

FORMAX[®]

Cut-True 31H
Guillotine Cutter

OPERATOR MANUAL
Second Edition

Delivery status

The cutter is supplied by the manufacturer with the disassembled side tables (assembly of the tables according to Figure below)

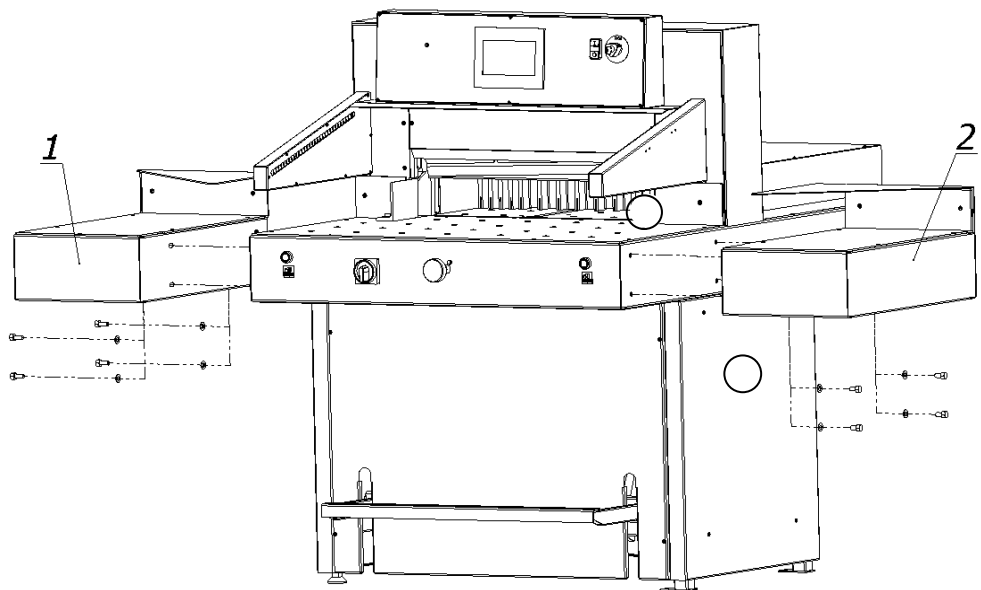


Fig 6. Tightening of side tables

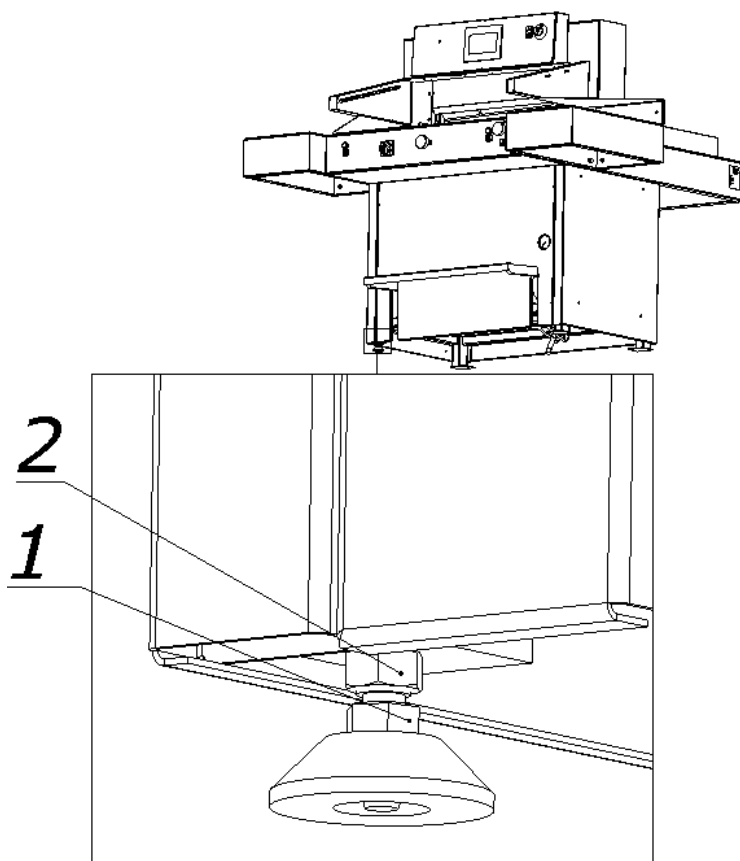
1. Left side table + screw M10x20 (4 pcs) + washer 8 (4 pcs.)
2. Right side table + screw M10x20 (4 pcs) + washer 8 (4 pcs)



Danger!

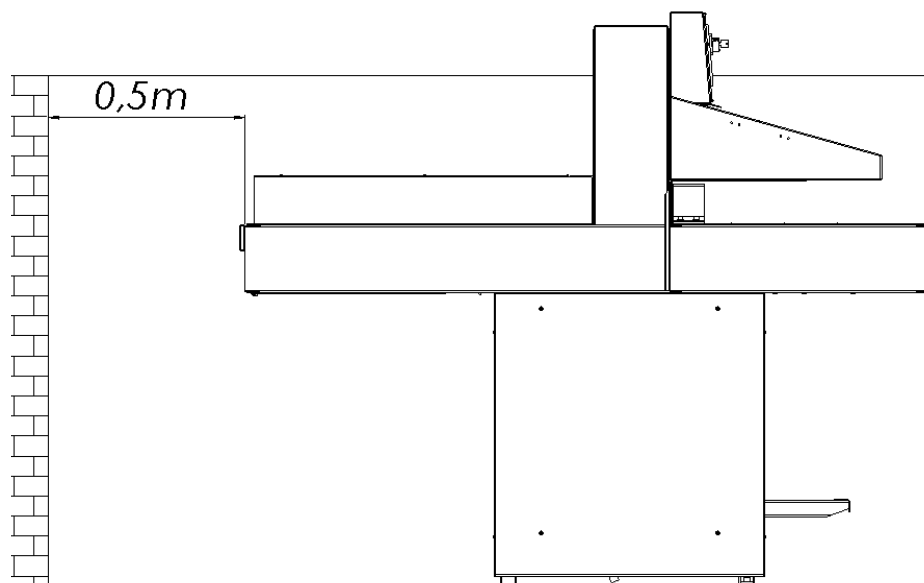
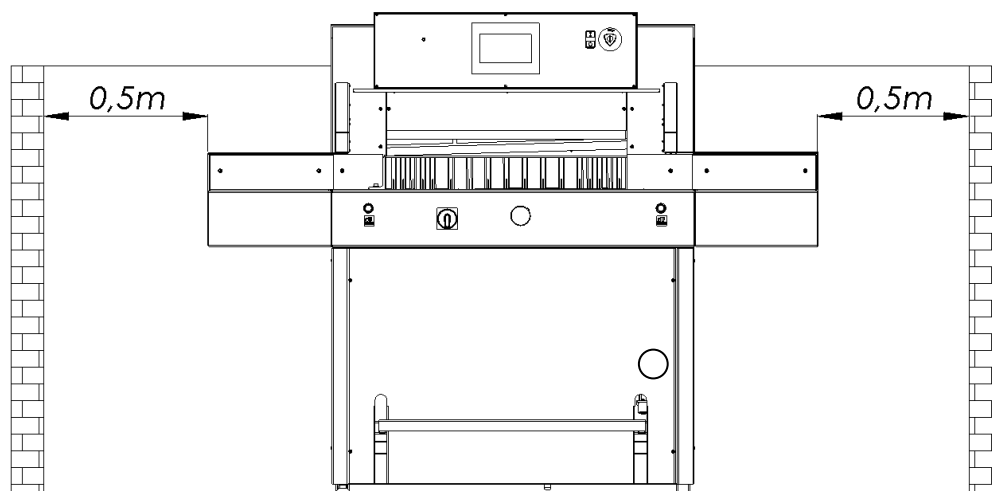
Protect the power cable from sharp tools, high temperature and oil.

Setting the cutter



The cutter does not need to be attached to the ground. The correct and safe setting of the machine is achieved by turning the adjusting foot 1, and locking its position with the nut 2, as shown on the previous page.

3.5 Work area



4. TECHNICAL CHARACTERISTICS OF THE CUTTER

The cutter is intended for trimming paper, and is primarily used in printing houses, bookbinding shops, and offices.

Main parameters

Technical data

Maximum stack width	730mm	28.7"
Maximum stack height	100mm	3.9"
Cutting depth	730mm	28.7"
Front table length	640mm	25"
Narrow cut	30mm	1.18"
	60mm	2.36"
Noise level	74.6 dB	
Backgauge speed	58mm/s	1.9 fps
Side table load	20kg	44 lbs
Machine weight	610kg	1,345 lbs

Technical data – electronics (see following page)

Table 5.

Parameter	
Maximum power (kW)	3
Voltage / frequency (V/Hz)	400/50 - 60
Fuse (A)	3x20
	3x30

4.2.3 Technical data- hydraulic system

4.2.3.1 Technical data- hydraulic apparatus

Table 6.

Parameter	
Motor power (kW)	2.2
Voltage / frequency (V/Hz)	3x400/50
	2x220/60
Control of executive elements (VDC)	24
Tank capacity (l)	12

4.2.3.2 Technical data- oil for hydraulics

Table 7.

Parameter	
Oil type	HV 46
Quality	ISO 11158 - HV
Viscosity	ISO VG 46
Norm DIN	51524, 46 mm² (cST).
Kinematic viscosity in temperature (40°C)	47.2 mm²

The hydraulic system does not require de-aeration, it takes place automatically after several cuts.

4.2.4 External dimensions

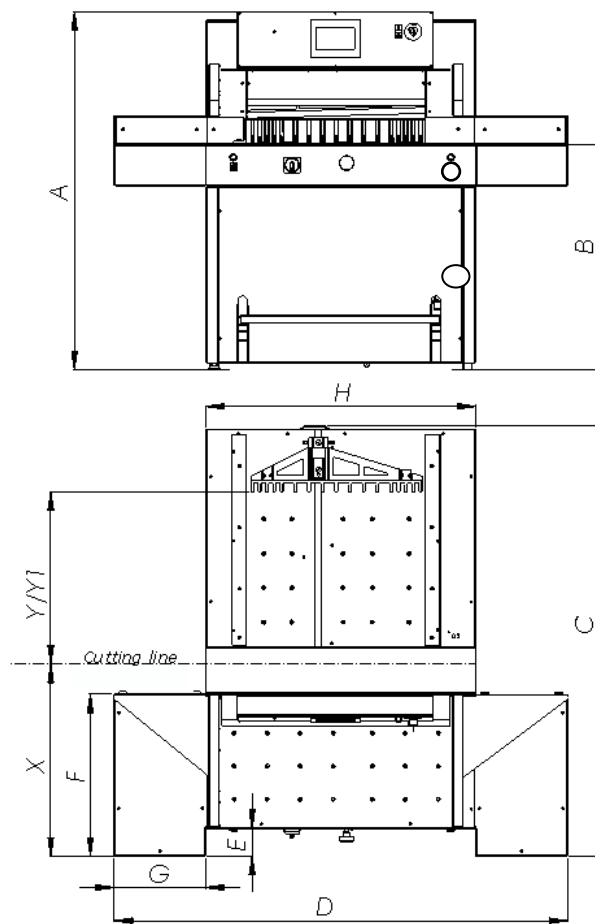


Figure 9. Dimensions of the cutter

Table 6.

DIMENSION	VALUE (mm/inch)
A	1445 / 57"
B	924 / 36"
C	1754 / 69"
D	1857 / 73"
E	114 / 4.48"
F	658 / 26"
G	376 / 14.8"
H	1,105 / 43.5"
X	640 / 25"
Y program	710 / 27.9"
Y1 manual	730 / 28.7"

5. OPERATION

5.1 Operating safety

5.1.1 Safety instructions

- Before each start-up or start-up on the cutter, the next change should be made to ensure that the safety components are complete and work properly.
- The cutter can only be operated if all safety components and safeguards such as detachable covers, emergency stop switches are installed and fully functional.
- In case of a malfunction, stop the cutter immediately and block it.
- All defects must be eliminated immediately.

5.1.2 Warning about special hazards

You should refrain from performing any actions that violate safety in the machine.

In particular, it is prohibited to:

- Putting your hands into the field of knife and clamp.
- Put your hands into the field between the clamping and infeed bars.
- Exercise extreme caution when handling the knife! Use the transport brackets when installing / removing / carrying the knife.
- Use only undamaged and sharp knives!
- The knife can only be changed by trained personnel.
- When cutting on the work table, there must be no objects (such as keys, screwdrivers)

5.2 Control system



Danger!

The cutter cannot be operated with defective photocells forming the safety curtain!

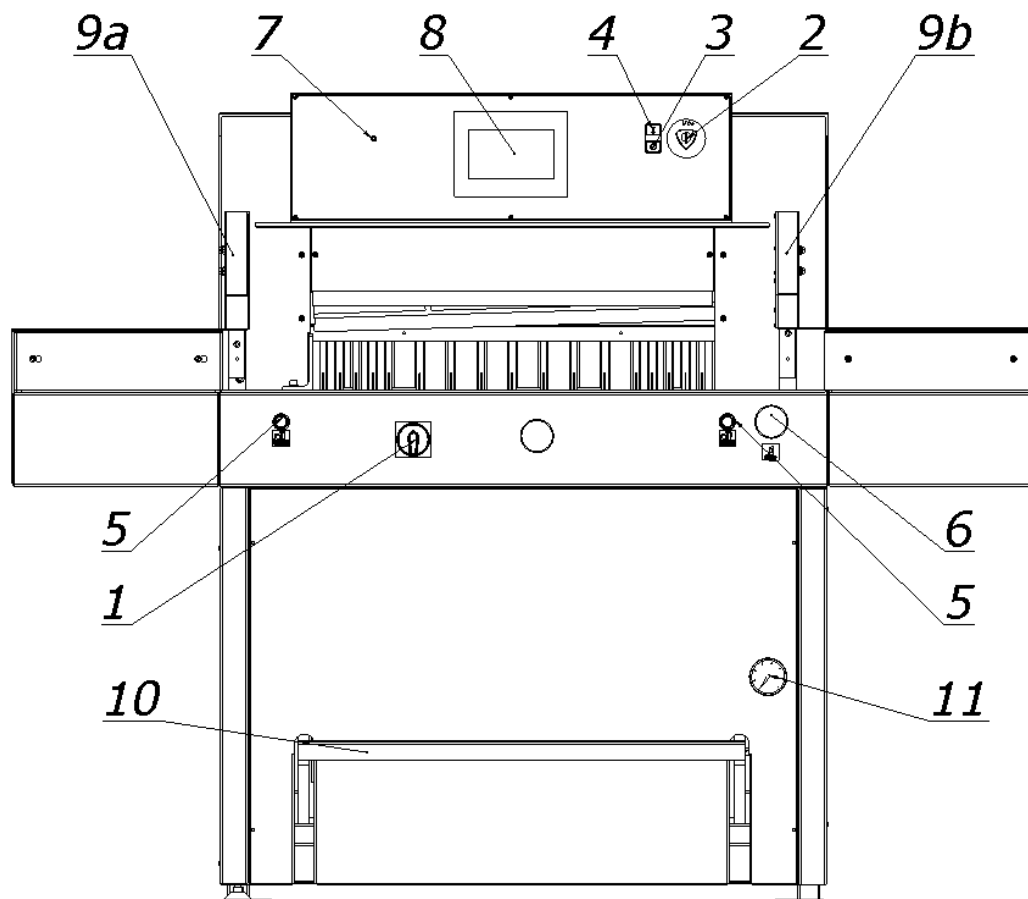


Figure 10. Control and signaling elements of the Cut-True 31H

1. Main switch
2. Palm button, (emergency stop)
3. Locking button of the control system
4. Button that activates the control system.
5. Buttons enabling the cutting cycle (two-handed cutting start-up system)
6. Hydraulic pressure adjustment crank
 - turn right - pressure increase
 - turn left - pressure decrease
7. Two-color signal lamp.
 - red, signals the power supply to the control system
 - green, signals the activation of the control system
8. program unit
9. Light curtain (non-contact protection device)
 - 9a. Transmitter
 - 9b. Receiver
10. Foot pedal (mechanical determination of the cutting line)

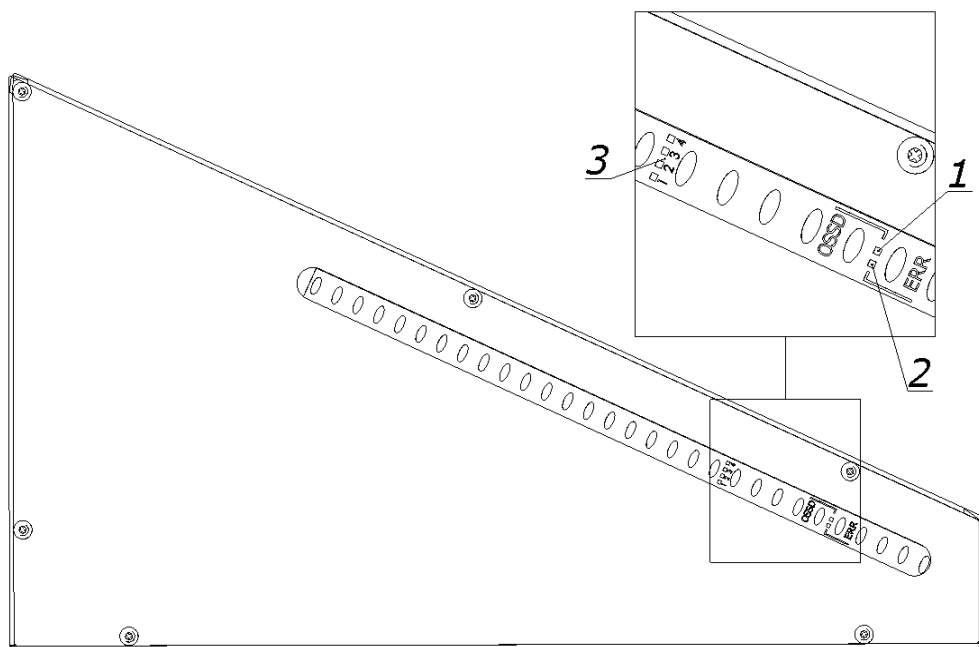


Figure 11. Receiver indicators

The receiver is equipped with six LEDs informing about the operating status:

Table 7.

Position	LED colour	Indication	Text
1	Red/green	Status OSSD	OSSD
2	Red	Error indication	ERR
3	Blue	Quality of signal	1 2 3 4

Blue LEDs informing about the quality of the settings, in conjunction with a flashing red color LED ERR, also indicate errors.

Table 8. Blue LEDs informing about the quality of the settings

LEDs informing about quality settings	Diode LED OSSD	Meaning
It does not light up no LED	red	The setting is insufficient or the protective field is interrupted at least

		partially. The receiver can not synchronize with the transmitter.
It lights up 1 led	red	The setting is insufficient or the protective field is interrupted at least partially.
It lights up 2 led	red	The setting is insufficient or the protective field is interrupted at least partially.
It lights up 2 led	green	The setting is not yet sufficient to ensure stable availability.
It lights up 3 Led	green	The setting is good, stable availability.
It lights up 4 led	green	The setting is very good.

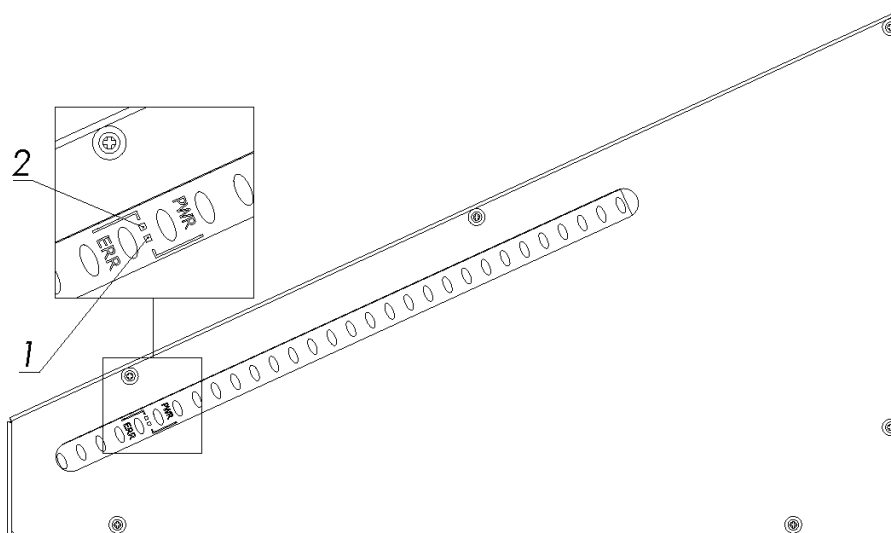


Figure 12. Transmitter indicators

The transmitter is equipped with two LEDs informing about the operating status:

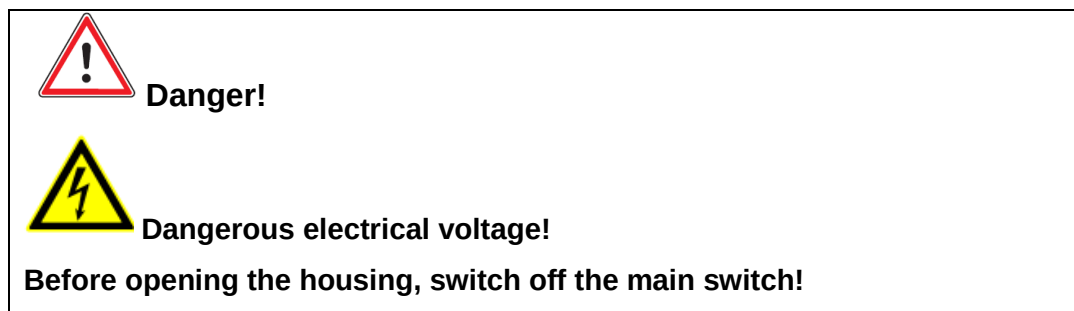
Table 9.

Position	LED diode color	Indication	Text
1	yellow	Work status indicator	PWR
2	red	Error indication	ERR

5.3 Electrical apparatus

The cutter is supplied with a five-core copper wire with 2.5 mm² wire cross-section. The user's duty is to install the cutter to the electrical network with 20 A safeguards. For connecting, use a copper wire with a cross-sectional area of 2.5 mm² or more. Voltage fluctuations should be in the range of 90-110% of the rated voltage, and frequency fluctuations in the range of 50 Hz $\pm$ 2%.

The cutter can be connected to a five-core, L1, L2, L3, N, PE electric network.



1. Hinged housing of electrical apparatus (Fig. 13)
2. Nuts fixing the housing (Fig. 13)

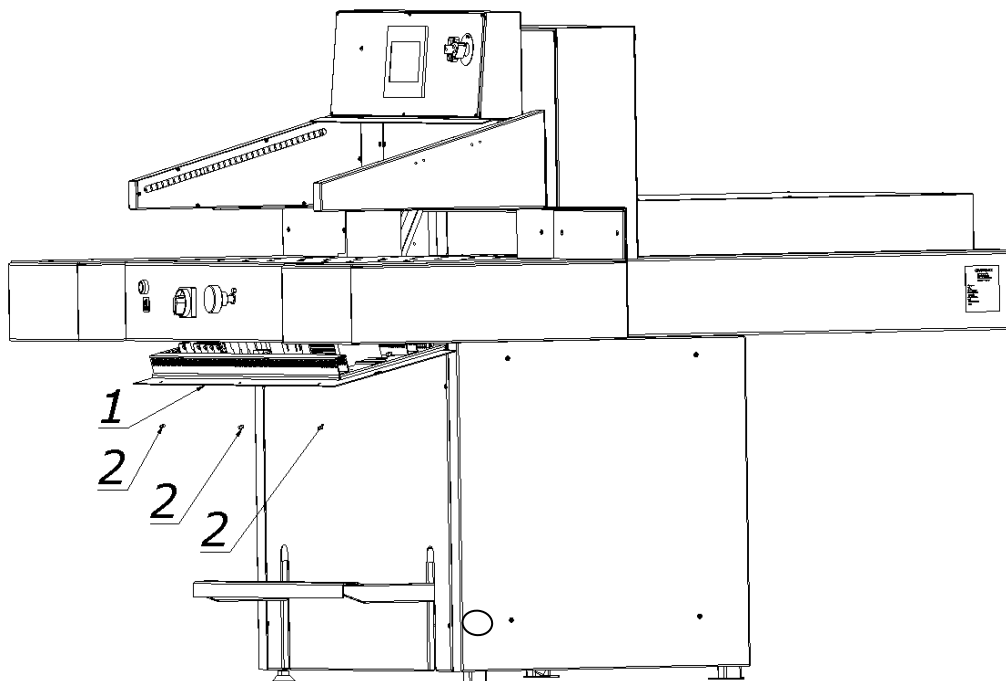


Figure 13. Location of electrical apparatus

6. POWER SUPPLY

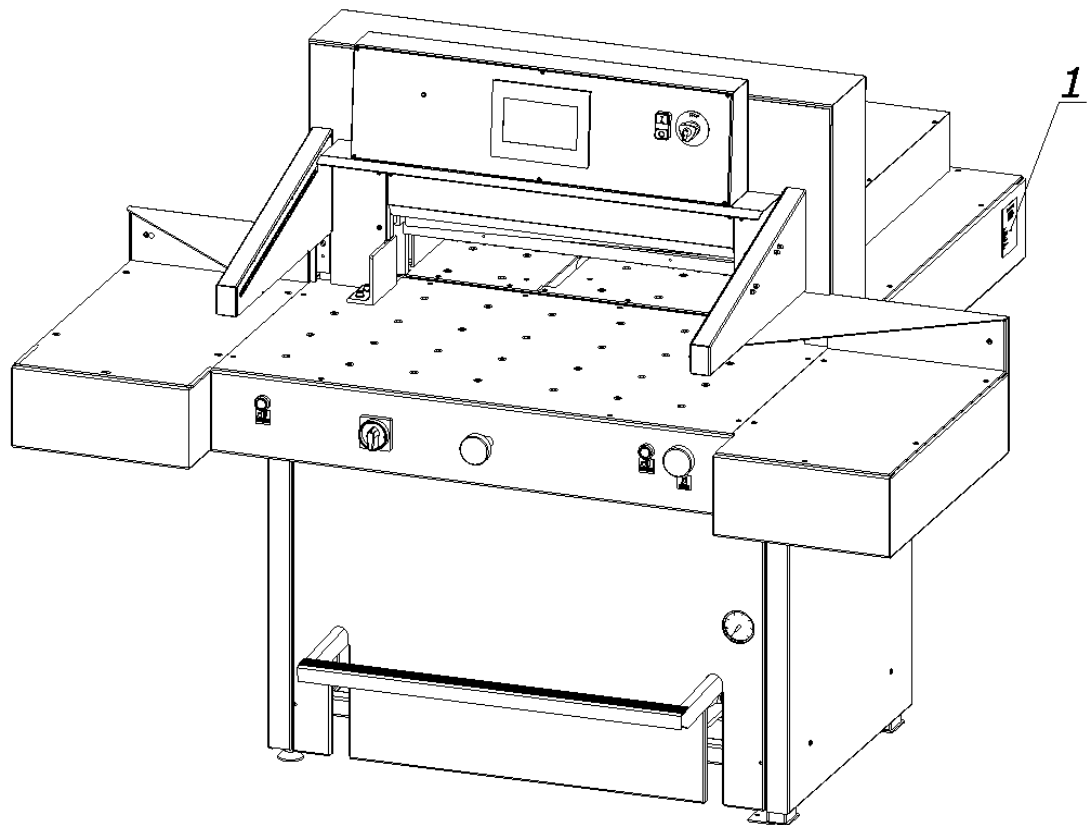


Figure 14. Location of the nameplate

Data on the plate:

- 400V power supply
- 50-60 Hz frequency
- 3 kW power
- 20 A protection



WARNING

The data on the plate must correspond to the current parameters in the mains!
Parameters of frequency converters (inverters) are set by the cutter manufacturer and can not be changed!

Cutter should be grounded!

7. USING OF THE CUTTER

The user is obliged to create working conditions at the machine workplace that preclude the operator from slipping, slipping or falling due to poor ground conditions, cable routing or lack of convenient access!

7.1 Work area for operational staff

The working area is the front side of the (operational) cutter!

7.2 Danger zones in the cutter

- knife and clamp zone
- back side of the cutter frame (access to clamp zone and knife)
- back side of the cutter (access to the backgauge)
- bottom side of the rear table access to the backgauge zone (spindle and slider)

7.3 Starting up the cutter

7.3.1 Starting the cutter

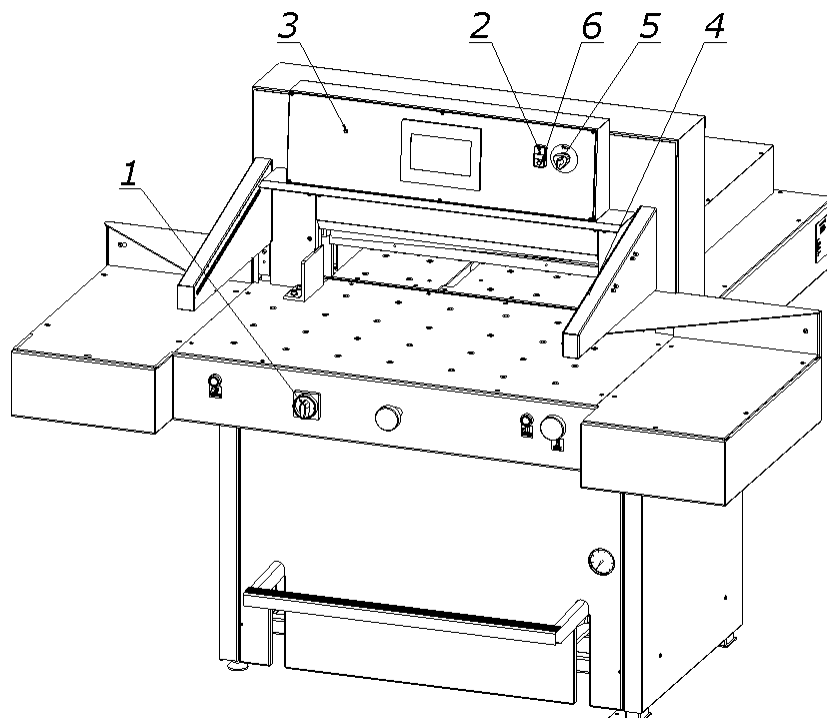


Figure 15. Arrangement of the elements used when starting the cutter.

1. Set the main switch 1 to "ON" 1
2. Press the green 2 "I" button
 - LED 3 lights up green
 - the green OSSD 1 LED lights up (Fig.11) in the receiver 4 (Fig.15)

If after turning on the power supply with the main switch 1 (Fig. 15) and pressing the green button 2, the LED 3 is green, the connection is correct (correct direction of rotation), if the LED is red, the connection is not correct and should be replaced in the plug two of three phase conductors.

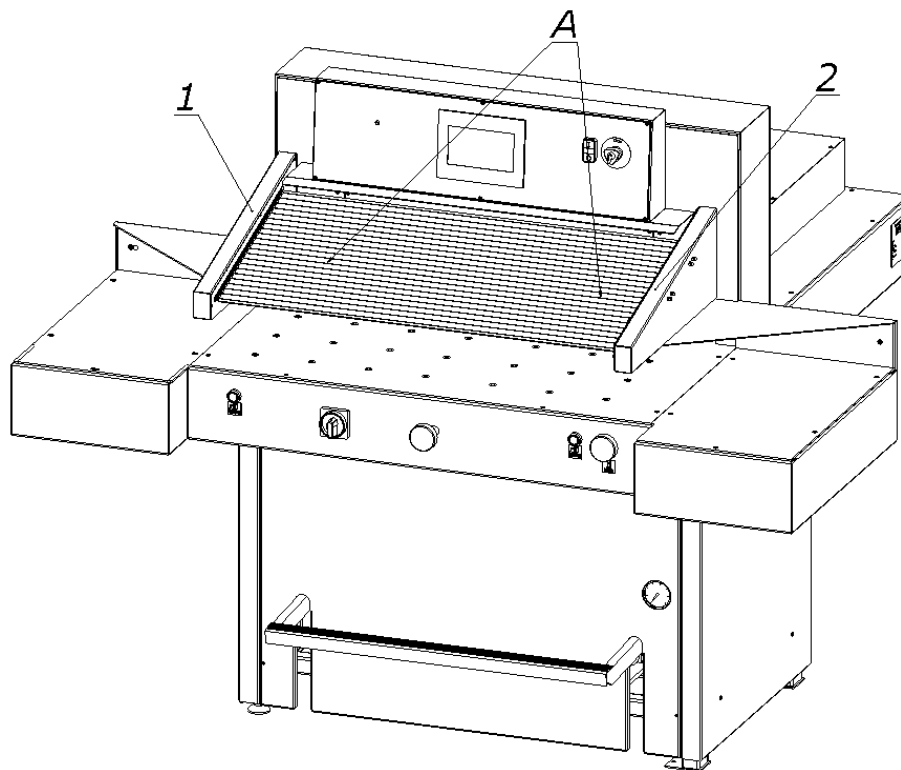


Figure 16. Light curtain

1. Transmitter
 2. Receiver
- A - field of the light curtain

7.3.2 Indications (diagnostics) of the safety curtain after switching on the power supply.

When the cutter is switched on, the transmitter 1 and receiver 2 are initialized (fig. 16). All transmitter and receiver LEDs will light for a moment. After initialization the receiver indicates the quality of the setting using four blue LEDs 3 (Fig.11). Table 8. The setting indicator extinguishes after a suitable time when the safety light curtain is set (the LED of the device switching the output signal: green item 1 figure 11) and only the PWR LED of transmitter 1 (fig.12) and LED 1 (fig. 11) device for switching the receiver's output signal. In the event of an error on the device, the red LED will light. On the side receiver red error LED - in combination with blue LEDs - indicates the cause of the error.



Danger!

In case of malfunction of photocells, immediately contact the service!

7.3.3 Emergency stop of the cutter

1. Press the button 5 (Fig. 15)

The switch is used for emergency stopping of the machine.

After pressing it, the message "Disable safety button" will appear on the programmer.

The pressure bar and knife will stop.

7.3.4 Starting the cutter after emergency stop

1. Unlock button 5 (turn it around) (Fig.15)
2. Press the green 2 "I" button

When the stop has been made during the cutting cycle, pressing the cutting buttons again will result in returning to the upper position of the clamping beam and the knife

7.4 Determining the position of the approaching beam



Danger!



Do not put your hands into the cutting area when backgauge moves!

Determining the position of the approaching beam is carried out using the programmer 1 and the hand wheel 2, figure 17.

The method of determining the position of the beam as well as the operation of the programmer are described in the "Instructions for operating the programmer".

7.4.1 Changing the position of the beam with the hand wheel

1. Press knob 2
2. Turn the knob to bring the beam closer or closer by reading the position value on the programmer screen.

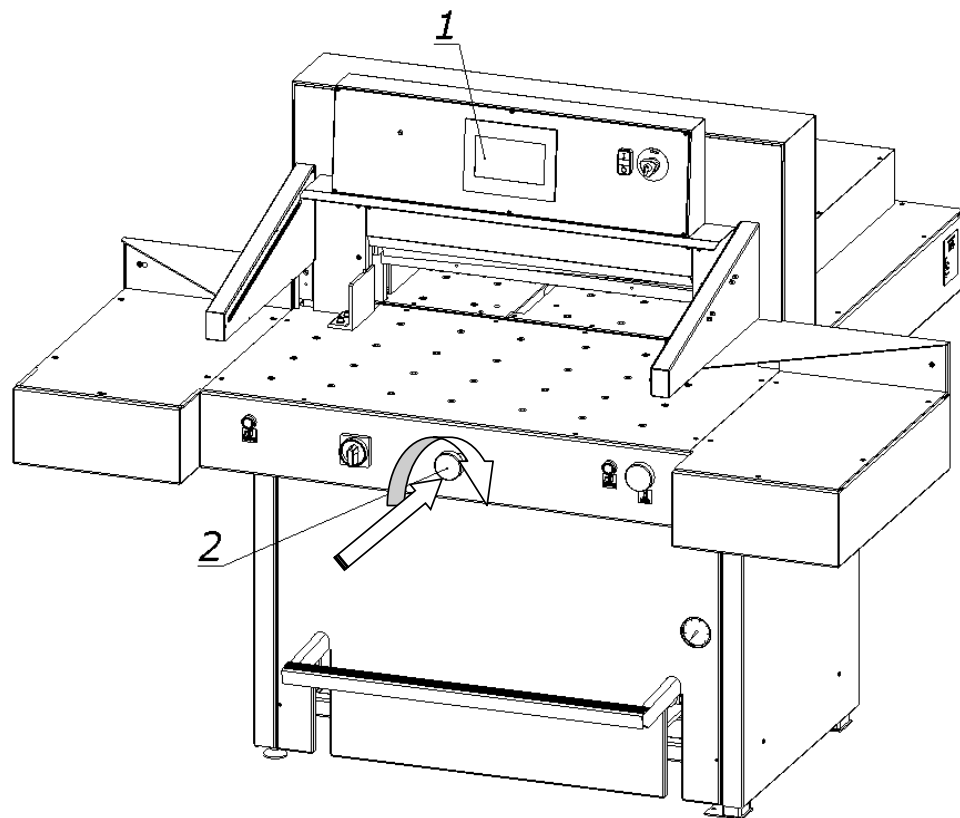
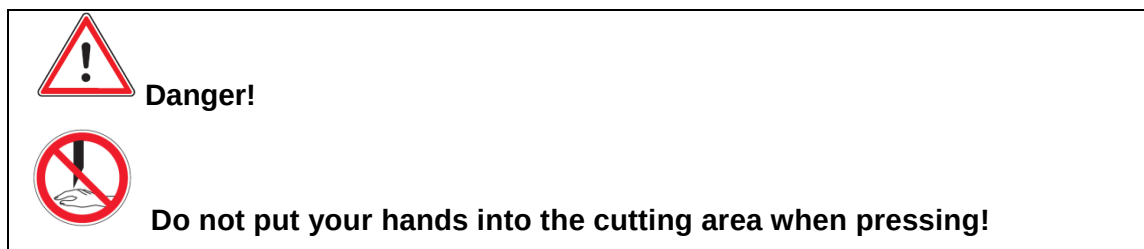


Figure 17. Arrangement of the positioning elements for the position of the backgauge.

7.5 Clamping the paper

The clamping of the paper stack takes place automatically after pressing the buttons that start the cutting cycle 1 (fig. 18).



7.5.1 Manual clamping of cut material (mechanical cutting line determination)

Lower the pressure beam into the stack by pressing the pedal 3 (Fig.18). The front edge of the clamping bar is the same as the cutting line. Therefore, it can be used as an indicator of the cutting line. The clamp can be stopped in any position.

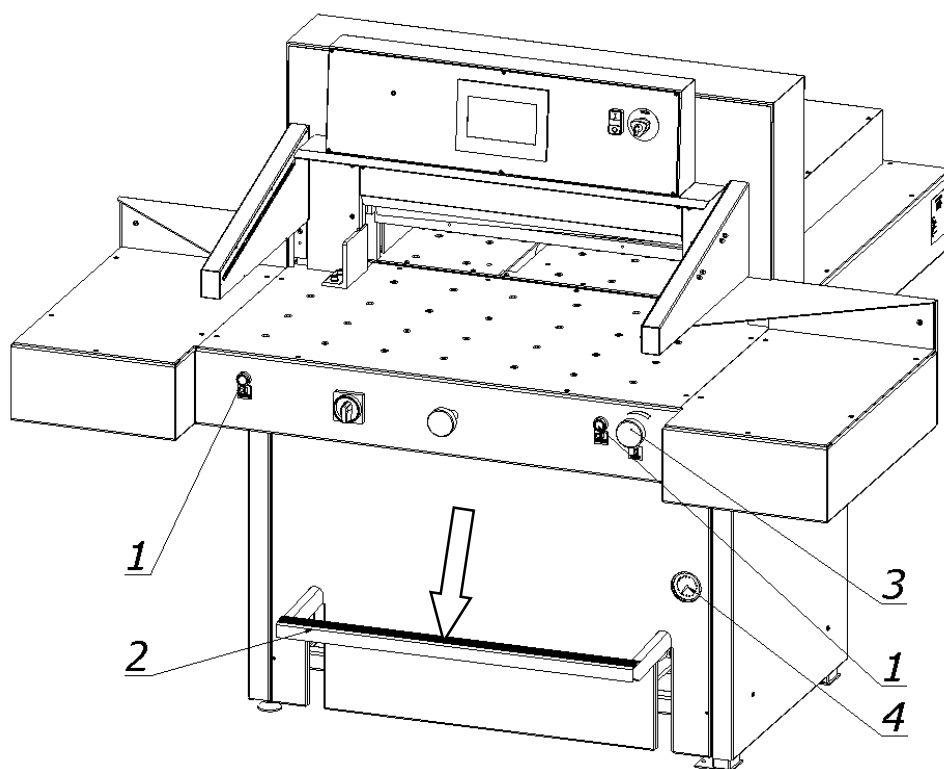


Figure 18. Operating elements when used during clamping.

7.5.2 Changing the clamping force

The change of clamping force can be done by manual crank rotation 3 and reading the value of pressure on manometer 4 (fig. 18)

- turning right - clamp pressure increase
- turning left- clamp pressure decrease

Approximate values of the clamping force depending on the pressure value read on the pressure gauge (manometer) 4

- 25 bar ~ 300 daN
- 40 bar ~ 650 daN
- 55 bar ~ 1000 daN
- 70 bar ~ 1350 daN
- 90 bar ~ 1700 daN
- 110 bar ~ 2000 daN

7.5.3 Rules for selecting the clamping force.

The value of the pressing force is selected experimentally, in relation to the type, width and height of the cut material.

The following rules must be observed:

- the higher the pile, the greater the downforce
- the greater the cutting width, the greater the downforce
- the harder the material, the greater the downforce

7.6 Cutting line indicator (optical)

The cutter is equipped with an optical cutting line indicator. A thin light line indicates the cutting line on the material to be cut.

7.7 Cutting (clamping and cutting)



Danger!



Do not put hands into cutting zone!

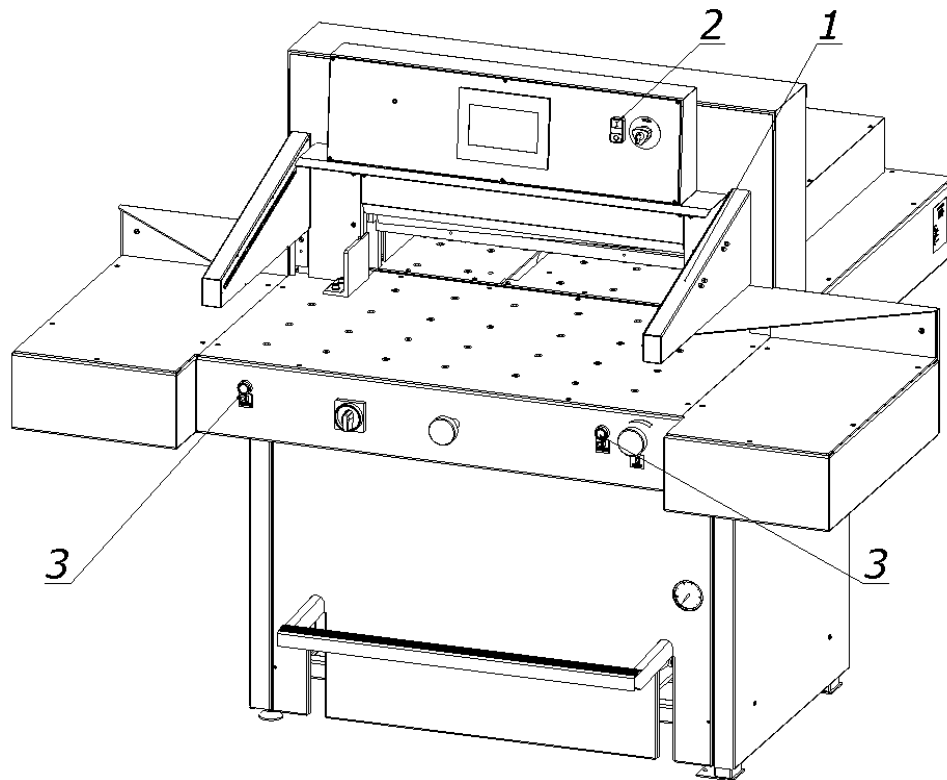


Fig. 19. Operating and signaling elements used during cutting.

Cutting can be done if:

1. there is no object in the work area of the light barrier - the green OSSD 1 LED lights up (fig.11) on the receiver 1 (fig. 19).
2. the green push button 2 is pressed.
3. the 3 buttons were pressed simultaneously.

Keep both buttons 3 until the material is cut.

The return of the knife and its stop in the upper return position and the movement of the pressure beam upwards is automatic.

Releasing the buttons 3 during the movement of the pressure beam and the knife downwards interrupts this movement. If an object gets caught in the light barrier working area, the pressure beam and the knife will stop moving. To continue cutting, remove the unauthorized item and simultaneously restart both buttons 3.

Paper clips or other hard objects can damage the blade.

7.8 Air table

The surface of the cutter table is equipped with air nozzles 1 (fig.20).

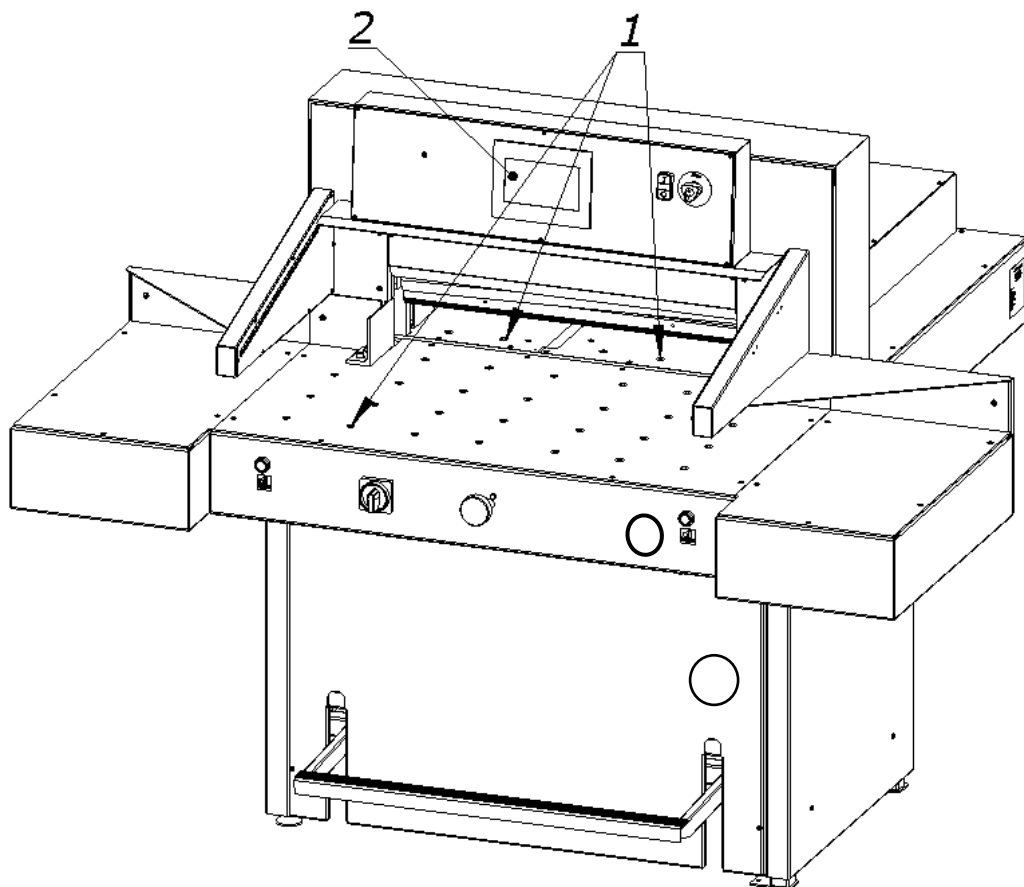


Figure 20.

To turn on the air supply press the blower button on the programmer 2 screen (Figure



20).

After switching on the air supply, moving the pile becomes easier. During the cutting, pressing or manual pressing (testing), the air supply is switched off automatically.

8. Operational activities

8.1 Replacement of the knife in the cutter

It is recommended, on the basis of experience, to change the knife to sharp after about 8 hours of effective work.



Danger!



Do not put hands into cutting zone!

- Danger of injury to the operator and auxiliary personnel
- Danger of injury to hands and hands in the knife area through cutting
- The edge of the knife is sharp - do not touch
- Do not handle the knife without the handle
- The blade may only be changed when the tools for replacing it are undamaged
- Blunt knives should be put in cassettes immediately
- Knives intended for scrapping must be deliberately blunted
- Worn and blunt knives should be taken to the scrap yard

8.1.1 Removing the knife

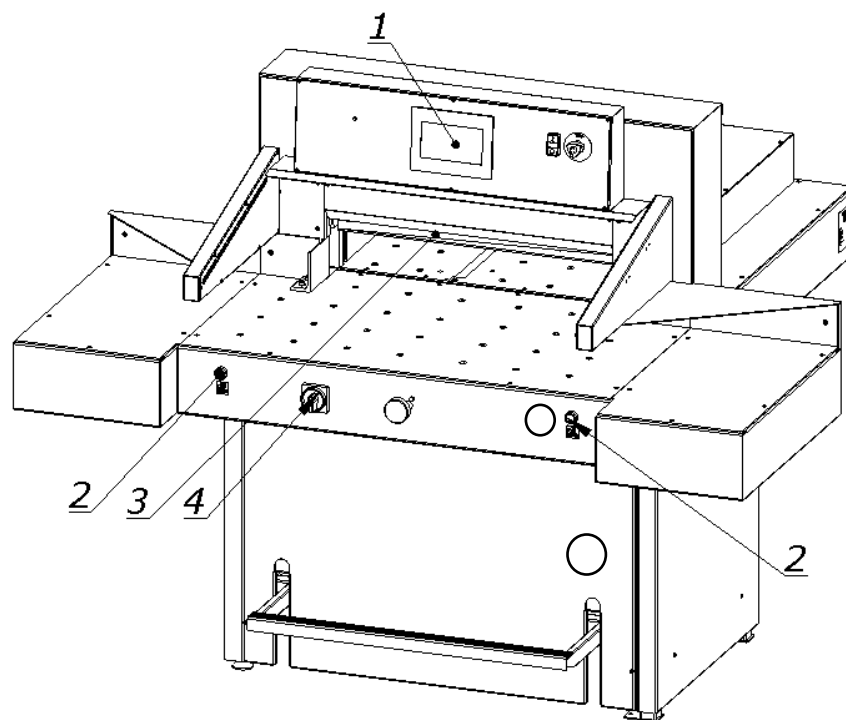


Figure 21.

8.1.1.1 Select the "knife change" function on the programmer 1 screen (fig.21) ("programming manual").



8.1.1.2 Pressing the push buttons 2  (fig.21) at the same time, start the cutting cycle. The knife 3 is held in the lower position

8.1.1.3 Switch off the power supply of the electrical system by turning the main switch knob 4 (fig. 21) to the "0" position

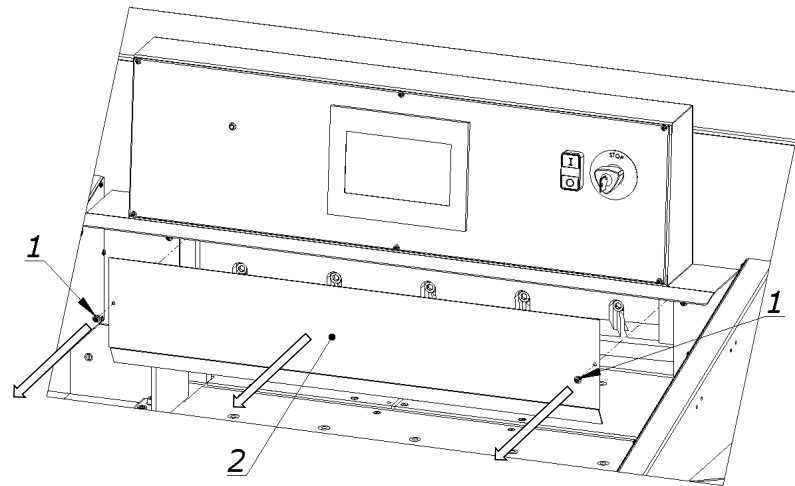


Figure.22

8.1.1.4 Remove the two screws 1 (fig.22) securing the cover 2 and remove the cover 2.

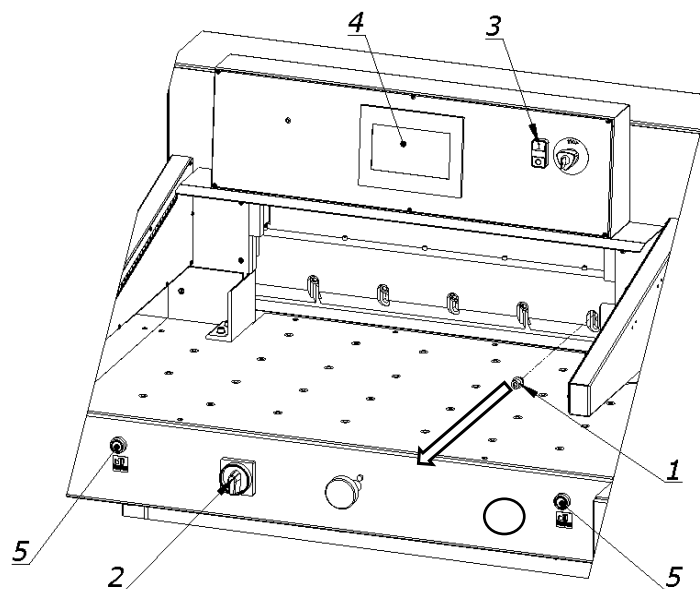


Figure.23

8.1.1.3 Unscrew and remove the first fastening screw 1 from the right side of the cutter bar (Fig. 23).

8.1.1.4 Switch on the power supply of the electrical system by turning the main switch knob 2 (fig. 23) to the "I" position

8.1.1.5 Turn on the power to the control system by pressing the green push button 3.

8.1.1.6 On the timer 4 screen (fig.23), deactivate the "knife change" function

8.1.1.7 Press simultaneously on the push buttons 5. The blade will return to its upper position.

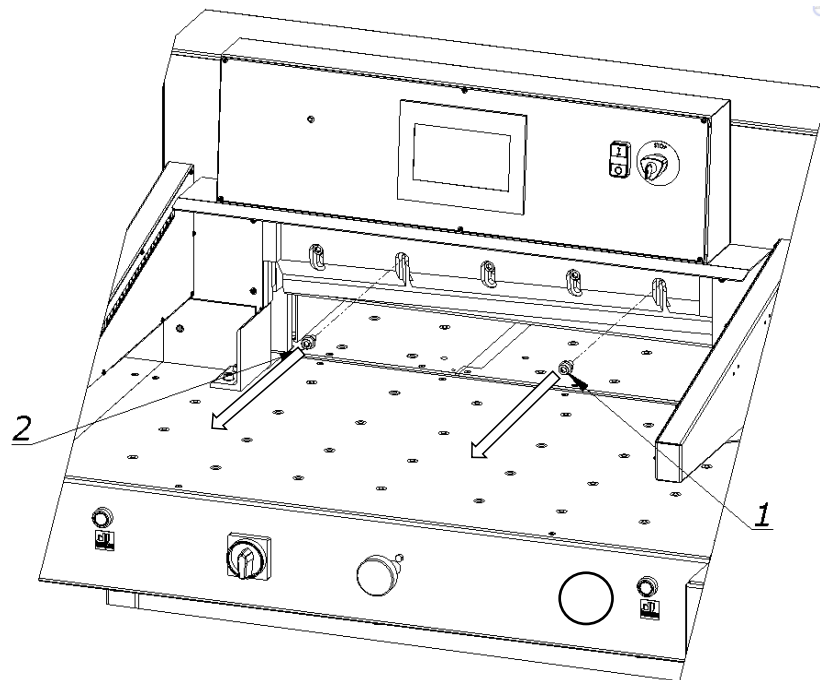


Figure 24.

8.1.1.8. Unscrew and remove the mounting screws 1 and 2 (Fig. 24).

8.1.1.9. In place of the screws 1 and 2 (fig.24) removed, screw in the transport handle 1 (fig.25) so that it secures the knife to the cutter bar.

8.1.1.10 Unscrew and remove the screws 2 (fig.26)

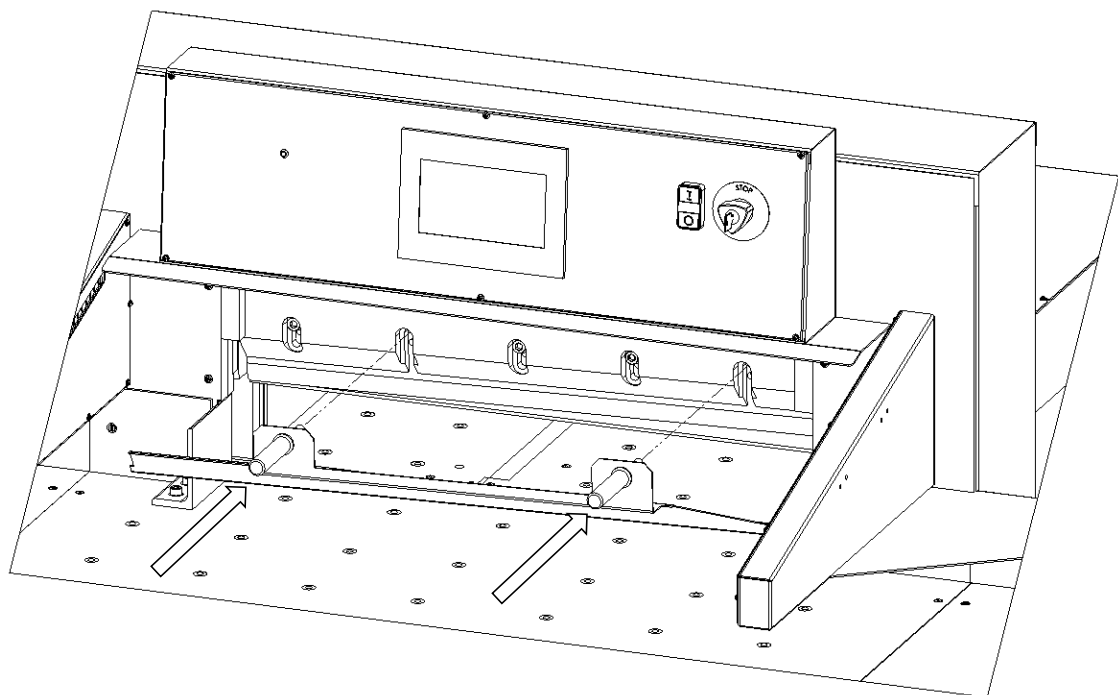


Figure. 25.

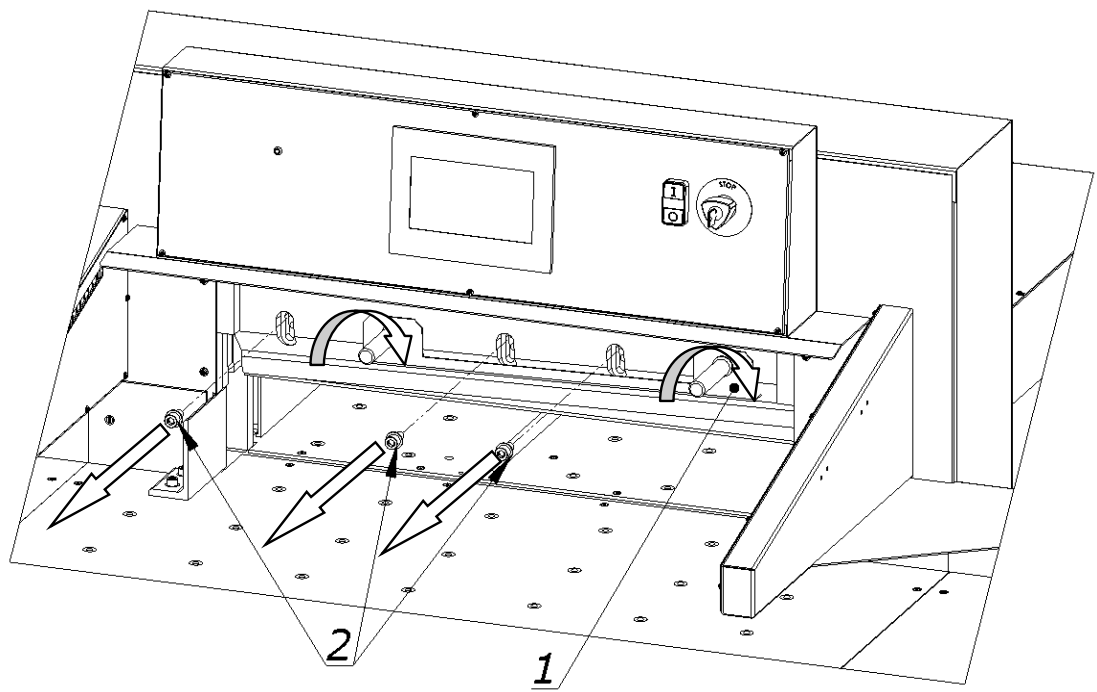


Figure 26.

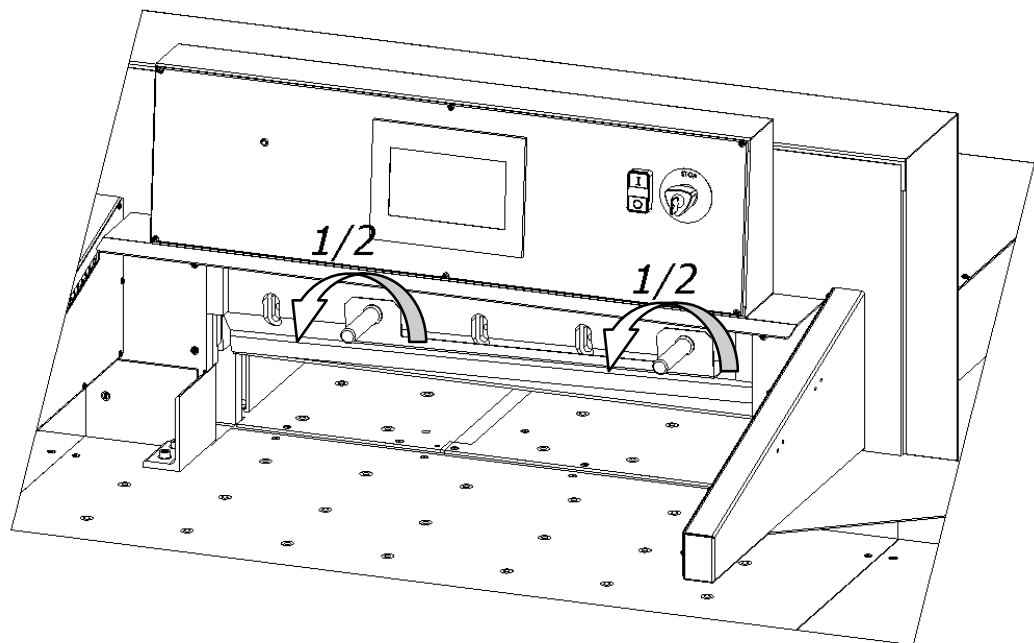


Figure 27.

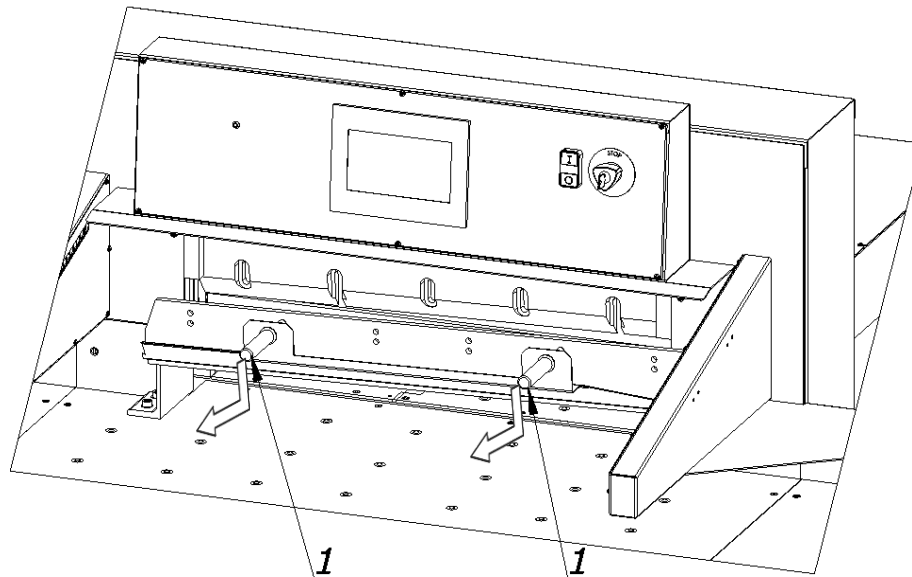


Figure 28.

8.1.1.12 holding the transport handles release the clamp by turning them 1/2 turn at a time to the left (fig. 27) and carefully pull the knife down (fig. 28). Take the removed knife into the special protective packaging (Fig. 29a - 29d.) With the blade inwards and fasten it with two screws. Use the Allen key 8 wrench provided to unscrew the bolts that fix the knife to the cutter bar.

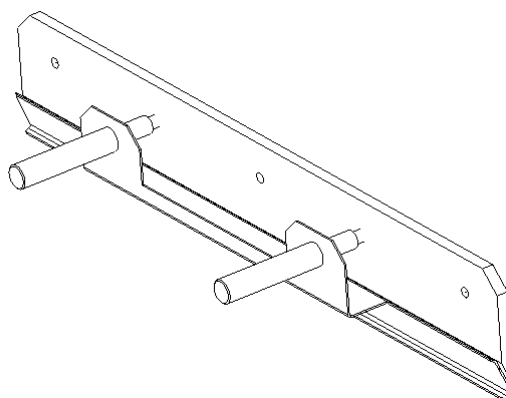


Figure. 29a. Knife in the transport handle

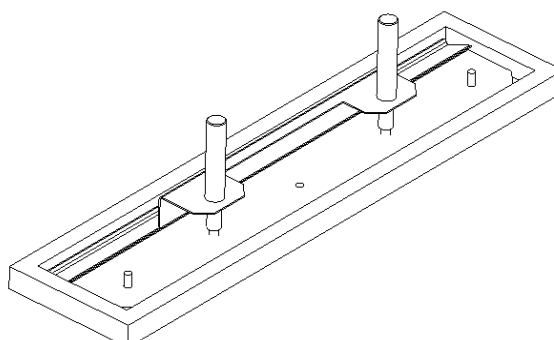


Figure 29b. Knife in the package

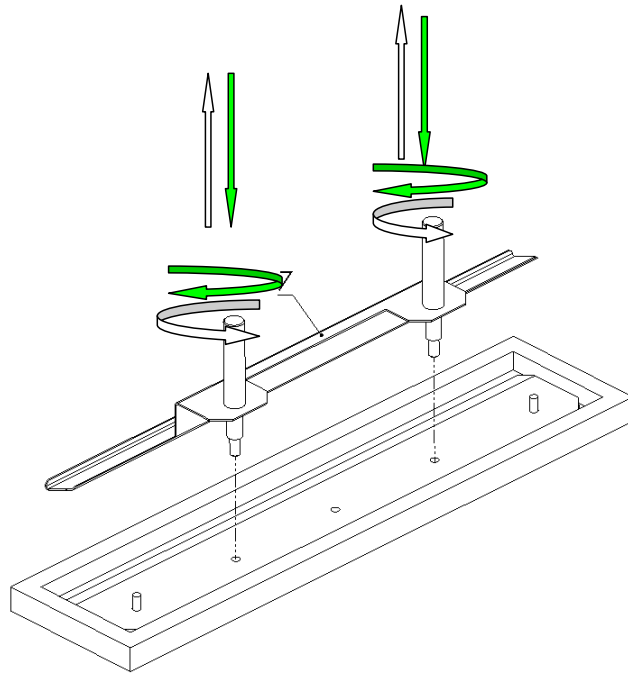


Figure 29 c. Unscrewing / securing the transport handles

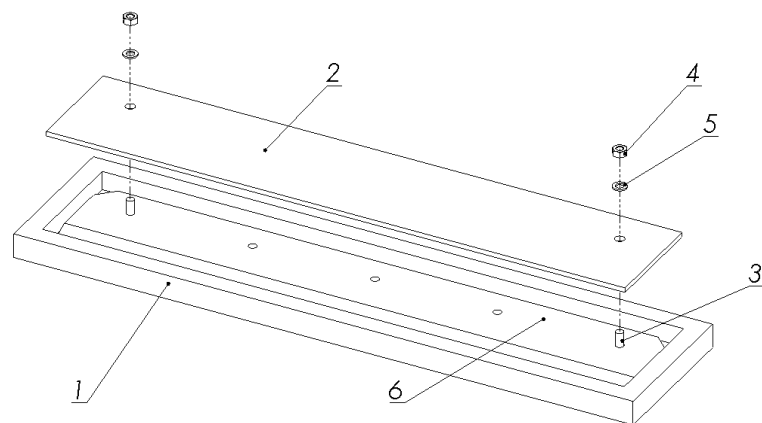


Figure 29d. Fixing the knife in the packaging

1. Packaging
2. cover
3. screw
4. nut
5. Washer
6. Knife
7. Knife change holder

8.1.2 Inserting a knife

8.1.2.1. Remove all adjusting screws 1 (figure 30) so that their faces are hidden in the knife bar body.

Figure 30 B - the adjustment screw does not protrude below the protrusion 2 in the cutter bar - **correct position**.

Figure 30 A - the adjusting screw protrudes below the projection 2 in the cutter bar - **incorrect position**, unscrew the screw.

WARNING

The assumed knife must be able to support its upper surface with the projection of the cutter bar. Failure to comply with this condition may result in a situation when the assumed knife is higher than removed, serious overloading and even damage to the machine.

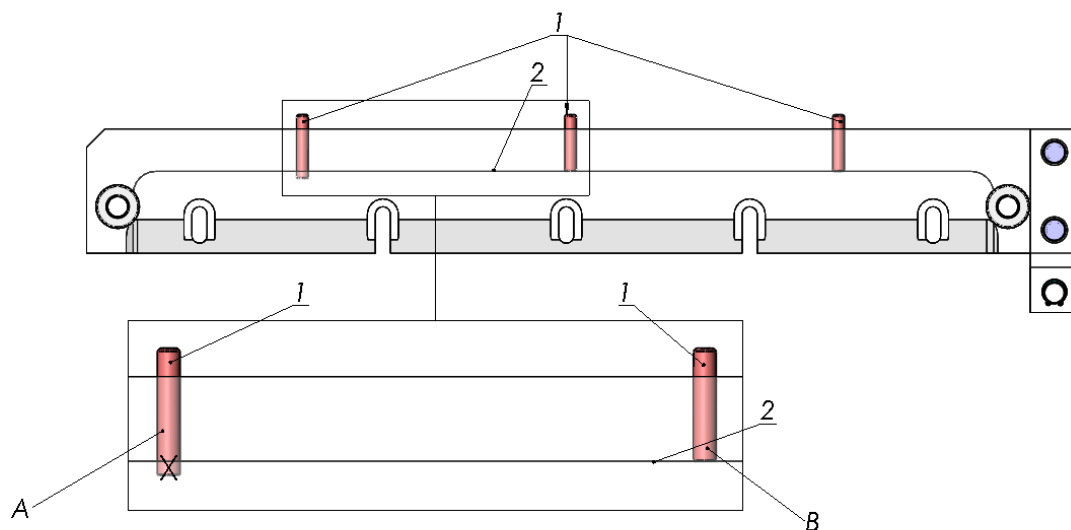


Figure 30. Position of adjustment screws.

8.1.2.2. Remove the knife from the packaging (Figs. 29a to 29d)

8.1.2.3. Holding the transport handles 1, insert the knife 2 into the cutter so that the transport handles screwed into the knife hit the cutouts in the cutter bar 3. (Fig. 31)

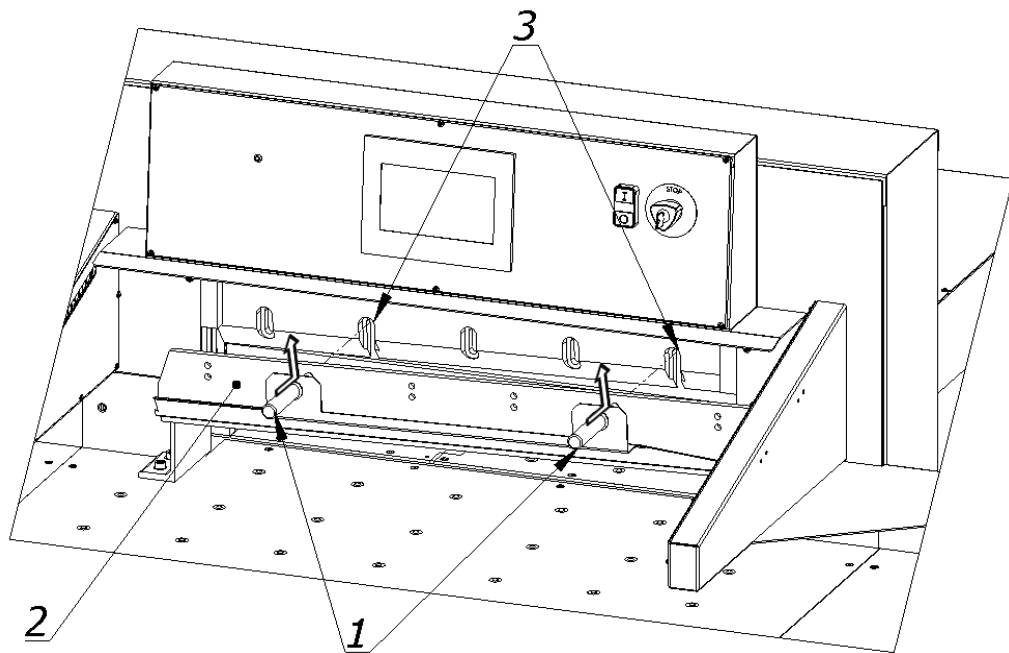


Figure 31.

Insert the knife so high that its upper surface will rest against the protrusion in the cutter bar 2 (fig. 30).

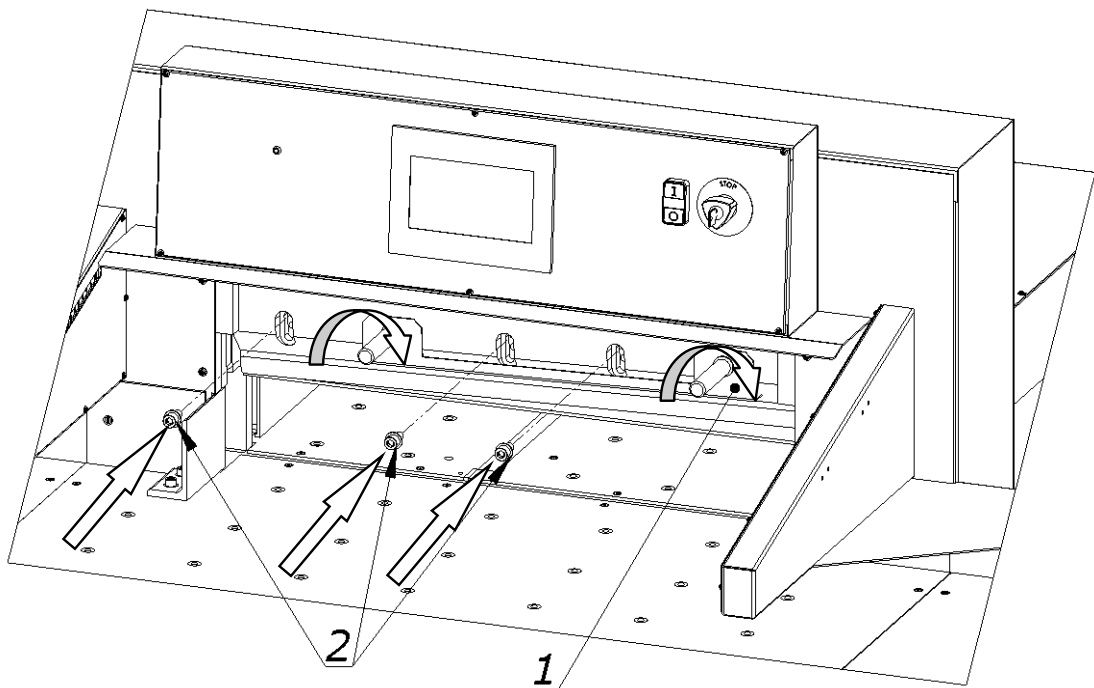


Figure 32.

8.1.2.4 Pre-attach the knife to the cutter bar by turning both transporting handles 1 to the right (fig. 32).

8.1.2.5 Install the fastening screws 2 (fig. 32).

8.1.2.6 Unscrew both transport lugs 1 (figure 33) and replace them with the mounting screws 1 and 2 (fig.33).

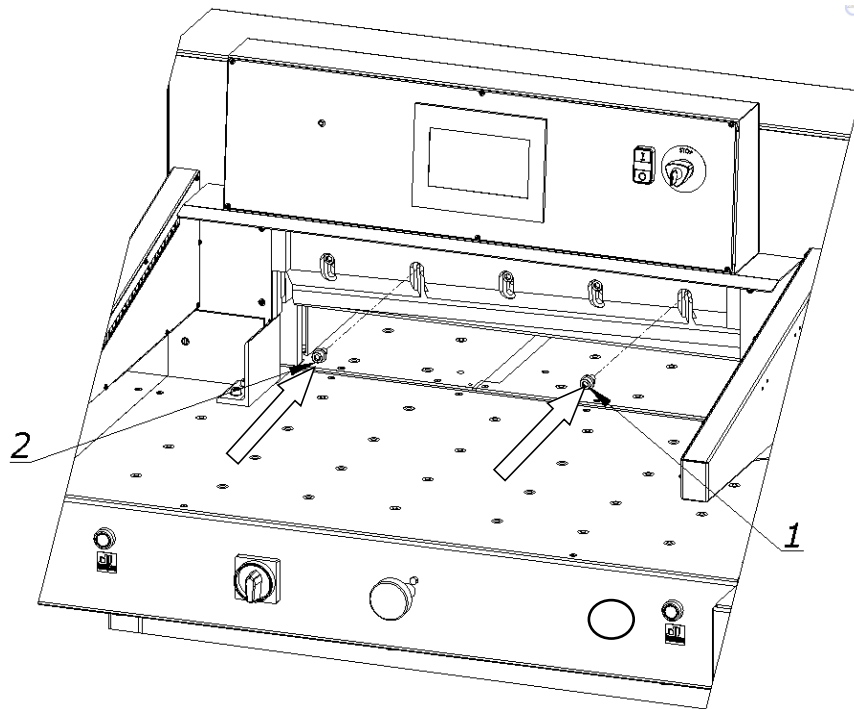


Figure 33.

8.1.2.7 Slightly unscrew the first screw on the left side of the clamping screw 2 (fig.32), taking care that the screw head does not protrude above the knife beam sliding plane.

8.1.2.8 Press the "knife change" function on the 3 programmer (fig.23)



8.1.2.9 Pressing the push buttons 2 (fig. 35) at the same time, start the cutting cycle. The knife will stop in the lower position.

8.1.2.10. Switch off the power supply of the electrical system by turning the main switch knob 1 (fig. 34) to the "0" position

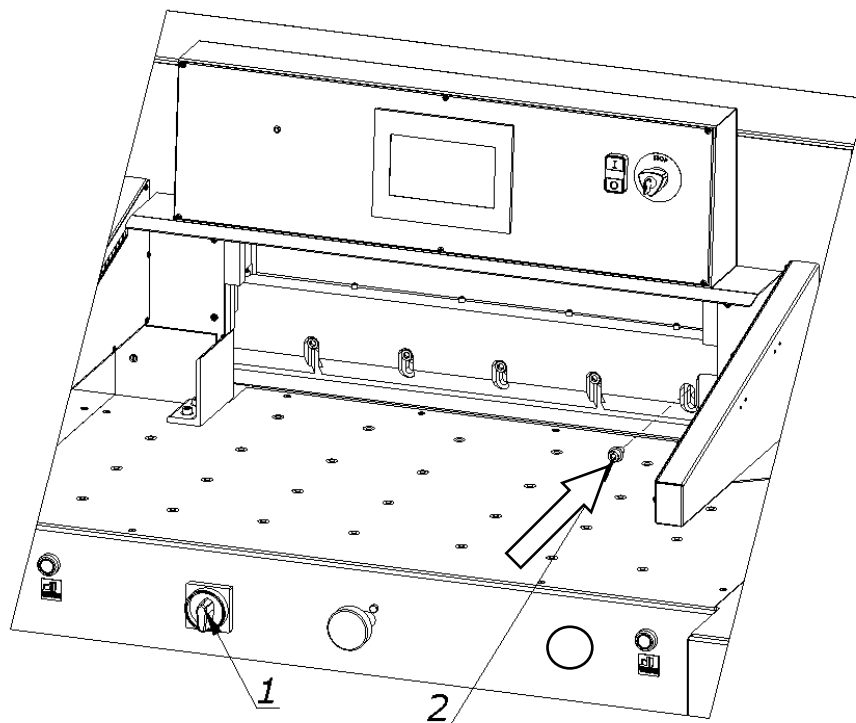


Figure 34.

8.1.2.11. Screw in the bolt 2 lightly (Fig. 34)

8.1.2.12. Unscrew the fixing screws 4 (fig.35) so that the knife falls under its own weight on the base bar with its entire length.

8.1.2.13. Tighten the adjustment screws 5 (fig. 35) as far as they will go, so that the blade of the knife is cut into the slat, approx. 0.3 mm.

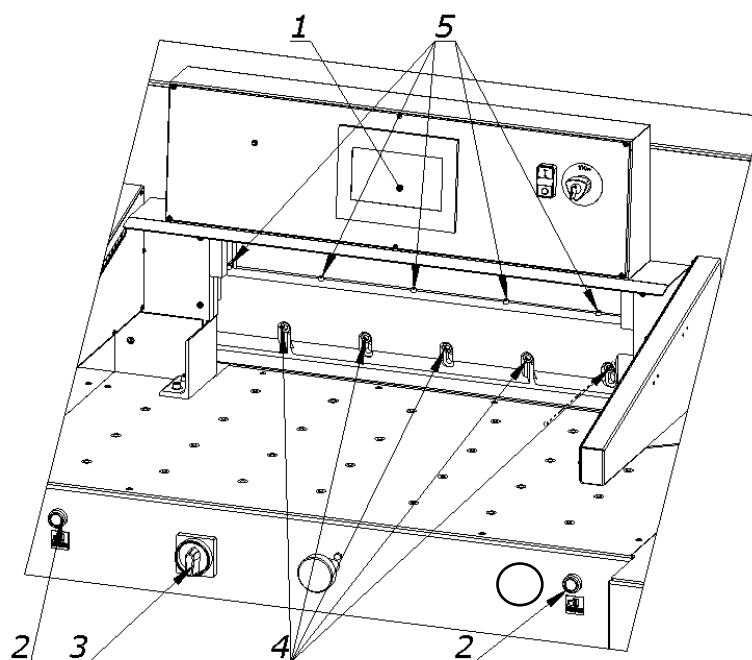


Figure 35.

WARNING

Performing too deep cuts may result in shortened blade life!

8.1.2.14. Tighten the mounting screws 4 (figure 35)

8.1.2.15 Switch on the power supply of the electrical system by turning the main switch knob 3 (fig. 35) to position "I".

8.1.2.16. Switch off the "knife change" function on the programmer 1 (fig.35)

8.1.2.17. Press simultaneously the push buttons 2.  The knife will return to its upper position.

8.1.2.18. Turn off the power supply of the electrical system by turning the main switch knob 3 (fig. 35) to the "0" position

8.1.2.19. Firmly tighten the first screw on the left side of the knife. 2 (Fig. 32).

8.1.2.20. Turn on the power supply of the electrical system by turning the knob of the main switch 3 (fig.35) to position "I"

8.1.2.21 Turn on the power supply to the control system by pressing the green push button 3 (fig.23).

8.1.2.22 Carry out a cutting test.

If the knife does not cut the pile to the last sheet, repeat steps 8.1.2.7.

8.1.2.23 Fix the cover 2 with the screws 1 (fig. 36)

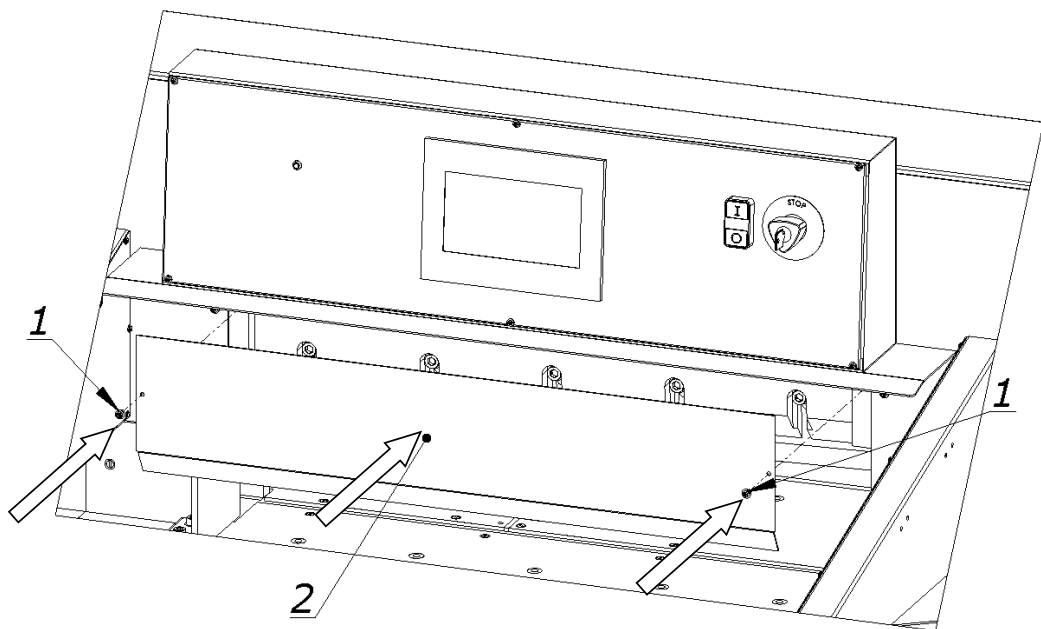


Figure 36.

8.2 Reversing or replacing the cutting sticks



Danger!



Risk of injury!

The cutting quality of the bottom stack sheets and the speed of blunting of the knife depend to a large extent on cutting stick. Replacing or reversing the cutter stick (bar) is recommended after each knife change or in the event of breaking (not cutting) the lower sheets.

WARNING

The channel between the tables into which the cutting stick is inserted must always be clean.

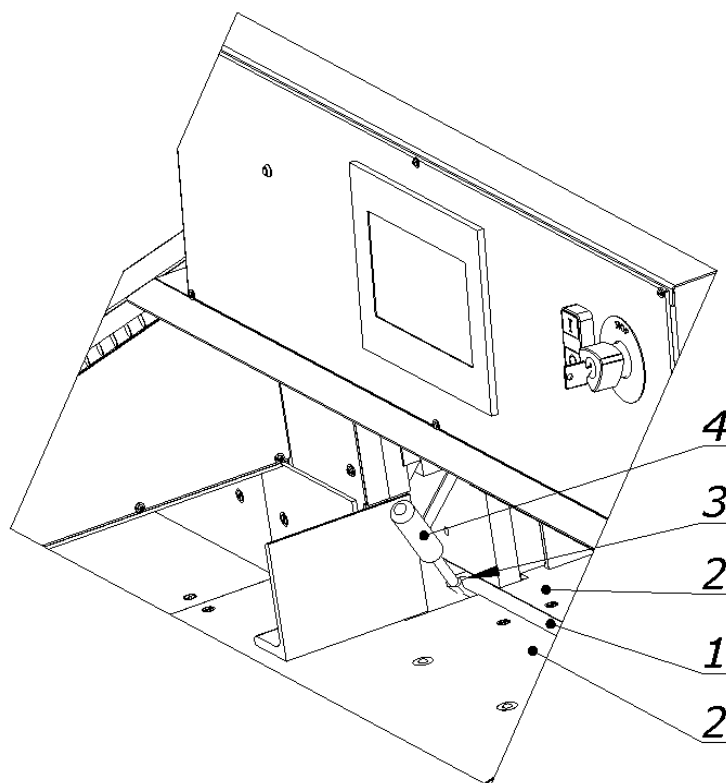


Figure 37. The method of removing cutting stick

1. Cutting stick 1

2. Table 2

3. Fixing pin

4. Screwdriver

8.2.1 Lift (lift) the stick 1 with a screwdriver 4 (fig. 37)

8.2.2 Rotate or replace stick

8.2.3. Introduce the replaced stick into the channel between the tables 2 and place it on the dowel 3 (Fig.37)

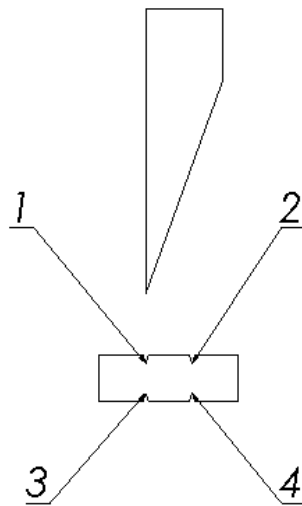


Figure 38. Diagram of the use of the cutting stick

Rotation of the cutting stick in both planes gives the possibility of obtaining four lines of contact with the knife, marked in Figure 38 as 1, 2, 3, 4.

8.3 False clamp

The use of the insert under the pressure bar prevents the appearance of impressions on the lower part of the beam on the material to be cut.

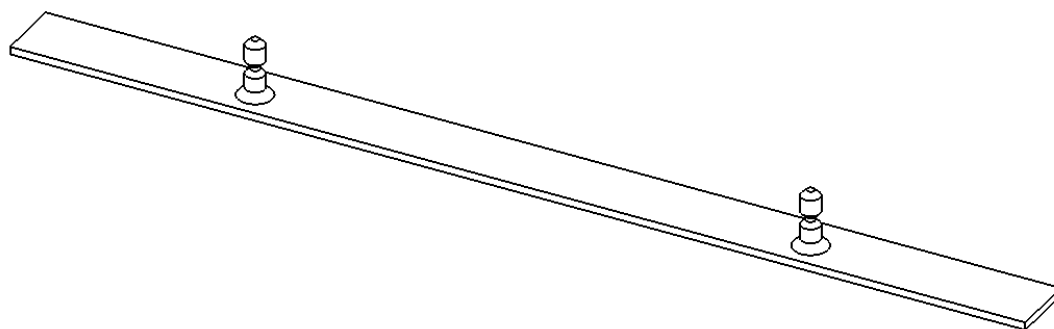


Figure 39. False clamp (pressure bar)

The pressure beam insert (Fig. 39) is attached under the front table in the place shown in Figure 40.

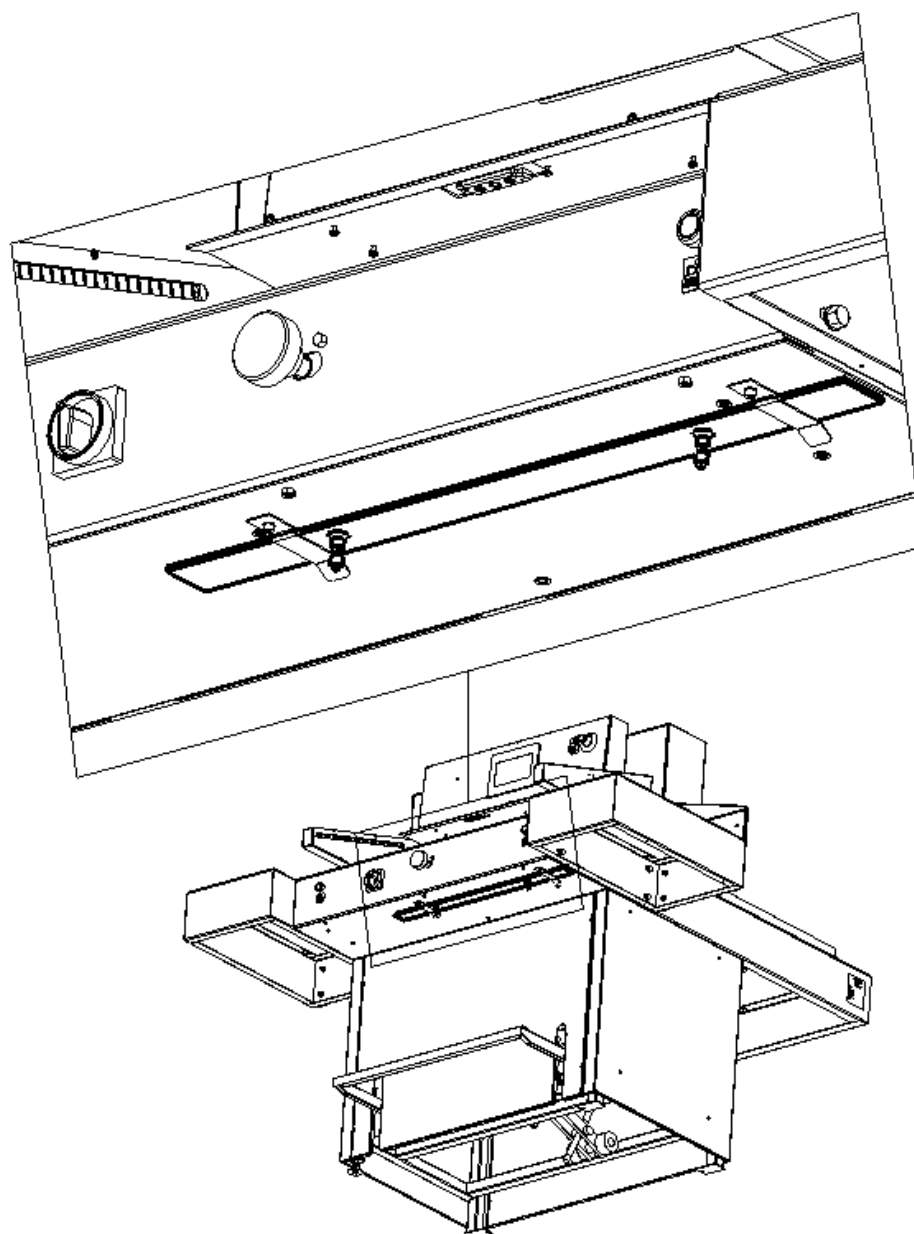
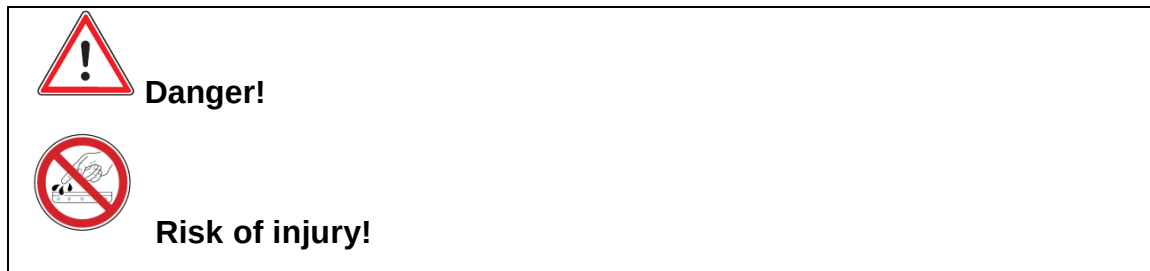


Figure 40. Placement of the insert before fixing in the pressure bar



In order to mount the insert in the pressure bar:

8.3.1 Put the insert 1 (Fig. 41) under the pressure beam so that the insert pins are under the holes in the pressure beam.

8.3.2 Pressing pedal 2 (Fig. 41), bring the pressure beam down so that the insert pins hit the holes in the beam and the insert adheres the entire surface to the bottom surface of the beam.

8.3.3 Use a 3-mm hexagonal key with 3 mm to firmly screw in the screws 3 (Fig. 41) into the threaded holes in the pressure bar, causing the insert to be blocked in the clamping beam.

8.3.4 Release the pressure on the pedal 2 (Fig. 41) - the beam with the inserted insert returns to the upper position

The removable insert must be attached under the front table! (Fig. 40).

The lack of the insert in the fixing place is treated by the programmer as if it was mounted in the pressure bar and the minimum residue (waste) is greater.

Mounting the insert into the pressure bar causes;

**the minimum chopping residue (waste) is 40mm (without insert 22mm),
maximum stack height is 76mm (without 80mm insert).**

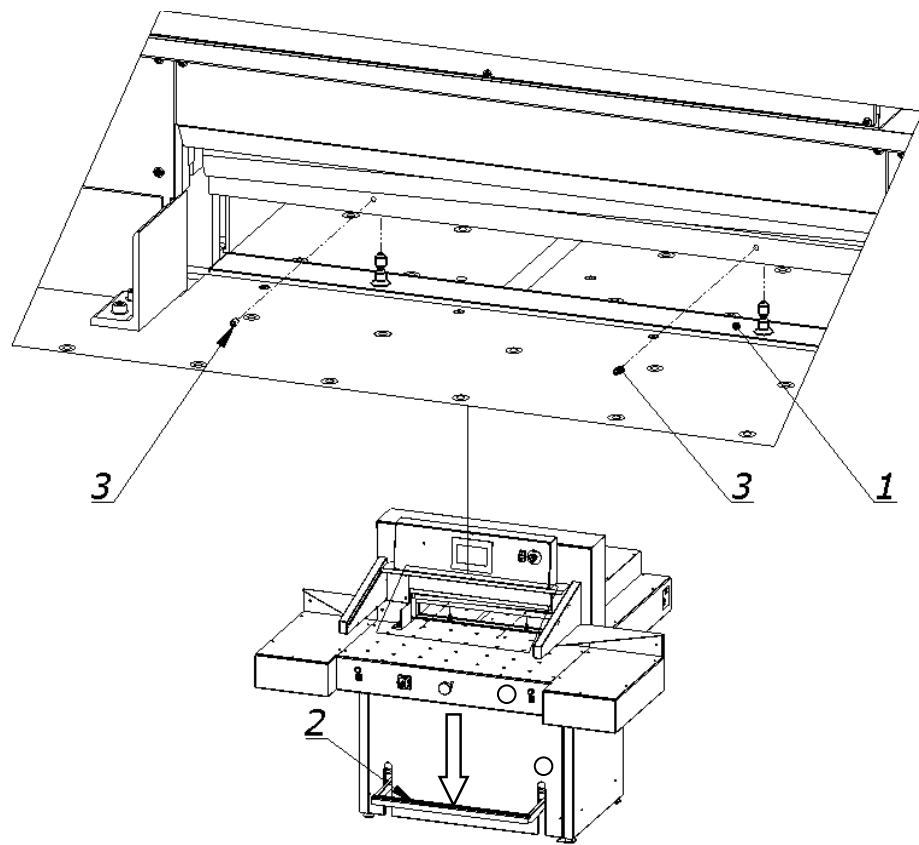


Figure 41. Operating elements used when mounting the insert in the pressure bar.

8.4 Adjusting the parallelism of the backgauge beam

Depending on the required inclination of the backgauge beam, it must be adjusted using drawings 42 and 43.

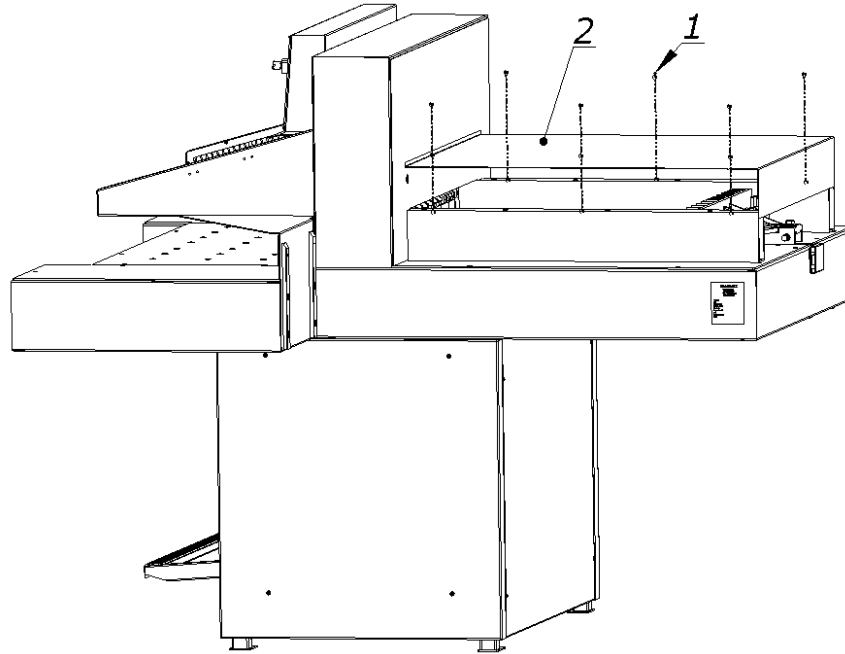


Figure. 42 How to remove the cover

To adjust with the backgauge:

8.4.1 unscrew the screws 1 (fig.42)

8.4.2 remove the cover 2 (fig.42)

8.4.3 loosen the screws 1 (Fig. 43)

8.4.4 loosen the nuts 2 (fig.43)

8.4.5 by turning the screws 3, place the backgauge 4 (fig. 43) at the right angle

8.4.6 lock the adjustment screws with 3 nuts 2 (fig. 43)

8.4.7 firmly tighten the screws 1 (fig.43)

After the cutting attempt, repeat the adjustment until the parallel cutting is achieved.

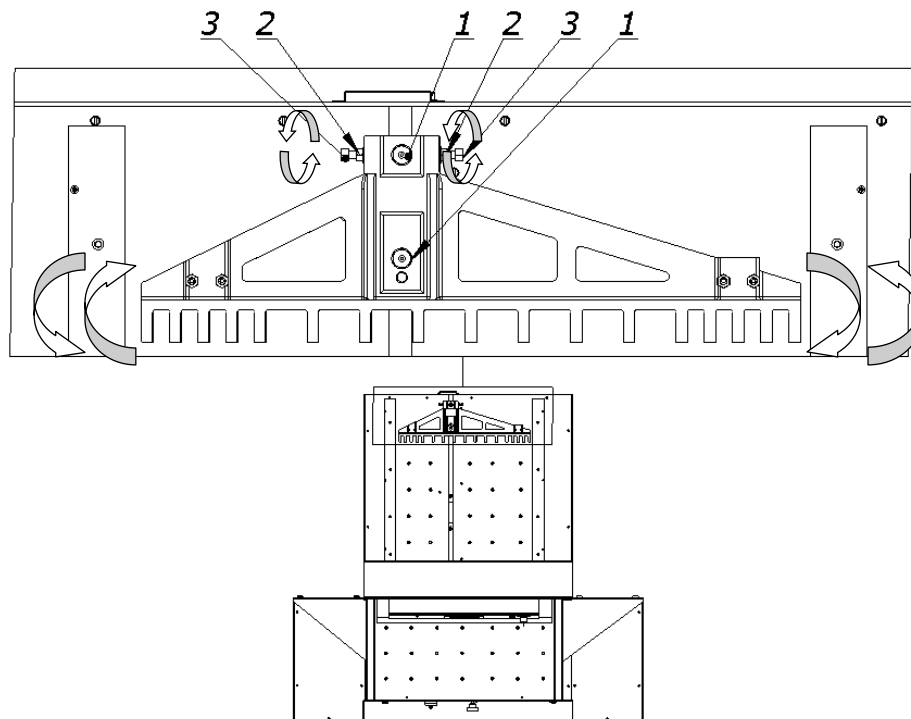


Figure 43. Elements of the backgauge

9. MAINTENANCE



Danger

Maintenance and lubrication work should be carried out after turning off the machine (main switch in position "0")

9.1 Daily maintenance

Every day, remove all waste from the cutter and the operator's working space.

9.2 Treatments that should be performed cyclically

At regular intervals, waste and dirt should be removed from hard to reach machine and surrounding areas:

- Regularly remove paper waste from the press and knife drive holes
- Air intakes for motors must be kept free of dust and debris.



Danger

Caution- fire hazard with insufficient ventilation.

the machine guards must be put back into place immediately after maintenance work has been completed!

9.3 Lubrication

The list of lubrication points is shown in Figures, 46, 47, 48,49.50 and described in table 10.

Access to lubrication points is possible after removing the covers shown in Figs. 44,45,48.50

When lubricating the knife assembly, use the controls as when changing the knife (chapter 8.1)

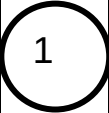
Lubrication of the side surfaces of the guides as well as the surface of the knife body

in contact with the guides should be carried out in the upper (Fig. 46a) and lower position of the knife body (Fig. 46b). Lubricate recommended places on both sides of the cutter.

In places requiring lubrication with a grease, apply grease with a grease gun. It is enough to press the trigger of the lubricator 2-3 times.

The indicated places should be lubricated once a week!

Table 10. List of lubrication points of the cutter mechanisms

Sign	Cutter mechanism	Lubricant type	Lubrication spot	Figure
	Knife mechanism	Grease	• Side surfaces of the guides (in contact with the knife body) • Internal surfaces of guides (in contact with rollers) • Side surfaces of the knife body	46a, 46b
	Backgauge mechanism	Oil	• guide roller (apply a thin layer of oil.) • lead screw (apply a thin layer of grease)	47 48
	Clamp mechanism	Grease	• shoe beam slides • shaft bearings • surface of the lead screw • sliding bushes of the pressure mechanism	47 49 49 49

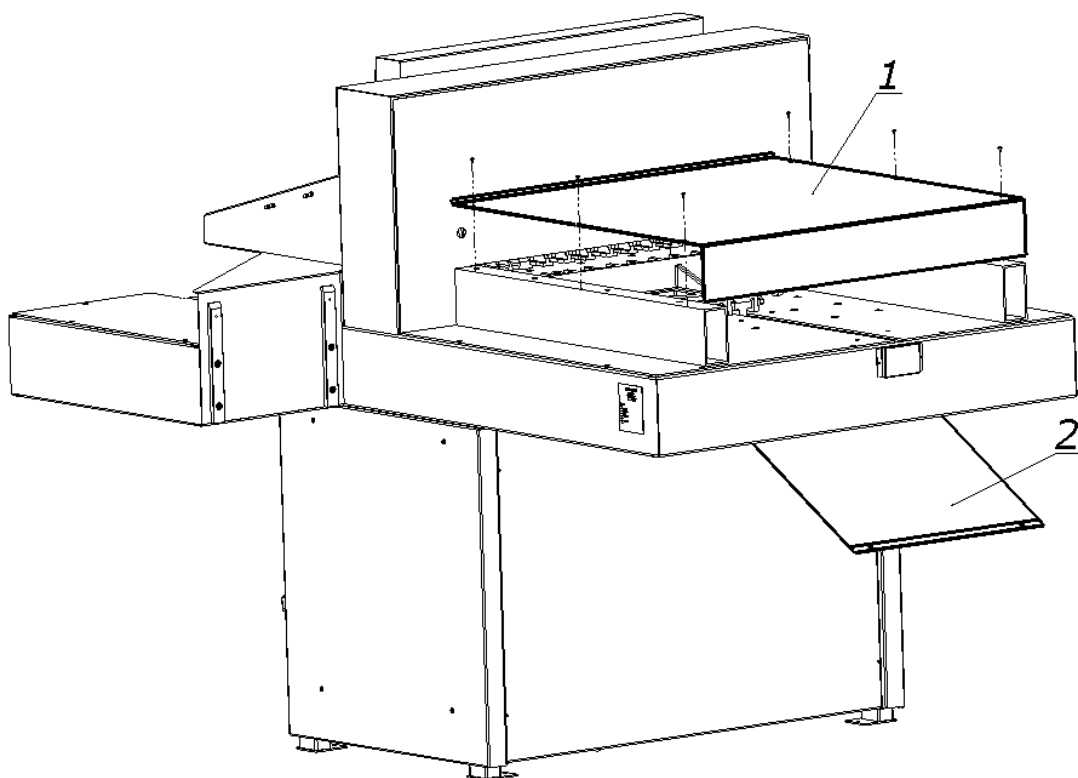


Figure 44. Cover for the backgauge (1) and lead screw (2)

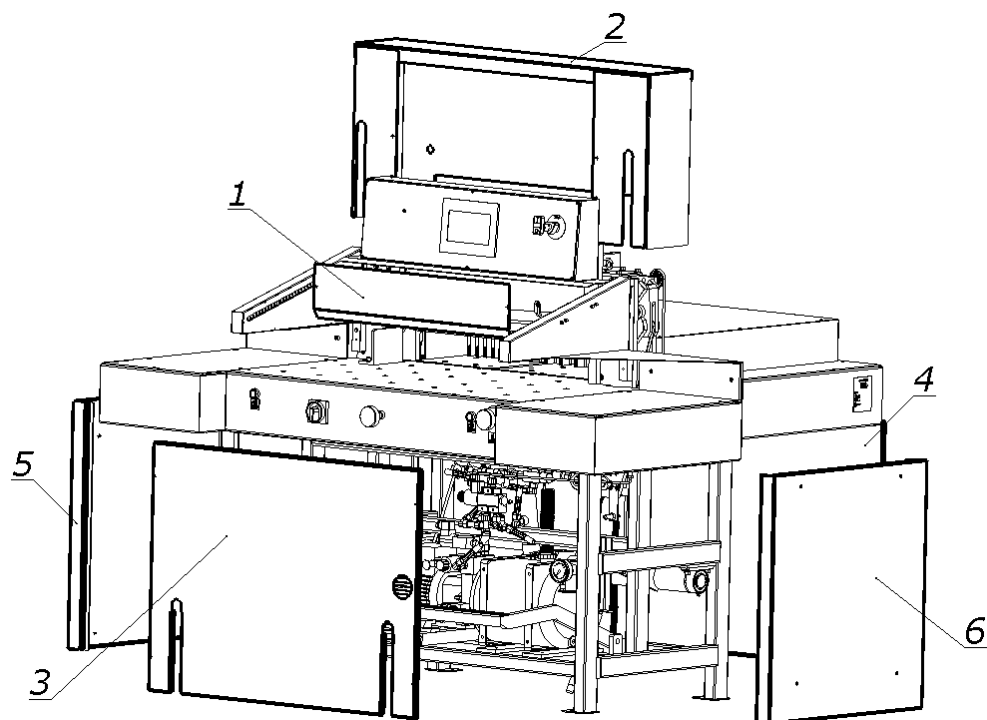


Figure 45. Base frame covers

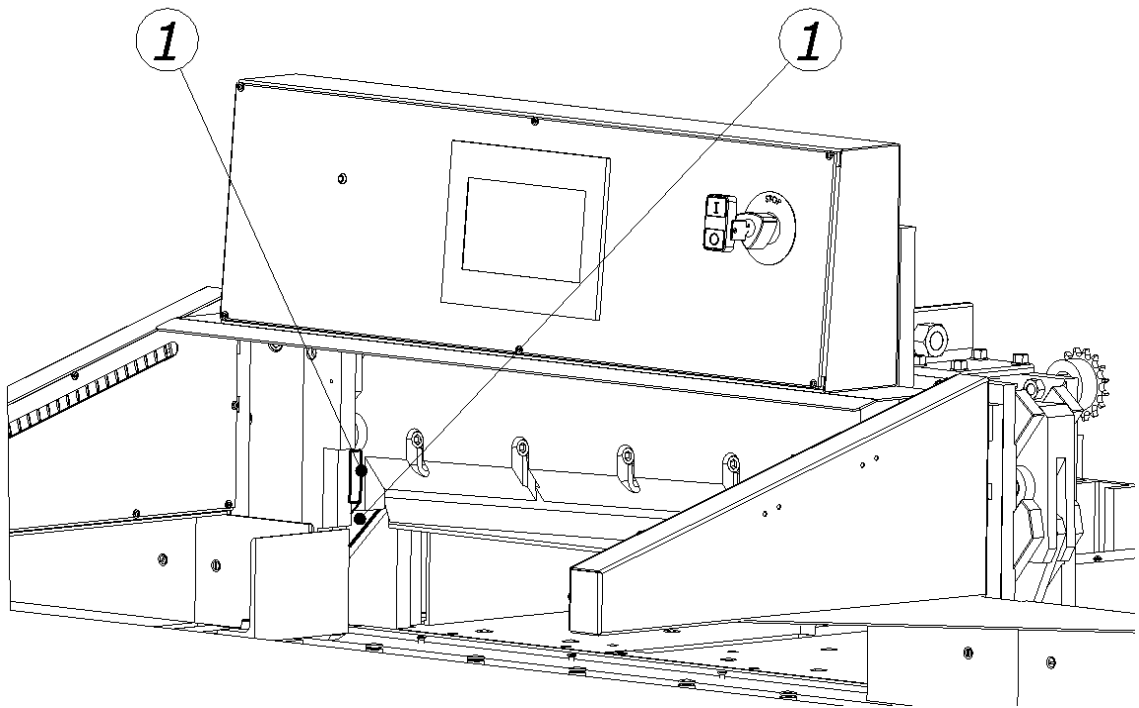


Figure 46a. Space for lubrication of the knife assembly in its upper position.

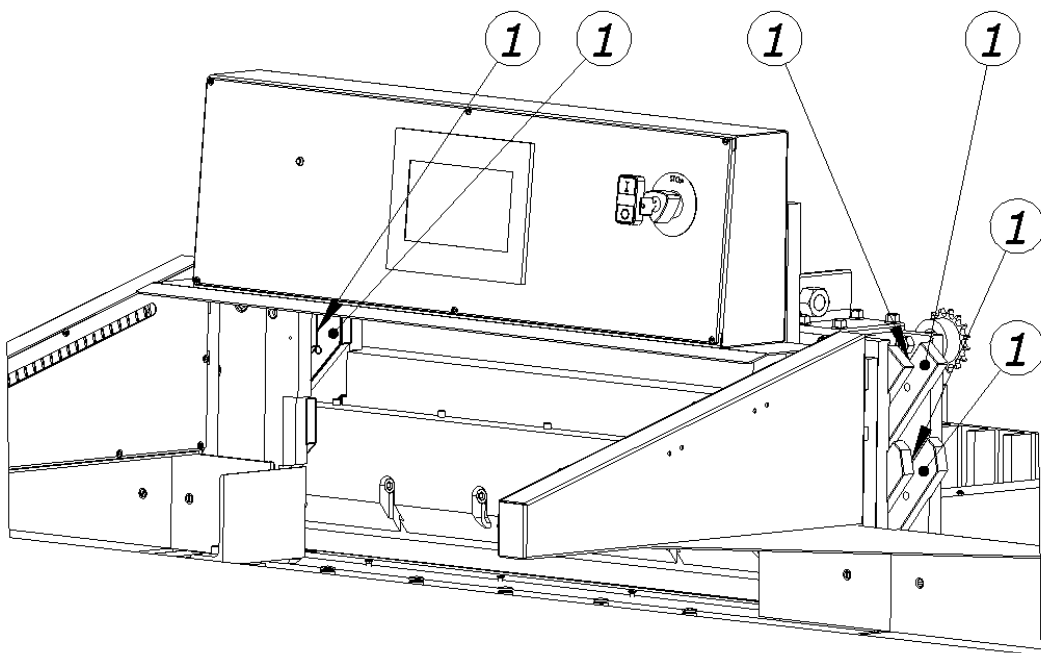


Figure 46b. Space for lubrication of the knife assembly in its lower position.

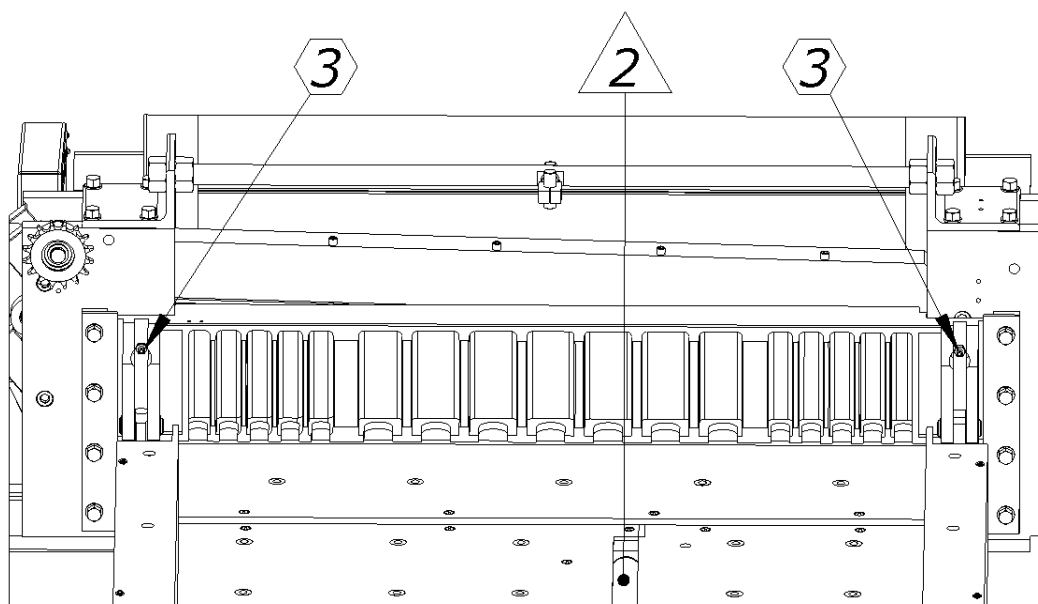


Figure 47. Lubrication space of the pressure beam (3), guide shaft of the backgauge mechanism (2)

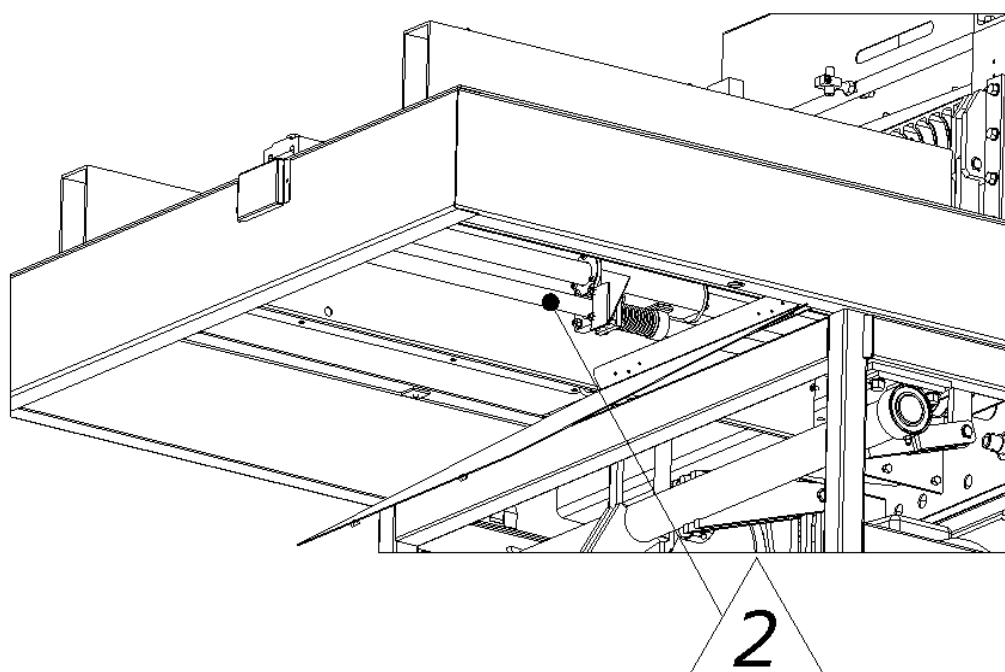


Figure 48. Lubricating point of the lead screw.

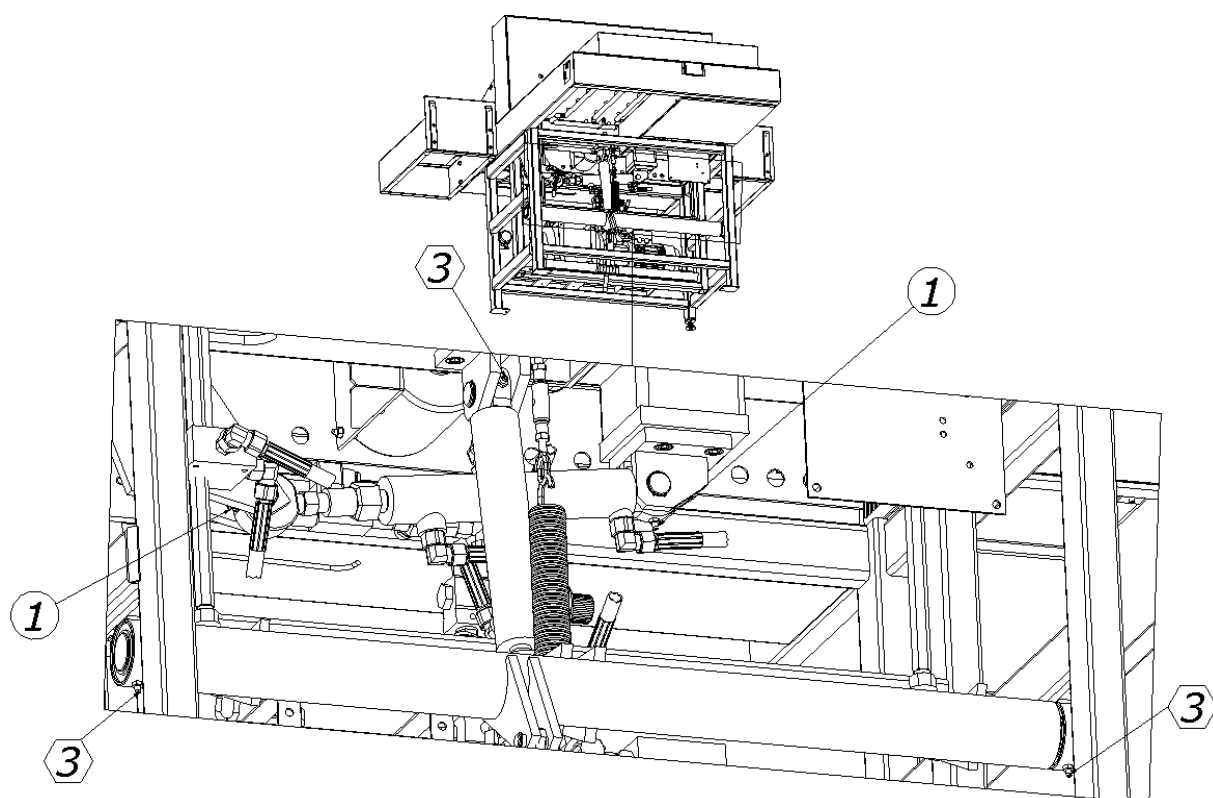


Figure 49. Lubrication point of the knife actuator (1), pressure cylinder and shaft actuator (3)

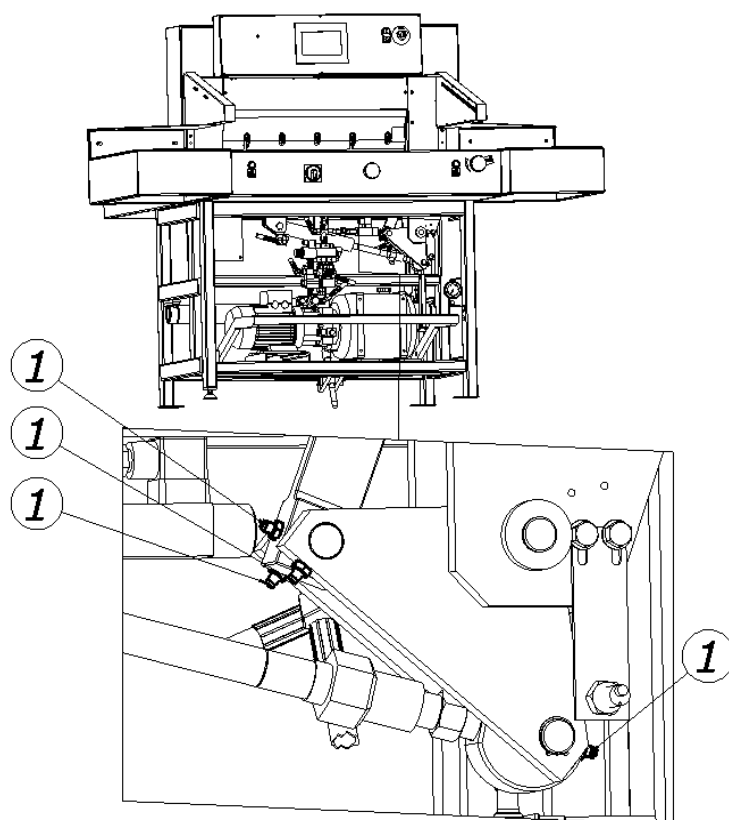


Figure 50. Lubrication point of the knife assembly lever.

9.4 Hydraulic power supply

The overflow valve was set to 110 bar and sealed.

This setting can be checked using a manometer (included in the aggregate) by connecting it to the manometric connection.

Unauthorized change of the pressure value is unacceptable and causes the warranty for the aggregate to be lost!

9.4.1 Working conditions of the aggregate

- ambient temperature of the unit from 5°C- 30°C,
- HV 46 hydraulic oil,
- dust free air,
- free air exchange for cooling,
- the hydraulic oil temperature must not exceed the specified value by the manufacturer of hydraulic oil,
- the aggregate is designed to work in a closed room, shielded against environmental influences, i.e. direct exposure to radiation solar, atmospheric precipitation,
- use in accordance with the principles of health and safety at work and fire regulations,
- the unit must be operated by a qualified and trained person staff

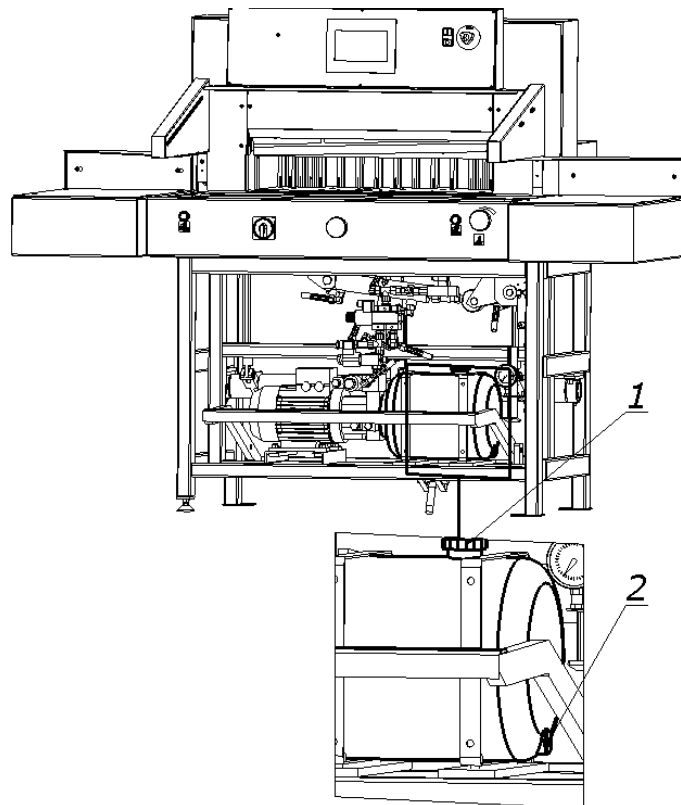


Figure 51. Oil change in the hydraulic system.



Danger!

Danger of burns due to hot oil!

Danger of hydraulic oil splash!

According to the recommendations of the hydraulic power supply manufacturer, the oil in it should be replaced after a year of intensive work.

To change the oil, unscrew the drain plug 2 (fig.48) located in the bottom of the tank. Old oil should be drained when it is still warm.

Fresh oil should be poured after first screwing in the drain plug 2 through the filling hole 1 (fig, 51)



Danger!



Risk of injury!

After lubrication: Using a cloth, completely remove any excess lubricant (grease, oil), especially from the table surface on which the cutting material and work pieces in contact with the cut material, ie the knife body and the pressure bar, are placed.

9.5 Service

9.5.1 General recommendations

- After each change, clean the machine (mainly from paper dust)
- Pay attention to the cleanliness of contacts of control elements (contactors, connectors)
- Check the correctness of screw connections of the cutter elements and tighten the screws if necessary.

9.5.2 Checking hydraulic hoses

Check regularly that the hose is not damaged or frayed, and check the oil level.

Recommended test criteria for hydraulic hoses:

- Damage to the inner layer (scratches, cuts, cracks)
- Snake deformation
- Leaks (on the surface of the hose, fixing)

The condition of the hoses should be checked at least every 12 months.

Replacement of hoses is recommended at least every 6 years.

9.5.3 Knife regeneration

The quality and accuracy of cutting depends mainly on the sharpness of the knife and the right angle of its blade.

Features of a blunt knife

- rough and uneven surface of the sliced stack
- ticking the edge of the cut material
- inaccurate slicing
- increased formation of paper dust.

10. Failures



Danger!

- Each fault carries a risk of injury to the operator or his assistant.
- If the cutter knife jams in the cut material during cutting, do not attempt to pull the material out from under the knife.
- Defects can be eliminated only by personnel with appropriate permissions.
- After completing the fault rectification, fit all covers and check that the individual protection devices are working properly.
- Performing repairs by persons who do not have the proper qualifications and proper training results in an immediate loss of the cutter warranty, and also releases the manufacturer and the machine supplier from liability for damage caused.

10.1 Determination of the causes of the fault

Specify whether the vulnerability affects elements:

- electric,
- mechanical
- programmer

10.2 Basic procedures for removing various types of defects

Electrical faults:

- check the compatibility of the direction the motor is turning
- check the fuses in the machine
- measure the voltage
- check that all connectors are tightened securely
- check if there are any failures at the same time in other machines in the plant

Mechanical faults:

- look closely at all moving parts
- check if abnormal noises occur during operation of the machine
- check if the machine has been damaged, no cracks or iron filings appeared on it