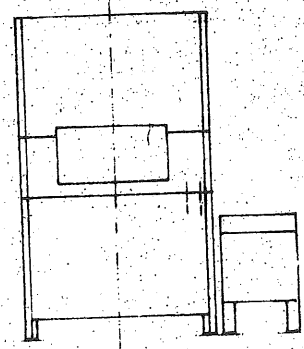
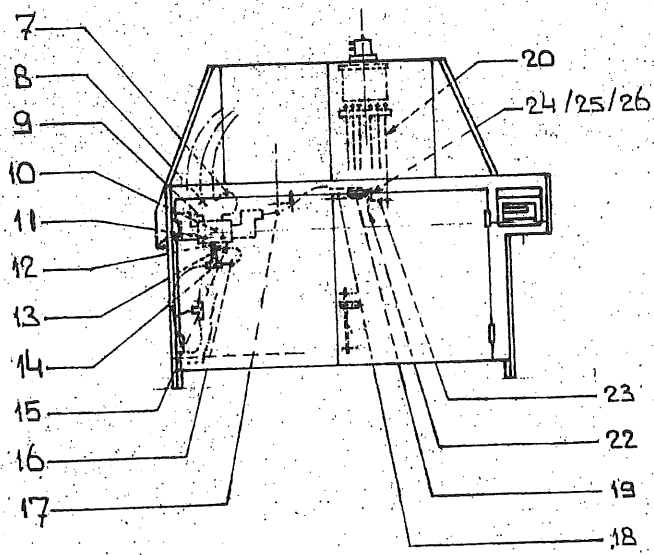
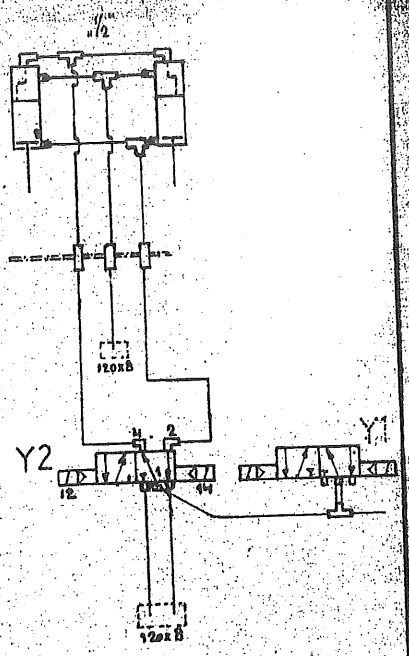
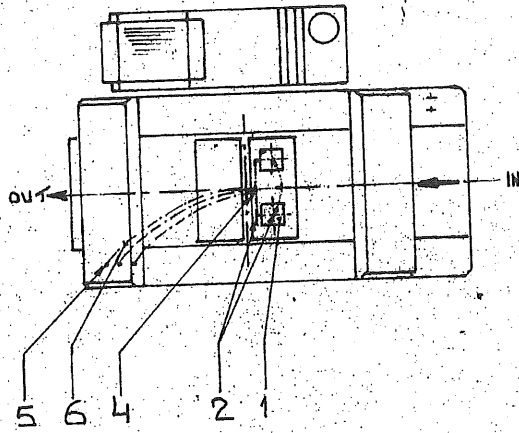
ITEMNUMBER
M621870

DESCRIPTION
SOA, MI-450 UP/DOWN INJ.

15-05-98

SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
	B1014	4	ST	SCREW
	D1399	1	ST	SPANNER
	D3050	3	ST	TEE
	E2509		ST	ASS. SWITCH BOX
	E2511		ST	CIRCUIT DIAGRAM
0001	M621865	1	ST	ASS. MECH. INJECTOR UP/DOWN
0002	D3052	6	ST	ELBOW
0004	D3050	3	ST	TEE
0005	D3049	3	ST	BULKHEAD CONNECTOR
0006	D3066	500	CM	HOSE
0007	P1242	100	CM	TUBE
0008	P5015	400	CM	TUBE
0009	P1165	2	ST	KNEE
0010	P1087	1	ST	VALVE
0011	S0494	345	MM	TIE ROD
0012	P4004	1	ST	NIPPLE
0013	P4055	1	ST	SOCKET
0014	P1272	1	ST	TEE
0015	P1157	2	ST	CONNECTOR
0016	P5006	40	CM	TUBE
0017	E1011	600	CM	CABLE
0018	M620961	1	ST	BRACKET
0019	E4047	1	ST	PROXIMITY SWITCH
0020	M620703		ST	NEEDLE
0020	M620965		ST	NEEDLE
0020	M621142		ST	NEEDLE
0020	M621990		ST	NEEDLE
0020	M621991		ST	NEEDLE
0022	M620962	1	ST	STRIP
0023	M620963	1	ST	CORNER
0024	B1279	2	ST	BOLT
0025	B3003	2	ST	WASHER
0026	B3004	2	ST	SPRING WASHER



				mat	
				air nr	
				atm	
				order nr	
				aantal	
				artikel nr	
				M621870	
				A4	
				get G.B./W	
				dat 19-09-'96	
				scr	
				WOLF KING BELAM B.V.	
				UDEN - THE NETHERLANDS	
				benaming	
				OVA. MI-450 "1/2" UP/DOWN INJECTOR	
				WITH AIR HEAD	
				wiz.	
				datum	
				omschrijving	
				"A" 24/11 '97 Y2 WAS Y10	
				M.V./W	

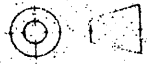


WOLF KING BELAM B.V.

UDEN - THE NETHERLANDS

get G.B./W
dat 19-09-'96

A4



M621870

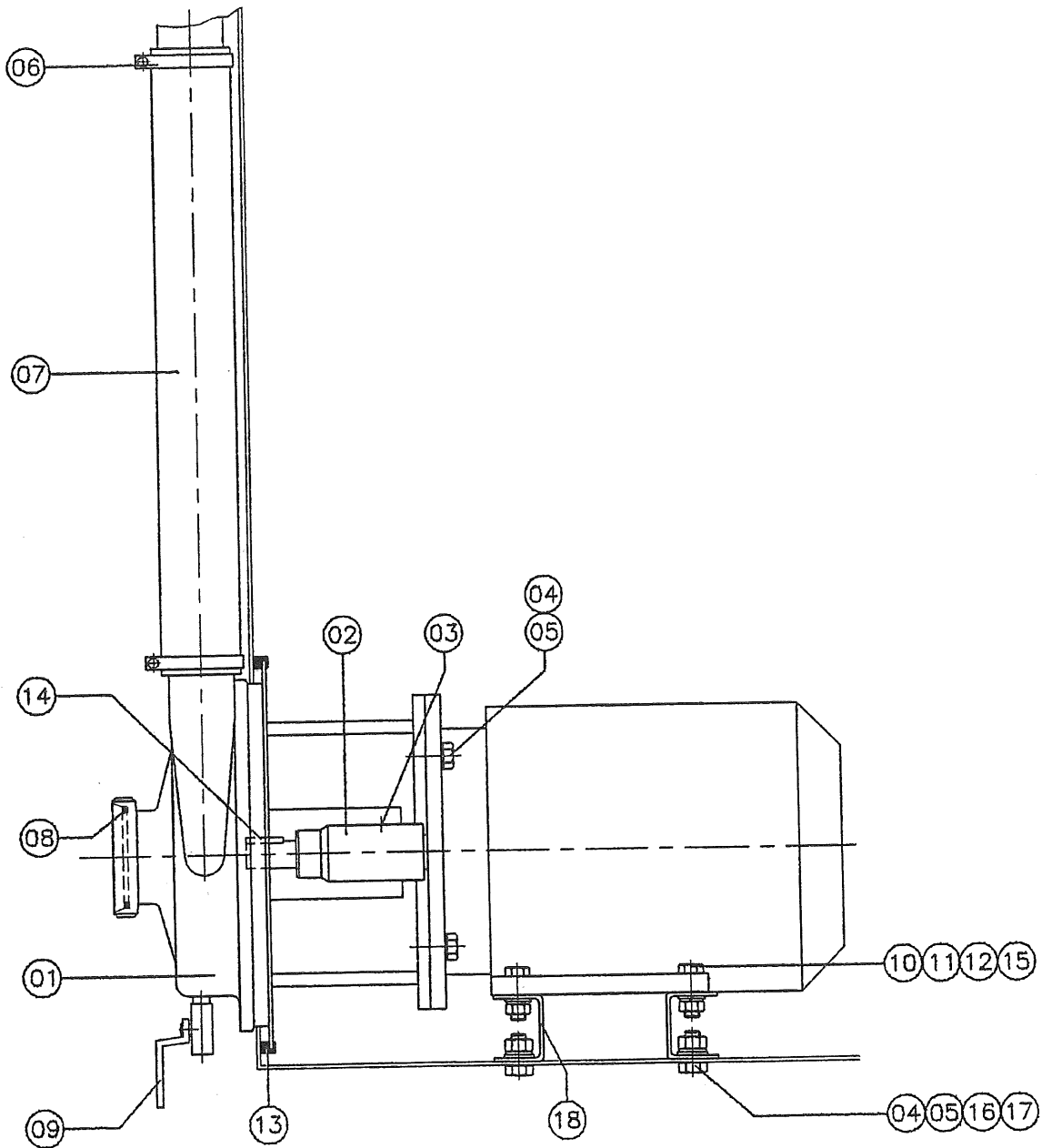
15-05-98


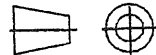
SMBA6
Page : 1

ITEMNUMBER
M621942

DESCRIPTION
ASS. BRINE PUMP

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
	E1165	2	ST	CABLE COUPLING
	E1506	1	ST	REDUCING RING
	E2462	2	ST	CABLE COUPLING
	E2474	1	ST	RING
	D1375	1	ST	PUMP
0001	M621850	1	ST	SHAFT EXTENSION
0002	B5013	2	ST	SET SCREW
0003	B1183	8	ST	BOLT
0004	B3014	12	ST	SPRING WASHER
0005	B6005	2	ST	HOSE CLIP
0006	D3067	50	CM	HOSE
0007	A6002	1	ST	SEAL WASHER
0008	D1022	1	ST	BALL COCK
0009	B3012	4	ST	SPRING WASHER
0010	B3011	4	ST	WASHER
0011	B1138	4	ST	NUT
0012	D1191	4	CM	SEAL
0013	T1187	100	ST	KEY
0014	B1147	1	ST	BOLT
0015	B1177	4	ST	NUT
0016	B3013	4	ST	WASHER
0017	M619973	4	ST	CHANNEL
0018		2	ST	



			25=±0,5	25,0=±0,05	25,00=±0,005	Mat.		
			25=±1	25,0=±0,1	25,00=±0,01	Prof.		
Wijz.	Datum	Omschrijving:	25=±2	25,0=±0,2	25,00=±0,02	Art.Nr.		
Benaming: ASS. BRINE PUMP						Afm.		
						Order Nr.		
 BELAM			UDEN			Get. RR.		
			HOLLAND			Datum 02-12-1997		
						Schaal 1:5		
						A 4C		Tek.Nr. M621942

ITEMNUMBER
M622230

DESCRIPTION
ASS. BRINE TANK

15-05-98

SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	M622226	1	ST	WAS. BRINE TANK
0002	B1178	1	ST	CAP NUT
0003	E4047	1	ST	PROXIMITY SWITCH
0004	D1315	1	ST	FLOAT
0005	M618022	1	ST	WAS. SIEVE
0006	M617994	1	ST	WAS. SUPPORT
0007	M601767	1	ST	KNOB
0008	M617989	1	ST	COVER
0009	M620677	1	ST	ASS. PLUG
0010	A4079	1	ST	O-RING
0011	D1320	2	ST	CASTER
0012	D1321	2	ST	CASTER
0013	D3052	4	ST	ELBOW
0014	D3066	350	CM	HOSE
0015	M619033	1	ST	WAS. HOSE COUPLING
0016	B6006	2	ST	HOSE CLIP
0017	D1129	100	CM	HOSE
0018	B1111	16	ST	BOLT
0019	B3009	16	ST	WASHER
0020	B7067	1	ST	COUPLING NUT
0022	E2337	1	ST	PLUG
0023	E2338	1	ST	HOUSING
0024	E2339	1	ST	COVER
0025	B1008	2	ST	SCREW
0026	B1002	2	ST	NUT
0027	B3002	2	ST	SPRING WASHER
0028	B1113	4	ST	BOLT
0029	M620594	2	ST	WAS. HANDLE
0030	M620593	2	ST	BLOCK
0031	M620596	2	ST	WAS. SIEVE
0032	M620595	2	ST	WAS. SIEVE
0033	M622552	1	ST	BOTTOM

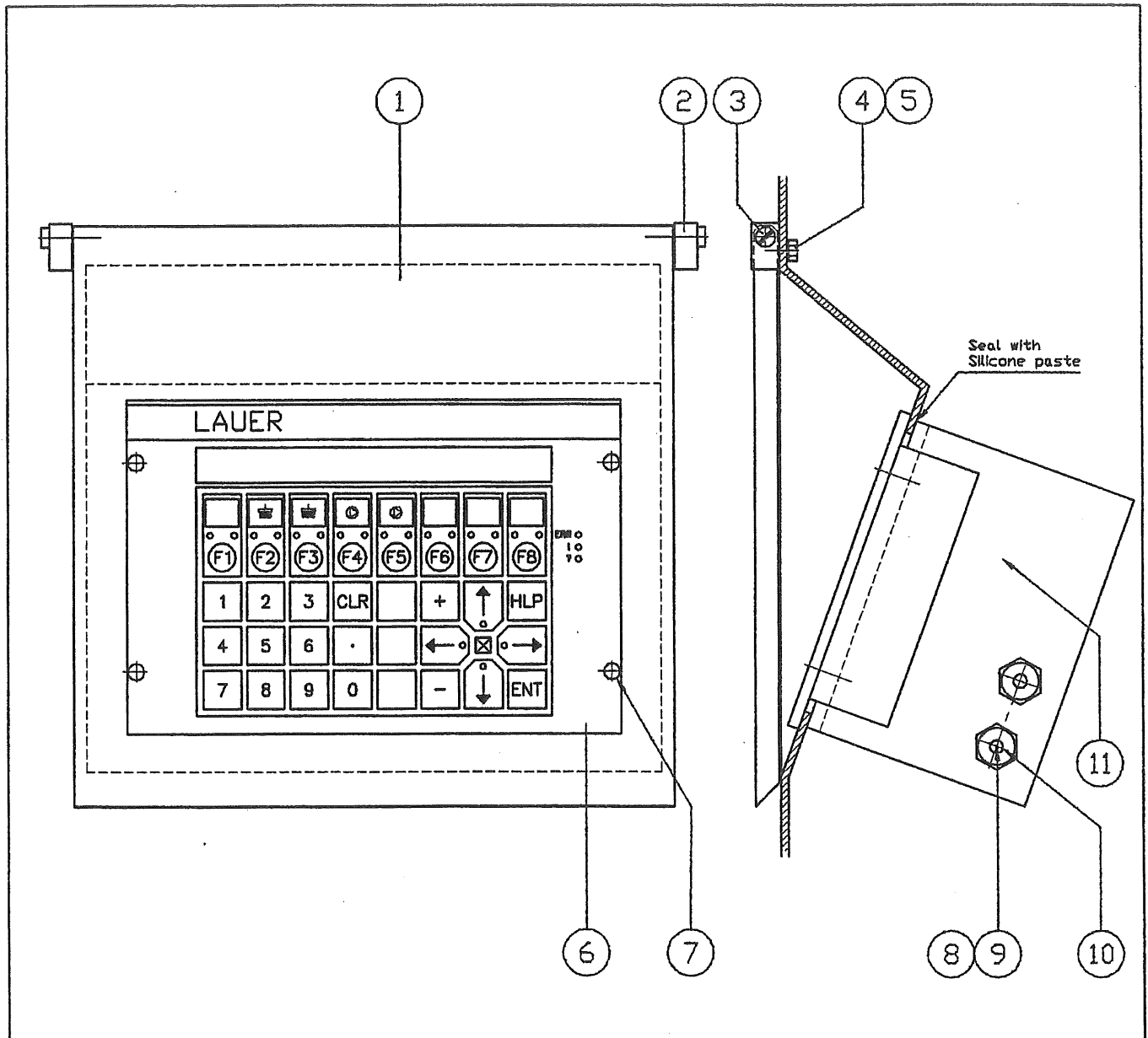
ITEMNUMBER
M622457

DESCRIPTION
ASS. LAUER DISPLAY


15-05-98

SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
	M622454	1	ST	ADJUSMENT FRAME
	M620645	1	ST	COVER
0001	M622452	2	ST	MOUNTING BLOCK
0002	M622453	2	ST	BOLT
0003	B1279	2	ST	BOLT
0004	B3004	2	ST	SPRING WASHER
0005	E2236	1	ST	DISPLAY
0006	B1233	4	ST	SCREW
0007	E2005	2	ST	CABLE COUPLING
0008	E2007	2	ST	LOCKNUT
0009	E1001	250	CM	CABLE
0010	M622438	1	ST	WAS. HOUSE
0011				



UNIT MUST BE EARTHED !

			25=±0,5	25,0=±0,05	25,00=±0,005	Mat.
			25=±1	25,0=±0,1	25,00=±0,01	Prof.
Wijz.	Datum	Omschrijving:	25=±2	25,0=±0,2	25,00=±0,02	Art.Nr.
Benaming: Ass. Display Lauer						Afm.
						Order Nr.
 BELAM			Get. WV.			Tek.Nr. M622457
			Datum 18-6-97			
			Schaal			
UDEN HOLLAND			A 4C			

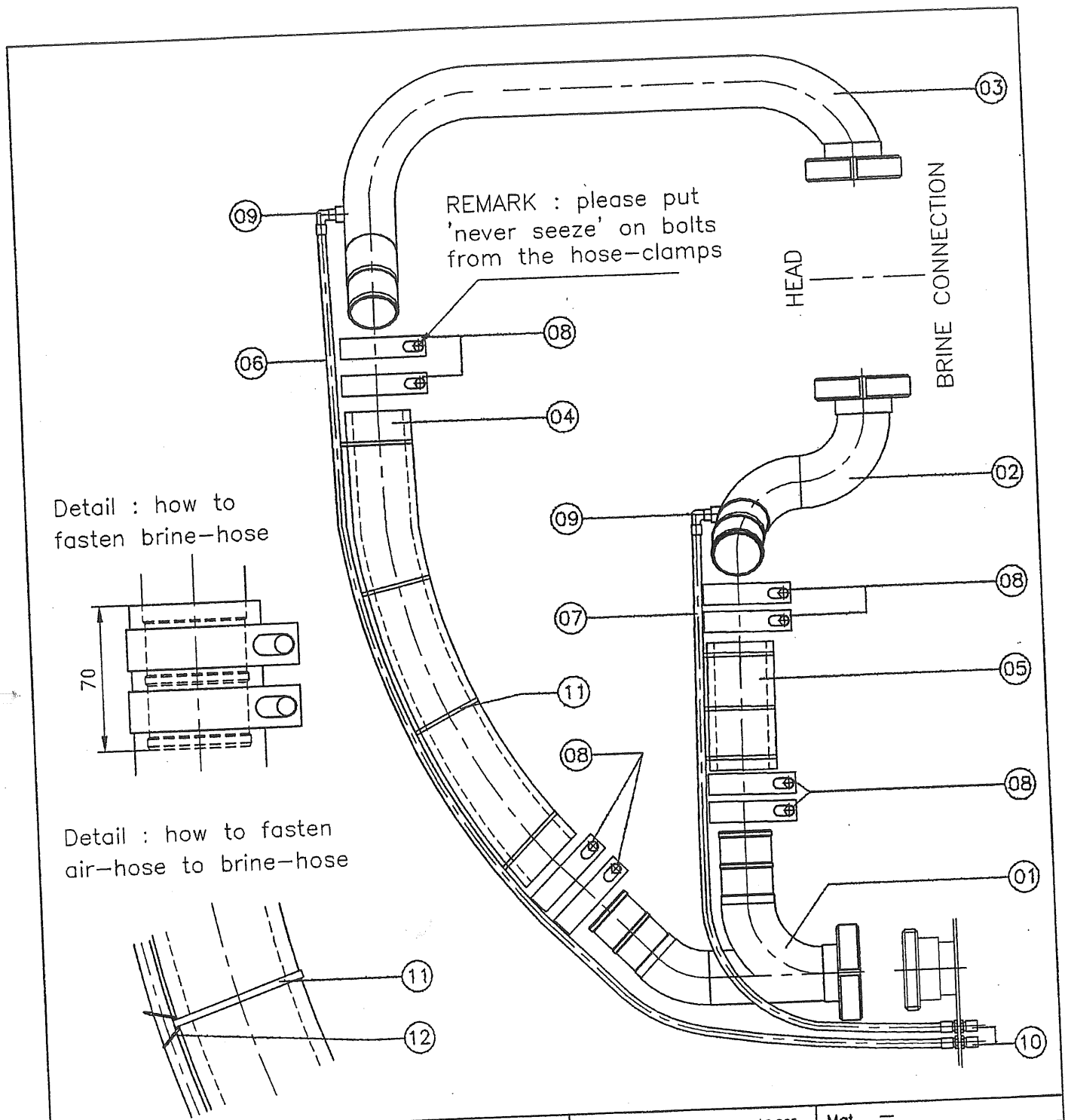
ITEMNUMBER
M622670

DESCRIPTION
DOUBLE INJECTION HEAD MI-650

15-05-98

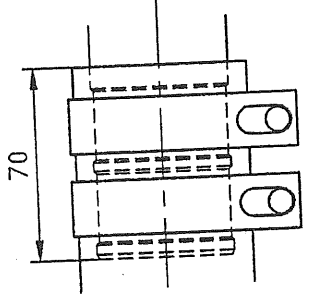
SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	M621039	1	ST	WAS. PIPE
0002	M621040	1	ST	WAS. PIPE
0003	M622667	1	ST	WAS. PIECE OF PIPE
0004	D3067	155	CM	HOSE
0005	D3067	115	CM	HOSE
0006	D3066	190	CM	HOSE
0007	D3066	150	CM	HOSE
0008	B6005	8	ST	HOSE CLIP
0009	D3052	2	ST	ELBOW
0010	D3049	4	ST	BULKHEAD CONNECTOR
0011	B6009	7	ST	CABLE TIE
0012	B6011	7	ST	CABLE TIE

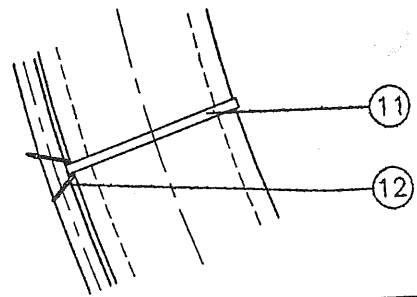



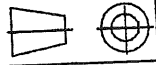
REMARK : please put 'never seeze' on bolts from the hose-clamps

Detail : how to fasten brine-hose



Detail : how to fasten air-hose to brine-hose



			25=±0,5	25,0=±0,05	25,00=±0,005	Mat. —
			25=±1	25,0=±0,1	25,00=±0,01	Prof. —
			25=±2	25,0=±0,2	25,00=±0,02	Art.Nr. —
Wijz.	Datum	Omschrijving:				Afm. —
Benaming:		1 * DUBBELE INJECTIE KOP				Order Nr.
 BELAM		UDEN		Get. RR.		
		HOLLAND		Datum 19-11-1997		
				Schaal 1:5 (1:2.5)		
				A 4C		Tek.Nr. M622670

15-05-98

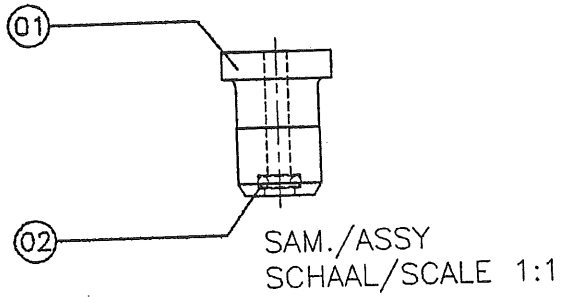
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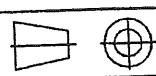
Page : 1

ITEMNUMBER
M623060

DESCRIPTION
ASS. NEEDLE GUIDE

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	M623063	1	ST	NEEDLE GUIDE
0002	A1234	1	ST	O-RING



			25=±0,5	25,0=±0,05	25,00=±0,005	Mat. —
			25=±1	25,0=±0,1	25,00=±0,01	Prof. —
			25=±2	25,0=±0,2	25,00=±0,02	Art.Nr. —
Wijz.	Datum	Omschrijving:				Afm. —
Benaming:		Ass. Needle Guide top				Order Nr.
 BELAM		UDEN		Get. WV.		Tek.Nr. M623060
		HOLLAND		Datum 3-12-97		
				Schaal 1:1		
		A 4C				

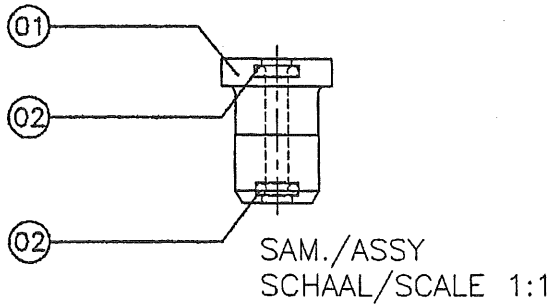
ITEMNUMBER
M623061




DESCRIPTION
ASS. NEEDLE GUIDE

15-05-98

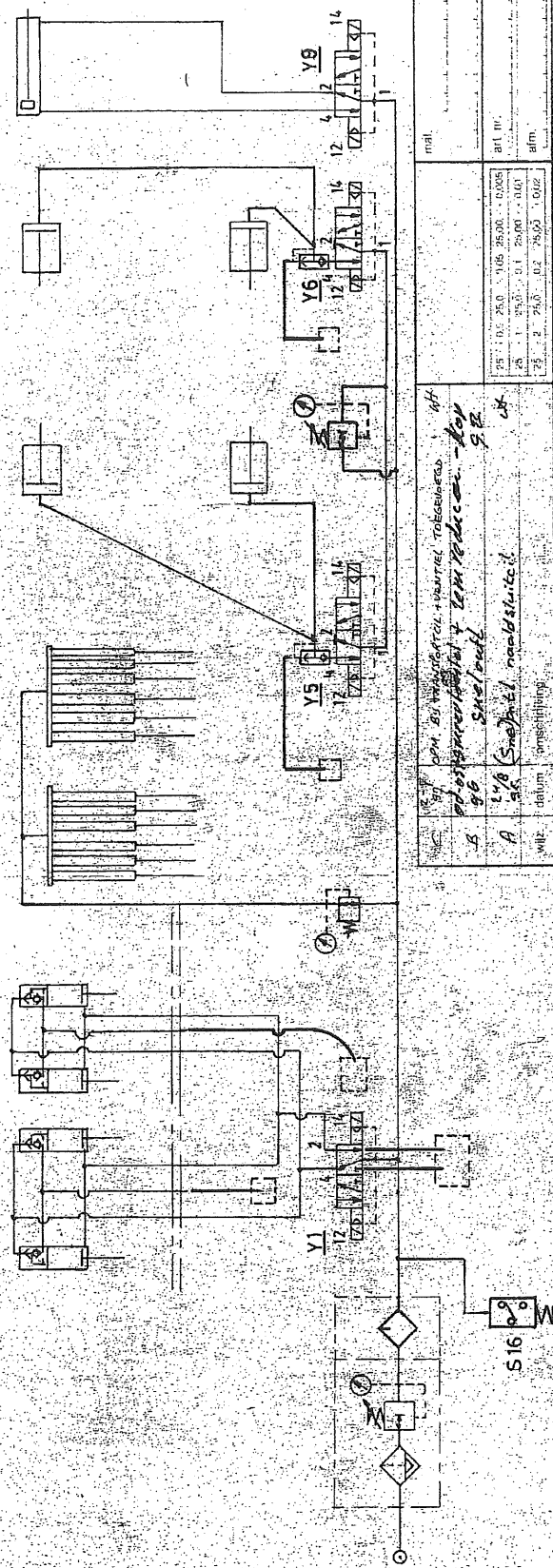
SMBA6
Page : 1

POS	ITEMNUMBER	QUANTITY	UNIT OF MEASURE	DESCRIPTION
0001	M623062	1	ST	NEEDLE GUIDE
0002	A1234	2	ST	O-RING



			25=±0,5	25,0=±0,05	25,00=±0,005	Mat. —
			25=±1	25,0=±0,1	25,00=±0,01	Prof. —
Wijz.	Datum	Omschrijving:	25=±2	25,0=±0,2	25,00=±0,02	Art.Nr. —
Benaming: Ass. Needle Guide Bottom						Afm. —
 BELAM						Order Nr.
						Get. WV.
						Datum 3-12-97
UDEN HOLLAND						Tek.Nr. M623061
						 
						A 4C

MI-650 (D) MI-650 F
MI-650 (D) MI-650 F



opm. en montage-instructies af te nemen bij de leverancier van de af te nemen cilinders en de af te nemen solenoiden		af te nemen bij de leverancier van de af te nemen cilinders en de af te nemen solenoiden	
A 1/18 1/18 1/18	1/18 1/18 1/18	1/18 1/18 1/18	1/18 1/18 1/18
wil. i datum inschrijving		af te nemen bij de leverancier van de af te nemen cilinders en de af te nemen solenoiden	
Pneumatic Diagram MI-450/650			
A3		P 1499	
WOLFKING BELAM B.V. UDEN - THE NETHERLANDS			

Belam is vervaardiger tekening schied deze toestemming te verspreiden en te kopiëren is niet toegestaan.