MAINTENANCE AND PARTS MANUAL

Metal Working

HYDRAULIC PRESS BRAKE
MODEL: BP-3305CNC

Book 2 of 2

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INTRODUCTION

The quality and reliability of the components assembled on a Baileigh Industrial Holdings LLC machine guarantee near perfect functioning, free from problems, even under the most demanding working conditions. However, if a situation arises, refer to the manual first. If a solution cannot be found, contact the distributor where you purchased our product. Make sure you have the serial number and production year of the machine (stamped on the nameplate). For replacement parts refer to the assembly numbers on the parts list drawings.

Our technical staff will do their best to help you get your machine back in working order.

In this manual you will find: (when applicable)

- Safety procedures
- Correct installation guidelines
- Description of the functional parts of the machine
- Capacity charts
- Setup and start-up instructions
- Machine operation
- Scheduled maintenance
- Parts lists

GENERAL NOTES

After receiving your equipment remove the protective container. Do a complete visual inspection, and if damage is noted, **photograph it for insurance claims** and contact your carrier at once, requesting inspection. Also contact Baileigh Industrial Holdings LLC and inform them of the unexpected occurrence. Temporarily suspend installation.

Take necessary precautions while loading / unloading or moving the machine to avoid any injuries.

Your machine is designed and manufactured to work smoothly and efficiently. Following proper maintenance instructions will help ensure this. Try and use original spare parts, whenever possible, and most importantly; **DO NOT** overload the machine or make any modifications.

Note: *This symbol refers to useful information throughout the manual.*

IMPORTANT

PLEASE READ THIS OPERATORS MANUAL CAREFULLY

It contains important safety information, instructions, and necessary operating procedures. The continual observance of these procedures will help increase your production and extend the life of the equipment.

SAFETY INSTRUCTIONS

LEARN TO RECOGNIZE SAFETY INFORMATION

This is the safety alert symbol. When you see this symbol on your machine or in this manual, **BE ALERT TO THE POTENTIAL FOR PERSONAL INJURY!**

Follow recommended precautions and safe operating practices.

UNDERSTAND SIGNAL WORDS

A signal word – **DANGER**, **WARNING**, or **CAUTION** – is used with the safety alert symbol. **NOTICE**, which is not related to personal injury, is used without a symbol.

DANGER: Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING: Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

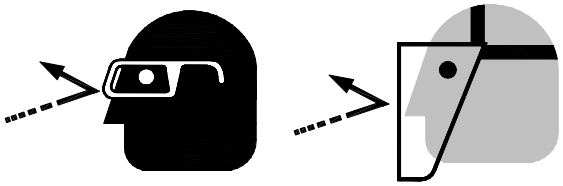
CAUTION: Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE: Indicates a situation which, if not avoided, could result in property damage.

SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.

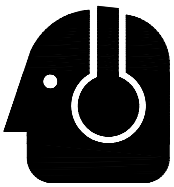
PROTECT EYES

Wear safety glasses or suitable eye protection when working on or around machinery.



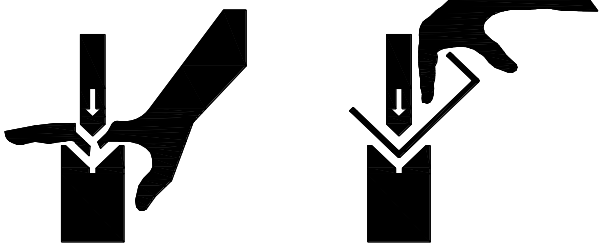
PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protective devices such as ear muffs or earplugs to protect against objectionable or uncomfortable loud noises.



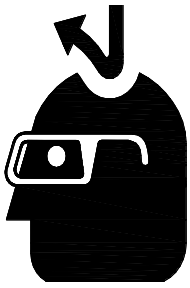
BEWARE OF CRUSH HAZARD

NEVER place your hands, fingers, or any part of your body in the die area of this machine.



KEEP CLEAR OF MOVING OBJECTS

Always be aware of the position of the clamp handle and the counterweight. They are heavy and can swing back suddenly causing serious body or head injuries.



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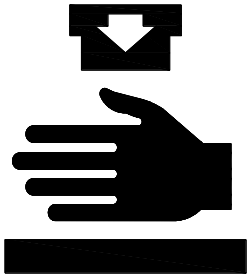
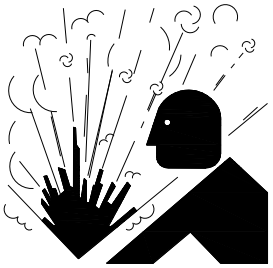
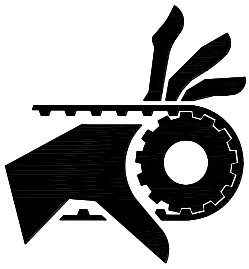


HYDRAULIC HOSE FAILURE



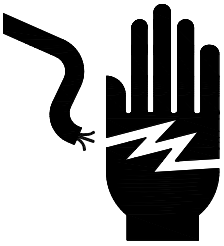
Exercise **CAUTION** around hydraulic hoses in case of a hose or fitting failure.

BEWARE OF PINCH POINTS



Keep hands and fingers away from the servo motors drive belt and pulleys when performing maintenance. Keep motor guards in place at all times while the machine is running.

HIGH VOLTAGE



USE CAUTION IN HIGH VOLTAGE AREAS. DO NOT assume the power to be off.
FOLLOW PROPER LOCKOUT PROCEDURES.

EMERGENCY STOP BUTTON

In the event of incorrect operation or dangerous conditions, the machine can be stopped immediately by pressing the **E-STOP** button. Twist the emergency stop button clockwise (cw) to reset. Note: Resetting the E-Stop will not start the machine.

SAFETY PRECAUTIONS

Metal working can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.

Safety equipment such as guards, hold-downs, safety glasses, dust masks and hearing protection can reduce your potential for injury. But even the best guard will not make up for poor judgment, carelessness or inattention. **Always use common sense** and exercise **caution** in the workshop. If a procedure feels dangerous, don't try it.

REMEMBER: Your personal safety is your responsibility.

WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

Dear Valued Customer:

- All Baileigh machines should be used only for their intended use.
- Baileigh does not recommend or endorse making any modifications or alterations to a Baileigh machine. Modifications or alterations to a machine may pose a substantial risk of injury to the operator or others and may do substantial damage to the machine.
- Any modifications or alterations to a Baileigh machine will invalidate the machine's warranty.

PLEASE ENJOY YOUR BAILEIGH MACHINE! ....PLEASE ENJOY IT SAFELY!

1. **FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE MACHINE.** Learn the machine's application and limitations as well as the specific hazards.
2. **Only trained and qualified personnel can operate this machine.**
3. **Make sure guards are in place and in proper working order before operating machinery.**
4. **Remove any adjusting tools.** Before operating the machine, make sure any adjusting tools have been removed.
5. **Keep work area clean.** Cluttered areas invite injuries.
6. **Overloading machine.** By overloading the machine, you may cause injury from flying parts. **DO NOT** exceed the specified machine capacities.
7. **Dressing material edges.** Always chamfer and deburr all sharp edges.

8. **Do not force tool.** Your machine will do a better and safer job if used as intended. **DO NOT** use inappropriate attachments in an attempt to exceed the machine's rated capacity.
9. **Use the right tool for the job. DO NOT** attempt to force a small tool or attachment to do the work of a large industrial tool. **DO NOT** use a tool for a purpose for which it was not intended.
10. **Dress appropriately. DO NOT** wear loose fitting clothing or jewelry as they can be caught in moving machine parts. Protective clothing and steel toe shoes are recommended when using machinery. Wear a restrictive hair covering to contain long hair.
11. **Use eye and ear protection**. Always wear ISO approved impact safety goggles. Wear a full-face shield if you are producing metal filings.
12. **Do not overreach**. Maintain proper footing and balance at all times. **DO NOT** reach over or across a running machine.
13. **Stay alert**. Watch what you are doing and use common sense. **DO NOT** operate any tool or machine when you are tired.
14. **Check for damaged parts**. Before using any tool or machine, carefully check any part that appears damaged. Check for alignment and binding of moving parts that may affect proper machine operation.
15. **Observe work area conditions**. **DO NOT** use machines or power tools in damp or wet locations. Do not expose to rain. Keep work area well lighted. **DO NOT** use electrically powered tools in the presence of flammable gases or liquids.
16. **Keep children away**. Children must never be allowed in the work area. **DO NOT** let them handle machines, tools, or extension cords.
17. Keep visitors a safe distance from the work area.
18. **Store idle equipment**. When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep them out of reach of children.
19. **DO NOT operate machine if under the influence of alcohol or drugs**. Read warning labels on prescriptions. If there is any doubt, **DO NOT** operate the machine.
20. **Turn off** power before checking, cleaning, or replacing any parts.
21. **DO NOT** touch live electrical components or parts.
22. Be sure **all** equipment is properly installed and grounded according to national, state, and local codes.
23. Inspect power and control cables periodically. Replace if damaged or bare wires are exposed. **Bare wiring can kill! DO NOT** touch live electrical components or parts.
24. **DO NOT** bypass or defeat any safety interlock systems.
25. Learn the function and controls of the controller. Know the location of the **ON - OFF** switch and the **"E"- STOP** button.

TECHNICAL SUPPORT

Our technical support department can be reached at 920.684.4990, and asking for the support desk for purchased machines. Tech Support handles questions on machine setup, schematics, warranty issues, and individual parts needs: (other than die sets and blades).

For specific application needs or future machine purchases contact the Sales Department at: sales@baileigh.com, Phone: 920.684.4990, or Fax: 920.684.3944.

***Note**: The photos and illustrations used in this manual are representative only and may not depict the actual color, labeling or accessories and may be intended to illustrate technique only.*

***Note:** The specifications and dimensions presented here are subject to change without prior notice due to improvements of our products.*

LUBRICATION AND MAINTENANCE

WARNING: Make sure the electrical disconnect is OFF before working on the machine.
Maintenance should be performed on a regular basis by qualified personnel.
Always follow proper safety precautions when working on or around any machinery.

Daily Maintenance

- Inspect the power plug and cord.
- Check the foot switch cable for any loosening or damage.
- Check hydraulic hoses and fittings for leakage.
- Keep area around machine clear of debris.
- Check daily for any unsafe conditions and fix immediately.
- Check that all nuts and bolts are properly tightened.

Weekly Maintenance

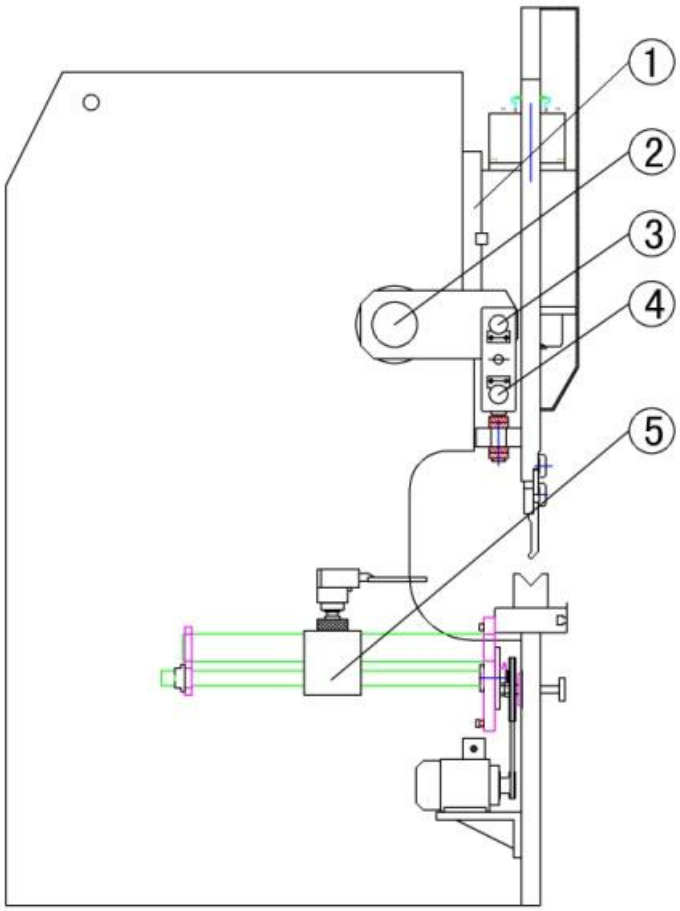
- Lubricate threaded components and sliding devices.
- Check fluid level of hydraulic tank.
- Make sure Light curtains are working properly.
- Check that all limit switches are secure and adjusted properly.
- Apply rust inhibitive lubricant to all non-painted surfaces.

- On a weekly basis clean the machine and the area around it.

***Note**: Proper maintenance can increase the life expectancy of your machine.*

Lubrication

Lubricate the machine with recommended lubricant using the figure and table below.



No.	Name	Amount of lubricant	Time	Lubricant Types and Grades
1	Guide way (left. right)	medium	8 - 10h	Calcium-based lubricating grease ZG3
2	Bearing (left. right)	medium	500h	Calcium-based lubricating grease ZG3
3	Link rod (left. right)	Small	48h	Calcium-based lubricating grease ZG3
4	Link rod (left. right)	Small	48h	Calcium-based lubricating grease ZG3
5	Slide base of back gauge (left. right)	Small	48h	Calcium-based lubricating grease ZG3

Hydraulic Oil

The hydraulic oil is the primary medium for transmitting pressure and also must lubricate the running parts of the hydraulic system.

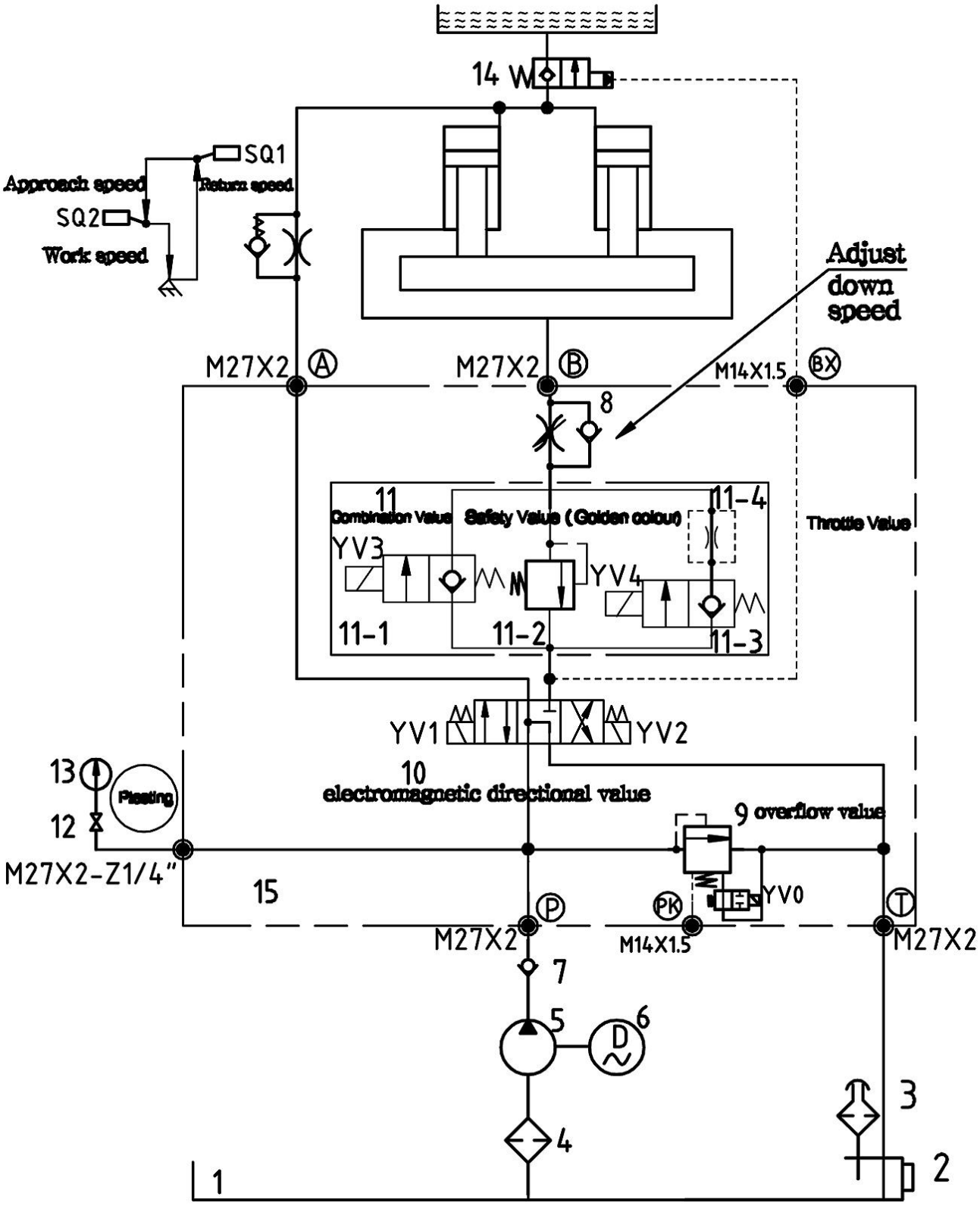
After installation of the machine and before machine startup, bring the oil level up to 90% of capacity. **A shortage of hydraulic oil can cause hydraulic system breakdown and damage to major mechanical parts due to overheating.**
Capacity of the oil tank is approximately 28 gallons (106 liters) max.

- Use hydraulic oil SHELL BRAND 32AW or an equivalent with similar specifications.
- Keep hydraulic reservoir filled to 90% of capacity.
- **DO NOT** rely totally on the oil gauge as they can sometimes indicate an incorrect level reading. Do a visual inspection with the oil fill cap removed as well.
- A shortage of hydraulic oil will cause hydraulic system breakdown to major mechanical components due to overheating.
- Change the hydraulic after the first month of usage and the once a year thereafter.

Changing Hydraulic Oil

1. Turn the main disconnect to Off and lock out.
2. Open the rear access door and locate the drain valve on the bottom of the hydraulic tank.
3. Prepare a suitable container to catch the used oil. A hose may be connected to the valve and then directed into the draining container. **Used oil products must be disposed of in a proper manner following your local regulations**. Capacity of the oil tank is approximately 28 gallons (106 liters) max.
4. Open the valve to drain the tank.
5. When the tank has been drained, close the valve, remove the drain hose if used.
6. Remove the screws securing the cover to the tank and remove the cover.
7. Clean any debris or foreign material from the tank.
8. Fill the tank using the sight gauge to determine full.
9. Replace and secure the cover.
10. Wipe any spills and dispose of oily rags in accordance with local regulations.

HYDRAULIC DIAGRAM



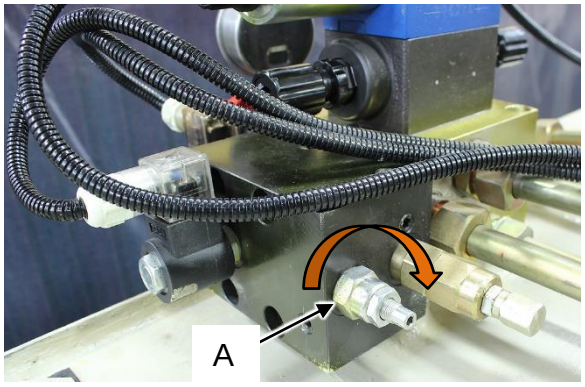
Action Loop Table

Signal / Work Step	YV0 Bypass	YV1 Down	YV2 Up	YV3 Fast Down	YV4 Slow Down	SQ1 Up Limit	SQ2 Down Limit
Pump Start							
Approach	⌘	⌘		⌘	⌘		
Bending	⌘	⌘			⌘		⌘
Force	⌘	⌘			⌘		⌘
Pressure Relief HT time set to hold 0.1 – 0.2 seconds.		⌘			⌘		
Return	⌘		⌘				
Stop						⌘	

Slow Speed Hydraulic Adjustment

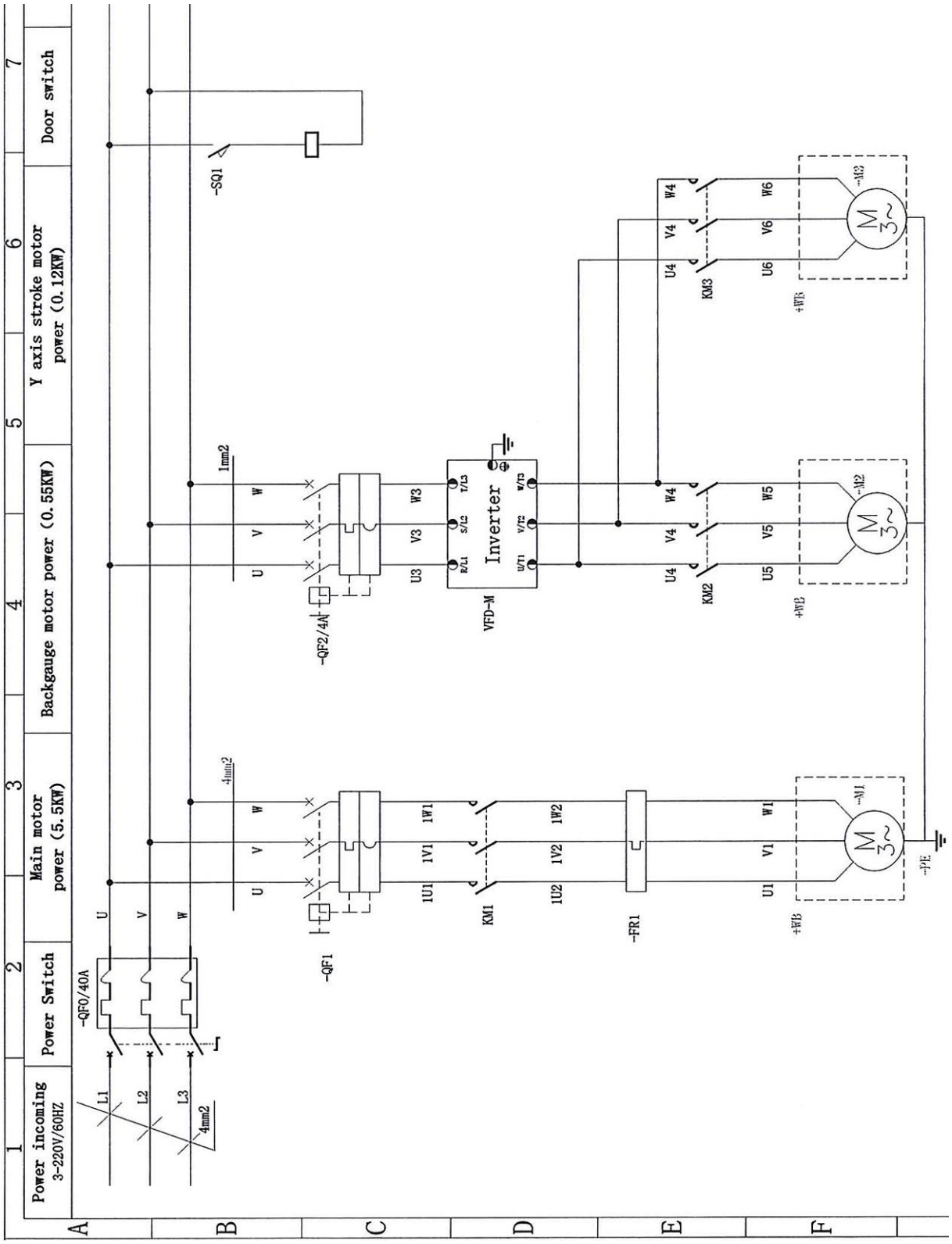
The slow speed adjustment valve (A) is located on the inboard side of the secondary manifold. The slow speed valve is used to control the speed of the ram during the actual bending of the material. The slow speed circuit is not active until the down stroke limit switch is activated.

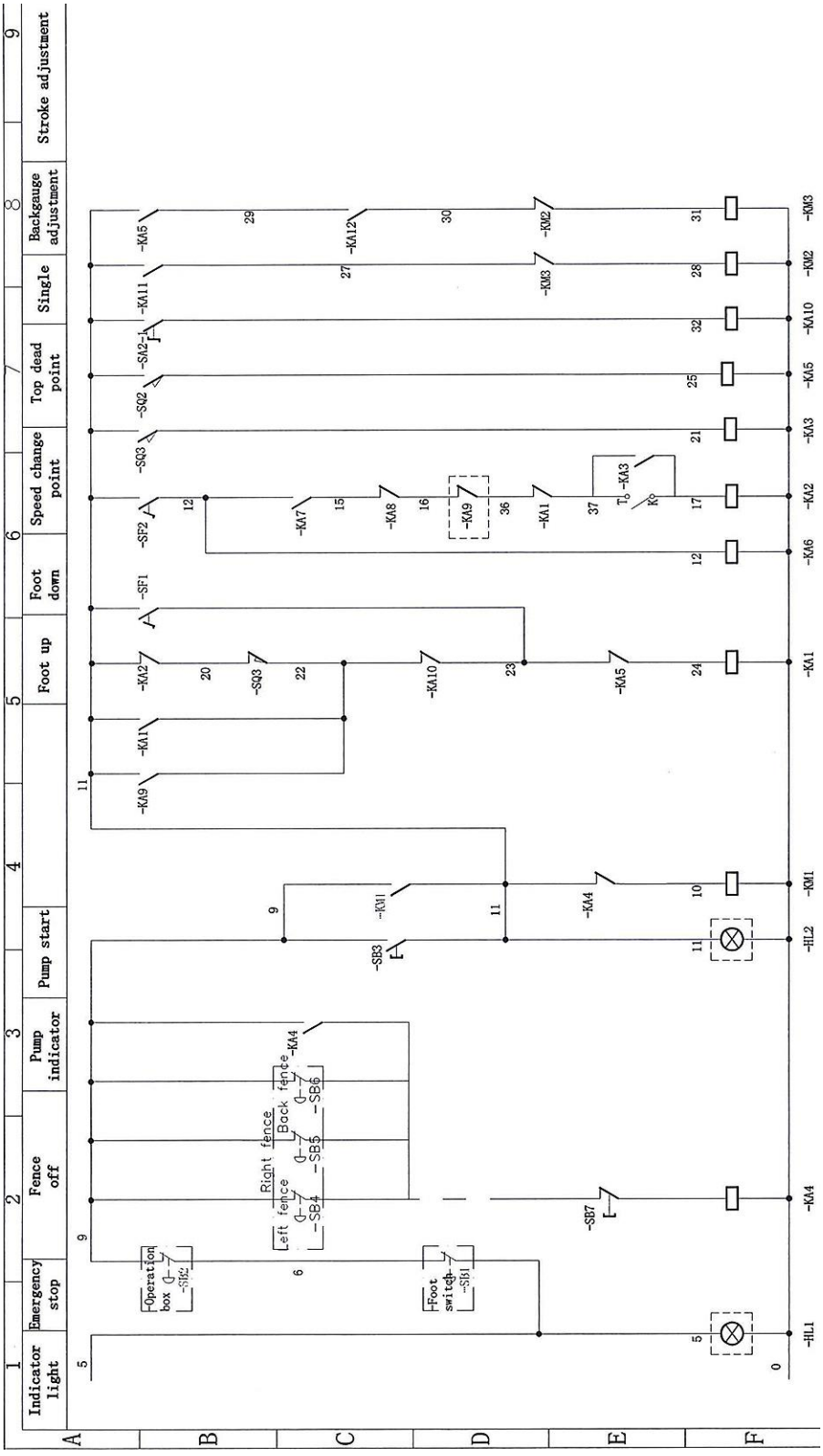
⚠ CAUTION: When handling large heavy materials make sure they are properly supported.
Keep hands and fingers clear of the bending dies and pinch points between the material and other items such as the ram.
Stand off to the side of the machine to avoid getting hit with the work material while the punch is pressing the material into the bending die.

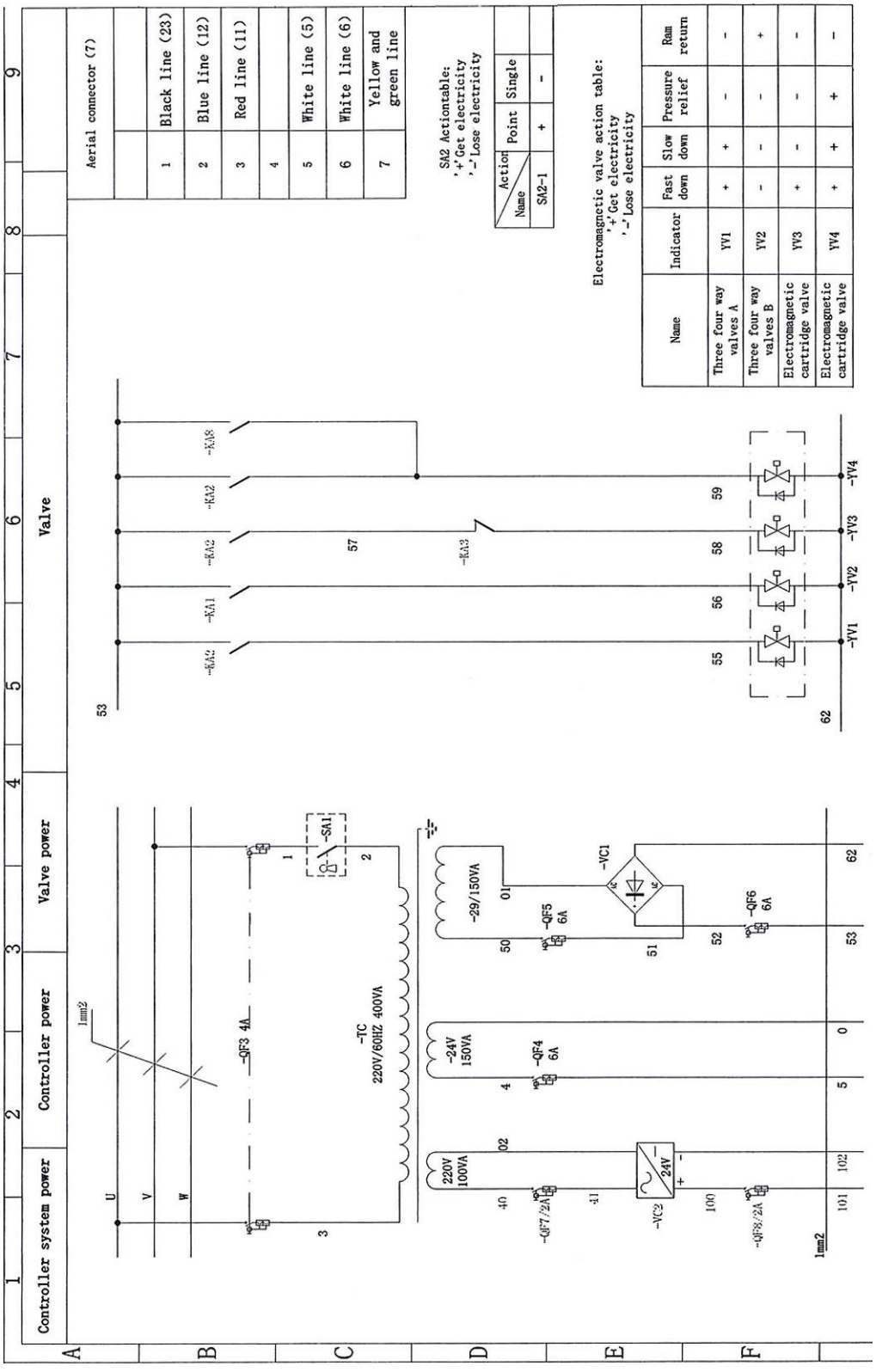


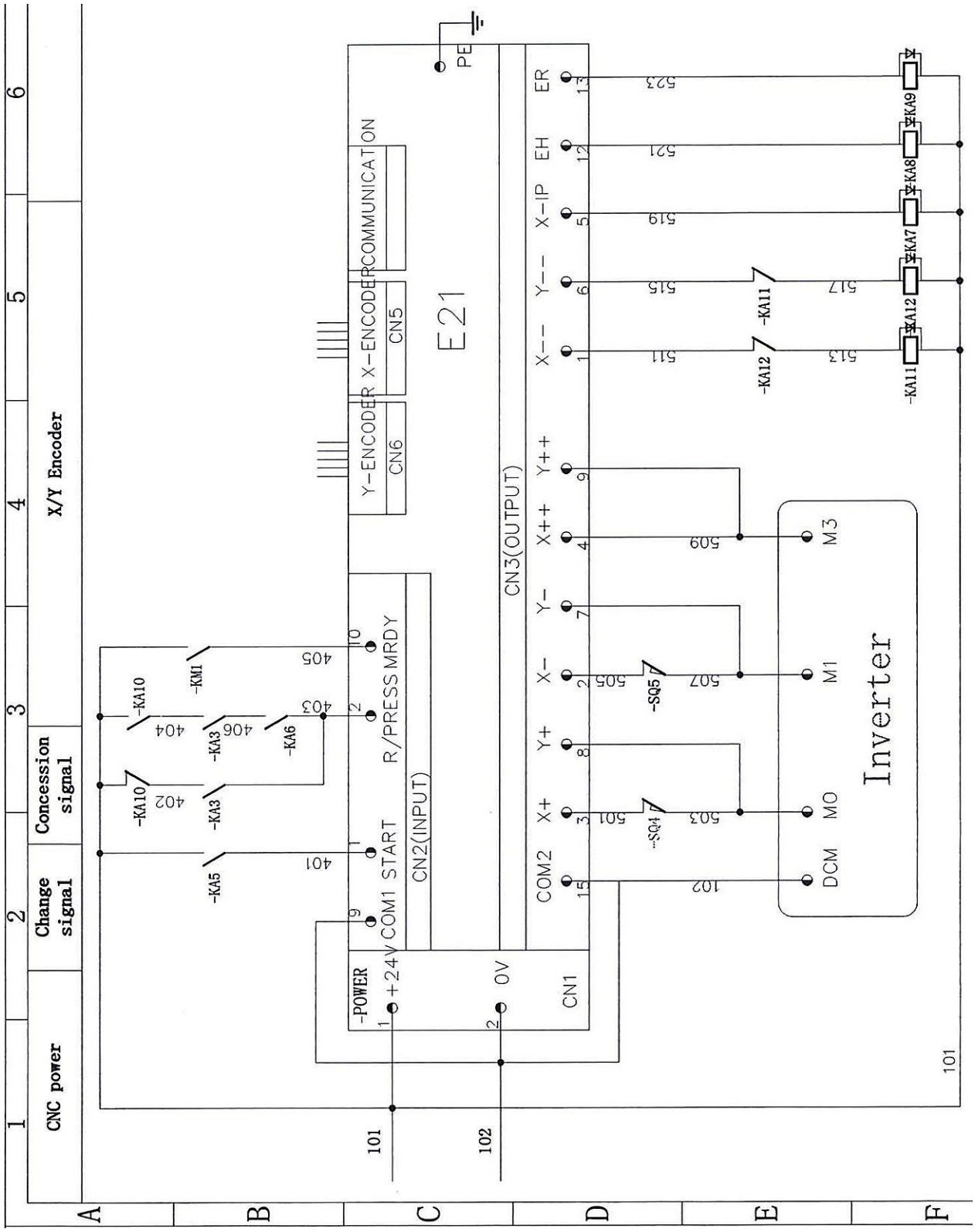
1. Loosen the lock nut.
2. Turn the set screw 1/4 turn clockwise (as shown) to decrease (slow down) the bending speed.
3. Test the bending operation.
4. Repeat as needed to slow the press enough to control the material.
5. The HT time setting will need to be increased to allow for a full bend cycle.
6. When the bending speed is set as needed, hold the set screw in position and firmly tighten the lock nut. Do not overtighten.

ELECTRICAL DIAGRAM




1 Indicator light
2 Emergency stop
3 Fence off
4 Pump indicator
5 Pump start
6 Foot up
7 Foot down
8 Speed change point
9 Top dead point
10 Single
11 Backgauge adjustment
12 Stroke adjustment
A
B
C
D
E
F
-HL1
-HL2
-KM1
-KM2
-KM3
-KA1
-KA2
-KA3
-KA4
-KA5
-KA6
-KA7
-KA8
-KA9
-KA10
-KA11
-KA12
-SB1
-SB2
-SB3
-SB4
-SB5
-SB6
-SB7
-SA2
-SF1
-SF2
-SQ2
-SQ3
Operation box
Foot switch
Left fence
Right fence
Back fence


Controller system power
Controller power
Valve power
Valve
Aerial connector (7)
1 Black line (23)
2 Blue line (12)
3 Red line (11)
4
5 White line (5)
6 White line (6)
7 Yellow and green line
SA2 Actiontable:
'+'Get electricity
'-'Lose electricity
Action
Name
SA2-1
Point
Single
+
-
Electromagnetic valve action table:
'+'Get electricity
'-'Lose electricity
Name
Indicator
Fast down
Slow down
Pressure relief
Ram return
Three four way valves A
YV1
Three four way valves B
YV2
Electromagnetic cartridge valve
YV3
Electromagnetic cartridge valve
YV4
-QF3 4A
-TC
220V/60HZ 400VA
-SA1
-29/150VA
-QF5 6A
-VC1
-QF6 6A
-24V 150VA
-QF4 6A
220V 100VA
-VC2
-QF7/2A
-QF8/2A
-KA1
-KA2
-KA3
-KA4
-KA5
-KA6
-YV1
-YV2
-YV3
-YV4
1mm2


CNC power
Change signal
Concession signal
X/Y Encoder
A
B
C
D
E
F
1
2
3
4
5
6
E21
-POWER
+24V
0V
CN1
CN2(INPUT)
COM1
START
R/PRESS
MRDY
CN3(OUTPUT)
COM2
X+
X-
Y+
Y-
X++
Y++
X--
Y--
X-IP
EH
ER
Y-ENCODER
CN6
X-ENCODER
CN5
COMMUNICATION
PE
-KM1
-KA10
-KA3
-KA6
-KA5
-KA12
-KA11
-KA7
-KA8
-KA9
-SQ5
-SQ4
Inverter
DCM
MO
M1
M3
101
102
401
402
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405
406
501
502
503
505
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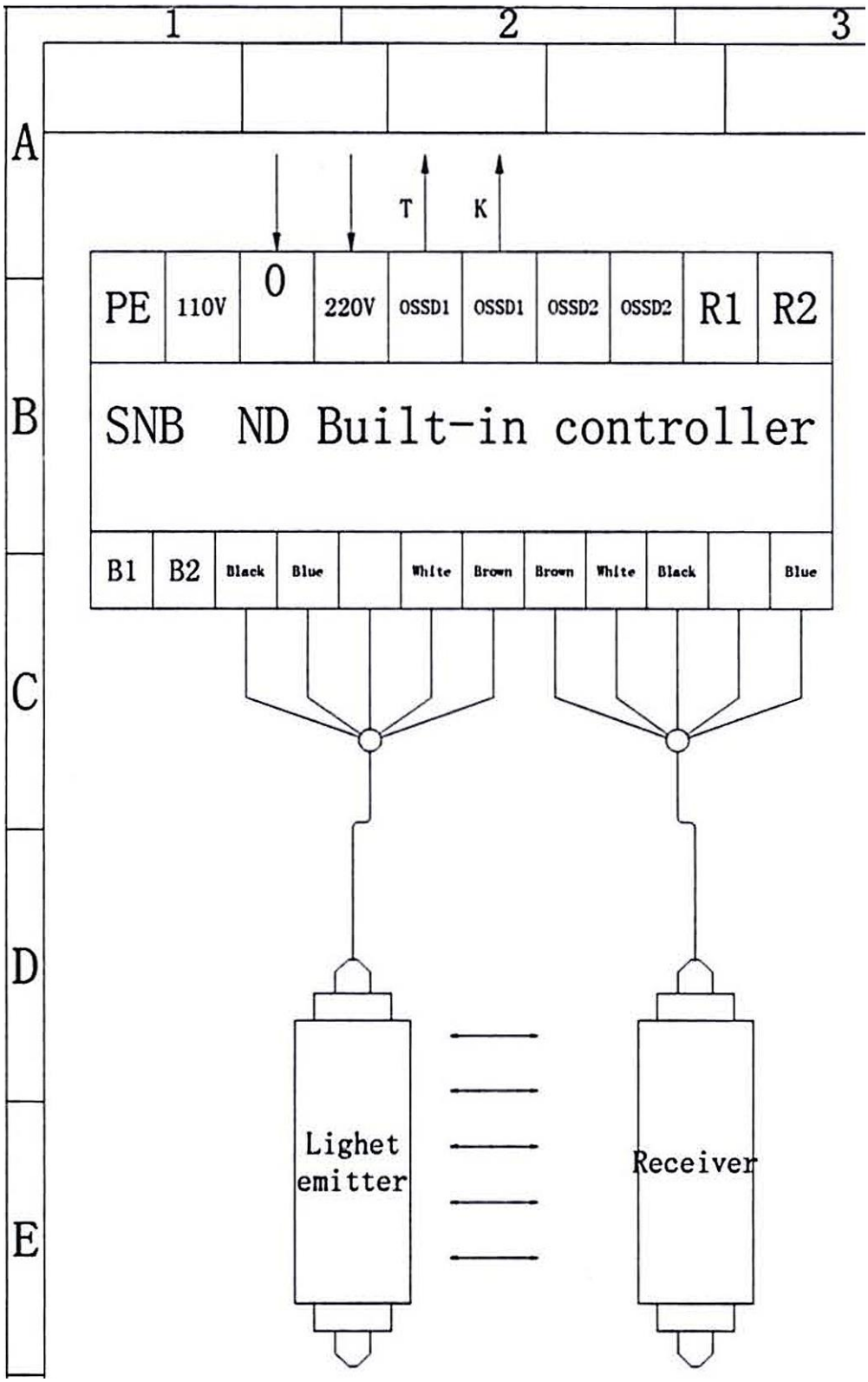
523

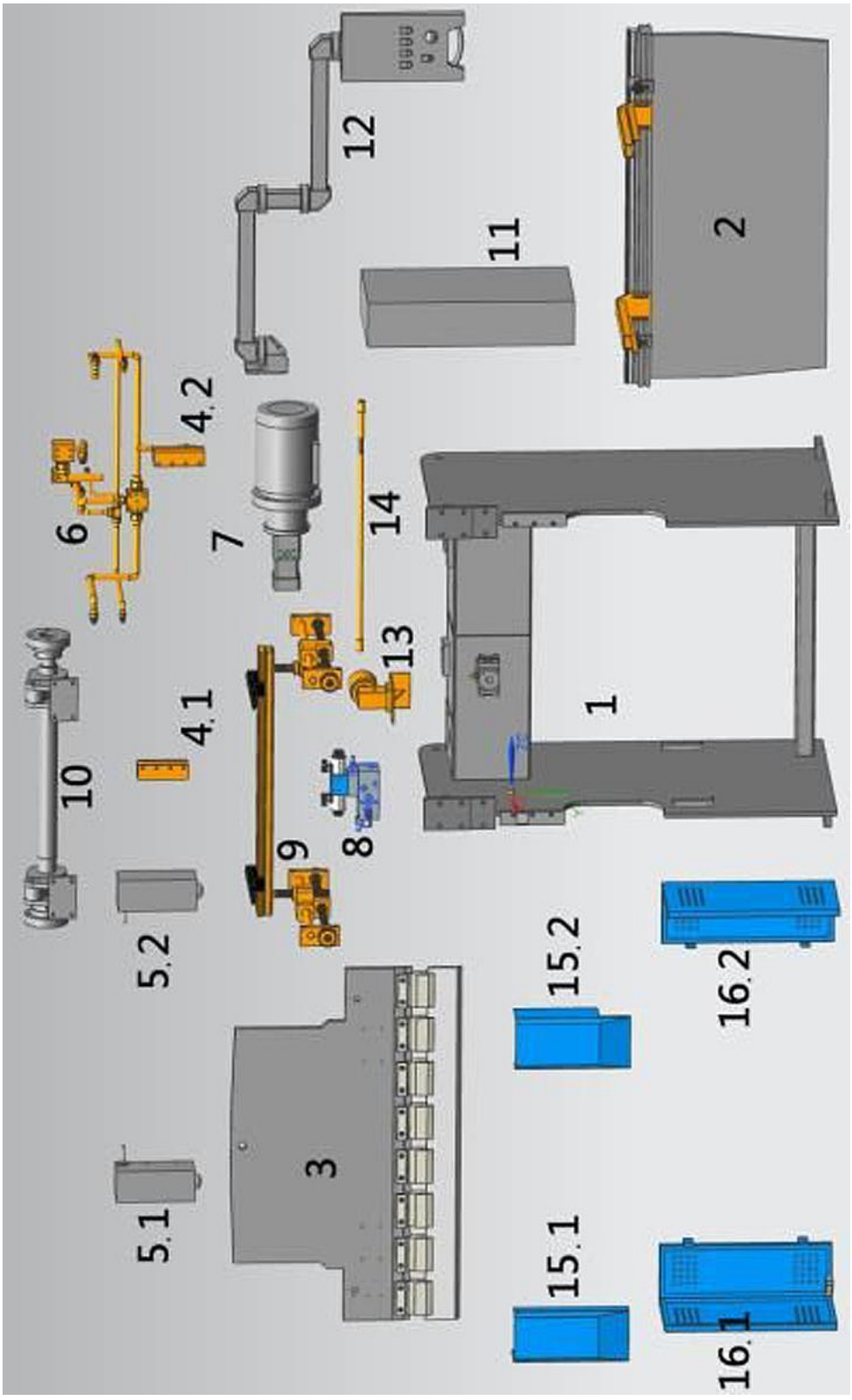

1
2
3
A
B
C
D
E
T
K
PE
110V
0
220V
OSSD1
OSSD1
OSSD2
OSSD2
R1
R2
SNB ND Built-in controller
B1
B2
Black
Blue
White
Brown
Brown
White
Black
Blue
Lighet emitter
Receiver

Electrical Components List

Code	Name	Model	Qty
SB1, 2	Emergency Stop Button	XB2BS542C	2
SB3, HL2	Starting Button with Light	XB2BW33B1C (Green), AC/DC24V	1
SB4	Flat Button (Red)	XB2BA42C	1
HL1	Power Indicator Light	XB2BVB1LC (White), AC24V	1
SA1	Key Switch	XB2BG21C, Two tap position	1
SA2	Key Switch	XB2BG03C, Three tap position	1
SF	Foot Pedal	ECFS-D18, Double pedal	1
KA1 - 3	Intermediate Relay	CAD-32B7C, AC24V 60hz, Auxiliary contact LAD-N20C	3
KA4, 5, 6, 10	Miniature Relay	RXM4AB2B7, AC24V	4
KA7, 8, 9, 11, 12	Miniature Relay	RXM4AB2BD, DC24V	5
KM1	AC Contactor	LC1-D18-B7, AC24V 50/60HZ	1
FR	Thermal Overload Relay	LRD-22C-16/24A, Install base LAD-7B106	1
KM2, 3	Intermediate Relay	CAD-32B7C, AC24V 60hz	2
KT1	Time Relay	AH3-2, AC24V 60hz	1
TC	Control Transformer	JBK-400VA, IN: ±5%-220V, OUT: 24V/100VA 29V/120VA 220V/30VA	1
VC1	One-Way Silicon Rectifier Bridge	KBPC35A~10, AC29V→DC24V	1
VC2	Switching Power Supply	NES-35-24, AC220V→DC24V	1
QF1	MCCB	NSC60E3-20, Shunt release SHT220AC	1
QF2	Miniature Circuit Breaker	OSMC32N3D2	1
QF3	Miniature Circuit Breaker	OSMC32N2D2	1
QF4 – 6	Miniature Circuit Breaker	OSMC32N1C6	3
QF7, 8	Miniature Circuit Breaker	OSMC32N1C2	2
SQ1	Door Switch	JWM6-11, 3A	1
SQ2, 3	Stroke Switch	XCKN2102P20C, SCHNEIDER	2
SQ4, 5	Limit Switch	YBLX-ME/8108, CHINT	2
TD1, 2	Amphenol Connector	3003-1535 3004-1520	1 1
PE	Grounding Bar	4A	1
E21	Control System	E21, DC24V	1

Code	Name	Model	Qty
VFD	Transducer	VFS007EL43A, 3PH 220V, 0.75KW	1
ENC	Encoder	ENC-100-A-T, DC12-24V	2
	Welding Line Head	DB9 RS232	2
M1	Oil Pump Motor	1TL0001-1CB03, 220V/5.5KW, Δ	1
M2	Gauge Motor	Y2-802-6, 0.55KW	1
M3	Stroke Motor	Y2-631-4, 0.12KW	1
	Aerial Linker	P20K11Q, 7A	1

SIMPLE PARTS DIAGRAM



Simple Parts List

Item	Description
1	Frame
2	Worktable
3	Ram Slider
4.1	Left Guide
4.2	Right Guide
5.1	Left Cylinder
5.2	Right Cylinder
6	Pipe
7	Hydraulic Pump and Motor
8	Hydraulic Manifold Assembly
9	Back Gauge Assembly
10	Balance Axis Assembly
11	Electrical Box
12	CNC Arm Assembly
13	Stroke (Y Axis) Motor
14	Stroke Adjustment Link
15.1	Left Cylinder Cover
15.2	Right Cylinder Cover
16.1	Left Guard Fence
16.2	Right Guard Fence

NOTES

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