HORIZONTAL BAND SAW
MODEL C70

USER MANUAL

INTRODUCTION

The operating manual is intended to study the device of the horizontal band saw model C70 and contains the information necessary for its effective use. The amount of information and illustrations given in the manual is sufficient for the training of service personnel.

1. DESCRIPTION AND OPERATION OF THE DEVICE

1.1. Purpose of the device

The horizontal band saw C70 model is designed for longitudinal cutting of ice, individual cutting and small cutting thickness, low specific energy consumption and minimum waste.

1.2. Technical characteristics, composition of the device

1.2.1. Technical characteristics (main parameters and dimensions) are shown in table 1.

table 1

Parameter and size name	Unit measureme	Norm
1. Cutting diameter, no more	mm	550
2. Cutting length, no more	mm	1200
4. Cutting thickness	mm	3...250
4. Saw blade width	mm	32...35
5. Saw blade thickness	mm	0,8...0,9

Continuation of table 1

Parameter and size name	Unit measurement	Norm
7. Saw blade length	mm	3450...3390
8. Saw blade quantity	unit	1
10. Cutting mechanism feed	-	manual
11. Moving the cutting mechanism (up and down)	-	mechanical
12. Cutting speed, not less	m/sec	22
13. Pulley rotation frequency	rpm	1120±50
14. Overall dimensions, no more	mm	
Length		6000
Width		1530
Height		2190
15. Weight, no more	kg	300
16. Number of service personnel	people	1

1.2.2. **Drive data** (table 2)

table 2

Parameter and size name	Unit measurements	Unit measurements
1. Kind of current of the supply network	AC, 1 phase	AC, 3 phases
2. Voltage, frequency	208-240 V, 50/60 HZ	220/380 V, 50/60 Hz
3. Current	25 A	16 A
4.Number of engines	2	2
5. Saw pulley drive motor:		
power	3000 W	3000 W
rotation frequency	3000 rpm	3000 rpm
6. Carriage drive motor:		
power	250 W	250 W
rotation frequency	1100 rpm	1100 rpm
7. The total maximum power of all motors of the device	3300 W	3300 W

1.2.3. **Completeness** (table 3)

Table 3

Name	Qty.	Notes
Gorizontal Band Saw P70E + metal stand	1	
Blade L=3450.. .3390 mm,;		
W = 32...40 mm; S = 0,8... 0,9 mm	2	
User Manual	1	
Electric scheme principed	1	

Note. Components, fittings, cable products and other auxiliary materials required for external connections, as well as hearing protection are not included in the delivery set. They are declared and provided by the customer.

1.3. The device and the principle of operation of the product and its constituent assemblies

1.3.1. Device design and operation of the product.

1.3.1.1. The principle of operation of the device.

The principle of operation of the device is based on sawing a stationary part of the material with a horizontal moving saw band mounted on the driving and driven pulleys and tensioned with a force that ensures its straightness in the cutting zone. The guide rollers ensure the stability of the position of the saw blade.

Lowering and lifting the saw unit to set the thickness of the sawn-off part is carried out by a screw drive with an electric drive. The amount of movement is controlled visually using a ruler installed on the saw unit or using additional

devices. The longitudinal feed of the saw is carried out by moving the rack with the carriage along the material being cut.

System of device

A general view of the device with a list of components and controls is shown in Fig. 1.

List of controls (table 5)

Table 5

Mark. №	control systems and their purpose
1	Handle for moving the carriage along the log to be cut
2	Saw drive start button
3	Saw drive stop button
4	UP / Down button for vertical carriage movement
5	Ruler for reading the amount of movement of the carriage for the thickness of the cut
6	Handwheel for manual movement of the carriage "up - down"
7	Light indicator of voltage presence.
8	Input switch
9	tape tension indicator
10	tape tension screw

1.3.2. Description and operation of the components of the device.

1.3.2.1. The frame is a metal structure designed to accommodate the saw carriage. On the guides of the frame there are limit stops that prevent the movement of the rack with the saw unit in the extreme positions.

Fig.1

1.3.3.2. Work description.

The electrical schematic diagram is shown in Fig. 4. Before starting the device, set the QF1 input circuit breaker to the "ON" position.

Use the SB3 "UP" and SB2 "DOWN" buttons to dial the required board thickness. The buttons work as long as you keep them pressed. The reverse contains two electrical interlocks. Pressing the button SB4 "ON" starts the band saw drive. The KM1 starter opens the circuit of the block contacts of the KMZ and KM4 starters and it is impossible to change the thickness of the board during the operation of the main drive.

item	name	quanti	note
KM 1	Magnetic starter ПМЛ 1810	1	
KM2;KM3	Magnetic starter ПМЛ 0901	2	
KK1	Thermal relay	1	9...13A
KK2	Thermal relay	1	0,4-0,63 A
SB1; SB2 SB3; SB4	Control buttons	4	
M1	Electric motor АИР 100; 5,5 kWt; 3000 rpm	1	
M2	Electric motor АИР56В4У3;0,18 kWt; 1500 rpm	1	
HL1 QF1	Voltage indicator light Circuit breaker	1 1	

Protection of electric motors from overloads is carried out by thermal relays KK1 and KK2. Protection of electrical equipment against short-circuit currents is carried out by an automatic switch QF1.

The emergency shutdown is carried out with the SB1 button.

1.3.3.5. Installation and operating instructions.

During installation, the device must be securely fixed and connected to the protection circuit (Fig. 1; pos. 4)

1.3.3. Lubrication system.

Bearings are lubricated for bearing life**.**

1.4. Measuring instruments and tools

The vertical displacement of the carriage, when it is set to the thickness of the cutting piece, is counted using a vertical ruler fixed to the body and graduated in millimeters.

Saw tension control is carried out using a pressure gauge. Geometric accuracy is checked and the device is adjusted with a dial indicator.

1.5. Package

The device is supplied complete and ready to use.

2. INTENDED USE OF THE DEVICE

2.1. Operational limitations

The device must not be operated outside the above specifications.

The device is intended for use in rooms classified as fire-hazardous zones of class 0-2 according to the classification of the PUZ (chapter 7.4).

Climatic conditions U1 in accordance with ISO 554:1976 with an outside air temperature from minus 10 to plus 40 degrees Celsius at a relative humidity of 95%. The device must be protected from direct precipitation and installed indoors or in an open area under a canopy.

The illumination of the control bodies should be provided by the workshop facilities in accordance with the requirements of sanitary standards.

The working platform is equipped with a means of transporting logs (logs or a hoist) and racks for storing finished boards.

2.2. The order of installation of the device and initial start-up

2.2.1. Safety precautions during preparation devices to use.

- All work on preparing the device for use must be carried out by qualified personnel who have studied the operating instructions and have been instructed.

- When preparing for use, the safety rules for handling and installation work should be strictly observed.

- Before the initial start-up, the device must be connected to the protection circuit (Fig. 1, pos. 4).

- At the initial start-up (testing) of the device, it is necessary to observe safety measures during operation

- When installing the device and preparing it for use, it is FORBIDDEN:

- - to unload and install the device in violation of the requirements of the instruction manual;

- - start with an unconnected or faulty protection circuit and damage to the insulation of the current-carrying parts of the device;

- - start the device with the protective barriers removed;

- - perform work on the device in the event of excessive noise and vibration, the smell of burning and sparking;

- - leave the device energized during interruptions in operation (the input automatic device of the device must be turned off and its handle must be equipped with a sign “DO NOT SWITCH ON - PEOPLE WORK”);

- - work in conditions of exposure to drops and splashes of water, as well as in open areas during rain and snowfall.

2.2.2. Installation and connection.

- Installation, adjustment, and commissioning of the electrical equipment of the device must be carried out taking into account the safety requirements for equipment grounding, resistance and strength of electrical insulation, and compliance with the common safety requirements.

- Installation, adjustment and commissioning of the product must be carried out by trained personnel authorized to carry out these works, or by the manufacturer's personnel under a separate agreement with the customer.

- Before installation, personnel must receive instruction on occupational safety and study the rules for the operation and repair of the product, as well as the standards, norms and rules indicated above.

- 3rd group of electrical safety.

- Maintenance and repair operations must be carried out with the input automatic switch off.

- In all cases, before commissioning, the guards must be put in place and firmly fixed. Do not work with a removed or faulty guard.

- The product has limit stops that prevent the rack and carriage from moving in extreme positions.

- The control panel has a red emergency STOP button with a mushroom-shaped pusher.

- Zero protection excludes spontaneous switching on the device after the uncontrolled appearance of previously disappeared voltage in the power supply network.

- The control panel has a warning light to indicate the presence of voltage.

- The room in which the device is operated must have a designation of a hazardous and fire-hazardous area and is equipped with the necessary protection and fire extinguishing equipment.

- When working on the device, it is FORBIDDEN:

- - work on faulty equipment;

- - use the device outside the technical characteristics specified in the technical description;

- - work with a blunt tool;

- - work on a device with a faulty protection circuit and damage to the insulation of live parts;

- - to be during work in the plane of the saw unit and near the saw, to enter the hands into the dangerous movement zone of the saw;

- - work with the saw not stretched to the working pressure;

- - use the operating mode leading to the saw jamming;

- - carry out work on loading, turning, securing lumber, maintenance, and repair of the device with the saw drive turned on;

- - work on the device with excessive noise and vibration, burning smell, and sparking;

- - leave the device connected to the power supply after work or during significant interruptions in work;

- - carry out repairs and maintenance of the device under voltage (the input automatic device must be turned off and provided with a sign "DO NOT SWITCH ON - PEOPLE WORK");

- - replace the saw without gloves.

2.2.2.2. Action in extreme situations.

In the event of a fire in the room where the device is installed, stop the sawing process, turn off the device and take measures to extinguish the fire. In case of destruction of the band saw, immediately press the "General stop" button, stop feeding the carriage and turn off the introductory machine.

2.2.2.3. Device installation operations.

2.2.3. Install the device frame on a solid foundation (concreted or asphalted area, monolithic reinforced concrete slab) or on the ground with local reinforcement under the frame supports (laid sleepers, areas filled with concrete, etc.).

2.2.4. When installing the stand, adjust the platforms so that the slope of the working surface in the longitudinal and transverse directions does not exceed 1mm / m and spontaneous movement of the carriage is excluded.. A bias towards the working movement of the carriage is not allowed.

2.2.5. Control the position of the working surface of the table with a level, theodolite or a stretched string. After adjusting the position of the table, it is recommended to secure the bed with anchor bolts.

2.2.6. Before the first start-up of the device, it is necessary to check the reliability of the protection circuit and the quality of the electrical equipment:

2.2.7. - check with an ohmmeter the resistance of the protection circuit between the RE contact clamps and the housings of the electric motors and the control panel (the resistance must be at least 0.1 Ohm);

2.2.8. - connect the device to the power supply network and check the direction of rotation of the motors, for which press the "Up" button on the control panel (Fig. 1, item 12) and the saw unit should move up. When the "Start" button of the saw drive is turned on (Fig. 1, pos. 14), it should rotate clockwise when viewed from the motor side. Otherwise, it is necessary to turn off the input machine and swap the wires on the contacts;

2.2.9. - install the saw band on the pulleys and tighten it with the screw 13 to the working pressure of 100 ... 120 kg / cm according to the pressure gauge 1 (Fig. 3). Rotate the saw by hand to check the stability of the belt on the pulleys and the absence of slipping.

2.2.10. Turning on and testing the device.

Perform a test switch on the device at idle speed and test the operation of all controls and protection. Then make sawing, making sure that there is no undulating cut.

2.3. How to work on the device

2.3.2. Personnel action on the working device.

2.3.1.2. . Preparation for work.

Carry out maintenance operations on the device according to the instructions.

After closing the saw guard, turn on the main drive for a few minutes. Then check the condition of the idler rollers and pulley bearings, as well as the position of the saw on the rollers. The device is now ready for use.

2.3.2. Regulation and configuration of the device.

2.3.2.1. Adjusting the misalignment of the driven pulley axis (fig. 3)

After minor wear of the pulley bearings and the appearance of backlash, it may be necessary to change the angular position of the driven pulley 12 to prevent the saw from sliding off the pulleys. To do this, tension the saw to the working pressure, loosen the nut 7 and turn the axis 9 by a small angular value, setting it so that the saw does not slide off the pulleys. Then tighten the nut again.

2.3.2.2. Adjusting the guide rollers (fig. 5) The device has two guide rollers,interacting with the band saw, preventing it from vibrating and pulling away. The adjustment must be started with roller 2, for which loosen the screws 10, 13 and move the roller down with the screw 12, keeping the size 4-6 mm between the outer diameter of the roller and the bearing surface of the pulleys 1 and 5. After that, adjust the roller 4 in a similar way. Using screws 10, 12, 13, set the parallelism of the saw 3 with the ruler 7 relative to the bar 6 with a tolerance of 0.3 mm / 0.5 mm and keeping the dimension "a" (section A-A) 1 mm (between the working end of the roller 2 and the saw). Do the same with roller 4, keeping dimension "a" - 2 mm. After that, once again check the parallelism of the saw to the table and, if necessary, readjust and fix the roller axis with screws.

2.3.3. Possible malfunctions during the operation of the product and their elimination.

ATTENTION! With a loss of sawing accuracy, saw drift, an increase in the cutting width, a torn surface of the material, etc. first of all, check the condition of the blade and replace it with a known good one. Only after that start searching

malfunctions and violations of adjustment mechanisms of the device.

The most probable malfunctions in the operation of the device and its malfunctions (tab. 7).

Table 7

№	The name of the malfunction and its external manifestations	Probable cause	Way fixes
1	Poor surface quality (galling, transverse marks)	Increased feed rate	Decrease filing
		Blade wear	Change blade
		Excessive spreading of a part of the blade teeth	Change blade
2	Saw vibration	Defects or adhered ice / snow on the saw surface or pulleys	Remove ice / snow, replace blade
3	Wide (over 3 mm) cut	Idler rollers not aligned correctly	Install the rollers according to section 2.3.2.2 (fig. 5)
4	Non-flatness of the material (saw drift, "wave")	Blade wear	Change blade
		Loose blade tension	Tension the blade according to the instructions
5	Thickness difference	The saw is not parallel to the surface of the stand	Adjust the guide rollers
6	Blade break	Excessive saw blade wear	Monitor the condition of the saw
7	Microcracks on the outer surface of the blade	The saw "does not rest"	Remove the blade often
8	Overheating or seizure of the guide rollers	The bearing is out of order	Change roller bearings

3.1. Spare parts information.

3.1.1. List of applied rolling bearings (table 8).

Table 8

Designation	Quantity	Position
UCF 206 bearing	1	20(fig.2)
Bearing GE10E	1	23(fig.2)
Bearing 6200-2RS	2	6(fig.2)
Bearing 6203-2RS	2	8(fig.2)
Bearing 6302-2RS	1	10(fig.2)
Bearing 6001-2RS	4	129(fig.3)
Bearing 6203-2RS	4	25(fig.3)
Bearing 6206-2RS	4	131(fig.3)
T28S1	1	8(fig.3)

MANUFACTURER'S WARRANTY

The warranty for the equipment is provided for 12 months from the date of its installation. At the same time, the warranty period cannot exceed 18 months from the date of delivery of the equipment to the customer in accordance with the goods invoices.

The warranty provides for free repair of the equipment for the customer in case of malfunctions caused by the fault of the manufacturer. At the same time, the guarantee does not cover possible losses from loss of income and profit, costs for temporary replacement of equipment, other direct or indirect losses associated with equipment malfunction.

Equipment that failed as a result of violation of operating rules, mechanical damage, as well as due to force majeure circumstances (fire, natural disaster, etc.) is not subject to warranty repair.

The warranty expires if the equipment is serviced or repaired by a person who does not have the appropriate qualifications for repairing such equipment.

When receiving the equipment, the client is obliged to inspect it for mechanical damage and, in the event of its detection, immediately submit a claim in writing to the courier service and inform our manager about it. Otherwise, the product is subject to warranty repair.

If you have any questions or need additional information, please contact us at **www.bftech.pro**

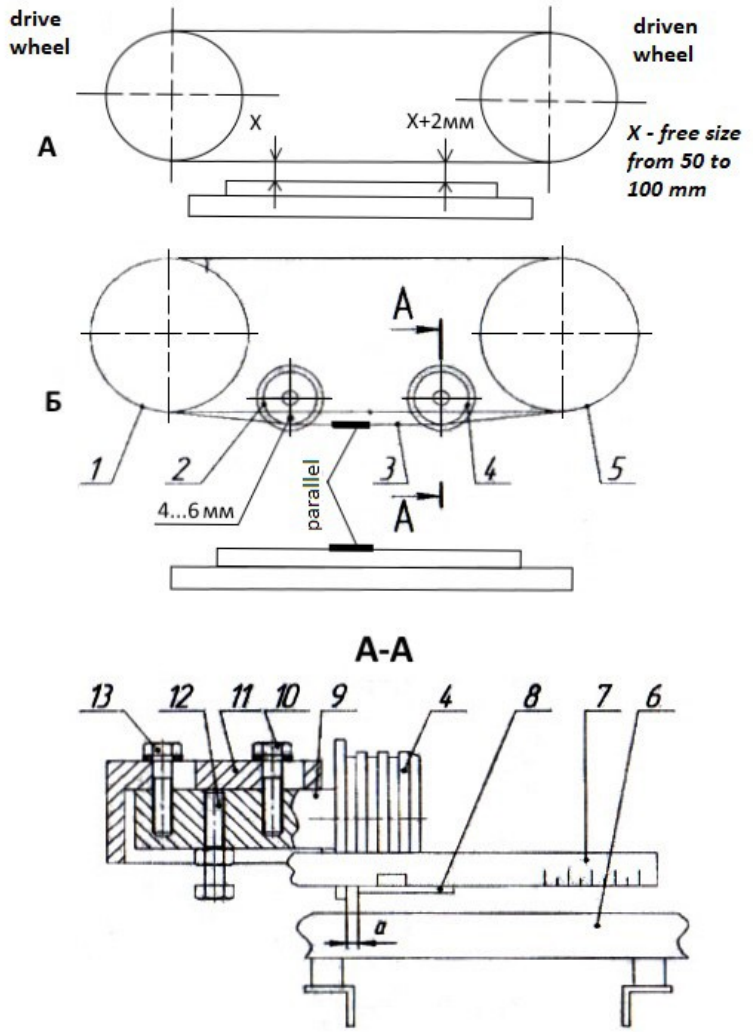


Fig.5. Guide roller adjustment diagram.

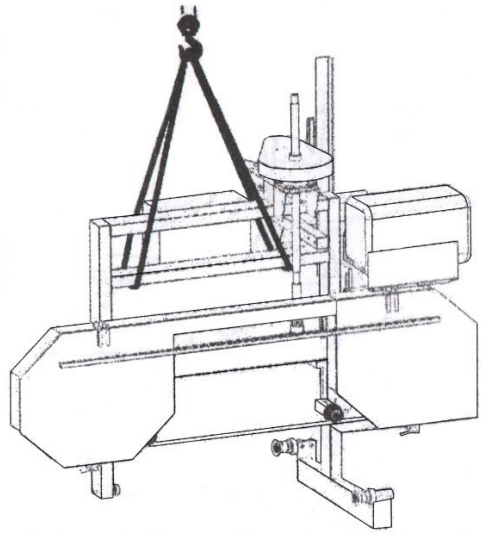
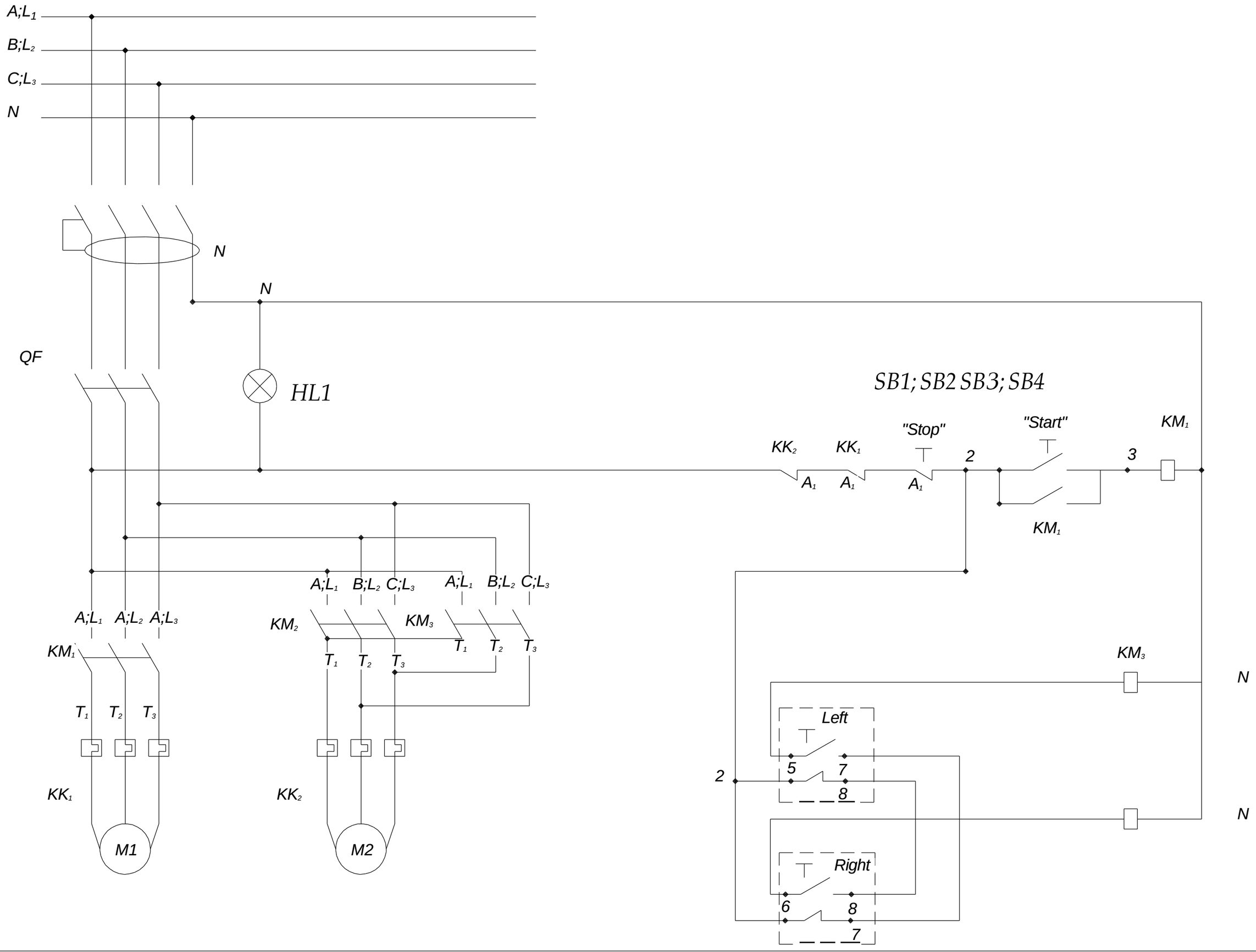
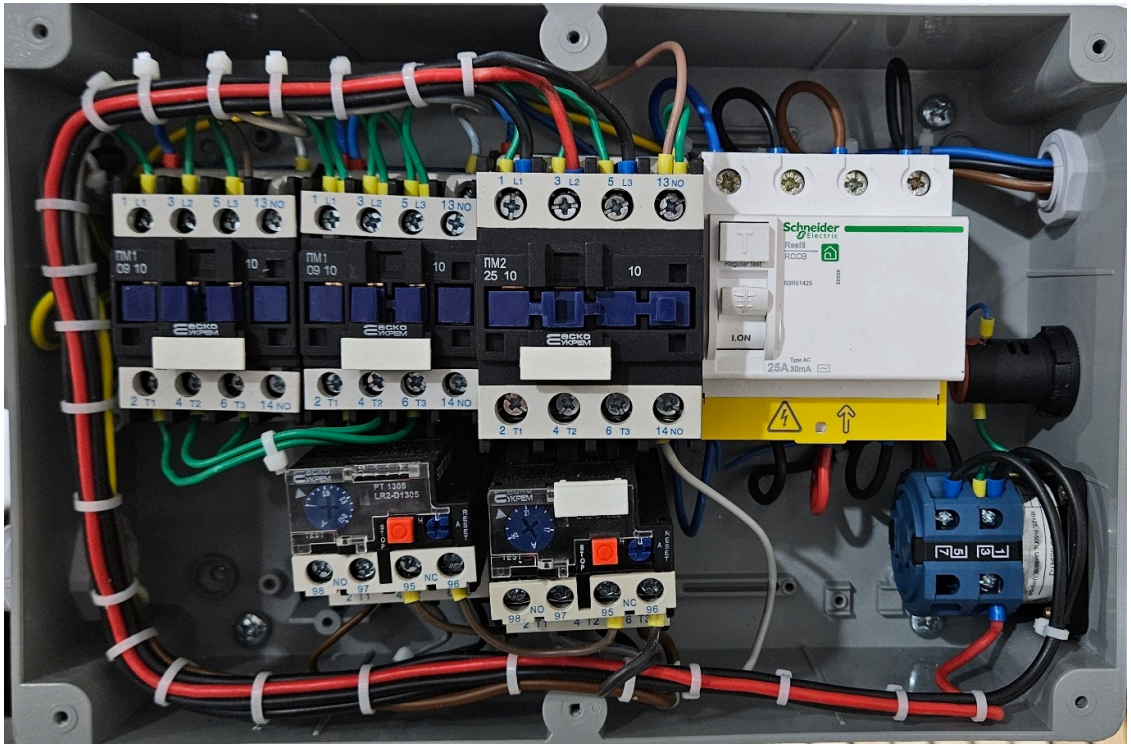


Fig. 7 Transportation of the frame with carriage

principal electric scheme of band saw C70



Electrical diagram of the shield and the control panel of the saw.



KM2 magnetic starter right

KM3 magnetic starter left

KM1 main motor magnetic starter

KK1/KK2 thermal motor protection relay

QF residual current operated circuit-breaker, RCCB

Left - Up button (no.nc)

Right- Down button (no.nc)

M – motor

T1, T2, T3 – thermal relay phases

A;L₁, B;L₂, C;L₃ phase marking

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