



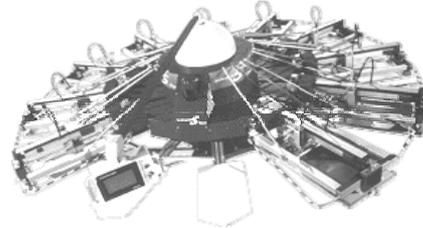
Manual

for the
Screen Printing Machine
SP S-Type Version 4

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I. Introduction



1. Preface

Kufstein, March 2001

Dear Customer:

Congratulations on purchasing an
„Original-MHM-Kufstein S-Type-Screen Printing Machine“.

This machine has been carefully designed and built according to
the latest state of technology.

The purpose of this manual is to provide your machine operators
with a reliable instrument for the correct handling of the
machine with regard to safety, trouble-free operation, maximum
obtainable quality and productivity.

It is emphasized by MHM-Siebdruckmaschinen GmbH. KG in
Kufstein that your personnel authorized to operate the machine
is trained based on this manual, and that the procedures and
safety instructions are followed carefully.

Your

MHM-Siebdruckmaschinen GmbH. KG



2. Information

This manual was prepared

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Copyrights:

The copyrights to this instruction manual remain with MHM-Siebdruckmaschinen GmbH.KG.

This instruction manual is designed solely for the machine owner and his personnel.

It contains regulations and information that may not be copied, distributed or handed over to third parties.

Infringements may have legal consequences.

II. General Information



1. Warranty and Liability

Warranty and liability claims for personal injury and property damages are excluded if these resulted from one or more of the following causes: -

- Improper use of the machine
- Improper assembly, start-up, operation and maintenance of the machine by the owner (strictly observe the instructions specified in this manual)
- Operating the machine with defective safety equipment, improperly mounted or non-functioning safety and protective devices
- Non-observance of specifications listed in the operating instructions regarding transport, storage, unpacking, assembly, start-up, operation, maintenance and setup of the machine.
- Performing modifications to the design of the machine without proper authorization (such as dismantling original MHM-components or assembly of non-original MHM-components)
- Modifications to drive and operating elements without proper authorization (such as changes to preset software and data contents of the hardware used, like SPC-regulations, touch-screen and various frequency converters)
- Negligence in monitoring machine parts that are subject to wear and tear
- Improperly performed repair work
- Use of spare parts other than the original spare parts listed by MHM under item 6 in the manual – Spare parts (subject to change)
- Use of lubricants other than those specified by MHM under item 4 in the manual - Maintenance and Service
- Operating the machine using different technical data than those specified by MHM (such as supply voltage too high or air pressures set too high)
- Breakdown due to foreign particles and due to force majeure



2. General Safety Instructions

Owner's Obligation:

The obligation of the owner consists of the following organizational duties:

- To ensure that regular checks concerning the availability and proper function of the safety and protective devices supplied by the manufacturer are performed.
- To perform the specified maintenance and repair work.
- To ensure that maintenance and repair work are performed by qualified personnel only.
- To keep the manual close to the screen printing machine.
- To make sure that the information concerning safety and danger on the machine are kept in legible condition.
- To ensure that no unauthorized personnel comes near the safety zones of the machine, in particular the loading and unloading station, before the start-up of the machine and/or during production.
- To make sure that the personnel has been thoroughly and properly trained by our field engineers and/or based on the manual.
- Only personnel that received special training may perform specific activities; for example, a trained electrician may work on electrical components.
- Personnel to be trained may put the machine in operation only if supervised by experienced personnel.
- Technical defects that no longer enable the machine to operate properly necessitate an immediate shutdown.
- Any and all defects with regard to technical safety must be reported immediately to the supervisor by the operating personnel.

II. General Information



2. General Safety Instructions

Other dangerous situations that may occur

- Work performed underneath the machine and/or printing stations while the machine is running.
- Danger from the movement of tables and pallets: get caught, collide, etc. when disregarding danger and safety zones.
- Danger from all moving and rotating parts on the machine, in particular in the vicinity of the printing stations. Danger of being squeezed or crushed!
- General hazards when disregarding danger and safety zones respectively when trying to walk around them and not paying attention.
EXAMPLE: not moving the safety bar but crawling underneath it; reaching over machine parts and safety devices into the operating range of the machine.

Safety measures during normal operation:

Please observe the following:

- Operate machine only when all safety devices are fully operational.
- Prior to turning on the machine make sure that nobody is in danger when turning the machine on (all personnel is outside the danger zones).
- Check the machine at least once per shift for visible damages and check the function of the safety devices.

3. Transport, Storage and Unpacking

Transporting the Machine to the Customer:

The machine is delivered in 2 wooden crates (see below for dimensions packaging).

It is the customer's responsibility to unload the machine.

Dimensions Packing –

Base frame: 2.8 x 2 x 2.2 m / 110.23" x 78.74" x 86.61"

Container size: 2.2 x 2 x 2.2 m / 86.61" x 78.74" x 88.61"

Dimensions Packing –

Stations: 2 x 2.2 x 2.2 m / 86.61" x 78.74" x 86.61"



Upon arrival, the shipment must be inspected for visible damages to the crates and its contents and documented in suitable form, if necessary; MHM Siebdruckmaschinen GmbH. KG Kufstein must be informed immediately.

The machine must be unloaded as described under **Variants 1 and 2. Unauthorized opening of the crates will void any warranty claims!** Until an authorized service engineer from **MHM** has arrived, the machine must be stored at a dry and dust-free and secure location.

Unloading the machine from the freight carrier by the customer:

The customer must make the following equipment and tools available for unloading:

Variant 1: Fork lift with a minimum load capacity of 2.5 tons and a fork length of at least 2 m.

Weight
Approx. 2.5 tons
(5511,59 lb)



2 m (86,61inch) minimum fork length

Variant 2: Loading crane and other lifting devices with a minimum load capacity of 2.5 tons (5511,59 lb) and auxiliary tools, such as chains and ropes.

II. General Information

3. Transport, Storage and Unpacking

Under certain circumstances – in case of insufficient space, for example, the crates may be opened if so confirmed in writing by MHM, and unpacked as described below!

Make sure the following equipment and tools are available for unpacking the machine:

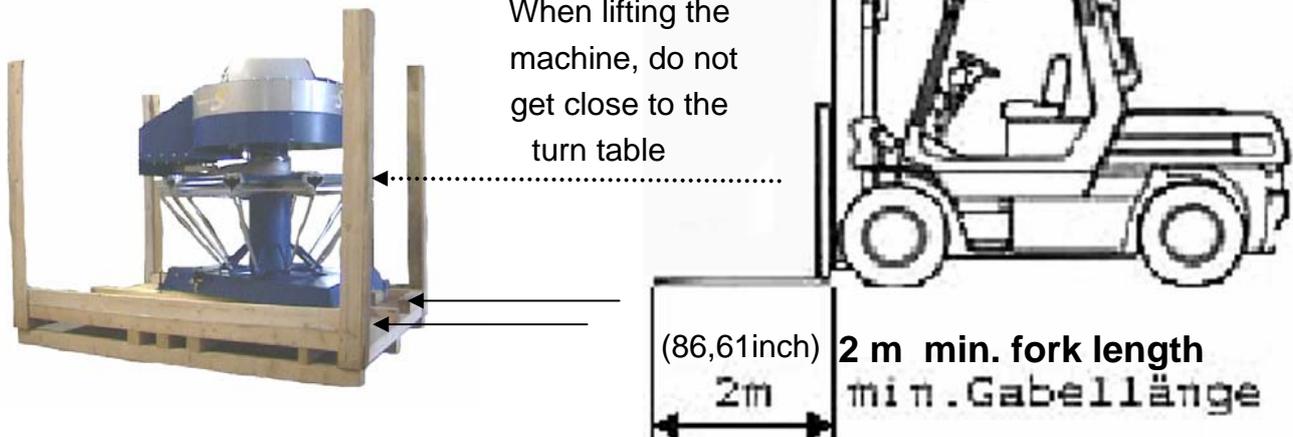
- Fork lift with a minimum load capacity of 2.5 tons and a minimum fork length of 2m.
- Lifting truck with a minimum load capacity of 2.5 tons and a minimum fork length of 1.2m.
- Drilling machine (battery) with bit – insert PZ2 and open-end wrench 13mm – 30mm.

Carefully lift the machine with the fork lift at the center of the base frame!

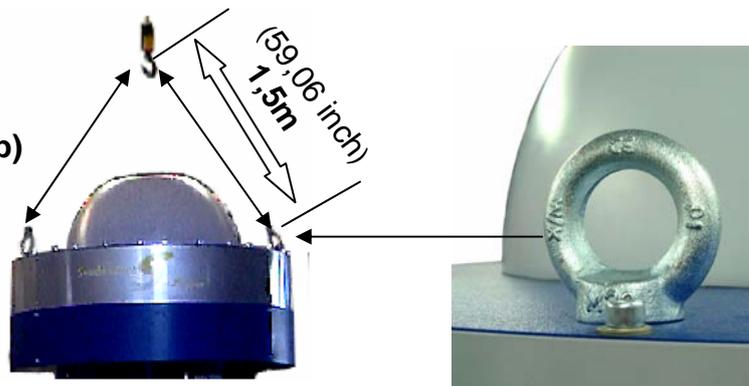
Careful – Safety distance to the turn table !

Caution!

When lifting the machine, do not get close to the turn table



**Loading crane (2.5 tons, 5511,59 lb)
with chain or belt
The machine may only be lifted
at the transport hooks !**



II. General Information

MHM AUSTRIA

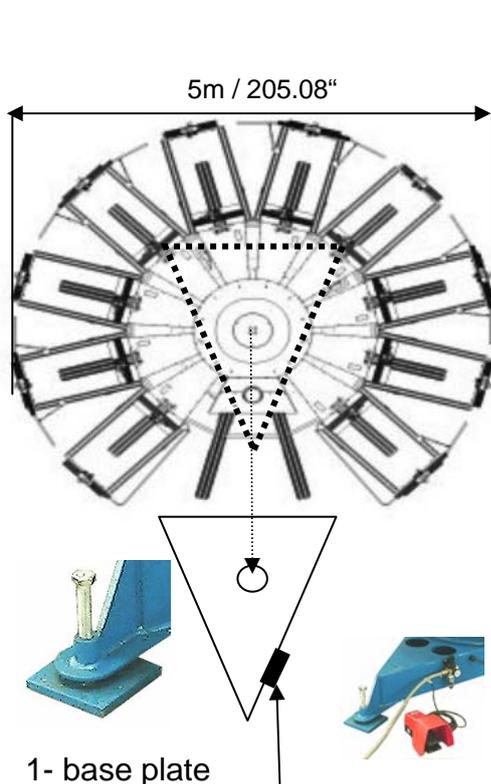
4. Assembly and Start-Up

Please have 2 people available for the assembly.

Carefully position the base frame of the machine on the 3 supplied base plates at the specified location. See Fig. 1 – base plate

Caution! When assembled, the machine has a diameter of 5 meters.

Make sure there is enough distance to the walls, columns and adjacent machines.



Connections:

Either from top (center) or bottom (on the floor).

Electricity:

Machines: ~210 – 230 volts, 20 amps single-phase (recommended diameter of conductor: 2.5²)

Dryer: 3x ~380 volts, 5 x 4² - 32 amps
3x ~220 volts, 5 x 4² - 32 amps
(See also – Dryer manual)

Compressed air:

Braided hose min. 10 bar
Inner diameter min. 10 mm
Compressed air supply volume min. 300 l/min.

Connections Electric / Pneumatic:

Up to the center on the floor + 2

When connecting on the floor please install anti-slip cover.

1- base plate

Position of supply connections

Assembly:

Assembly and first start-up of the machine are generally performed by service engineers working for MHM-Siebdruckmaschinen respectively by authorized personnel of its worldwide dealers and agents.

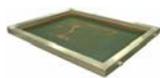
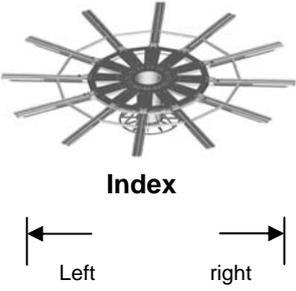
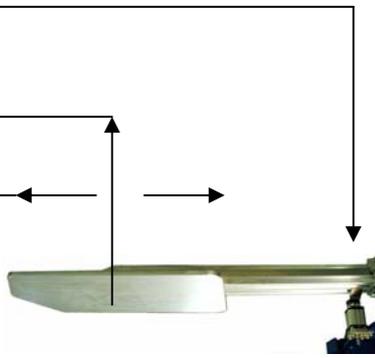
Start-up (Training)

Once the machine has been started-up successfully, the start-up protocol must be filled out by the authorized service engineer as well as by a person authorized by the customer, and both have to sign this protocol. This protocol lists all of the activities and checks performed by the service engineer at the customer's site, as well as any defects and complaints.

III. Operating Instructions

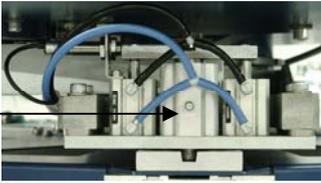
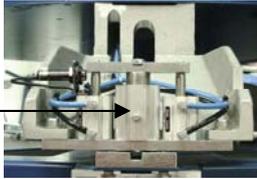
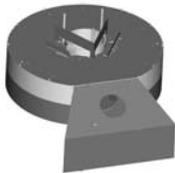
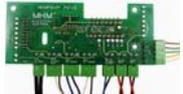
1. Description of important components

The components featured on pages 10/ 11/ 12 are used for orientation and for better understanding of the operating instructions

Group	Part / Description		See also page
<p>Printing Station</p> 	Squeegee arm		86 / 87
	Squeegee carriage		86 / 87
	Flood squeegee Pressure squeegee		86 / 87
	Y- Axle front Y- Axle rear		84 / 85
	Screen		89
	Flash-cure unit		83
	<p>Turntable</p>  <p>Continued on next page</p>	Pallets Lock Unlock Pallets – change Or adjust Index – is the turning motion of the turntable from one printing to another	

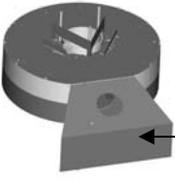
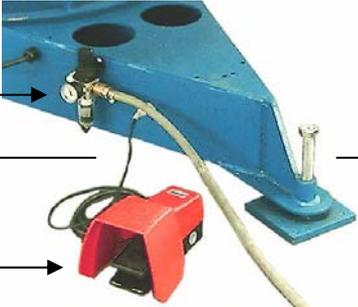
1. Description of important components

III. Operating Instructions

Group	Part / Discription		See also page
Rotating Drive 	Carrier pin		76
	Registration Plate		75 / 76 / 78
Aligment pir 	Aligment pin		75
Head frame Aligment pin Carrier Rotating drive Squeegee arm     Continued on next page	Initiator (Proximity Switch) Aligment pin Carrier Rotating drive Squeegee arm		76 75 77 86 / 87
	Frequency converter - FU FC - Maindrive 1,1kw		71 / 79
	FC –Squeegee arm 400W		71 / 79
	Control unit (SP –C) CPU Input/Output cards STAT- motherboard	 	91 / 92
	Rotating motherboard		90 / 93
	Squeegee arm motherboard RAP		94

III. Operating Instructions

1. Description of important components

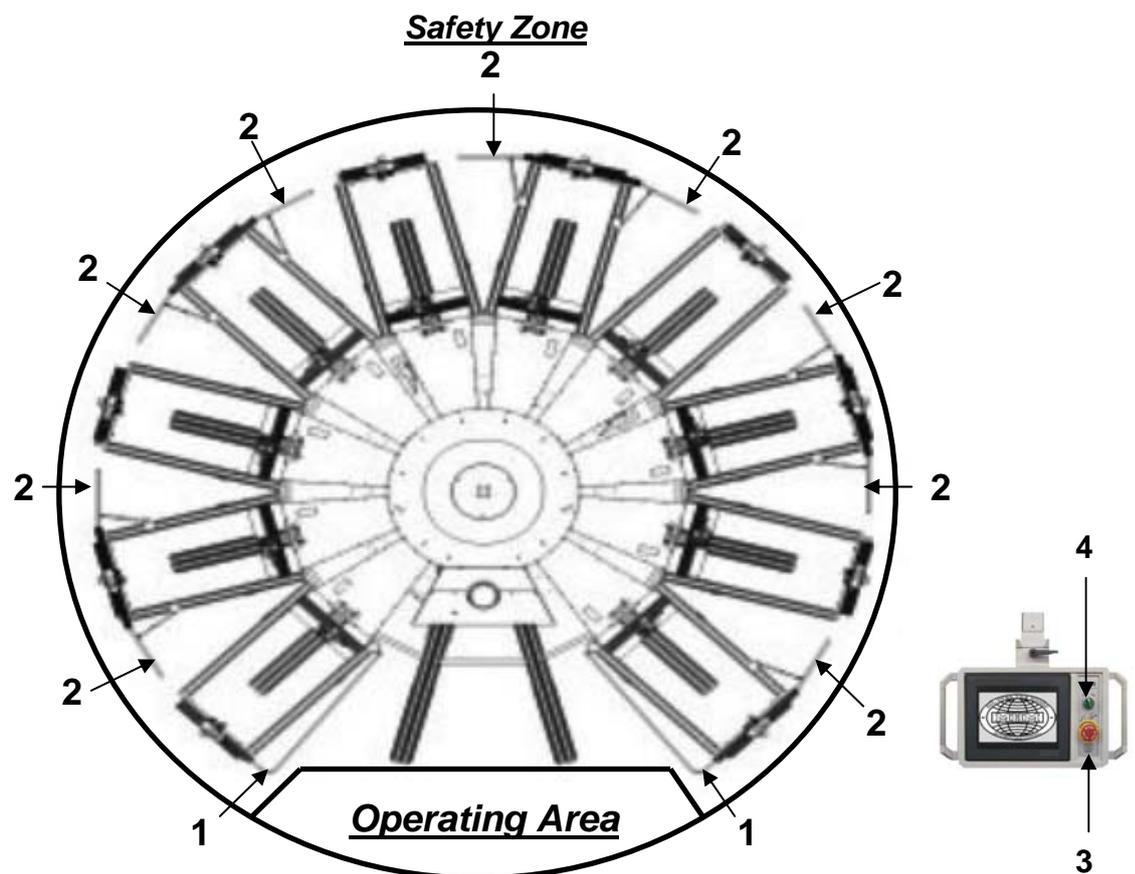
Group	Part / Description		See also page
<p>Main terminal board</p>	<p>Power supply unit Contactor Multifunction relay Fuse</p>		<p>90</p>
<p>Solenoid valves</p> 	<p>Valve island Solenoid valves Pressure regulators Pressure gauges</p>		
<p>Ba:</p> 	<p>Maintenance unit Input pressure gauge Foot switch</p>		

2. Location of Safety Elements

The safety elements are used to guarantee a safe operation and to avoid accidents. If work is to be performed within the safety zones, make sure that the on/off switch is turned to „OFF“, that the emergency stop button is activated or that you have pushed the respective safety lever all the way back to the stop prior to entering the safety zone.

Danger zones of the machine:

 are those areas that could pose danger to the personnel during the operation of the machine because of its mechanical movements. These are all areas of the machine, in particular between and in front of the printing stations. These zones may only be entered for adjustments and other types of work when the machine is turned off and/or the emergency-off button is pushed and/or the safety bars are activated.



The safety elements:

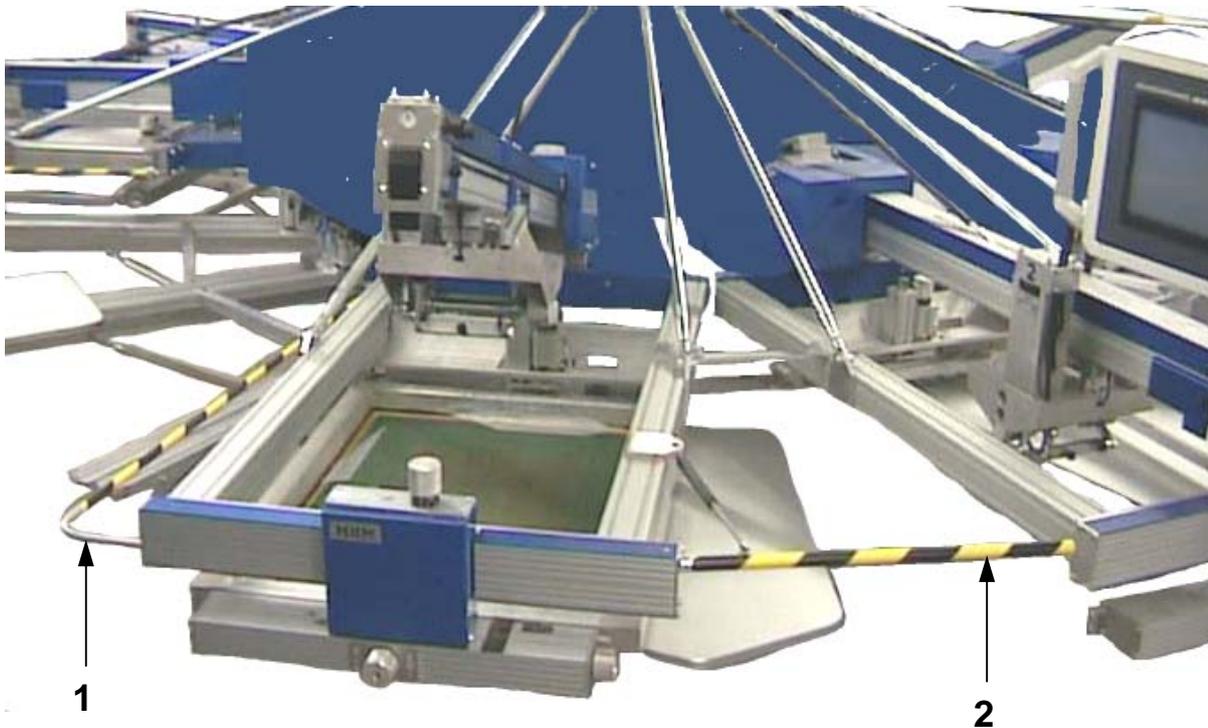
- 1.) Safety bar
- 2.) Safety barrier
- 3.) Emergency-off button
- 4.) ON – Off rotary switch

III. Operating Instructions

2. Location of Safety Elements

The safety elements:

- 1.) **Safety bar**
to the left and right of the operating area
- 2.) **Safety barrier**
between the printing stations



- 3.) **Emergency-off button**

at the control unit

Caution for EMERGENCY STOP only!!!
Do not use to stop the machine
during normal operation. (Warranty!!!)



3. Description of the Operating Unit

3.1. The Operating - <i>Hardware</i>	Pg.15
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2. Operating elements at the touch screen	Pg. 17
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2. Reference Drive	Pg. 19
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c. Selecting the active dryer station	Pg. 25, 26
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4. Automatic Mode	Pg. 32 - 38
5. Service Mode	Pg. 39 - 45

III. Operating Instructions

3.1. The Operating - *Hardware*

The operating hardware used by us is called a touchscreen.

1. Operating the touchscreen

By touching the screen it is possible for you to directly select and change the functions shown.

The touchscreen is fastened to an angular joint located above its housing.

This enables a turning of approx. 320° to the right and to the left. This unit is also connected to another angular joint by means of a bracket that is fastened at the center of the machine and thus enables a turning and carrying of the operating unit to each printing station.

CAUTION ! Do not use harsh cleaners and/or solvents to clean the screen. You may damage the surface of the touchscreen and it may even be destroyed. Use a dry cloth respectively special screen wipes.

Non-observance and visible damages (surface/foil looks blurry, foggy) invalidate the warranty for this operating unit!

We always recommend to use a protective foil which can be removed and replaced when dirty.



2. Operating Elements on the Touchscreen

On-Off Rotary Switch (1)

Used as a master switch to turn the machine ON or OFF at the beginning or the end of work. To operate the switch, turn it. It lights up green when in position "ON".

This is not a Stop-Switch !

Emergency-Off Button (2)

This red button is used as a safety element in order to stop all movements of the machine immediately. It is activated by pushing the button. To deactivate, turn and pull in sequence.

Caution – for EMERGENCY STOPS ONLY !!!

Do not use to stop the machine in normal operation.

(Warranty !!!)

Screen = Touchscreen (3)

All settings for the machine that are possible with the help of the software are performed by touching the respective keys on the screen. For more information see Chapter "The Operating Software".



III. Operating Instructions

3.2 Operating - Software

1. Program Start

After the operating unit is turned on, turn the on/off switch to „ON“; after a short upload phase of the CPU, the MHM logo appears briefly followed by the display shown below.



Fig.: Touchscreen display after it has been turned on

By activating the button **Startup program** you will come to the menu item **Reference drive**

Possible problems:

1. Nothing appears on the touchscreen Pg. 72
2. The message „PLC NOT CONNECTED“ appears in the left bottom corner of the touchscreen Pg. 72

2. Reference drive

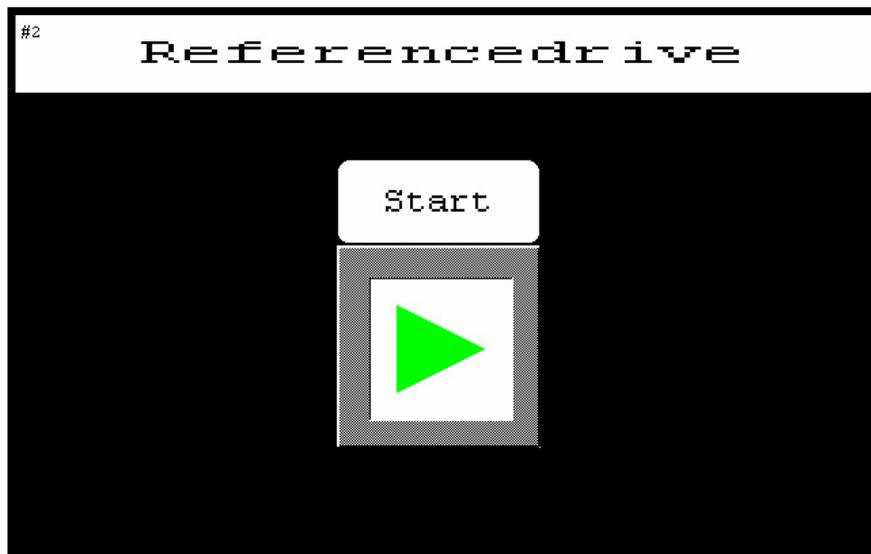


Fig.: Touchscreen display „Reference drive“



By pressing the **Start** button, the process reference drive is initiated. That means that the machine checks if the drive is in correct position to the turntable.

Possible problems:

1. Error report: „Error – The carrier is out of the registration plate!“ (#9) Pg. 78
2. Error report: „Safety bar or Emergency-off activated !“ (#5) Pg. 46

III. Operating Instructions

3.2 Operating - Software

3. Main Menu

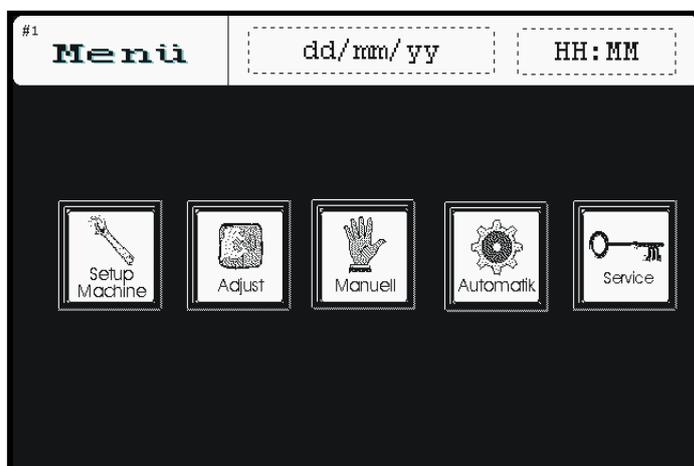


Fig: Touchscreen display „Main Menu“



1.

Setup Mode

Pg. 22 - 26

All of the settings necessary for production, as well as station logon, flood and print strokes, drying station logon, dryer times, Plastisol or water-based colors and positioning of the pallets in the menu pallet change are selected in setup mode.



2.

Adjust Mode

Pg. 27 - 28

This is a touch controlled manual operation for print preparation, such as:
Index right / left,
Cleaning position
drying,
screens up/down, with all printing stations logged on,
individual squeegee movements, squeegee forward / reverse, with selected print cycle on, a complete printing process of one logged on printing station is possible.



3. Manual Mode

Pgs. 29 - 31

This is a manually operated production process: Before or after a printing process, the machine is restarted by pressing the button „production start“ or by activating the foot switch. It is followed by another manual start.



4. Automatic Mode

Pgs. 32 - 38

This is an automatic production process for sample or production printing.

In Automatic Mode the production begins by pressing the start button and can only be stopped by pressing the stop button on the touch screen.

Caution! Do not confuse with the red EMERGENCY-STOP.

Caution! By activating (pushing) the foot switch it is possible to temporarily stop the production process. As soon as the foot switch is released, the production resumes automatically.



5. Service Mode

Pgs. 39 - 45

The Service Mode is divided into machine adjustments and service.

III. Operating Instructions

3.2 Operating - Software

1. Setup Mode

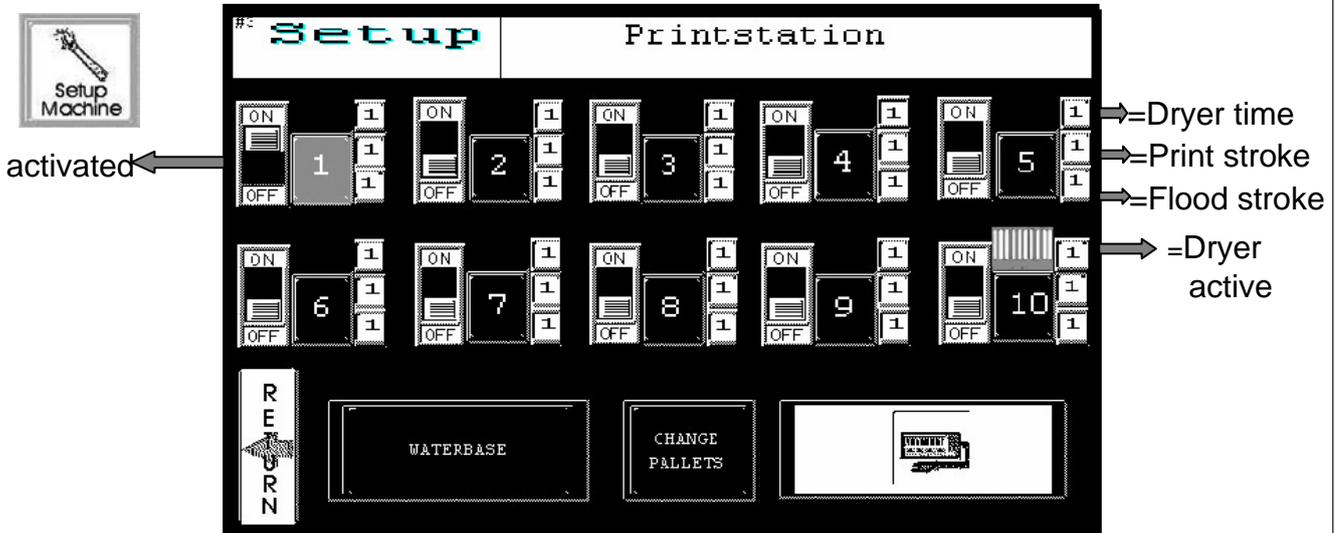


Fig.: Touchscreen display „Setup Mode“



Selecting the active print stations

Pg. 23

By pushing keys 1-10 you will come to the menu Setup Doctor Strokes Stations. Select the required flood strokes and print strokes.



ON/OFF

Once the flood and print strokes are selected, it is possible to logon the print station with the ON-OFF switch.



Selecting the print colors used

“Reversing switch” – With this key you’ll select the mode “water based” or “Plasticol” colors. The screen printing machine S-Type is designed in such a way that the print stroke can only be performed inside out. Therefore, the mode water based respectively Plastisol is required.

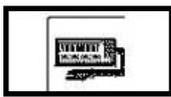
Caution: Water based colors – print cycle begins in the front; Plastisol colors – print cycle begins in the back.



Pallet Change

Pg. 24

This key will bring you directly to the menu “Pallet Change”, to change, position, lock or unlock pallets.



Flash Cure Unit Stations

Pgs. 25, 26

This key will bring you directly to the menu “Setup Flash Cure Unit Station”



Symbol for logged on flash cure unit station

a. Selecting the active print stations

Print station -keys 1 through 10

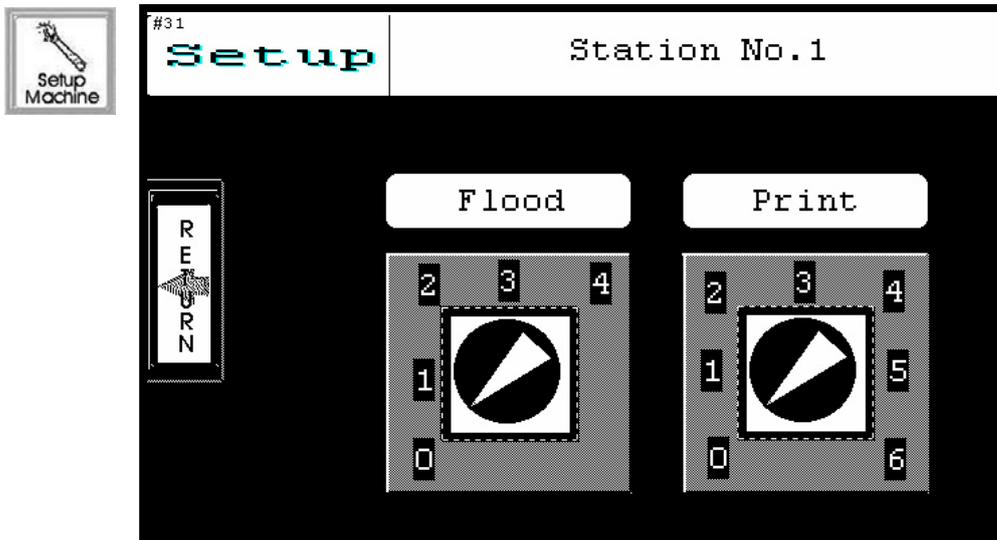


Fig: Touchscreen display „Setup Stations No.1-10“

FLOOD / PRINT

Select the necessary flood and print strokes based on your printing experience.

Only settings with the same number of flood and print strokes respectively only ratios with an odd number of strokes are possible.

Adjustable ratios:

Flood to print

1:1, 2:2 , 3:3, 4:4
resp. 1:3 or 1:5

RETURN back to menu „Setup Mode“

III. Operating Instructions

1. Setup Mode

b. Pallet change

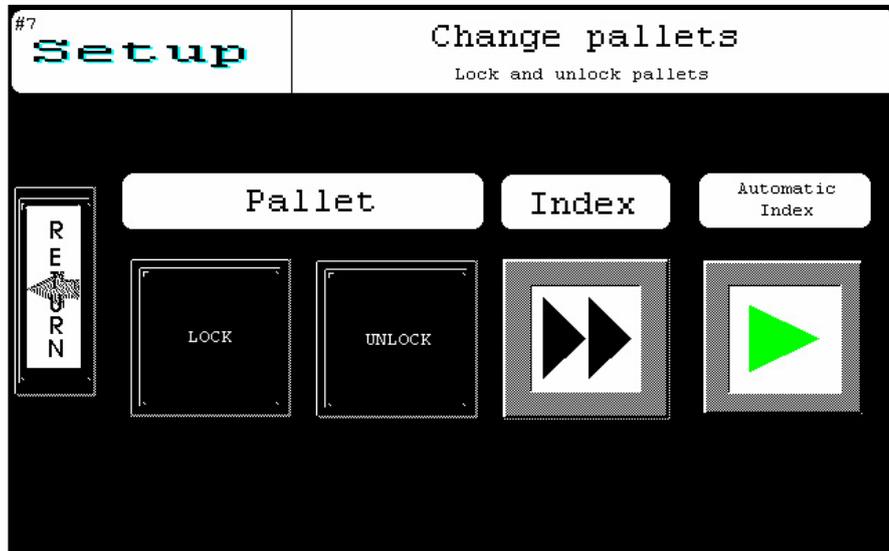


Fig.: Touchscreen display „Pallet change “

Unlock pallet



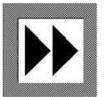
Releases the pallet to adjust to a new position (forward-reverse) or to change pallets. Afterwards, it is necessary to activate either „lock pallet“ or „automatic index“.

Lock pallet



Positions the pallet. Only when the pallet is locked will it be possible to continue with either „index“ or „automatic index“, or to leave the menu pallet change.

Index



This is the turning of the tables from one printing station to the next and it is possible only in counter-clockwise direction when changing pallets. Index is possible only if pallets are locked !

Automatic index



This is the automatic locking of the pallet, index drive of the tables and again an unlocking of the next pallet.

In order to leave this menu with the return key, the pallet must be locked !

RETURN back to the menu „Setup Mode“

Possible problems:

Error report: „Pallets - Caution – Incorrect operation !“ (#8)

Pg. 46

Error report: „Safety bar or Emergency-off activated !“ (#5)

Pg. 46

c. Selecting the active flash cure unit stations

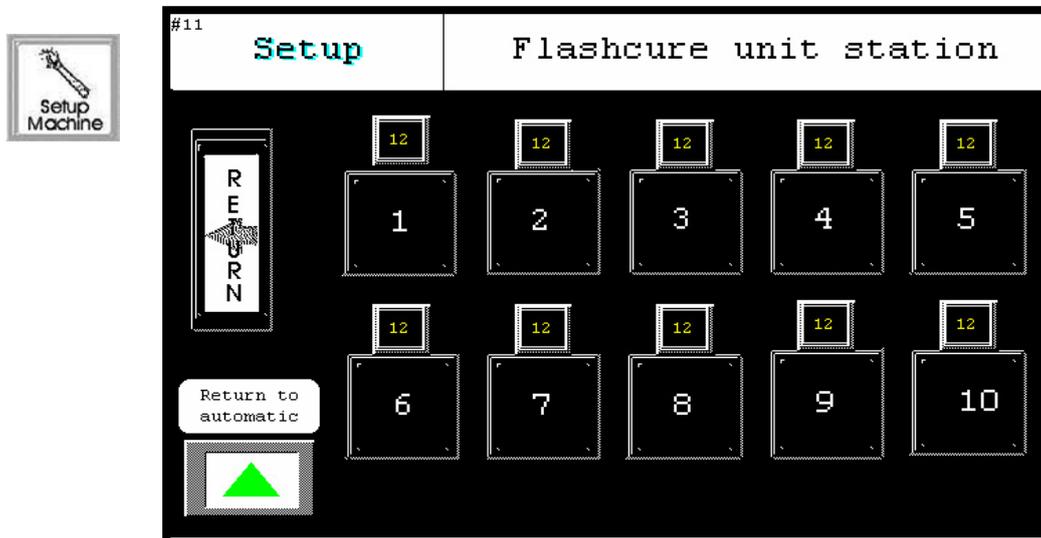


Fig.: Touchscreen display „Flash Cure Units “

Selecting the active flash cure unit stations

By pressing keys 1 – 10 you will come to the menu of the selected station, where you can logon to the flash cure unit and set the dryer time.

Caution: The active flash cure unit must be set to automatic, the drying time set at the flash cure unit [dryer] should be longer than the drying time set at the touch.

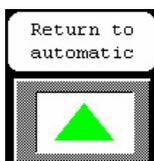
Reason: The time set at the flash cure unit is the maximum drying time.

Since the drying time can be changed during the production, if in automatic mode, it is necessary to push the button „return to automatic only“ after changing the drying time in order to return to Automatic Mode.

Display of the set dryer time

This is just a display to show the set dryer time above the respective key 1 – 10. For settings see next page.

RETURN back to the menu „Setup Mode“



III. Operating Instructions

3.2 Operating - Software

1. Setup Mode

c. Activating the flash cure unit station and setting the drying time at the individual station

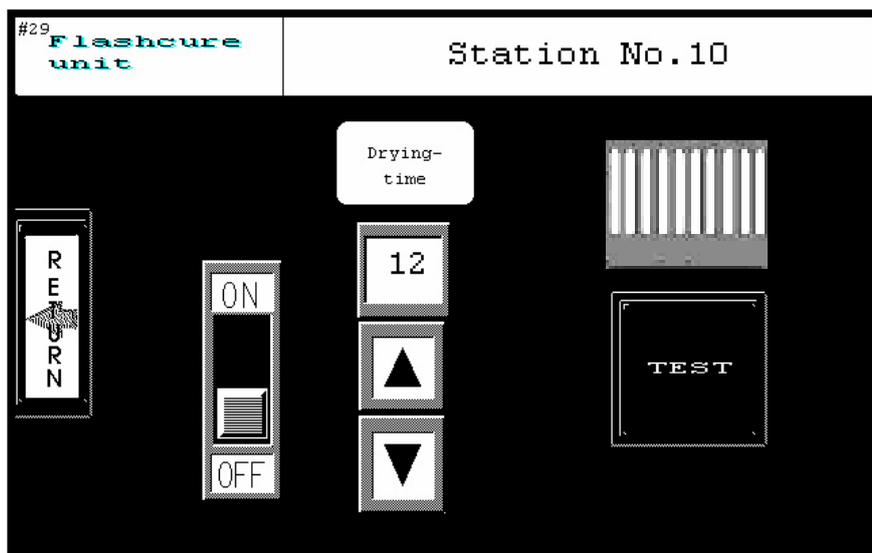


Fig.: Touchscreen display „Flash Cure Unit Station 1-10“



ON/OFF

By pushing the ON / OFF-button, you activate or deactivate the flash cure unit for this station.



Dryer time

By pushing the arrows up or down you are changing the dryer time. This range can be set from 0 to max. 9 sec. of drying time and is displayed above. 0 sec. = turned off



Testing the Flash Cure Unit

By pressing the key „Test“ it is possible to test the function respectively the set duration of the flash cure unit. A bar appears above the key while the test is running, and disappears after the test is completed. In the menu „Setup Mode“ the same bar appears above the active flash cure unit station.

RETURN back to the menu „Setup Mode“

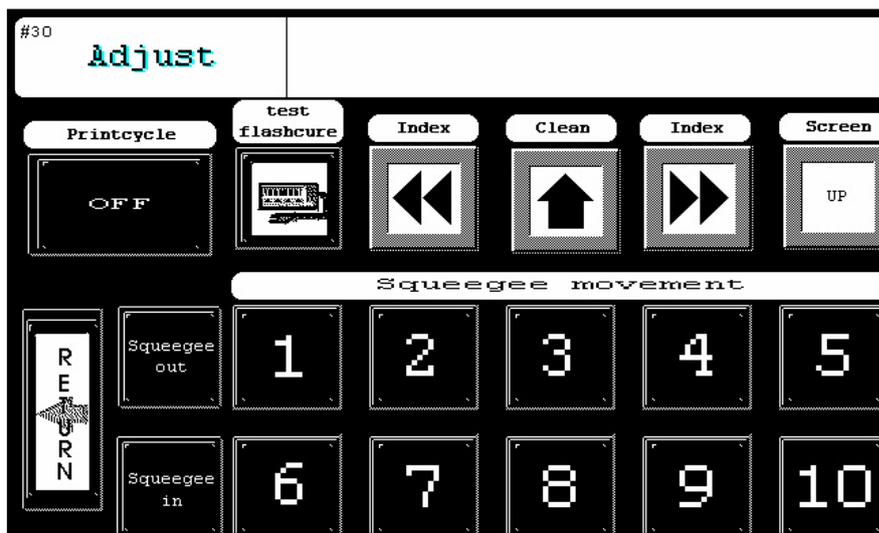


Fig.: Touchscreen display „Adjust Mode“

In the **Print cycle off** mode the selected squeegee carriage moves forward or backward along the keys 1 – 10, depending on the start position.

Caution!!! The flood or print squeegee is under pressure (possible damage to the screen)!

Print cycle on – with this mode each selected print station will perform one complete print cycle.

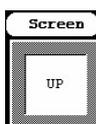
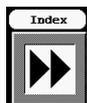
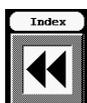
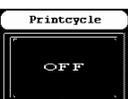
Drying – The flash cure units logged on in the setup are activated with this button.

Pg. 26

Index – left – the turntable moves one index to the left

Index – right – the turntable moves one index to the right

Screen – reversing switch screen up / screen down



RETURN back to the menu „Setup Mode“

Possible problems: Error report: „Adjust – incorrect operation !“ (#32)

Pg. 46

III. Operating Instructions

3.2 Operating - Software

2. Adjust Mode

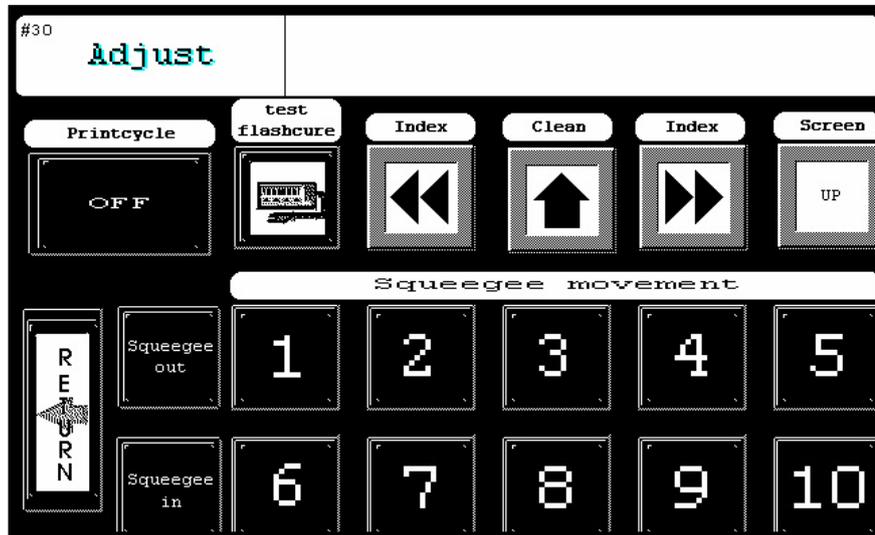


Fig.I: Touchscreen display „Adjust Mode“



Clean: The turntable moves half an index.

In this position it is possible to clean the screens in the print stations or to check the printed image after the respective print station.

In this position you can open the safety devices.

Push the button again once the cleaning is done, and the turntable moves back to its home position.



Only if the print cycle is turned off will the squeegee carriage of the logged on print station move at zero pressure to the outside respectively inside.

Possible problems:

Error report: „Adjust – incorrect operation !“ (#32)

Error report „Adjust - incorrect operation !“ (#283)

RETURN back to the menu „Setup Mode“

Pg. 46

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III. Operating Instructions

3.2 Operating- Software

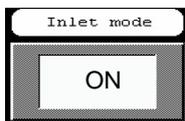
3. Manual Mode



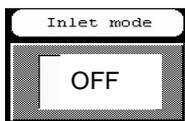
Fig.: Touchscreen display „Manuell Mode“



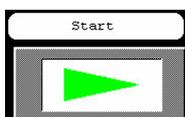
Warmup of pallet: This is an automatic index with the flash cure unit being activated by itself. It is used only for warming up the pallet.



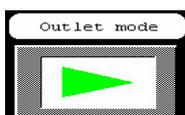
Inlet mode on: Prior to the print production the key inlet mode must be activated. This will automatically log on one required print station (flash cure unit) after another. After the first complete print process with all selected stations, the inlet mode automatically shuts off.



Inlet mode off: In this mode all logged on flash cure units and print stations are active (for example when print is interrupted, change to adjust mode, screen cleaning, print image inspection, etc.).



Production start: By activating the production start key, the machine will perform one print cycle, regardless if the inlet mode on or off is selected.



Outlet mode: In this mode the print and flash cure unit stations turn off one after the other, which means that after the last piece is entered there will be no more printing on the pallets.

See next page

RETURN back to the menu “Setup Mode”

III. Operating Instructions

3.2 Operating - Software

3. Manual Mode

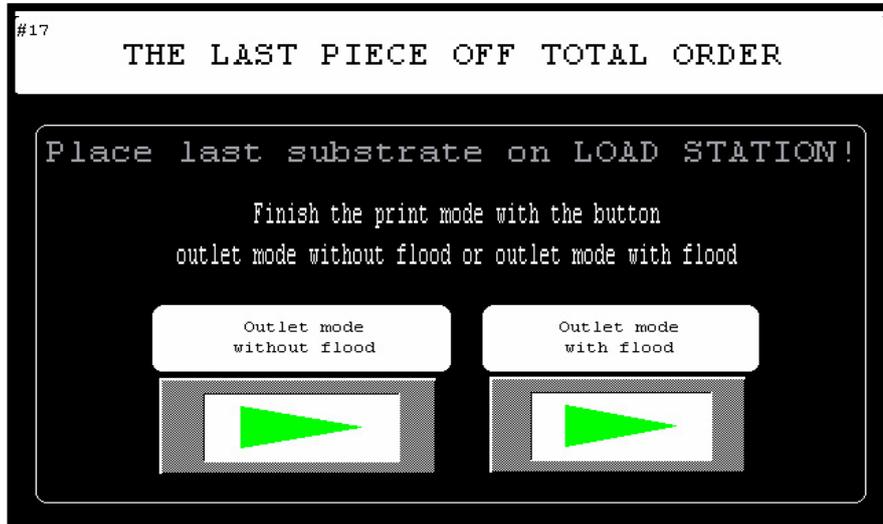
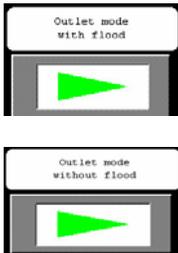


Fig.: Touchscreen display „Last piece“



Outlet with flood / without flood : With these keys you select the outlet without flood respectively the outlet with flood. The screen changes to outlet stop.

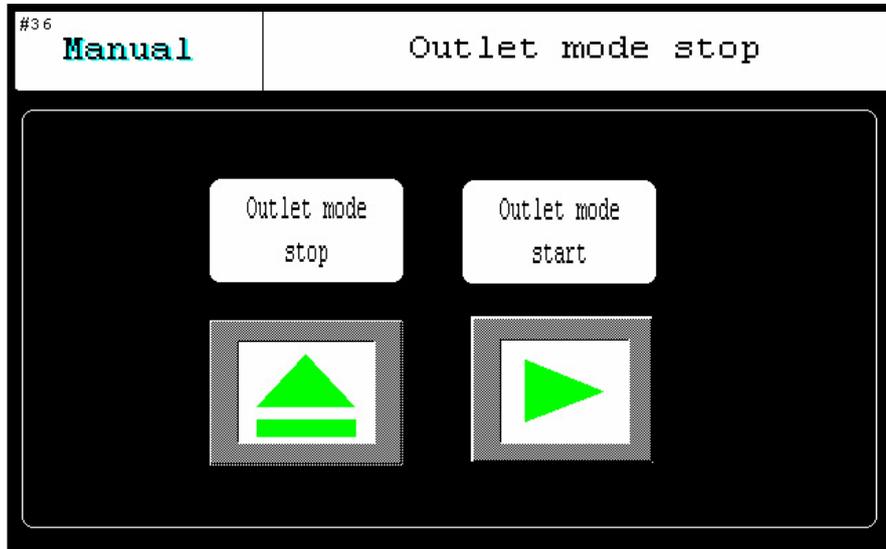


Fig.: Touchscreen display „Outlet Stop“

With these keys you can abort the process or with **Outlet Start** end the production process in a controlled way, once another piece has been added. (Stations turn off automatically in sequence)

III. Operating Instructions

3.2 Operating - Software

3. Manual Mode

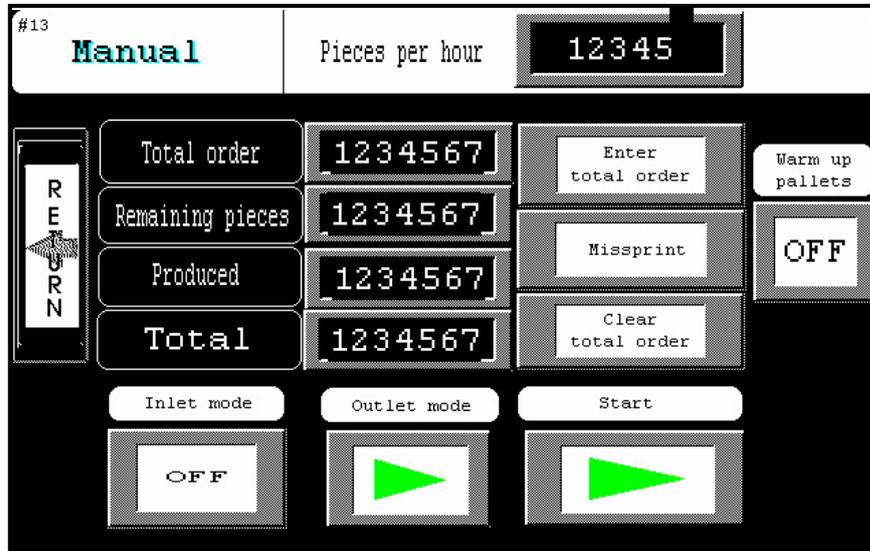
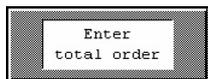
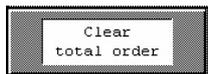
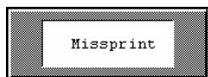


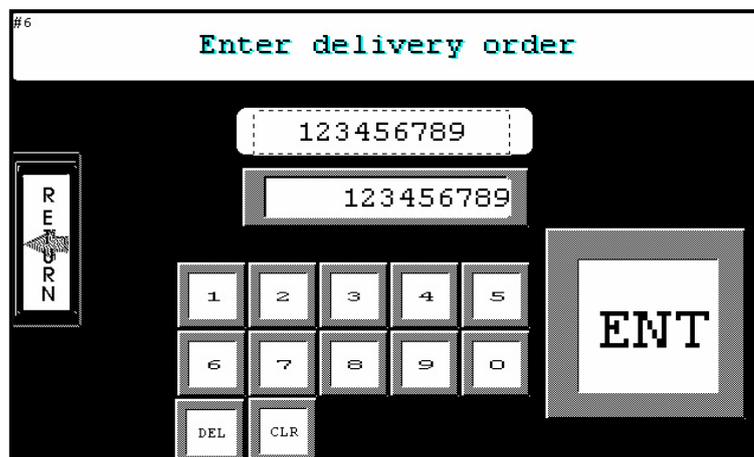
Fig.: Touchscreen display „Manual Mode“



In case of a misprint it is possible to adjust your order volume by pushing this button. (press 1x = „remaining quantity“ +1 „already produced“ -1)



Enter order volume: Once this button is selected, the screen changes to „enter order volume“ (see picture below). Enter the order volume and confirm with ENT. To delete the entry press the DEL. button. With CLR you can delete the last number entered.



The counter total quantity is set to 0.

The entered values are taken over in Automatic Mode as well !!!

III. Operating Instructions

3.2 Operating - Software

4. Automatic Mode

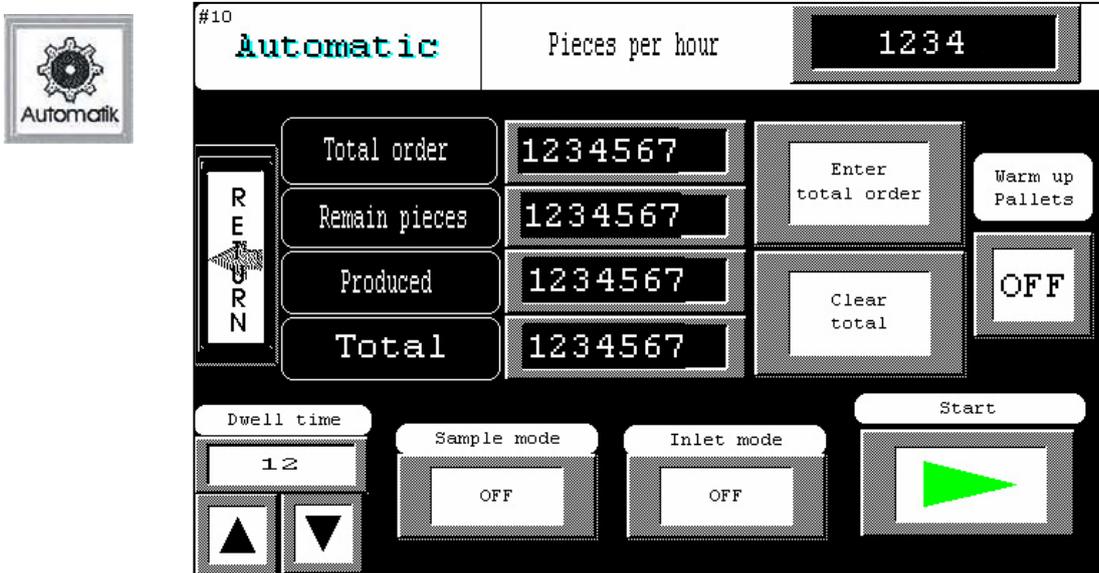
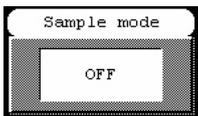
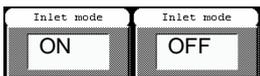


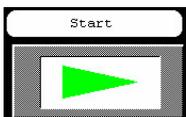
Fig.: Touchscreen display „Automatic Start Page “



Sample mode: By selecting sample mode and pressing the production start button, the piece entered runs through all logged on flash cure units and print stations and stops at the load station. Only the station that is needed will be activated automatically.

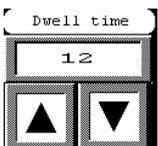


In **inlet mode on / off** all functions are the same as described under Manual Mode. The only difference is that the index operation is done automatically. (See next page)



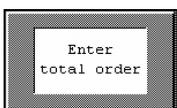
By pressing the **Production start button** the automatic print production begins.

Caution: For the print to begin, the key inlet mode must be selected. As soon as the start button is activated the screen changes to Automatic Stop.



Dwelling time: This is the dwelling time after one index. It is adjustable between 1- 15 sec. depending on the dryer time.

(If the set dwelling time is shorter than the set dryer time, then the dwelling time is increased by the difference to the dryer time).



Order volume: See Manual Mode

RETURN back to the menu „Setup Mode“

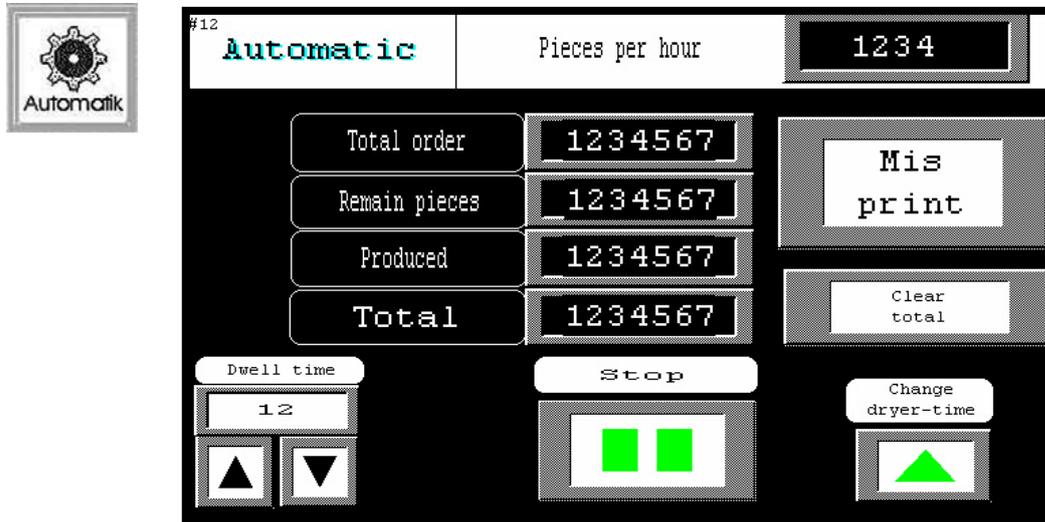
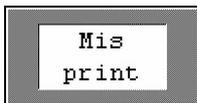


Fig.: Touchscreen display „Automatic Mode“



Delete total: See Manual Mode

Pg.31



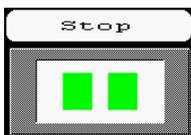
Misprint is recorded, the number of misprints is deducted from the „already produced“ quantity, the total quantity „remaining quantity“ and order volume are increased.

Pg.31



Change dryer time: With this key you change over to the Setup screen – flash cure unit station where you can change the dryer time during the automatic operation.

Pg.26



Stop interrupts the print process and the touchscreen „Automatic Production Stop“. appears

Pg. 34

RETURN back to the menu „Setup Mode“

III. Operating Instructions

4. Automatic Mode

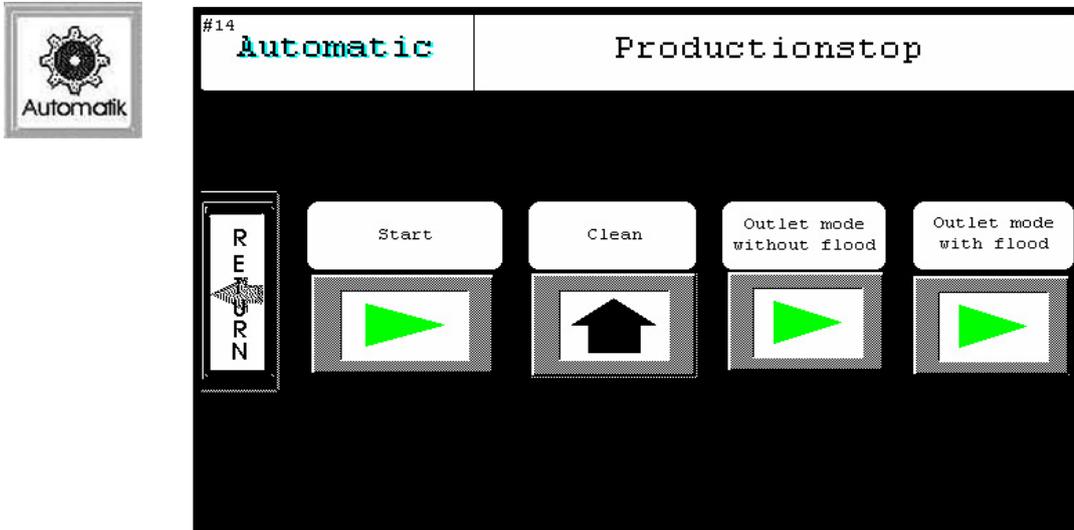
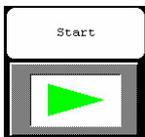
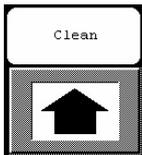


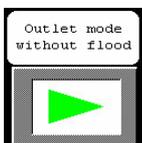
Fig.: Touchscreen display „Automatic Production Stop“



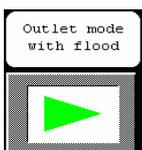
Production start: To continue the interrupted production.



Cleaning mode: The machine moves by one half index for cleaning of the screens respectively to inspect the printed image (See screen change on page 38)



Outlet without flood: Production stop without flood. (See screen change on page 37)



Outlet with flood: Production end with flood stroke. (See screen change on page 37)

RETURN back to the menu „Setup Mode“

III. Operating Instructions

3.2 Operating - Software

4. Automatic Mode

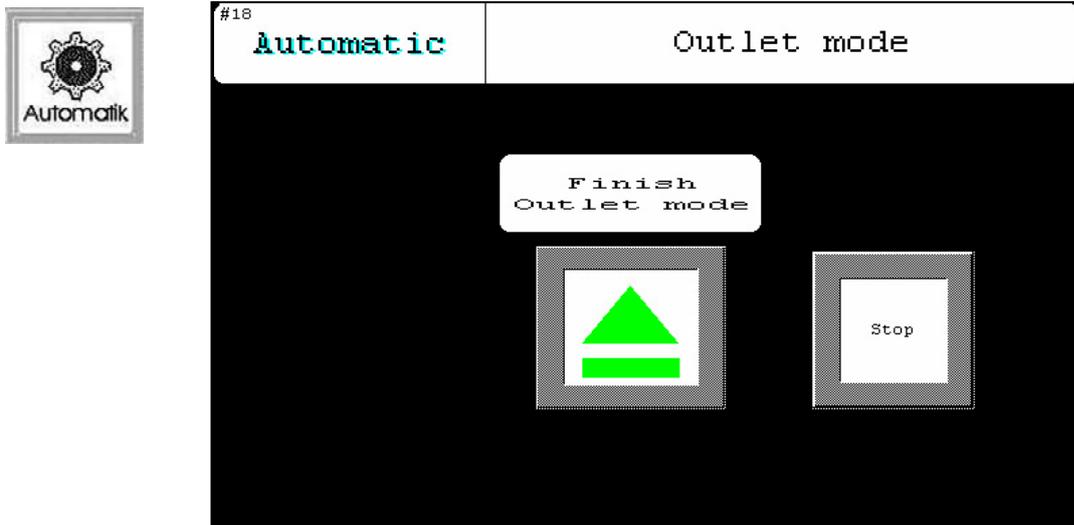
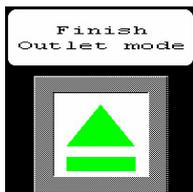
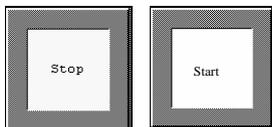


Fig.: Touchscreen display „Automatic Outlet Mode“



Stop Outlet: Stops the Outlet mode, back to the main menu #1



Stop/Start: Stops the Outlet mode respectively continues it.

III. Operating Instructions

4. Automatic Mode

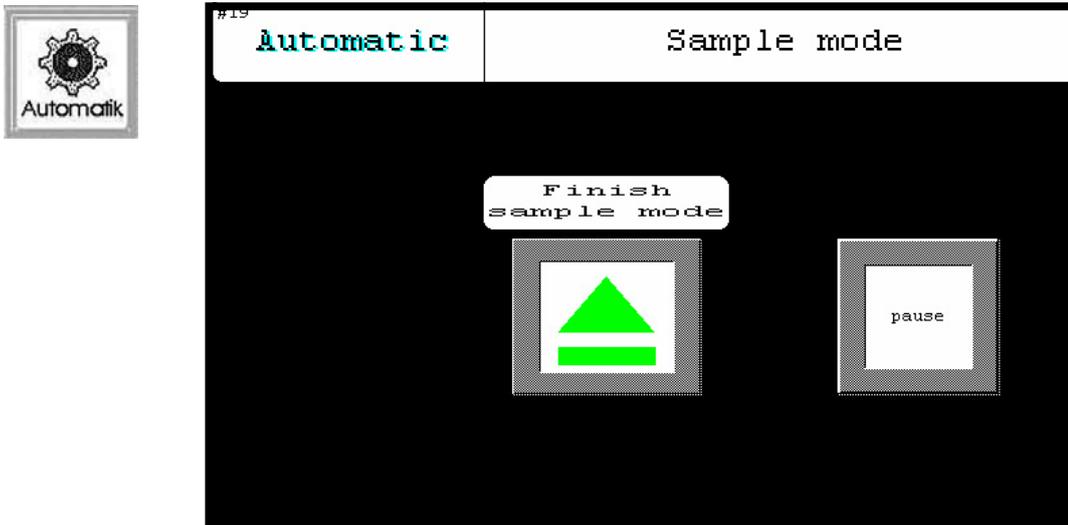
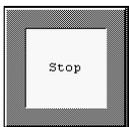


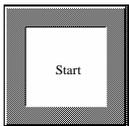
Fig.: Touchscreen display „Automatic Sample Mode“



End sample mode: Ends the sample mode, return to the main menu #1



Stop/Start : Interrupts the sample mode respectively continues it.



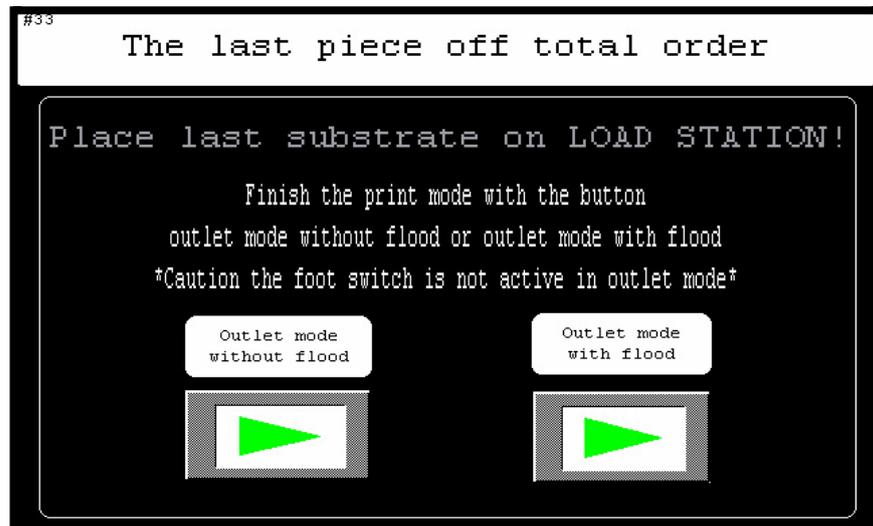


Fig.: Touchscreen display „Automatic Last Piece“

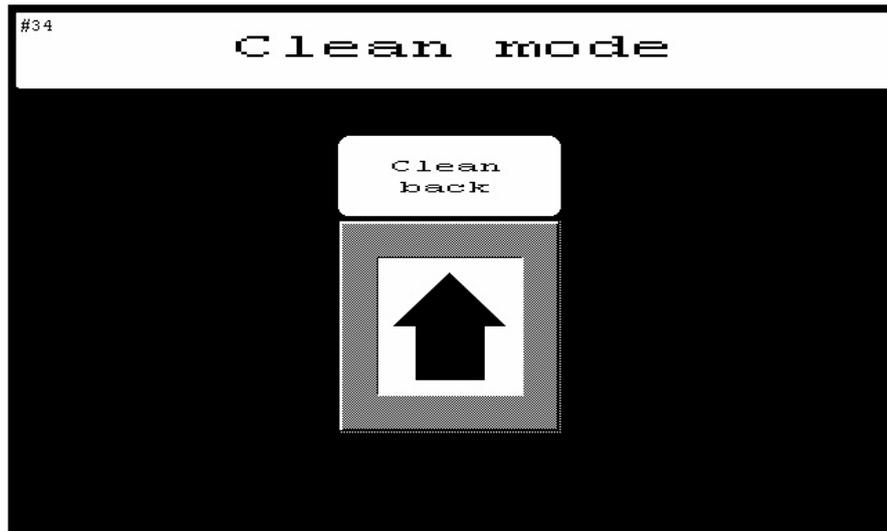
After completing the order volume the machine stops (automatic screen change) right at the last piece.

Add one more piece and end the order by selecting **Outlet with flood** or **Outlet without flood**.

III. Operating Instructions

3.2 Operating - Software

4. Automatic Mode



The turntable is in half index position (for screen cleaning, print image inspection, etc.). After the key „cleaning return“ is pushed, the drive moves the turntable back into home position.

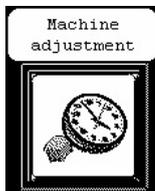
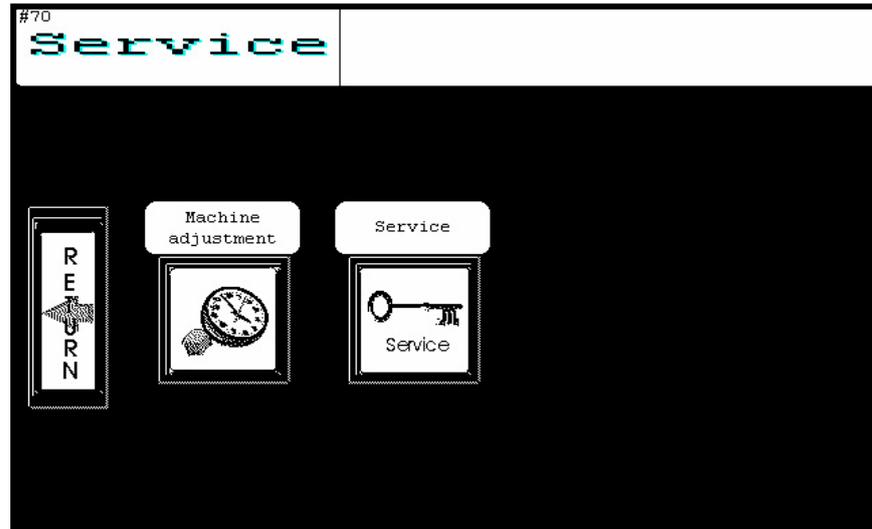
Caution: Before pushing the button „cleaning return“ make sure that the turntable is located in the center (half index) between the print stations.

Errors (See page 78)

III. Operating Instructions

3.2 Operating - Software

5. Service Mode



Machine settings: (screen change) You will come to the menu machine settings.



Service: (screen change) You will come to the menu where the service code has to be entered.

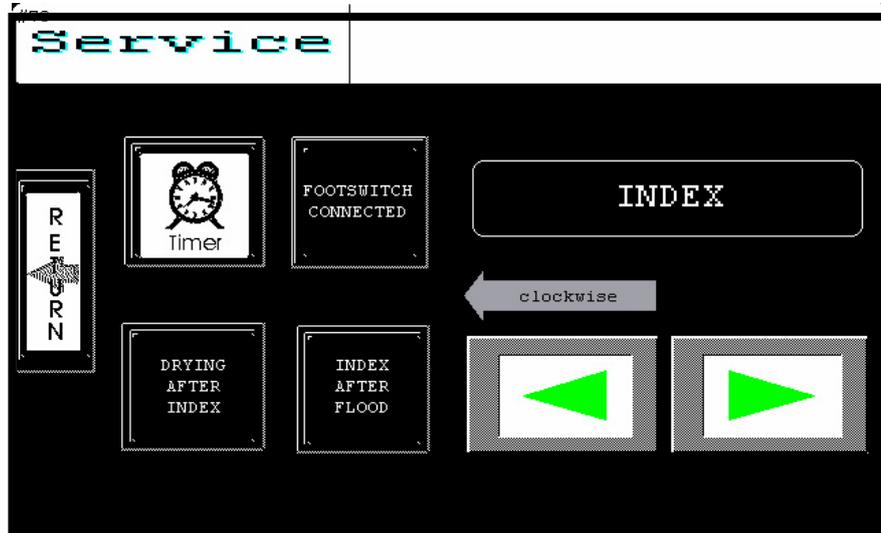
RETURN

back to the menu „Setup Mode“

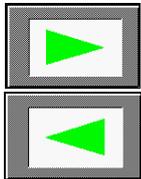
III. Operating Instructions

5. Service Mode

Machine Settings



Timer: (screen change) See page 41



Index and production process clockwise / counter-clockwise



Deactivate / activate footswitch:

Caution! If footswitch is locked make sure it is deactivated. Otherwise no automatic operation possible!



Drying during / after index: (reversing switch)

In Mode „Drying During Index“ the quantity per hour increases



Index during / after flooding: With heavy pre-flooding (in Plastisol Mode), it may be dangerous for thicker materials to touch the screen (Optimum setting Index After Flooding).

RETURN

back to the menu „Service Mode“

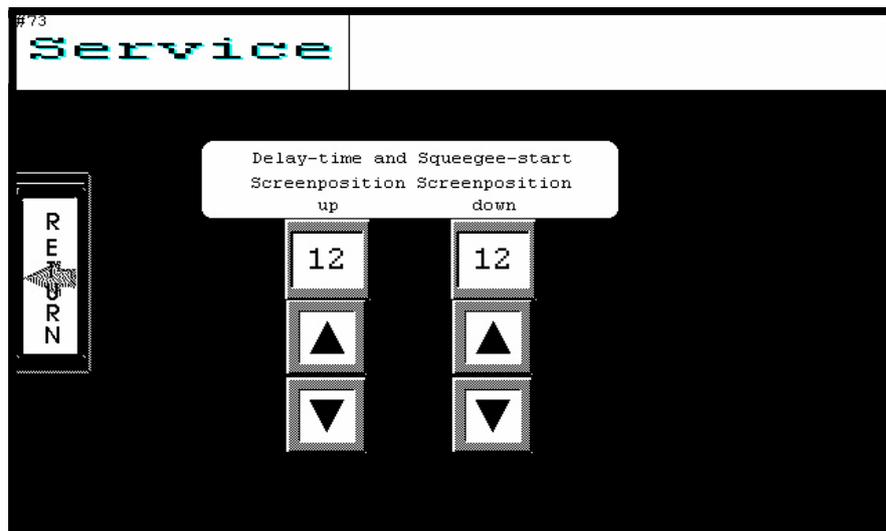


Fig.: Touchscreen display „Service - Timer“

Lifting and lowering of the screen is set pneumatically by means of a throttle valve and a certain amount of time is required for the screen to get into position. This period is bridged with the delay time for the squeegee

Start (0 – 15 tenth of a second)

The start of the squeegee respectively the index is delayed by this time.

RETURN

back to the menu „Service – Machine Settings“

III. Operating Instructions

5. Service Mode

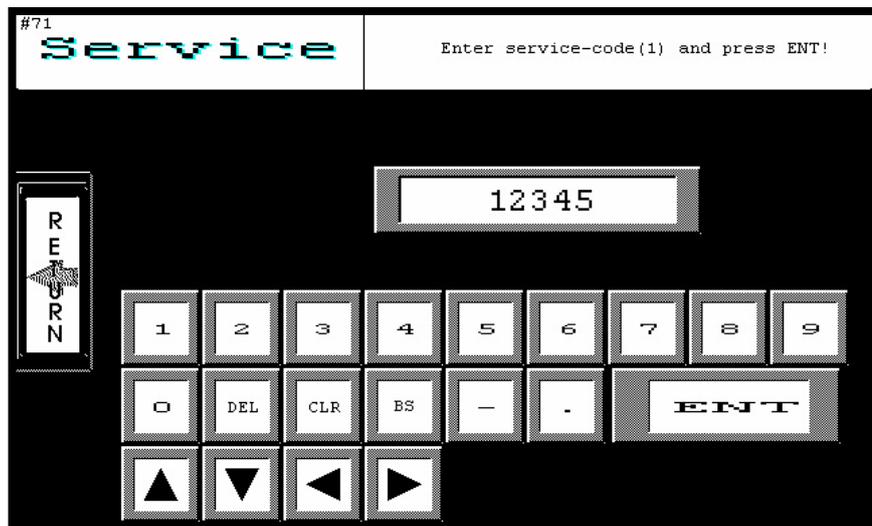


Fig.: Touchscreen display „Service - Servicecode“

Enter **12345** and confirm with **Ent** (screen change)

Pg.43

RETURN

back to the menu „Service – Machine Settings“

III. Operating Instructions

3.2 Operating - Software

5. Service Mode



Fig.: Touchscreen display „Service“

Timer Station: Menu Tilt Times (Screen change) Pg.44

Station: Station logon Pg.45

Setting OFF / ON: Service tool exclusively for MHM technicians

III. Operating Instructions

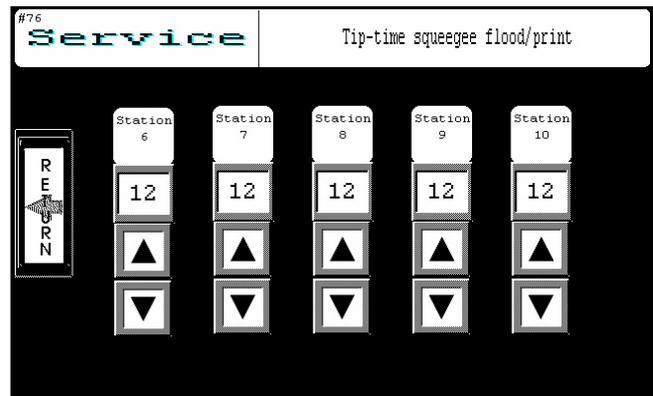
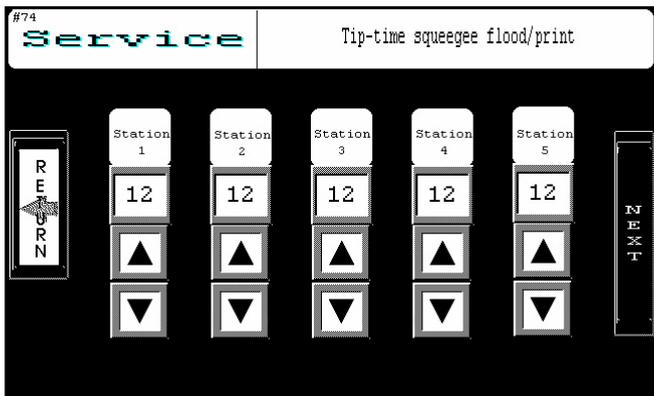
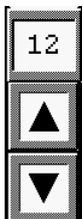


Fig.er: Touchscreen display „Service – Tilt Times “



1 – 5 / 6 – 10

In order to prevent that the screen is overloaded or damaged after the print process, flood and pressure squeegees must be raised up to about the same height. This is accomplished by energizing the respective solenoid valve after printing respectively flooding **for a certain amount of time** (deciseconds) in order for the squeegee – flood squeegee mechanism to return to center position. This time is set in this menu.



Next - Keys 6 – 10 (Screen change to statione 6-10)
Setting as described above

RETURN

back to the menu „Service“

5. Service Mode

Station Logon

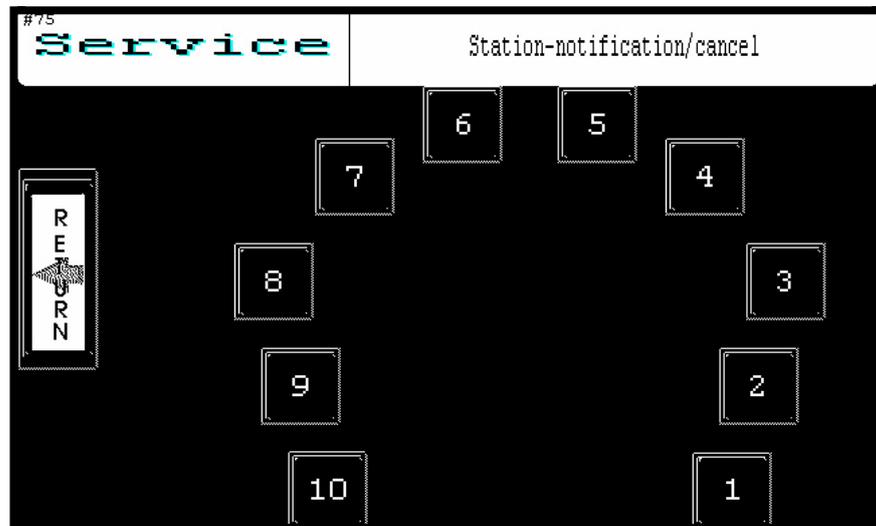


Fig.: Touchscreen display „Service – Station Logon“

1 – 10 Station Logon / Log-off

Caution! You may only configure print stations! (Not empty stations)

RETURN

back to the menu „Service“

III. Operating Instructions

4. Error reports at the touch

#5 **ERROR #5** Security-line is active

Reason:
Emergency-stop button is pushed or one of the safety-bars between the station is open.

Trouble-shooting:
Pull the emergency-stop button and close the safety-bars.
Check the shut-down mechanics of all safety-bars.
Check emergency-stop button.
Check all micro-switches on the safety-bars.
Check the wiring on the emergency-stop button and on the micro-switches.



#8 **ERROR #8** Wrong-operation change-pallet

Reason:
1.)Emergency-stop button is pushed or one of the safety-bars between the station is open.
2.)Pallet is not locked.

Trouble-shooting:
1.)Pull emergency-stop button and close the safety-bar.
2.)Lock the pallet.
3.)Check shut-down mechanics on all safety-bars.
Check emergency-stop button.
Check all micro-switches on the safety-bars.
Check the wiring of the emergency-stop button and on the micro-switches.
Check the reed contact on the cylinder of change-pallet.



For reed contact –pallett-lock/unlock cylinder see pages 105 –11.
Check the LED on the reed contact: If the cylinder is in rest position (piston up) the reed contact must be closed and the input LED 15 at the index must light up.

Adjust Wrong handling!

REASON:
You tried to make a turn movement with screen in down position or pushed down emergency-stop button or one of the safety-bars between the stations is open!
If the machine is in CLEAN-MODE turntables are out of center!

Check above mentioned points!



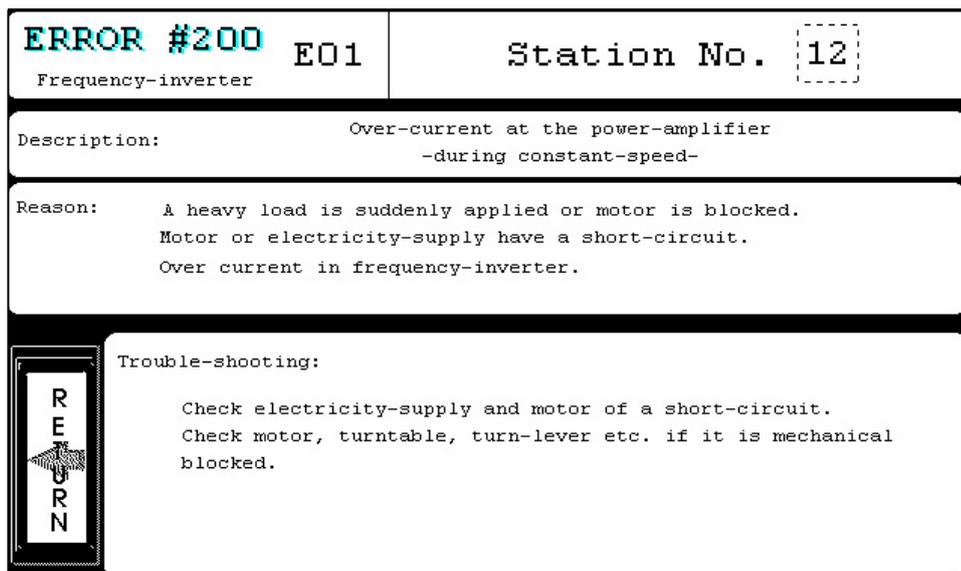
III. Operating Instructions

4. Error reports at the touch



Here the display shows at which print station a fault occurred.

Please read the error code at the viewing window of the displayed print station (1) (see page 71/1) and press the appropriate key at the touch.



III. Operating Instructions

4. Error reports at the touch

ERROR #201 E02 Frequency-inverter	Station No. 12
Description: Over-current at the power-amplifier -during deceleration-	
Reason: A heavy load is suddenly applied or motor is blocked. Motor or electricity-supply have a short-circuit. Over current in frequency-inverter.	
	Trouble-shooting: Check electricity-supply and motor of a short-circuit. Check motor, turntable, turn-lever etc. if it is mechanical blocked.

ERROR #203 E04 Frequency-inverter	Station No. 12
Description: Over-current at the power-amplifier -during stand by-	
Reason: A heavy load is suddenly applied or motor is blocked. Motor or electricity-supply have a short-circuit. Over current in frequency-inverter.	
	Trouble-shooting: Check electricity-supply and motor of a short-circuit. Check motor, turntable, turn-lever etc. if it is mechanical blocked.

III. Operating Instructions

4. Error reports at the touch

Error #204 E05 Frequency-inverter	Station No. 12
Description: Overload protection	
Reason: Is the squeegee carriage blocked? Output current is higher than frequency inverter setting.	
	Trouble-shooting: Look at manual frequency-inverter ERROR E05 manual III. / 4.error codes at the touch #204

Caution! The reason for these faults (E05 / E07) are high voltage fluctuations. Either superpose a 5 kW voltage stabilizer or change the parameters on the frequency converter – see pages 80/81. Changing the parameters cause a decrease in the production rate per hour.

Error #205 E07 Frequency-inverter	Station No. 12
Description: Overvoltage protection	
Reason: The motor's regenerative energy is too high.	
	Trouble-shooting: Look at manual frequency ERROR E07 manual III. / 4.error codes at the touch #205

III. Operating Instructions

4. Error reports at the touch

Error #206 E08 Frequency-inverter	Station No. 12
Description: EEPROM Error	
Reason: Is the temperature too high? Is there interference with the frequency inverter?	
	Trouble-shooting: Maximum temperature is 50 de-gree. Install new program in frequency inverter. Stop the interference with the frequency inverter.

Error #207 E09 Frequency-inverter	Station No. 12
Description: Undervoltage Protection	
Reason: The input voltage is too low.	
	Trouble-shooting: Check input voltage and fuse. Is the input cable cut off?

III. Operating Instructions

4. Error reports at the touch

Error #208 E11 Frequency-inverter	Station No. 12
Description: CPU Error	
Reason: Is there interference with the frequency inverter? Is the frequency inverter defective?	
	Trouble-shooting: Stop interference with frequency inverter. Make sure the communication cable is not getting interference from the power cable.

ERROR #210 E13 Frequency-inverter	Station No. 12
Description: USP-error	
Reason: The machine is turned on, while the USP- function is selected. During the operation of the machine the main-connection is cut off for a short time.	
	Trouble-shooting: Check the main-connection. Switch off the machine wait one minute and start the machine again.

III. Operating Instructions

4. Error reports at the touch

Error #211 E14 Frequency-inverter	Station No. 12
Description: Ground fault protection	
Reason: Are the output connections on the frequency inverter tight? Are the input connections on the motor tight? Is the cable broken between the frequency inverter and the motor?	
	Trouble-shooting: Check the cable. Check the connections on the frequency inverter and on the motor.

See also – Instruction Manual Hitachi L100 Series

Error #212 E15 Frequency-inverter	Station No. 12
Description: Main Power Overvoltage	
Reason: Is the main voltage over 250 volts?	
	Trouble-shooting: Reduce the voltage to 210 volts at the power board.

See page 107 / Transformer 210V –0 / +4

III. Operating Instructions

4. Error reports at the touch

Error #213 E21 Frequency-inverter	Station No. 12
Description:	Thermal protection
Reason:	Is the frequency inverter overloading? (Is motor blocked?) Is the temperature too high? (max 50 de-gree)
	Trouble-shooting: Let inverter cool off. Adjust room temperature.

Error #214 E22 Frequency Inverter	Station No. 12
Description:	CPU Error
Reason:	Is there interference with the frequency inverter? Is the frequency inverter defective?
	Trouble-shooting: Stop interference with frequency inverter. Make sure the communication cable is not getting interference from the power cable.

III. Operating Instructions

4. Error reports at the touch

ERROR #220	Station No. 12
Description: Both proximity-switches on the squeegee-arm are active	
Reason: If you make a test with the Proximity-switches on the squeegee-arm both are used or inactive.	
	Trouble-shooting:
	Both proximity-switches are used? For test move the blue sliding-sheets on the left and right side. Check the proximity-switches on the squeegee-arm. Check the plugs on the squeegee-arm. Check the plugs at the frequency-inverter. (S1 FRONT / S2 BACK) Check the plugs input at the SPS-control. Check the wiring of the squeegee-arm maybe they are cut off. Look on manual III. / 4.error codes at the touch #220

See page 73 / possible causes for error #220

See control unit 1 / 2, pages 91/ 92

ERROR #221	Station No. 12
Description: No tension-voltage at the station.	
Reason: Fault fuse or wiring to the station is cut off.	
Trouble-shooting:	
1.)Check the fuse of the station at the fuse-box on the inside of the machine and maybe change it. 2.)Check the wiring to the station maybe it is disconnected or cut off.	
"CAUTION" Don't work on the machine before you have pushed the "EMERGENCY-STOP" button!!!!!!	

See page 90

III. Operating Instructions

4. Error reports at the touch

ERROR #222 Frequency-inverter	Station No. 12
Description: The print cycle-time has been passed!	
Trouble-shooting: Differnce between the blue sliding-sheet on the left side in the front and the proximity-switch is to much. Knock the sliding-sheet with a synthetic-hammer a little bit to the inside. (Difference max.1mm) Is the squeegee carriage blocked? Drive the squeegee carriage? Is the display from the frequency-inverter OK? Is the fuse T2A from the station ok? FOR COUNTER SWITCH OFF THE MACHINE!	

ERROR #230	Turn-drive
Description: Fixing-pin doesn't lock!	
Trouble-shooting: Check if the air pressure at the valve-manometer (Nr.3) equals 3-4 bar? <input type="button" value="YES"/> <input type="button" value="NO"/>	

See pneumatic diagram pg. 102 / Attachment pgs. 105 -6.

III. Operating Instructions

4. Error reports at the touch

ERROR #231	Turn-drive	
Description: Fixing-pin doesn't lock!		
Trouble-shooting: Have a look if the "LED" at the turn-drive frequency-inverter is glowing?		
	<input type="button" value="YES"/>	<input type="button" value="NO"/>

See page 93- LED6 Alignment pin

ERROR #232	Turn-drive	
Description: Fixing-pin doesn't lock!		
Trouble-shooting: Have a look if the LED Nr.2 at the valves below the turn-drive frequency-inverter is glowing?		
	<input type="button" value="YES"/>	<input type="button" value="NO"/>

See pneumatic diagram pg. 102 / Attachment pgs. 105-7.

4. Error reports at the touch

ERROR #233	Turn-drive
Description: Fixing-pin doesn't lock!	
Trouble-shooting:	
	Have a look if the LED of the proximity-switch at the fixing-pin is glowing?
	<input type="button" value="YES"/> <input type="button" value="NO"/>

See page 75 (a)

ERROR #234	Turn-drive
Description: Fixing-pin doesn't lock!	
Trouble-shooting:	
	If the fixing-pin is in down-position, the LED of the proximity-switch at the fixing-pin and the LED at the SPS-input unit-0, input 7" should be glowing.
	The LED on the proximity-switch at the fixing-pin should go out after pin leaves the registration plate.
	Otherwise you have to check all details again!

See figures on page 75 /page 91

III. Operating Instructions

4. Error reports at the touch

ERROR #241	Turn-drive
<p>Trouble-shooting:</p> <p>The minimum air pressure on the manometer at valves below the turn-drive frequency-inverter should be between 3 and 4 bar!</p> <p>If the air pressure is lower, you have to look at the main-manometer, which is attached at the base of the machine and maybe you have to increase the air pressure there!</p> <p>Take a look if there is enough quantity of air!</p> <p>FOR COUNTER SWITCH OFF THE MACHINE!</p>	

Valve island – see pages 12 / 105

ERROR #242	Turn-drive
<p>Trouble-shooting:</p> <p>Have a look at the SPS-module output unit-00 "EH-YTP16", if the LED-output 1 is glowing. If it is, the connection-cable between the SPS-module and the drive-motherboard will be disconnected or it is cut off. Otherwise the drive-motherboard at the frequency-inverter has a mistake.</p> <p>FOR COUNTER SWITCH OFF THE MACHINE!</p>	

Squeegee arm motherboard see page 94

4. Error reports at the touch

ERROR #243	Turn-drive
<p>Trouble-shooting:</p> <p>Check the cable between drive-motherboard No.2 and valve No.2 (fixing-pin), maybe it is disconnected or cut off. Change it, if it is the problem.</p> <p>FOR COUNTER SWITCH OFF THE MACHINE!</p>	

See page 93 – Cable No.2

ERROR #244	Turn-drive
<p>Trouble-shooting:</p> <p>The fixing-pin has to be downside, otherwise the air-supply will be interrupted.</p> <p>Adjust the proximity-switch like the following description:</p> <p>The LED of the proximity-switch has to glow when the fixing-pin is locked in the registration-plate and has to be off when the fixing-pin has leave the registration-plate. If the fixing-pin is beside of the registration-plate in down-position, the LED of the proximity-switch also has to be off.</p> <p>Look at manual "ERROR PROXIMITY ADJUST".</p> <p>FOR COUNTER SWITCH OFF THE MACHINE!</p>	

See page 75 - a

III. Operating Instructions

4. Error reports at the touch

ERROR #250	Turn-drive
Description:	Transport-pin does't unlock!
Trouble-shooting:	
Check if the air pressure at the valve-manometer (Nr.3) equals 3 - 4 bar?	
<input type="button" value="yes"/>	<input type="button" value="no"/>

See page 105 – Valve Island

ERROR #251	Turn-drive	
Description:	Transport-pin doesn't lock!	
Trouble-shooting:		
Have a look if the LED "Mit" at the turn-drive-frequency-inverter is glowing ?		
	<input type="button" value="yes"/>	<input type="button" value="no"/>

See page 93 - LED7 Carrier

III. Operating Instructions

4. Error reports at the touch

ERROR #252	Turn-drive
Description:	Transport-pin doesn't lock!
Trouble-shooting:	Have a look if the LED at the valve No.3 (transport-pin) is glowing.
	<input type="button" value="yes"/> <input type="button" value="no"/>

See page 105 – Valve Island - 8.

ERROR #253	Turn-drive
Description:	Transport-pin doesn't lock!
Trouble-shooting:	Have a look if the LED of the proximity-switch at the transport-pin is glowing?
	<input type="button" value="yes"/> <input type="button" value="no"/>

III. Operating Instructions

4. Error reports at the touch

ERROR #254	Turn-drive
Description:	Transport-pin doesn't locked!
Reason:	<p>If transport-pin is in down-position, the LED of the proximity-switch at the transport-pin and the input 6 on the SPS should be glowing.</p> <p>The LED of the proximity-switch at the transport-pin should be go out, after pin leaving the registration-plate.</p> <p>Otherwise you have to check all details again.</p> <p>Look on manual III./ 4. error codes at the touch #254</p>



See Figure page 76 / page 91

ERROR #262	Turn-drive
Trouble-shooting:	<p>Take a look at the SPS-unit No. 2 (EH-YTP16).</p> <p>For unlock the transport-pin, the led should be lit on the output No.0.</p> <p>If it is, the connection-cable between SPS-unit and drive -motherboard is cut off or the drive-motherboard has a mistake.</p> <p>Look on manual III./ 4. error codes at the touch #262</p>

FOR COUNTER SWITCH OFF THE MACHINE!

See Figure pages 91 / 92

4. Error reports at the touch

ERROR #263	Turn-drive
Trouble-shooting:	
<p>The wire between the connection No.3 at the drive motherboard to the valve No. 3 is cut off, repair or change it.</p>	
<p>FOR COUNTER SWITCH OFF THE MACHINE!</p>	

See page 93 /2 and page 105 /7.

ERROR #264	Turn-drive
Trouble-shooting:	
<p>The transport-pin has to be up, otherwise the air-supply will be interrupted.</p> <p>Adjust the proximity-switch like the following description: The LED on the proximity-switch has to glow when the transport-pin is locked in the registration-plate and has to be off when the transport-pin has leave the registration-plate. If the transport-pin is beside of the registration-plate in down-position, the LED on the proximity-switch also has to be off.</p> <p>Look at manual "ERROR PROXIMITY ADJUST".</p>	
<p>FOR COUNTER SWITCH OFF THE MACHINE!</p>	

See Figure on page 76

III. Operating Instructions

4. Error reports at the touch

ERROR #270	Turn-drive
Description: The turntable cycle-time has been passed!	
Is turntable mechanical locked?	
Trouble- shooting: Motor- gearbox- turn-lever or bolt turn-lever is locked. (Possible something is between turntable, printstation, screen or pallet. etc)	<input type="button" value="YES"/> <input type="button" value="NO"/>

ERROR #271	Turn-drive
Description: The turntable cycle-time has been passed!	
Trouble-shooting:	
The turntable indexes and you get this error-message again.	
<input type="button" value="yes"/>	<input type="button" value="no"/>

4. Error reports at the touch

ERROR #272	Turn-drive
Description:	The turntable cycle-time has been passed!
Trouble-shooting:	
Switch off the machine and turn it on again. If the same message as before will appear again, check it all at the same order once more.	
"CAUTION" Don't work on the machine before you have pushed the "EMERGENCY-STOP" button!!!!!!	

ERROR #280	"CAUTION" Don't work on the machine before you have pushed the "EMERGENCY-STOP" button!!!!!!
Description:	The change-pallet magnetic-switch is not active!
Reason:	The machine is not in change-pallet-mode and the magnetic-switch at the change-pallet cylinder is not active.
Trouble-shooting:	
1.) If at the drive-motherboard the LED's are not glowing, check the fuse T1A on the drive-motherboard and maybe change it.	
2.) If it is the change-pallet-valve (MV4) switched off and the magnetic-switch at the change-pallet cylinder is not active, take a look to the cylinder and check if it is in down-position. When cylinder is in down-position check the magnetic-switch at the cylinder and the wire to the drive-motherboard and maybe change them.	
3.) Turn the operating-bar of the change-pallet cylinder at the polyamid-segment and check on the drive-motherboard the LED "PAL" if they is glowing in constant. If the LED "PAL" doesn't do it, you must change the change-pallet cylinder.	

2.) See also page 93 /4 / page 105 /11.

III. Operating Instructions

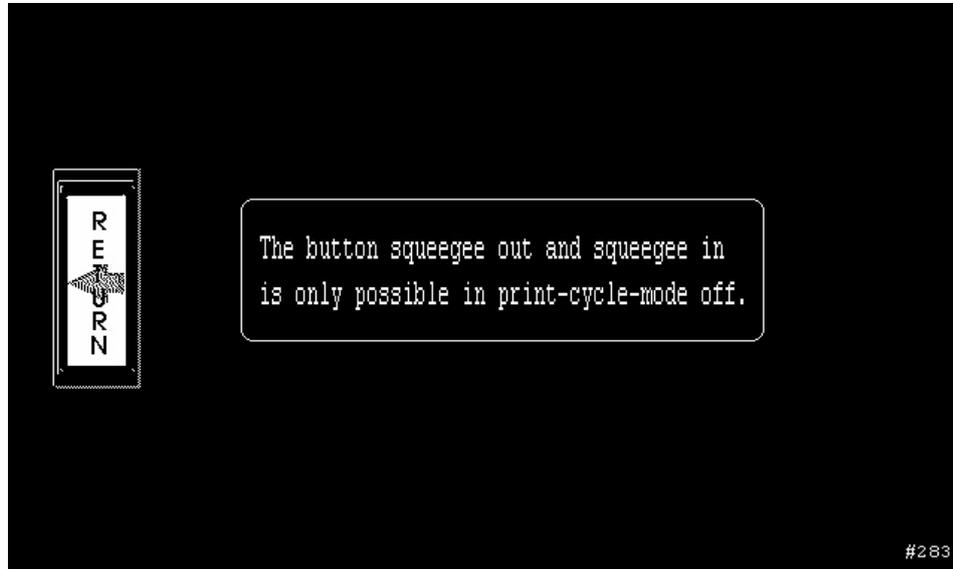
4. Error reports at the touch

ERROR #281	Turn-drive
Description: The turntables cycle-time has been passed!	
Trouble-shooting: The turntables cycle-time has been longer than six seconds! Maybe the result is because of a mechanical part has locked the turntable. "CAUTION" Don't work on the machine before you have pushed the "EMERGENCY-STOP" button!!!!!!	

ERROR #282	Turn-drive
Description: Possibly the proximity-switch No.1 or No.8, the fuse at the drive- motherboard, the flatbandwire No. 0 or the input- unit No. 0 EH-XD 16 is fault.	
1.) Hold a metallic object under proxi.-switch No.1 the LED should be glowing. 2.) Drive-motherboard LED No.31 should be glowing. 3.) Input-unit No.0 input No.0 should be glowing. 4.) Check proxi.-switch No.8 at the same way like switch No.1. 5.) Drive- motherboard LED No.19 should be glowing. 6.) Input-unit 0 input No.1 should be glowing. Change proxi.-switch No.1 or No.8 if one of the LED`s are not glowing (M12PS 10-30V 200mA). Check the fuse T1A on the drive-motherboard. Check the output-plug`s of the proxi.-switch No.1 and No.8 if one of the LED`s (No.31,19) at the drive- motherboard is not glowing 24V DC (+-). Change drive- motherboard or one of the proxi-switch.No input by input-unit No. 0 (input No.0 or No.1) change flatbandwire or input-unit EH XD16.	

See page 70 (Arrangement of the proximity switches) or / pgs. 91/ 92

4. Error reports at the touch



ERROR #520	Turn-drive
Description:	The turntable cycle-time has been passed!
Reason::	The turntable is locked mechanical!
Trouble shooting!	Change or repair motor- gearbox- turn-lever or bolt turn-lever. Take away if something is between turntable printstation screen pallet etc.

III. Operating Instructions

4. Error reports at the touch

ERROR #529	Turn-drive
Description: The turntable cycle-time has been passed!.	
The machine is stopping by production and you get error Nr. 270.	<input type="button" value="YES"/>
The two pins are in the registrationplate and the two proximity-switches are glowing.	<input type="button" value="YES"/>
The turn-lever makes one turn without turntable and is stoping.	<input type="button" value="YES"/> <input type="button" value="NO"/>

ERROR #530	Turn-drive
Description: The turntable cycle-time has been passed!	
Reason: Electrical or electronical problem !	
1.) Safety-line is defect!	<input type="button" value="1.)"/>
2.) Proximity-switch 1 or 8 defect!	<input type="button" value="2.)"/>
3.) Proximity-switch 2 or 7 defect!	<input type="button" value="3.)"/>

III. Operating Instructions

4. Error reports at the touch

ERROR #531	Turn-drive
Description: The turntable cycle-time has been passed!	
Reason: Due to great vibration on the machine, one of the micro-switches at the safety-bar's makes a error.	
Trouble shooting: Check the adjustment of the micro-switches when the safety-bar is closed. There has not to be a distance between micro-switch and the operating-bar of the micro-switch. To see if it is the reason of the error on the micro-switch check all the wiring to the micro-switch and check the plugs on the right side of the drive-motherboard. To get over the safety-line you can jump it with the jumper on the right side of the drive-motherboard. Look at manual (Error and trouble-shooting) "CAUTION" The safety-line is out of service!!!!!!!	
RETURN	

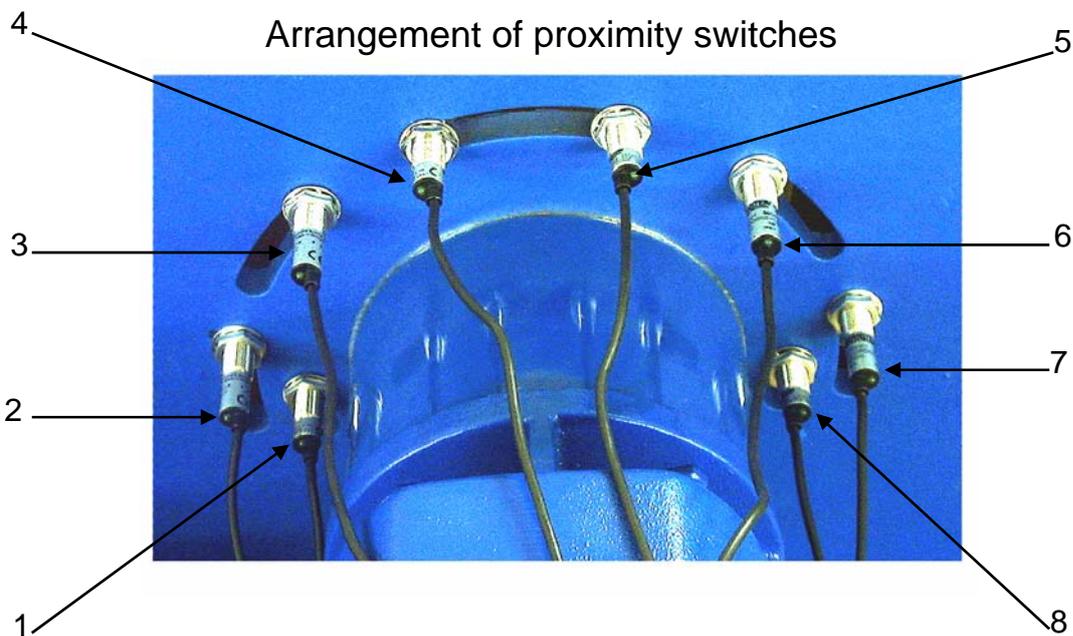
ERROR #532	Turn-drive
Trouble-shooting: Possibly the proximity-switch No.1 or No.8,- flatbandwire No.0, input-unit EH-XD16 or drive-motherboard defect!	
1.) Hold a metallic object under proxi.-switch No.1 the LED should be glowing. 2.) Drive-motherboard LED No.31 should be glowing. 3.) 1. Input-unit input No.0 should be glowing. 4.) Check proxi.-switch No. 8 on the same way like switch No.1. 5.) Drive-motherboard LED No.19 should be glowing. 6.) 1. Input-unit input No.1 should be glowing. Change proxi.-switch No.1 or No.8 if the LED is not glowing (M12PS 10-30V - DC 200mA). Check the fuse T1A on the drive-motherboard. Check the output-plug of the proxi.-switch No.1 and No.8 24V DC, if one of the LED (No.31,19) are not glowing, change drive-motherboard or one of the proxi.-switch. No input by 1.input-unit (No.0 or No.00) change flatbandwire or input-unit EH_XD16.	
RETURN	

See page 70 (Arrangement of the proximity switches) or / pgs. 91/ 92

III. Operating Instructions

4. Error reports at the touch

ERROR #533	Turn-drive
<p>Trouble-shooting: Possibly the proximity-switch No.2 or No.7, the flatband-wire No.0 or the 1.output-unit EH-YTP16 is defect!</p>	
<p>You can check it, as you switch off the machine and start it again. Go into the menu- point "ADJUST" and press the button index left or index right. It should be glowe the red LED No.28 or No.20 on the downside of the drive-motherboard. At the same time should be glowe the LED on proximi.- switch No.2 or No.7. If they do not, change the proximi.- switch (M12PÖ 10-30V DC 200mA). If on the downside of the drive- motherboard the red Led No.28 or No.20 are not glowing, check on the 1.output-unit the output No.6 when you press the button "index right" or the output No.3 when you press the button "index left". If there is no output, change the 1.output-unit EH-YTP16 or the flatband-wire No.0.</p>	
<div style="border: 1px solid black; padding: 5px; display: inline-block;">RETURN</div>	



Proximity switch – closing contact
ID # M12PS/002-KL2 10-30VDC 200 mA



Proximity switch – opening contact
ID # M12PÖ/002-KL2 10-30VDC 200 mA

See above 1 / 4 / 5 / 8

See above 2 / 3 / 6 / 7

4. Error reports at the touch

Localizing the faults: #199

Error message **#199 (page 47)** is displayed at the touch or the screen changes over to several error messages.

Check the digital displays at the frequency converter of the main drive and the stations. See figure (1)

With error message **#199 / E01– E35)** the display **0.0** appears at the affected frequency converter.

With error message #199, the station number of the affected frequency converter is displayed in the upper right hand corner of the touch (see page 47 /1)

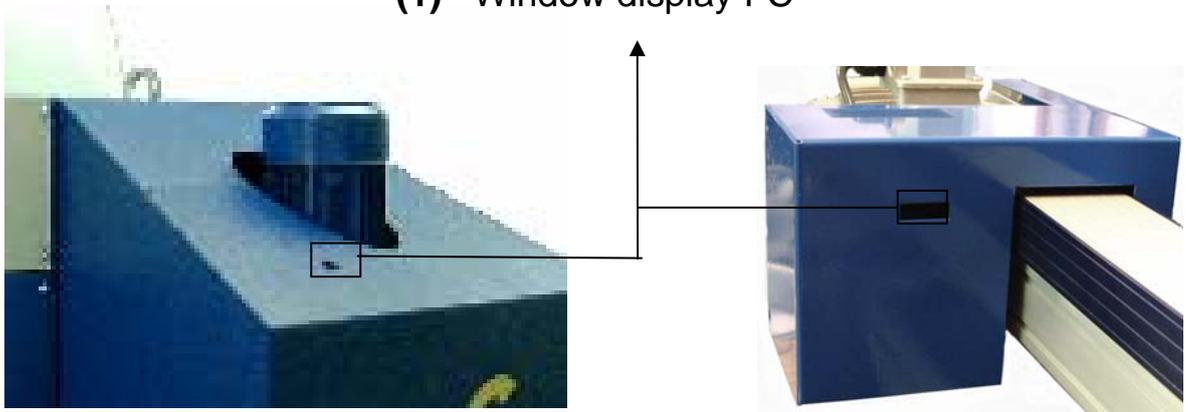
0 = Frequency converter / Main drive (FC LH 100)

1 - 10 = Frequency converter / Print station 1 – 10 (FC L100)

Afterwards, push the button at the touch that is shown at the display of the frequency converter. For example **E04**. The display will change to the menu item where the error and the remedy are described.

Do not turn off the master switch – just push the EMERGENCY-OFF button!

(1) Window display FC



IV. Trouble Shooting



1. Malfunctions And Fault Clearance

Malfunctions	Possible Causes	Remedies
<p>Nothing appears at the touch!</p>	<p>Power supply 24V- not available!</p>	<p>1.) Check if main power supply 220V is available</p> <p>2.) Check fuse No:24 at the terminal board for 24 V- transformer (see page 90)</p> <p>3.) Does the LED at the 24 V- transformer light up ? If not, replace primary or secondary fuse at the transformer! (see page 90)</p> <p>4.) Is the 24V – supply cable No. 1 connected to the STAT- motherboard ? (See page 91 /G)</p> <p>5.) Are the STAT- motherboards connected by means of jumpers? (STAT motherboard jumpers – see page 89, Fig. B/C or pages 91 / 92)</p> <p>6.) Is the touch cable No: 4 (24V supply line) connected to the STAT- motherboard ? (see page 91 / F)</p>
<p>The MHM-Logo is the only thing that appears at the touch!</p>	<p>Data transfer between touch and CPU not working!</p>	<p>Check if the switch at the CPU is set to RUN (see page 91 / E)</p>
<p>The MHM-Logo is displayed at the touch and underneath it says: PLC NOT CONNECTED (02:FF)</p>	<p>Data transfer between touch and CPU not working.</p>	<p>The blue data cable between CPU and touch is not correctly inserted or the cable may be defective. If PLC NOT CONNECTED (02:FF) does not extinguish, replace data cable. (see page 91)</p>
<p>One or more squeegee carriages do not move</p>	<p>Error message #220 is displayed</p>	<p>1.) Check at the small window of the squeegee arm cover if the digital display lights up at the frequency converter (see page 71). If not, replace fuse T2A at the terminal board from 1 – 10, depending on the station (see page 90 / A)</p> <p>2.) Check the STAT- motherboards if these are connected with the jumpers (24 volt power supply) (see page 90 / C)</p> <p>3.) Check if fuses T 315 mA at the STAT- motherboard to the respective station are working properly. (see page 91, Individual fuses print station)</p> <p>4.) Check if the left and right sliding plate on the squeegee arm operate both proximity switches simultaneously! If yes, move them apart (see page 87/ 6)</p>

1. Malfunctions And Fault Clearance

Malfunctions	Possible Causes	Remedies
<p>One or more squeegee carriages do not move</p>	<p>Error message #220 or #222 is displayed</p>	<p>5.) Move the squeegee carriage forward and backward by hand so that the contact plate touches the proximity switch. The LED input 1 (squeegee carriage rear) or LED input 0 (squeegee carriage front) should extinguish at the input card for the stations 1, 3, 5, 7 and 9 (for all logged-on stations). The LED for input 9 (squeegee carriage rear) or input LED 8 (squeegee carriage front) should extinguish at the input card for stations 2, 4, 6, 8 and 10. Important: When squeegee carriage in center position, both inputs should light up (either 0 and 1 or 8 and 9). If one input does not light up, check all connections at the RAP-motherboard (see page 94) or replace proximity switch. If both input LED's do not light up, check the plug at the squeegee carriage or both connections to the RAP-motherboard (see page 94). The STAT-motherboard, the flat cable or the RAP-motherboard may be defective as well. You may test this by plugging the 20-pin station cable into a working station. If this one tests okay, you can assume that the STAT-motherboard or the input card are defective (replace). If the squeegee carriage does not move either, then the flat cable or the RAP-motherboard are defective (replace).</p>
<p>One or more squeegee carriages do not move</p>	<p>Error message #222 is displayed The cycle time between the two proximity switches was too long. Electrical problem.</p> <p>Error message #222 is displayed. The cycle time between the two proximity switches was too long. Mechanical problem.</p>	<p>6.) The distance to proximity switch, squeegee carriage and contact plate is too much. Bend the contact plate slightly inward (approx. 0.5 – 1 mm distance between contact plate and proximity switch). Replace during service. Subject to wear and tear!</p> <p>7.) Remove the cover for the squeegee arm and check the toothed belt (see page 87/ 12). Replace if broken. If not, move the squeegee carriage forward and backward by hand – both sprockets and the motor should turn. If not, then the toothed belt inside the squeegee carriage drive is defective. Contact an MHM service technician immediately.</p>
<p>One or more squeegee carriages do not move</p>	<p>The digital input at the frequency converter for fast speed selected. Speed of frequency converter - 6,5 Hz (see page 71)</p>	<p>Remove the plug to the RAP-motherboard (see page 94) and check the speed at the digital display of the frequency converter. The speed should change from 6.5 Hz to 41.5 Hz. If not, replace the RAP-motherboard or the frequency converter. If the speed changes to 41.5 Hz, replace the POTI-motherboard.</p>

IV. Trouble Shooting



1. Malfunctions And Fault Clearance

Malfunctions	Possible Causes	Remedies
One or more squeegee arms move at fast speed only	The frequency converter does not receive a signal at the digital input 2 from the POT1 (see wiring diagram, page 101). The squeegee carriage only moves at a speed of 41.5 Hz.	Check if the POT1-cable is plugged in to the RAP-motherboard or the POT1-motherboard. Check if the cable is defective, otherwise replace the POT1-motherboard.
Machine does not operate in automatic mode – only in manual mode	Input card 0 does not receive a signal from the foot pedal.	Either the foot switch is not connected or the line from the switch to the input card is defective. (see wiring diagram on page 99).
Error message #199 Station 0 see frequency converter drive – appears at the digital display E05 or E07	Too many voltage fluctuations in the line! Max 220V +/- 3%	It is recommended to superpose a filter of at least 5 KW. Otherwise, the output frequency of the frequency converter must be lowered. (see page 80). This means a reduction in the start-up time or an increase in the slow-down time of the turntable drive, which in turn reduces the production rate per hour.
Y-Axle rear and front, Lifting movements up/down are not synchronous	After the machine has run for some time it may happen that some Y-axes are no longer running synchronously.	Turn the machine on and go to the menu „Adjust“ – push the key „screen UP/DOWN“ (with inserted screen). Check if the screen moves up and down synchronously. For additional adjustments see page 82.
Y-Axle rear and front, knobs for screen adjustment do not turn or turn only with difficulty.	No lubrication!	Lubricate the clutch disks between the knobs (use the lubricant recommended by us in the lubrication manual).
Air escapes at one of the solenoid valves	The seal of one cylinder piston is damaged. The connection to one solenoid valve has come loose or a flat seal is damaged.	Check the sound absorbers at the solenoid valve to see if air escapes. If yes, a piston seal on one of the pneumatic cylinders in this system is damaged. Replace the cylinder! Check and retighten the connections to the solenoid valve!
LED at the solenoid valve lights up but the valve is not actuated	The solenoid valve is defective.	Replace the solenoid valve.

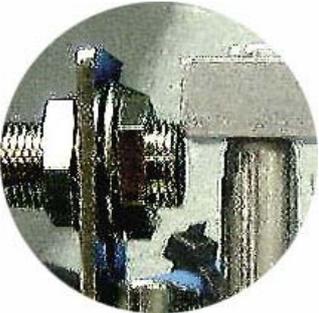
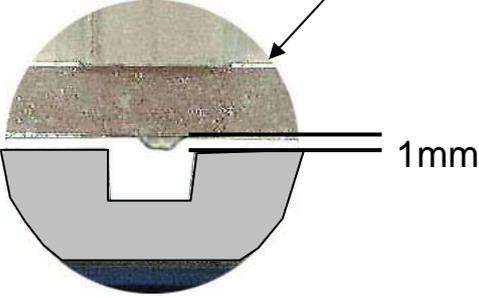
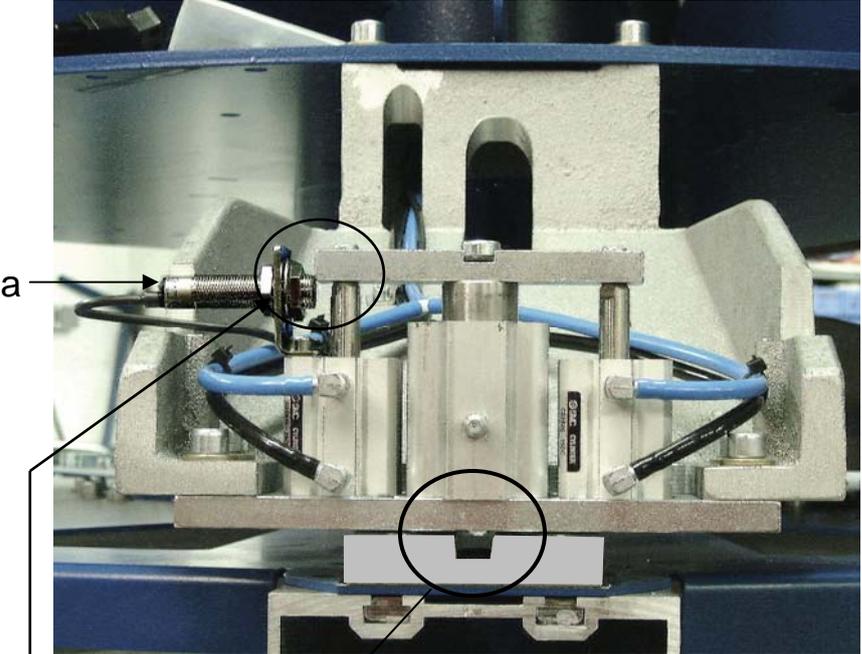
2. Machine adjustment to eliminate malfunctions

Positioning the Alignment

Pin –

Proximity Switch

⚠ DANGER!!! Always push the EMERGENCY-OFF button and disconnect the power when working on the machine !!!

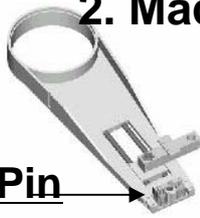


In unpressurized condition, push the alignment pin into the registration plate, then pull the alignment pin up until it extends 1 millimeter above the top edge of the registration plate. When correctly positioned, the LED (a) should extinguish; if this occurs earlier or later the proximity switch must be readjusted.

IV. Trouble Shooting

MHM AUSTRIA

2. Machine adjustment to eliminate malfunctions



Positioning the Carrier Pin

Proximity Switch



DANGER!!! Always push the EMERGENCY-OFF button and disconnect the power when working on the machine !!!

1.)

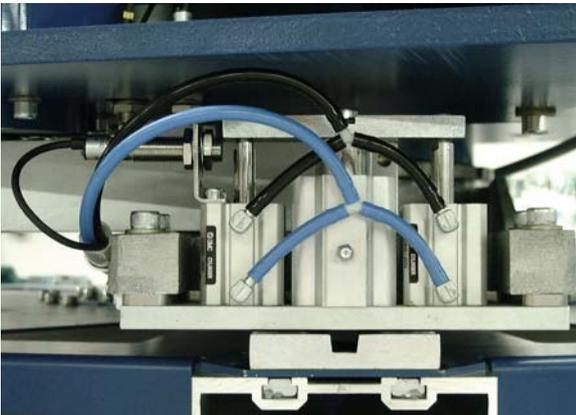


1.) In unpressurized condition and with the **EMERGENCY-OFF** button pushed, press the carrier pin into the registration plate; the LED at the proximity switch should light up.

Once the machine is pressurized, turn the **machine OFF and ON!**

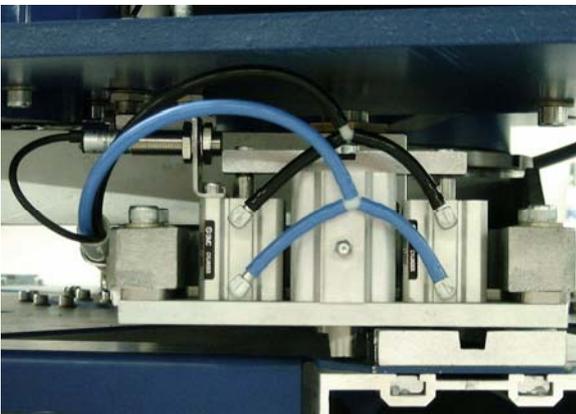
Even if the pin is pushed into the registration plate with the help of the cylinder and at the specified air pressure, the LED at the carrier pin of the proximity switch must light up!

2.)



2.) Pull the carrier pin all the way up; the LED at the proximity switch should no longer be lit.

3.)

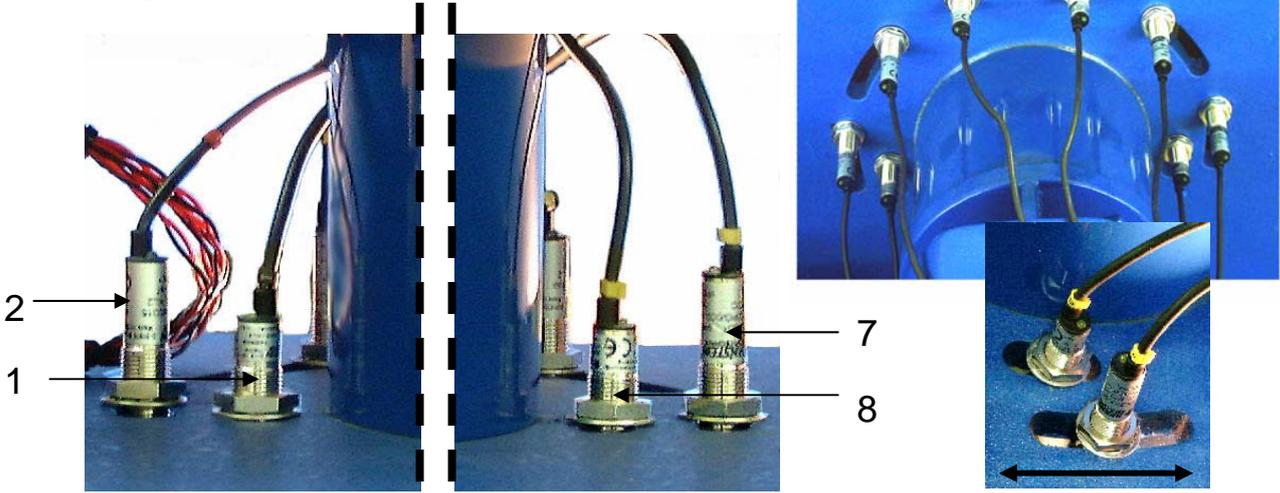


3.) Move the turntable a little bit to the side so that the carrier pin can be pushed all the way down next to the registration plate; the LED should no longer be lit.

2. Machine adjustment to eliminate malfunctions

Adjusting the rotating drive

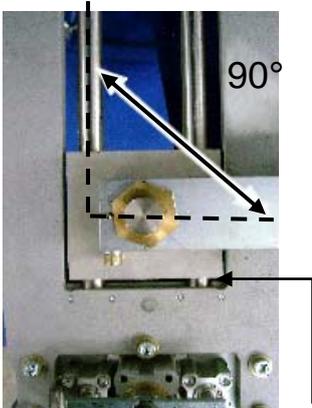
Proximity Switches



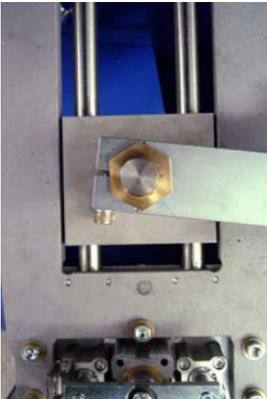
⚠ DANGER!!! Always push the EMERGENCY-OFF button and disconnect the power when working on the machine !!!

Loosen the two proximity switches 2 and 7 at the lower union nut (**important**) !

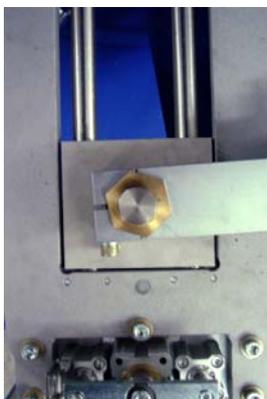
Release the EMERGENCY-OFF button, move the two proximity switches to the outside and perform one rotating movement with **Index Rotation Left / Right** in **Machine Adjust** menu. Afterwards test if the drive arm is positioned at a 90° angle to the plate of the torque support (see figure below). If that is the case, push the EMERGENCY-OFF button and align the proximity switches, respectively repeat the described steps until the precise position has been reached.



CORRECT = approx. 5 mm gap



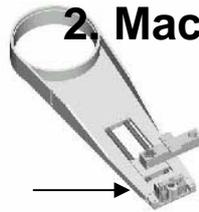
INCORRECT



INCORRECT

IV. Trouble Shooting

MHIM AUSTRIA



2. Machine adjustment to eliminate malfunctions

Carrier pin next to the registration plate!



DANGER!!! Always push the EMERGENCY-OFF button and disconnect the power when working on the machine !!!



#9	Transport pin beside registration plate. Turn table and place registration plate exactly below transport pin, Then press the button "TRANSPORT PIN DOWNSIDE". If you don't get report "TRANSPORT PIN IN POSITION" flashing check the proximity-switch off transport pin, possibly the proximity-switch is not working or not in the right position. (Look at manual page: 78)
----	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

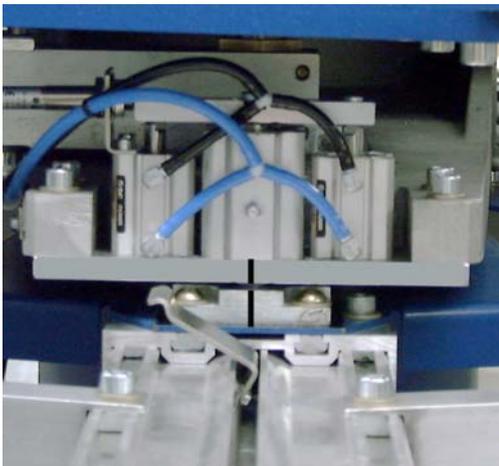
RETURN

TRANSPORT PIN IN POSITION

TRANSPORT PIN DOWNSIDE

a.) If the carrier pin is located outside of the registration plate, either because of power failure or incorrect operation of the carrier pin, Error #9 appears at the touch.

The carrier pin is located next to the registration plate, Figure a. Turn the registration plate and position it underneath the carrier pin, Figure b. Press the button "**Lower the carrier pin**"; "**carrier pin in position**" blinks in the orange field. If the carrier pin does not snap in, press the button "**raise carrier pin**" and repeat the above procedure.



#9	Transport pin beside registration plate. Turn table and place registration plate exactly below transport pin, Then press the button "TRANSPORT PIN DOWNSIDE". If you don't get report "TRANSPORT PIN IN POSITION" flashing check the proximity-switch off transport pin, possibly the proximity-switch is not working or not in the right position. (Look at manual page: 78)
----	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

RETURN

TRANSPORT PIN IN POSITION

TRANSPORT PIN DOWNSIDE

b.) Press Return to get to the main menu, page 20.

2. Machine adjustment to eliminate malfunctions

Frequency converter (FC) L and LH 100



Description of the control panel

_4-digit **LED-display** for parameters and operating data.

STOP/RESET button: the Reset function to confirm errors is used to control the operator's panel when controlling via control panel as well as via terminal strip.

The **RUN-LED** lights up when the frequency converter is operating, e.g. as soon as a start command is given.

The **PRG-LED** lights up when the frequency converter is programmed.

POWER-LED: Remember that high voltage is present at the terminals as long as the DC intermediate circuit is charged (Charge-LED), even after EMERGENCY- OFF is pushed.

RUN-button starts the operation at the rotation specified in the lower function F04; not active when controlled via terminal strip.

The **LED Hz** and **A** inform you if the output frequency or the output current is displayed.

For the factory setting, the rated value of the frequency can be set with the rotating potentiometer.

Arrow keys are used to select functions and to enter or change data.

The **STR-key** is used to save keyed-in data.

FUNC-key to select and exit input mode.



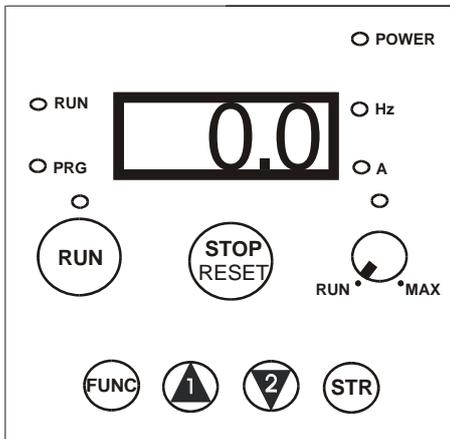
IV. Troubleshooting

MHIM AUSTRIA

2. Machine adjustment to eliminate malfunctions

Changing the parameters at the large frequency converter

Type L 100



Caution: prior to performing any changes to the frequency converter, check the line voltage on the right hand side of the terminal strip between L1 and N

210V - 0 / + 4V

In case the voltage deviates from the specified value reverse the terminal Connections at the 210V transformer (see pg. 107) to 210V -0 +4 !!!

If the voltage is correct, proceed as follows !

Turn on the machine, proceed to the menu service – Machine Adjust at the touch, where you can set the index rotations clockwise or counter-clockwise.

Important! Push the EMERGENCY-OFF button at the touch now!

Parameter changes at the frequency converter.



Press the function key once, **d0l** appears.



Press the arrow key No. 2 several times until **F0l** appears.



Press the function key once, **39,5** should appear.



Press the arrow key No. 2 by **2 Hz.** less at **37,5**.

2. Machine adjustment to eliminate malfunctions

-  Press the STR key once, the program is saved.
-  Press arrow key No. 1 until **A - -** appears.
-  Press the function key one time.
-  Press the arrow key No. 1 until **A 28** appears.
-  Press the function key once, **80.0** appears.
-  Press arrow key No. 2 to **75.0**.
-  Press STR key once, the program is saved
-  Press the function key one time.
-  Press the arrow key until **d0l** appears.
-  By pressing the function key once the parameter change was finalized and **0.0** appears again on the display.

ATTENTION: next step is very important!

Select the menu item **SERVICE** at the touch (Pg. 39)



Select the menu item **Machine Setting** (Pg.39)



Push the keys **Index- Rotation (Pg.27)** alternately between clockwise and counter-clockwise. Afterwards verify that the position of the rotating drive corresponds to the figure on **Page 77, CORRECT = approx. 5 mm gap (90°)**. If that is not the case, set the rotating drive with the proximity switches, as described on **Page 77**.

On pages 108 - 116 in the attachment you will find the parameter lists for the frequency converters as a reference and for reprogramming, if necessary!!!

IV. Troubleshooting

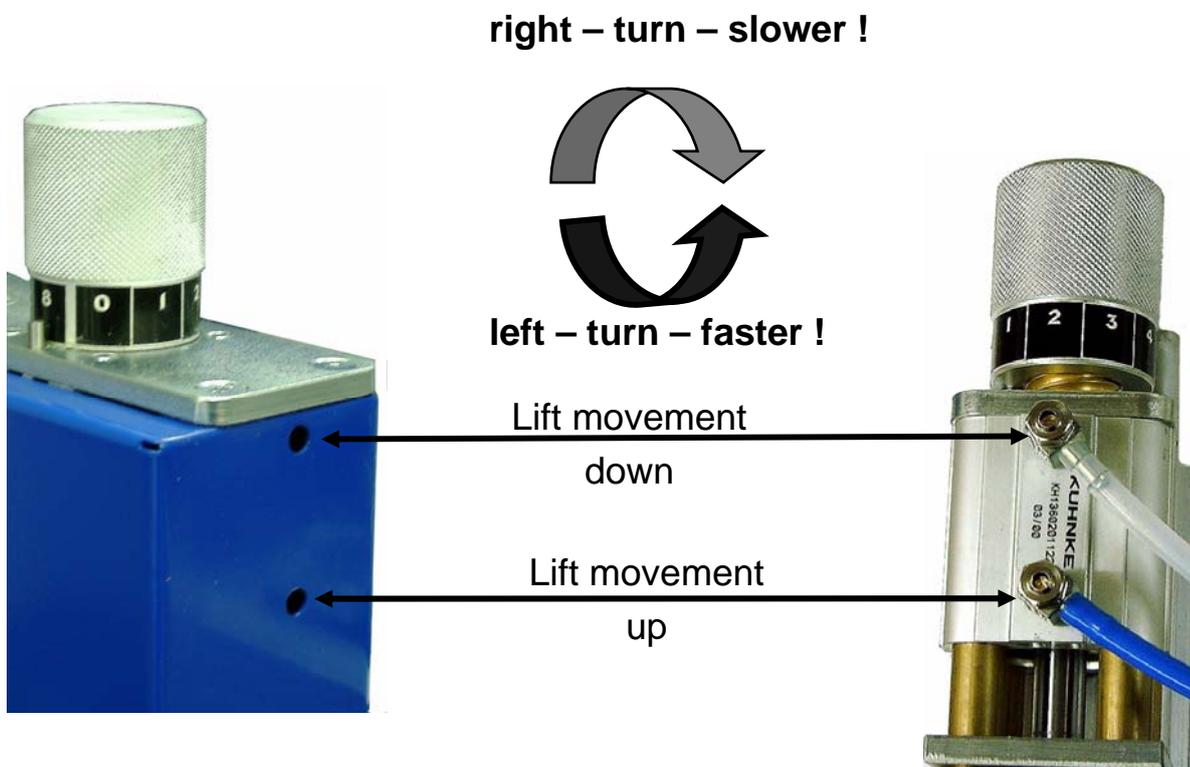
2. Machine adjustment to eliminate malfunctions

Synchronize the Y-Axes in the front and in the back

The **screen frames** resp. the **pneumatic cylinders** of the Y – axes for one or several print stations slowly move up and down or asynchronously? Go into the Adjust Mode Cleaning and lubricate the guide unit of the Y-axes, as described in the manual under **Service and Maintenance (Pg.7)**. Now turn the two control knobs to zero and clamp in a screen, move the Y-axes in the **Adjust Mode (Pg.27)** by moving the key **Screen up/down** and check if a synchronous movement is performed.

Should the problem persist, adjust the throttle valves at the pneumatic cylinders with the help of a suitable screwdriver, as described below, until the screen can be moved up and down synchronously by pushing the key **Screen up/down** in **Adjust Mode (Pg. 27)**.

Nothing changes? Replace throttle relief valve or check supply hose for restrictions or kinks!

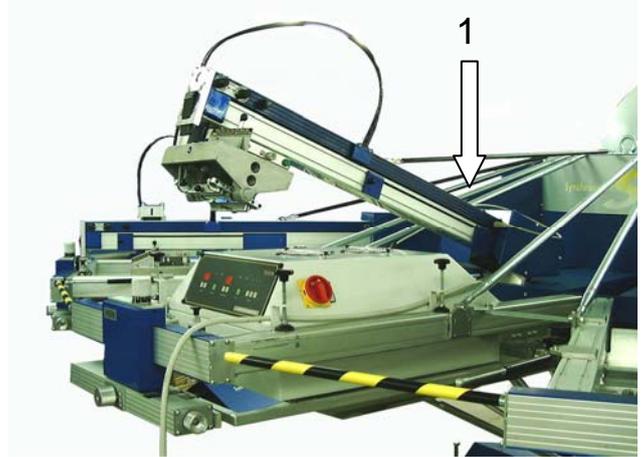


Describing the empty station

Cable flash cure unit empty station



Empty station with flash cure unit



Print station with flash cure unit
Caution! Read manual before startup (Flash Cure Unit)

⚠ Start-up of flash cure unit in a print station!

Before operating the flash cure unit in the print station, it is absolute essential to deactivate the unit (see manual **Pg. 22**), and the **mushroom-type valve at the Y-axle** is pushed down (damages to the tubes may occur).

After pushing the squeegee carriages into its end position, the flash cure unit is positioned in the frame of the print station and connected to the squeegee arm with the dryer connection (1). When connecting the dryer with the power line, make sure that it will not touch any moving parts (rotating frame, pallets, squeegee carriage, etc.). Otherwise the cable may be damaged and a short-circuit is possible.

Flash cure unit and machine are connected with the supplied cable.

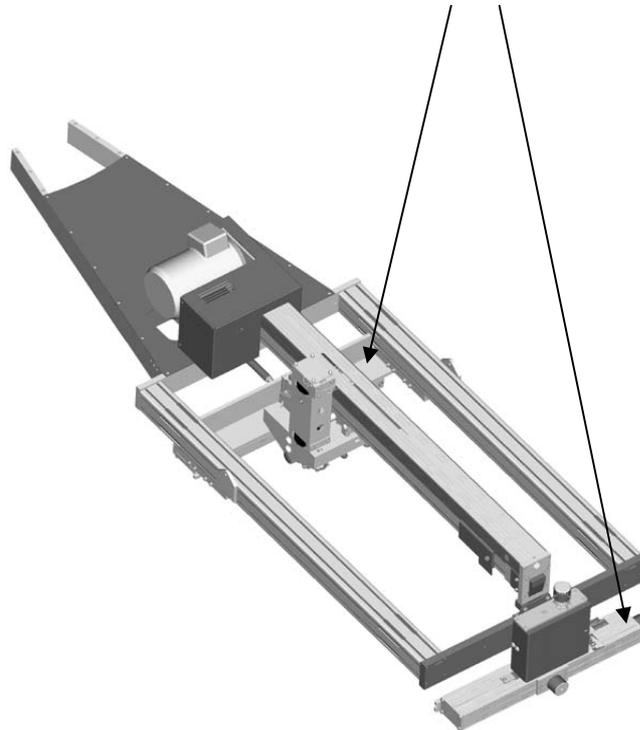
Heating of the pallets by the flash cure unit will void the warranty!!!

At a control time of 10 sec. this temperature will not be exceeded with the flash cure units supplied by us.

V. Print Station and Accessories

MHIM AUSTRIA

Description of the Y- Axle



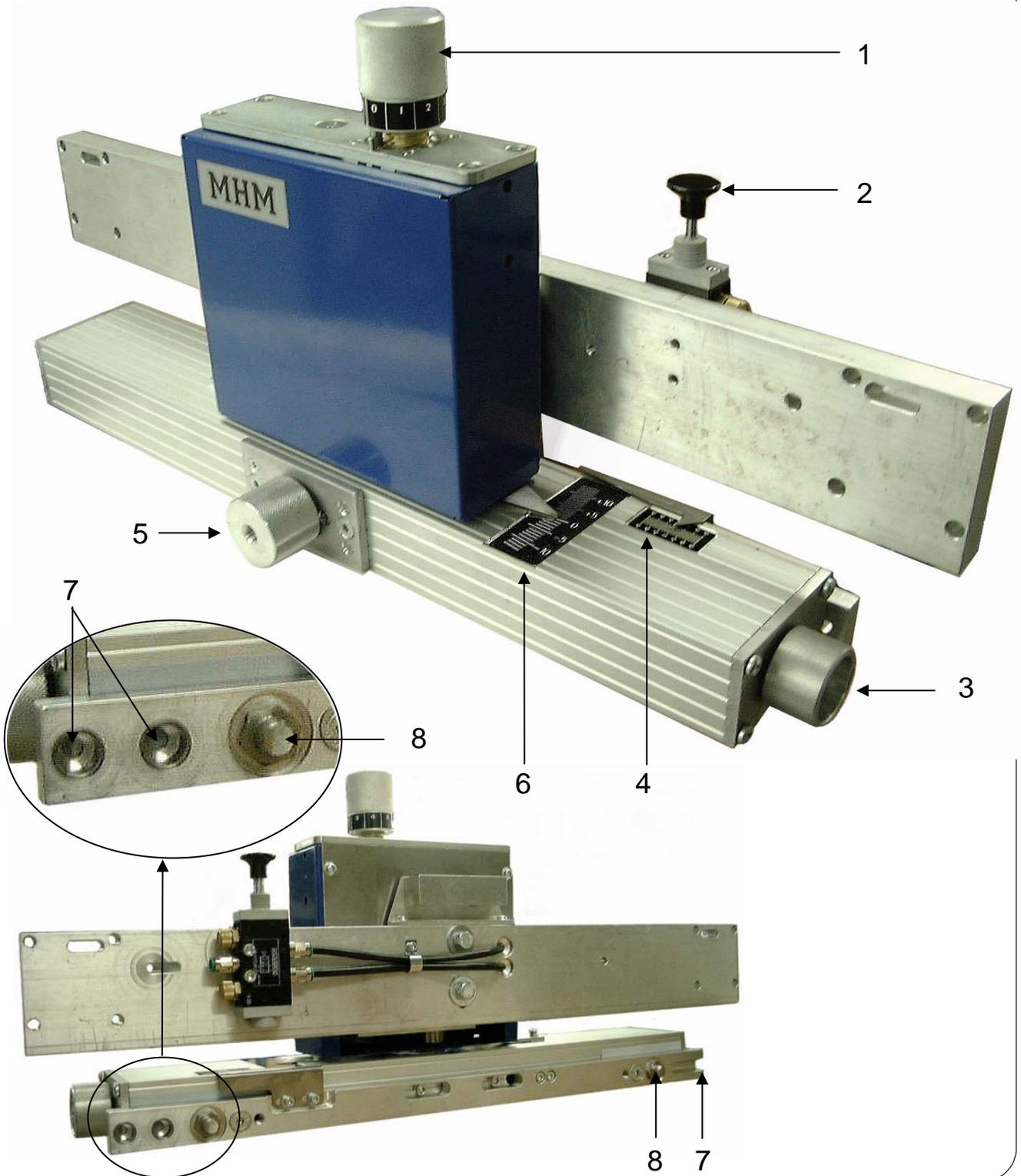
See figures on the next page

1	Control wheel to adjust the height (jump) 1 – 8mm
2	Pneumatic valve - up / down for screen change
3	Screen adjustment left / right
4	Scale for screen adjustment left / right with millimeter graduation
5	Screen adjustment front/back
6	Scale for screen adjustment front/back with millimeter graduation
7	Screen pickup roller frame
8	Screen pickup pinlock

V. Print Station and Accessories

MHM AUSTRIA

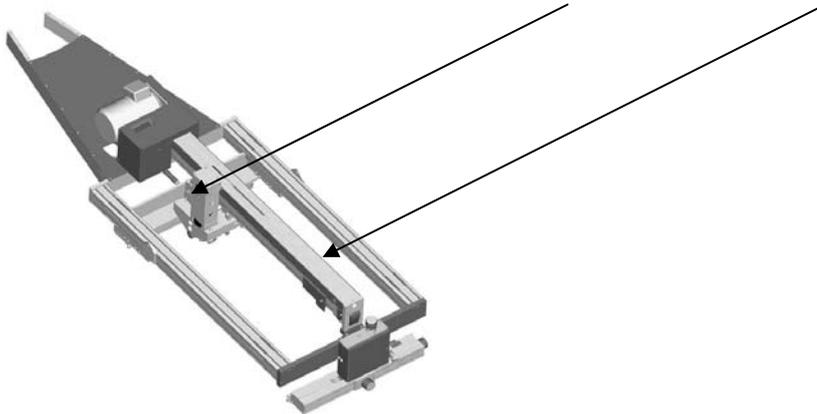
Description of the Y-Axle



V. Print Station and Accessories

MHIM AUSTRIA

Description of Squeegee Carriage / Squeegee Arm



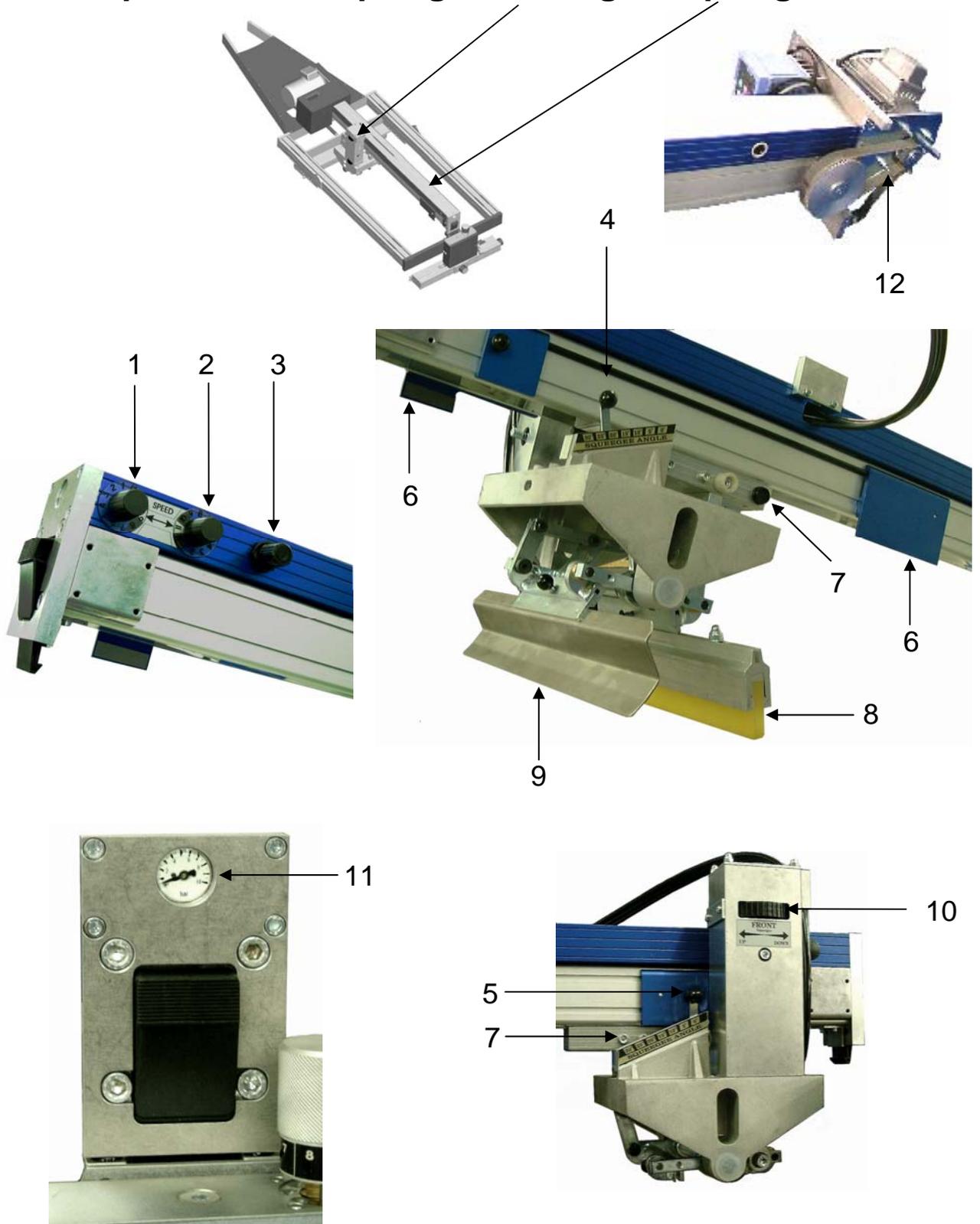
See Figures on next page

1	Potentiometer for squeegee carriage speed forward
2	Potentiometer for squeegee carriage speed reverse
3	Pressure regulator to regulate the air pressure for the pressure squeegee
4	Adjusting lever for the pressure squeegee angle, from 0° to 30°, pitch 5°
5	Adjusting lever for the flood squeegee angle, from 0° to 30°, pitch 5°
6	Contact plates to adjust the path of the squeegee carriage
7	Proximity switches
8	Pressure squeegee
9	Flood squeegee
10	Flood squeegee adjustment up/down Flood squeegee adjustment up/down
11	Flood squeegee adjustment up/down
12	Toothed belt

V. Print Station and Accessories

MHM AUSTRIA

Description of the Squeegee Carriage / Squeegee Arm



V. Print Station and Accessories

Description of the Screen Frames and Pinlock – Drilling Template / Roller Frame

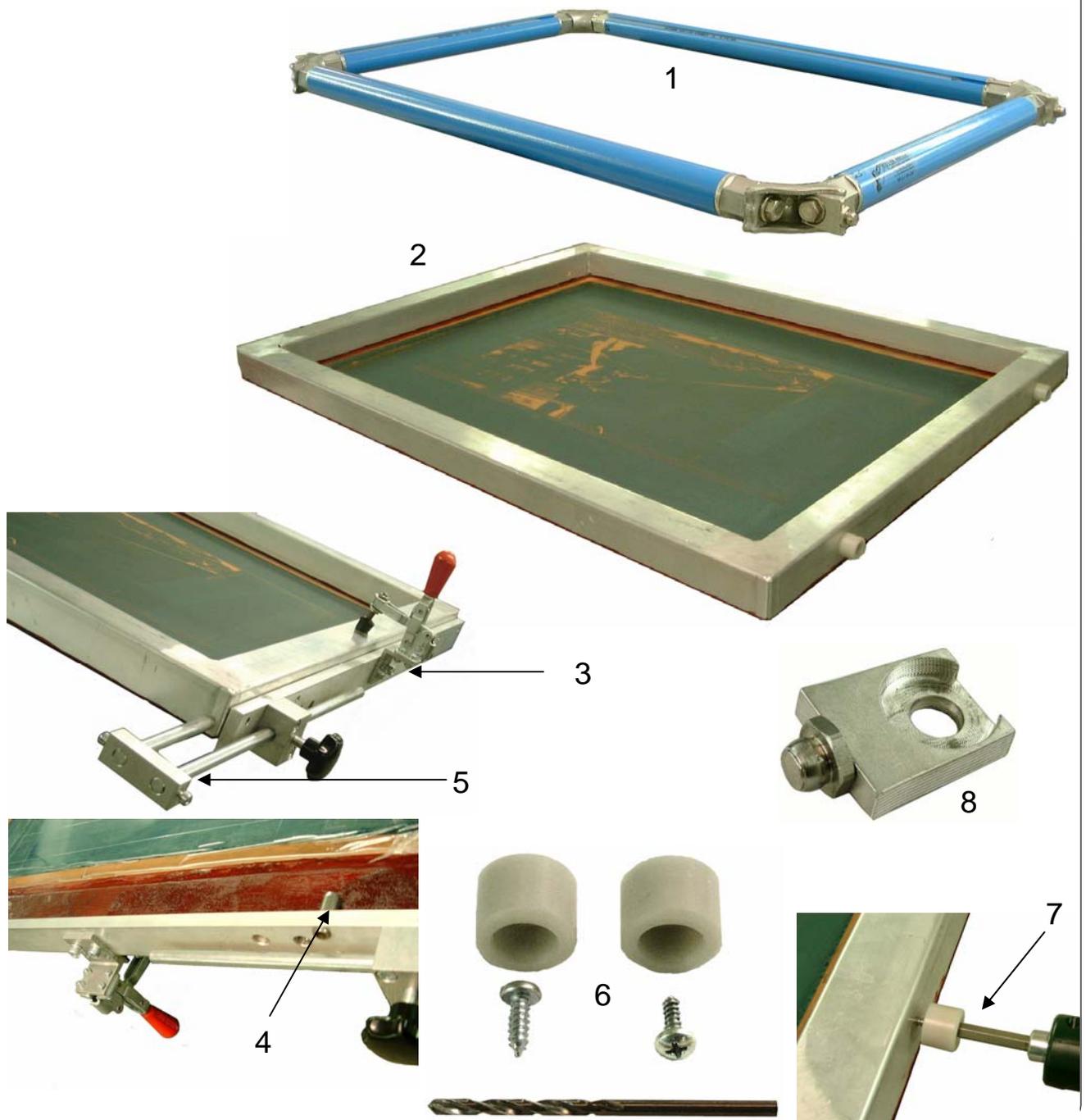
See Figures on next page

1	Roller frame
2	Profile screen made of aluminum, 40 x 40 – 2.8 / 2.0 mm
3	Drilling template
4	Stop for the drilling template (bottom)
5	Adjustable side stop
6	Pickup for pinlock system
7	Assembly pinlock
8	Pickup roller frame

V. Print Station and Accessories

MHM AUSTRIA

Description of the Screen Frames and Pinlock – Drilling Template / Roller Frame



VI. Electrical Components



Location of all fuses

Transformer 210V
-0 / +4



Transformer

I Primary Fuse T1,25 A

II Secondary Fuse T5 A

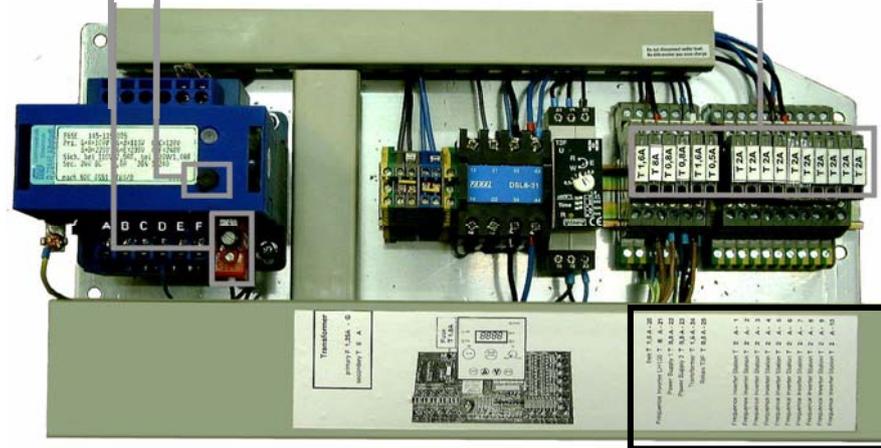
Free	T 1,6 A - 20	T 2	A - 1
Frequency Inverter LH100	T 8 A - 21	T 2	A - 2
Power Supply 1	T 0,8 A - 22	T 2	A - 3
Power Supply 2	T 0,8 A - 23	T 2	A - 4
Transformer	T 1,6 A - 24	T 2	A - 5
Relay T3F	T 0,5 A - 25	T 2	A - 6
Frequency Inverter Station		T 2	A - 7
Frequency Inverter Station		T 2	A - 8
Frequency Inverter Station		T 2	A - 9
Frequency Inverter Station		T 2	A - 10



Fuse
T 1,0A

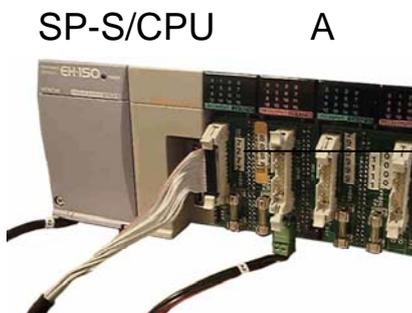
FU

Main Terminal Board



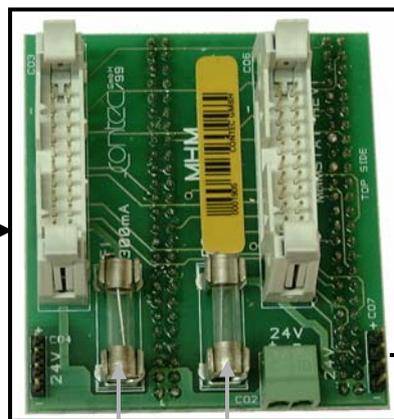
B/ STAT Motherboard

C / Jumpers



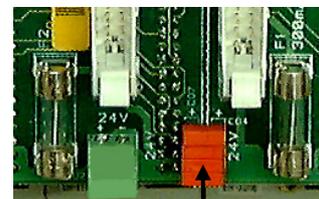
SP-S/CPU

A

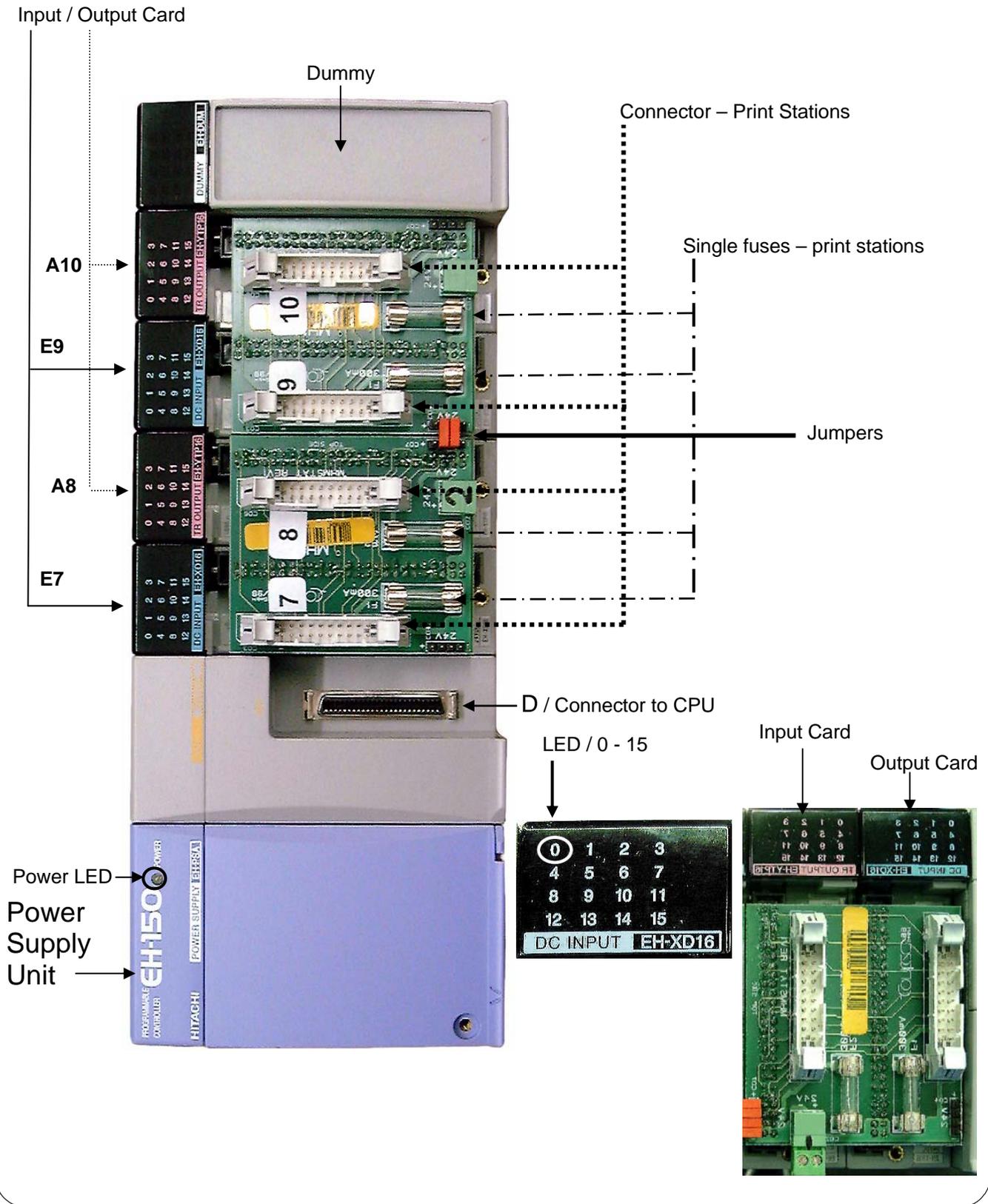


Fuse T 0,35A

Fuse T 0,35A



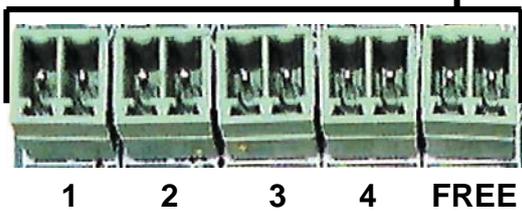
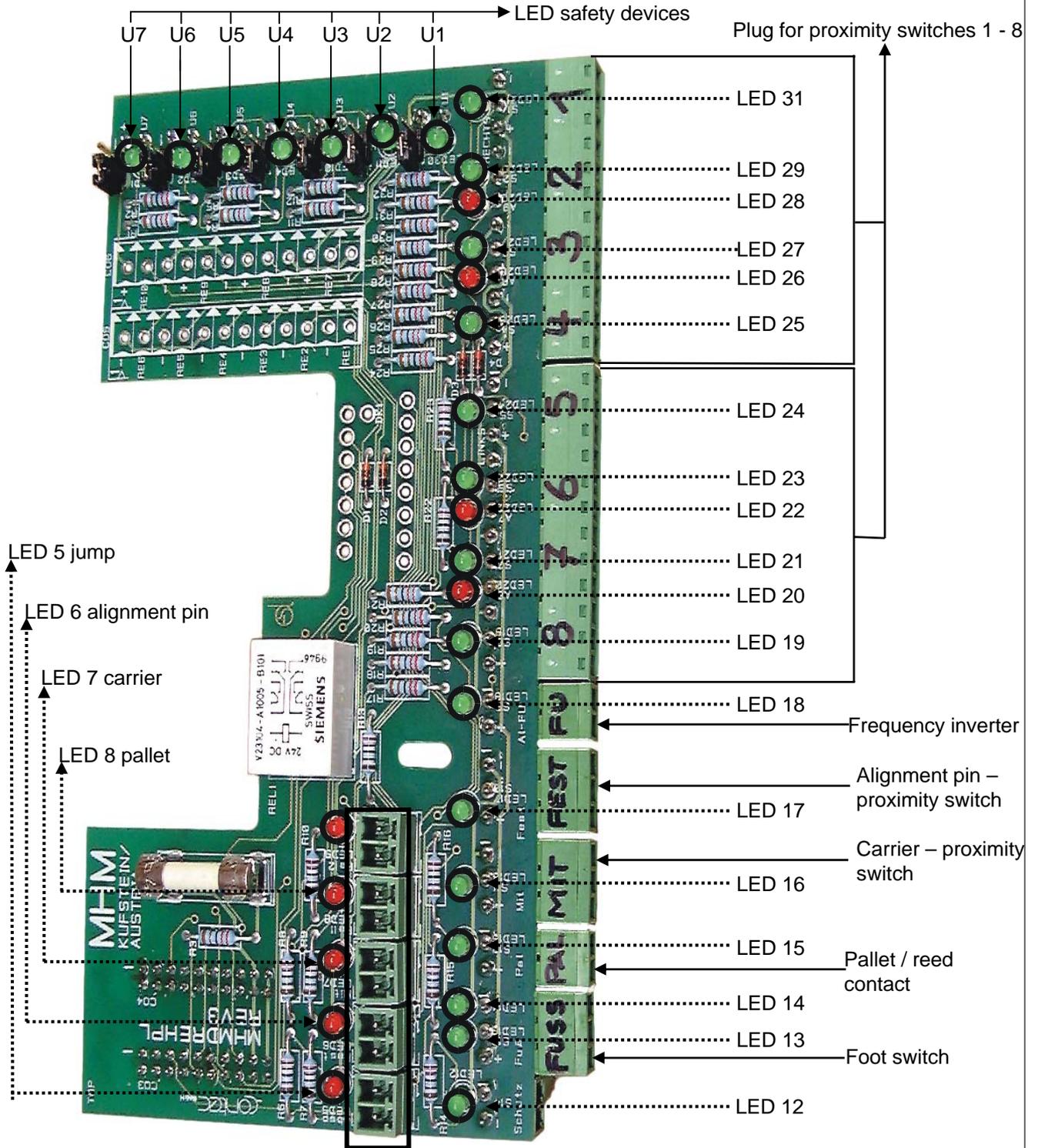
VI. Electrical Components



VI. Electrical Components

MHM AUSTRIA

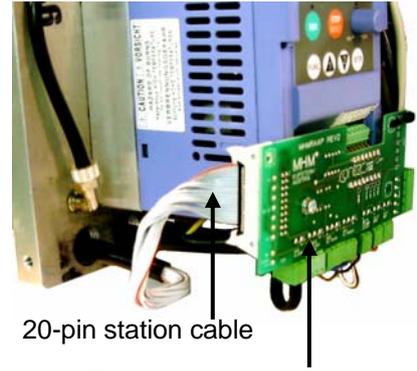
Rotating Motherboard



- 1 – plug 1 – cable No. 1 – valve 1 – jump
- 2 – plug 2 – cable No. 2 – valve 2 – alignment pin
- 3 – plug 3 – cable No. 3 – valve 3 – carrier
- 4 – plug 4 – cable No. 4 – valve 4 – pallet

VI. Electrical Components

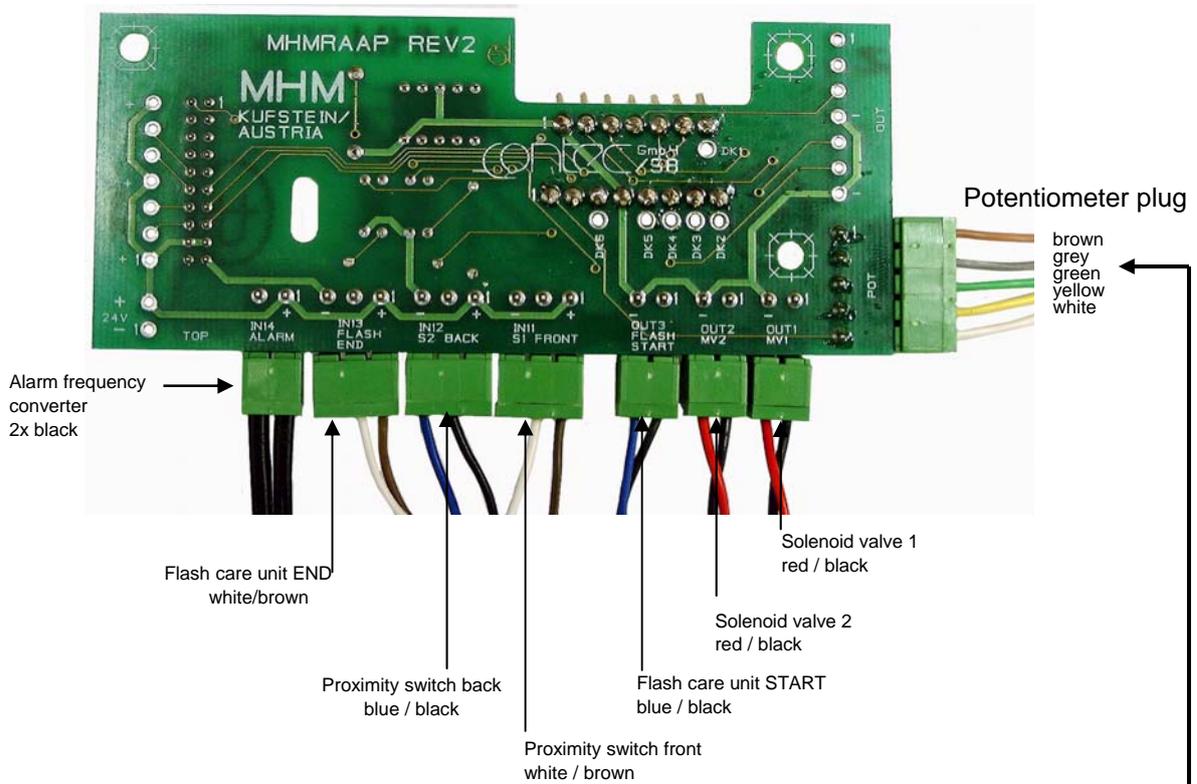
MHM AUSTRIA



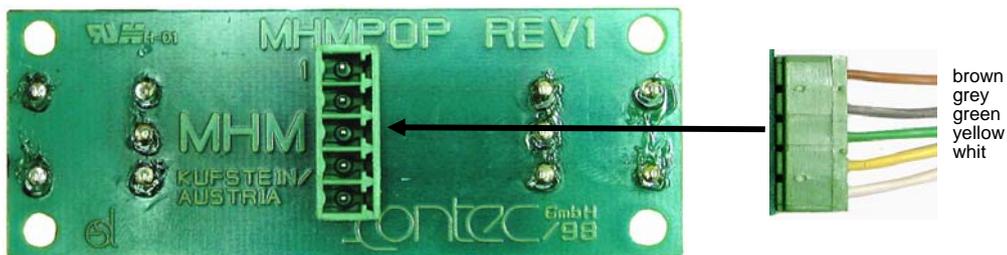
20-pin station cable

Squeegee arm motherboard

Squeegee Arm Motherboard (RAP)



Potentiometer motherboard



Ambient and Operating Conditions

In order to obtain good function and excellent production results with the MHM Synchroprint S-Type, the following conditions must be met by the owner:

- the room where the machine is running must be kept clean and dry
- the room must be well ventilated
- the room temperature should be at least +5°C and maximum +45°C
- the relative humidity should not exceed 80% maximum
- In order to guarantee trouble-free operation of the machine it is absolutely essential to ensure that the line voltage does not exceed or fall below $\pm 5\%$ of the rated value. If this tolerance is not maintained, a voltage stabilizer to protect against fluctuations in the line voltage must be superposed by the owner.
- When operating several machines make sure that sufficient power is supplied to the connected load respectively that the fuses in the control cabinet are protected.
- The compressed air supply must be maintained at a constant level.

VII. Technical Data

MHIM AUSTRIA

Machine Type	SP-S 10	SP-S 12
Number of turntables	10	12
Number of print stations, max	8	10
Max. print format	50 x 55 cm 19,5" x 21,5"	50 x 55 cm 19,5"x 21,5"
Max. diameter	460 cm 181"	500 cm 196"
Door opening	190 cm 75"	
Overall height	185 cm 72,8"	
Weight approx.	2.150 kg 4.740 lbs	2.150 kg 4.740 lbs
Minimum air pressure	6 bar / 90 PSI	
Drive system	AC - drive	
Electrical connection	1~200/240V, 50/60 Hz	
Connected load for rotating drive	1 kW	
Connected load for squeegee drive	0,4 kW	
Accuracy of registration plate	+/- 0,02 mm +/- 0,00078"	
Recommended screen frame profile	40 x 40 mm 1,57" x 1,57"	
Max. outer dimension of screen	635 x 910 mm 25" x 35,82"	
Machine output **	1.200 units/hour	
** Overall weight with maximum number of print stations ** With one squeegee line and 50 cm squeegee travel –subject to technical changes		

1. Preparing the machine for production.

1.) Turn machine on

Set all scales to zero (base position). Do not turn the rotary knobs at the Y-axes forcefully beyond the stop (loss of warranty).

2.) Reference drive

3.) Setup

4.) Station logon Select flood and print strokes

5.) Select colors Water base / Plastisol

6.) Select flash care unit station At touch switch station to **ON**, set the dryer time – 1-2 seconds longer than the delay time of the machine, set flash care unit to automatic. Turn on the flash care unit at the machine (master switch), set the drying power at the flash care unit, set the drying time at the flash care unit – 1-2 seconds longer than the drying time at the touch (actual drying time is the time at the touch).

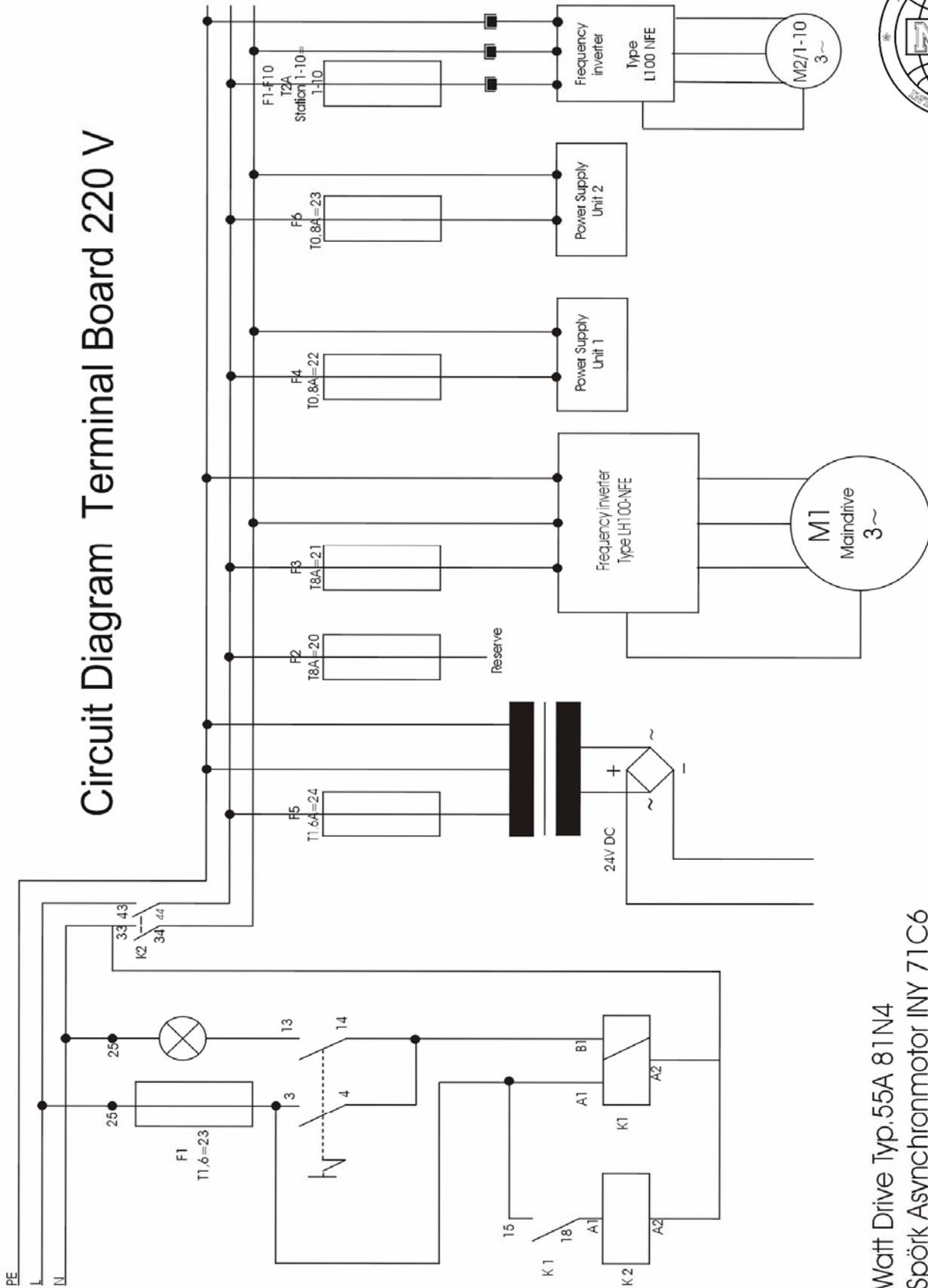
7.) Insert flood and pressure squeegees insert the two squeegees as described on pages 87/8/9, adjust the air pressure for the pressure squeegee at the squeegee arm, push flood squeegee down to the stop with both hands and adjust the height with the flood squeegee adjustment up/down on pages 87/10, with the adjusting levers pgs. 87/4/5 select the setting angles of the squeegees.

8.) Clamp in the screens lift the Y – axle in the front with the 5/2 way-valve, clamp in the screen, set the squeegee carriage speed at the squeegee arm potentiometer pgs. .87/ 1/ 2 and the squeegee carriage travel with the contact plates, pgs. 87/6.

9.) Y – Axle Jump select as described on page 84/ 1 Scale 0 – 8= 0 – 8mm

10.) Align screen and prepare print process in Adjust Mode.

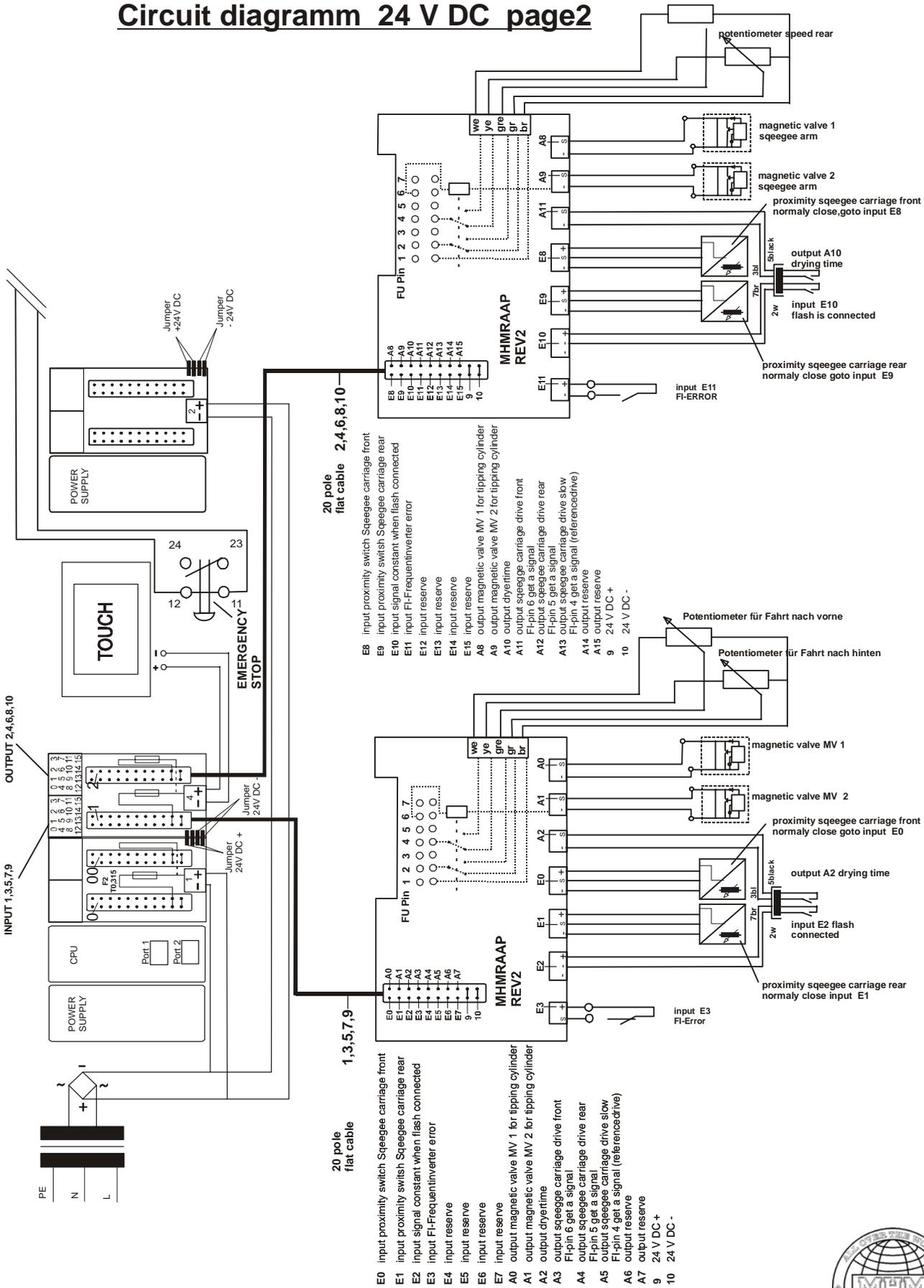
VIII. Circuit Diagrams



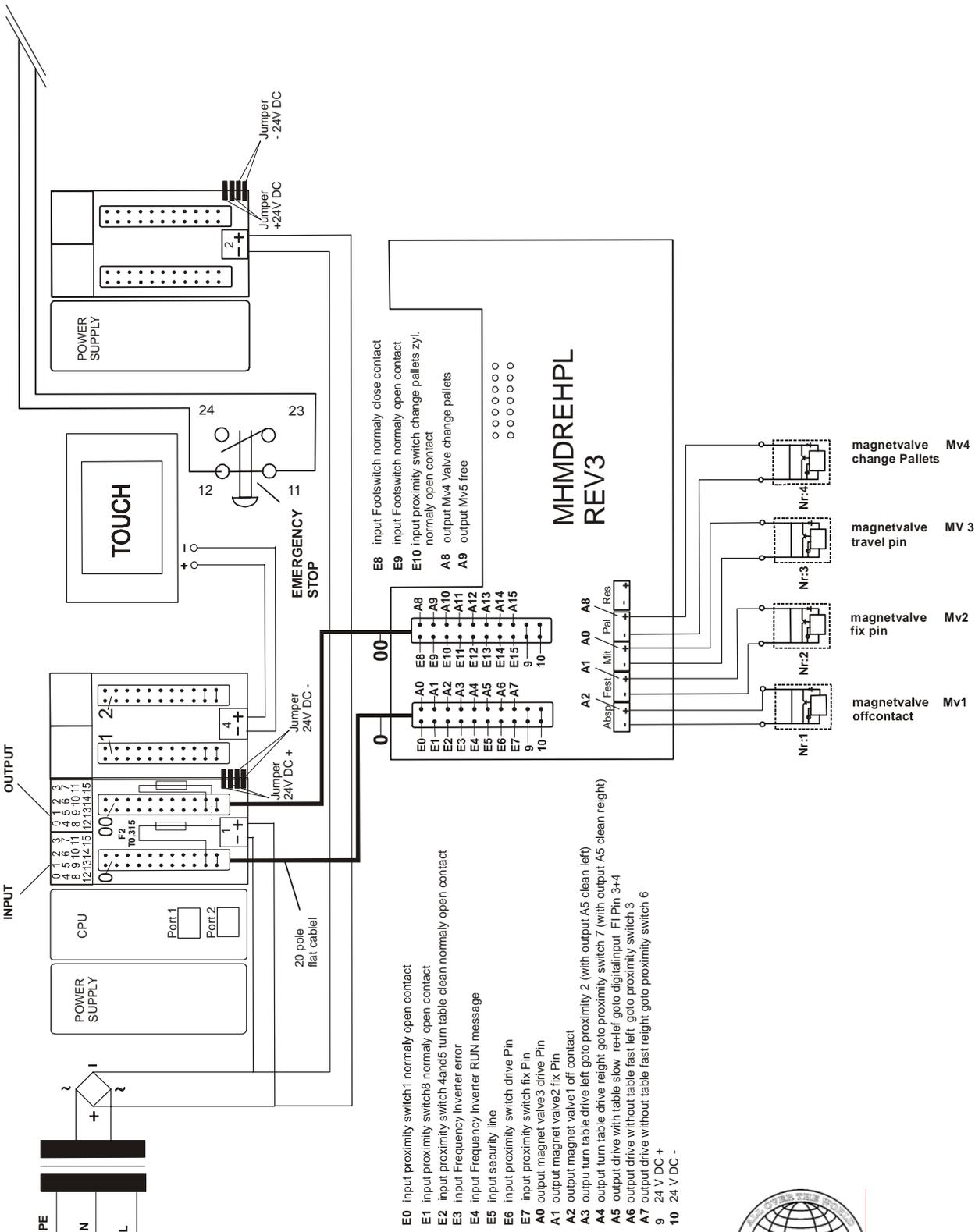
- Motor 1- Watt Drive Typ.55A 81N4
- Motor 2- Spörk Asynchronmotor INY 71C6
- K1 Clock relay- MIQUEL EN 60947-5-1 VDE0435
- K2 Contactor- Fanal DLS6-31

VIII. Circuit Diagrams

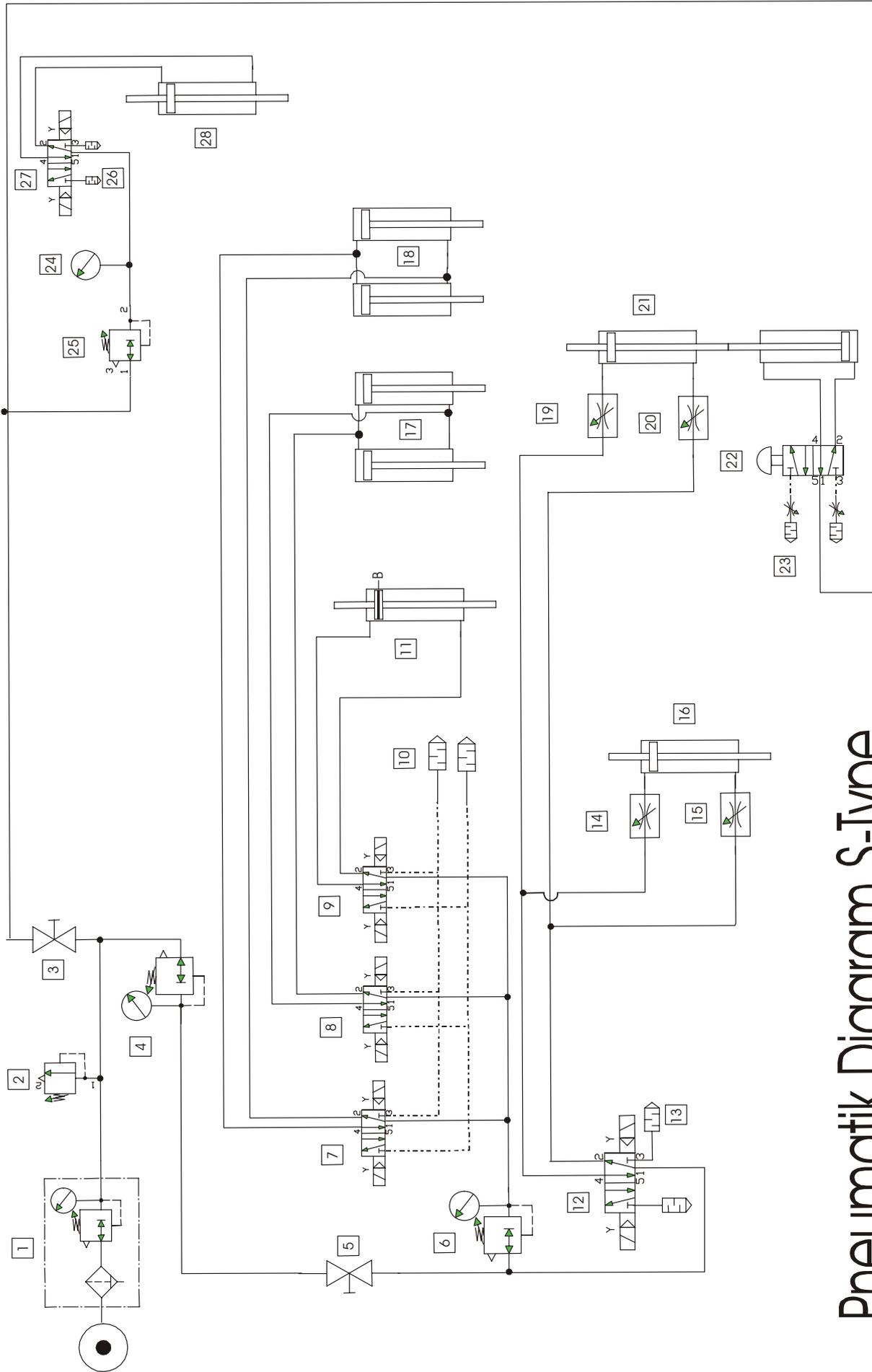
Circuit diagramm 24 V DC page2



Circuit diagram 24 V DC page3



VIII. Circuit Diagrams



Pneumatik Diagram S-Type



FUNCTIONS PNEUMATIC DIAGRAM

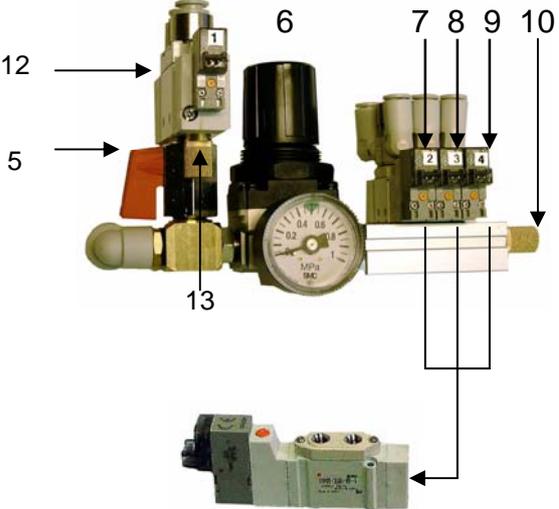
1. Maintenance unit pressure regulator with integrated pressure gauge and automatic water separator, adjustable range from 0 – 10 bars. Maximum operating pressure 7.5 bars!!!
2. Pressure relief valve relieves at 7.5 bars
3. Shutoff valve for loop squeegee arm – operating pressure max. 7.5 bars
4. Pressure regulator with pressure gauge for screen lift cylinder Y-axes – max. operating pressure at 6 bars
5. Shutoff valve for Y-axes – alignment pins and carrier pins as well as pallet unlock cylinder
6. Pressure regulator with pressure gauge for alignment pins and carrier pins as well as pallet unlock cylinder – max. operating pressure at 4 bars!!!
7. 5/2 way-valve with impulse valve electrically actuated. This is valve No. 3 at the valve island and must be connected at zero current in such a way that the carrier pin snaps in below or into the guide of the registration plate!!
8. 5/2 way-valve with impulse valve electrically actuated. This is valve No. 2 at the valve island and must be connected at zero current in such a way that the alignment pin is up!!
9. 5/2 way valve with impulse valve electrically actuated. This is valve No. 4 at the valve island and must be connected at zero current in such a way that the pallet unlock cylinder is up and the proximity switch LED lights up at the cylinder!!
10. Silencer at the valve block 2-pcs
11. Double-acting cylinder with continuous piston rod and magnet ring for proximity switch (B)
12. 5/2 way-valve with impulse valve electrically actuated. This is valve No. 1 at the valve island and must be connected at zero current in such a way that all Y-axes are up!!!
13. Silencer mounted directly to valve No. 12
14. Throttle valve adjustable at the rear Y-axle cylinder – it decelerates or accelerates the cylinder downward!!
15. Throttle valve adjustable at the rear Y-axle cylinder – it decelerates or accelerates the cylinder upward!!
16. Y-axle cylinder in the back – double-acting with continuous piston rod. The cylinder can be adjusted with a rotary knob from 0 – 8 mm jump!!

VIII. Circuit Diagrams

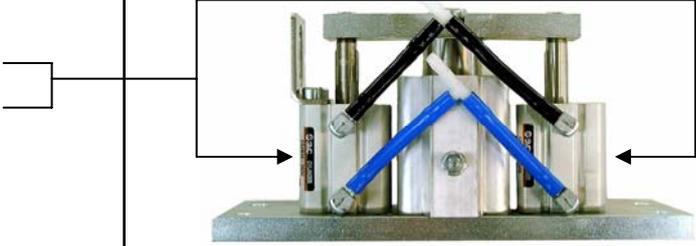
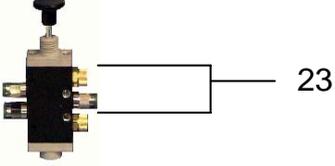
MHIM AUSTRIA

17. 2 double-acting cylinders for carrier pin
18. 2 double-acting cylinders for registration plate pin
19. Throttle valve adjustable at the front Y-axle cylinder – it decelerates or accelerates the cylinder downward!!
20. Throttle valve – adjustable at the front Y-axle cylinder – it decelerates or accelerates the cylinder upward!!
21. Y-axle cylinder in the front is double-acting with continuous piston rod. The cylinder can be adjusted with a rotary knob from 0 – 8 mm jump!! A double-acting cylinder is activated with a mushroom-type valve for screen change.
22. 5/2 way-valve mushroom-type valve for raising and lowering for screen change!
23. Throttle silencer mounted to the mushroom head to throttle the exhaust air.
24. Pressure gauge 0-10 bars to control the pressure of the pressure squeegee – adjustable with the pressure regulator (25)
25. Pressure regulator with secondary vent to adjust the pressure of the pressure squeegee
26. 2 silencers mounted to the 5/2 way-valve at the squeegee arm
27. 5/2 way valve with impulse valve electrically actuated. This is the valve at the squeegee arm that operates cylinder No. 28. It must be connected in such a way that the pressure squeegee is pushed down when the squeegee carriage moves forward!!!
28. Double-acting cylinder with continuous piston rod to adjust the height of the flood squeegee!

The pneumatic components described on pages 103/104 are shown and identified with the same numbers in the Attachment on pages 105/106 !

<p>1. Maintenance unit</p>	
<p>2. Pressure relief valve</p>	
<p>3. Shutoff valve 4. Pressure regulator and pressure gauge</p>	
<p>Valve Island</p> <p>5. Shutoff valve 6. Pressure regulator and pressure gauge 7. 5/2 way valve - valve No. 2 8. 5/2 way valve - valve NR.3 9. 5/2 way valve - valve NR.4 10. Silencer</p>	
<p>11. Double-acting cylinder</p> <p>Reed - Contact</p>	
<p>12. 5/2 way valve - valve Nr.1</p>	

Attachment

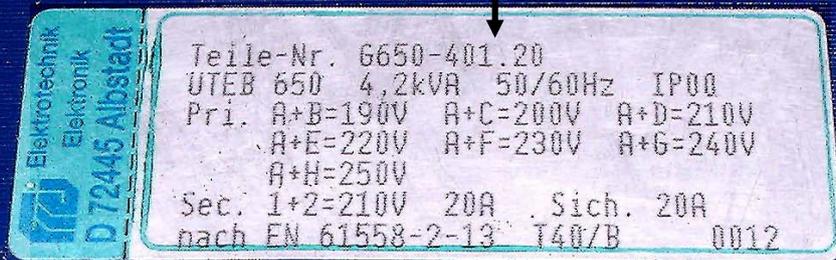
<p>14. Throttle valve – adjustable 15. Throttle valve – adjustable</p>	
<p>16. Y-axle cylinder, double-acting</p>	
<p>17. 2 double-acting cylinders 18.</p>	
<p>19. Throttle valve – adjustable 20.</p>	<p>For illustration see 14. / 15.</p>
<p>21. Y-axle cylinder, double-acting</p>	<p>For illustration see 16.</p>
<p>22. 5/2 mushroom-type valve 23. Throttle silencer</p>	
<p>24. Pressure gauge</p>	
<p>25. Pressure regulator</p>	
<p>26. 2 silencers 27. 5/2 way-valve</p>	
<p>28. Double-acting cylinder</p>	

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Transformer 210 V



Connect primary side in such a way
(see label on transformer) that a
secondary voltage of 210 V
-0 +4 is connected!



Attachment

Frequency inverter / Squeegee Arm

Frequenzumrichter / Rakelarm		
Bei Datenverlust am Frequenzumrichter bzw. Tausch, sind die Daten anhand dieser Parameterliste zu kontrollieren oder neu zu programmieren.		. Hitachi Serie L100 .----- . Geladen : 01.11.99 .----- . MONITORMODUS - SETUP .-----
Beschreibung:	Funktion:	.-----
		. TM 041.5 0.0Hz
Frequenzsollwert / Frequenzistwert (INDEX)	F01 / d01	. ACC1 0000.8s
1. Hochlaufzeit (INDEX + LEER)	F02	. DEC1 0000.1s
1. Runterlaufzeit (INDEX + LEER)	F03	. F-SET-SELECT TRM
Frequenzsollwertvorgabe	A01	. F/R-SELECT TRM
Startbefehl	A02	. /Hz01.0 0.00
Ausgangsfrequenz x Frequenzfaktor	d07	. Im 0.0A 0.0%
Motorstrom Anzeige	d02	. IO 01.50A
Manueller Boost	A42	. V-Boost code<50>
Max. Boost bei % Eckfrequenz0	A43	. V-Boost F 10.0%
Boost Charakteristik	A41	. V-Boost Mode 0
Ausgangsspannung	A45	. V-Gain 100%
Tippfrequenz	A38	. Jogging 5.00Hz
Tippfrequenz Stop Modus	A39	. Jog Mode 0
Abgleich Ausgang FM	b81	. ADJ 080
Anzeige bei Verwendung der ext. Anzeige	b89	. PANEL d01
Signalzustand der Ein- und Ausgänge	d05/d06	. TERM LLL LLLLL
Störmelderegister	d08	. ERR1 EEPROM
Störmeldezähler		. ERR1 18.2Hz . ERR1 3.1A . ERR1 301.9Vdc . ERR1 RUN 000000H . ERROR COUNT 002 . ERR2 EEPROM . ERR2 0.0Hz . ERR2 0.0A . ERR2 304.5Vdc . ERR2 RUN 000000H . ERR3 # . PN-V 307.1Vdc . BRD ON 0% . E-Thermal 0% . RUN 000000H . IO F780 00 0200 . CO FAB0 01 0200 . IO B3C02143 . CO B3B01994 . 048100000000FAB0 . 1401000000000001 .-----
Beschreibung:	Funktion:	. FUNKTIONSMODUS-SETUP .-----
		.F-00 F-BASE
Eckfrequenz	A03	. F-BASE 050Hz .F-01 F-MAX
Endfrequenz	A04	. F-MAX 101Hz .F-02 Fmin
Startfrequenz	b82	. Fmin 5.0Hz .F-03 AVR

Motorspannung	A82	. AVR AC 230V
AVR Funktion Charakteristik	A81	. AVR MODE DOFF
		.F-04 CONTROL
V/F Charakteristik	A44	. CONTROL VC
		.F-06 ACC
1. Hochlaufzeit (INDEX + LEER)	F02	. ACC 1 0000.8s
Umschaltung von 1. Zeitrampe auf 2. Zeitrampe	A94	. ACC CHG TM
2. Hochlaufzeit (CLEAN)	A92	. ACC 2 0000.3s
Umschaltung von 1. Hochlaufzeit auf 2. Hochlaufzeit	A95	. ACC CHFr 000.0Hz
Hochlaufcharakteristik	A97	. ACC LINE L
		.F-07 DEC
1. Runterlaufzeit (INDEX + LEER)	F03	. DEC 1 0000.1s
2. Runterlaufzeit (CLEAN)	A93	. DEC 2 0000.4s
Umschaltung von 1. Runterlaufzeit auf 2. Runterlaufzeit	A96	. DEC CHFr 000.0Hz
Runterlaufcharakteristik	A96	. DEC LINE L
		.F-10 RUN
Verhalten nach FRS Signal	b88	. RUN FRS ZST
		.F-11 SPD
1. Festfrequenz (CLEAN)	A21	. SPD 1 000.0Hz
2. Festfrequenz	A22	. SPD 2 000.0Hz
3. Festfrequenz	A23	. SPD 3 000.0Hz
4. Festfrequenz	A24	. SPD 4 000.0Hz
5. Festfrequenz	A25	. SPD 5 000.0Hz
6. Festfrequenz	A26	. SPD 6 000.0Hz
7. Festfrequenz	A27	. SPD 7 000.0Hz
8. Festfrequenz (LEER)	A28	. SPD 8 000.0Hz
9. Festfrequenz	A29	. SPD 9 000.0Hz
10. Festfrequenz	A30	. SPD 10 000.0Hz
11. Festfrequenz	A31	. SPD 11 000.0Hz
12. Festfrequenz	A32	. SPD 12 000.0Hz
13. Festfrequenz	A33	. SPD 13 000.0Hz
14. Festfrequenz	A34	. SPD 14 000.0Hz
15. Festfrequenz	A35	. SPD 15 000.0Hz
		.F-20 DCB
DC Bremse aktiv / inaktiv	A51	. DCB SW ON
DC Bremse Einschaltfrequenz	A52	. DCB F 10.0Hz
DC Bremse Wartezeit	A53	. DCB WAIT 0.0s
DC Bremse Bremsmoment	A54	. DCB V 100
DC Bremse Bremszeit	A55	. DCB T 00.3s
		.F-22 IPS
Zulässige Netzausfallzeit	b02	. IPS UVTIME 01.0s
Wartezeit vor Wiederanlauf	b03	. IPS WAIT 001.0s
Wiederanlaufmodus	b01	. IPS POWR ALM
		.F-23 E-THM
Elektronischer Motorschutz Charakteristik	b13	. E-THM CHAR CRT
Elektronischer Motorschutz Einstellwert	b12	. E-THM LVL 02.60A
		.F-24 OLOAD
Stromgrenze Einstellwert	b22	. OLOAD LVL 03.25A
Stromgrenze Zeitkonstante	b23	. OLOAD CONST 01.0
Stromgrenze Charakteristik	b21	. OLOAD MODE ON
		.F-25 S-LOCK
Parametersicherung	b31	. S-LOCK MD1
		.F-26 LIMIT
Min. Betriebsfrequenzgrenze	A62	. LIMIT L 006.5Hz
Max. Betriebsfrequenzgrenze	A61	. LIMIT H 000.0Hz
		.F-27 JUMP

Attachment

Frequency inverter / Squeegie Arm

1. Frequenzsprung	A63	.	JUMP F1	000.0Hz
2. Frequenzsprung	A65	.	JUMP F2	000.0Hz
3. Frequenzsprung	A67	.	JUMP F3	000.0Hz
1. Frequenzsprung Sprungweite	A64	.	JUMP W1	00.5Hz
2. Frequenzsprung Sprungweite	A66	.	JUMP W2	00.5Hz
3. Frequenzsprung Sprungweite	A68	.	JUMP W3	00.5Hz
			.F-28	STOP-SW
Stop Taste bei Start/Stop über Eingänge FW/RV	b87	.	STOP-SW	ON
			.F-31	IN
Frequenz bei Min. Sollwert	A11	.	IN EXS	041.5Hz
Frequenz bei Max. Sollwert	A12	.	IN EXE	006.5Hz
Min. Sollwert	A13	.	IN EX%S	000%
Max. Sollwert	A14	.	IN EX%E	100%
Startbedingung	A15	.	IN LEVEL	0Hz
Sampling Analogeingang	A16	.	IN F-SAMP	8
			.F-32	ARV
Frequenz Überschritten im Hochlauf	C42	.	ARV ACC	000.0Hz
Frequenz Überschritten im Runterlauf	C43	.	ARV DEC	000.0Hz
			.F-33	OV
Überlastalarmschwelle	C41	.	OV Load	02.60A
PID Reglerabweichung	C44	.	OV PID	003.0%
			.F-34	IN-TM
Digital Eingang 1	C01	.	IN-TM 1	FW
Digital Eingang 2	C02	.	IN-TM 2	RV
Digital Eingang 3	C03	.	IN-TM 3	CF1
Digital Eingang 4	C04	.	IN-TM 4	CF2
Digital Eingang 5	C05	.	IN-TM 5	RS
Digital Eingang 1 S/Ö	C11	.	IN-TM O/C-1	NO
Digital Eingang 2 S/Ö	C12	.	IN-TM O/C-2	NO
Digital Eingang 3 S/Ö	C13	.	IN-TM O/C-3	NO
Digital Eingang 4 S/Ö	C14	.	IN-TM O/C-4	NO
Digital Eingang 5 S/Ö	C15	.	IN-TM O/C-5	NO
			.F-35	OUT-TM
Digital Ausgang 11	C21	.	OUT-TM 1	FA1
Digital Ausgang 12	C22	.	OUT-TM 2	RUN
Störmelderelais AL0 - AL1	C33	.	OUT-TM O/C-A	NC
Digital Ausgang 11 S/Ö	C31	.	OUT-TM O/C-1	NO
Digital Ausgang 12 S/Ö	C32	.	OUT-TM O/C-2	NO
			.F-36	CARRIER
Taktfrequenz	b83	.	CARRIER	07.0kHz
			.F-37	MONITOR
Ausgang FM	C23	.	MONITOR	A-F
			.F-38	INIT
Werkseinstellungsparameter	b85	.	INIT SEL	EUR
Debug Modus	C91	.	INIT DEBG	ON
Drehrichtung Taste RUN	F04	.	INIT DOPE	FWD
Werkseinstellung	b84	.	INIT MODE	TRP
			.F-43	PID
PID Regler aktiv / inaktiv	A71	.	PID SW	OFF
P - Anteil	A72	.	PID P	1.0
I - Anteil	A73	.	PID I	001.0s
D - Anteil	A74	.	PID D	000.0
PID Sollwertfaktor	A75	.	PID CONV	01.00
Eingang Istwertsignal	A76	.	PID INPT	CUR

SP 10 / Frequenzumrichter / Hauptantrieb		>>>>>>>>>	-----
Bei Datenverlust am Frequenzumrichter bzw. Tausch sind die Daten anhand dieser Liste zu kontrollieren oder neu zu programmieren.			. Hitachi Serie L100

			. Geladen : 28.05.2000

			. MONITORMODUS - SETUP
Beschreibung:	Funktion:		-----
			. FS 038.5 0.0Hz
Frequenzsollwert / Frequenzistwert (INDEX)	F01 / d01		. ACC1 0000.4s
1. Hochlaufzeit (INDEX + LEER)	F02		. DEC1 0001.5s
1. Runterlaufzeit (INDEX + LEER)	F03		. F-SET-SELECT REM
Frequenzsollwertvorgabe	A01		. F/R-SELECT TRM
Startbefehl	A02		. /Hz01.0 0.00
Ausgangsfrequenz x Frequenzfaktor	d07		. Im 0.0A 0.0%
Motorstrom Anzeige	d02		. IO 05.60A
Manueller Boost	A42		. V-Boost code<99>
Max. Boost bei % Eckfrequenz0	A43		. V-Boost F 50.0%
Boost Charakteristik	A41		. V-Boost Mode 1
Ausgangsspannung	A45		. V-Gain 080%
Tippfrequenz	A38		. Jogging 7.00Hz
Tippfrequenz Stop Modus	A39		. Jog Mode 0
Abgleich Ausgang FM	b81		. ADJ 080
Anzeige bei Verwendung der ext. Anzeige	b89		. PANEL d01
Signalzustand der Ein- und Ausgänge	d05/d06		. TERM LLL LLLLL
Störmelderegister	d08		. ERR1 Over.V
Störmeldezähler			. ERR1 9.5Hz
			. ERR1 3.4A
			. ERR1 393.7Vdc
			. ERR1 RUN 000000H
			. ERROR COUNT 002
			. ERR2 Over.V
			. ERR2 12.6Hz
			. ERR2 3.5A
			. ERR2 394.1Vdc
			. ERR2 RUN 000000H
			. ERR3 #

Beschreibung:	Funktion:		. FUNKTIONSMODUS-SETUP

			.F-00 F-BASE
Eckfrequenz	A03		. F-BASE 062Hz
			.F-01 F-MAX
Endfrequenz	A04		. F-MAX 360Hz
			.F-02 Fmin
Startfrequenz	b82		. Fmin 7.0Hz
			.F-03 AVR
Motorspannung	A82		. AVR AC 220V
AVR Funktion Charakteristik	A81		. AVR MODE DOFF
			.F-04 CONTROL
V/F Charakteristik	A44		. CONTROL VC
			.F-06 ACC
1. Hochlaufzeit (INDEX + LEER)	F02		. ACC 1 0000.4s
Umschaltung von 1. Zeitrampe auf 2. Zeitrampe	A94		. ACC CHG TM
2. Hochlaufzeit (CLEAN)	A92		. ACC 2 0076.3s
Umschaltung von 1. Hochlaufzeit auf 2. Hochlaufzeit	A95		. ACC CHFr 000.0Hz
Hochlaufcharakteristik	A97		. ACC LINE L

		.F-07 DEC
1. Runterlaufzeit (INDEX + LEER)	F03	. DEC 1 0001.5s
2. Runterlaufzeit (CLEAN)	A93	. DEC 2 0015.0s
Umschaltung von 1. Runterlaufzeit auf 2. Runterlaufzeit	A96	. DEC CHFr 000.0Hz
Runterlaufcharakteristik	A96	. DEC LINE S
		.F-10 RUN
Verhalten nach FRS Signal	b88	. RUN FRS ZST
		.F-11 SPD
1. Festfrequenz (CLEAN)	A21	. SPD 1 013.7Hz
2. Festfrequenz	A22	. SPD 2 036.0Hz
3. Festfrequenz	A23	. SPD 3 036.0Hz
4. Festfrequenz	A24	. SPD 4 000.0Hz
5. Festfrequenz	A25	. SPD 5 000.0Hz
6. Festfrequenz	A26	. SPD 6 000.0Hz
7. Festfrequenz	A27	. SPD 7 000.0Hz
8. Festfrequenz (LEER)	A28	. SPD 8 080.0Hz
9. Festfrequenz	A29	. SPD 9 000.0Hz
10. Festfrequenz	A30	. SPD 10 000.0Hz
11. Festfrequenz	A31	. SPD 11 000.0Hz
12. Festfrequenz	A32	. SPD 12 000.0Hz
13. Festfrequenz	A33	. SPD 13 000.0Hz
14. Festfrequenz	A34	. SPD 14 000.0Hz
15. Festfrequenz	A35	. SPD 15 000.0Hz
		.F-20 DCB
DC Bremse aktiv / inaktiv	A51	. DCB SW ON
DC Bremse Einschaltfrequenz	A52	. DCB F 07.0Hz
DC Bremse Wartezeit	A53	. DCB WAIT 0.0s
DC Bremse Bremsmoment	A54	. DCB V 010
DC Bremse Bremszeit	A55	. DCB T 00.1s
		.F-22 IPS
Zulässige Netzausfallzeit	b02	. IPS UVTIME 01.1s
Wartezeit vor Wiederanlauf	b03	. IPS WAIT 001.0s
Wiederanlaufmodus	b01	. IPS POWR ALM
		.F-23 E-THM
Elektronischer Motorschutz Charakteristik	b13	. E-THM CHAR CRT
Elektronischer Motorschutz Einstellwert	b12	. E-THM LVL 05.13A
		.F-24 OLOAD
Stromgrenze Einstellwert	b22	. OLOAD LVL 07.59A
Stromgrenze Zeitkonstante	b23	. OLOAD CONST 02.0
Stromgrenze Charakteristik	b21	. OLOAD MODE CRT
		.F-25 S-LOCK
Parametersicherung	b31	. S-LOCK MD1
		.F-26 LIMIT
Min. Betriebsfrequenzgrenze	A62	. LIMIT L 000.0Hz
Max. Betriebsfrequenzgrenze	A61	. LIMIT H 000.0Hz
		.F-27 JUMP
1. Frequenzsprung	A63	. JUMP F1 000.0Hz
2. Frequenzsprung	A65	. JUMP F2 000.0Hz
3. Frequenzsprung	A67	. JUMP F3 000.0Hz
1. Frequenzsprung Sprungweite	A64	. JUMP W1 00.0Hz
2. Frequenzsprung Sprungweite	A66	. JUMP W2 00.0Hz
3. Frequenzsprung Sprungweite	A68	. JUMP W3 00.0Hz
		.F-28 STOP-SW
Stop Taste bei Start/Stop über Eingänge FW/RV	b87	. STOP-SW ON
		.F-31 IN
Frequenz bei Min. Sollwert	A11	. IN EXS 000.0Hz

Frequenz bei Max. Sollwert	A12	. IN EXE 000.0Hz
Min. Sollwert	A13	. IN EX%S 000%
Max. Sollwert	A14	. IN EX%E 100%
Startbedingung	A15	. IN LEVEL 0Hz
Sampling Analogeingang	A16	. IN F-SAMP 8
		.F-32 ARV
Frequenz Überschritten im Hochlauf	C42	. ARV ACC 000.0Hz
Frequenz Überschritten im Runterlauf	C43	. ARV DEC 090.0Hz
		.F-33 OV
Überlastalarmschwelle	C41	. OV Load 07.10A
PID Reglerabweichung	C44	. OV PID 025.5%
		.F-34 IN-TM
Digital Eingang 1	C01	. IN-TM 1 FW
Digital Eingang 2	C02	. IN-TM 2 RV
Digital Eingang 3	C03	. IN-TM 3 CF1
Digital Eingang 4	C04	. IN-TM 4 2CH
Digital Eingang 5	C05	. IN-TM 5 CF4
Digital Eingang 1 S/Ö	C11	. IN-TM O/C-1 NO
Digital Eingang 2 S/Ö	C12	. IN-TM O/C-2 NO
Digital Eingang 3 S/Ö	C13	. IN-TM O/C-3 NO
Digital Eingang 4 S/Ö	C14	. IN-TM O/C-4 NO
Digital Eingang 5 S/Ö	C15	. IN-TM O/C-5 NO
		.F-35 OUT-TM
Digital Ausgang 11	C21	. OUT-TM 1 RUN
Digital Ausgang 12	C22	. OUT-TM 2 RUN
Störmelderelais AL0 - AL1	C33	. OUT-TM O/C-A NC
Digital Ausgang 11 S/Ö	C31	. OUT-TM O/C-1 NC
Digital Ausgang 12 S/Ö	C32	. OUT-TM O/C-2 NO
		.F-36 CARRIER
Taktfrequenz	b83	. CARRIER 13.5kHz
		.F-37 MONITOR
Ausgang FM	C23	. MONITOR A-F
		.F-38 INIT
Werkseinstellungsparameter	b85	. INIT SEL EUR
Debug Modus	C91	. INIT DEBG OFF
Drehrichtung Taste RUN	F04	. INIT DOPE FWD
Werkseinstellung	b84	. INIT MODE TRP
		.F-43 PID
PID Regler aktiv / inaktiv	A71	. PID SW OFF
P - Anteil	A72	. PID P 1.9
I - Anteil	A73	. PID I 058.0s
D - Anteil	A74	. PID D 026.0
PID Sollwertfaktor	A75	. PID CONV 01.00
Eingang Istwertsignal	A76	. PID INPT CUR

Attachment

Frequency inverter / Maindrive SP 12

SP 12 / Frequenzumrichter / Hauptantrieb		>>>>>>>>	-----
Bei Datenverlust am Frequenzumrichter bzw. Tausch sind die Daten anhand dieser Liste zu kontrollieren oder neu zu programmieren.			. Hitachi Serie L100

			. Geladen : 25.05.2000

			. MONITORMODUS - SETUP

Beschreibung:	Funktion:		-----
			. FS 039.5 0.0Hz
Frequenzsollwert / Frequenzistwert (INDEX)	F01 / d01		. ACC1 0000.4s
1. Hochlaufzeit (INDEX + LEER)	F02		. DEC1 0001.4s
1. Runterlaufzeit (INDEX + LEER)	F03		. F-SET-SELECT REM
Frequenzsollwertvorgabe	A01		. F/R-SELECT TRM
Startbefehl	A02		. /Hz01.0 0.00
Ausgangsfrequenz x Frequenzfaktor	d07		. Im 0.0A 0.0%
Motorstrom Anzeige	d02		. V-Boost code<99>
Manueller Boost	A42		. V-Boost F 50.0%
Max. Boost bei % Eckfrequenz0	A43		. V-Boost Mode 1
Boost Charakteristik	A41		. V-Gain 085%
Ausgangsspannung	A45		. Jogging 7.00Hz
Tippfrequenz	A38		. Jog Mode 0
Tippfrequenz Stop Modus	A39		. ADJ 080
Ableich Ausgang FM	b81		. PANEL d01
Anzeige bei Verwendung der ext. Anzeige	b89		. TERM LLL LLLLL
Signalzustand der Ein- und Ausgänge	d05/d06		. ERR1 #
Störmelderegister	d08		. ERROR COUNT 000
Störmeldezähler			. ERR2 #
			. ERR3 #

Beschreibung:	Funktion:		. FUNKTIONSMODUS-SETUP

			.F-00 F-BASE
Eckfrequenz	A03		. F-BASE 065Hz
			.F-01 F-MAX
Endfrequenz	A04		. F-MAX 360Hz
			.F-02 Fmin
Startfrequenz	b82		. Fmin 7.0Hz
			.F-03 AVR
Motorspannung	A82		. AVR AC 220V
AVR Funktion Charakteristik	A81		. AVR MODE DOFF
			.F-04 CONTROL
V/F Charakteristik	A44		. CONTROL VC
			.F-06 ACC
1. Hochlaufzeit (INDEX + LEER)	F02		. ACC 1 0000.4s
Umschaltung von 1. Zeitrampe auf 2. Zeitrampe	A94		. ACC CHG TM
2. Hochlaufzeit (CLEAN)	A92		. ACC 2 0005.0s
Umschaltung von 1. Hochlaufzeit auf 2. Hochlaufzeit	A95		. ACC CHFr 000.0Hz
Hochlaufcharakteristik	A97		. ACC LINE L
			.F-07 DEC
1. Runterlaufzeit (INDEX + LEER)	F03		. DEC 1 0001.4s
2. Runterlaufzeit (CLEAN)	A93		. DEC 2 0010.7s
Umschaltung von 1. Runterlaufzeit auf 2. Runterlaufzeit	A96		. DEC CHFr 000.0Hz
Runterlaufcharakteristik	A96		. DEC LINE S
			.F-10 RUN
Verhalten nach FRS Signal	b88		. RUN FRS ZST
			.F-11 SPD
1. Festfrequenz (CLEAN)	A21		. SPD 1 016.1Hz

2. Festfrequenz	A22	. SPD 2	036.0Hz
3. Festfrequenz	A23	. SPD 3	036.0Hz
4. Festfrequenz	A24	. SPD 4	000.0Hz
5. Festfrequenz	A25	. SPD 5	000.0Hz
6. Festfrequenz	A26	. SPD 6	000.0Hz
7. Festfrequenz	A27	. SPD 7	000.0Hz
8. Festfrequenz (LEER)	A28	. SPD 8	080.0Hz
9. Festfrequenz	A29	. SPD 9	000.0Hz
10. Festfrequenz	A30	. SPD 10	000.0Hz
11. Festfrequenz	A31	. SPD 11	000.0Hz
12. Festfrequenz	A32	. SPD 12	000.0Hz
13. Festfrequenz	A33	. SPD 13	000.0Hz
14. Festfrequenz	A34	. SPD 14	000.0Hz
15. Festfrequenz	A35	. SPD 15	000.0Hz
		.F-20	DCB
DC Bremse aktiv / inaktiv	A51	. DCB SW	ON
DC Bremse Einschaltfrequenz	A52	. DCB F	07.0Hz
DC Bremse Wartezeit	A53	. DCB WAIT	0.0s
DC Bremse Bremsmoment	A54	. DCB V	010
DC Bremse Bremszeit	A55	. DCB T	00.1s
		.F-22	IPS
Zulässige Netzausfallzeit	b02	. IPS UVTIME	01.1s
Wartezeit vor Wiederanlauf	b03	. IPS WAIT	001.0s
Wiederanlaufmodus	b01	. IPS POWR	ALM
		.F-23	E-THM
Elektronischer Motorschutz Charakteristik	b13	. E-THM CHAR	CRT
Elektronischer Motorschutz Einstellwert	b12	. E-THM LVL	05.13A
		.F-24	OLOAD
Stromgrenze Einstellwert	b22	. OLOAD LVL	07.59A
Stromgrenze Zeitkonstante	b23	. OLOAD CONST	02.0
Stromgrenze Charakteristik	b21	. OLOAD MODE	CRT
		.F-25	S-LOCK
Parametersicherung	b31	. S-LOCK	MD1
		.F-26	LIMIT
Min. Betriebsfrequenzgrenze	A62	. LIMIT L	000.0Hz
Max. Betriebsfrequenzgrenze	A61	. LIMIT H	000.0Hz
		.F-27	JUMP
1. Frequenzsprung	A63	. JUMP F1	000.0Hz
2. Frequenzsprung	A65	. JUMP F2	000.0Hz
3. Frequenzsprung	A67	. JUMP F3	000.0Hz
1. Frequenzsprung Sprungweite	A64	. JUMP W1	00.0Hz
2. Frequenzsprung Sprungweite	A66	. JUMP W2	00.0Hz
3. Frequenzsprung Sprungweite	A68	. JUMP W3	00.0Hz
		.F-28	STOP-SW
Stop Taste bei Start/Stop über Eingänge FW/RV	b87	. STOP-SW	ON
		.F-31	IN
Frequenz bei Min. Sollwert	A11	. IN EXS	000.0Hz
Frequenz bei Max. Sollwert	A12	. IN EXE	000.0Hz
Min. Sollwert	A13	. IN EX%S	000%
Max. Sollwert	A14	. IN EX%E	100%
Startbedingung	A15	. IN LEVEL	0Hz
Sampling Analogeingang	A16	. IN F-SAMP	8
		.F-32	ARV
Frequenz Überschritten im Hochlauf	C42	. ARV ACC	000.0Hz
Frequenz Überschritten im Runterlauf	C43	. ARV DEC	090.0Hz
		.F-33	OV

Attachment

Frequency inverter / Maindrive SP 12

Überlastalarmschwelle	C41	. OV Load 07.10A
PID Reglerabweichung	C44	. OV PID 025.5%
		.F-34 IN-TM
Digital Eingang 1	C01	. IN-TM 1 FW
Digital Eingang 2	C02	. IN-TM 2 RV
Digital Eingang 3	C03	. IN-TM 3 CF1
Digital Eingang 4	C04	. IN-TM 4 2CH
Digital Eingang 5	C05	. IN-TM 5 CF4
Digital Eingang 1 S/Ö	C11	. IN-TM O/C-1 NO
Digital Eingang 2 S/Ö	C12	. IN-TM O/C-2 NO
Digital Eingang 3 S/Ö	C13	. IN-TM O/C-3 NO
Digital Eingang 4 S/Ö	C14	. IN-TM O/C-4 NO
Digital Eingang 5 S/Ö	C15	. IN-TM O/C-5 NO
		.F-35 OUT-TM
Digital Ausgang 11	C21	. OUT-TM 1 RUN
Digital Ausgang 12	C22	. OUT-TM 2 RUN
Störmelderelais AL0 - AL1	C33	. OUT-TM O/C-A NC
Digital Ausgang 11 S/Ö	C31	. OUT-TM O/C-1 NC
Digital Ausgang 12 S/Ö	C32	. OUT-TM O/C-2 NO
		.F-36 CARRIER
Taktfrequenz	b83	. CARRIER 13.5kHz
		.F-37 MONITOR
Ausgang FM	C23	. MONITOR A-F
		.F-38 INIT
Werkseinstellungsparameter	b85	. INIT SEL EUR
Debug Modus	C91	. INIT DEBG OFF
Drehrichtung Taste RUN	F04	. INIT DOPE FWD
Werkseinstellung	b84	. INIT MODE TRP
		.F-43 PID
PID Regler aktiv / inaktiv	A71	. PID SW OFF
P - Anteil	A72	. PID P 1.9
I - Anteil	A73	. PID I 058.0s
D - Anteil	A74	. PID D 026.0
PID Sollwertfaktor	A75	. PID CONV 01.00
Eingang Istwertsignal	A76	. PID INPT CUR