CE

OPERATOR'S MANUAL
HURRICANE series , 8/6, 8/7, 10/8, 10/9

TABLE OF CONTENTS

CHAPTER I 3
BASIC INFORMATION....3
1 DESTENATION OF THE MACHINE 3
2 KINETIC SCHEMATICS OF THE MACHINE....4
2.1 MAIN VIEW....4
2.2 LOWER WHEEL ROTATION....5
2.3 FREE WHEEL OPERATION 6
2.4 TABLE UP / DOWN OPERATION....7
2.5 MANUAL OFF-CONTACT ADJUSTMENT (PNEUMATIC LIFT)....7

2.6 PRINTING CARRIAGE MOVEMENT....8
2.7 CONTROL PANEL POSITION ADJUSTMENT....10
2.8 MICRO REGULATION AND SAFETY BAR....10
3 SAFETY REQUIREMENTS....11
3.1 GENERAL SAFETY REQUIREMENTS....11
3.2 EMERGENCY STOP BUTTONS, LIMIT SWITCHES....11
3.2.1 EMERGENCY STOP BUTTONS, SAFETY BARS, SAFETY BARIERS – PLACEMENT....11
3.2.2 EMERGENCY STOP BUTTONS, SAFETY BARS, SAFETY BARIERS – FUNCTIONING....13
3.2.3 EMERGENCY STOP BUTTONS, SAFETY BARS, SAFETY BARIERS – TROUBLESHOOTING....13
3.3 SAFETY RULES IN WORKING WITH SERVO ROTATION SYSTEM....13
3.4 SAFETY RULES IN WORKING WITH PNEUMATIC / SERVO LIFTING SYSTEM....15
3.5 SAFETY RULES IN WORKING WITH ELECTRIC PRINTING CARRIAGE....15
3.6 DANGEROUS SITUATIONS RELATED TO THE MACHINE....15
4 FINAL CUSTOMER'S INSTALATION RESPOSIBILITIES....16
4.1 INSTALATION....16
4.2 ELECTRICAL CONNECTION....17
4.3 PNEUMATIC CONNECTION....17
4.4 Main Air Regulator, Pneumatic Oilier and machine lubrication....17
5 START UP PROCEDURE....19
6 PALLETS PLACEMENT....20
7 PRINT HEAD....21
7.1 Head Control Membrane Keypad....21
8 PRINT ALIGMENT....23
9 SQUEEGEES, FLOODS, CLAMPING....24
10 TEST PRINT....25
10.1 ALL COLORS TEST PRINT....25
10.2 SINGLE COLOR TEST PRINT....26
11 MANUALY ADJUSTABLE OFF-CONTACT (MCOA)....26
12 SERVO LIFT....27
CHAPTER II....28
CONTROL PANNEL....28
13 BUTTONS PLACEMENT....28
13.1 CONFIGURATION MENU....29
13.2 ACTION MENU....29
13.3 MIDDLE MENU....29
13.4 OTHER ELEMENTS OF CONTROL PANEL....29
13.5 Control Panel - functioning....30
14 Main Setup Menu....34
14.1 Machine Setup Menu....34
14.2 Print Head Setup Menu....35
14.2.1 Working with reduced number of heads....36
14.3 Indexer setup menu....37
14.3.1 Working with different pallet sizes....38
14.4 Lift Setup Menu....38
14.4.1 Working with different pallet sizes....39
14.5 SERVO LIFT and OFF-CONTACT (SEO)....39
14.6 ADVANCED PRINT HEAD SETUP....40

14.7 Sequences Setup Menu....40
14.7.1 PROGRAMMING....41
14.7.2 SETTING....41
14.8 Printing Speed....41
15 Recommended Lubrication or Cleaning....43
CHAPTER V....46
SUPPORT DOCUMENTATION....46
16 Warranty and Limitation of Liability....47
17 Installation Protocol Document....47
18 Electrical Diagrams....47
19 Pneumatic Diagrams....47
20 Spare Parts List....47

CHAPTER I

BASIC INFORMATION

1 DESTENATION OF THE MACHINE

Machine is assigned to make multicolor prints automatically witch screen printing technology. Number of printing stations depends on machine model.
example: HURRICANE 10/8

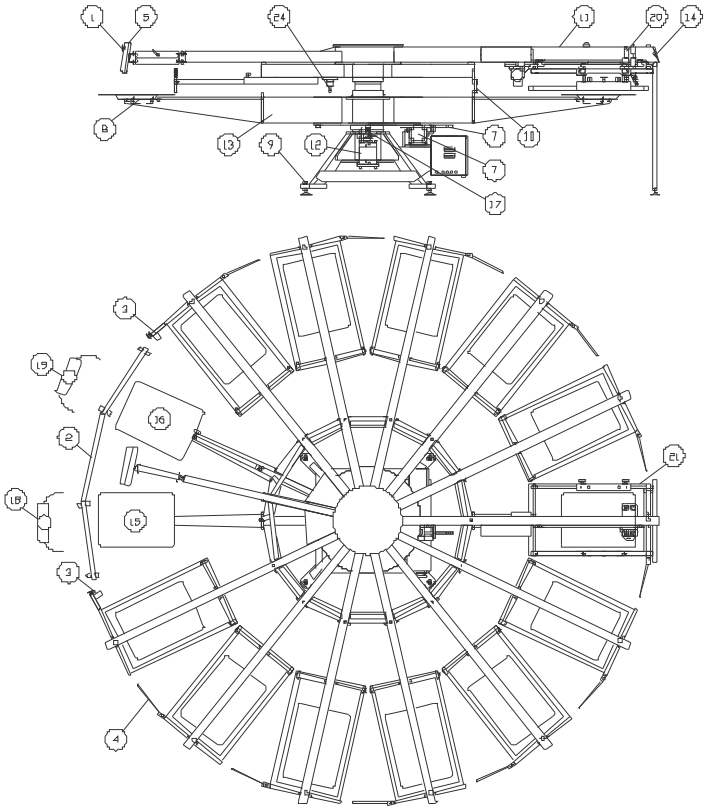
Above means Prism machine with 8 printing heads and 10 pallets. Each of printing heads after applying proper flash cure becomes ink curing station.
In most cases machine requires drying tunnel for final printed ink curing. Model of tunnel dryer depends on substrate and ink types.

Desired substrates are textiles, however other substrates are possible.
While curing with flash cure or with drying tunnel max substrate deformation or ignition temperature can not be exceed.

For fabric adhesion to pallet surface special glue is necessary, in spray or roller application.

2 KINETIC SCHEMATICS OF THE MACHINE

2.1 MAIN VIEW



No.	QTY	NAME
24	1	CENTRAL ELECTRONIC OFF-CONTACT (ECO)
21	12	SCREEN MICRO-REGULATION
20	1	PRINTING CARRIAGE
19	1	UNLOADING OPERATOR
18	1	LOADING OPERATOR
17	1	MANUAL OFF-CONTACT (MCO)
16	1	UNLOADING STATION
15	1	LOADING STATION
14	12	HEAD CONTROL PANEL
13	1	LOWER WHEEL
12	1	LOWER WHEEL LIFTING PISTON
11	12	PRINT HEAD
10	3	POSSITIONING FORK
9	4	FOOT PAD
8	14	PALLET BRACKET
7	1	INDX LOCK PISTON
6	1	INDEXER
5	1	MAIN CONTROL PANEL
4	11	OPENABLE SAFETY BAR
3	2	SAFETY BEAM SENSOR / SAFETY BEAM BAR
2	1	SAFETY BARIERE
1	1	E-STOP BUTTON

Fig. 1: MAIN VIEW TECHNICAL DRAWING Prism 14/12

2.2 LOWER WHEEL ROTATION

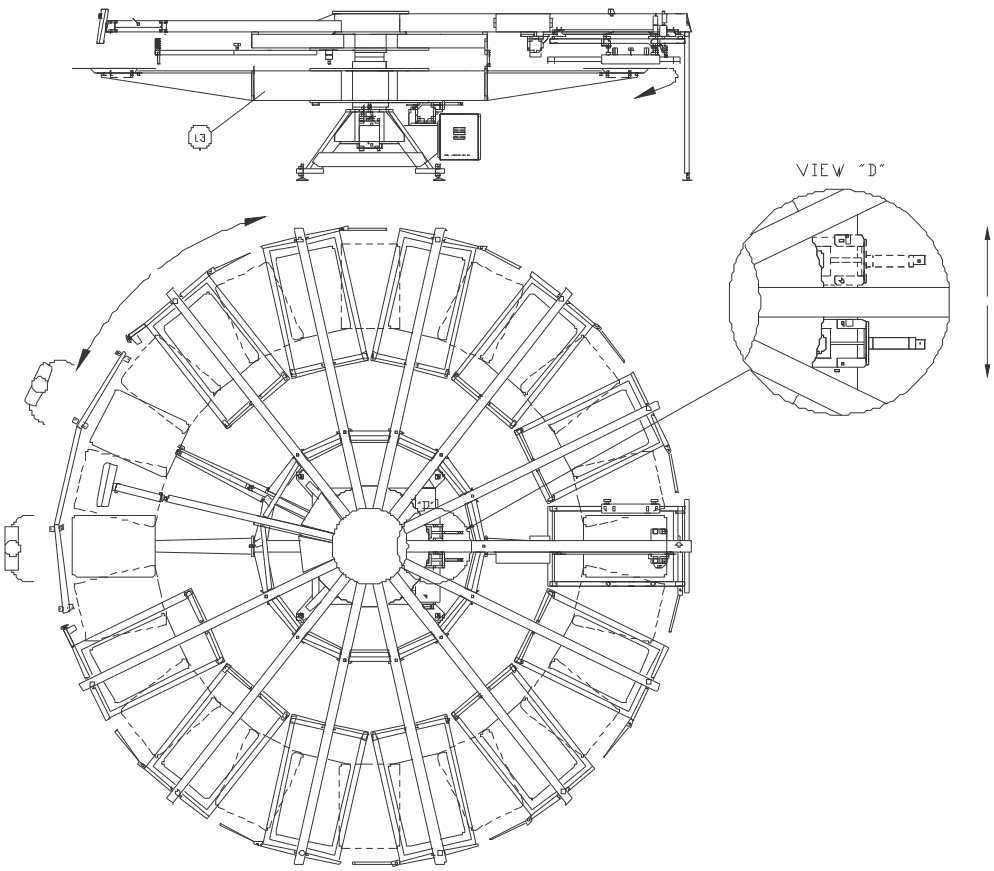


Fig. 2: LOWER WHEEL OPERATION

2.3 FREE WHEEL OPERATION

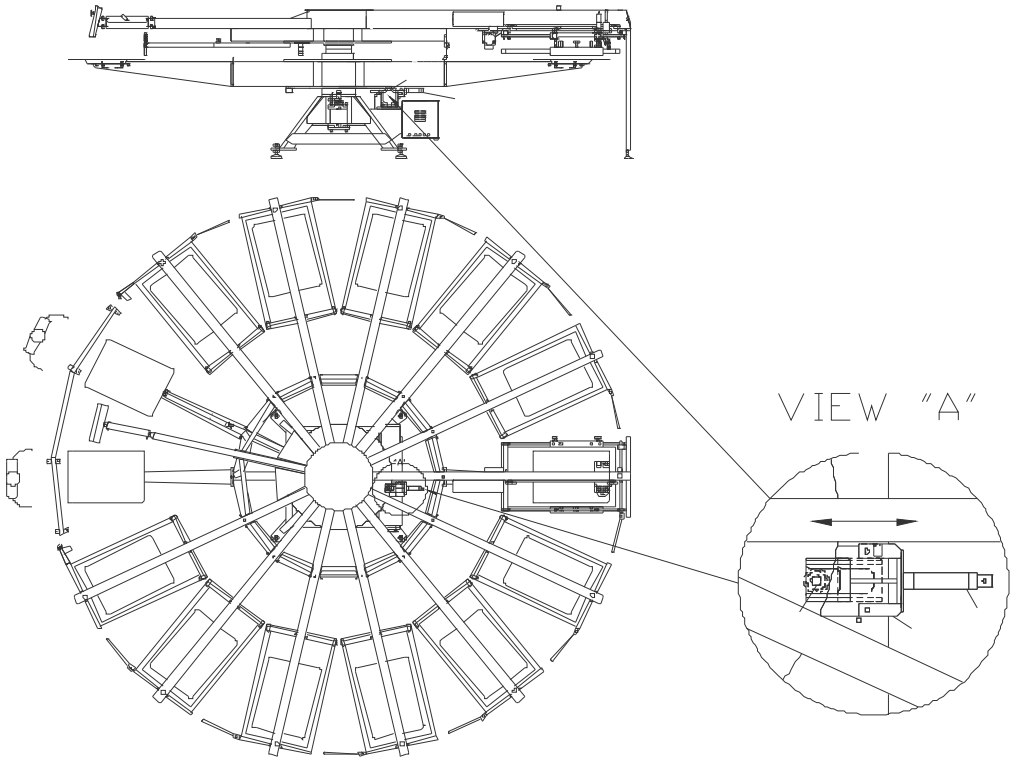


Fig. 3: FREE WHEEL OPERATION

2.4 TABLE UP / DOWN OPERATION

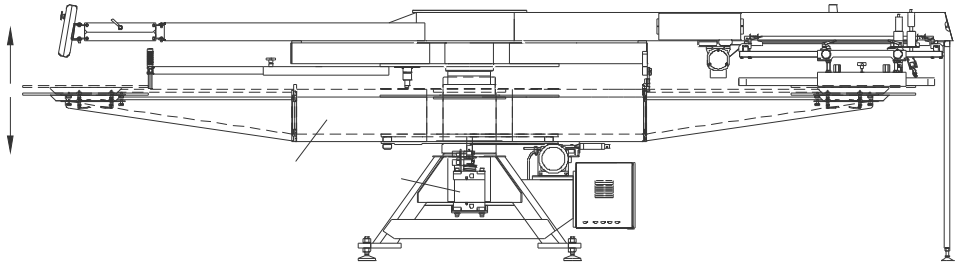


Fig. 4: TABLE UP / DOWN MOVEMENT

2.5 MANUAL OFF-CONTACT ADJUSTMENT (PNEUMATIC LIFT)

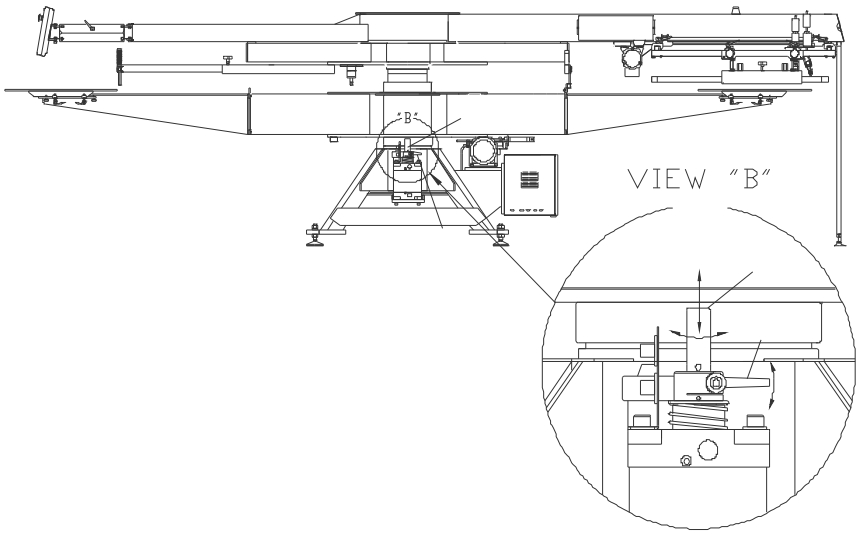
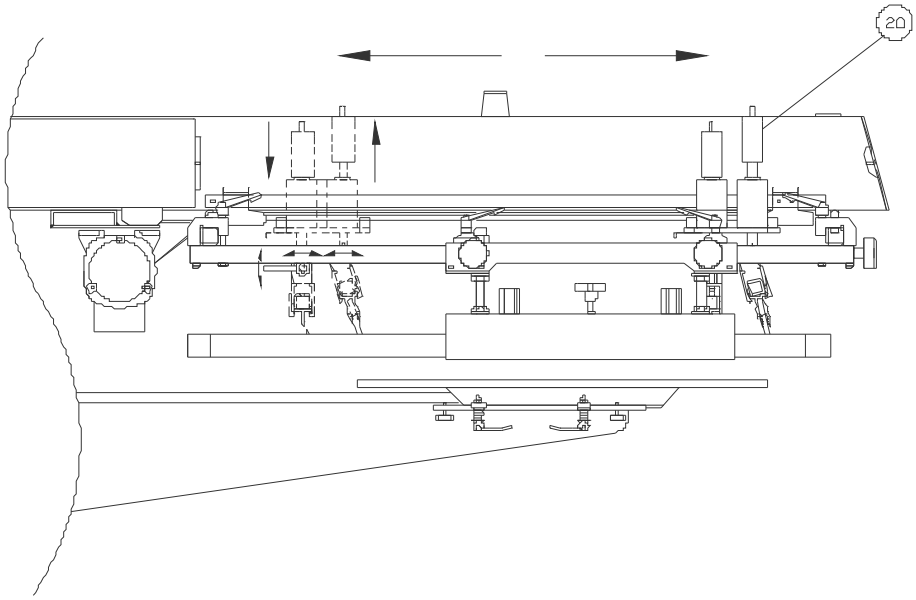


Fig. 5: MANUAL OFF-CONTACT ADJUSTMENT (PNEUMATIC LIFT)

2.6 PRINTING CARRIAGE MOVEMENT



2.7 CONTROL PANEL POSITION ADJUSTMENT

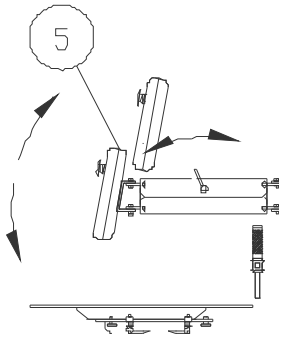


Fig. 7: MAIN CONTROL PANEL ADJUSTMENT (SIDE VIEW)

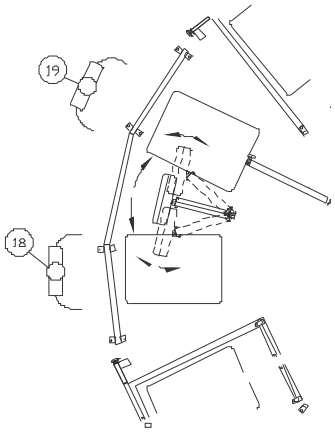


Fig. 6: MAIN CONTROL PANEL ADJUSTMENT (TOP VIEW)

2.8 MICRO REGULATION AND SAFETY BAR

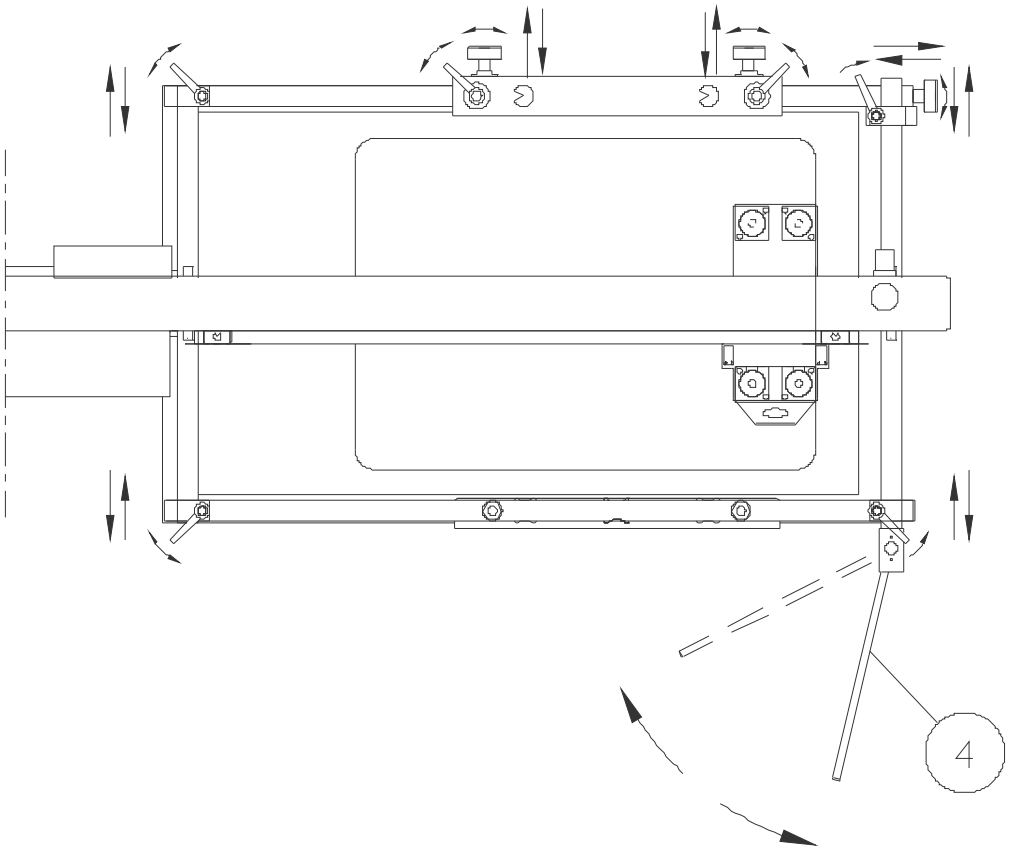


Fig. 8: 3-AXIS MICRO ADJUSTMENT (SIDE SCREEN HOLDER) , SCREEN WIDTH ADJUSTMENT, SAFETY BAR OPEN

3 SAFETY REQUIREMENTS

3.1 GENERAL SAFETY REQUIREMENTS

Before start working with machine it is necessary to read this Operator's Manual. All maintenance can be done only according to Operator's Manual.

3.2 EMERGENCY STOP BUTTONS, LIMIT SWITCHES

3.2.1 EMERGENCY STOP BUTTONS, SAFETY BARS, SAFETY BARIERS – PLACEMENT

Safety Guarding is provided on the machine to conform to OSHA requirements to

prevent injury to operators and maintenance personnel. Safety Guarding consists of:

- *safety bars* placed between each print head
- *safety beams* securing the LOAD and UNLOAD stations
- *constant safety barrier* securing the LOAD and UNLOAD stations

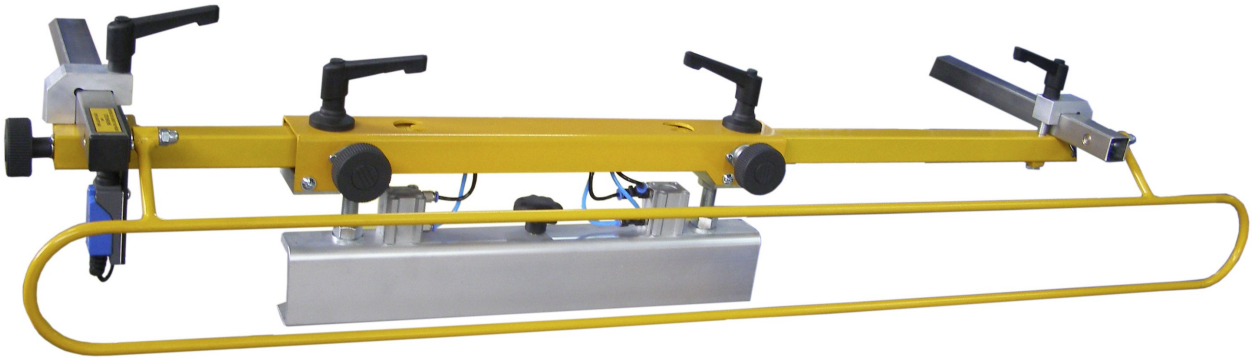


Fig. 9: SAFETY BEAM SECURING LOAD / UNLOAD POSSITION

Fig. 10: SAFETY MICROSWITCH

If machine is in STOP mode opening of any SAFETY BAR causes message on display SAFETY BAR OPEN, all lower wheel operations are blocked
If machine is in START mode opening any of SAFETY BAR causes emergency stop of machine

- E-STOP button

If machine is in STOP mode pushing E-STOP button causes message on display E-STOP PRESSED, all operations are blocked
If machine is in START mode pushing E-STOP button causes emergency stop of machine

- Maximum force of INDEXER is limited to 0,75 kN (air pressure 6 Pa)
  To avoid hard injuries in case of accident

Prism series machine are equipped with 1 E-STOP emergency switches positioned on control panel.
Inter stations safety open-able barriers – *SAFETY BARS* – positioned between printing stations, Number of *SAFETY BARS* is equal to print heads number minus one .(Fig. 11)

Inter stations safety open-able barriers – *SAFETY BEAMS* positioned on first and last printing stations, Number of *SAFETY BEAMS* is always two. (Fig.10)

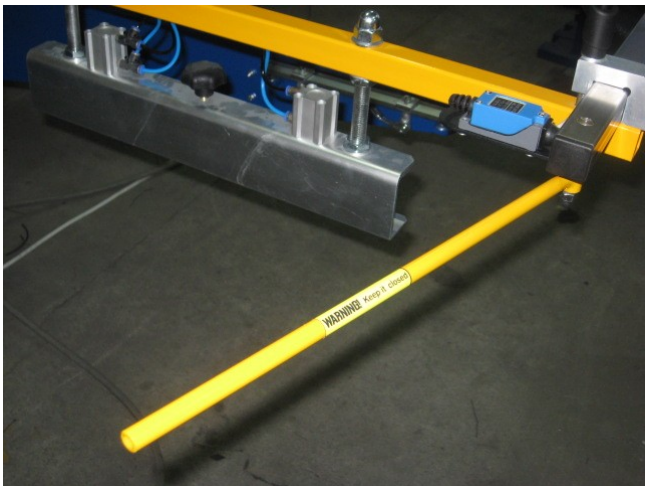


Fig. 12: SAFETY BAR (side screen holders)

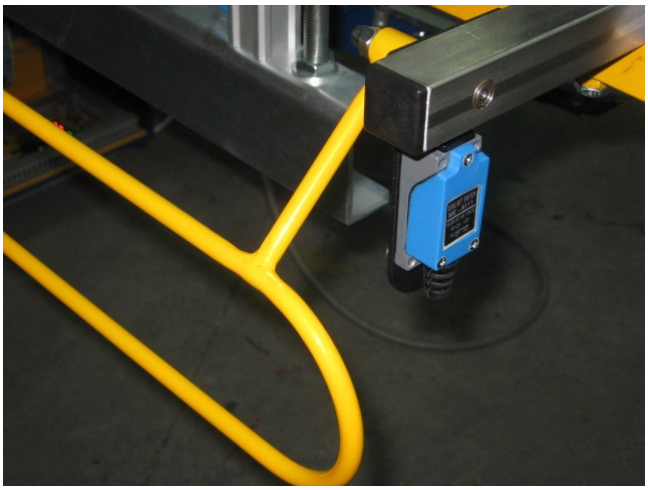


Fig. 11: SAFETY BEAM (side screen holders)

3.2.2 EMERGENCY STOP BUTTONS, SAFETY BARS, SAFETY BARIERS – FUNCTIONING

Both open-able barriers, SAFETY BARS and SAFETY BEAMS are build using micro-switch.

After opening *SAFETY BAR* machine goes into mode *SAFETY BAR OPEN*. On contr*ol panel LCD comes message SAFETY BAR OPEN*. This mode last until moving *SAFETY BAR* into normal position. Opening more than one SAFETY BAR at the time gives same output.
In *SAFETY BAR OPEN* mode machine do not execute any directions connected to lower wheel movement. Opening SAFETY BAR is required for safety reasons performing any activity inside the machine.

If lower wheel is in motion, opening SAFETY BEAM causes machine goes into SAFETY BEAM OPEN error mode. This causes emergency stop of lower wheel movement – equivalent of E-stop button pushing. The SAFETY BEAM barriers is securing loading and unloading operators from danger of lower wheel injuries. On control panel LCD comes message SAFETY BEAM BROKEN, red light appear on light tower. Machine needs to be reset.

3.2.3 EMERGENCY STOP BUTTONS, SAFETY BARS, SAFETY BARIERS – TROUBLESHOOTING

3.3 SAFETY RULES IN WORKING WITH SERVO ROTATION SYSTEM

- Only trained operators can operate the machine
- Only one operator can control the machine at the time
- Children can not stay in same room with the machine
- machine can be cleaned only after switching off electricity and air pressure
- Do not decrease buzzer sound parameter *WARNING TIME* below 1 second, it is recommended to keep it 3 sec
- if it is necessary to step into machine while it is switched on do following:

- make sure lower wheel (pallets) is in lower position, if not using TABLE button lower it
- unlock lower wheel pressing INDX LOCK button situated on main control panel , if lower wheel is already in free wheel mode (possible to rotate by hand) keep it in this position.
- open any of SAFETY BAR, make sure on LCD display appear message - SAFETY BAR OPEN, light tower is scanning all colors
- make sure in surroundings of machine there are no outside people, who can start machine

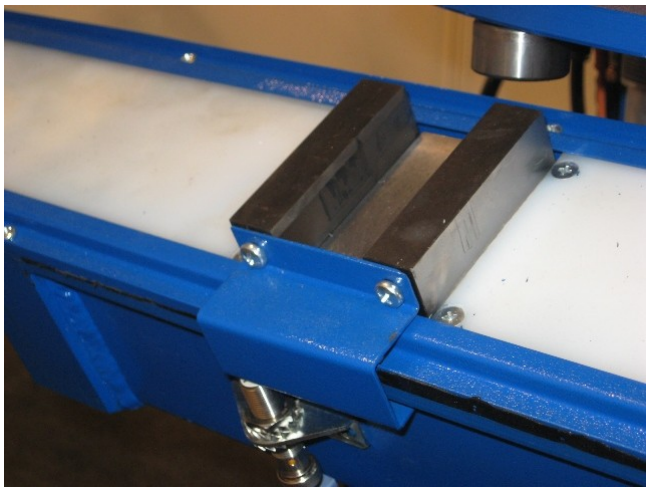


Fig. 13: Indexer unlocked (FREE WHEEL MODE)

Fig. 14: Lower wheel in FREE WHEEL MODE

- if it is necessary to step into machine while it is switched on and tables are in *UP POSITION*:

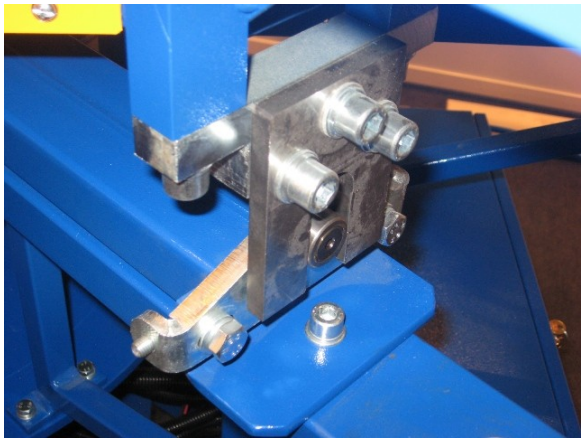


Fig. 16: Lower wheel in TABLE UP possition

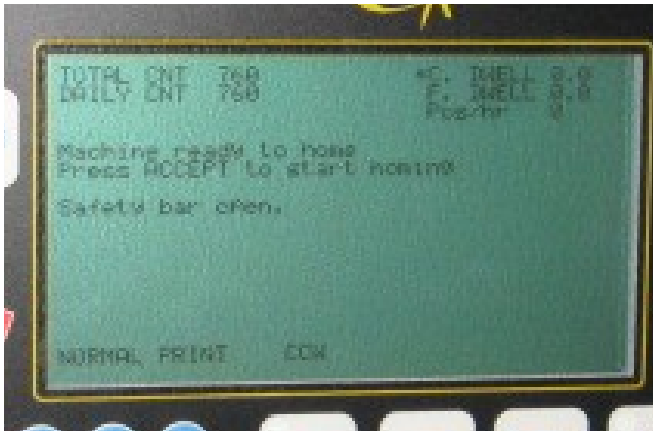


Fig. 15: SAFETY BAR OPEN message on MAIN PANNEL LCD

- Open any of SAFETY BARS, make sure on LCD appears message SAFETY BAR OPEN, light tower is scanning all colors (machine will not make any lower wheel movement)
- make sure in surroundings of machine there are no outside people, who can start machine

3.4 SAFETY RULES IN WORKING WITH PNEUMATIC LIFTING SYSTEM

- Do not put fingers / hands between screen and pallet
- Do not go under machine while lower wheels are in up position

3.5 SAFETY RULES IN WORKING WITH ELECTRIC PRINTING CARRIAGE

- Do not put fingers / hands on travel of carriage
- Do not put fingers on squeegee / flood pistons rods

3.6 DANGEROUS SITUATIONS RELATED TO THE MACHINE

- **In case of any dangerous situation press E-stop button or open any SAFETY BAR**
- **Do not open any cover while machine is plugged into mains**
- **Machine is equipped with standard 400 VAC 32 A CEEE-plug, any changes can be done only by qualified electrician**
- Do not put hands / fingers under working flash heater

4 FINAL CUSTOMER'S INSTALATION RESPOSIBILITIES

4.1 INSTALATION

Installation of any HURRICANE will be done ONLY by a factory trained technician and/or by persons approved by Printex UE s.c. We will furnish one (or more) factory technician(s) to assist and supervise the equipment installation. The end user will provide additional labor and handling equipment.
All crate dismantling, equipment positioning and spotting should be handled prior to the service technician's arrival (WITH THE EXCEPTION OF THE PRINT HEADS). Installation of all utilities, electrical drops, and air / pneumatic lines are at the user's expense.
The End User must also obtain all necessary and required permits.

Fig. 17: OVERSEA PACKAGING

Forklift with extended forks (6'-8') capable of lifting up to 3000 lbs. will be required to unload the truck and to remove the base from the shipping skid. Install the base foot pads (See Fig. 2) and spot the base while a forklift is available. Before spotting the machine in its desired location, connect the foot pad legs (if not already

installed) onto the base, while a forklift is available. These do not need to be leveled or completely tightened at this time, as the installing technician will re-level and check upon final installation.

! CAUTION**!**

DO NOT REMOVE THE PRINT HEADS FROM THEIR CRATE(S).

This will be supervised by the installing technician. Damage may be caused to the head keypad, screen holder extrusion, electrical cables and air lines. You may remove the top of the head crate(s), but leave the print heads in the crate.

4.2 ELECTRICAL CONNECTION

Electrical connection must be prepared according to following:

1 pcs of 400 VAC 32 A CEEE-socket, up to 2.5 m from machine center desired location.

Other wiring available on request.

4.3 PNEUMATIC CONNECTION

Air connection must be prepared according to following:

Machine's air connection is 1/2" NPT nut hole positioned about center of machine.
On buyers side is to provide tie connector or receptacle connector for air tube.
Air installation with following parameters must be ready for machine's installation:

Compressor with minimum capacity: 480 l/min , (recommended 900l/min), pressure 7 Pa.
Air Cooler is necessary to dry compressed air. If machine is not equipped with cooler pneumatic parts loose warranty.

4.4 Main Air Regulator, Pneumatic Oilier and machine lubrication

Fig. 18: MAIN AIR UNIT

! DO NOT USE MACHINE WITHOUT OIL.

IMPORTANT: If Machine is equipped with a pneumatic oilier, make sure oiling does not exceed one drop per fifty (50) cycles.

****Do not exceed 100 psi on the Regulator****

Have a qualified maintenance person lubricate the two grease fittings located on lower wheel between the print arms. This grease lubricates the center shaft bushings as the print table rotates and lifts. Greasing of the center shaft *MUST* be done at least *once a month*, and more often if the Press is used more than one shift per day

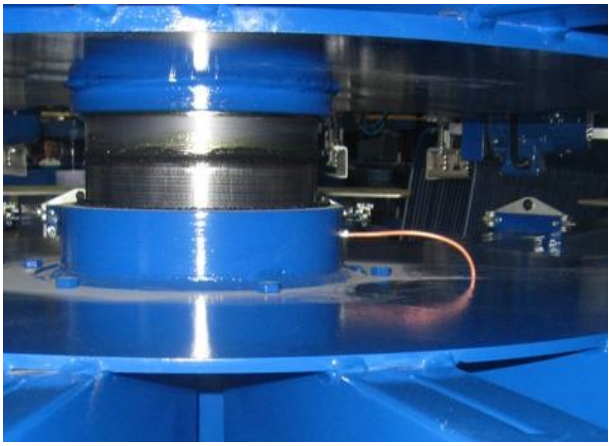


Fig. 19: GREASING POINTS (SIDE VIEW)

Fig. 20: GREASING POINTS (FRONT VIEW)

5 START UP PROCEDURE

- Turn “On / Off” Power Switch to the “On” position. It is located on the back side of Main Control Panel. Be sure "E-STOP" (emergency stop) button is depressed. It is located on the front of the Main Control Panel (See figure 4 below). You will hear an audible beep and the computer will scan for connected devices (indexer, print heads).

Fig. 21: MAIN CONTROL PANEL

- Check if all safety bars are in the correct (closed) position. The machine will not operate with a safety bar open.
- Follow all commends or messages that may appear on the display screen.
  After the message MACHINE READY occurs follow below directions keeping same chronology:
  rotate lower wheel by hands into START POSSITION*

  push IDX LOCK button (Red diode corresponding to this button should disappear, if diode is blinking it means lower wheel is not in START POSITION)
  *NOTE: **START POSSITION** means any position with **blocking bearing** situated under **locking fork**
  This positioning do not have to be done accurately.
  Indexer should be locked now, machine is ready to run.

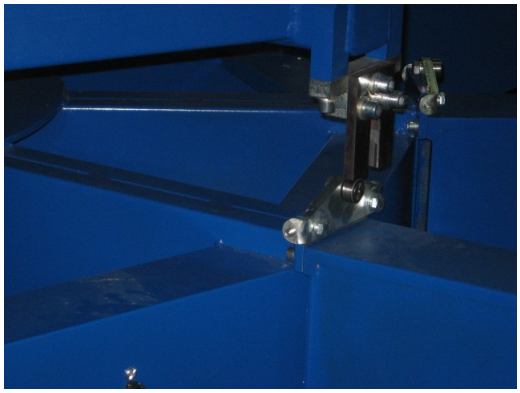


Fig. 22: START POSSITION

Use the button "**MANUAL MODE** " to choose between **AUTO MODE** and **MANUAL MODE**. In **MANUAL MODE** the yellow diode lights under the **MANUAL MODE** button.
Pressing the "**START**" button will start the machine after a short time warning chime (**WARNING TIME**). To stop the machine normally, press the big red **STOP** button. The machine will stop when the index rotation or print cycle is completed.

6 PALLETS PLACEMENT

Fig. 23: PALLET LOCKS IN CLOSED POSSITION

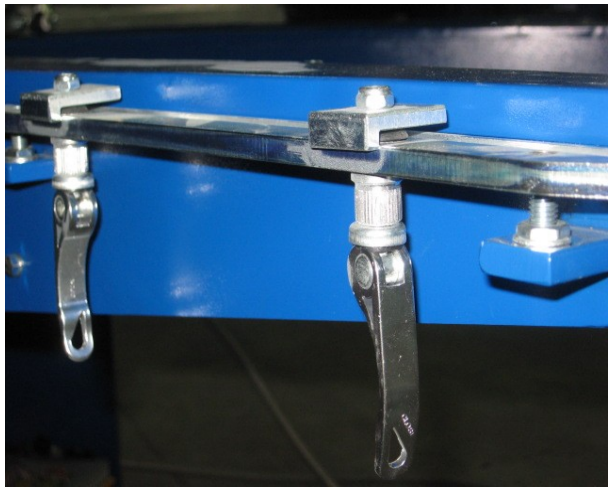
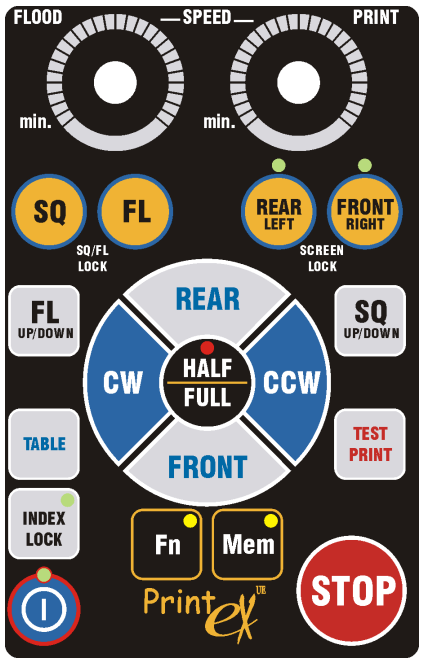


Fig. 24: PALLET LOCKS IN OPEN POSSITION

! It is required the platen to be locked before running the machine !
! Pallet bracket must be kept by 4 lock !

7 PRINT HEAD

7.1 Head Control Membrane Keypad.



Push button	Action
SQ / FL LOCK	Option function. Locks squeegee & flood racles using special pneumatic clamps. N/A
REAR / FRONT SCREEN LOCK	Locks rear and front side of screen lock (toggles On / Off).
SQ / FL UP/DOWN	Moves (Toggles) the Flood Bar or Squeegee up / down, depending on initial position.
TABLE	Lifts or lowers the table
TEST PRINT	Makes test run for corresponding head If corresponding head assigned as flash starts flash.
INDEXER LOCK	Locks the indexer
CW, CCW	Machine will index one position in CCW/CW direction. (Only one direction is possible)
REAR / FRONT	Moves the Head's carriage to the rear or front position.
Fn	Future function.
Mem	Future function.
STOP	Stops the machine after current cycle is finished
	Turns the Print Head On / Off.

Push button	Action
HALF	If pressed index will be only half distance

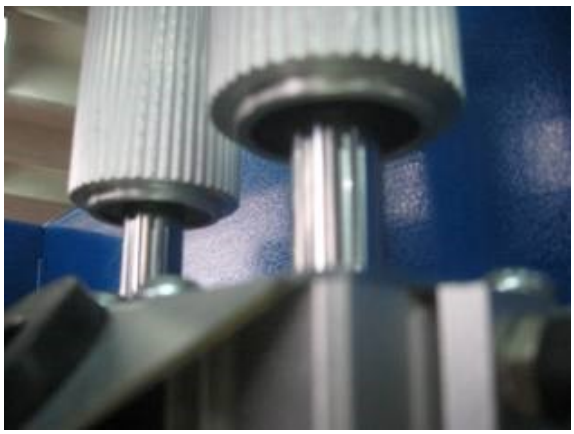


Fig. 25: SQ & FL PISTONS IN UP POSSITION

Fig. 26: PRINT ADJUSTMENT FLAG, INDIVIDUAL FLASH CONNECTOR

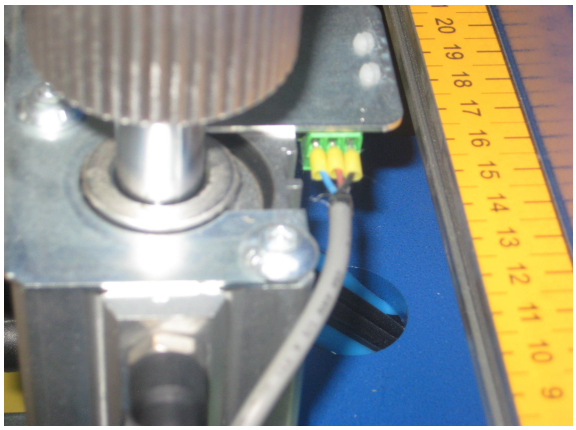


Fig. 28: HEAD PROXIMITY SENSOR CONNECTION

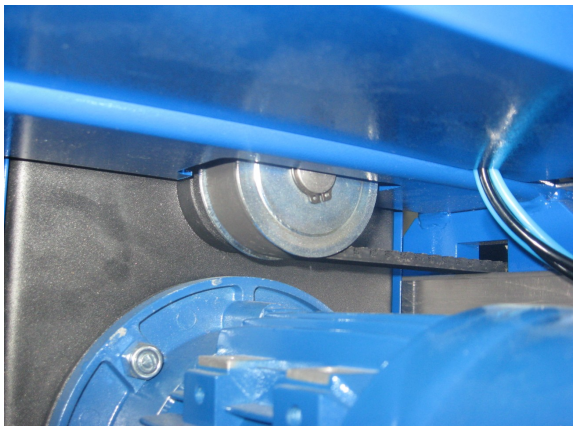


Fig. 27: HEAD DRIVE BELT

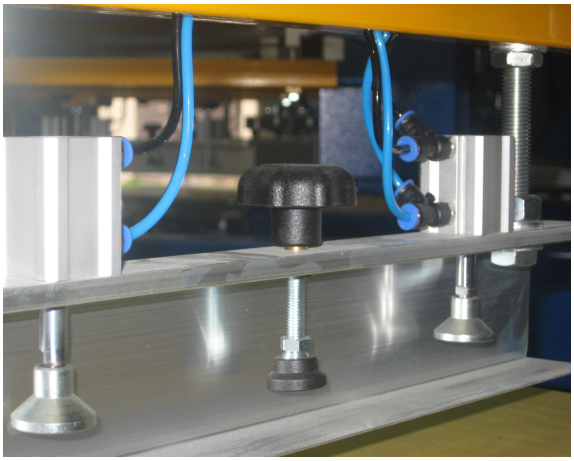


Fig. 30: PNEUMATIC AND MANUAL SCREEN LOCKS

Fig. 29: HEAD CONTROL PANEL

Fig. 31: SQUEEGEE & FLOOD PRESSURE REGULATION

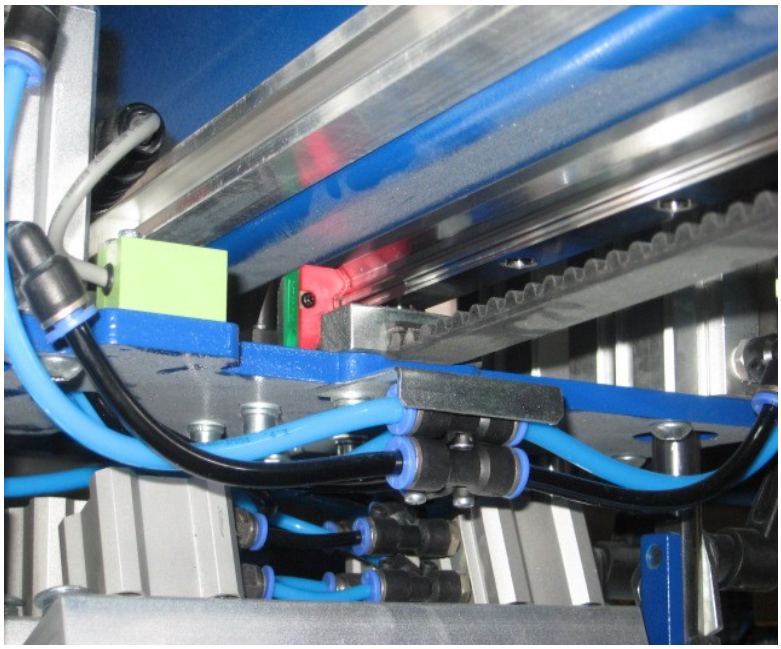


Fig. 32: LINEAR GUIDEWAY OF PRINT HEAD

8 PRINT ALIGMENT

If print registration is off, alignment may be corrected by following:

- put on transparent foil with markers on one of pallets
- Adjust screen holders width
- lift up lower wheel (pallets) to up position
- move screen by hand according to markers position on transparent foil
- lock right side of screen holders – micro side (using manual clamps or pneumatic clamps)
- using micro knobs adjust screen position
- Lock Handles of Micro
- lock left side of screen holders (using manual clamps or pneumatic clamps)
- repeat this procedure for each screen color

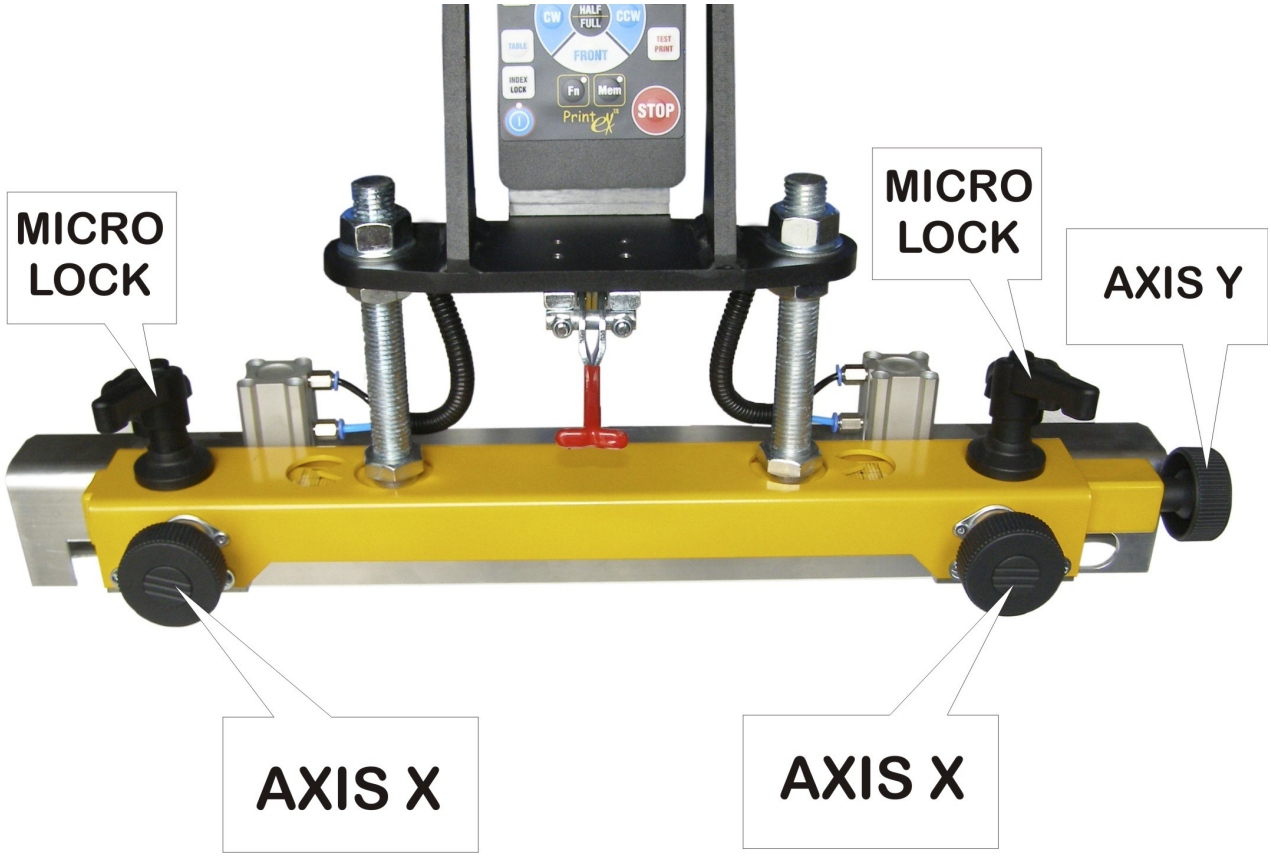


Fig. 33: MICRO REGULATION (FRONT-REAR)

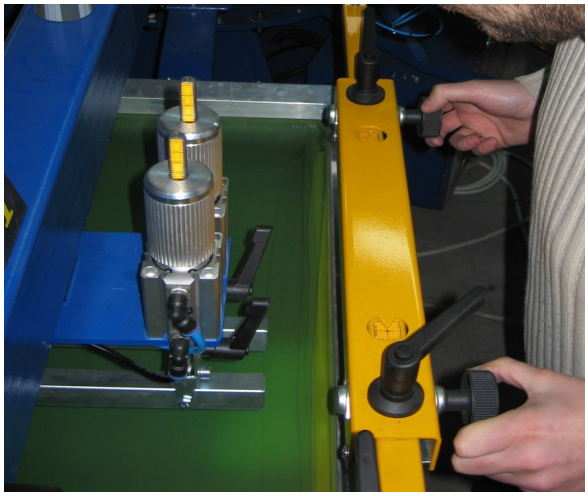


Fig. 34: PRECISE MICRO ADJUSTMENT

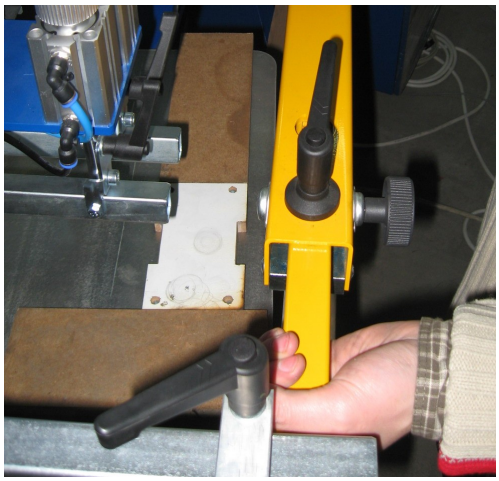


Fig. 35: HAND ADJUSTMENT

9 SQUEEGEES, FLOODS, CLAMPING

Prism printing press in equipped with sets of **SQUEEGEES & FLOODS and set of clamps. SQUEEGEES** rubber size is 9 x 50 mm, 70 sH hardness. Number of sets is equivalent of heads number

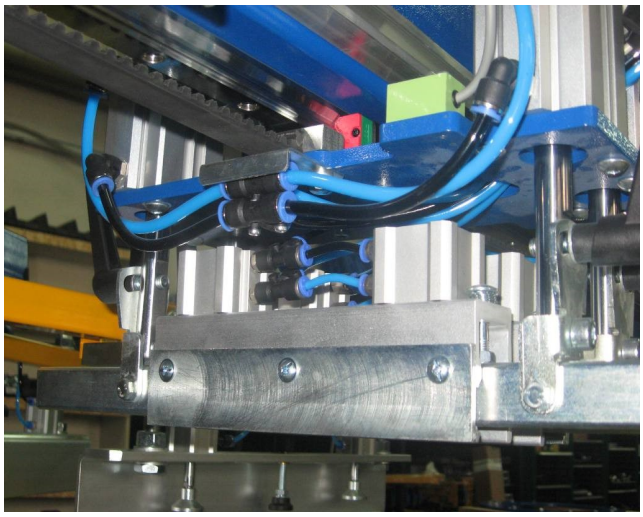


Fig. 36: PNEUMATIC SQ & FL LOCK

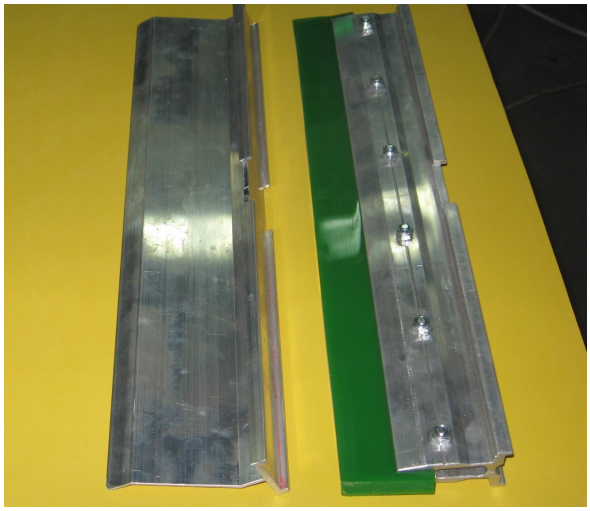


Fig. 37: SQ & FL (Special open for manual clamping)

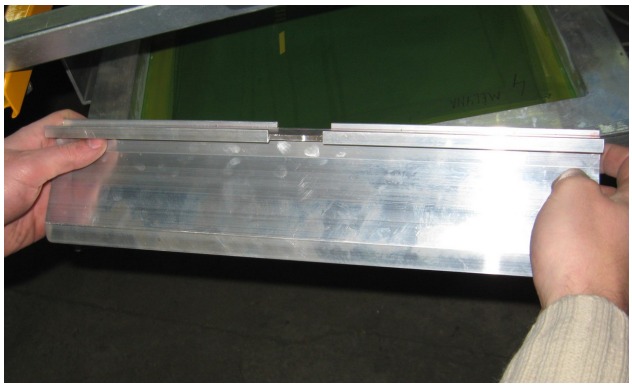


Fig. 38: FLOOD BAR MOUNTING

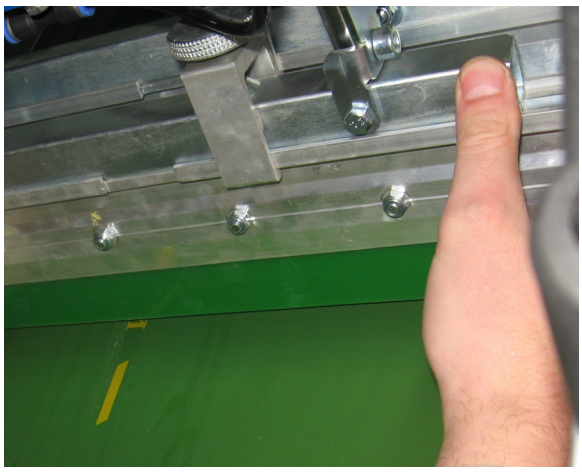


Fig. 39: SQUEEGEE BAR MOUNTING

10 TEST PRINT

10.1 ALL COLORS TEST PRINT

Imagine You set up 4 color job with 2 flashes, and want to see how it works all together.

Do the following:

At the main screen, in the lower center area of the LCD display is the "**TEST PRINT**" button. Turn off all heads that are not needed in the test print run. (Shining

diode at head number means ON state)

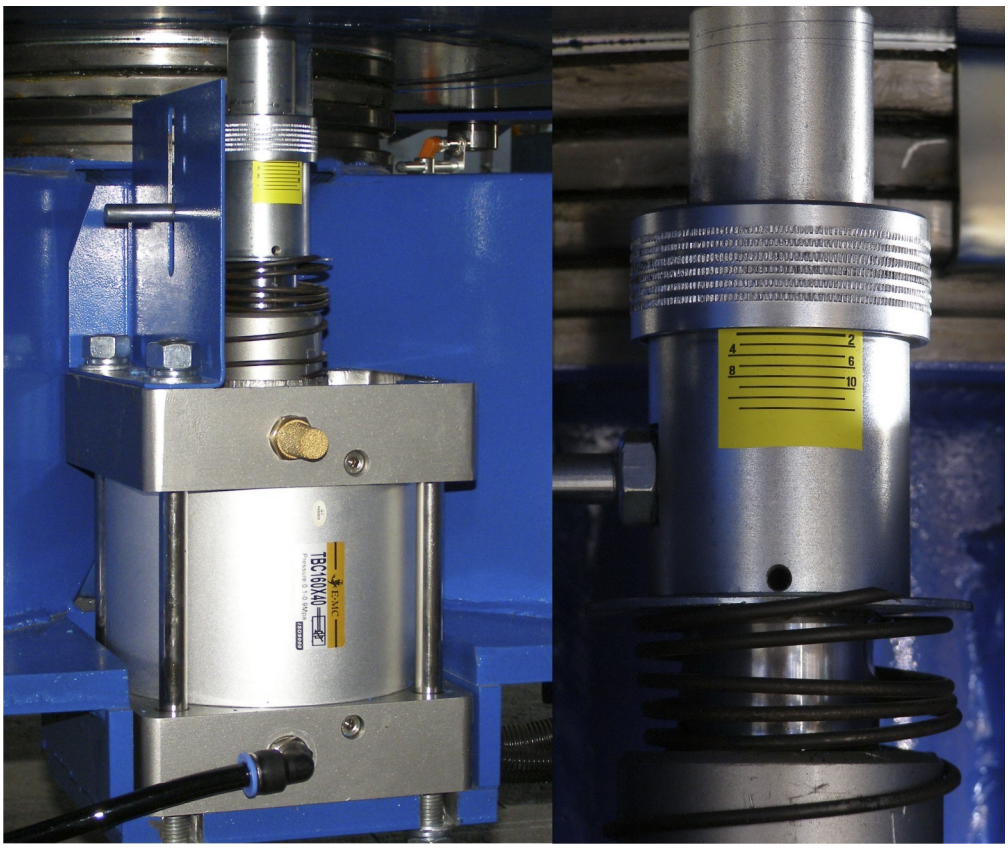
Place the desired substrate on the "Load" position platen. Press “PRINT TEST” and “NEW PRINT” than press START to complete test cycle. The Machine will run one test print through each print head left in the "ON" State.

10.2 SINGLE COLOR TEST PRINT

Imagine You set up one color and want to see how it prints

- put Your t-shirt on pallet at **LOAD** position,
- unlock the lower wheel (**INDX LOCK** button) with pallets to be able to rotate manually
- Rotate Your pallet with t-shirt under the head to be test printed
- Lock the lower wheel again (**INDX LOCK** button)
- It is good to pull up tables to print position (**TABLE** button) to check **OFF-CONTACT** distance (distance between screen & table), refer to **Central Off-Contact Manual Adjustment**
- Press **TABLE** button again to put lower wheel into low position again.
- Turn on **head** needed in test print with ON/OFF button, and also **t-shirt button** with diode corresponding to chosen print head;
- Push **TEST PRINT** button and HEAD ON/OFF button mode. **Only Chosen head will run.**

11 MANUALY ADJUSTABLE OFF-CONTACT (MCOA)



BEFORE OFF-CONTACT CHANGE:

- Make sure the tables are in low position
- Unlock Indexer lock (according to safety rules)
- break any safety bar
- check the display for SAFETY BAR open communicate
- go down beneath the machine
- Unlock the protection handle
- Increase or decrease distance between lower wheel and off-contact adjustment turning it in right (increase off-contact) or left (decrease off-contact).
- Factory settings leave off-contact in 0.0mm. When the new off-contact is set **REMEMBER** to lock OFF-CONTACT adjustment by protection handle.

12 SERVO LIFT

Servo lifting system gives smooth and fast operation of lifting in production cycle. It provides also repeatability and no need for adjustment. The parameters like speed and acceleration are settable from main panel.

In addition servo lift provides on panel off-contact adjustment, which combined with SEQUENCES feature or MULTIPRINT feature gives great control over printing settings.

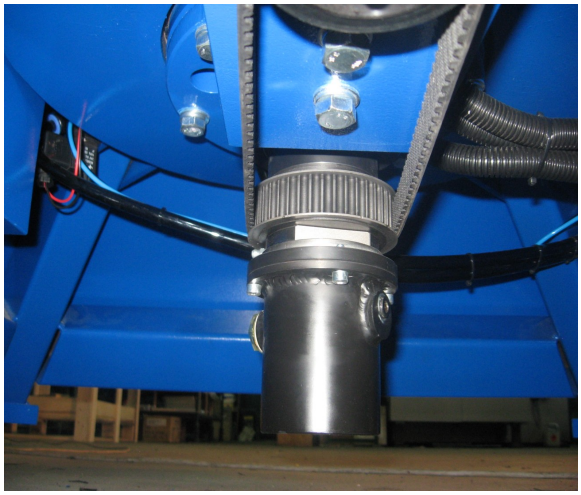


Fig. 40: SERVO LIFT PULLEY, OIL REFILINT NUT

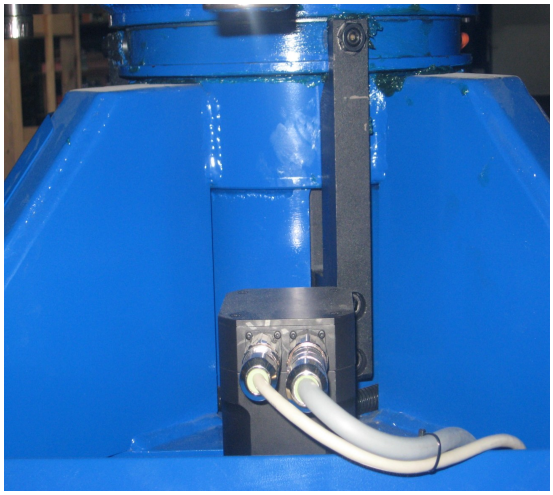


Fig. 41: SERVO MOTOR FOR LIFT

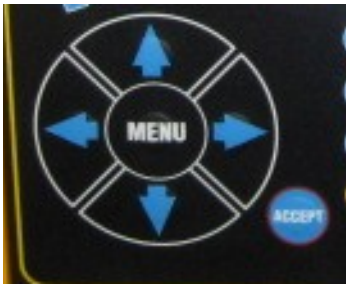
Fig. 42: OIL REVISION WINDOW FOR SERVO LIFT, TENSIONING SCREW

CHAPTER II

CONTROL PANNEL

13 BUTTONS PLACEMENT

13.1 CONFIGURATION MENU



Entering with **MENU** button
Moving with arrows buttons
acceptation with **ACCEPT** button

13.2 ACTION MENU

Buttons:

TABLE – lifts / lowers lower wheel

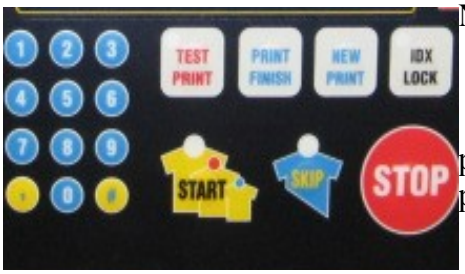
CCW – makes one cycle movement in CCW direction

CW – (not available)

MANUAL MODE – manual start/stop (diode is shining) / automatic mode (diode is off)

HALF / FULL – (not available)

13.3 MIDDLE MENU



NUMERIC KEYPAD – used for service code

START / STOP – starts / stops machine

SKIP – after pressing in time of automatic printing, pallet under loading position will be skipped by all printing heads

NOTE: Machine after pressing STOP button stops after finishing current cycle. For immediate stop use E-STOP button

TEST PRINT – refer to point 11

13.4 OTHER ELEMENTS OF CONTROL PANEL

FN – if active (diode shine), function SEQUENCES active

MEM – double pressing erases daily counter

MEM – if active (diode shine), pressing **ON/OFF head** button moves carriage front / rear, pressing **T-shirt ON/OFF** button toggles SQUEEGEES with FLOODS

BLUE T-SHIRT button – if active (diode shine) – gives info for machine the T-shirt is on the pallet

ON / OFF button – if active (diode shine), head is on, all function of head are active

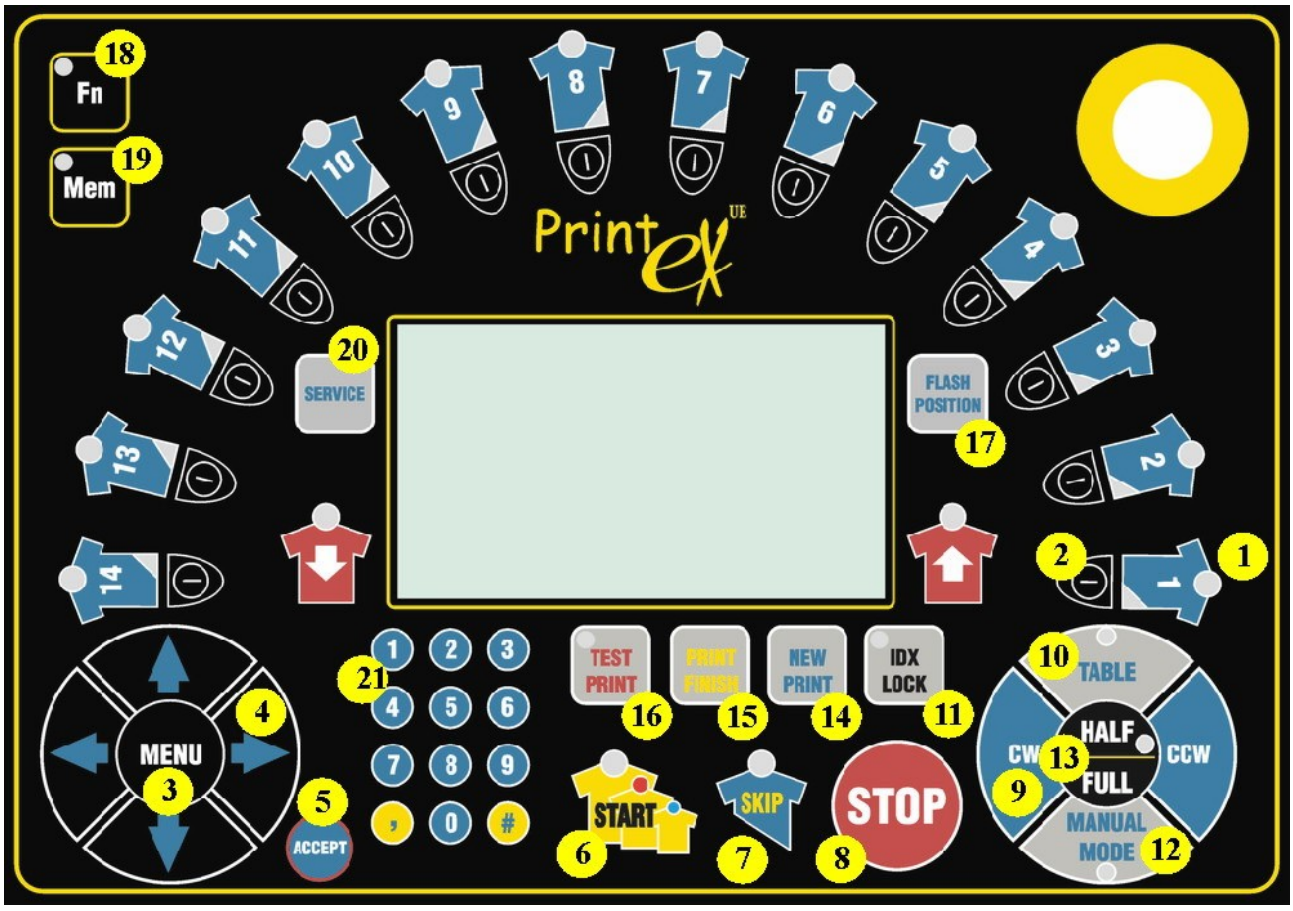
SERVICE button – before pressing enter service code

FLASH POSITION button – fast access for flash configuration

BLUE T-SHIRT button – button not active, diodes shining respectively to load / unload positions ready for pick up / take /off

E-STOP button– Emergency stop of the machine, after pressing needs to be released, machine needs to be switched off for short period.

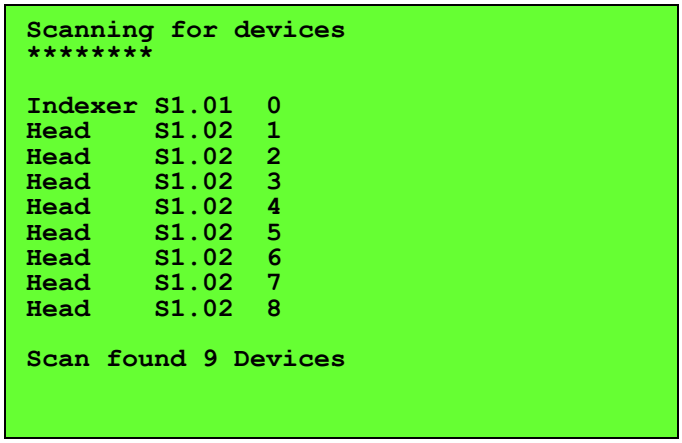
13.5 Control Panel - functioning

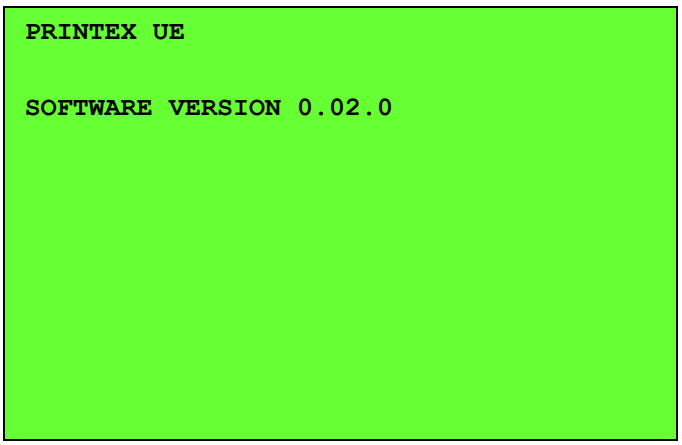


Button No.	Description	Action Taken
1	T-shirt on the panel	Tells the machine where the t-shirt is
2	Head ON / OFF	Turns Head ON or OFF
3	MENU button	Displays a list of specific setup menu
4	Arrow buttons	Allow to navigate between menu options and change values
5	ACCEPT button	Used to store chosen parameters
6	START button	Starts a print run.
7	SKIP button	Machine will not print that platen.
8	STOP button	Stops machine after current cycle is finished.
9	CCW / CW button	Machine will index one position in CCW / CW direction (Only one direction is possible, in standard CCW)
10	TABLE button	Lifts or lowers the table
11	IDX LOCK	Locks the indexer
12	MANUAL MODE button	Toggles between AUTO and MANUAL mode. For MANUAL mode the indicator diode shines.
13	HALF button	Not applicable in MiniMatic
14	NEW PRINT button	Prepares machine for start with new print job. All marked t-shirt will be unmarked
15	PRINT FINISH button	Turns off heads automatically to finish the run
16	TEST PRINT button	Refer to point: **11 Test Print**
17	FLASH POSITION button	Short cut that leads to IR FLASH (refer to: **14.5. IR Flash setup menu**)
18	Fn button	Pressed is signaled by corresponding diode, indicates the machine is working in SEQUENCY MODE (refer to: **14.6. Sequences setup menu**)

Button No.	Description	Action Taken
19	Mem button	Double press erases daily counter
20	SERVICE button	Special functions only for service team
21	Numeric buttons	Entering code for SERVICE

! *Upon starting the machine, you will briefly see the Initialization process on the LCD screen.* !





MACHINE PRINT HEAD INDEXER LIFT ADVANCED PRINT HEAD SETUP SEQUENCES DIAGNOSTIC TIME & CONTRAST	**MACHINE SETUP** WARNING TIME 0.1 .....2.0s TSHIRT COUNTER FIRST / LAST RESET COUNTER YES / NO MACHINE SIZE X STATIONS PALLET MODE NORMAL / DOUBLE DOUBLE INDEX YES / NO MACHINE DEFAULT YES / NO	**PRINT HEAD SETUP** SELECT HEAD ALL, 1 ... X MULTIPRINT YES / NO INK TYPE PLASTISOL / WATER REVERSE ACTION YES / NO FLOOD DELAY 0 ...1sec PRINT DELAY 0 ...1sec FLASH CURE TIME 0 ...15sec FLASH PREHEAT YES / NO MULTIPRINT and FLASHING YES / NO DEFAULT YES / NO
INDEXER SETUP IDX DYSTANS x mm OFFSET x mm INDEXER ACCELERATION x rpm INDEXER VELOCITY x rpm INDEXER DIRECTION CW / CCW MOVE TO HOME YES / NO DEFAULT YES / NO	**LIFT SETUP** OFF CONTACT #1 0 ... 10mm OFF CONTACT #2 0 ... 10mm OFF CONTACT #3 0 ... 10mm OFF CONTACT #4 0 ... 10mm OFF CONTACT #5 0 ... 10mm OFF CONTACT #6 0 ... 10mm OFF CONTACT #7 0 ... 10mm OFF CONTACT #8 0 ... 10mm	**ADVANCED PRINT HEAD SETUP** MULTIPRINT TABLE MOVE YES / NO WAIT FOR FLOOD YES / NO CHOPPER DELAY X sec WAIT FLASH MPRT YES / NO TABLE DOWN WHILE FLASHING YES / NO
SEQUENCES NUMBER OF SEQUENCES 1 ... 8 SEQUENCE 1 SETUP SEQUENCE 1 SETUP SEQUENCE 1 SETUP SEQUENCE 1 SETUP SEQUENCE 1 SETUP SEQUENCE 1 SETUP SEQUENCE 1 SETUP SEQUENCE 1 SETUP REPEAT SEQUENCES YES / NO	**DIAGNOSTIC** OUT 1 ...16 IN 1 ...16	**TIME & CONTRAST** CONTRAST 32 YEAR 2010 MONTH 8 DAY 11 EXPIRE DATE UNLOCKED

14 Main Setup Menu

```
MAIN SETUP MENU

Machine
Print head
Indexer
Lift
Advanced print head setup
Sequences
Diagnostics
Time & Contrast
```

Main Setup Menu Selections
Use arrow button up/down to move the cursor to the menu to be accessed, and then press the “right” arrow to go to one of the following menus.

14.1 Machine Setup Menu

```
MACHINE SETUP

Warning time
Tshirt counter
Reset counter
Machine size
Pallet mode
Double index

Machine default
```

- **Warning time:** Settable amount of time (seconds) with warning buzzer, elapsing after START button is pushed, after this time

machine starts**. From safety reasons You should never make this parameter lower than 1 s**

- **Flood on dwell:** If Print Head should "Flood" during CYCLE DWELL time, set to "Yes". If "Flood" should occur after CYCLE DWELL time has expired, set to "No".
- **T-Shirt counter:** If product / t-shirt counting should begin with the first t-shirt LOADED, set to "FIRST". If counting should begin with the first t-shirt UNLOADED, set to "LAST"
  Machine size: Allow to set machine size.
  ! Not settable, for manufacturing purposes only!.
- **Pallet mode:** two indexer modes.
  - EVERY ONE- indexer moves every one station;
  - EVERY SEC- after each index even and odd heads are working toggling in between.
  This function lets You print two jobs simultaneously.

  Example: Imagine You have two five colors job, put first job screens on odd heads and second job screens on even heads. Operator has to use 2 stocks of t-shirts, switching from one stock to other.

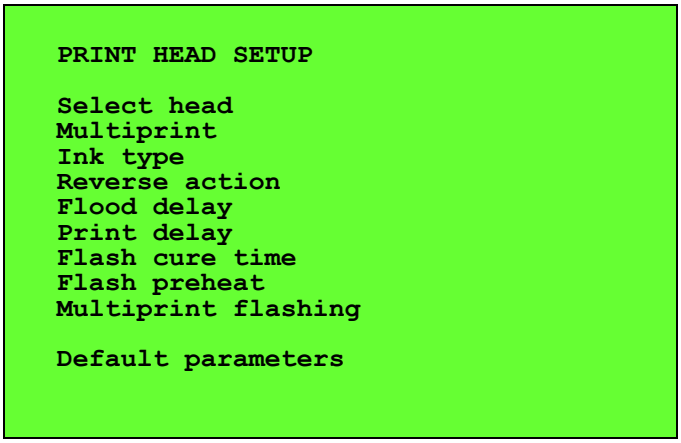
- **Double index:** machine moves double distance when printing, so when t-shirt is loaded it goes to head no. 2 and 4-6. Other words, odd heads are missed by program.

This feature has great possibility of increasing print area with decreasing numbers of colors. This feature can only be used that way under following conditions:

- The machine has FRONT-REAR screen mounting system. It is not retrofitted and is to be decided with the ordering.
- Increasing of print area is done it the **width**, **length** stays standard
- special pallets and arms are necessary, to avoid higher cost it is best to order together with the machine ordering

- **Machine default: THIS ACTION IS BLOCKED FOR OPERATOR, can be done by operator only after consultation with service**
  To reset the machine to the default parameters, choose "Yes" and press the "ACCEPT" Button. Machine will restart automatically. **DO IT ONLY IN CASE OF SOFTWEAR HANG-UP, CONTACT SERVICE FOR CONSULTATION.**

14.2 Print Head Setup Menu



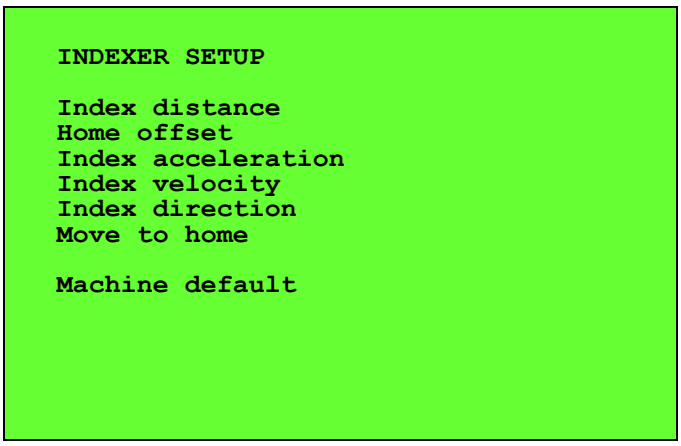
- **Select head:** Use arrows Up/Down, to select either “All” print heads or specify print head
- **Multi print:** This parameter is set to specify how many strokes should be done in one print
  Can be set independently for each print head
- **Ink type:** allows to choose the ink type. Machine is able to start with special program for two kind of inks: PLASTISOL and WATER BASE ink.
- **Reverse action:** the action of squeegee and flood bars are switched together
- **Flood delay:** flood delay comparing to standard operation in seconds
- **Print delay:** print delay comparing to standard operation in seconds
- **Flash Cure Time:** The amount of time (seconds) flash is curing. Tables are in up position till the time is elapsed.
- **Preheat:** If “YES” flash starts heating approx. 1 second before tables reach up positions. If “NO” flash starts heating after tables reaches up position
- **Multi print flashing:**
  WARNING! After this feature is changed to YES machine rotates opposite side frequently
  Example: Imagine you put flash on head 2 (flash is positioned and plugged into head 2).
  On head 2 You put : **MULTIPRINT FLASHING** – YES.
  On head 1 You put: MULTIPRINT - 2 strokes (at least 2 strokes)
  Now machine works in following way:
  HEAD 1
  HEAD 2 (flash)
  HEAD 1
  HEAD 2 (flash)
  HEAD 3, 4, 5 …...

14.2.1 Working with reduced number of heads

If Your machine is reduced No. of heads i.e. 14s 10c and in place of missing heads You plan to use outside controlled flashes for time control use **c.dwell** parameter

- **Default parameters:** To get back to the DEFAULT FACTORY PARAMETERS for chosen print head(s) choose “Yes” and press the “ACCEPT” button. **DO IT ONLY IN CASE OF UNKNOW ORIGIN HEAD PROBLEM or SOFTWEAR HANG-UP, CONTACT SERVICE FOR CONSULTATION.**

14.3 Indexer setup menu



All indexer Setup should be accessed only after consultation with service !

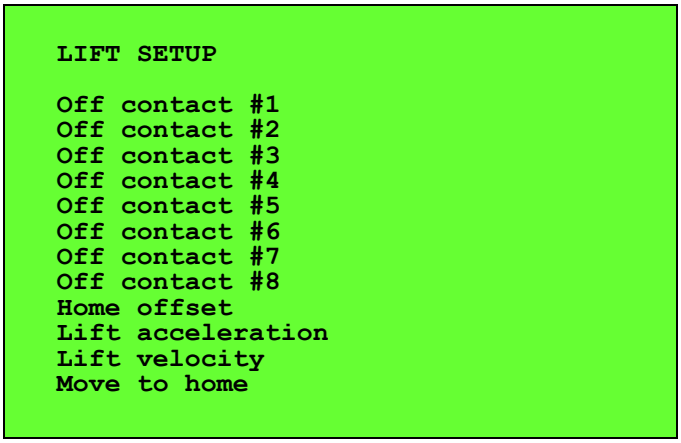
- INDEXER DISTANCE
  Lets You change the indexer travel distance. This parameter is locked for Operator, accessible only in SERVICE mode.
- HOME OFFSET
  Lets You change the indexer home position. This parameter is locked for Operator, accessible only in SERVICE mode. If assisted with telephone Service You may be asked to change this parameter. After changing always use MOVE TO HOME function.
- INDEX ACCELERATION
  Lets You change the acceleration of Indexer. It is not recommended to change it with no reason. If bigger pallets are used some regulation of this parameter may be needed for smooth rotation.
- INDEX VELOCITY
  Lets You change the velocity of Indexer. It is not recommended to change it with no reason. If bigger pallets are used some regulation of this parameter may be needed for smooth rotation.
- INDEX DIRECTION
  Machine can rotate one direction permanently and opposite direction frequent use only. The permanent rotation direction can be choose at installation, mostly it is CCW.
  Frequent opposite direction rotation is used for function as MPRT, mostly use it is CW.
- MOVE TO HOME
  Indexer is moving to its home position. This procedure must be done each time HOME OFFSET is changed.
- MACHINE DEFAULT

  This parameter is locked for Operator, accessible only in SERVICE mode.

14.3.1 Working with different pallet sizes

General rule is following: the bigger pallets the lower ACCELERATION value and VELLOCITY value. For long life of indexer drive it is recommended to avoid high values for pallets bigger than standard (41 x 56 cm)

14.4 Lift Setup Menu.



The central off-contact (distance from the pallet surface to the screen) in standard Prism machines is regulated manually (**10. Central Off-Contact Manual Adjustment)**
Optional Servo Electronic Off-contact (SEO)

- LIFT OFF CONTACT
  Lets You change the off contact, Off contact #1 is default for all operations, Off contact #2, #3 … are used for MULTIPRINT and SEQUENCES options
- HOME OFFSET
  Lets You change the lift home position. This parameter is locked for Operator, accessible only in SERVICE mode. If assisted with telephone Service You may be asked to change this parameter. After changing always use MOVE TO HOME function.
- LIFT ACCELERATION
  Lets You change the acceleration of Indexer. It is not recommended to change it with no reason. If bigger pallets are used some regulation of this parameter may be needed for smooth rotation.
- LIFT VELOCITY
  Lets You change the velocity of Indexer. It is not recommended to change it with no reason. If bigger pallets are used some regulation of this parameter may be needed for smooth rotation.
- MOVE TO HOME
  Lift is moving to its home position. This procedure must be done each time HOME OFFSET is changed.

14.4.1 Working with different pallet sizes

General rule is following: the bigger pallets the lower ACCELERATION value and VELLOCITY value. For long life of lift drive it is recommended to avoid high values for pallets bigger than standard (41 x 56 cm)

For huge pallets might be necessary to adjust Lift Spring tension

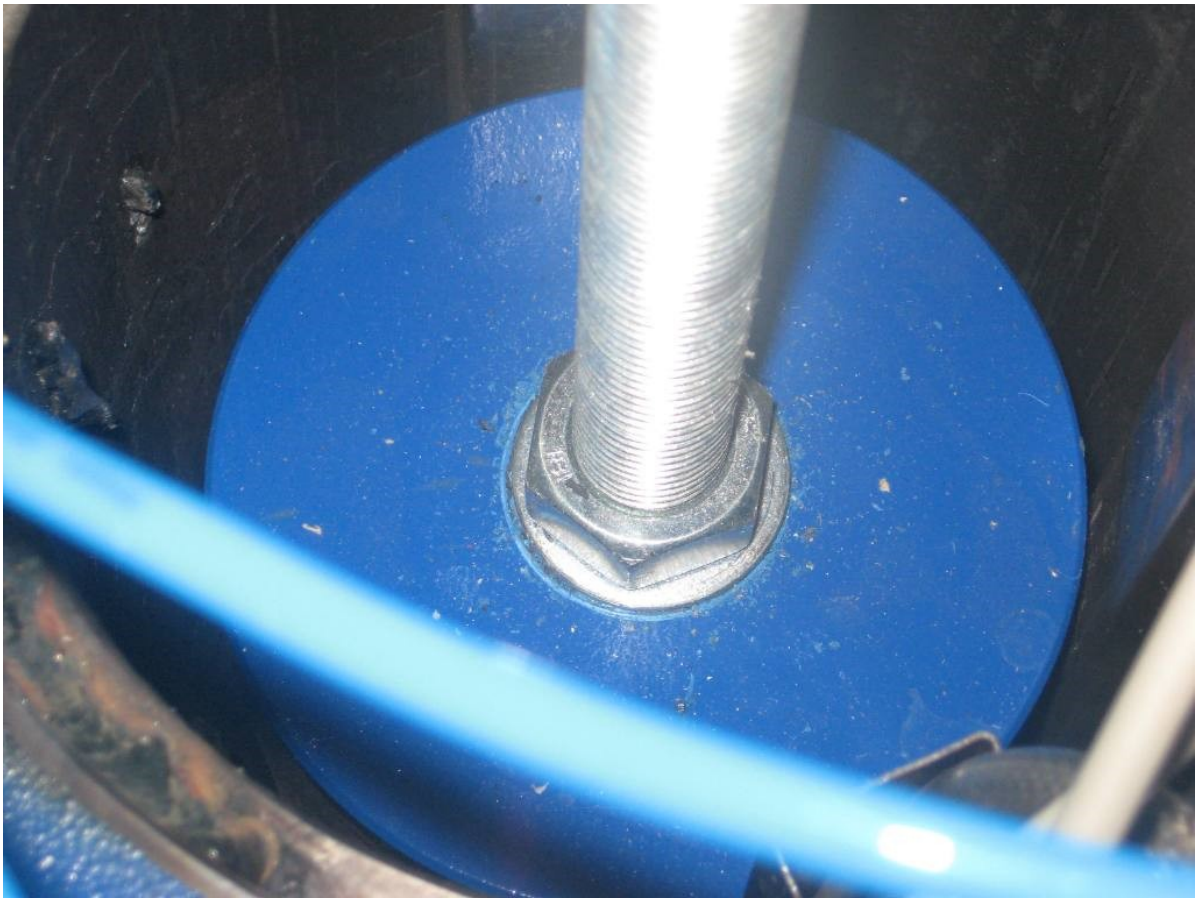


Fig. 43: SERVO LIFT TENSIONING SCREW

14.5 SERVO LIFT and OFF-CONTACT (SEO)

As an option Prism can be equipped with Servo Lift which gives possibility for on-panel OFF-CONTACT control.

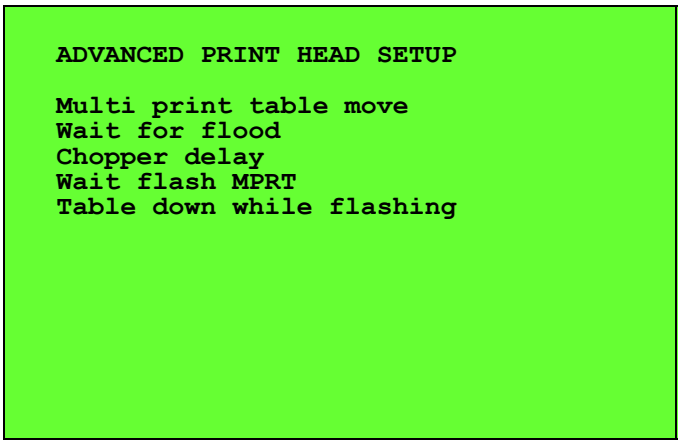
For standard operation Off contact #1 is active.

- **3-Dimensional prints**
  Imagine You need to print t-shirt with 3 colors, each color with different OFF-CONTACT for 3-D effect
  EXAMPLE:
  Off contact #1 = 3 mm
  Off contact #2 = 2 mm
  Off contact #3 = 1 mm

Run the machine in **All Colors Test Print (ref 8.1)**

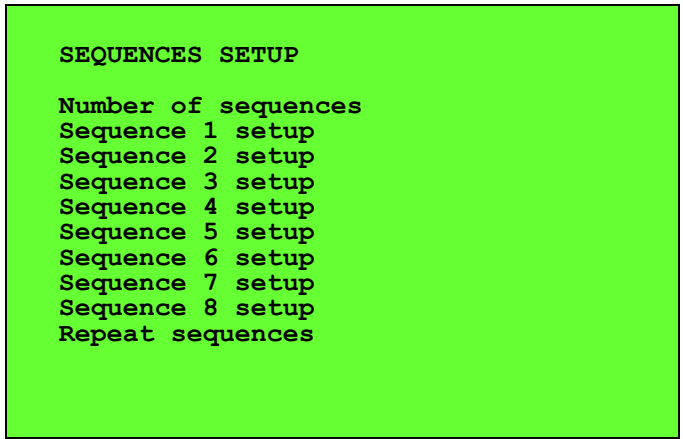
- **SEQENCES (ref. 2.6) with different OFF-CONTACT for 3-D prints**
  Off contact #1 value is set for SEQUENCE 1
  Off contact #2 value is set for SEQUENCE 2
  and respectively next Off contact values corresponds to SEQENCY No.

14.6 ADVANCED PRINT HEAD SETUP



- **Multi print table move:** Between each print stroke, the tables can drop to its lowered position (for flooding), or stay up in time of flooding. If selected „NO", the tables will stay in up position. It allows to increase speed of machine. IF selected "YES" the indexer will drop down in between of strokes.
- **Wait for flood:** If selected YES flooding will be done in tables down position no matter for flood speed (up movement of tables will wait for flooding)
- **Chopper delay:** This is a time set in seconds (0.08 sec.) to delay the actuation of the squeegee going from its "up" position to the "down" position to ensure that the squeegee makes contact with the screen before carriage's move is started
- **Wait flash MPRT:**
  Example: Imagine You have flash working on HEAD 2, You have assigned two print strokes for HEAD 1 (MULTIPRINT). As **MPRT** option is assigned "YES" second stroke on HEAD 1 will be started after Flash time is expired.
  If **MPRT** option is assigned "NO" second stroke on HEAD 1 will be started immediately.
- **Table down while flashing:**
  Example: Imagine flash time is 6 sec, 3 second takes print cycle after tables go down, flash is curing last 3 seconds in tables down position (big distance between flash and pallet), this feature is used for temperature sensitive materials

14.7 Sequences Setup Menu.



This function lets You create sequences consisting of standard machine's rotation.

14.7.1 PROGRAMMING

- First, You program number of Sequences, can be up to 8 sequences but mostly used is 2 sequences. Other words, You choose how many of full rotation machine will make with one set of t-shirts.
- Second, You go to sequence setup for each sequence and switch on heads which supposed to work.
- REPEAT SEQUENCES – change to YES (machine will work in closed loop)
- Remember to program only as much sequences as You chosen in point **1.1**

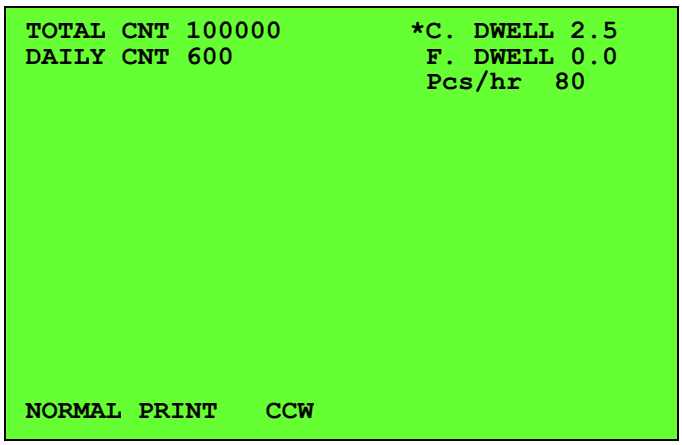
Example: Sequence #1 setup: choose head No 1,3,5

Sequence #2 setup: choose head No 2,4,6

14.7.2 SETTING

- Press **NEW PRINT** button
- Press **FN** button (corresponding diode will shine)
- Press **START** button. Machine starts the first sequence. Only chosen heads 1,3,5 will print. After finish full cycle (prints all table), machine starts the new sequence #2. Now, only head 2,4,6 prints. After finishing cycle for all tables machine stops or work in closed loop depending on parameter REPEAT SEQUENCES

14.8 Printing Speed



The printing speed is stated in cycles per hour. One cycle consist of:

a) 1/8 or 1/10 (depending of machine size) full tables rotation depending on INDEXER ACCELERATION and VELOCITY

b) up table movement (depending on LIFT ACCELERATION and VELOCITY)

c) squeegee movement (flooding) (including CHOPPER DELAY)

d) squeegee movement (printing)

e) **f. dwell** time (Located on display of main panel, can be accessed by **MENU** arrows, up & down arrows change dwell value, left & right arrows toggle to **c.dwell parameter)**

f) down tables movements

g) **c. dwell** time (Located on display of main panel, can be accessed by **MENU** arrows, up & down arrows change dwell value, left & right arrows toggle to **f.dwell parameter)**

Note: **C.dwell** parameter is shortcut of Cycle dwell,

The speed of all above parts of cycle has influence on total machine's speed.

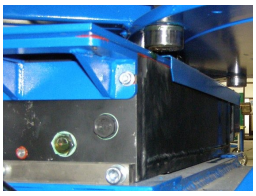
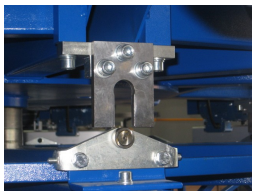
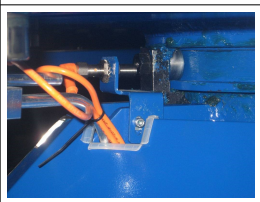
a) speed of rotation **can** be changed by operator
b) up table movement time **can** be changed
c) the flooding speed **can** be controlled from head operators panel by **FLOOD SPEED** knob
d) the printing speed **can** be controlled from head operators panel by **PRINT SPEED** knob

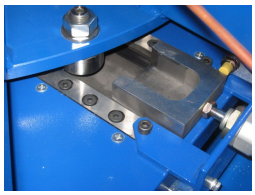
e) **C.dwell** parameter is shortcut of Cycle dwell, factory settings for it is 0.0 s. If set to i.e 2.5 seconds tables will stay in down position for that period. The operator has extra time with tables in down position
f) **F.dwell** parameter is shortcut of Flash dwell, factory settings for it is 0.0 s. If set to i.e 2.5 seconds tables will stay in up position for that period. The operator has extra time with tables in up position. The name of flash dwell originated from heat panel flash which needed certain amount of time for tables in up position.

Maximum theoretical speed of Prism can reach more than **1000 cycles/hour.**

CAPTER III
MAINTENANCE

15 Recommended Lubrication or Cleaning

SYSTEM	LOCATION	ACTION TYPE	RECOMMENDED	FREQUENCY
Lower wheel bronze bearings		Grease with pump	White Lithium	Weekly - add grease
Pneumatic Oilier		Fill with bottle	Pneumatic Tool Oil **ONLY**	Check weekly - add as needed
Indexer		Fill with bottle	Gear box oil	Check every 3 months
Lift		Fill with bottle	Gear box oil	Check every 3 months
UPPER BEARINGS AND FORKS		Grease with paint	White Lithium	monthly - add grease
SERVO LIFT BEARING		Grease with paint	White Lithium	monthly - add grease

SYSTEM	LOCATION	ACTION TYPE	RECOMMENDED	FREQUENCY
LOWER BEARING AND SLIDING LOCK		Grease with paint	White Lithium	monthly - add grease

ERROR LIST

ERROR NR	*DESCRIPTION*	*DEVICE*	*RESOLVING PROBLEMS*
1	Comunication timeout	HEAD, INDEXER	Check comunication cables. Check if the cables are tite screw in the sockets on the electronic boards and on the spliter board in the centre of the machine.
2	Receive timeout	HEAD, INDEXER	
3	Checksum error	HEAD, INDEXER	
4	Data lenth error	HEAD, INDEXER	
5	Head front proximity error	HEAD	Check the front proximity switch; the light should go on if the proximity switch is in near the position flag. If the light on front proximty switch is on also the red light on head's electronic board on INPUT 1 should switch on. Check the wires in the inverter and electronic board on the head.
6	Head rear proximity error	HEAD	Check the rear proximity switch; the light should go on if the proximity switch is in near the position flag. If the light on the rear proximty switch is on also the red light on head's electronic board on INPUT 2 should switch on. Check the wires in the inverter and electronic board on the head.
7	Index front proximity error	INDEXER	
8	Index rear proximity error	INDEXER	
9	Lift up proximity error	INDEXER	Check the air pressure. Check the proximity switch on the lift piston. It should be lighted if the table is in up position. Check the indexer valves. You can push valve manualy to check if it works properly. Check the pneumatics wires. Check elecrical connections betwen the valve and electronic board inside the electrical box.
10	Lift down proximity error	INDEXER	Check the proximity switch. It should be lighted if the table is in down position. Check the indexer valves. You can push valve manualy to check if it works properly.

ERROR NR	*DESCRIPTION*	*DEVICE*	*RESOLVING PROBLEMS*
			Check the pneumatics wires. Check elecrical connections betwen the valve and electronic board inside the electrical box. Remember to grease machine every 30000 cecles.
11	Can not disangage index lock pin	INDEXER	Check the pneumatics wires on the indexer lock piston. Check the lock valve pressing it by hand. Check if the indexer lock is clean and greased. Try to push the lock by hand.
12	Break lock not in position	INDEXER	
13	Safety beam broken	INDEXER	
14	Safety bar broken	INDEXER	Check if the safety bars are closed. Check the relay in the electric box; it should be switched on if every safety bar is closed. Check the electrical conection in th safety line.
15	Air pressure too low	INDEXER	Check if the air is on the machine. Check if the air compresor works properly.
16	ESTOP switch pressed	INDEXER	Relase the E-STOP switch by rotating it on the left or right side. Swtch off the machine for 30 seconds.
17	Can not engage index lock pin	INDEXER	Check the pneumatics wires on the indexer lock piston. Check the lock valve pressing it by hand. Check if the indexer lock is clean and greased. Try to push the lock by hand.
18	Indexer servo fault	INDEXER	Switch off the machine for 60 seconds and switch it on again. If the problem still occures open the main electric box and noticed what is written on the sevrvo drive. Please check if the set up parameters are ok: INDEX DISTANCE HOME OFFSET INDEX ACCELERATION INDEX VELOCITY
19	Lift servo fault	INDEXER	
20	Indexer servo timeout	INDEXER	Switch off the machine for 60 seconds and switch it on again. If the problem still occures open the main electric box and noticed what is written on the sevrvo drive. Please check if the set up parameters are ok: INDEX DISTANCE HOME OFFSET INDEX ACCELERATION INDEX VELOCITY
21	Lift servo timeout	INDEXER	
22	Vector drive error	HEAD	

ERROR NR	*DESCRIPTION*	*DEVICE*	*RESOLVING PROBLEMS*
23	Vector drive comunication error	HEAD	
24	Vector drive comand error	HEAD	
25	EEPROM memory data corrupted	HEAD, INDEXER	
26	Index servo comand error	INDEXER	Check RS232 cable from indexer electronic board to servo drive.
27	Lift servo comand error	INDEXER	
28	Index servo unknown response	INDEXER	
29	Lift servo unknown response	INDEXER	
30	Index servo comunication timeout	INDEXER	
31	Lift servo comunitation timeout	INDEXER	
32	Servo homing timeout	INDEXER	Switch off the machine for 60 seconds and switch it on again. If the problem still occures open the main electric box and noticed what is written on the sevrvo drive. Please check if the set up parameters are ok: INDEX DISTANCE HOME OFFSET
33	Flash erase error	HEAD, INDEXER	
34	Flash write error	HEAD, INDEXER	
35	Invalid task	HEAD, INDEXER	
44	Index servo motion timeout	INDEXER	Switch off the machine for 60 seconds and switch it on again. If the problem still occures open the main electric box and noticed what is written on the sevrvo drive. Please check if the set up parameters are ok: INDEX DISTANCE HOME OFFSET INDEX ACCELERATION INDEX VELOCITY
45	Lift servo motion timeout	INDEXER	

CHAPTER V

SUPPORT DOCUMENTATION

16 Warranty and Limitation of Liability

17 Installation Protocol Document

18 Electrical Diagrams

19 Pneumatic Diagrams

20 Spare Parts List