



MAINTENANCE AND PARTS

MANUAL

Metal Working



5 STATION IRONWORKER MODEL: SW-621 AND SW-623

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Book 2 of 2

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Rev. 01/2020

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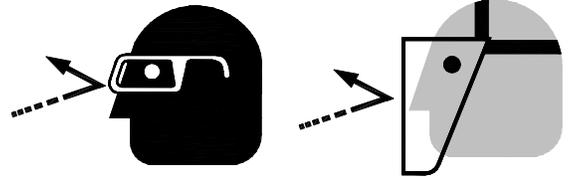


SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.



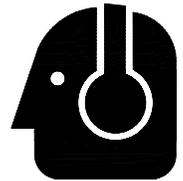
PROTECT EYES

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 earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.



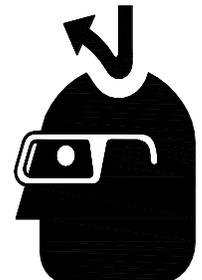
HYDRAULIC HOSE FAILURE

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



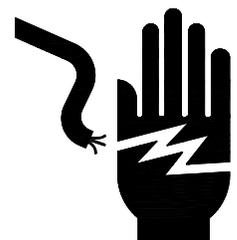
KEEP CLEAR OF MOVING OBJECTS

Always be aware of the position of the material being formed. It may be heavy and moving with considerable force and can swing back suddenly causing serious body or head injuries.



HIGH VOLTAGE

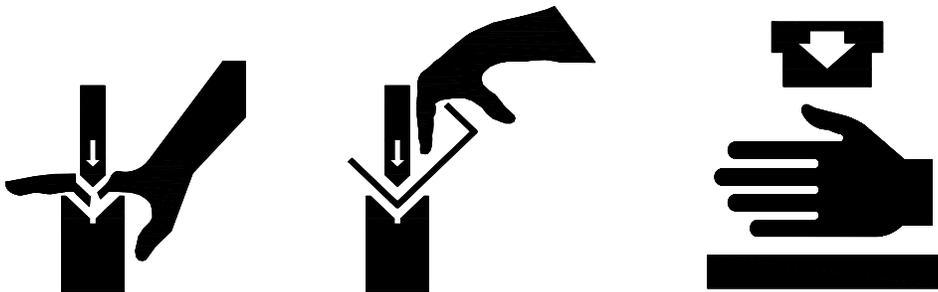
USE CAUTION IN HIGH VOLTAGE AREAS. DO NOT assume the power to be off.
FOLLOW PROPER LOCKOUT PROCEDURES.





BEWARE OF CRUSH HAZARD

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



BEWARE OF SHEAR, PINCH, AND CRUSH HAZARD

NEVER place your hands, fingers, or any part of your body in the die area of this machine. Keep hands and fingers away from the shear blade and the punching and notching dies when the machine is in operation.



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. **Blade adjustments and maintenance.** Always keep blades sharp and properly adjusted for optimum performance.
17. **Keep children away.** Children must never be allowed in the work area. **DO NOT** let them handle machines, tools, or extension cords.
18. Keep visitors a safe distance from the work area.
19. **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.
20. **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.
21. **Turn off** power before checking, cleaning, or replacing any parts.
22. Be sure **all** equipment is properly installed and grounded according to national, state, and local codes.
23. Keep **all** cords dry, free from grease and oil, and protected from sparks and hot metal.
24. 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.



25. **DO NOT** bypass or defeat any safety interlock systems.

26. Learn the function and controls. Know the location of the **ON - OFF** switch and the "**E**"-**STOP** button.



IMPORTANT: *It is the duty of both the employer and employee to acquaint themselves with the safe working practices contained in this manual and ensure that all operators adopt these practices.*

The SW-621 and SW-623 Ironworker has these working stations:

- PUNCHING
 - FLAT BAR SHEAR
 - ANGLE BAR SHEAR
 - SQUARE BAR / ROUND BAR SHEAR
 - NOTCHING
-
- To ensure safe operation, guards are provided for each of the five workstations. **NEVER REMOVE THESE GUARDS.** If any guards are damaged or worn out, replace immediately with new guards.
 - While every effort has been made to furnish sufficient safeguards, this equipment if not operated or maintained properly, has the potential to cause **serious injury or death.**
 - All operations are controlled by the foot switch. The operator should be familiar with all controls, especially the Emergency Stop button.

Additional Safety Precautions

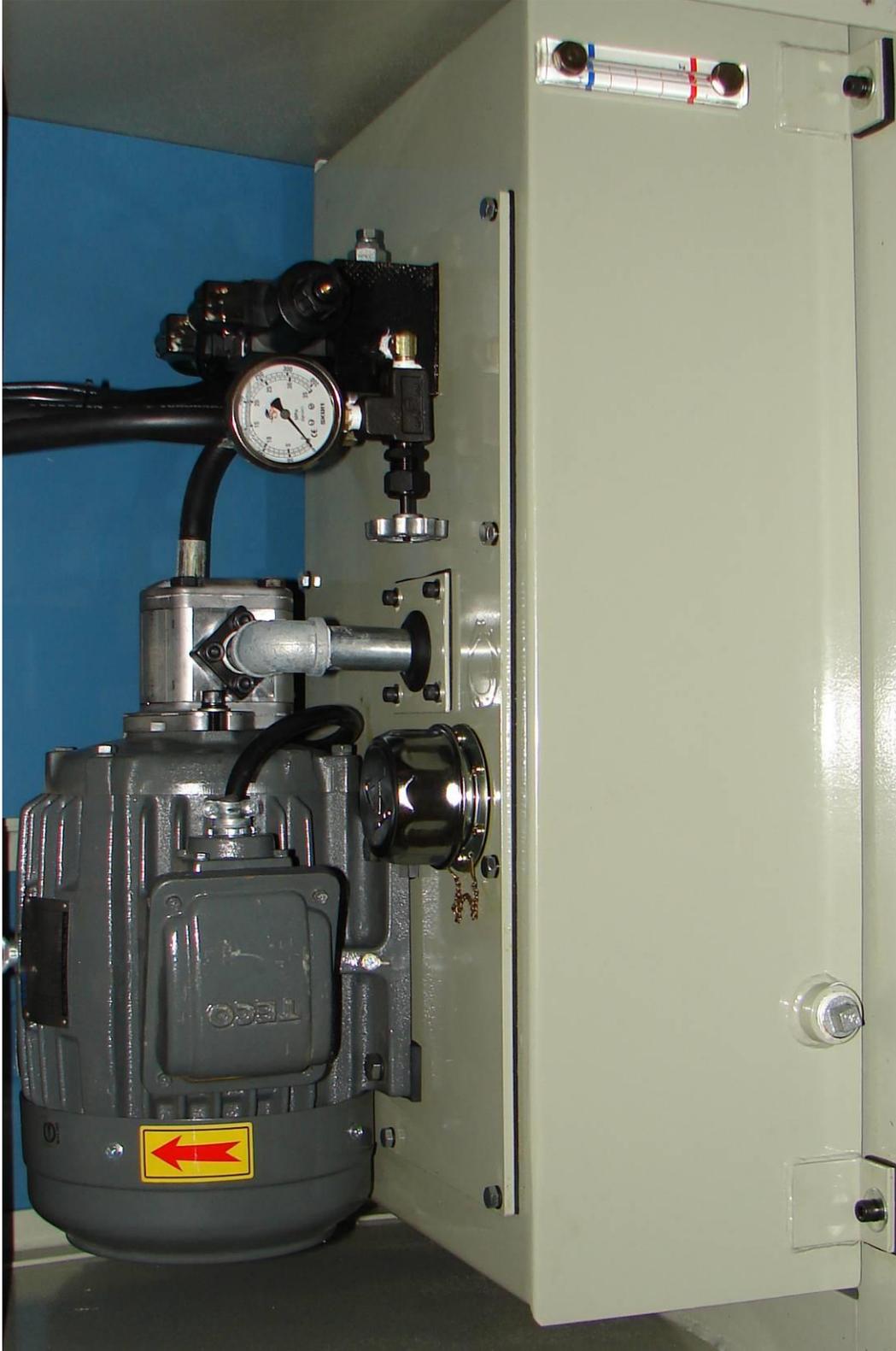
- On the SW-621 and SW-623 there is vertical motion at all stations at the same time, yet only one station must be used at one time. **There is the potential for SERIOUS BODILY INJURY.** During operation, make sure that any station **NOT** in use is free from any obstructions, material, and personnel. **When using the shearing stations, turn the selector switch to SHEAR mode and make sure that the punching stripper is closed, and the notching cover is closed.**
- The **PUNCH / NOTCH** switch requires the use of a key. The key is intended for Authorized Personnel only. Misuse of the key may increase the risk of injury at the Notching station. **NEVER LEAVE THE KEY ON THE MACHINE.** Refer to the section "Getting to know your machine" in regard to the PUNCH / NOTCH switch and the notch station guard interlock switch.
- **Turn off** main power to the machine when changing tooling or performing any maintenance work.



- **DO not** operate the machine unless all safety guards and hold-downs are in place. Use of optional attachments / tooling should also have proper hold-downs and guards installed. Do not use tooling or an attachment to do a job it was not designed for.
- **Keep hands clear of all moving parts at all times. Fingers must not go under or inside the safety guards, stripper, and hold-downs.**
- After tool changes, always check punch and die alignment, and blade clearances before operation.
- **Do not** punch, shear, or notch parts that are too small to fit under the safety hold-downs.
- After completion of operation, remove all slugs and waste material from the machine.
- **Do not** punch partial holes as this creates a side load force on the punch and can result in tool breakage. Special tooling may be available for this purpose.
- **Do not** punch material thicker than the diameter of the punch. Doing so can overload and break the punch and create a hazard.

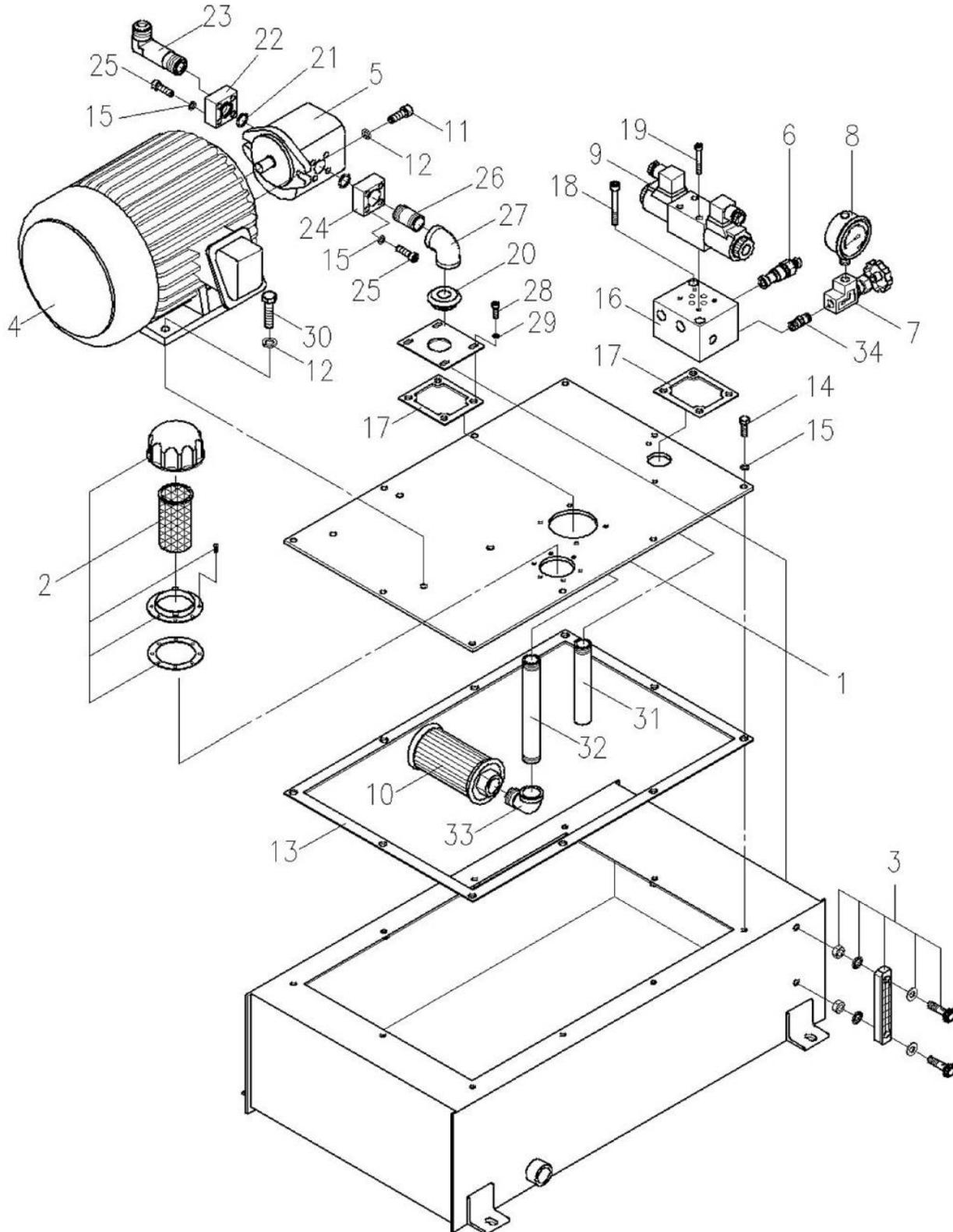


HYDRAULIC SYSTEM PHOTO





HYDRAULIC COMPONENTS PARTS DIAGRAM





Hydraulic Components Parts List

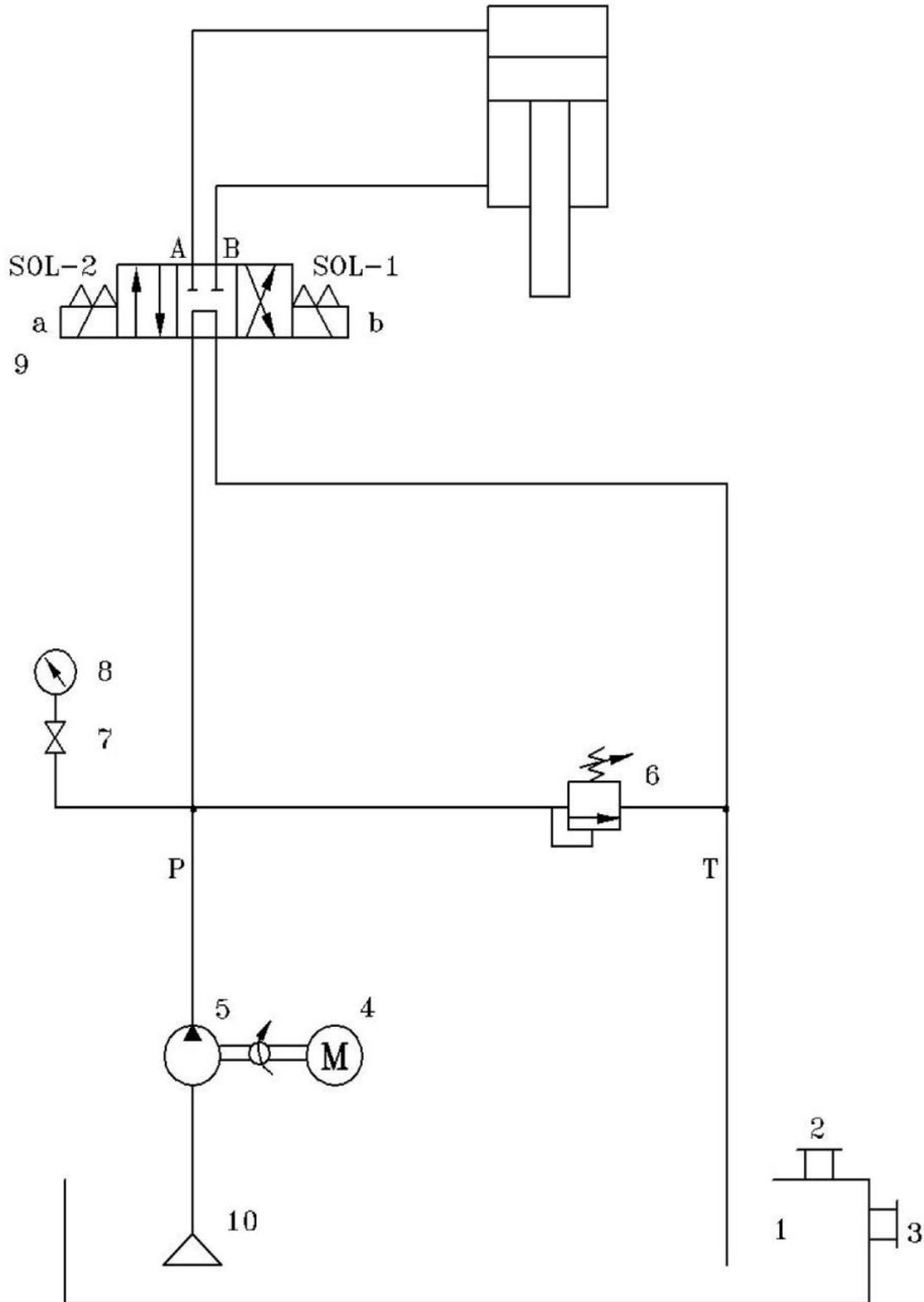
Item	Description	Q'ty
1	Oil Tank	1
2	Breather & Filler	1
3	Oil Level Gauge	1
4	Single Phase Motor 5HP 60HZ 220V - 230V Three Phase Motor 5HP 60HZ 220V - 460V (Specify HP, PH, HZ, and V)	1
5	Pump (Specify 60hz motor)	1
6	Relief Valve	1
7	Gauge Cock	1
8	Pressure Gauge	1
9	Solenoid Valve	1
10	Suction Filter	1
11	Hex Bolt M10X30	2
12	Spring Washer M10	6
13	Oil Tank Cover Seal	1
14	Bolt M8X25	10
15	Spring Washer M8	18
16	Manifold Block	1
17	Packing	2
18	Hex Bolt M8X65	2
19	Hex Bolt M5X40	4
20	Dust Seal for Pipe Standard 3/4"	1
21	O-Ring P22	2
22	Pump Flange (PT1/2")	1
23	90° Joint 1/2"TX3/8"H	1
24	Pump Flange (PT3/4")	1
25	Hex Bolt M8X30	8
26	Pipe 3/4"X60mm	1



27	90° Joint 1/2"	1
28	Hex Bolt M6X12	4
29	Spring Washer M6	4
30	Bolt M10X55	4
31	Pipe 1/2"X240mm	1
32	Pipe 3/4"X240mm	1
33	90° Joint 3/4"	1
34	Joint 1/4"TX1/4"T	1
35	Hyd. Hose 3/8"X2WX320	1
	Hyd. Hose 3/8"X2WX1165	1
	Hyd. Hose 3/8"X2WX1270	1

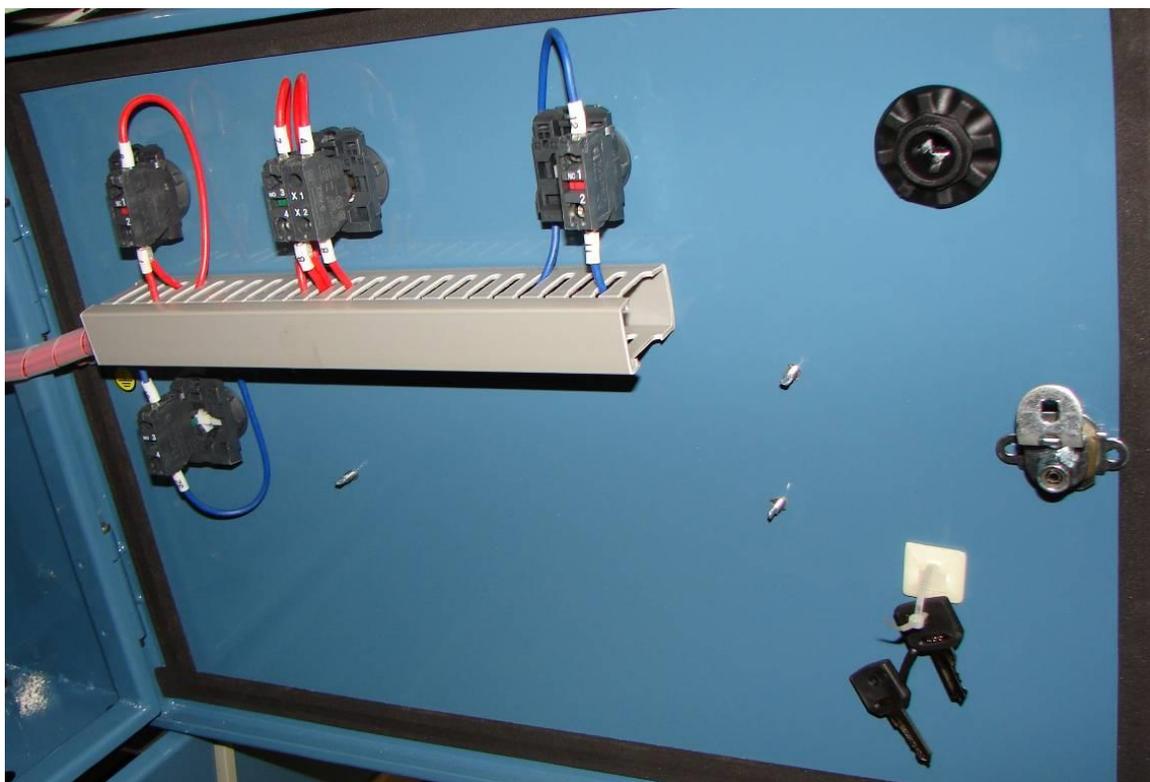
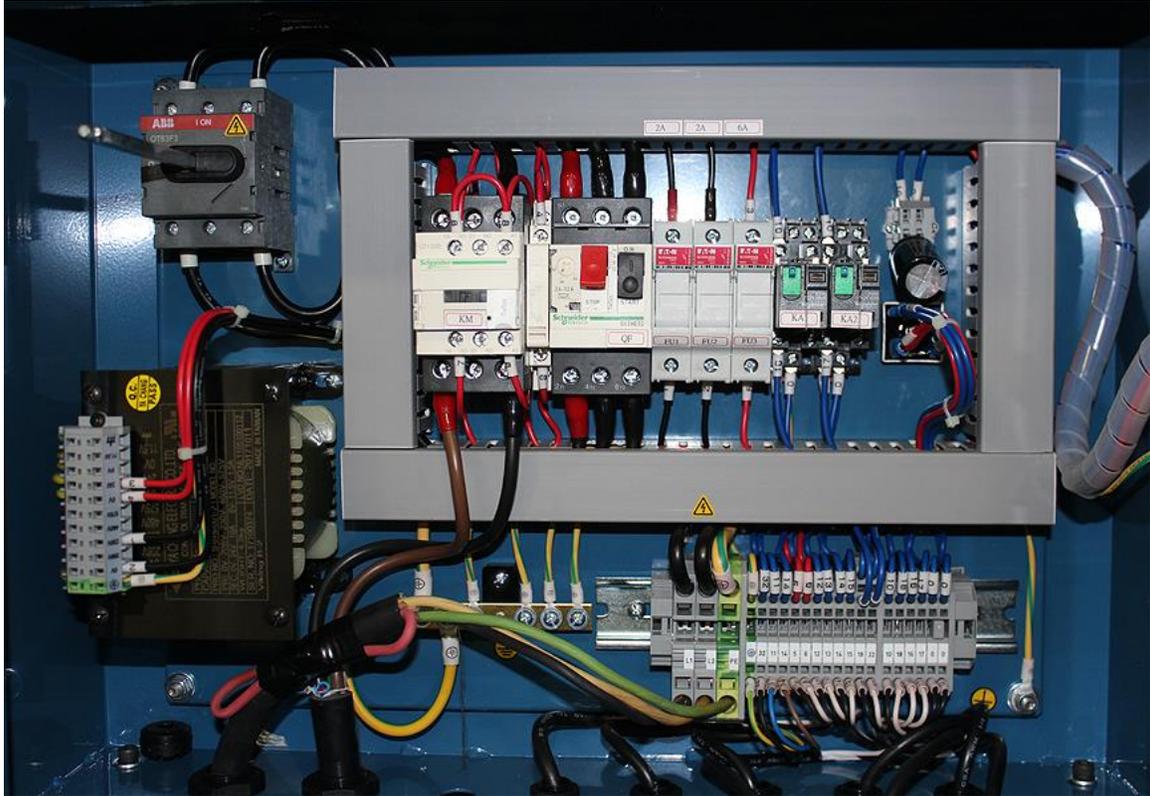


Hydraulic Circuit





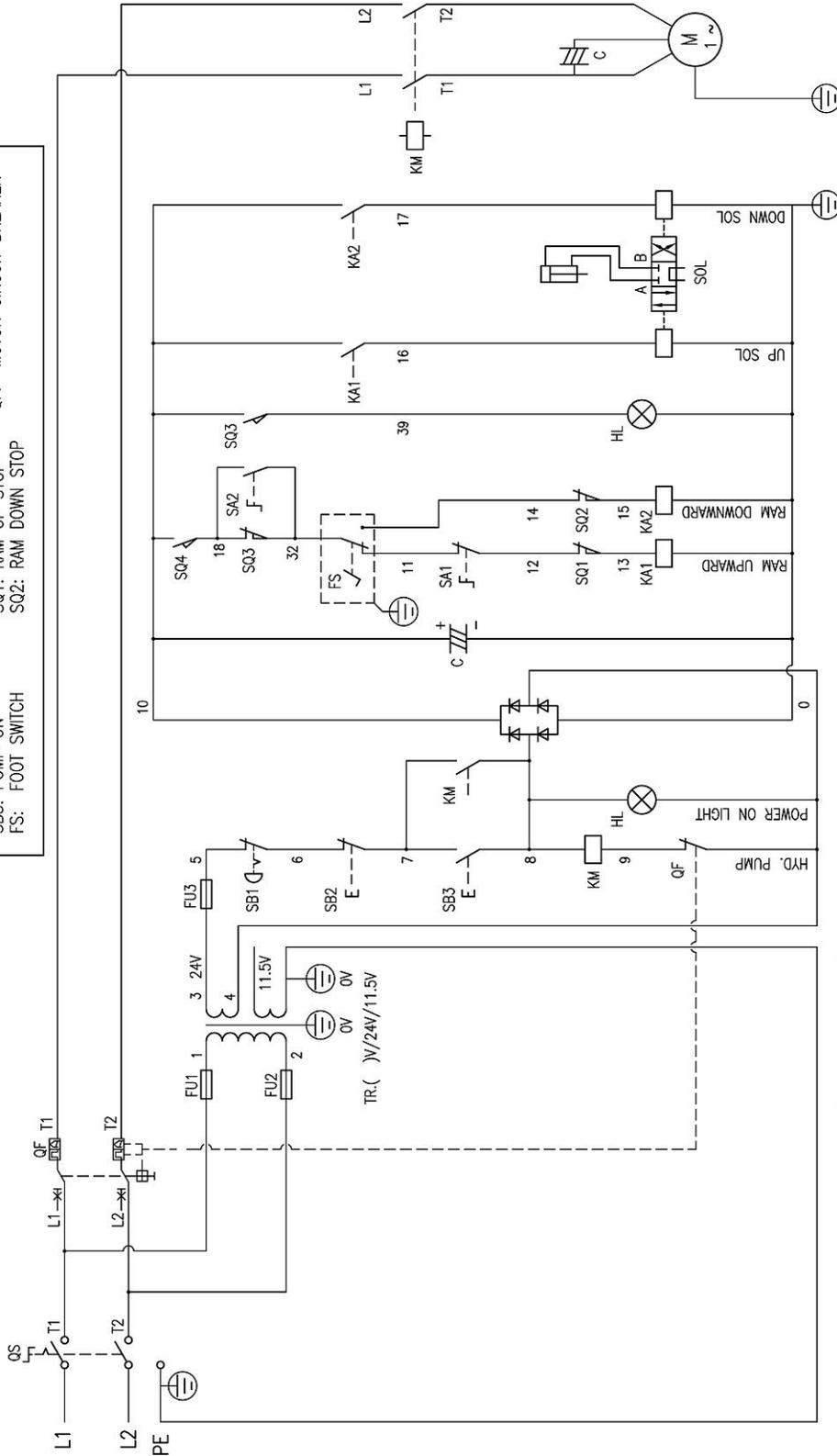
ELECTRICAL COMPONENT PHOTO (Single Phase)





ELECTRICAL DIAGRAM (Single Phase)

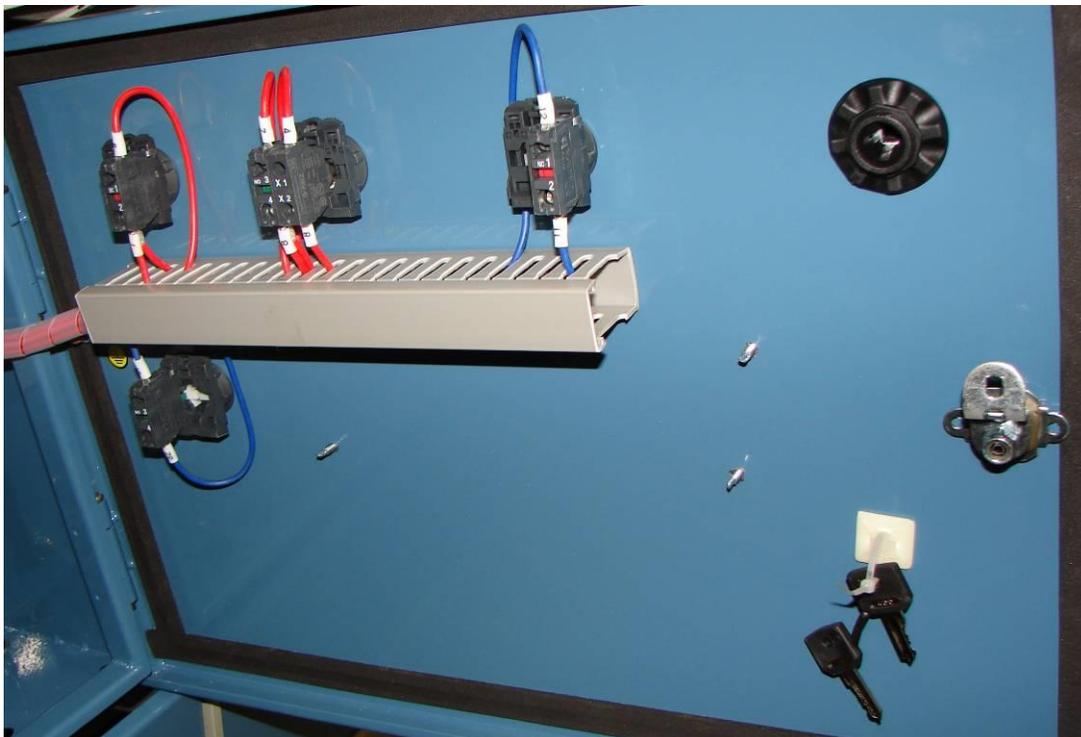
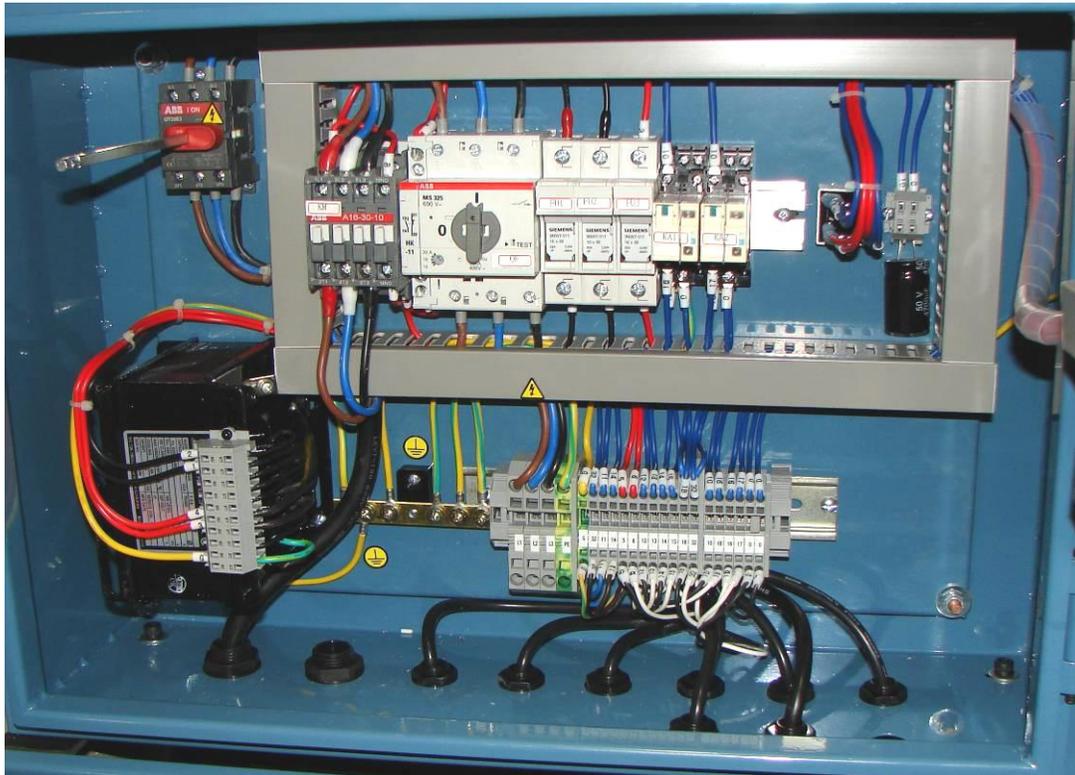
- SB1: EMERGENCY STOP
- SB2: PUMP OFF
- SB3: PUMP ON
- FS: FOOT SWITCH
- SA1: NORMAL/JOG
- SA2: PUNCH/SHEAR
- SQ1: RAM UP STOP
- SQ2: RAM DOWN STOP
- SQ3: NOTCH SAFETY INTERLOCK
- SQ4: PUNCH SAFETY INTERLOCK
- QF: MOTOR CIRCUIT BREAKER



L1	L2	PE	G	32	11	14	5	6	12	13	14	15	18	32	39	39	10	18	16	17	0	0	0
POWER SOURCE			FS	SB1	SQ1	SQ2	SQ3	SQ4	SOL	HL	QF	KM	HL	QF									



ELECTRICAL COMPONENT PHOTO (Three Phase)

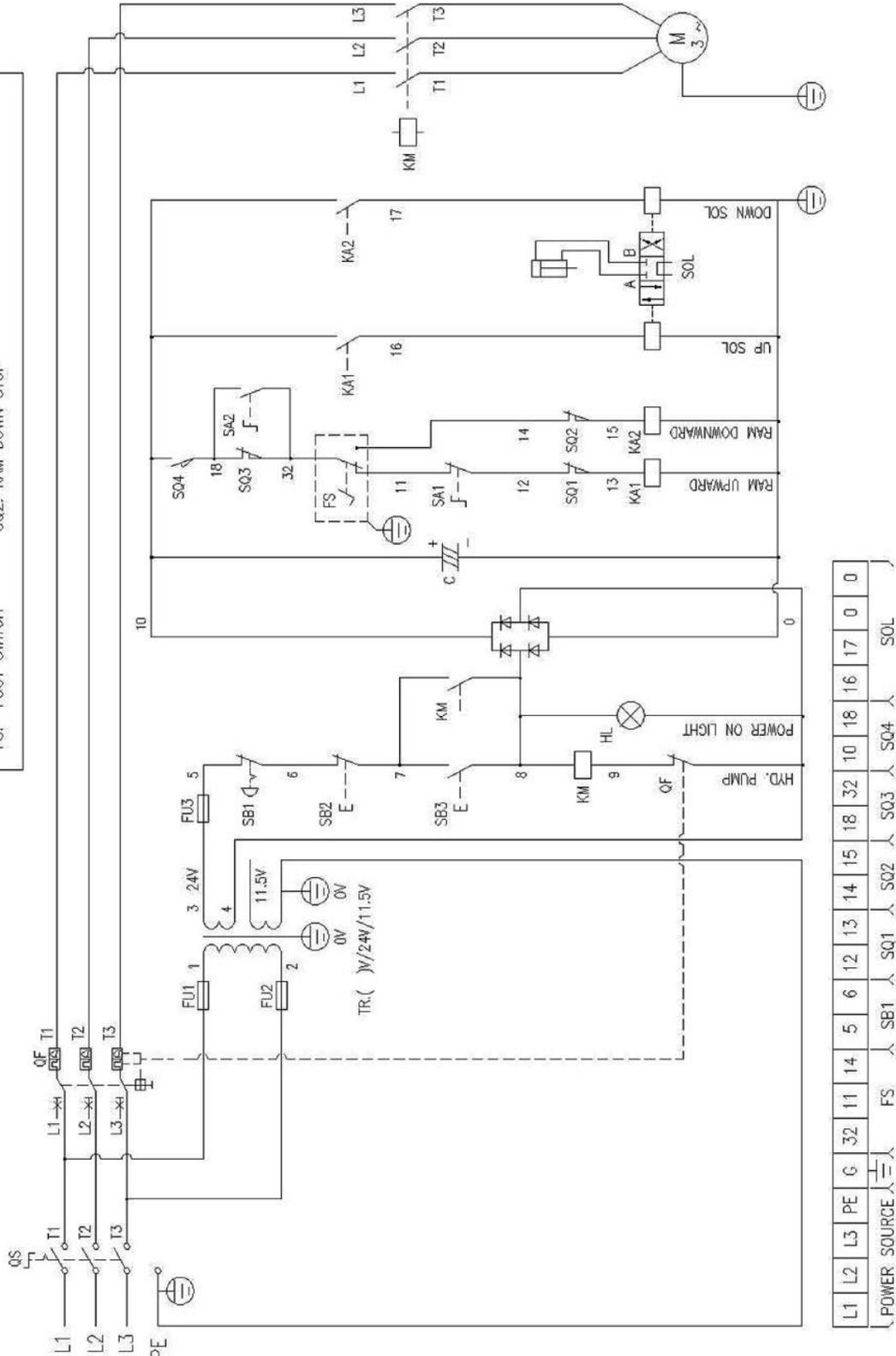




ELECTRICAL DIAGRAM (Three Phase)

Electrical Circuit (CE)

- SB1: EMERGENCY STOP
- SB2: PUMP OFF
- SB3: PUMP ON
- FS: FOOT SWITCH
- SA1: NORMAL/JOG
- SA2: PUNCH/SHEAR
- SQ1: RAM UP STOP
- SQ2: RAM DOWN STOP
- SQ3: NOTCH SAFETY INTERLOCK
- SQ4: PUNCH SAFETY INTERLOCK
- QF: MOTOR CIRCUIT BREAKER



L1	L2	L3	PE	G	32	11	14	5	6	12	13	14	15	18	32	10	18	16	17	0	0
POWER SOURCE						FS		SB1		SQ1		SQ2		SQ3		SQ4					SOL



Electrical Parts List

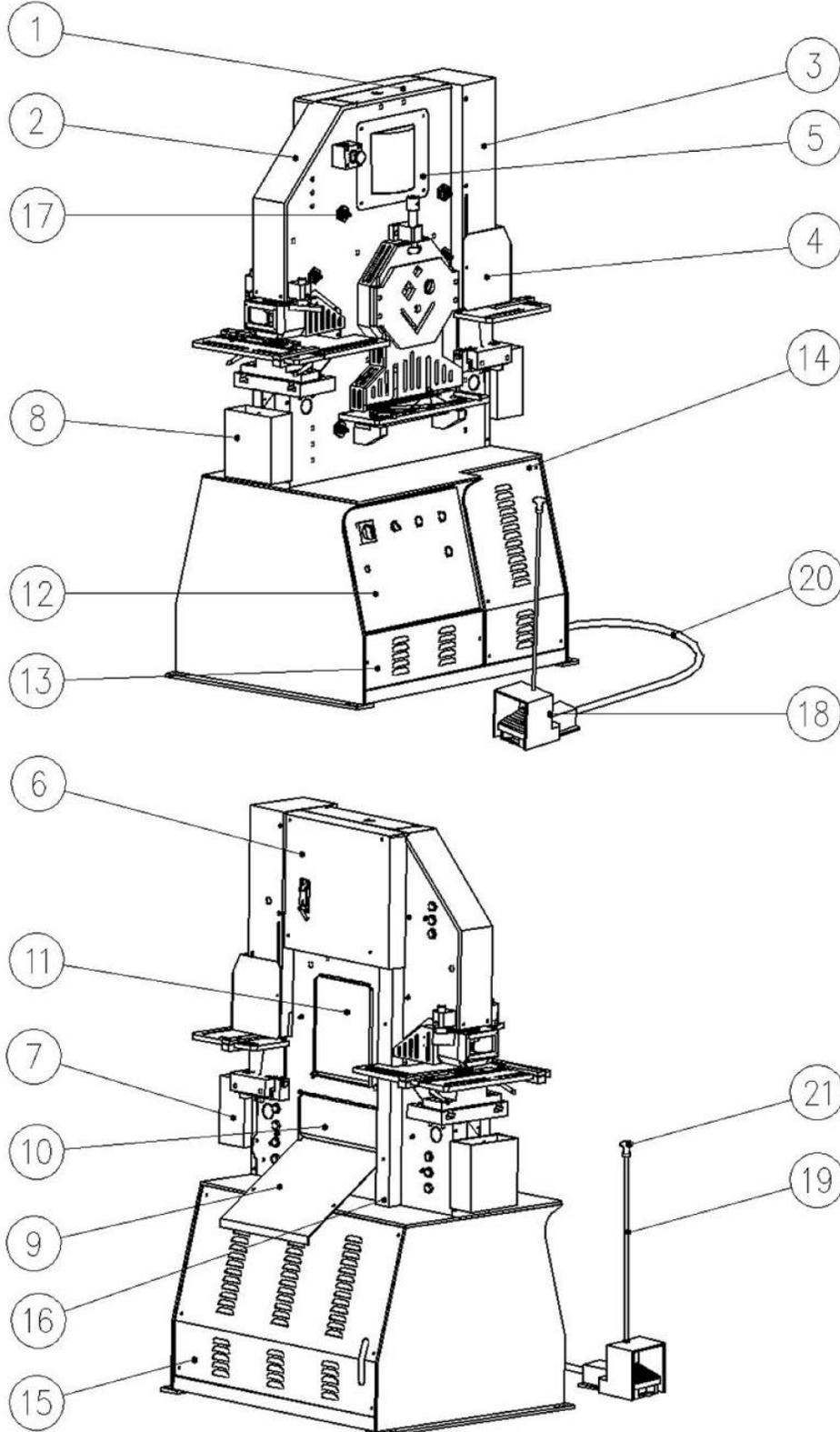
Item	Code	Name	Q'ty
1	QS	Isolator Switch 220V, 230V, 380V, 415V, 460V, or 575V	1
2	KM	Magnetic Switch 220V, 230V, 380V, 415V, 460V, or 575V	1
3	QF	Motor Circuit Breaker 220V, 230V, 380V, 415V, 460V, or 575V	1
4		Side Contact Block	1
5	TR	Transformer 220V, 230V, 380V, 415V, 460V, or 575V	1
6	FU1, FU2	Fuse	2
7	FU3	Fuse	1
8		Fuse Base	3
9	SB1	Emergency Stop Button	1
10	FS	Foot Switch	1
11	SB3	Pump ON Push Button	1
12	SB2	Pump OFF Push Button	1
13	SA1	Selector Switch	1
14	SA2	Key Selector Switch	1
15		Normal Open Contact	1
16		Normal Close Contact	1
17		Bridge Rectifiers	1
18	C	Capacitor	1
19		Grounding Terminal	1
20	KA1, KA2	Relay	2
21		Terminal Block	15
22		Terminal Block	3
23		Jumper Bar	1
24		Grounding Terminal Block	1
25		Grounding Terminal Block	1
26		Terminal Block	2
27		End Stop Plate	2



28		End Barrier	1
29		End Barrier	1
30		End Barrier	1
31		Terminal Block	2
32		End Barrier	1
33	SQ1, SQ2	Limit Switch for Stroke Adjustment	2
34	SQ3	Limit Switch for Notcher	1
35	SQ4	Limit Switch for Stripper	1



COVER PLATES PARTS DIAGRAM



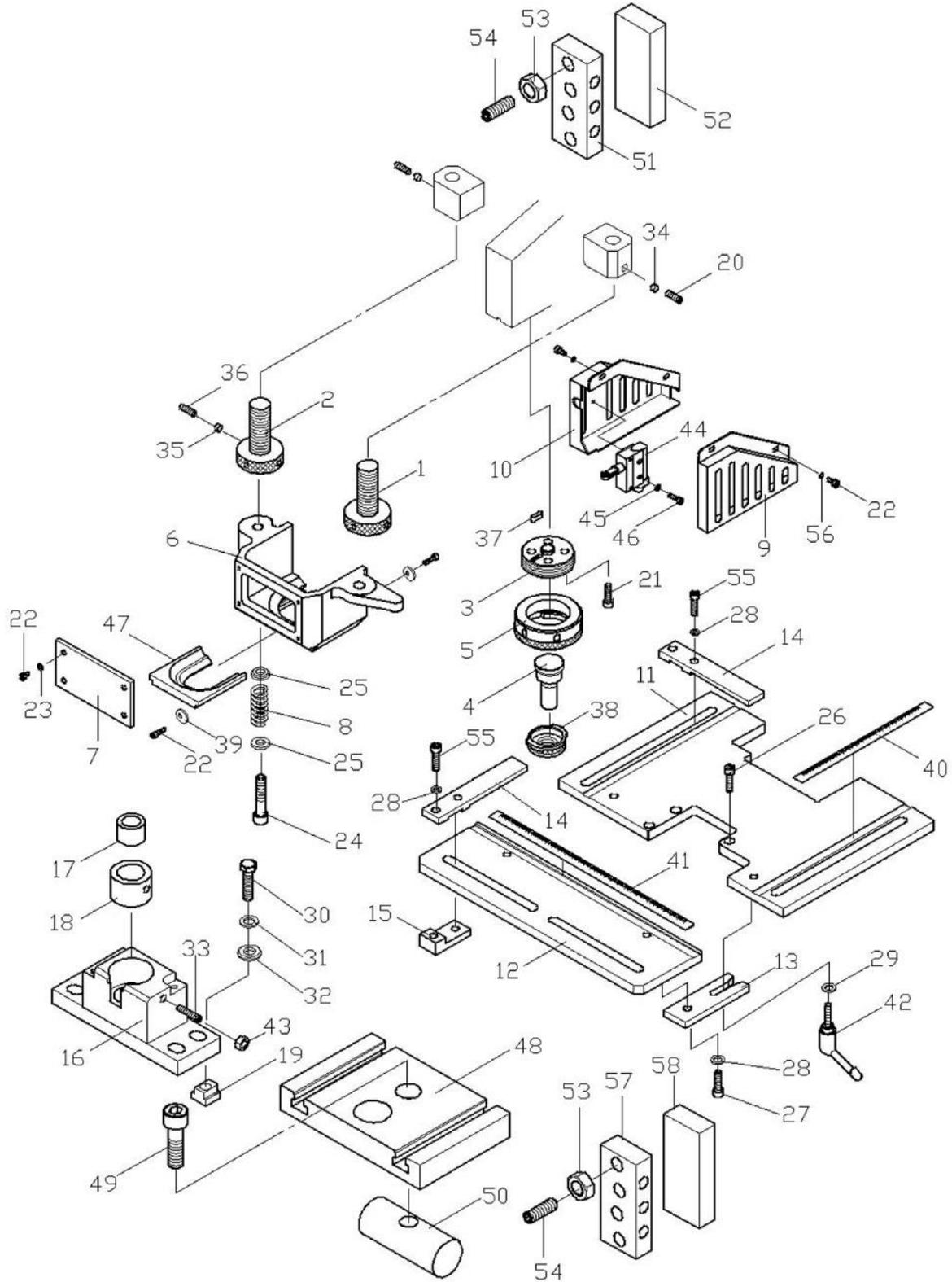


Cover Plates Parts List

Item	Description	Qty.
1	Top Cover	1
2	Cover(C)	1
3	Notching Station Cover	1
4	Safety Guard for Notching	1
5	Cylinder Cover	1
6	Limit Switch Cover	1
7	Scrap Box for Notching	1
8	Scrap Box for Punching	1
9	Flat Bar Shear Back Plate	1
10	Safety Guard for Flat Shear	1
11	Safety Guard for Bar Shear	1
12	Electrical Box	1
13	Front Base Cover	1
14	Front Base Cover	1
15	Rear Base Cover	1
16	Hose Cover	1
17	Adjust Pushing Screw Adjust Pushing Nut	6
18	Foot Switch YC-135D(CE)	1
19	Foot Switch Handle	1
20	Foot Switch Cable 3/8"X1800mm	1
21	Waist Shaped Knobs 1180-36-M10	1



PUNCHING STATION PARTS DIAGRAM



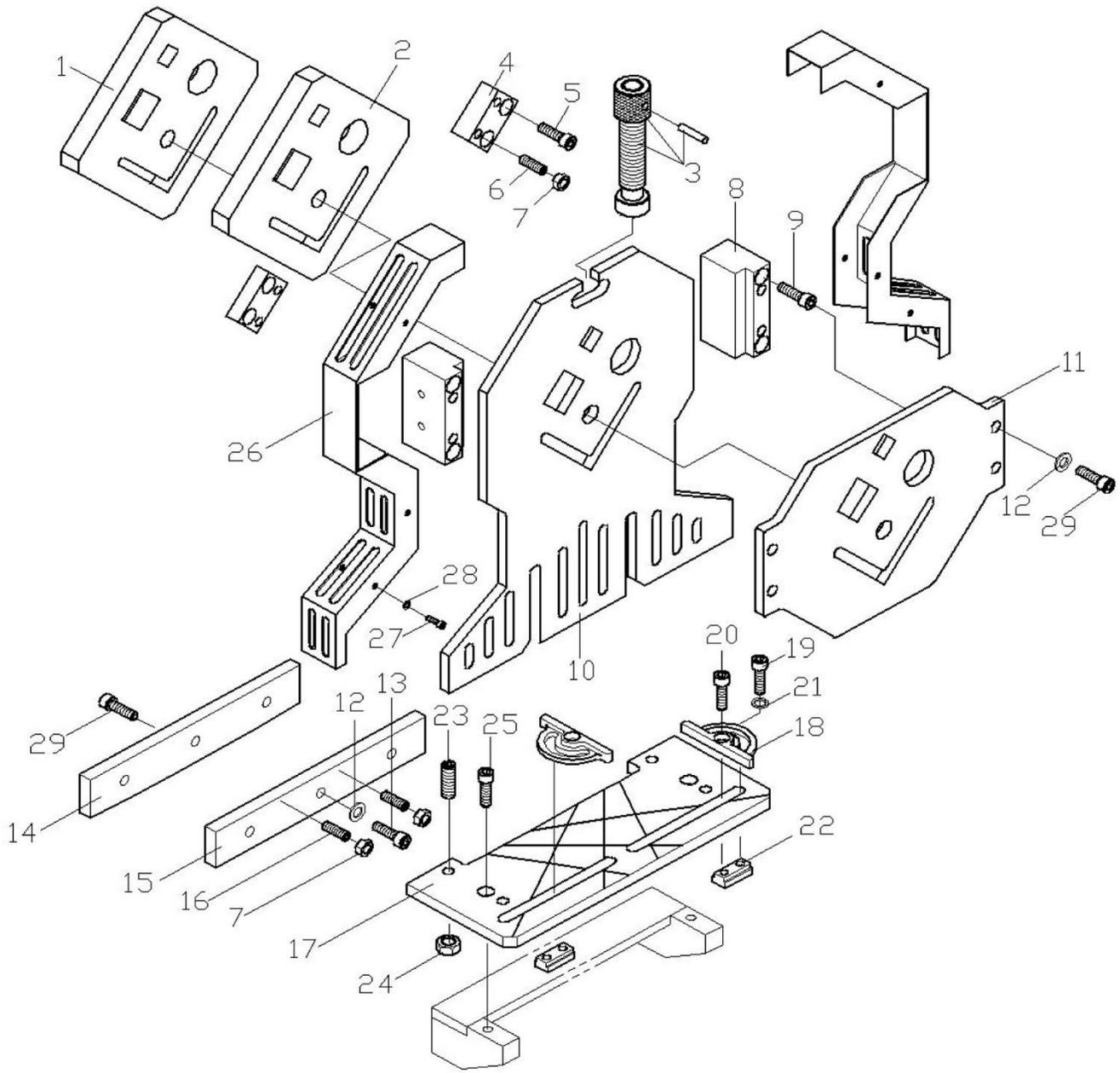


Punching Station Parts List

Item	Description	Qty.	Item	Description	Qty.
1	Stripper Adj. Screw (1)	1	30	Bolt M16X50	4
2	Stripper Adj. Screw (2)	1	31	Spring Washer M16	4
3	Retaining Thread	1	32	Flat Washer M16	4
4	Punch	1	33	Set Screw M10X40	1
5	Retaining Nut	1	34	Copper Piece	2
6	Stripper	1	35	Copper Piece	1
7	Stripper Clear Cover	1	36	Set Screw M6X10	1
8	Stripper Spring	1	37	Locating Key(6X6X18)	1
9	Stripper Rear Guard(right)	1	38	Quick Change Sleeve	1
10	Stripper Rear Guard (left)	1	39	Washer	2
11	Punching Table A (Main)	1	40	Punch Stopper Guide Ruler	2
12	Punching Table B (Front)	1	41	Punch Table Ruler	1
13	Table Connecting Plate	2	42	Clamp Handle M10X25	2
14	Stopper Plate	2	43	Nut M10	1
15	Clamping Plate	2	44	Limit Switch	1
16	Die Holder(Ø60)	1	45	Spring Washer M4	2
17	Die	1	46	Hex Bolt M4X25	2
18	Die Bushing (Ø60 → Ø 45)	1	47	Stripper Exchangeable Plate	1
19	T-Shaped Nut M16	4	48	Mounting Table	1
20	Set Screw M10X6.5	2	49	Hex Bolt M20X70	1
21	Hex Bolt M10X25	4	50	Clamping Shaft	1
22	Hex Bolt M5X12	10	51	Adjust Plate	1
23	Spring Washer M5	4	52	Guide Plate	1
24	Hex Bolt M12X90	1	53	Nut M20	8
25	Flat Washer M12	2	54	Adjust Screw	8
26	Hex Bolt M8X16	3	55	Hex Bolt M10X40	4
27	Hex Bolt M10X25	2	56	Flat Washer M5	4
28	Spring Washer M10	6	57	Adjust Plate	1
29	Flat Washer M10	2	58	Guide Plate	1



SHEAR STATION PARTS DIAGRAM



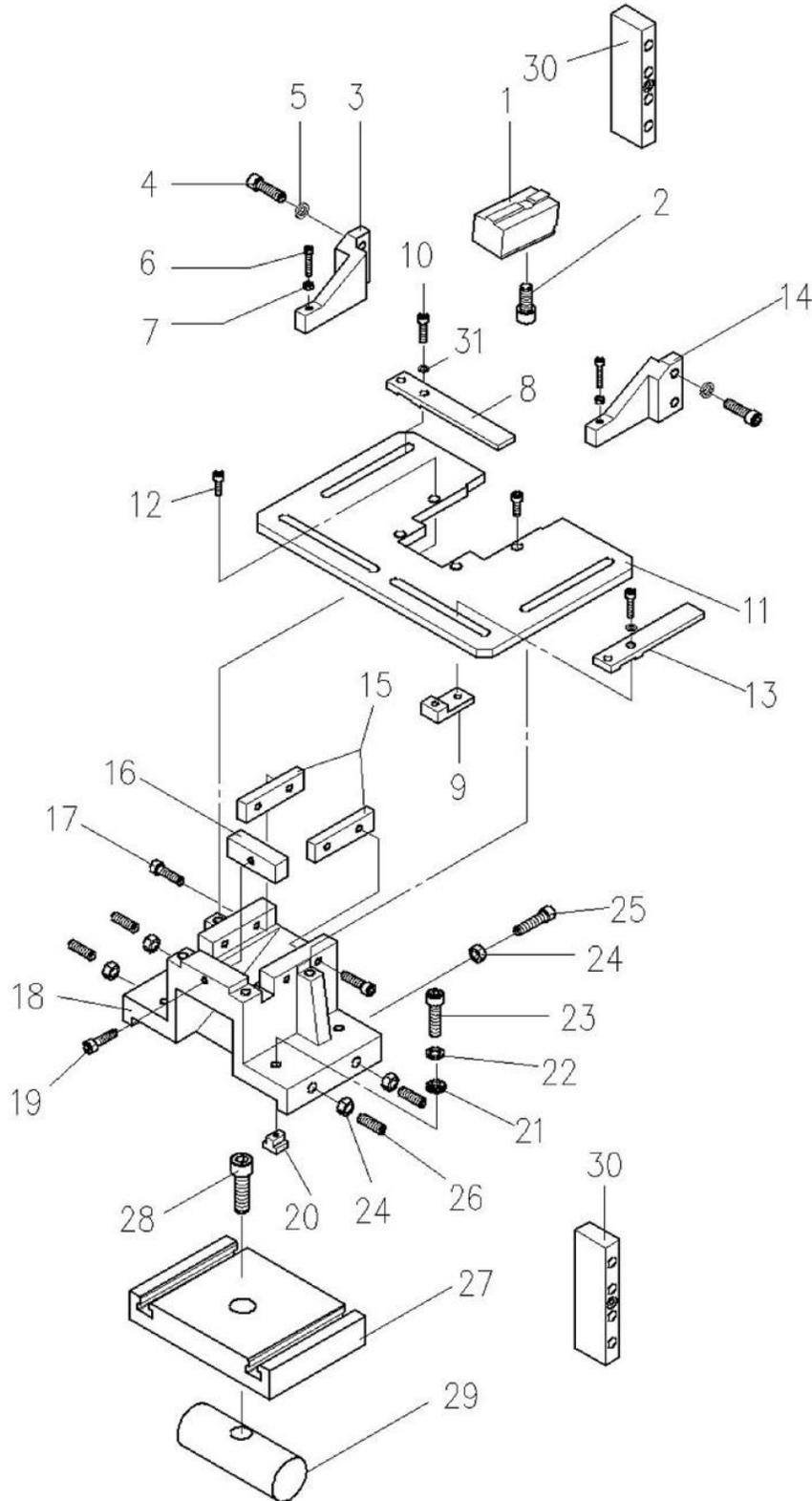


Shear Station Parts List

Item	Description	Qty.	Item	Description	Qty.
1	Angle, Rd/Sq. Bar Shear Moving Blade	1	15	Flat Shear Lower Blade	1
2	Angle, Rd/Sq. Bar Shear Stationary Blade	1	16	Set Screw M10X25	6
3	Shear Hold-down Screw	1	17	Flat Shear Table	1
	Hold-down Screw End Piece	1	18	Flat Shear Stopper	2
	Spring Pin Ø6X30	1	19	Hex Bolt M10X25	2
4	Rd/Sq. Bar Shear Blade Fix Plate	2	20	Hex Bolt M10X30	2
5	Hex Bolt M12X20	4	21	Flat Washer 3/8"	2
6	Set Screw M10X40	4	22	T-Shaped Nut M10	2
7	Nut M10	10	23	Set Screw M12X35	4
8	Hold-down Guide Block	2	24	Nut M12	4
9	Hex Bolt M12X60	4	25	Hex Bolt M10X40	2
10	Shear Hold-down (M)	1	26	Safety Guard for Shear Hold-down	2
11	Shear Hold-down (S)	1	27	Hex Bolt M5X12	6
12	Spring Washer M12	7	28	Spring Washer M5	6
13	Hex Bolt M12X35	3	29	Hex Bolt M12X30	7
14	Flat Shear Upper Blade	1			



NOTCHING STATION PARTS DIAGRAM



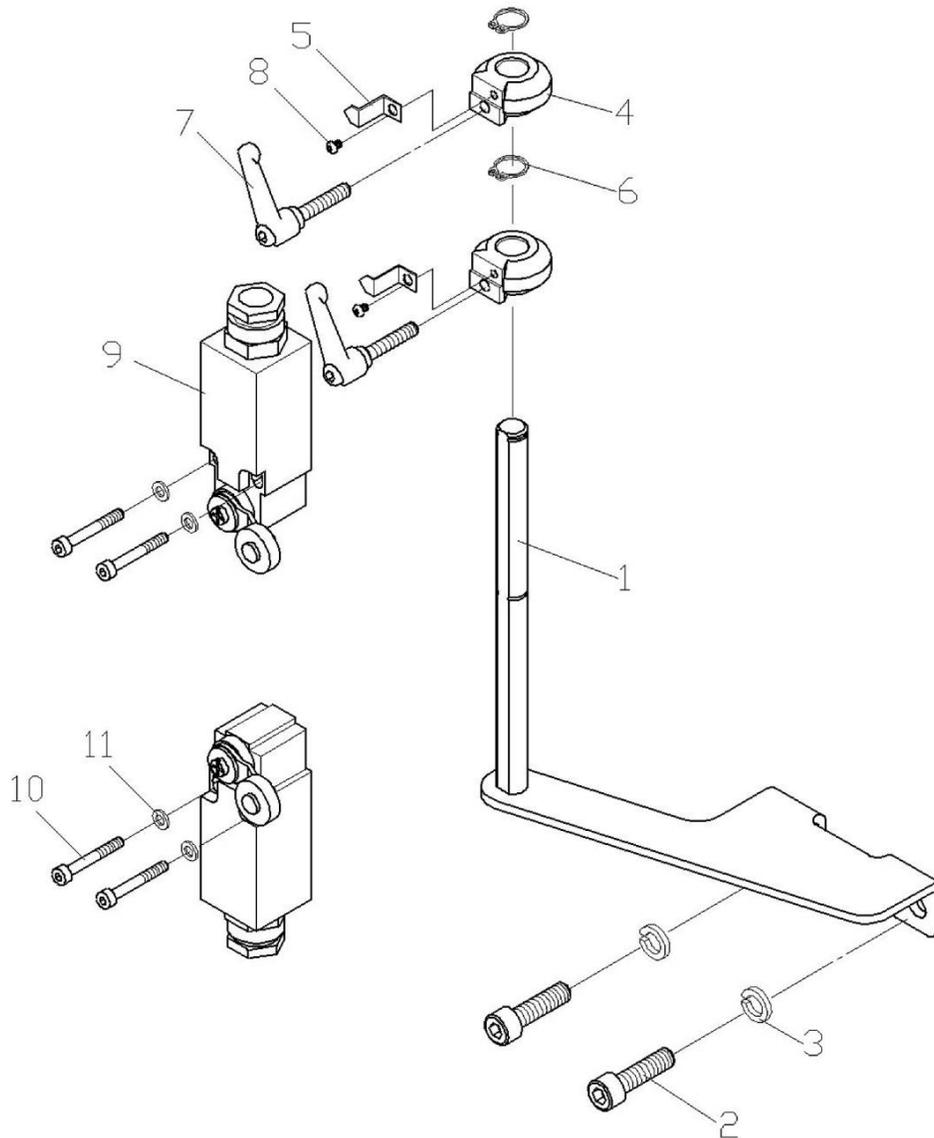


Notching Station Parts List

Item	Description	Q'ty	Item	Description	Q'ty
1	Notcher Top Blade	1	17	Hex Bolt M10X20	4
2	Hex Bolt M18X40	1	18	Notcher Bolster	1
3	Notching Stripper (left)	1	19	Hex Bolt M10X35	1
4	Hex Bolt M12X30	4	20	T-Shaped Nut M12	4
5	Spring Washer M12	4	21	Flat Washer M12	4
6	Hex Bolt M8X50	2	22	Spring Washer M12	4
7	Hex Nut M8	2	23	Hex Bolt M12X50	4
8	Stopper Plate (long)	1	24	Hex Nut M12	6
9	Clamping Plate	2	25	Hex Bolt M12X35	2
10	Hex Bolt M10X40	4	26	Set Screw M12X25	4
11	Notching Table	1	27	Mounting Table	1
12	Hex Bolt M8X16	4	28	Hex Bolt M20X65	1
13	Stopper Plate (short)	1	29	Clamping Shaft	1
14	Notching Stripper (right)	1	30	Main Slide Guide Plate (1)	2
15	Notcher Side Blade	2	31	Spring Washer M10	4
16	Notcher Front Blade	1			



LIMIT SWITCH ADJUSTMENT PARTS DIAGRAM

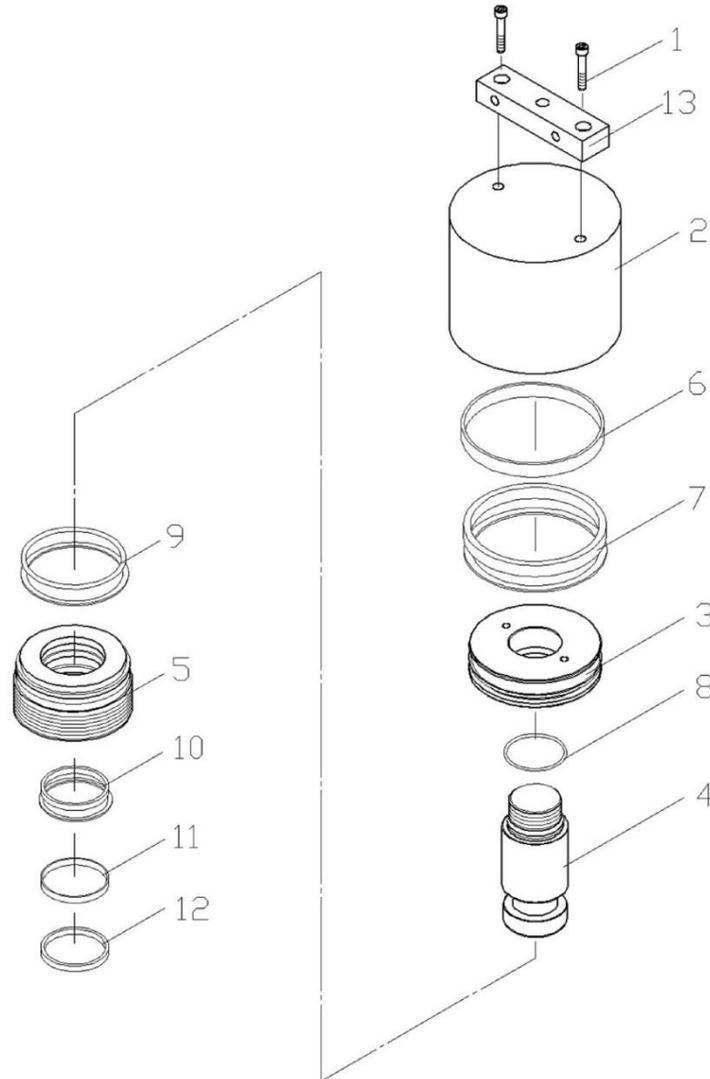


Limit Switch Adjustment Parts List

Item	Description	Q'ty	Item	Description	Q'ty
1	Stroke Adjustment Rod	1	7	Clamp Handle M6X25	2
2	Hex Bolt M8X20	2	8	Cap Screw M4X8	2
3	Spring Washer M8	2	9	Limit Switch	2
4	Limit Switch Actuator (Side)	2	10	Hex Bolt M4X30	4
5	Indicating Pointer	2	11	Flat Washer 5/32"	4
6	S Clip S-12	2			



CYLINDER ASSEMBLY PARTS DIAGRAM



Cylinder Assembly Parts List

Item	Description	Q'ty	Item	Description	Q'ty
1	Hex Bolt M16X95	2	8	O-Ring G70	1
2	Cylinder Pipe	1	9	O-Ring + Back Up Ring	1
3	Piston	1	10	U Packing + Back Up Ring	1
4	Piston Rod	1	11	Wear Ring	1
5	Cylinder Rod Cover	1	12	Dust Seal	1
6	Wear Ring	1	13	Flying Rings Plate	1
7	Piston Seal	1			



NOTES



NOTES



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