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MODEL

GAA-500-90 CNC DT20

AUTO UPCUT

COLD SAW

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1. INTRODUCTION

This instruction manual has been made in compliance with the requirements of the Legislation according to the Machine directive 2006/42/CEE and its subsequent amendments.
The instruction manual represents an integral part of the machine. It must be consulted before, during and after the machine is put into service, as well as whenever it is considered necessary, thereby respecting the content in each and everyone of its parts.
This is the only way in which the fundamental objectives that have been established on the basis of this manual will be achieved, such as accident prevention and making optimal use of the machine features.
Within the framework of this manual, all aspects regarding safety and accident prevention on the job

while using the machine have been considered in every detail, herein highlighting the information that is of greatest interest to the user.

- **ATTENTION! Before installing the machine, read this manual carefully. The manual must be kept throughout the life of the machine, so that it is easy to find, if necessary. In the event that the used machine is sold, the machine shall be sold together with this manual. In the event that the machine is scrapped, the identification plate and any other document supplied with the same must be destroyed.**

1.1 LEGISLATION (Applicable to the planning and construction of the machine.)

EN-12100-1	**Machine Safety. Basic concepts, general design principles.**
EN-12100-2	**Machine Safety. Basic concepts, general design principles.**
EN-13857	**Safety distances to prevent dangerous zones from being reached by the upper extremities.**
EN-60204/1	**Electrical equipment of industrial machines.**
EN-13850	**Machine Safety; emergency stop equipment.**
2006/42/CE	**On "Machine Safety"**
93/68/CE	**On the CE Marking (amendment).**
73/23/CE	**On "Safety of Electrical Material".**
2004/108/CEE	**On "Electromagnetic Compatibility".**

1.2 WARRANTY

Scotchman Industries, Inc. will, within 2 years of date of purchase, replace F.O.B. the factory or refund the purchase price for any goods which are defective in materials or workmanship and, at the seller's option, returns the defective goods, freight and delivery prepaid, to the seller, which shall be the buyer's sole and exclusive remedy for defective goods.

Hydraulic and electrical components are subject to their respective manufacturer's warranties.

This warranty does not apply to machines or components which have been altered, changed or modified in any way or subjected to abusive or abnormal use, inadequate maintenance or lubrication or subjected to use beyond the seller's recommended capacities and specifications.

In no event shall seller be liable for labor costs expended on such goods or consequential damages.

Seller shall not be liable to purchaser or any other person for loss or damage directly or indirectly arising from the use of the goods or from any other cause.

No officer, employee or agent of the seller is authorized to make any oral representations or warranty of fitness or to waive any of the foregoing terms of sale and none shall be binding on the seller.

Any electrical changes made to the standard machine to comply with local electrical codes must be paid by the purchaser.

As we constantly strive to improve our products, we reserve the right to make changes without notification.

2. GENERAL INFORMATION

2.1 MACHINE IDENTIFICATION DATA

Model: **GAA - 500 - 90° CNC DT20**
Serial number:
Manufacturing year:

✉ **NOTE: In order to request spare parts, whether covered by the warranty or not, always indicate the model and serial number of the machine; as well as the name of the part and the code that appears in the last chapter of the parts exploded views.**

2.2 TECHNICAL DATA

Characteristics	Dimension
Three phase motor	4 HP 230/400 V
Motor speed	3,000 RPM
Interior ∅ of blade	50mm (2")
Maximum ∅ of saw blade	500mm (20")
Maximum cutting height	170mm (6.8")
Feeder travel	700mm (28") MULTIPLE ADVANCE
Air consumption	20 litres (5.2 gallons)/minute
Pneumatic hold-down clamps	6 (3 horizontal & 3 vertical)
Lubrication system	Pneumatic, by sprayer
Dimensions	1950 x 1200 x 970 (height of working surface)
Weight	520 kgs (1,430 lbs)

2.3 ELECTRICAL DATA

Power supply	Motor power	Total consumption
220 V Three phase	1.5 Kw/2 HP	17 A
380 V Three phase	1.5 Kw/2 HP	12 A

2.4 NOISE LEVEL

At a distance of 60cm	**RUNNING OFF-LOAD**	**68 Db (A) Leq**
	MACHINING A 70 X 50 PROFILE	**108 Db (A) Leq**

➲ **ATTENTION: When working with the machine, use individual hearing protection equipment.**

3. INDICATIONS REGARDING TRANSPORT/STORAGE

The machine is delivered on a pallet in order to be transported by forklift.

Store in the vertical position.

Do not stack.

If the machine remains stored for a long period of time, periodically lubricate it.

Do not expose to the elements.

The packaging is made of properly designed and sized wood and it is also supplied wrapped in plastic.

⌦ **CAUTION: Do not improperly dispose of the packaging. Send this material to be recycled or disposed of in accordance with all legislation in force.**

4.0 INSTRUCTIONS FOR ANCHORING & SERVICE START-UP

4.1 ANCHORING INSTRUCTIONS

Ensure that the machine has not suffered any damage during transport by making an initial visual inspection. If damage is observed, advise the manufacturer immediately.

The machine must be installed on a firm and level surface in order to thus reduce vibrations during operation and so that the machine operates within the parameters established by the manufacturer.

4.2 POWER SUPPLY CONNECTION

Verify that the power supply voltage corresponds to the voltage indicated on the specifications plate of the machine. Connect the cable to the power supply, using a plug that is appropriate for the characteristics of the same, thereby respecting the color codes.

Once the machine is connected, verify that the motor rotation agrees with the direction of the saw blade teeth (rotation to the right). If the motor rotation was not correct, change the two phases of the motor. Then, check the rotation again.

The pneumatic connection must be made to the supply system, using a tube that is appropriate for the spigot of the machine. Adjust the pressure at the filtering group.

➲ **ATTENTION! The pneumatic working pressure must be between 6 and 7 atm.**

4.3 BLADE INSTALLATION

In order to install the blade, disconnect the power to the machine (deactivate the main switch) and press the EMERGENCY STOP BUTTON. Access the machine shaft through the sheet metal front, where the cutting oil sprayer is located. Lock the shaft, using the 12 ∅ rod that is provided with the tools, and loosen the blade nut.

⌦ **ATTENTION! Assure that the blade is adapted for this machine. (Diameter of the axis 50mm.)**

⌦ **DANGER! After changing the blade, put the sheet metal front back on.**

4.4 CUTTING COOLANT

In order to fill the machine with cutting coolant, open the reservoir and fill with PURE, NON-EMULSIFIABLE CUTTING OIL. (VISCOSITY ISO VG 16-32 cST 40° C)

4.5 PNEUMATIC OIL

Both the oil-pneumatic converters and the filter group lubricator must be filled with ISO VG 32 VISCOSITY PNEUMATIC OIL. If none is available, use hydraulic oil HLP 32.

5. INSTRUCTIONS FOR USE

5.1 PROPER AND IMPROPER USE

This is an automatic cut-off machine, especially designed for cutting aluminum profiles. The use of the machine for cutting other materials is hereby prohibited. Such use may cause damage to the machine and put the health and safety of the worker at risk.

⌦ **DANGER! We are not responsible for any possible accident caused by the failure to comply with the aforementioned.**

5.2 FUNCTION OF THE OPERATING MECHANISMS

1. **Blue push button: To re-arm machine.**
2. **Operating mode selector: MANUAL - AUTOMATIC.**
3. **Green push button: Automatic cycle start.**
4. **Black push button: Hold down feeder clamp operation.**
5. **Black push button: Hold down machine clamp operation.**
6. **Lift protective shield.**
7. **Blade raise advance regulator.**
8. **Green push button: Blade raise.**
9. **Emergency button with interlock. It stops the machine completely.**
10. **Red push button: Automatic cycle stop.**
11. **Saw blade on-off: ON, green colored symbol I; OFF, red O.**
12. **Touch screen 5, 6".**

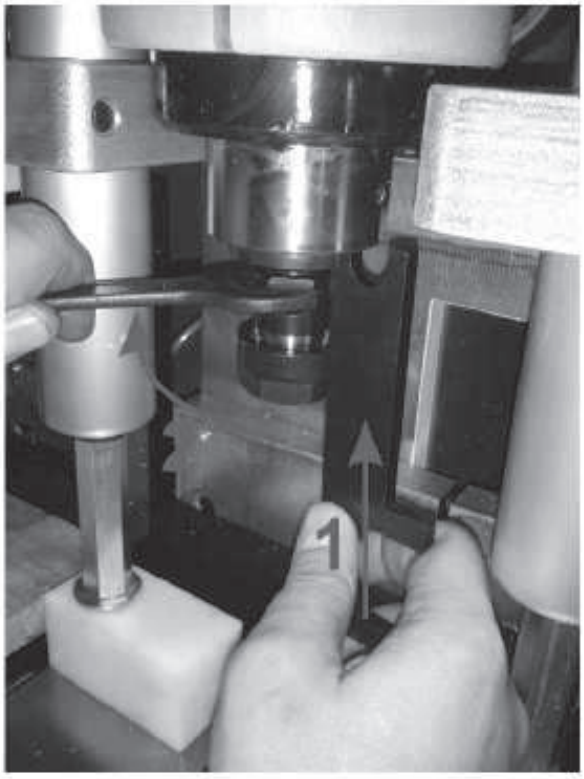
Signal lamps: **Red: emergency.**

Orange: Machine working in automatic cycle.

Green: Power supplied to the machine.

The machine is provided with one simple collet chucks with axial compensation for drill and tap.

To change the collet chuck:



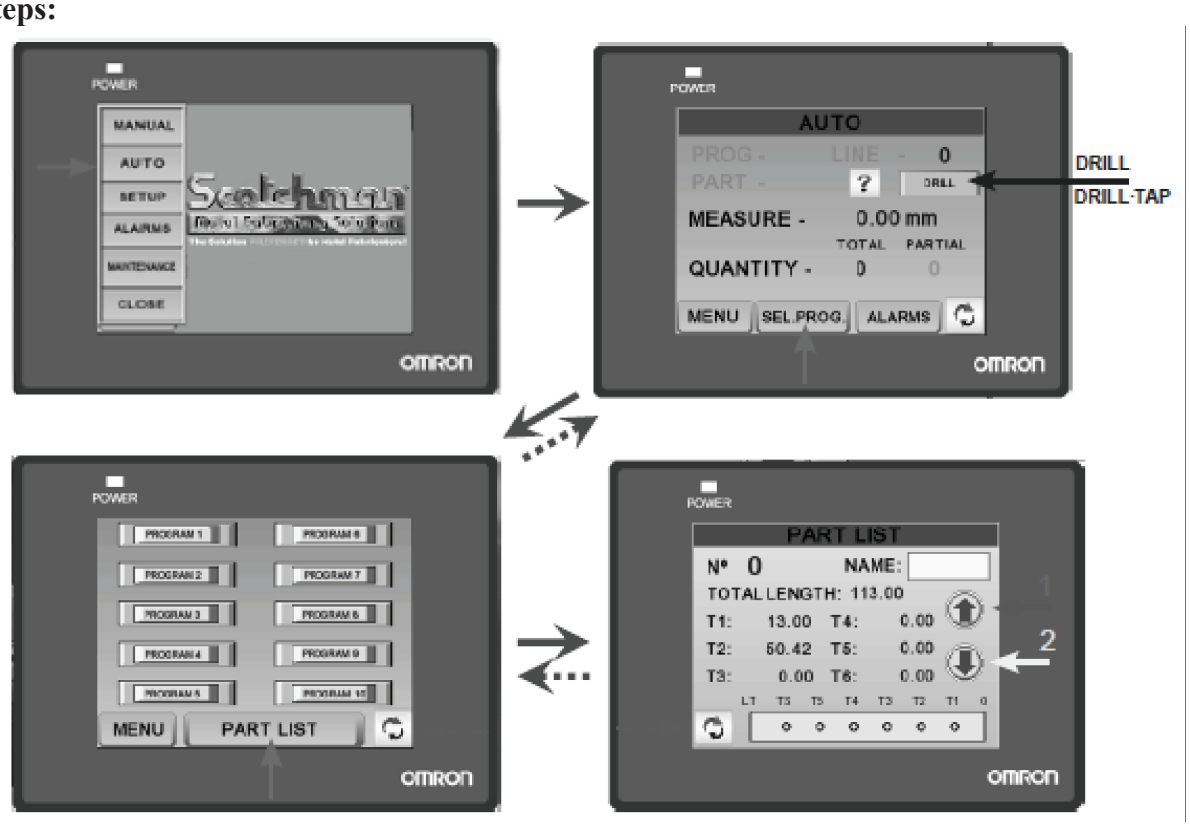
5.3 MANUAL MODE

With the operating mode switch in the MANUAL MODE, the operator can activate the hold down clamps, the feeder gripper and the saw blade. We recommend that very high feed rate for the saw blade or high feed rate on the shuttle feed not be used as this would greatly reduce the duration of the blade and the quality of the cut. The feeder can also be operated for maintenance purposes in this mode.

5.4 AUTO MODE

In the auto mode, you can program the part list and the programs of work. To program the part list, use the following steps:

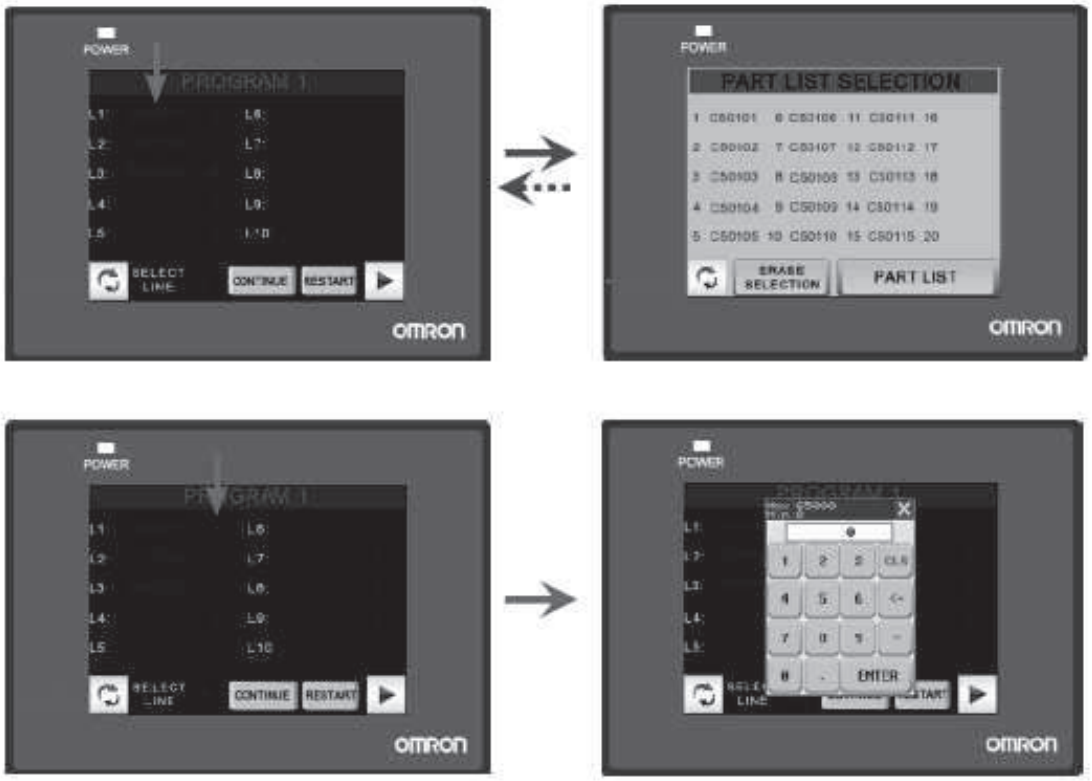
With the arrows 1 and 2, we can select the number of parts to program. It is possible to program the total length and six drilling positions.



TO CREATE, TO MODIFY AND TO EXECUTE A PROGRAM OF WORK:

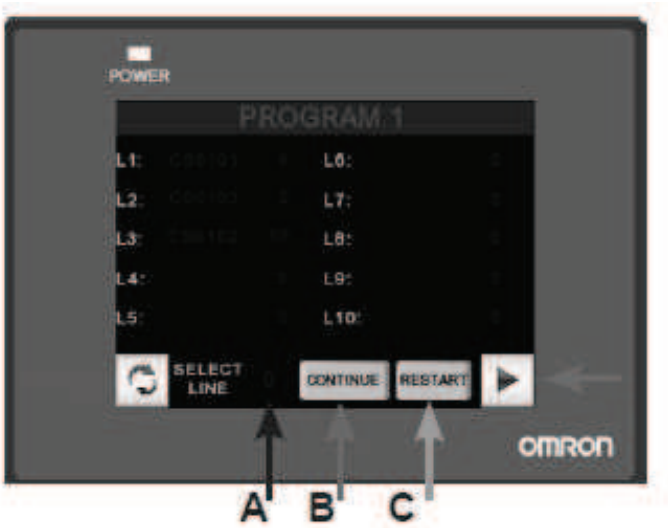
1. Select the program of work.

2. Select the part list and the number of pieces.

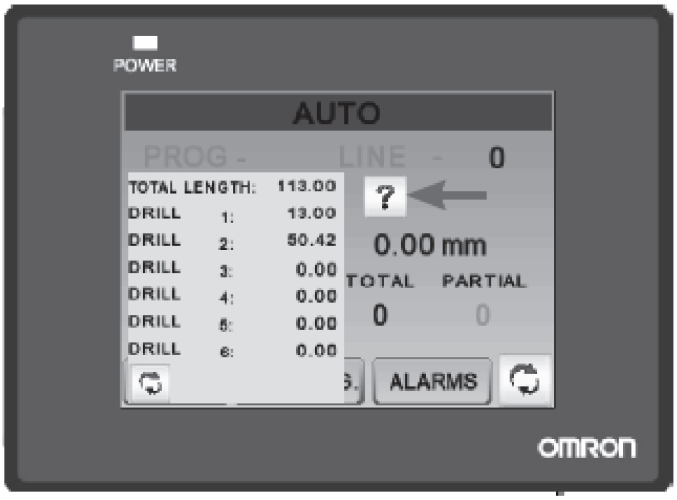


If you don't program code of piece or number of pieces, the program is finished.

3. **To execute the program:**



A - To select line of beginning.
B - To continue the program in the last line in execution.
C - To execute the program from the first line.



When the machine is prepared for the execution of the program, follow the steps below:

1. **Adjust the desired height of the cut, using the travel end stop at the right of the machine.**
2. **Position the machine hold-down clamps and the feeder gripper close enough to the material so that they do not travel more than 5 millimeters (2/10 of an inch).**

⌦ **It is important that the horizontal hold-down clamp of the feeder gripper is a maximum of 5mm from the material. If not, it will not allow the machine to be turned.**

3. **Position the bar over the feeder so that it passes by about 10mm (4/10 of an inch) from the saw blade groove.**
4. **Fasten the material by operating the hold-down clamps of the feeder gripper.**
5. **Start the working cycle by pressing the START button.**
   The machine will stop automatically when the material is finished, the stop button is pressed, the alarm is produced or when the program is finished. During the work of the machine, we can see the measures of the part in execution.

5.5 GENERAL RULES AND SAFETY CHECKS

- ☑ **Before using the machine, check the efficiency and perfect operation of all safety devices and check that the moving parts of the machine are not blocked, that there are no damaged parts and that all machine components are positioned and work correctly.**
- ☑ **All safety devices must be kept in working order.**
- ☑ **DO NOT operate this machine without the protective shield in position.**
- ☑ **ALWAYS wear gloves and protective eyewear.**
- ☑ **ALWAYS wear regulation work clothes that are not loose fitting and are fastened.**
- ☑ **Before operating the machine, the operator must ensure that all tools used for maintenance or adjustment have been removed.**
- ☑ **In the event of a fire, use powder extinguishers and disconnect the machine from the electric system.**

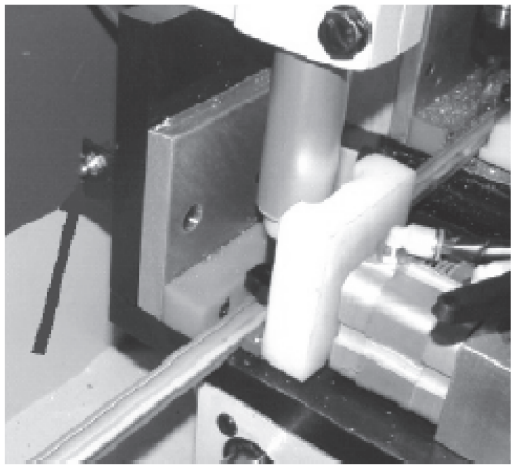
6.0 RECOMMENDATIONS AND MAINTENANCE

6.1 TYPE AND FREQUENCY OF INSPECTIONS

The operator's knowledge of the machine is one of the best ways of daily control of any possible problem. If any failure is detected, work must be stopped and qualified personnel must be informed immediately.

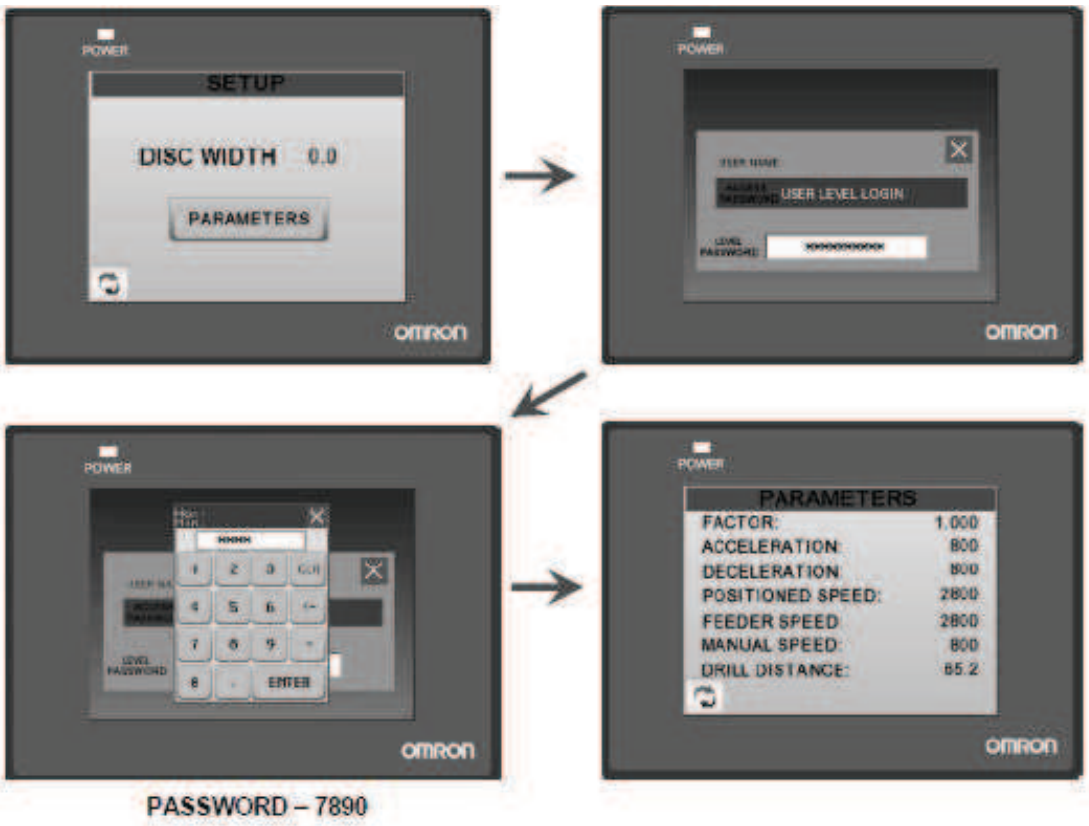
- ☒ **NOTE: ALWAYS CLEAN THE MACHINE AND THE WORK AREA AT THE END OF THE WORKDAY.**

➲ **ATTENTION: Every eighty hours LUBRICATE - 2 strokes - KLUBER ISOFLEX NBU 15.**



In the SETUP menu, we can modify the parameters of the machine.

➲ **The password 7890 may be used by qualified personnel only.**



PASSWORD – 7890

6.2 QUALIFIED PERSONNEL FOR MAINTENANCE/REPAIR

- **All repairs shall be made exclusively by qualified personnel; thereby, always using original replacement parts. If not, the machine may be damaged or the user may be injured.**
- **The maintenance and cleaning of the machine must not be neglected. The life of the machine and its optimal operation depend on it considerably.**

6.3 POSSIBLE BREAKDOWNS

NONE OF THE MACHINE COMPONENTS WORK.

Check that there is voltage at the input and output of the main switch.
Check the control circuit fuse.
Check the condition of the transformer.

THE FEEDER DOES NOT WORK CORRECTLY.

Check the status of all end-of-travel stops and the positioning of same.
Check the condition of SERVO DRIVE.
Check the condition of the PLC and the voltage on the line itself (24 VDC).

THE SHIELD RAISED INDICATOR DOES NOT TURN OFF.

Ensure that the PLC is not receiving a signal at input ch103. If it is, check the detector located on the shield cylinder.

THE BLADE DOES NOT RAISE CORRECTLY.

Check the cylinder and regulator.
Check the pressure at the filter regulator.
Check that the advance may be too high.
Check the "raise blade" push buttons.

THE FEEDER DOES NOT MOVE CORRECTLY.

Check the feeder guides.
Check the ball-screw.
Check that the advance may be too high.

6.4 MANUFACTURER'S RECOMMENDATIONS

☑ **In the event that the machine is broken down or the saw blades must be replaced, place a padlock on the protection switch and place the keys under the care of qualified personnel.**

☑ **Before working on any electrical devices, disconnect the plug from the power supply.**

☑ **If extension cords are used, ensure that the cable has the appropriate cross-section for the power of the machine.**

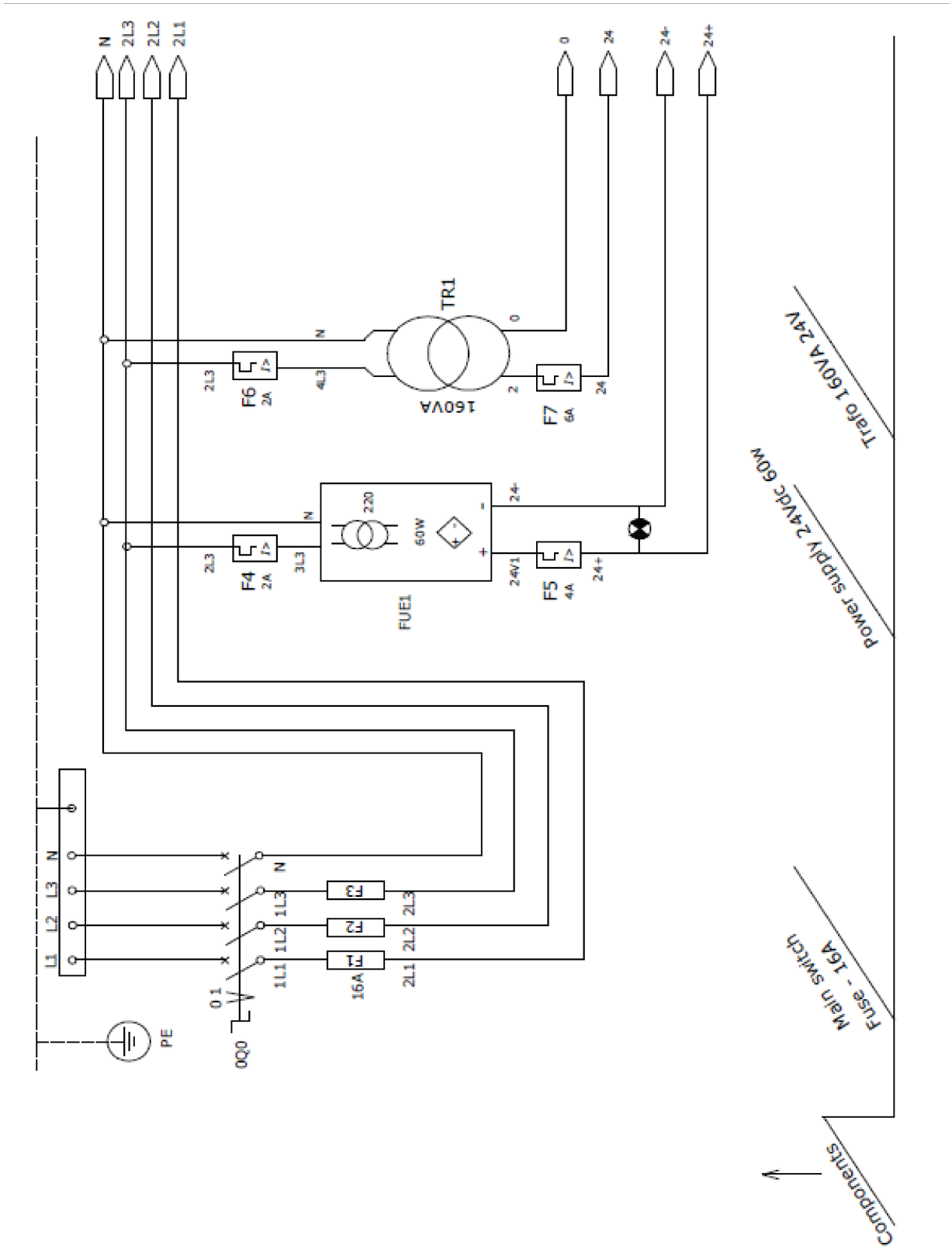
☑ **Whenever any part has to be replaced, use an original replacement part and endeavor to use the oil recommended by the manufacturer.**

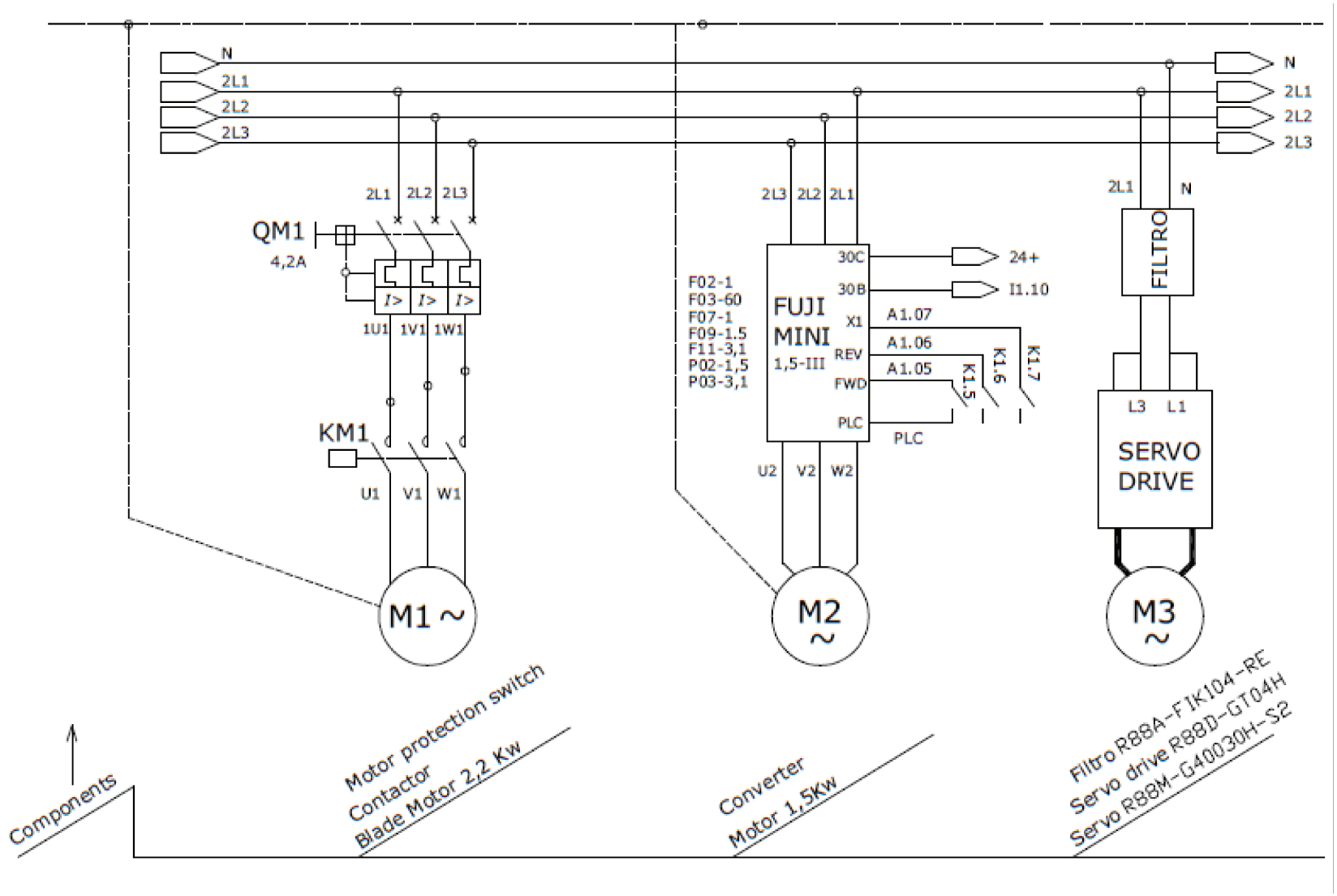
✉ **NOTE: IN CASE OF ANY DOUBT OR PROBLEM, DO NOT HESITATE TO CONSULT THE MANUFACTURER.**

➲ **ATTENTION: THE MANUFACTURER GUARANTEES THE SUPPLY OF EACH ONE OF THE PARTS OR COMPONENTS FOR AT LEAST THREE YEARS FROM THE MANUFACTURING DATE OF THE MACHINE.**

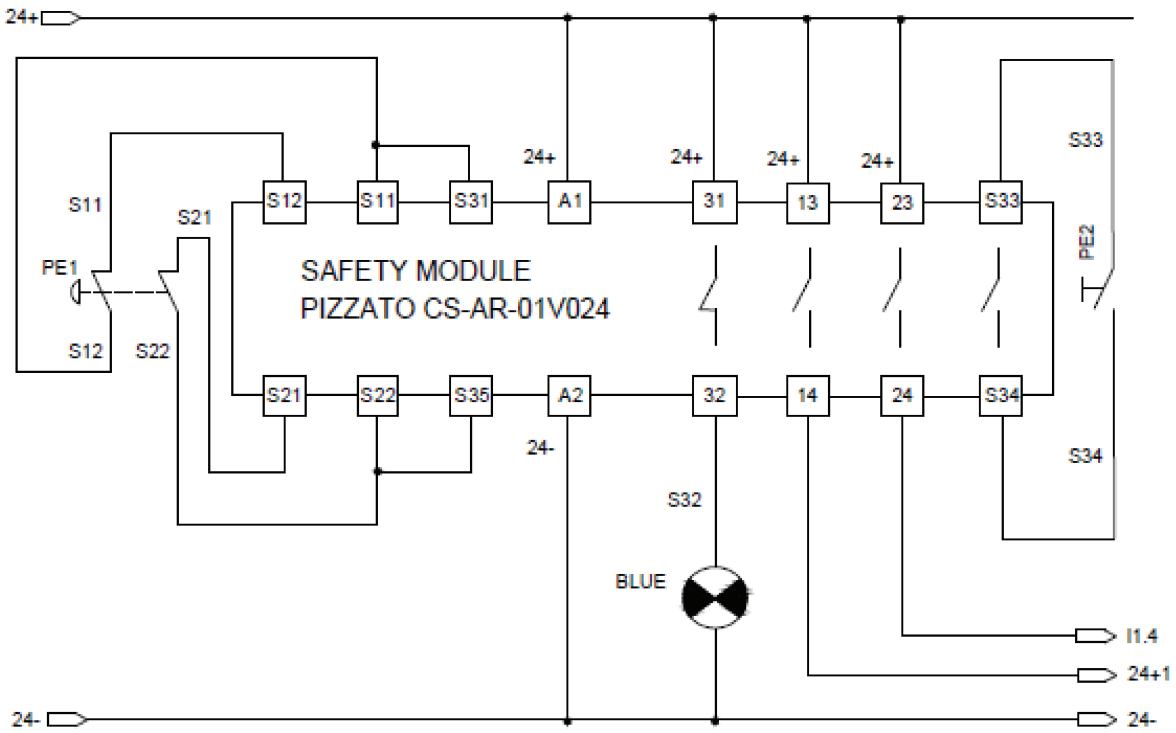
➲ **ATTENTION: THE MANUFACTURER IS NOT RESPONSIBLE FOR BREAKDOWNS CAUSED DUE TO THE IMPROPER USE OF THE MACHINE.**

7.0 DRAWINGS AND SCHEMATICS

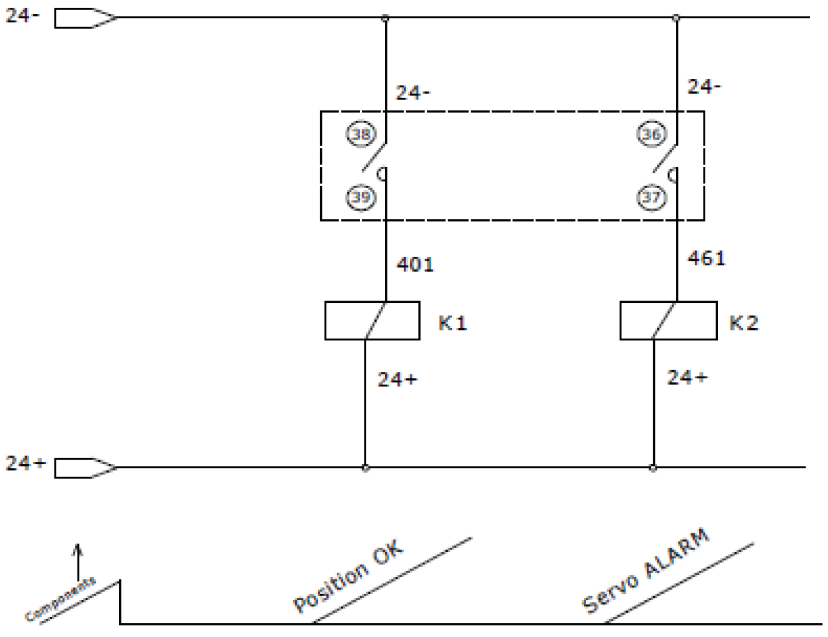


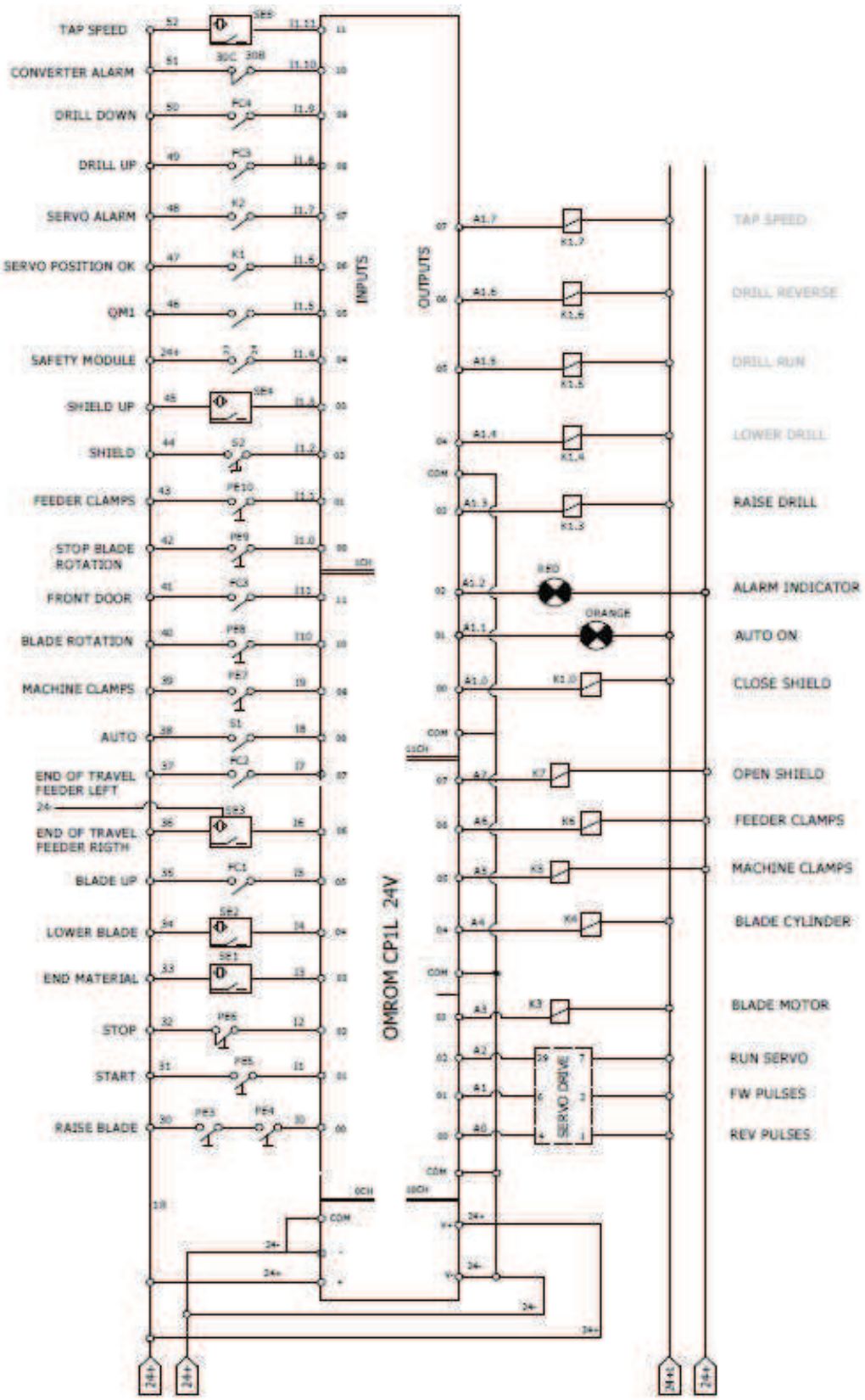

N
2L1
2L2
2L3
QM1
4,2A
I>
1U1 1V1 1W1
KM1
U1 V1 W1
M1 ~
F02-1
F03-60
F07-1
F09-1.5
F11-3,1
P02-1,5
P03-3,1
FUJI
MINI
1,5-III
30C
30B
X1
REV
FWD
PLC
24+
I1.10
A1.07
A1.06
A1.05
K1.5
K1.6
K1.7
U2 V2 W2
M2
FILTRO
L3 L1
SERVO
DRIVE
M3
Components
Motor protection switch
Contactor
Blade Motor 2,2 Kw
Converter
Motor 1,5Kw
Filtro R88A-FIK104-RE
Servo drive R88D-GT04H
Servo R88M-G40030H-S2

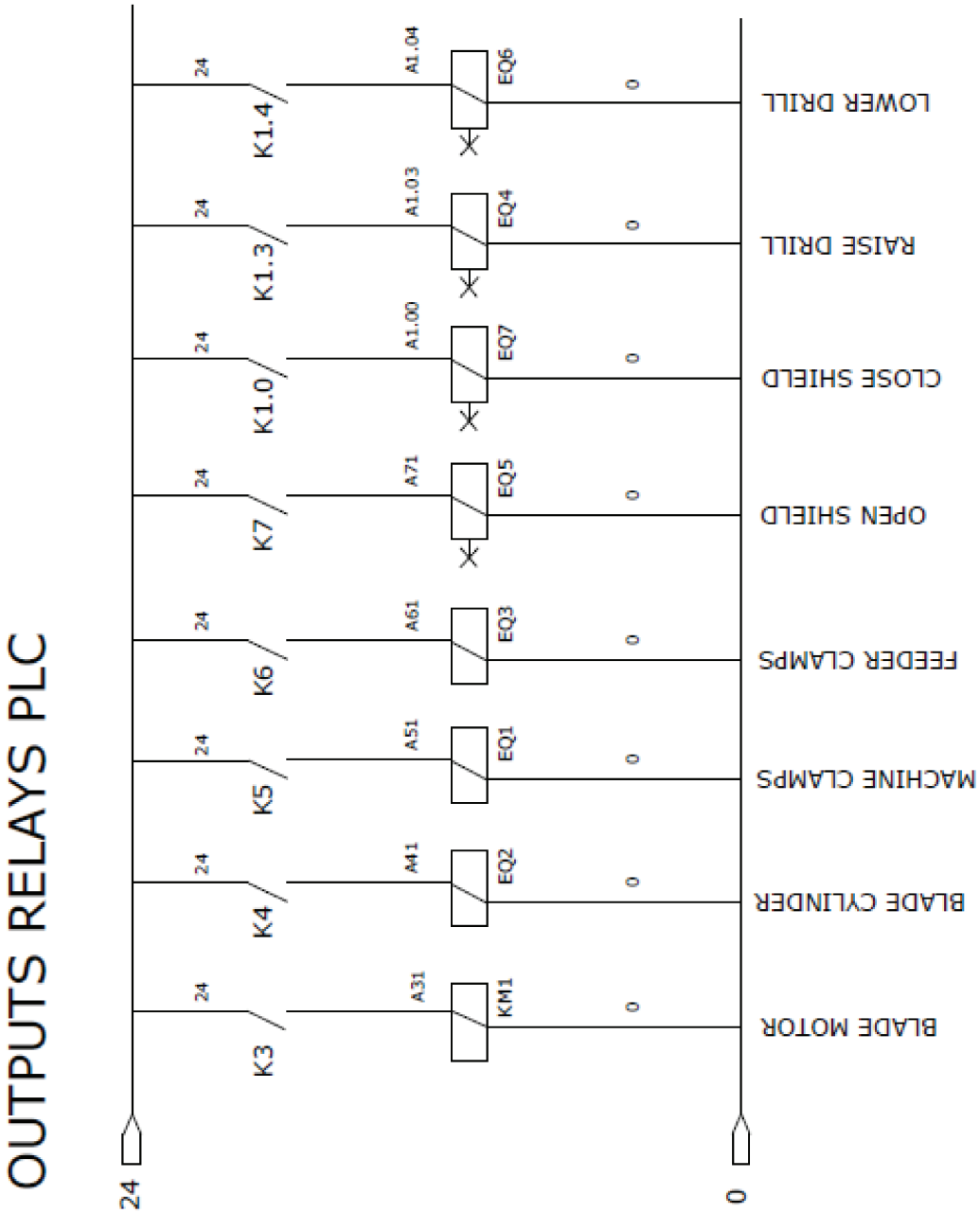
SAFETY CIRCUIT

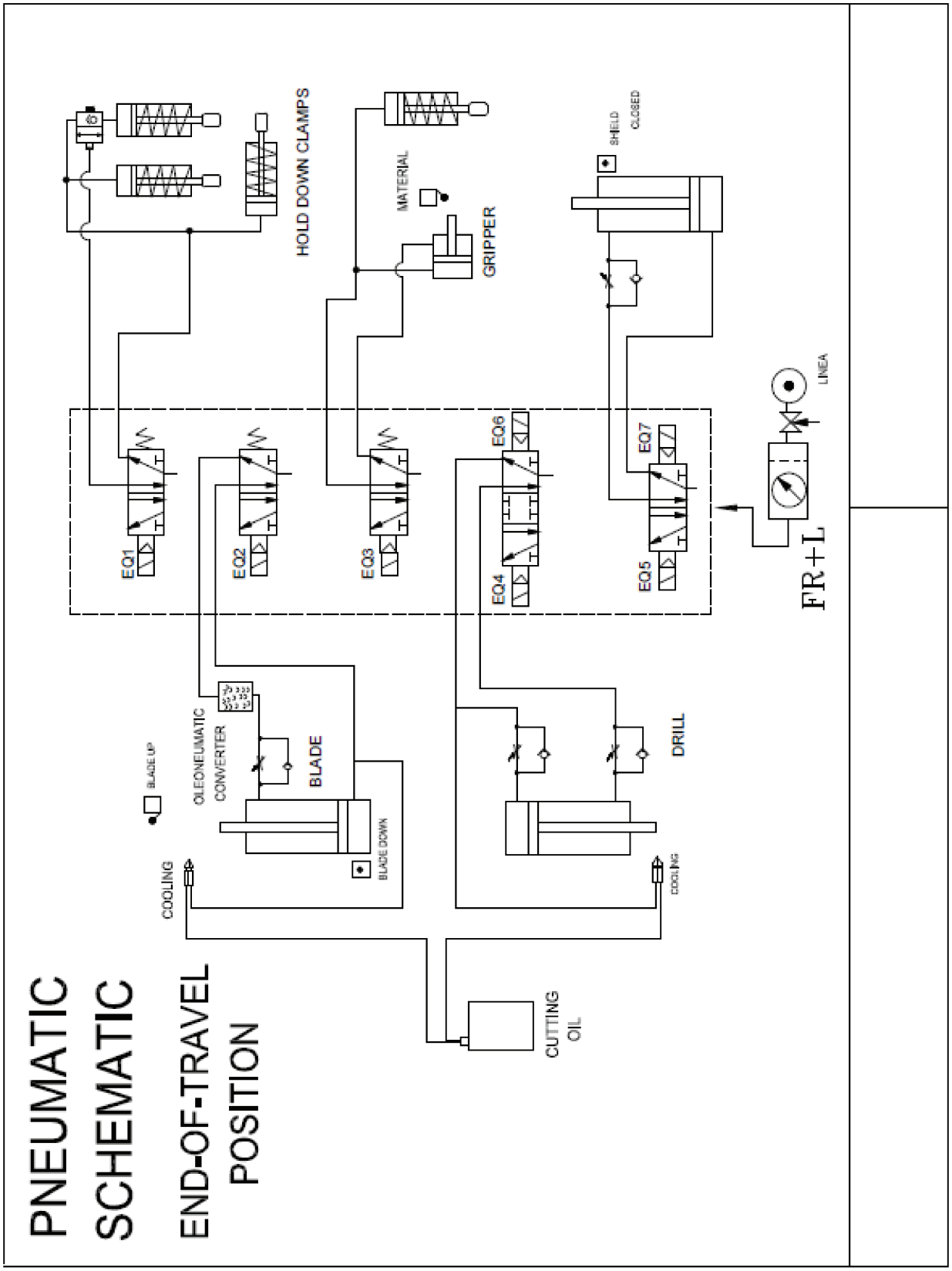


SERVO DRIVE OUTPUTS



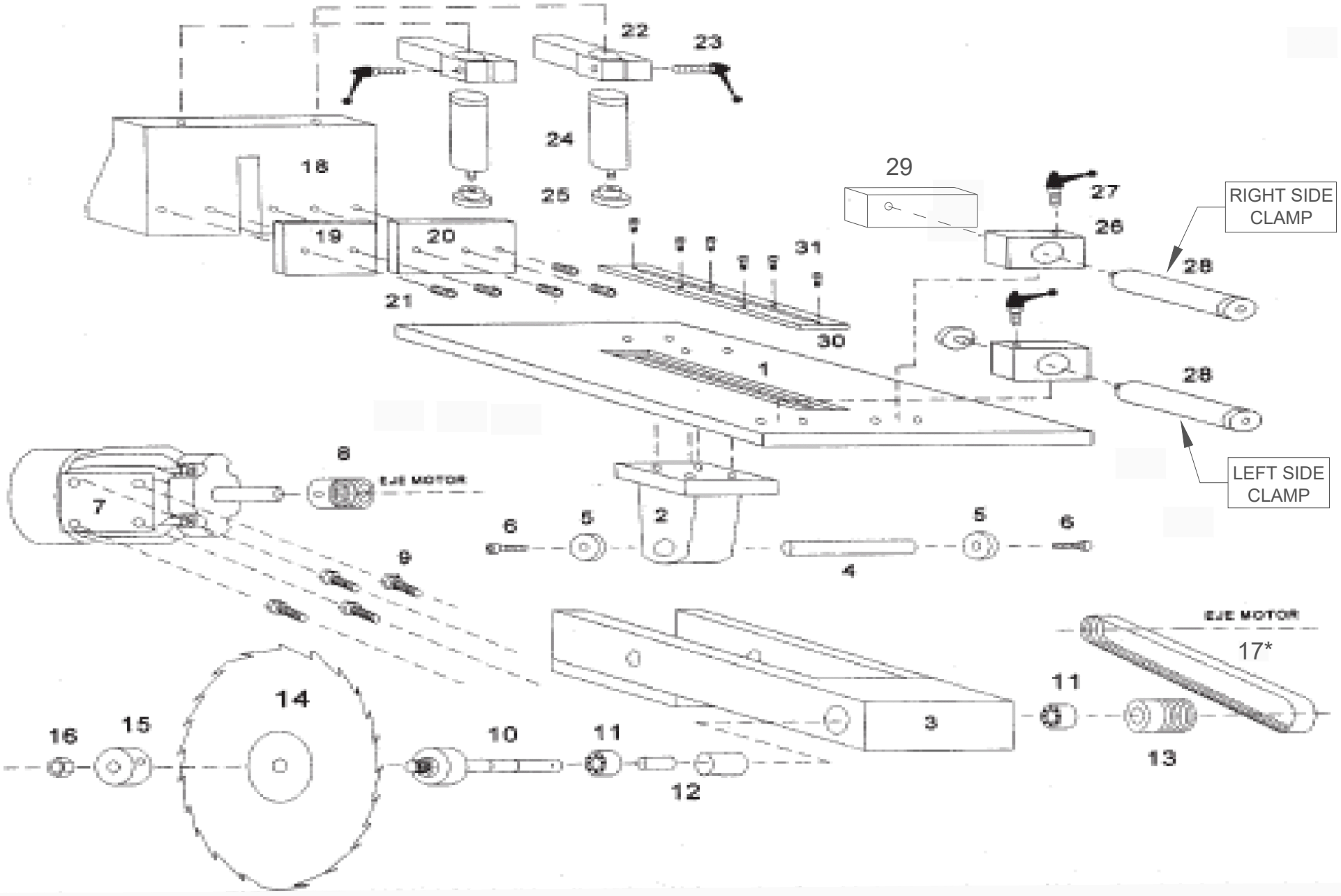

TAP SPEED
CONVERTER ALARM
DRILL DOWN
DRILL UP
SERVO ALARM
SERVO POSITION OK
QM1
SAFETY MODULE
SHIELD UP
SHIELD
FEEDER CLAMPS
STOP BLADE ROTATION
FRONT DOOR
BLADE ROTATION
MACHINE CLAMPS
AUTO
END OF TRAVEL FEEDER LEFT
END OF TRAVEL FEEDER RIGTH
BLADE UP
LOWER BLADE
END MATERIAL
STOP
START
RAISE BLADE
INPUTS
OUTPUTS
OMROM CP1L 24V
SERVO DRIVE
TAP SPEED
DRILL REVERSE
DRILL RUN
LOWER DRILL
RAISE DRILL
ALARM INDICATOR
AUTO ON
CLOSE SHIELD
OPEN SHIELD
FEEDER CLAMPS
MACHINE CLAMPS
BLADE CYLINDER
BLADE MOTOR
RUN SERVO
FW PULSES
REV PULSES
RED
ORANGE


OUTPUTS RELAYS PLC
24
0
K3
K4
K5
K6
K7
K1.0
K1.3
K1.4
KM1
EQ2
EQ1
EQ3
EQ5
EQ7
EQ4
EQ6
A31
A41
A51
A61
A71
A1.00
A1.03
A1.04
BLADE MOTOR
BLADE CYLINDER
MACHINE CLAMPS
FEEDER CLAMPS
OPEN SHIELD
CLOSE SHIELD
RAISE DRILL
LOWER DRILL


PNEUMATIC
SCHEMATIC
END-OF-TRAVEL
POSITION
HOLD DOWN CLAMPS
MATERIAL
GRIPPER
SHIELD
CLOSED
EQ1
EQ2
EQ3
EQ4
EQ5
EQ6
EQ7
FR+L
LINEA
BLADE UP
OLEONEUMATIC
CONVERTER
BLADE
BLADE DOWN
DRILL
COOLING
COOLING
CUTTING
OIL

8.0 MAIN FRAME ASSEMBLY

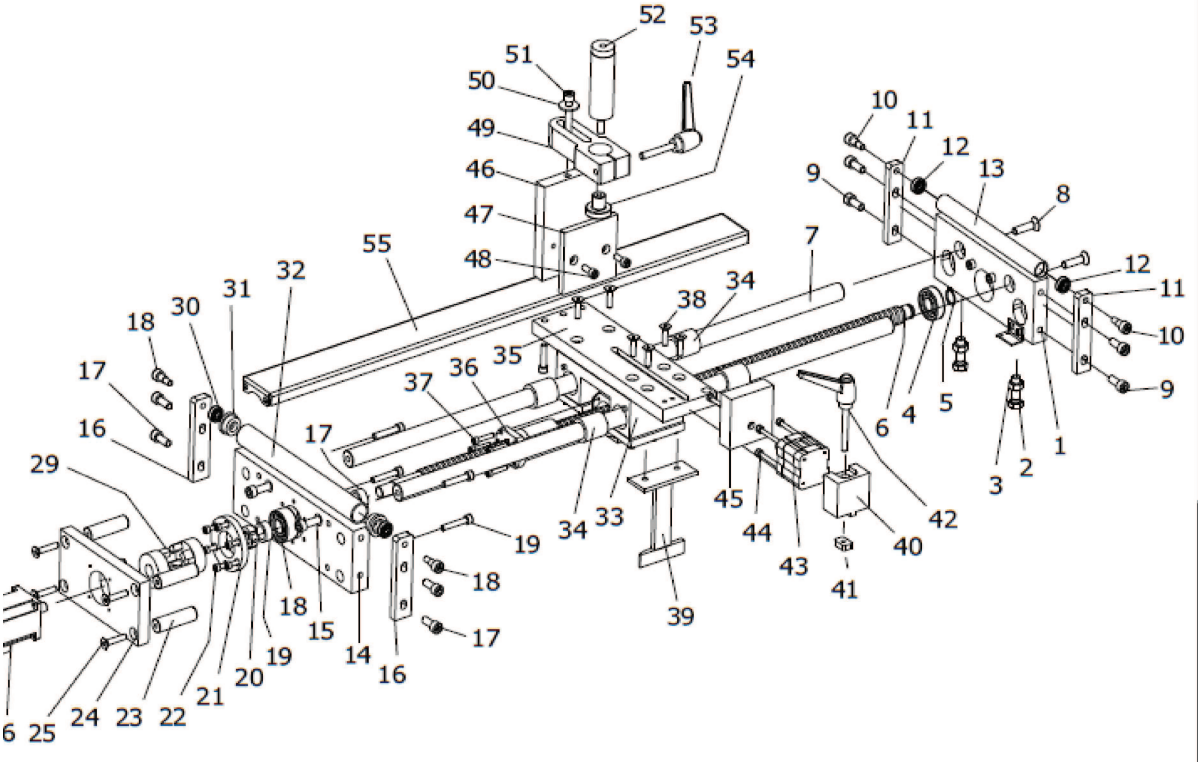
ITEM	PART #	DESCRIPTION
1	2059000064	Working plate
2	2050000322	Roker support
3	2050000322	Roker
4	2040000072	Rocker rotation shaft
5	TD12500012	M-12 washer
6	TD91212025	DIN 912 M-12 x 25 PIN
7	2059007522	7.5 HP III phase motor
8	2169000142	Motor pulley J16
9	TD93110050	DIN 931 M-10 x 50 PIN
10	2050000092	Rectified Ø100 shaft
11	2040000172	4206 bearing
12		Separators
13	2169000132	Rocker pulley J16
14	205DW35032	Ø500 blade
15	2050000032	Blade washer
16	2040000232	Blade nut
17	1283	Poly Belt For GAA-500 7.5hp Ref# 1283
17A	C2050000012	J12 Poly V-Belt - Older 5.5hp saws use this belt
18	2059000024	Turret
19		Left turret plate
20		Right turret plate
21	TD69120616	DIN 6912 M-6 x 16 PIN
22	2040000062	Ø45 Aluminum rod
23	B000001070	M-10 x 70 Pull
24	1677	Ø45 Pneumatic hold-down clamp
25	2350000131	Nylon cleat
26	2090000191	Ø36 Horizontal rod
27	B000006x40	M-10 x 40 Pull
28	C2070000295	Ø36 x 225 Pneumatic clamp
29	2050000172	GAA Clamp Block
30	5167	Blade groove GAA-500
31		DIN 7991 M-6 PIN


22
23
24
25
18
19
20
21
29
27
26
31
30
RIGHT SIDE CLAMP
28
1
28
LEFT SIDE CLAMP
8
EJE MOTOR
7
6
5
2
5
6
4
9
EJE MOTOR
17*
11
3
14
16
15
10
11
12
13

9.0 SHUTTLE FEED SYSTEM

ITEM	PART #	DESCRIPTION
1		Feeder Machine Support
2	CTD93312040	DIN 933 M-12 x 40 Screw
3	CTD93400010	M-10 Nut
4	C2070000142	6204 2RS Bearing
5	CTD47100120	DIN 471 ∅ 20 Ring
6	M200HBA2510	Ball Screw ∅ 25 x 10
7	C2169011074	∅ 25H6 x 925 Bar
8	CTD79911040	DIN 7991 M-10 x 40 Screw
9	CTD91210025	DIN 912 M-10 x 25 Screw
10		Roller Shaft
11		Front Roller Support
12	C2350000461	608 Bearing
13		∅ 25 x 2250 PVC Roller
14		Back Feeder Support
15		∅ 32 x 300 PVC Roller
16		Back Roller Support
17		Screw Separating Tip
18	CR0003204RS	3204 2RS Bearing
19		Screw Separating Tip
20	CTP00FR2010	M-20 x 1 Precision Nut
21		Cover Bearing
22	CTD91206020	DIN 912 M-6 x 20 Screw
23		∅ 20 Support
24		Servo Plate 400w
25	CTD79910840	DIN 7991 M-8 x 40
26	CE000R88400	400W Servomotor G
27	CTD12700006	DIN 127 ∅ 6
28	CTD91206025	DIN 912 M-6 x 25 Screw
29	C2000401417	Elastic Coupling ∅ 17-∅ 14
30	C2350000461	608 Bearing
31		Roller Head ∅ 32
32		∅ 32 x 300 PVC Roller
33		Feeder Carriage
34	C2060000171	∅ 25 Lineal Bearing
35		Carriage Plate

36	C20000A2510	25 x 10 Ball Screw Nut
37	CTD91206020	DIN 912 M-6 x 20 Screw
38	CTD79910835	DIN 7991 M-8 x 35 Screw
39		End Of Travel Stop
40		Cylinder Carriage
41		Plane Nut M-10
42	CB0000P1070	M-10 x 70 Lever
43	CN0000C4010	∅ 40 x 10 D.E. Compact Cylinder
44	CTD91206060	DIN 912 M-6 45 x 60 Screw
45	P2359001734	Horizontal Nylon Cleat
46		Plate Support
47		Material Plate
48	CTD91208020	DIN 912 M-8 x 20 Screw
49	P2350000231	∅ 36 Aluminum Rod
50	TD90210010	DIN 9021 ∅ 10
51	TD91210060	DIN 912 M-10 x 60 Screw
52	CN00P36X120	Hold-Down Clamp ∅ EXT = 36 x 120
53	CB0000P1060	M-10 x 60 Lever
54		Nylon Cleat
55		Ball Screw Protector



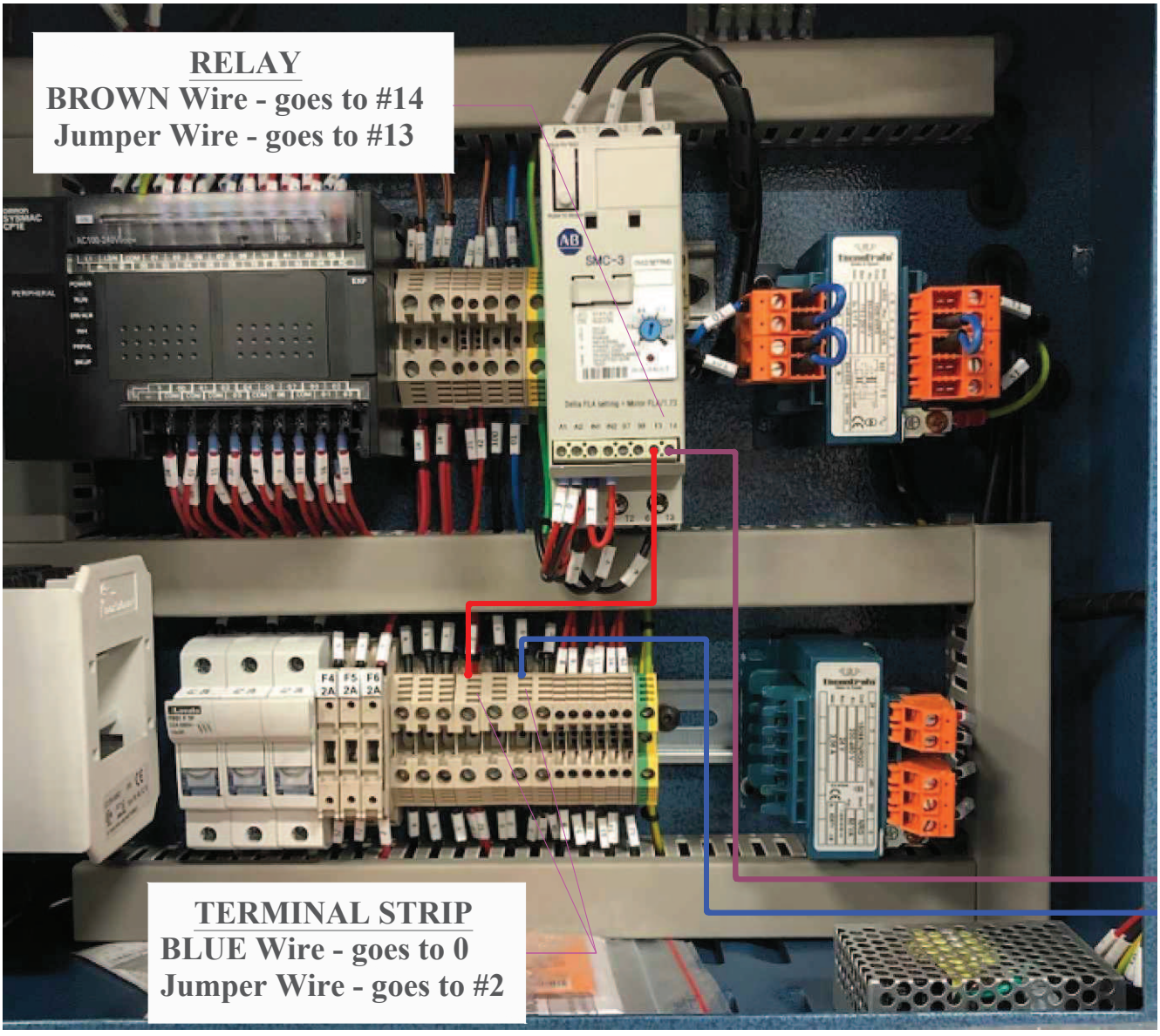
10 . OPTIONAL CHIP COLLECTOR - WIRE LOCATIONS

CHIP COLLECTOR WIRING INSTRUCTIONS for ALL of the GAA-500 & GAA-600 SAWS

CHIP COLLECTORS - P/N 829230 - 230V 3PH or P/N 829460 - 460V 3PH

Chip Collector has a BROWN wire and a BLUE wire. A jumper wire also needed. Below shows where the wires go.

BROWN - 14 RELAY
BLUE - 0 TERMINAL STRIP
JUMPER - 13 RELAY to 2 TERMINAL STRIP



	TOLERANCE (UNLESS SPECIFIED) .0 = +/-.02 (.5mm) .00 = +/-.01 (.25mm) .000 = +/-.005 (.125mm) Fractions = +/- 1/32 (.7mm) Angles = +/- 1'	DATE: 12/10/19 DWN. BY: Jason S.	SCALE: None CHK. BY:	PART NAME: Chip Collector GAA-500 & GAA-600 Saws	Scotchman Inds. PART NO.