LIBRA-02 M / LIBRA-02 HM
COPY ROUTER

User's Manual

CONTENTS **Page**

1. GENERAL INFORMATION

1.1. INTRODUCTION

The user's manual given by the manufacturer contains necessary information about the machine parts. Each machine operator should read these instructions carefully, and the machine should be operated after fully understanding them.

Safe and efficient use of the machine for long term depends on understanding and following the instructions contained in this manual. The technical drawings and details contained in this manual constitute a guide for the operator.

1.2. DISTRIBUTOR

ATech Machine, Inc.
ATech Machine, Inc.
10752-A Tucker Street – Beltsville, MD 20705 USA
Phone: +1-301-595-1816 Fax: +1-301-560-6627
Website: www.ATechMachinery.com E-mail: info@ATechMachinery.com

In case of any technical problem please contact your nearest ATECH dealer through the above mentioned phone, fax or e-mail address.

Technical labels with the model description of the machine are fixed onto the front side of each machine.

The machine's serial number and manufacturing year are stipulated on the technical label.

2. MACHINE'S DESCRIPTION AND PURPOSE OF USE

2.1. MACHINE'S DESCRIPTION

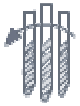
The copy router machines are designed to open lock, handle, hinge and window fastening slots onto PVC and Aluminum profiles.

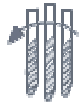
- Channels in different dimensions can be opened independently from copying.
- LIBRA-02 M : Clamping is pneumatically.
- LIBRA-02 HM: Triple drilling unit on the horizontal axis in addition to the copying mechanism.

Please mention the below mentioned data in all your correspondence regarding the machine with the manufacturer and/or your ATECH dealer.

*Machine model
*Machine's serial number
*Voltage and frequency
*Name of dealer where machine was purchased
*Date of purchase
*Description of the machine fault
*Average daily operation period

2.2. TECHNICAL FEATURES

Technical Features (American)						
LIBRA-02 M	800W/1200W 110V/220V 60Hz	14000 rpm	---	90 psi	24x22x57"	160 lb
LIBRA-02 HM	800W 220V/440V 60Hz	14000 rpm	3000 rpm	90-120 psi	26x26x54"	210 lb

Technical Features (Metric)						
LIBRA-02 M	800W/1200W 230V/400V 50Hz	14000 rpm	---	6 Bar	60x55x145 cm	73 kg
LIBRA-02 HM	1200W 400V 50Hz	14000 rpm	3000 rpm	6-8 Bar	65x65x136 cm	95 kg

2.3. OVERALL DIMENSIONS

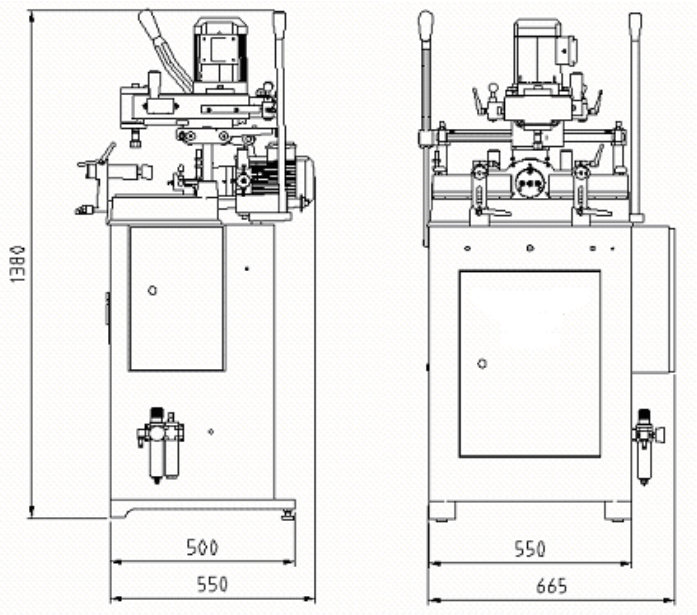


Figure-1

2.4. PART LISTS AND TECHNICAL DRAWINGS

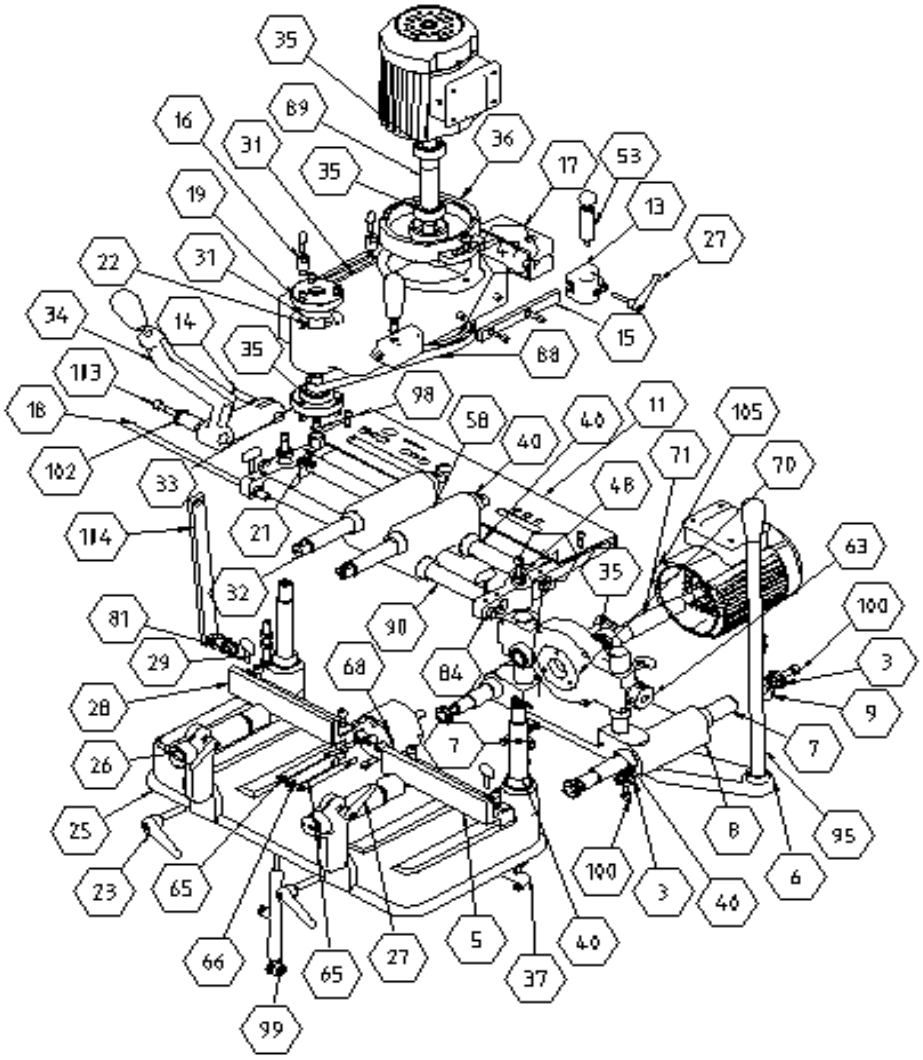


Figure-3

No	STOCK NO / PART NAME	QTY
3	141- 093 Washer Diameter 30x8x7	6
5	111- 075 Right set square	1
6	111-073 Lower motion arm connection	1
7	144-006 Motion shaft	4
8	111-077 Motion bearing	1
9	224-001 Plastic support	2
11	141-083 Copy template	1
13	111-068 Fixing knob bearing	2
14	141-078 Arm pin	1
15	145-017 Fixing knob bearing fixing bolt	2
16	141-074 Upper limiting pin	2
17	111-081 Rear clamping housing	1
18	141-267 Support shaft	1
19	111-083 Router upper bearing housing	1
21	141-085 Router holder shaft	1
22	142-022 Router shaft	1
23	550-009 Handle 1	2
25	111-051 Table	1
26	550-003 Pneumatic clamp	2
27	550-010 Handle 3	4
28	111-076 Set square (left)	1
29	141-138 Tightening knob	6
31	111-084 Head	1
32	144-007 Y Axis motion shaft	2
33	111-071 Router lower bearing housing	1
34	111-069 Arm	1
35	191-005 6204 Bearing	3

No	STOCK NO / PART NAME	QTY
36	111-080 Upper motor lower cover	1
37	141-079 Gas spring connection rod	1
40	192-008 Clamp end 25x35x40 PP	16
47	111-078 Motor cover	1
48	141-069 Bearing shaft connection sleeve	2
53	141-089 Fixing knob shaft bearing	2
58	111-070 Axis bearing	1
63	141-084 Drill bearing support	1
65	204-001 Diameter 10mm Drill bit	2
66	204-002 Diameter 13mm Drill bit	1
68	112-007 Drill bearing	1
70	111-079 Lower motor front cover	1
71	142-021 Lower rotor shaft	1
81	141-077 Arm connection	1
84	111-066 Column bearing	1
88	194-002 16x675 Motor belt	1
89	142-024 Rotor shaft	1
90	144-008 Motion bearing shaft	2
91	191-004 6203 Bearing 17x40x12	1
95	141-294 Lower motion rod	1
98	141-091 Router bit holder	1
99	273-001 Gas spring 3545 400N	1
100	171-019 M8x30 Hexagonal screw	8
102	141-090 Rod sleeve	1
103	172-030 M8x45 Hexagonal screw	5
104	145-016 Arm connection rod	1
105	550-013 Electric motor	2

3. SAFETY

3.1. SAFETY INFORMATION

The symbols shown hereunder are necessary to be read with special attention.
Not reading or observing of them may cause damage to the equipment or personal injury

IMPORTANT

The **IMPORTANT** symbol above is one telling to apply special care and to be careful at carrying out the specified operation.

CAUTION !

The **CAUTION!** Symbol above warns you against specific dangers, and requires to read the text. Not observing may cause damage to the equipment.

DANGER WARNING

The **DANGER WARNING** above warns you against specific dangers, and definitely requires the text to read. Not observing may result in serious bodily injury.

Please read the user's manual carefully before using the machine or carrying out maintenance.

3.2. PREVENTION OF ACCIDENTS

3.2.1 Our machines are manufactured in accordance with EN 60204-1 and EN 292-2 CE safety directives, which cover national and international safety directives.

3.2.2 It is the task of the employer to warn his staff against accident risks, to train them on prevention of accidents, to provide for necessary safety equipment and devices for the operator's safety.

3.2.3 Before starting to work with the machine, the operator should check the features of the machine, learn all details of the machine's operation.

3.2.4 The machine should be operated only by staff members, who have read and understood the contents of this manual.

3.2.5 All directives, recommendations and general safety rules contained in this manual have to be observed fully. The machine cannot be operated in any way for purposes other than those described herein. Otherwise, the manufacturer shall not be deemed responsible for any damages or injuries. And such circumstances would lead to the termination of the warranty.

3.3. GENERAL SAFETY INFORMATION

3.3.1. The power cable should be led in such a way that nobody can step on it or nothing can be placed on it. Special care has to be taken regarding the inlet and outlet sockets.

3.3.2. If the power cable should be damaged during operation, don't touch and unplug it. Never use damaged power cables.

3.3.3. Don't overload machines for drilling and cutting. Your machine will operate more safely with power supply in accordance with the stipulated values.

3.3.4. Don't place your hands between parts in motion.


3.3.5. Use protective eye glasses and ear plugs. Don't wear oversize clothes and jewels. These can be caught by moving parts.

3.3.6. Keep your working place always clean, dry and tidy for accident prevention and safe operation.

3.3.7. Use correct illumination for the safety of the operator. (ISO 8995-89 The Lighting of Indoor Work Systems)

3.3.8. Don't leave anything on the machine.

3.3.9. Don't use any materials other than those recommended by the manufacturer for cutting operations on the machine.

3.3.10. Ensure that the work piece is clamped appropriately by the machine's clamp or vice.

3.3.11. Ensure safe working position, always keep your balance.

3.3.12. Keep your machine always clean for safe operation. Follow the instructions at maintenance and replacement of accessories. Check the plug and cable regularly. If damaged, let it replace by a qualified electrician. Keep handles and grips free of any oil and grease.

3.3.13. Unplug first, before conducting and maintenance works.

3.3.14. Ensure that any keys or adjustment tools have been removed before operating the machine.

3.3.15. If you are required to operate the machine outside, use only appropriate extension cables.

3.3.16. Repairs should be carried out by qualified technicians only. Otherwise, accidents may occur.

3.3.17. Before starting a new operation, check the appropriate function of protective devices and tools, ensure that they work properly. All conditions have to be fulfilled in order to ensure proper operation of your machine. Damaged protective parts and equipment have to be replaced or repaired properly (by the manufacturer or dealer).

3.3.18. Don't use machines with improper functioning buttons and switches.

3.3.19. Don't keep flammable, combustive liquids and materials next to the machine and electric connections.

4. TRANSPORT OF THE MACHINE

IMPORTANT

4.1.1. The transport should be done by qualified personnel only.

4.1.2. The machine should be transported by lifting with proper equipment (not touching the ground during the transport).

4.1.3. Machines are covered with nylon for delivery, unless the customer has not required other method of packing.

4.1.4. For the weight, dimensions and technical features of the machine please see page 5.

4.1.5. Movable parts on the machine should be fixed before carrying out the transport.

5. INSTALLATION OF THE MACHINE

5.1. PREPARATION

5.1.1. The outer dimensions of the machine are mentioned under Technical Features on page 5. The ground, where the machine will be placed, should be even, solid enough to bear the weight of the machine.

5.1.2. The machine should be located approx. 50 cm away from the rear wall. The power connection plug of the machine is located on the rear side of the machine.

5.1.4. At the copy router machines LIBRA-02 M/HM, fix the support bars (Figure 4) to the back fence No. 5 using the handle No. 29. Fix the fence support No. 113 with its special screw No. 27.

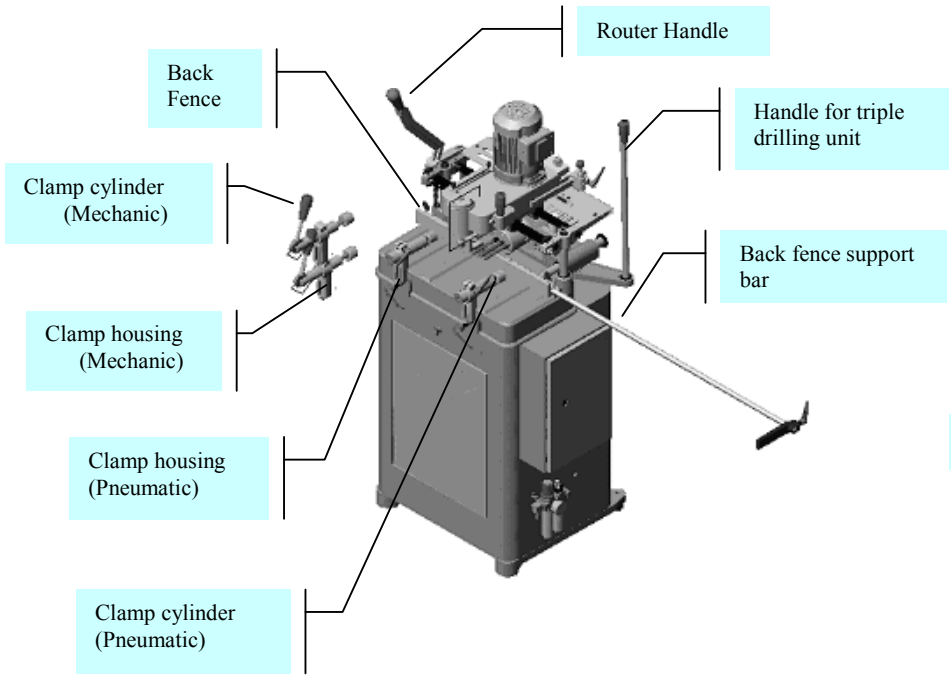
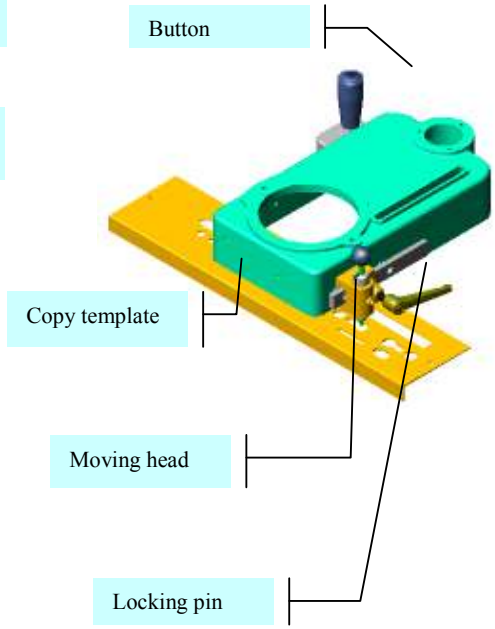


Figure - 4

Figure - 5



5.2. ELECTRIC CONNECTION

5.2.1 The three-phase electric cable socket has to be in accordance with the socket on the machine.
5.2.2 At our models LIBRA-02 M the voltage can be chosen as 230V 50 Hz (110V 60Hz) or 400V 50 Hz (220V/440V 60Hz). The voltage at our model LIBRA-02 HM is 400V 50 Hz (220V/440V 60Hz) as per standard.
5.2.3 Plug the machine to a grounded socket.

CAUTION !

5.2.4 Check the supply voltage. The source voltage must be in accordance with the data on the machine's label.
5.2.5. The electric connections have to be carried out by a qualified electrician only. The rotation direction must be observed by starting the machine. If the rotation of the router bit or drill is in reverse direction, the clamp wire connections have to be checked and the connections changed as appropriate.
5.2.6. If the router bit rotation direction is reverse, it causes danger both for the operator and equipment. This can cause the cutting tools to break or get damaged.

NOTE: THIS IS VALID FOR THREE-PHASE MOTORS.

6. MACHINE SAFETY INFORMATION

6.1.1 The machine should not be used without the transparent protection shield in front of the router bit.
6.1.2 Lifting, installation, electric maintenance of the machine should be carried out by qualified personnel only.
6.1.3 Routine maintenance and scheduled maintenance should be carried out by qualified personnel after unplugging the machine first.
6.1.4 Ensure that the machine has been cleaned, tested and maintained before starting to operate it.

6.1.5 Check the safety devices, power cable and moving parts regularly. Don't operate the machine before having replaced defective safety devices or faulty parts.
6.1.6 Never replace the router bit or drill bits before unplugging first.
6.1.7 Keep foreign materials away from the working area of the machine, keep away from the machine's moving parts.

IMPORTANT

The safety data have been defined above. In order to prevent physical damage or damage to the equipment, please read the safety information carefully and keep the manual always in an easy accessible place.

7. OPERATION

7.1. STARTING TO WORK

7.1.1 Ensure that the machine table and all kind of parts are clean and dry. Degrease and dry the machine table. Especially ensure that the holding grips and handles are clean and dry.
7.1.2 Clean all surfaces of the machine from chip and foreign particles. Use eye glasses for protection.
7.1.3 Check with the appropriate keys that the router bit and drill bits are tightened well.
7.1.4 Check the router bit and drill bits for wear, bending and breaking. Replace them if damaged.
7.1.5 The copy router machines LIBRA-02 M/HM are used for opening of key lock shapes, hinge slots, window fastening slots and holes, slot channels in different dimensions independently from the copying onto non-ferrous aluminum materials and hard plastic materials or wood.
7.1.6 Fix the aluminum, PVC or wood profile, onto which you want to copy holes or slots, with the clamps located on the machine table. For the clamp fixing and opening button at our models LIBRA-02 M and 224 see Figure 4. Chose the appropriate shape on the copy template to open lock, hinge slots etc. See Figure 5.
7.1.7 Place the pin into the desired shape on the copy template. See Figure 5.
7.1.8 Push the system start button to position 1.
7.1.9 Start to operate the router bit by keeping the pushbutton on the moving head pressed (See Figure 5). At the same time, move the pin inside the shape to copy it onto the profile. Push the height adjustment handle down so that the router bit reaches the desired depth. See Figure 4.
7.1.10 For the horizontal triple drilling operation: while keeping the button on the handle pressed, which moves the triple drilling unit, pull the handle towards yourself. For the drilling depth: use the adjustment screw shown in Figure 7. To fix the adjustment, tighten the counter bolt.
7.1.11 The height of the triple horizontal drilling unit (at our model LIBRA-02 HM) can be adjusted precisely using the screws shown in Figure 2. Fix the desired height by tightening the counter bolt on the screw.
7.1.12 Release the button after the copying operation is finished. The router bit stops to turn approx. 10 seconds after the button has been released.
7.1.13 Open the clamps and take out the processed part.

NOTE:
*It is possible to adjust four different serial profile heights with the height adjustment device.

**Independently from the copying mechanism you can open channels and slots of max. 260 mm (10.2") on the X axis, max. 130 mm (5.1") on the Y axis and 90 mm (3.5") on the Z axis.

CAUTION !

7.1.14 Do not process the profile before clamping the work piece properly.

7.1.15 The router bit and triple drill unit should be moved down only after the regular rotation has been reached.

8. CHANGING THE ROUTER BIT AND DRILL BITS

8.1 If it becomes necessary to replace the router bit for any reason, follow the following order for replacement:

8.1.1 Unplug the machine
8.1.2 With the 2 wrench keys 14 and 17 loosen the router bit holder by turning the bolt of the router bit holder in counter clockwise direction. Remove the router bit from its holder. Insert the new router bit into the holder, and tighten the bolt with the wrench keys.

NOTE: Ensure that the router bit is fixed properly.

CAUTION!

8.1.3 Check the router bit before using it. The router bit has to be inserted into the holder properly. Don't use damaged router bits with improper function. Operate the machine for at least 30 seconds to be sure that the router bit has been inserted and fixed correctly.

8.2 CHANGING THE TRIPLE DRILL BITS

8.2.1 Unplug the machine.
8.2.2 Loosen the screw on the connection of the triple drilling unit's drill shaft with a 3 mm hexagonal key. Replace the drill bit, and tighten the screw.

NOTE: Ensure that the drill bit is tightened properly.

9. ADJUSTING THE AIR PRESSURE OF PNEUMATIC CLAMPS (AT OUR MODELS LIBRA-02 M and LIBRA-02 HM)

9.1. Pull the adjustment button of the conditioner upwards (Fig. 6)

a- Turning the adjustment button in clockwise direction increases the pressure
b- Turning the adjustment button in counter clockwise direction decreases the pressure

9.2 Once you read 6-8 Bar on the manometer, push the adjustment button of the conditioner down and lock it in that position.

CAUTION!

The air supply to the machine has to balance 6-8 Bar (90-120 psi) pressure. Don't operate the machine at an air pressure lower than 6 Bar (90 psi).

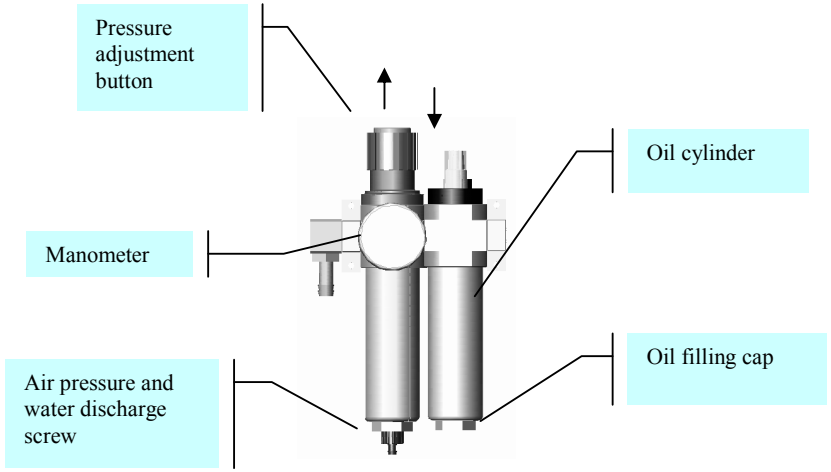


Figure-6

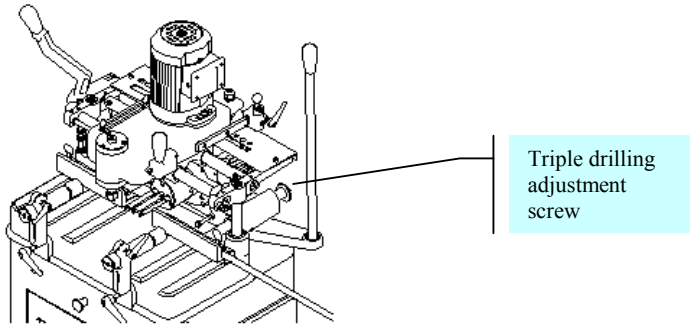


Figure-7

9.3 In order to prevent that the water inside the air system causes damage to the pneumatic system components, the conditioner unit collects the water in the collection receptacle. Discharge the collected water periodically (at the end of the working day) by pressing the button under the cylinder depot of the conditioner.
9.4 The manufacturer recommends to use the following oils with the conditioner: TELLUS C 10 / BP ENERGOL HLP 10/ MOBIL DTE LIGHT / PETROL OFISI SPINDURA 10.

10. MAINTENANCE

10.1 PERIODIC CONTROLS AND MAINTENANCE AT THE END OF THE WORKING DAY

10.1.1 Unplug the machine first.
10.1.2 Check the oil level of the conditioner, which lubricates the pneumatic system, before starting to operate the machine. The oil level decreases with the time. You can refill oil by opening the oil filling cap of the cylinder depot manually or with a key.
10.1.3 Check the router bit for its proper function at each operation. Replace damaged router bit.
10.1.4 If you have used water or water based liquids during drilling operations, dry the machine with a dry cloth after the operation is finished. If the machine will not be used for a long time, lubricate the unpainted sections of the machine as protection against corrosion.
10.1.5 Remove all burr, foreign materials from the machine's surface.
10.1.6 When cleaning the machine, don't use any materials which could cause damage to the machine's paint.

11. INFORMATION ABOUT FAULTY USE

11.1 Check the plug for power supply.

11.2 Keep the button pressed for continuous turning of the router bit.

11.3 Ensure that the rotation direction of the router bit and the triple drilling unit is correct (see the turning direction labels on the machine).

11.4 Do not start working the profile before the pneumatic clamps have clamped the profile properly.

11.5 This machine is used for opening of slots, channels in various dimensions onto PVC, aluminum profiles and wooden materials.

12. ELECTRIC / PNEUMATIC COMPONENTS

11.1 ELECTRIC COMPONENTS

STOCK CODE	PART NAME	QTY
161-006	MAIN SWITCH KG1OB	1
162-003	CAPACITOR 25 MF 250 V	1
162-004	CONTACTOR LC1 K 0610 M7	1
163-004	SINGLE-PHASE WIRING	1
163-006	ROTOR STATOR	1
164-002	0.75 mm CABLE (BLACK)	0.5
164-006	1.5 mm CABLE (BLACK)	1.5
164-011	3*1.5 TTR CABLE	3
164-014	INTERM. CABLE 2*1 TTR	0.65
164-022	7*0.75 mm CONTROL CABLE	0.145
164-024	6*1 CONTROL CABLE	1.45
165-009	PUSH BUTTON D22-TS	1
165-011	PERFORATED RAIL (KLEMSAN)	0.15
165-012	WGD1 CONNECTOR STOPPER	2
165-016	CABLE CHANNEL (37.5*37.5)	0.4
165-020	PEK 2.5 MM. BEIGE CONNECTOR	5
165-021	NO:1 ROW CONNECTOR	0.07
165-025	PEK 2.5 mm BLUE CONNECTOR	1
165-028	TERMINAL SHEET NPP 2.5 10	3
165-029	PG 11 SLEEVE	1
165-031	PG 13.5	1
165-033	PG 16	3
165-040	WARNING LABEL IP 2S	2
165-048	GROUNDING CONNECTOR WGT4	2

11.2. PNEUMATIC COMPONENTS

STOCK CODE	PART NAME	QTY
241-004	6mm AIR HOSE	2.2
241-005	AIR GUN HOSE	2.5
241-009	FRC-1/8-D-MINI/CONDITIONER	1
241-022	1/4 EXHAUST (SC-SINTER)	1
241-023	SV 1/4-3/2 D.O MANUAL VALVE	1
242-001	AIR GUN LBP-1/4	1
243-004	1/4 HOSE INLET	1
243-008	1/4 TRIPLE DISTRIBUTOR	1
243-009	LATERAL QUADR. T S6440-6-1/4	1
243-010	1/4-1/8 NIPPLE (DECREASING)	1
243-011	1/4-6 SLEEVE (S6510-6-1/4)	1
243-014	1/4-8 SLEEVE (S6510-8-1/4)	1
243-023	1/8-6 ANKLE (S6520-6-1/8)	2
243-025	1/8-6 SLEEVE (S6510-6-1/8)	1
244-011	O RING 28*2	2

12. TROUBLESHOOTING

Here are some recommendations for solving urgent problems. If the trouble cannot be solved, or if you have a problem other than those described hereunder, please contact our technical service or your nearest dealer.

TROUBLE	CAUSES	REMEDY
Low surface quality (at aluminum and similar materials) : Rough surface, Large chip, Not homogenous surface	Not cooling the router bit surfaces	Lubricate the surfaces of the router bit, Use of cooling liquid
	Damaged or blunt router bit use	Check the tip of the router bit and its cutting flutes, the tip could be broken. If so, replace the router bit.
Motor does not work (although the start button on the lever is kept pressed)	There is no power supply to the machine	Check the electric connections. Check the power sockets.
Motor runs, but the pneumatic clamp pistons do not work.	The air supply connections are missing or faulty.	Check the air compressor connections Adjust the air pressure to 6-8 Bar on the conditioner
The router bit rotates in reverse direction.	The electric connections, power cable or control panel connection is wrong	Let the electric connections carry out by a qualified electrician.