NELA
Pre-Loader System
For
Creo-Trendsetter

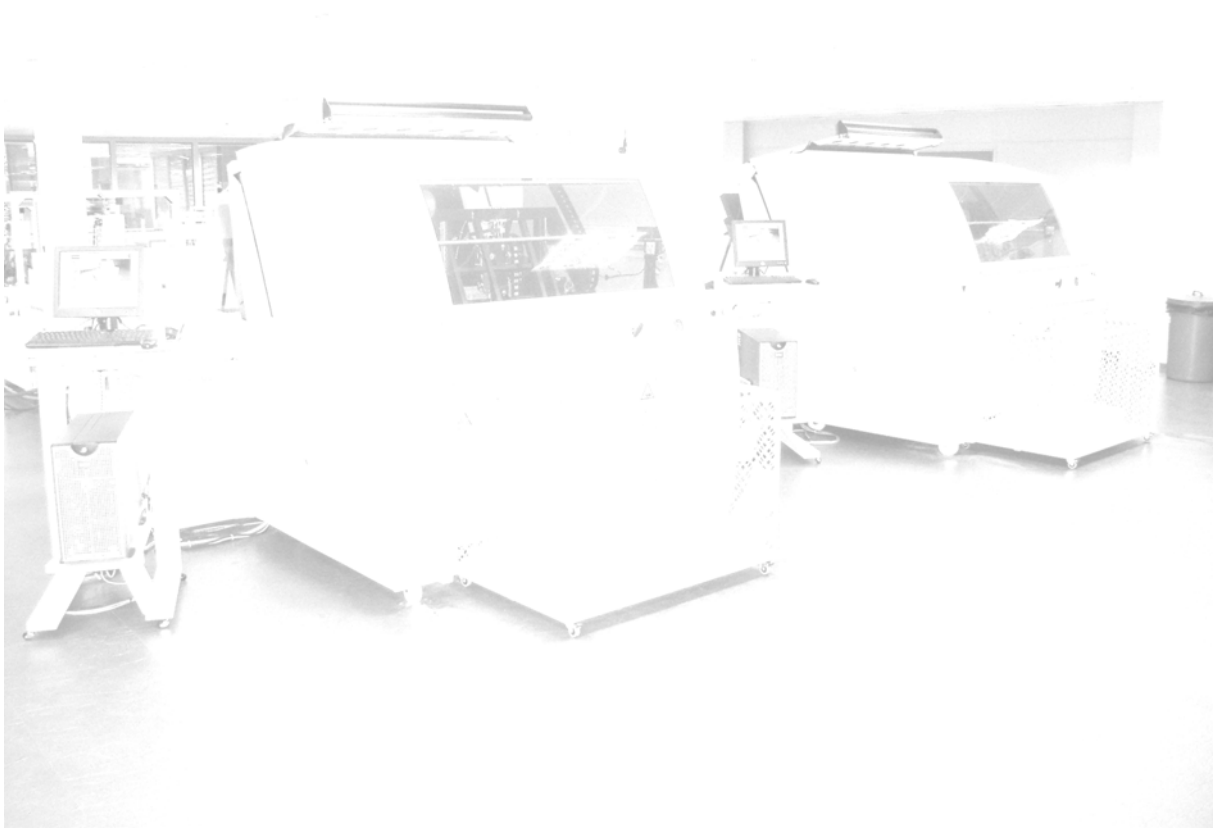


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Pre-Loader training

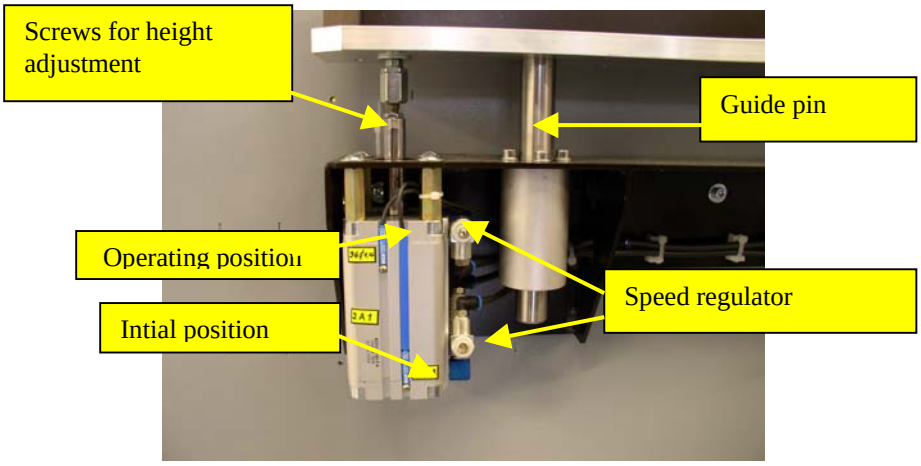
Trouble shooting

1.1 Mounting the trolley lift



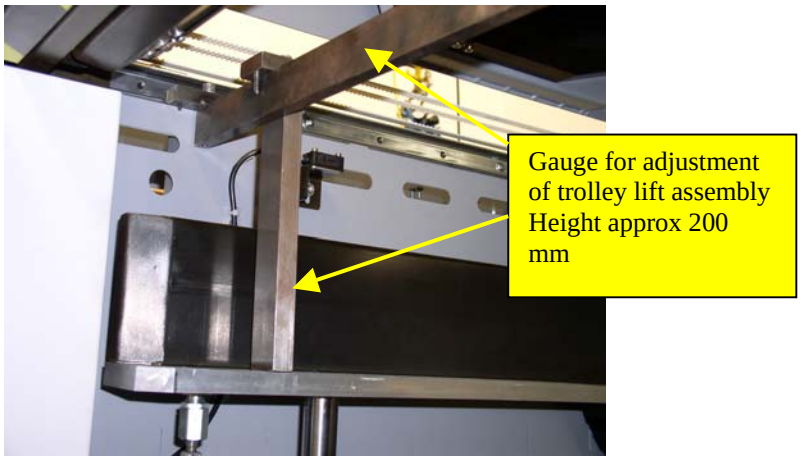
The trolley lift assembly is fixed / attached left and right to the frame. The dimension is around 294 mm. This dimension is measured from the front edge of the frame to the aluminum plate table of the unit. The sheet metal must be removed. Make sure that both lift assemblies are mounted parallel.

1.2 Height adjustment



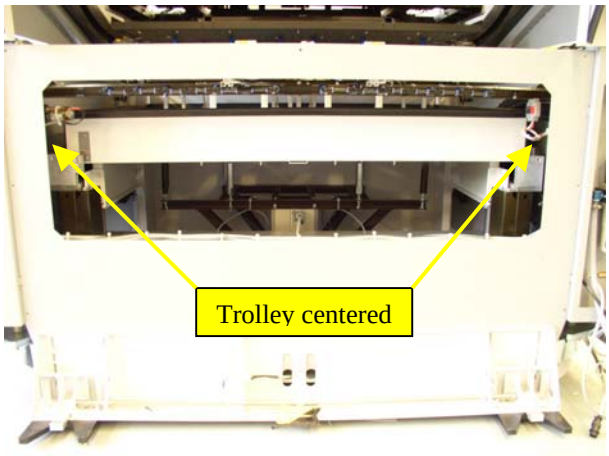
By using the “screws for height adjustment”, each corner of the trolley can be levelled horizontally.
The sensors “operating position” and “initial position” show the position of the cylinders. If one of the two positions cannot be reached, the sensors must be moved.
Regulators at the cylinders allow for adjustment of the lifting and lowering speed of the trolley. Note that all four cylinders must equally lift and lower the loaded trolley.
The guide pin supports the trolley lift assembly.

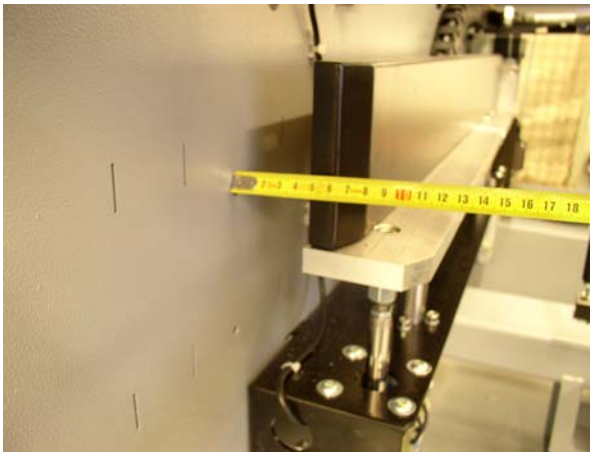
1.3 Height Adjustment Plate Trolley



A gauge is placed on the inner frame of the loader. A second gauge is hung vertically from the horizontal frame bar. The height of the cylinders can now be controlled and adjusted by using the adjustment screws. Note that the trolley lift assembly must touch the gauge only slightly. – Repeat this working step on all four cylinders.

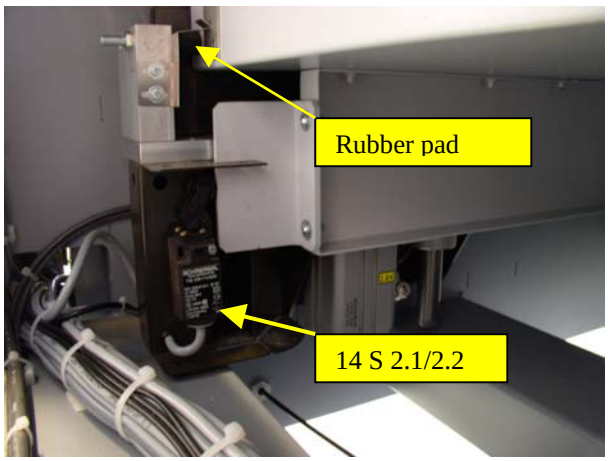
1.4 Centering the trolley

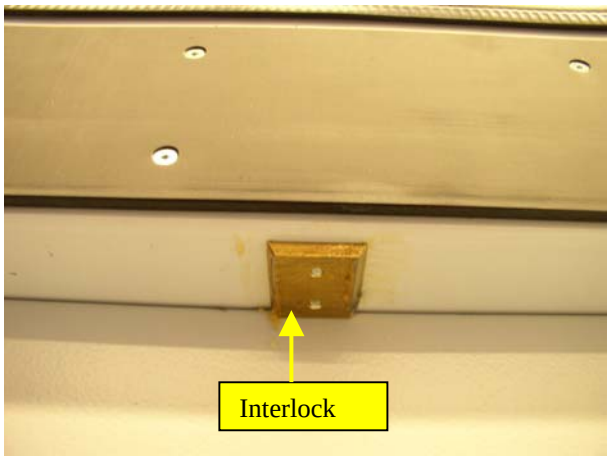




The trolley must be centered in the middle of the loader by using the black guide bars. The measuring results can vary from loader to loader, due to manufacturing reasons.

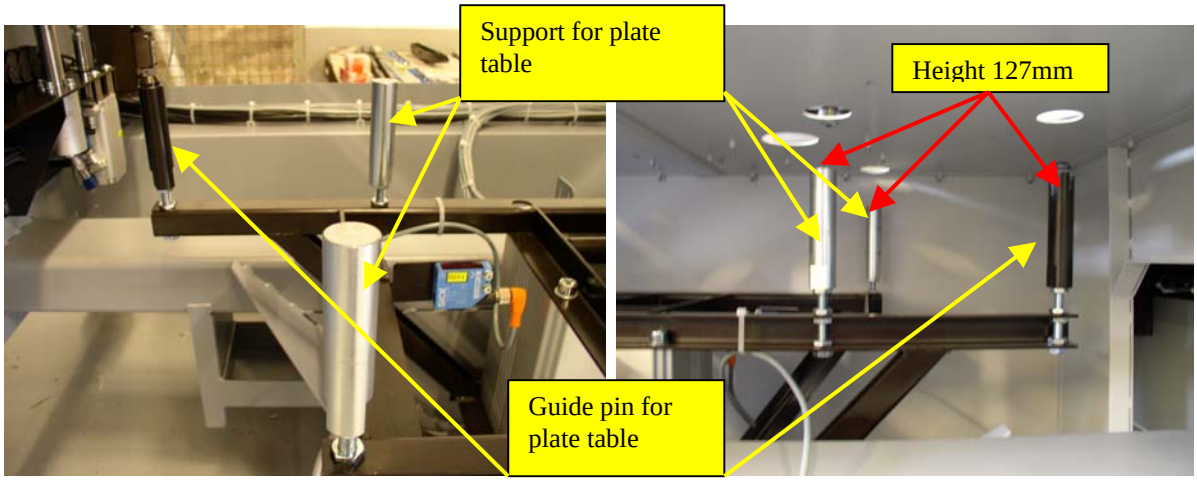
1.5 Adjusting sensor 14S2.1 / 2.2 and rubber pad





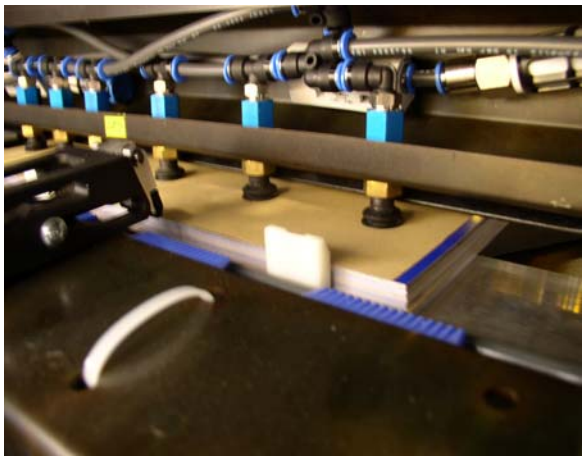
Screw the interlock to the trolley. Push in the rubber pads and screw until they hit the floor. Now push in the trolley and lift with valve 2V. Then push trolley back so that the arrest lies firmly in the cavity of the guide bar. Now push the rubber bars back in until they slightly touch the trolley. This position now also allows for adjustment of the ground bar on the left side. Adjust sensor 14S2.1/2.2 against the cam switch of the trolley. This sensor has a very short length of travel so that, when the trolley is pulled out, the emergency circuit is immediately interrupted. In this instance, the following message appears on the display: “Trolley not arrested”. When the trolley is re-arrested and the emergency circuit closed, the message can be deleted.

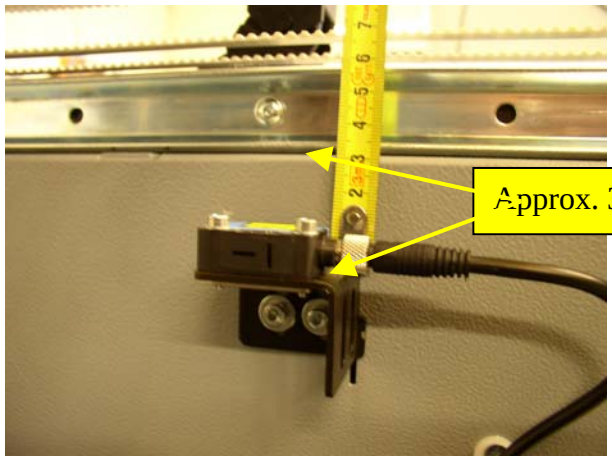
1.6 Setting up the plate table



The pins of the telescope drive (height 127 mm) lift the plate table into its operating height (operating position sensor 36S1.6/36S12). Two of these pins are pointed as to center the table. – Push in plate trolley and lift it so that the wheels are free. Sensor 14S2.1/2.2 is activated and the trolley is sitting firmly in the cavity. The telescope drive can be moved with contactor 56K12.2 (lift) or 56K12.3 (lower). The pins have to be adjusted so that they are centered inside the holes of the trolley and that they generate no noise when lifting or lowering the table.
The anchorage of the bolts and the lift motor can be moved by opening the screws underneath the motor. This working step might have to be repeated several times. Height and position of the pins can also be changed. Note that the plate table has to lift evenly and noiselessly.

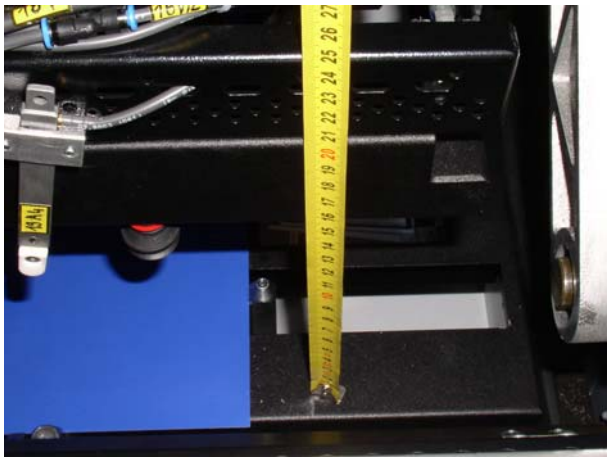
1.7 Height of plate stack, operating level

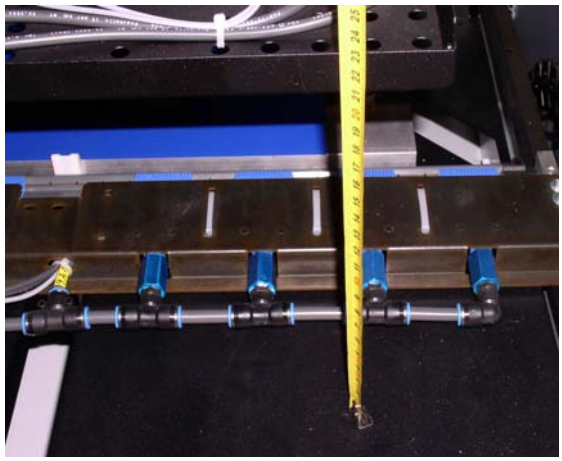




The sensor „operating level“ consists of an emitter and a receiver. Both have to be adjusted parallel at approx. 32 mm from the frame to the support plate. Check and control this setting with the paper gripper.
The rubber seal of the paper suction device should touch the paper on all edges, but not vertically. The compression of the rubber seal is approx. 1,5 mm. At the same time, check parallelism with the plate. The height can be adjusted at the lateral fixation. The angle is set to 8° and can be changed in service mode via the OP3 terminal. If this value cannot be reached, a re-adjustment of the working level is required. As the plate gripper removes 3 to 4 plates before the telescope drive follows, this setting should be monitored and, if required, re-adjusted during production.

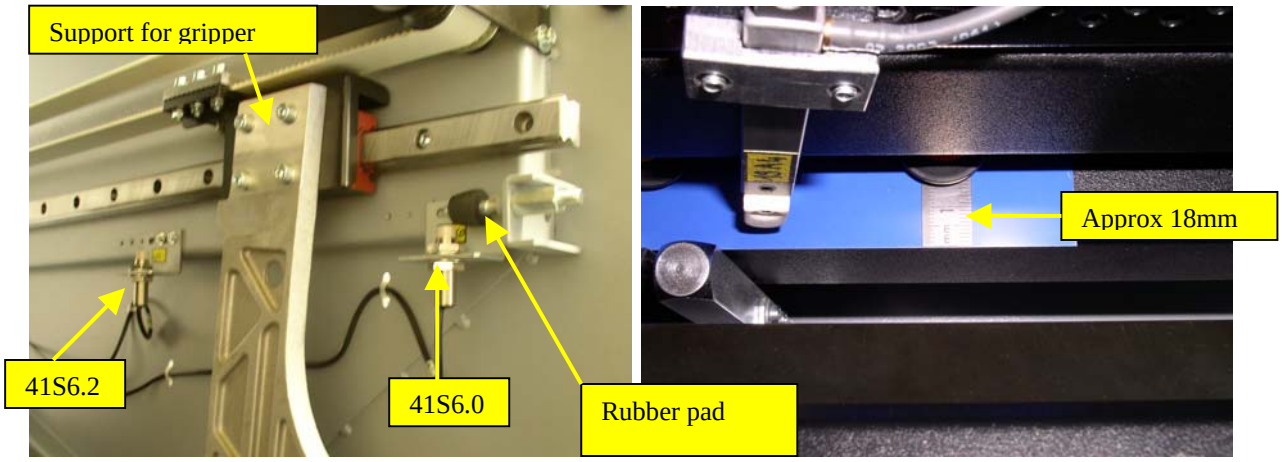
1.8 Horizontal initial position of plate gripper





Load trolley with one single plate each, push it into the loader and lift it. Check all four corners with a tape measure.
The plate with the suction cups is mounted with six screws to the upper frame. If one edge is higher than the other, unscrew the two closest screws and add washers. Then check and compare with all other edges and repeat until the plate gripper is above the plate table.

Release the break of the motor by using contactor 15K6. The plate gripper can now be moved by hand. Release the clamp of the drive belt. Now measure from the linear guide to the linear bearing. The plate gripper can be adjusted parallel by using the rubber pads. When the setting is correct, re-activate the break.

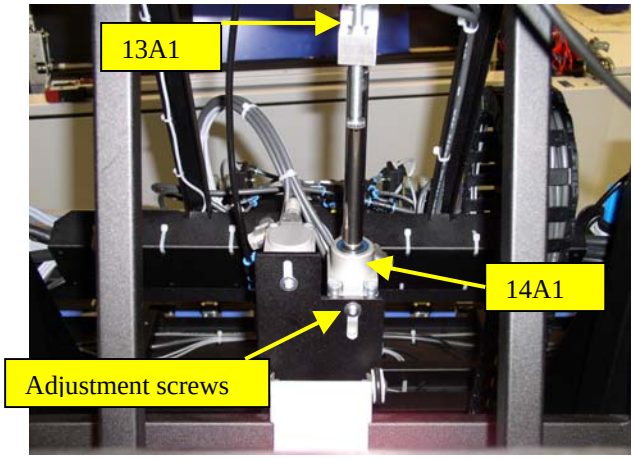


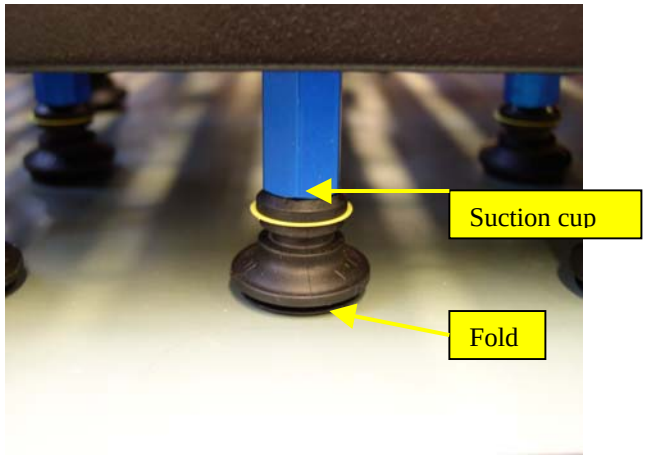
Load trolley with one plate each and bring into operating position. The printing plates are now slightly pushed against the front plate stack guide pin. Now place two gauges onto the pates in the area of one suction cup. Lower the plate gripper and check the setting. In this position, parallelism

can be adjusted as follows: Open the screws of the gripper support and move the support so that the gripper is parallel to the plate edge. Tighten screws and lift plate gripper.

Bring device into initial position, lower plate gripper. From the plate edge to the suction cup there should be approximately 18mm distance. If this is not the case, sensor 41S6.0 (horizontal drive GS) must be moved. The rubber pads are not touching in this setting. When a correction is required, move back to initial position first and then lower plate gripper and measure. If the setting is correct, make the rubber pad slightly touch the gripper support and tighten counternut.

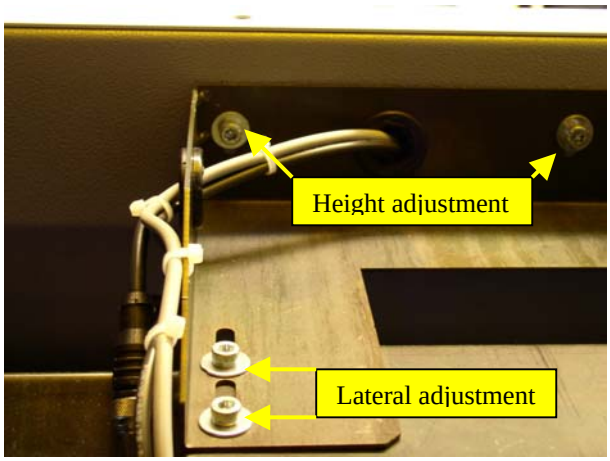
1.9 Vertical initial position of plate gripper

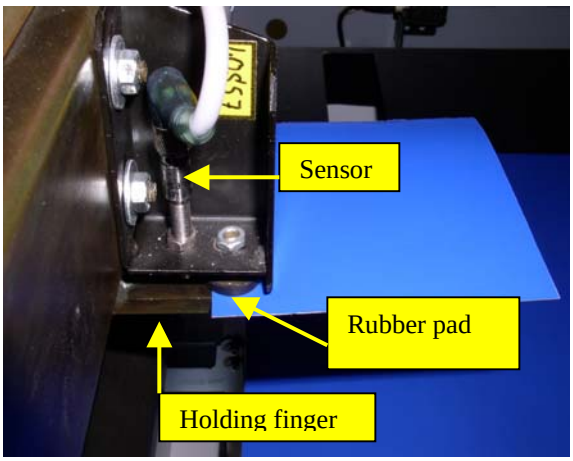




Lower plate gripper onto the platestack with cylinders 13A1 (stroke 10mm) and 14A1 (lifting stroke vertical 140 mm). Check paper suction cups. The suction cup must not be compressed too much, only the first fold may be compressed. Corrections can be made via the screws at the cylinder bracket.

2.1 Multiple Plate Identification

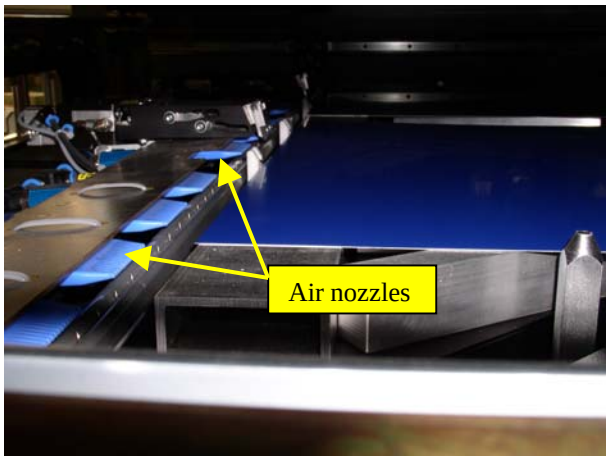


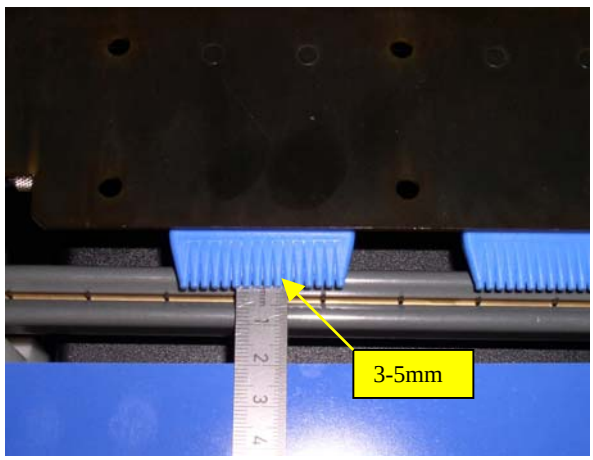


In manual mode, two plates are sucked on and brought into measuring position. The multiple plate identification assembly is adjusted so that it touches the printing plate by using the height adjustment screws. The two rubber pads must touch the plate surface only slightly. The position of the rubber pads should be such that only half of the pad touches the plate. This can be adjusted for each side individually by using the lateral adjustment screws.
Bring the holding finger into measuring position and control the sensor. When the measuring result is OK then a green and a yellow LED go on.

Adjusting the sensor: The sensor is fixed with two nuts. Feed a plate into the multiple plate identification assembly, unscrew the nuts and move the sensor until both LEDs go on. For verification, now feed two plates on top of each other into the multiple plate identification assembly. The yellow LED must not go on. You might have to move the sensor.

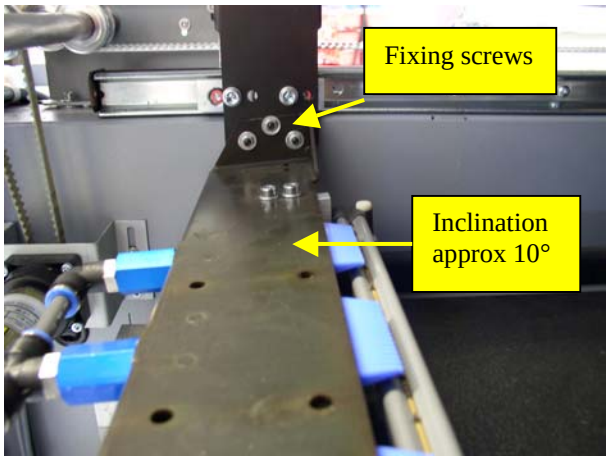
3.1 Adjusting the discharge unit with paper slide

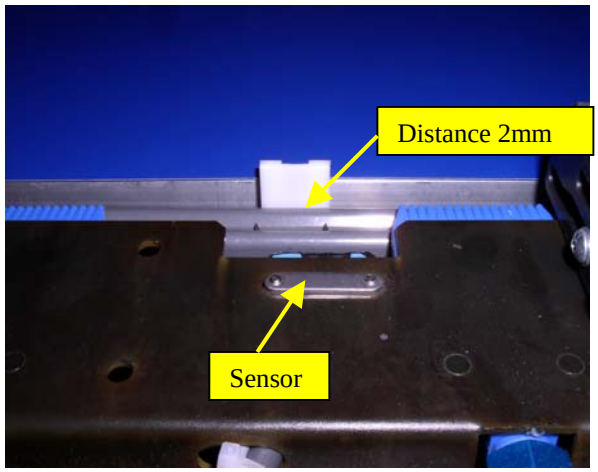




The purpose of the discharge bar is to eliminate the electrostatic charge of the paper. The plate gripper takes a plate from the stack and lifts it approximately 8 mm. Then the air nozzles go on (2 – 10 sec). The ionizer is activated at the same time and ionized air is blown through the blue nozzles between pate and paper. A pressure controller in the left-hand control cabinet allows for adjustment of air pressure (1,5 – 2,5 bar) and the amount of air that is blown out. When the air pressure is too high, the paper is blown away. When the pressure is too low, however, the desired effect cannot be achieved. This must be monitored throughout production and corrected, if required.

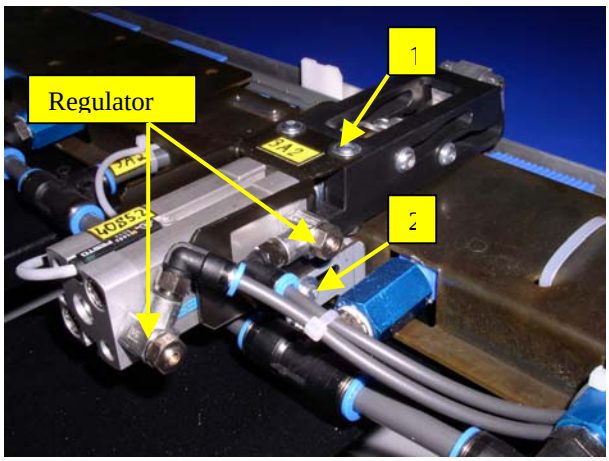
Bring assembly into operating level. Feed tape measure approx. 3-5 mm underneath the nozzles. Detach screws and adjust the discharge unit parallel to and at the same height of the plate stack. The nozzles have to touch the tape measure slightly. Tighten screws. When adjusted correctly, the discharge unit is inclined by approx. 10°.

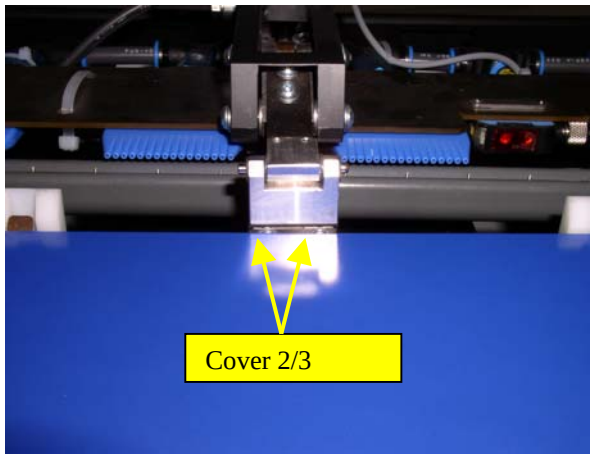




The operating position of the discharge unit can be adjusted with a sensor, which is mounted on the bar. The distance between the ionizer and the plate stack guide should be 2mm.

3.2 Adjusting the paper slider

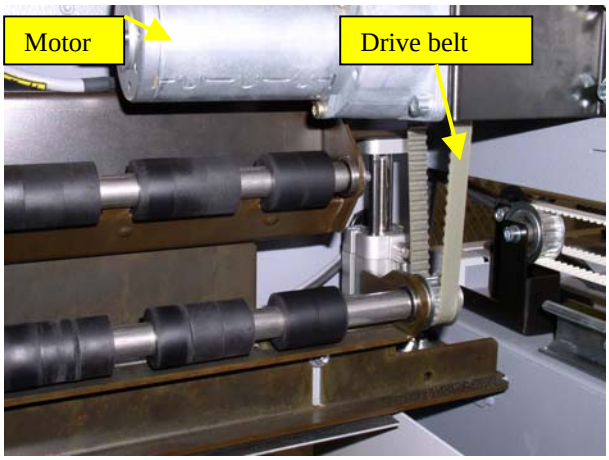


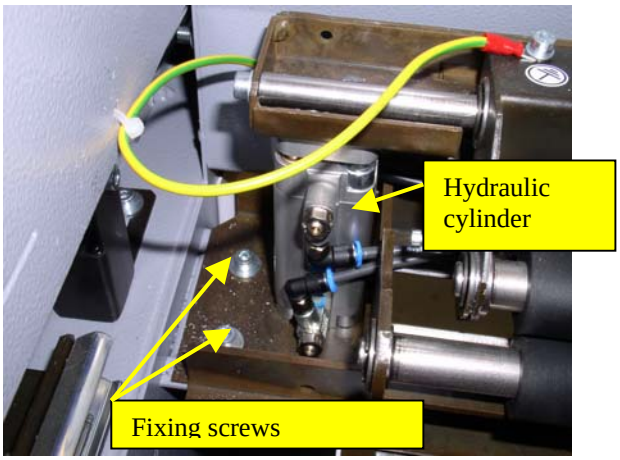


After the paper gripper has moved into operating position and received the signal for paper removal, the vacuum is activated. The paper slider is activated, too, and flips onto the paper. The forward movement of the slider creates a wave in the paper which can now be sucked more easily.

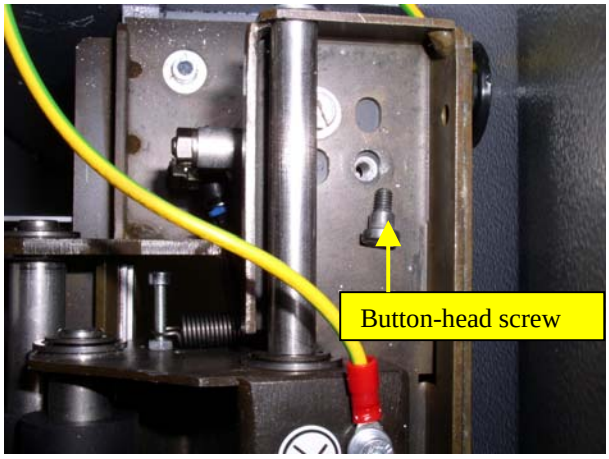
Detach cable from motor and slightly pull back the discharge bar. Mount the slider in centered position with screws (1). Pull back the bracket for the cylinders (2) and activate cylinder 3A2. The slider will move out. Push forward the discharge bar, distance 2mm. Adjust the slider on the steel panel so that the two screws are covered by two thirds by the plate. The moving speed into working position must be slower. The movement into home position, however, can be faster.

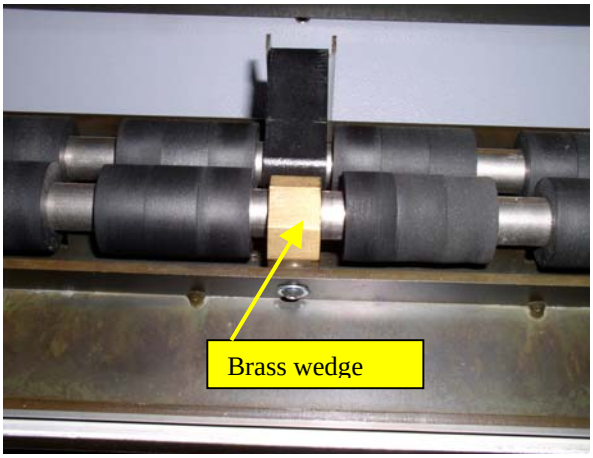
4.1 Adjustment of Paper Removal





The paper removal assembly is placed into its bracket and centered. Push it back against the frame and fix the screws. The motor and drive belt drive the lower shaft, which has rubber rings. The upper shaft is moved up or down by two hydraulic cylinders.

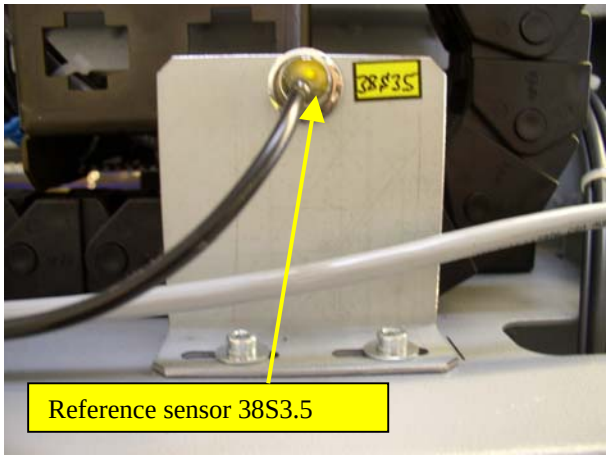


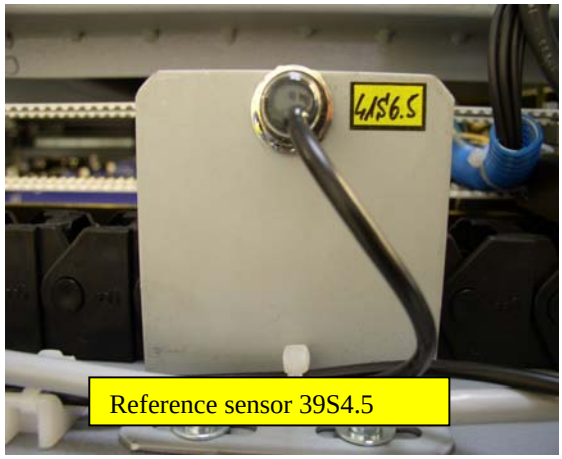


The upper shaft is fixed with button-head screws floatingly on the cylinders. The button head prevents tilting of cylinders and shaft bracket. On each side, a tension spring makes the upper shaft push evenly on the driving shaft.

The paper should be pulled evenly through the paper removal assembly. In manual mode, start the motor. Feed a paper strip (approx. 10 cm) but don't release it. Move the paper strip from one side to the other. When the pull on the paper is too weak in the middle, this can be adjusted with the brass wedge. By moving the wedge, the gap between the two shafts is changed.

5.1 Adjusting the Paper Handling

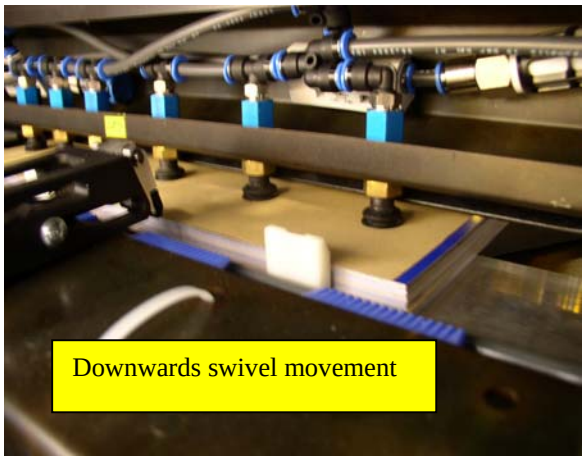




The reference sensor 38S3.5 shows the initial position of the horizontal shaft of the paper gripper. This position is approx. 2mm before the paper removal assembly. The paper gripper must not sit on the paper removal. If the reference sensor is moved, the “start of swivel movement” and the release to the paper removal are changed at the same time. Reference sensor 39S4.5 shows the initial position of the vertical swivel shaft.

Both shafts have to be adjusted in such a way that when the suction position is reached, the paper does not move. If the paper is moved the parameters must be changed.

5.2 How to control and adjust the parameters

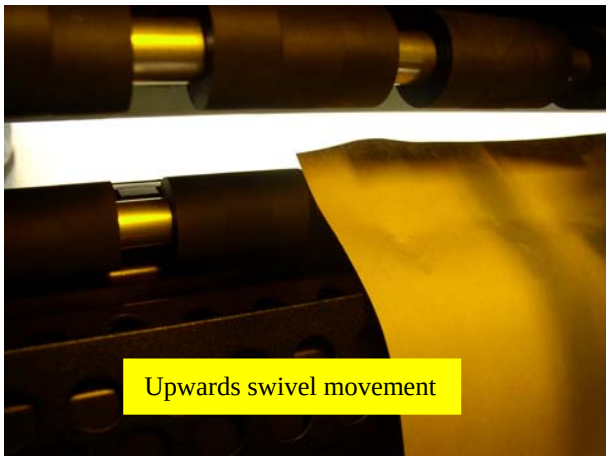


1. Downwards swivel movement (approx. 213 rad)

The angle has to be adjusted so that the suction cups of the gripper do not fully touch down on the paper. This prevents that the printing plates are sucked on as well.

2. Start of swivel movement (ca. 445, depends on plates)
This parameter is to be adjusted such that the paper is not moved when the suction cups touch down.

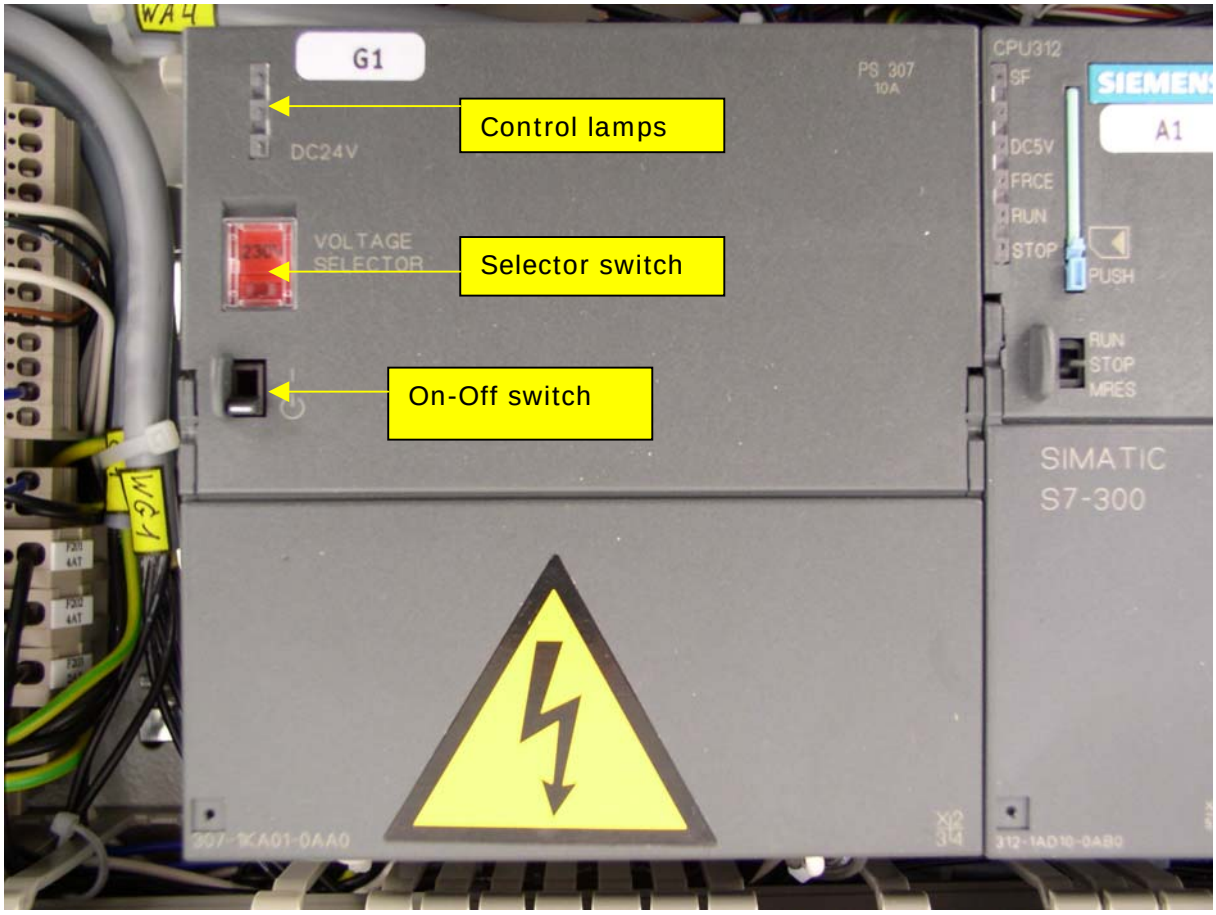
3. Linear gripping position (14)
This parameter must be set so that the excess length of the paper from the end of the suction cup to the end of the paper is 32 to 35 mm. If the value increases, the excess length becomes shorter. If the value decreases, the excess length becomes longer.



4. Upwards swivel movement (9 rad)
This parameter must be set so that the removed paper is placed between the open rollers of the paper removal unit.

Parameters that are set upon start-up of the loader can be changed via the operator panel.

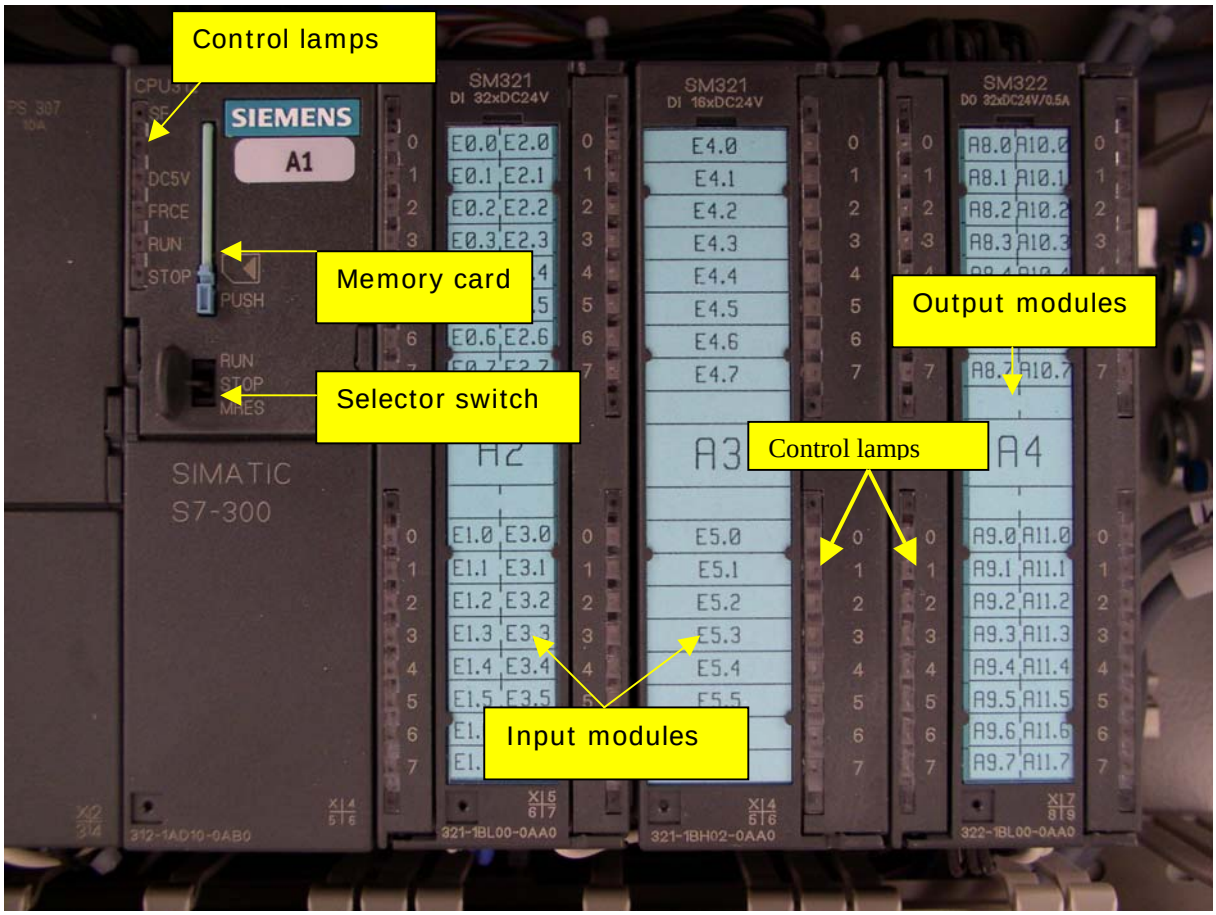
Power Supply Unit



The power supply unit supplies the PL-T with 24V.
Exchanging the power supply unit:

- Cut PL-T from electrical power
- Mark all electric wires
- Detach wires
- Remove power supply unit
- Mount new unit
- Attach electrical wires to the corresponding terminal
- Set correct voltage
- Switch On-Off switch to „On“
- Switch Main switch to „On“

CPU

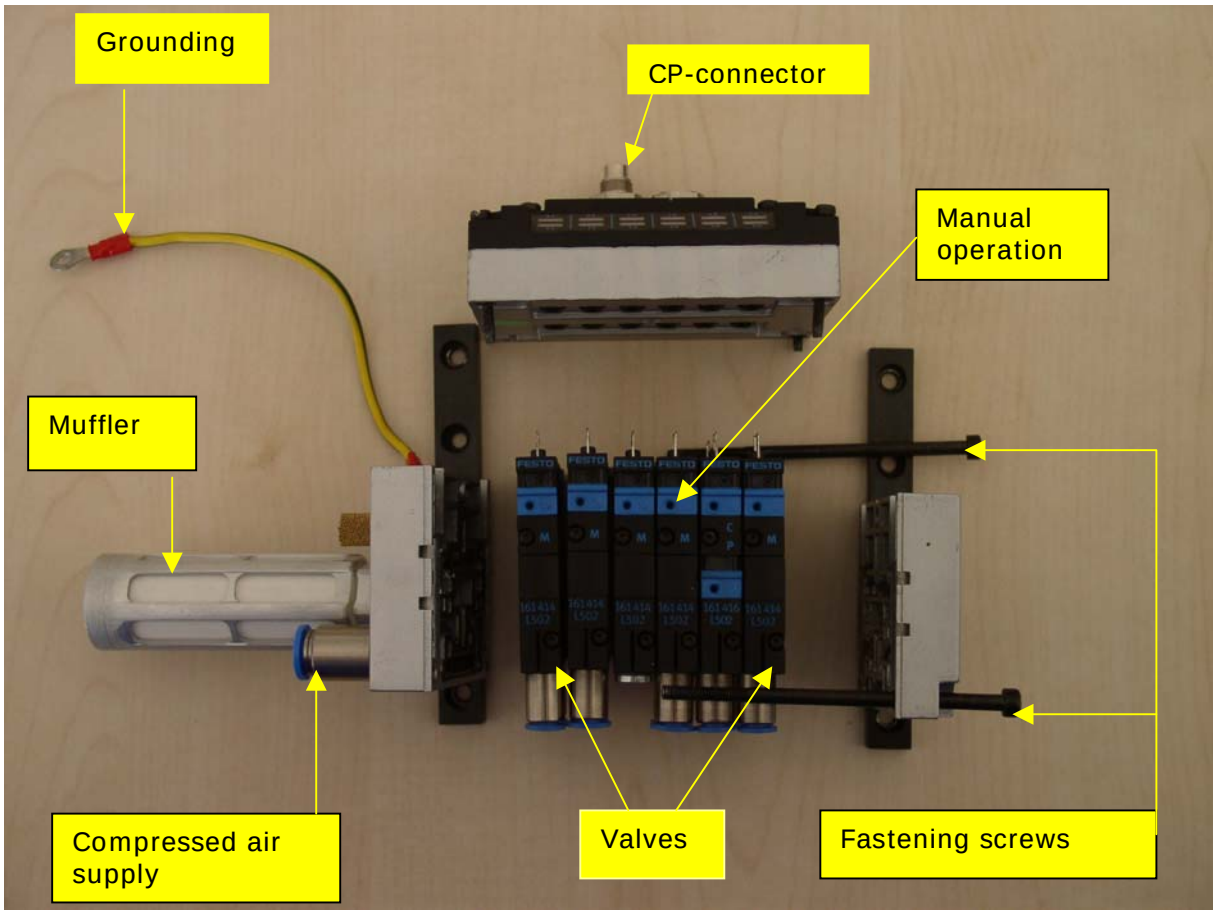


The memory card, which carries the program of the loader, is inserted into the CPU. The loader cannot function without the memory card.
Control lamps show the status of the unit. The CPU can be switched on and off with a selector switch. The input and output modules are mounted to the right of the CPU. The wires of these modules are mounted to a bar and connected with the terminal block.

Exchanging the CPU:

- Cut PL-T from electrical power
- Mark electrical wires
- Remove memory card
- Remove wires
- Remove CPU
- Mount new CPU
- Wire cables
- Insert memory card
- Set selector switch to „run“
- Switch loader to „on“

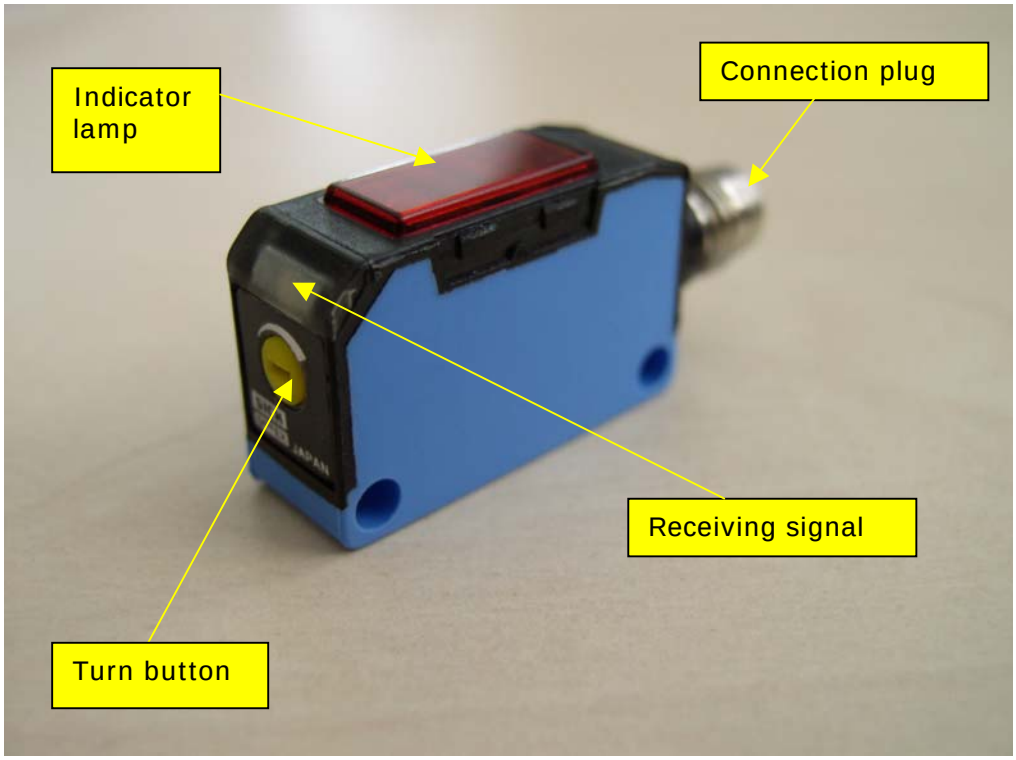
Valves



The valve bank controls the movements of the cylinders. Via the CP-cable, the valve bank is connected with the CPU. Each valve can be manually operated with the manual operation button. The muffler reduces the noise emission and must be cleaned biannually. The valve bank consists of: CP connector, side parts, valves (B,C,J,M).
Exchanging a valve:

- Switch loader to „off“
- Detach compressed air
- Detach CP-connector (unscrew 4 screws)
- Unlock fastening screws of the side parts
- Exchange defective valve

Sensor WT 150

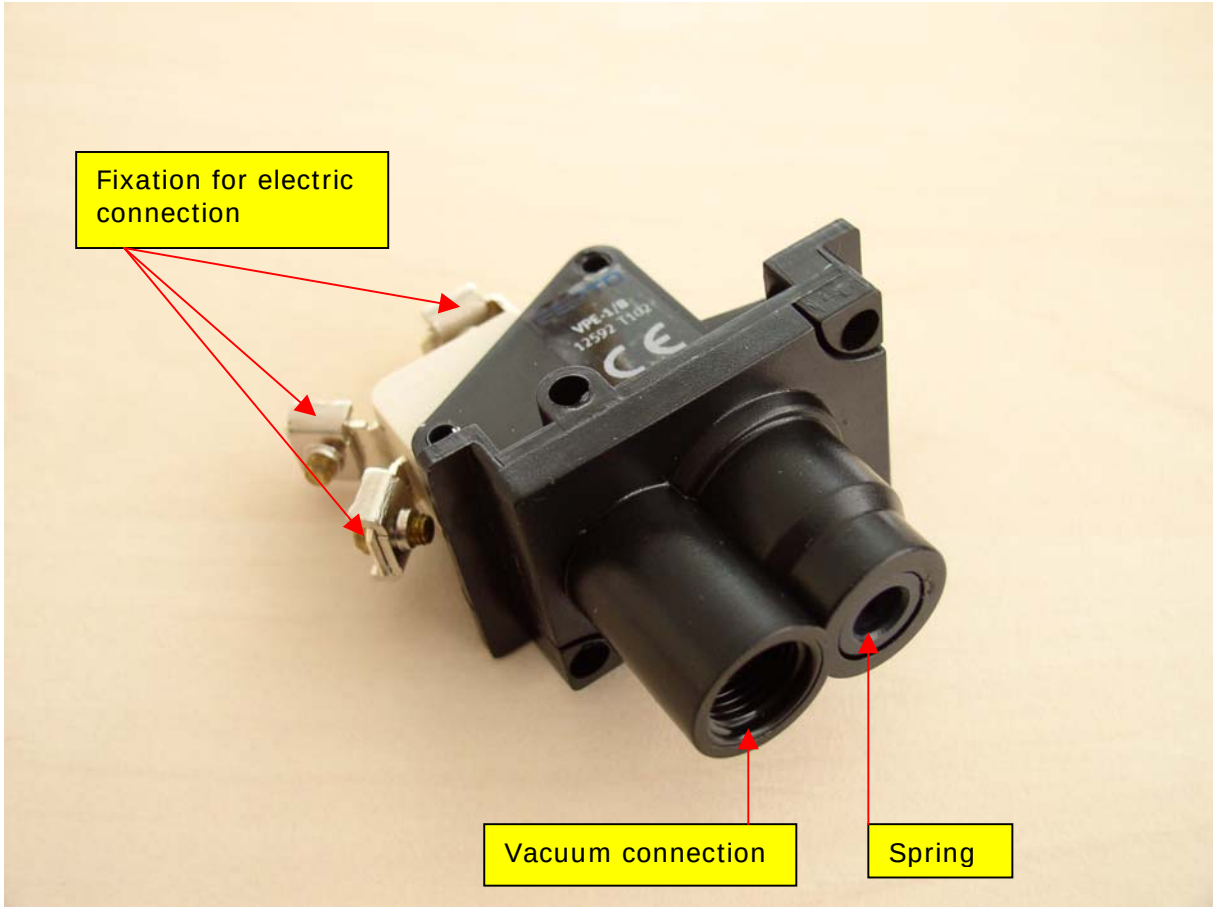


The sensor type Sick WT 150 is used at several locations in the loader, for example: Disposal unit AS (37S2.3) or paper removal (39S4.6/39S4.7).

Disposal unit:
The sensor controls the position between the disposal unit and the plate stack guides. A distance of 1 – 2 mm should be sufficient.

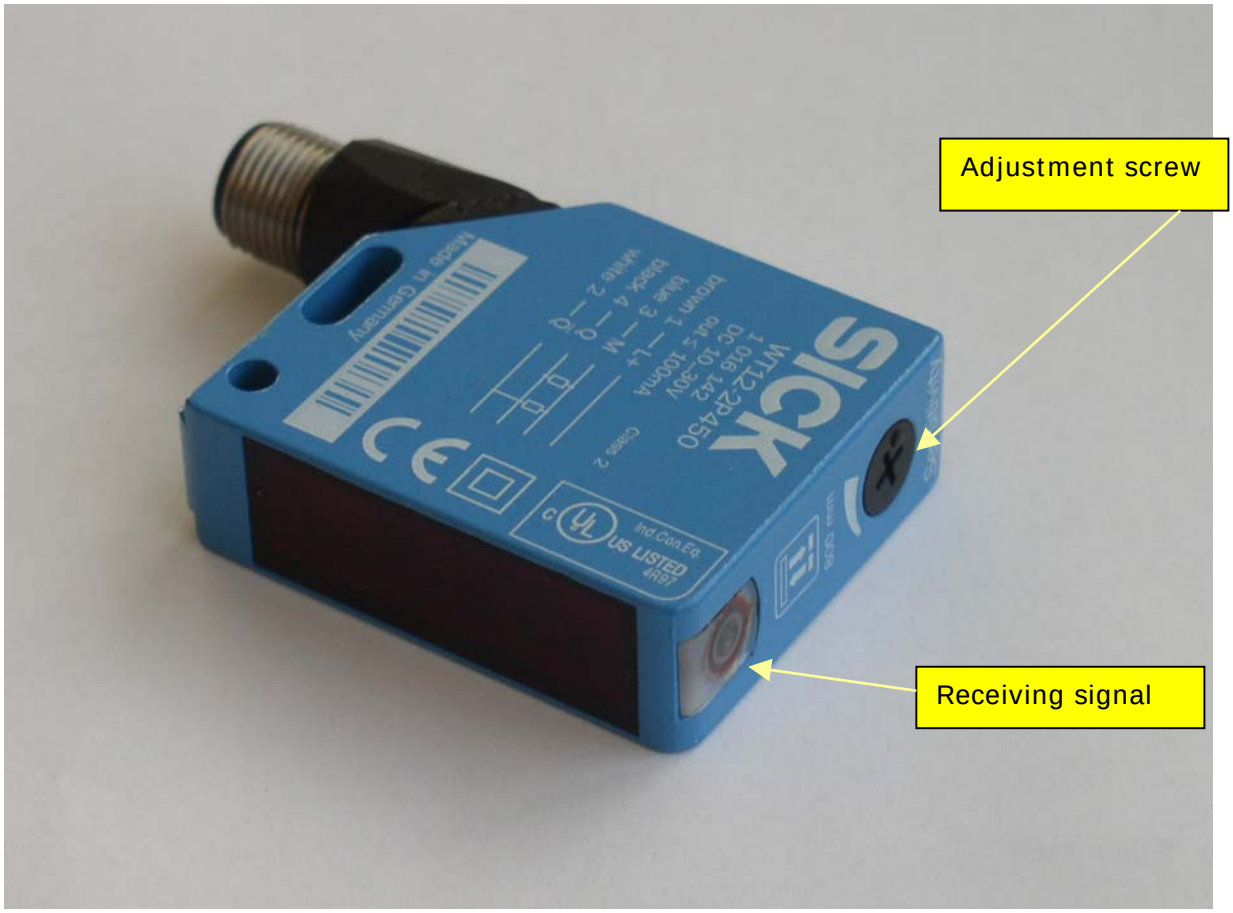
Paper removal:
The sensor must be adjusted in such a way that it does not recognize the back side, but recognizes each paper sheet that is moved past it.
The turn button can be used to adjust the length of the light beam: when it is turned to the right the beam becomes longer, when it is turned to the left it becomes shorter.

Vacuum Control VPE 1 / 8



The vacuum switch VPE 1/8 controls the vacuum of the paper and plate gripper. The VPE features a chamber with a membrane. Traction forces work on one side of this membrane, and on the other side the tension force of the spring takes effect. If the vacuum power increases via the tension force of the spring, an electric switch is activated.

Paper Recognition



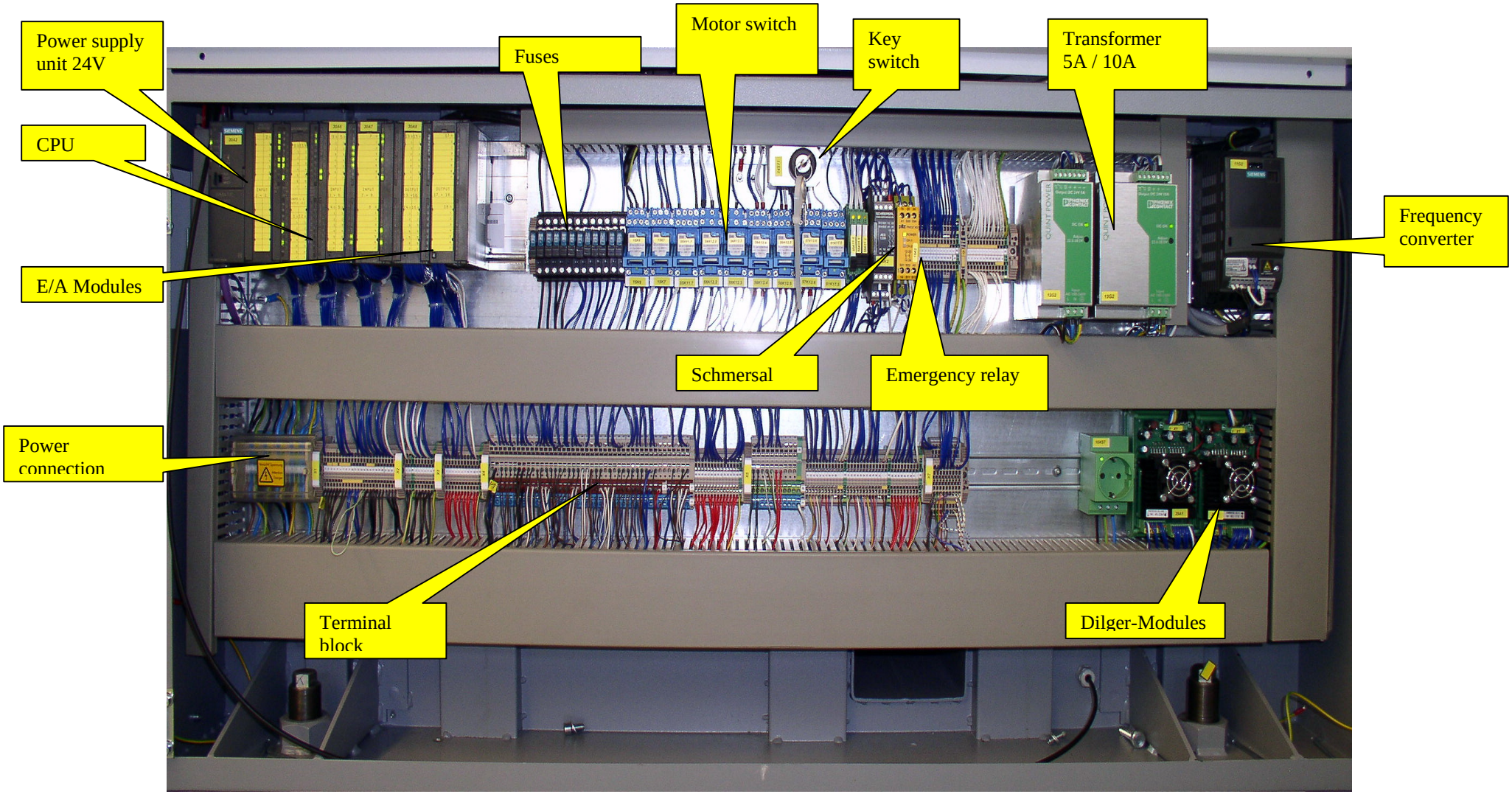
Front side
The sensor „front side“ (37S2.4/37S2.5) checks if a paper is on top of the stack and must be removed. The signal is processed and the paper gripper removes the paper.

Back side
The sensor „back side“ (37S2.6/37S2.7) controls the back side of the plate as it is transported to the roller conveyor. If a paper is detected, the loader will immediately stop.

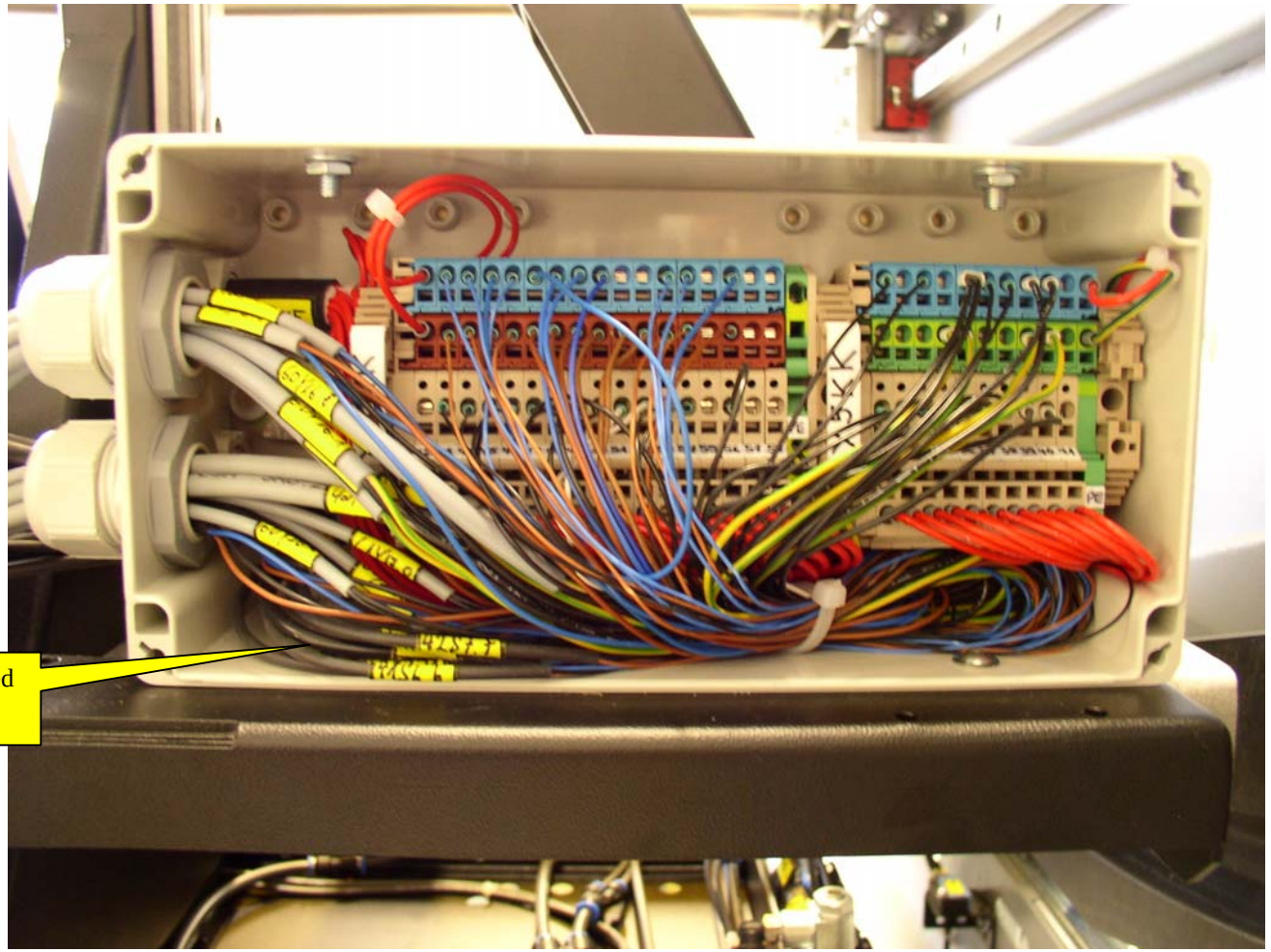
Adjusting the sensor:

- Place paper on top of the stack
- Turn adjustment screw to the left, receiving signal dies
- Turn adjustment screw to right, receiving signal goes on
- Turn adjustment screw one more revolution

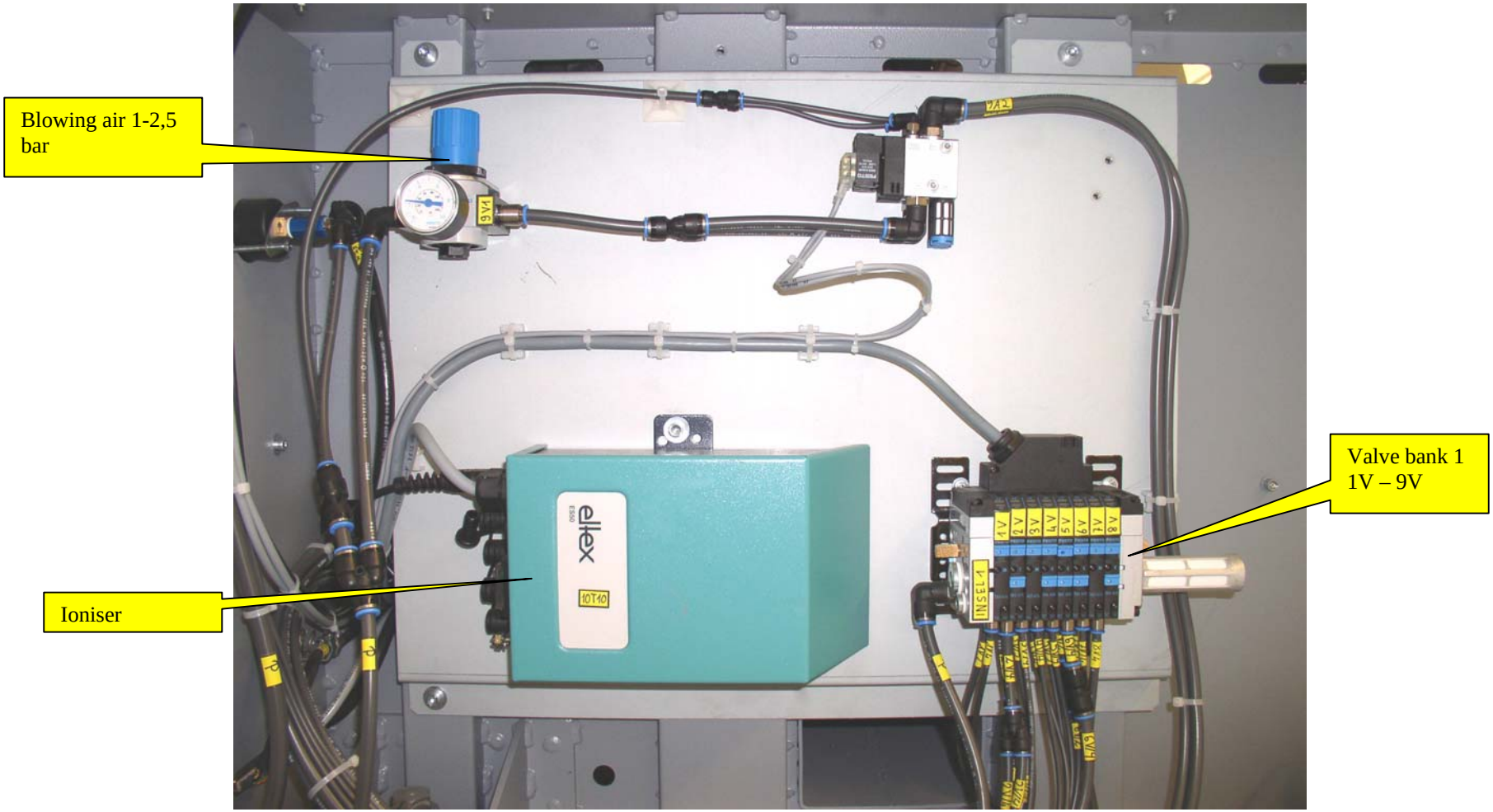
Control Cabinet



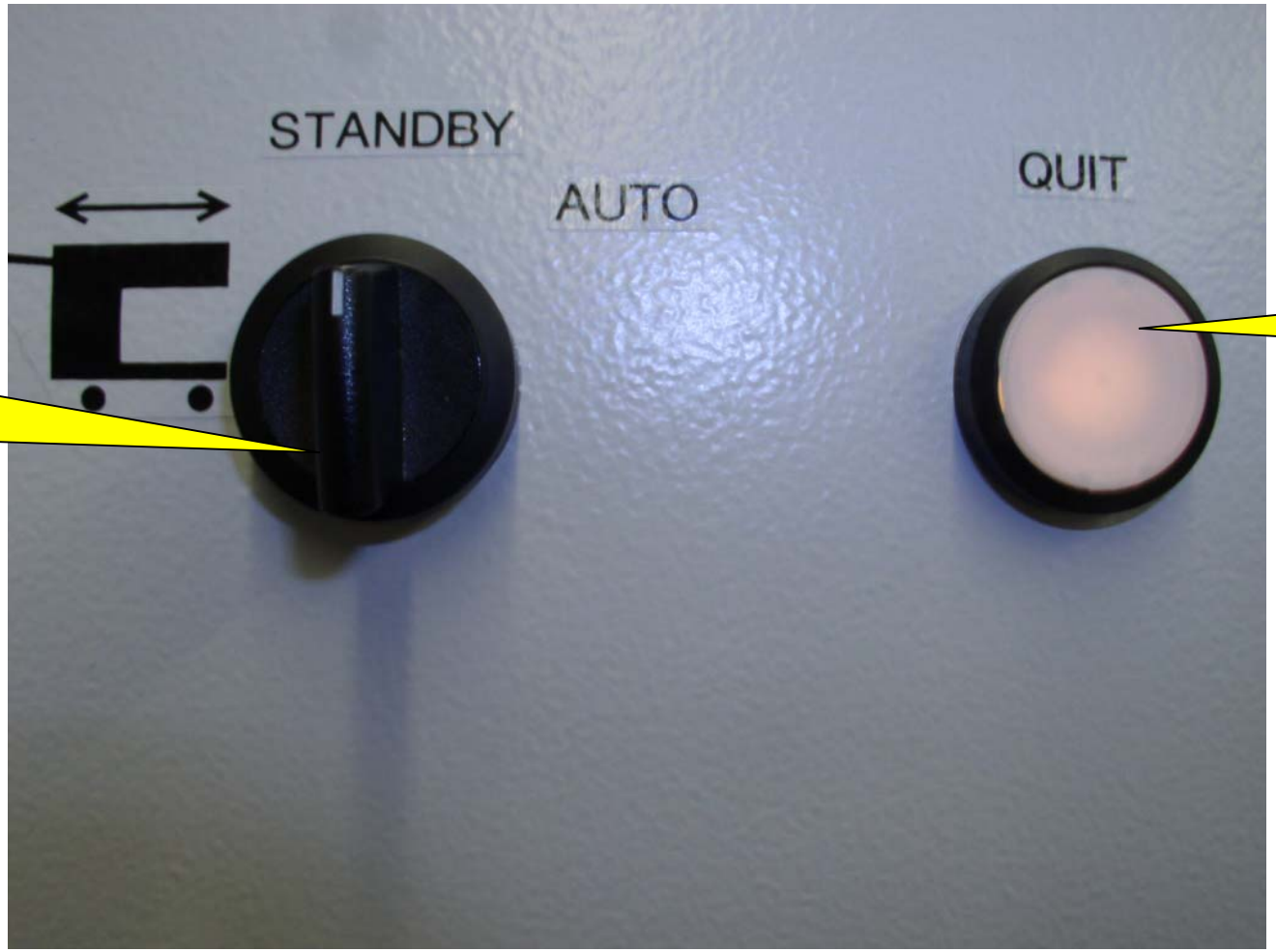
Terminal Block



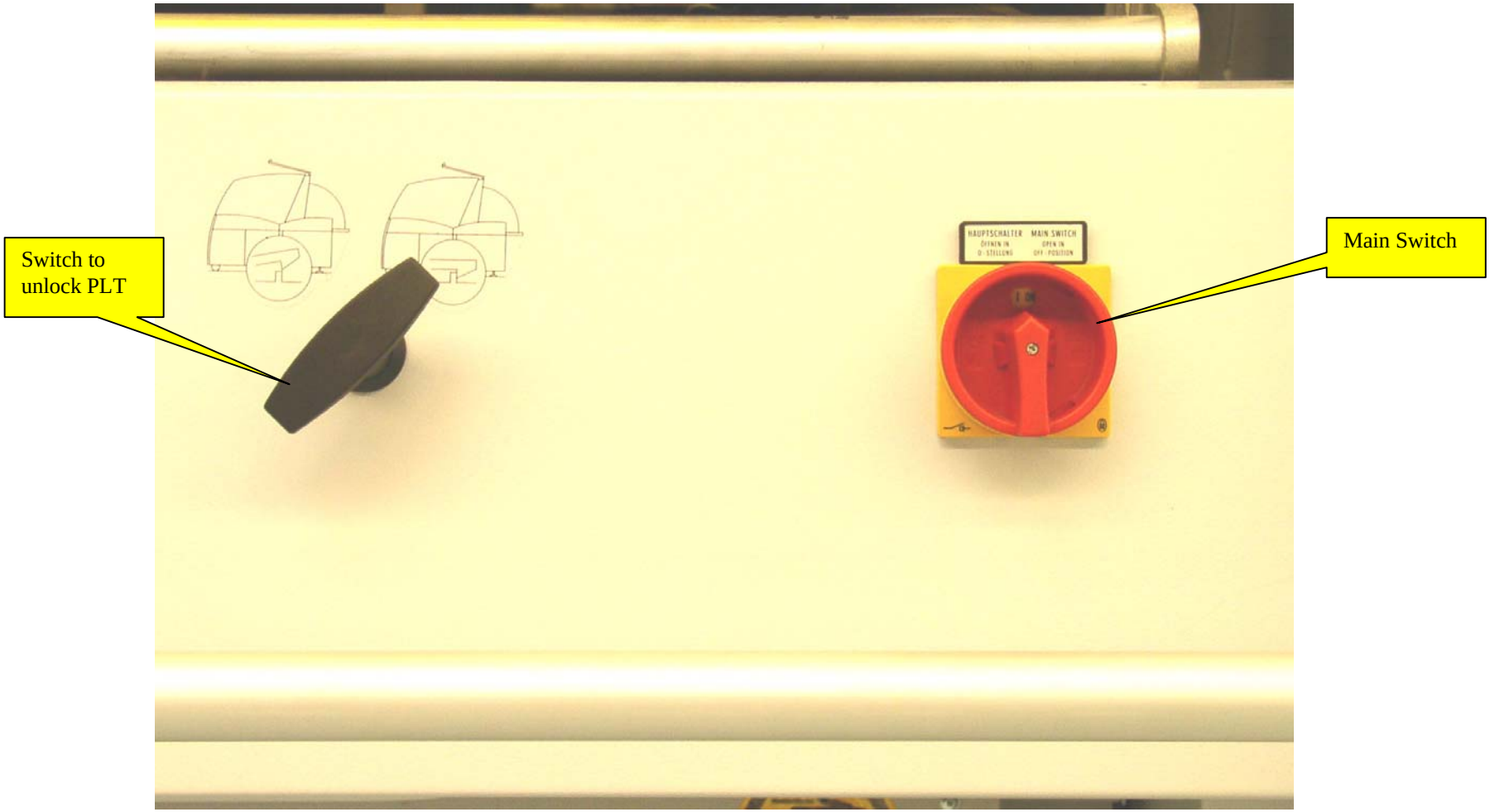
Pneumatics



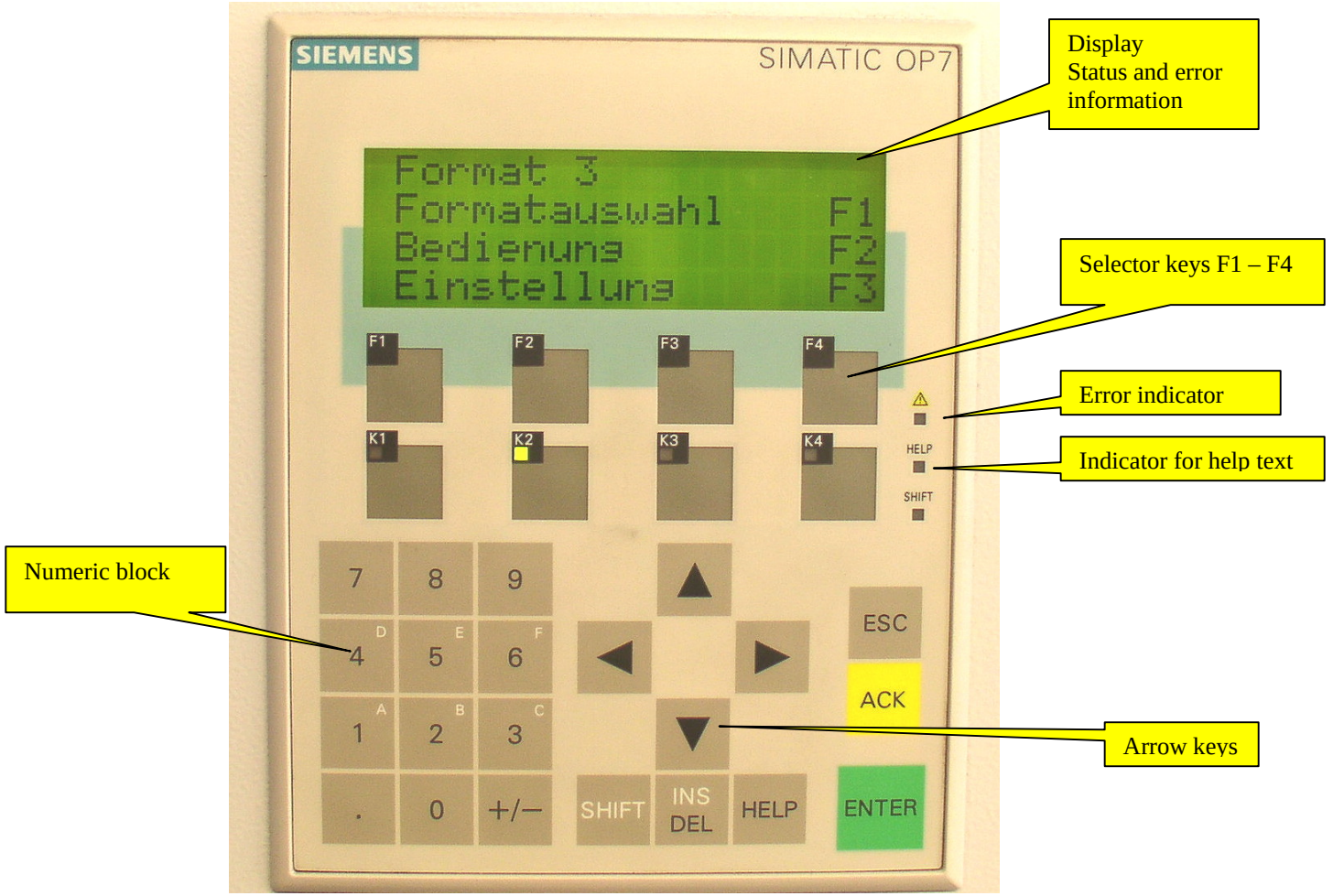
Operator Switches I



Operator Switches II



OP 7 Display


SIEMENS
SIMATIC OP7
Format 3
Formatauswahl F1
Bedienung F2
Einstellung F3
F1
F2
F3
F4
K1
K2
K3
K4
HELP
SHIFT
7
8
9
4
5
6
1
2
3
.
0
+/−
SHIFT
INS
DEL
HELP
ESC
ACK
ENTER
Display
Status and error information
Selector keys F1 – F4
Error indicator
Indicator for help text
Numeric block
Arrow keys