OPERATOR'S MANUAL

HYDRAULIC PRESS BRAKE
MODEL: BP-9078CNC

Book 2of2

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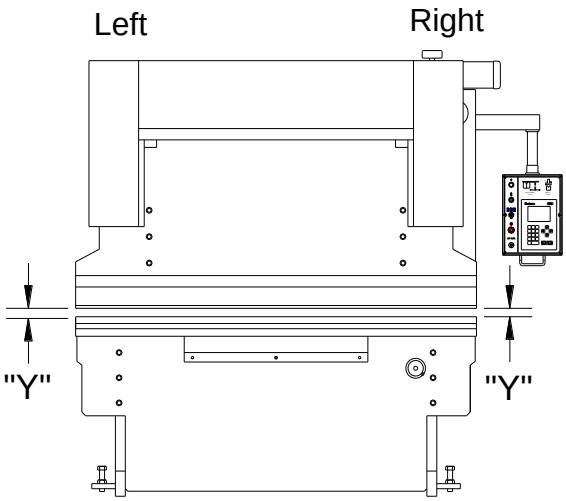
MACHINE ADJUSTMENTS

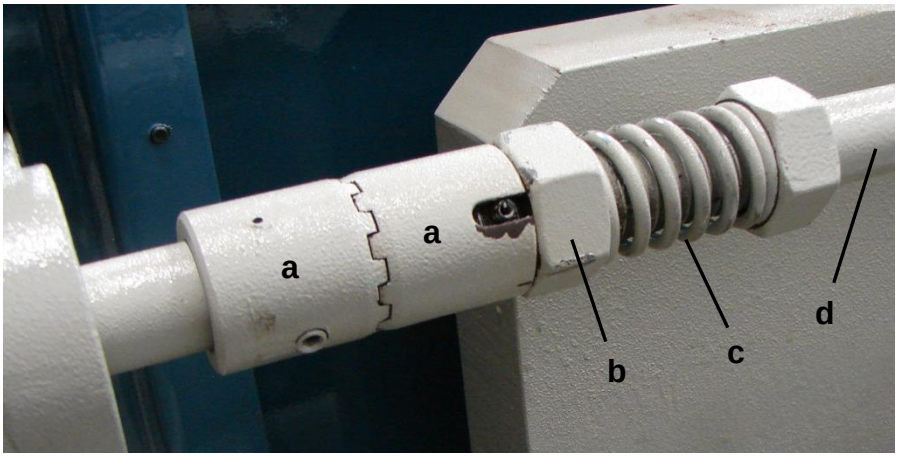
Bending Angle Variation



When bending a wide piece of material, if you notice a difference in the bending angle due to a difference in dim "**Y**" from left to right, fig. 23) make the following adjustment:

1. Disconnect Power to the Machine.
2. Disengage the two halves of the coupling link "**a**" by first turning nut "**b**" clockwise (**cw**) to compress spring "**c**" (fig. 24).
3. When you have separation of the halves, you can rotate the shaft "**d**" to raise or lower the travel of the limit switch in the cylinder on the right side of the ram. Note: It takes many rotations to see a change in dimension "**Y**".
4. With the dimension change made, reconnect the coupling link.
5. Power up the machine and move the ram to a different position. The change in travel of the limit switch has affected the right side ram "**Y**" dimension.
6. Disconnect power to the machine.
7. Recheck and compare the "**Y**" dimensions. If they are still not the same, repeat the above sequence.

There are certain bending situations where you might require a single bend with 90° on one end and 100° on the other (as an example).



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

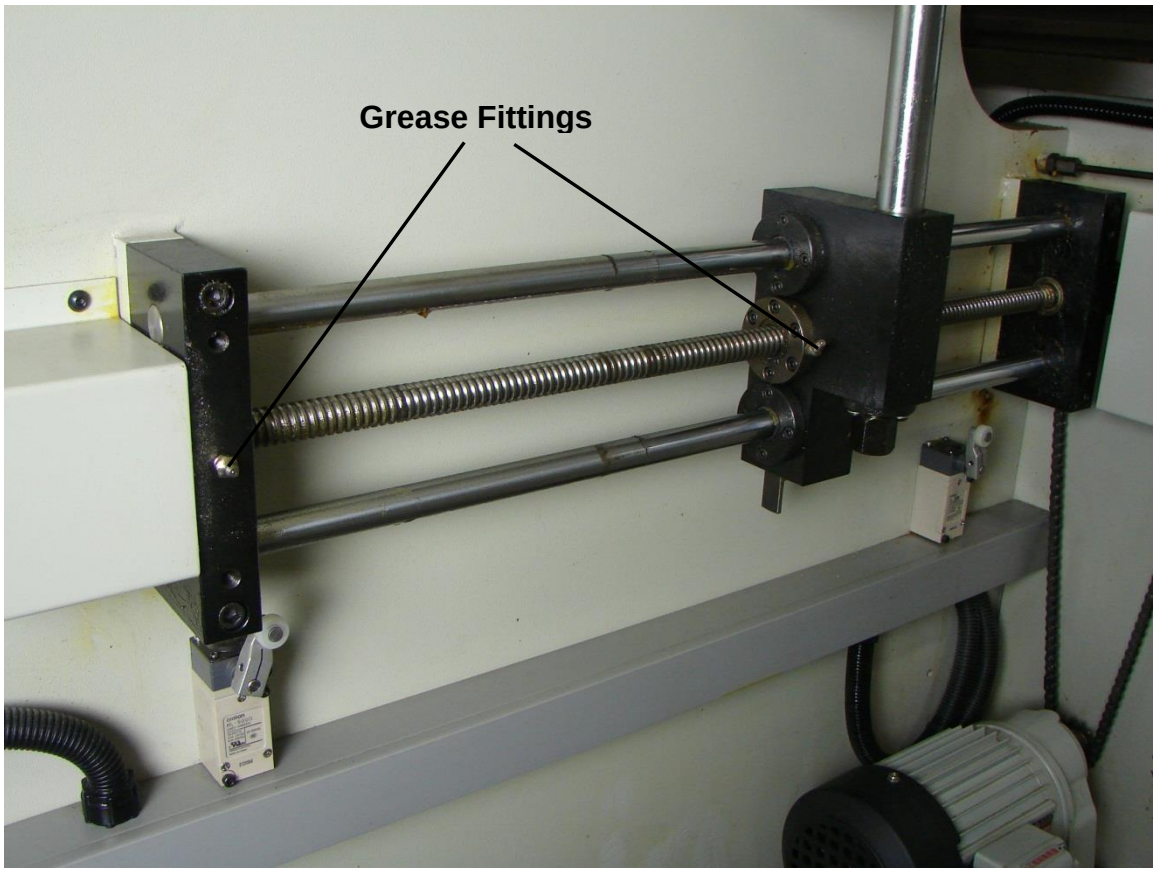
- Lubricate threaded components and sliding devices.
- Check fluid level of hydraulic tank.
- Make sure Light curtains are working properly.
- Check that all limit switches are secure and adjusted properly.
- Apply rust inhibitive lubricant to all non-painted surfaces.
- On a weekly basis clean the machine and the area around it.

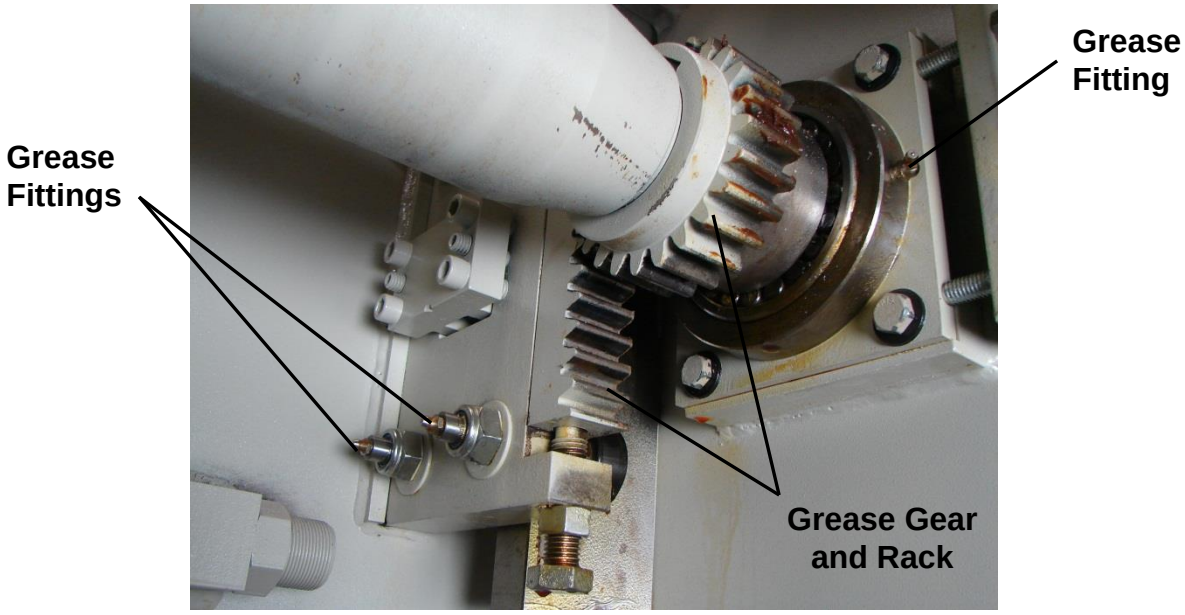
***Note**: Proper maintenance can increase the life expectancy of your machine.*

Lubrication

Lubricate the machine with recommended grease every 8 working hours using the grease gun provided. See figures to locate the grease fittings

Recommended Grease (or equivalent):
Esso Beacon 2
Shell Alvania Grease R2





Hydraulic Oil

The hydraulic oil is the primary medium for transmitting pressure and also must lubricate the running parts of the pump.
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 over heating.**

- 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 oil every 6 months along with the oil filter.

Check the oil filter gauge periodically and replace the filter when the needle is in the red zone indicating a dirty filter.

To drain the hydraulic tank, first make sure the valve is closed as shown above. Remove the plug and connect a drain hose. Open the valve to drain the tank. Capacity of the oil tank is approximately 45 gallons (170.34 liters) max. Required oil capacity is 40.5 gallons (153.30 liters.) **Used oil products must be disposed of in a proper manner following your local regulations**.

The hydraulic oil tank can be filled from either location (which ever is the most convenient). Each has a filtering screen that can be vacuumed out before refilling the tank with fresh oil.

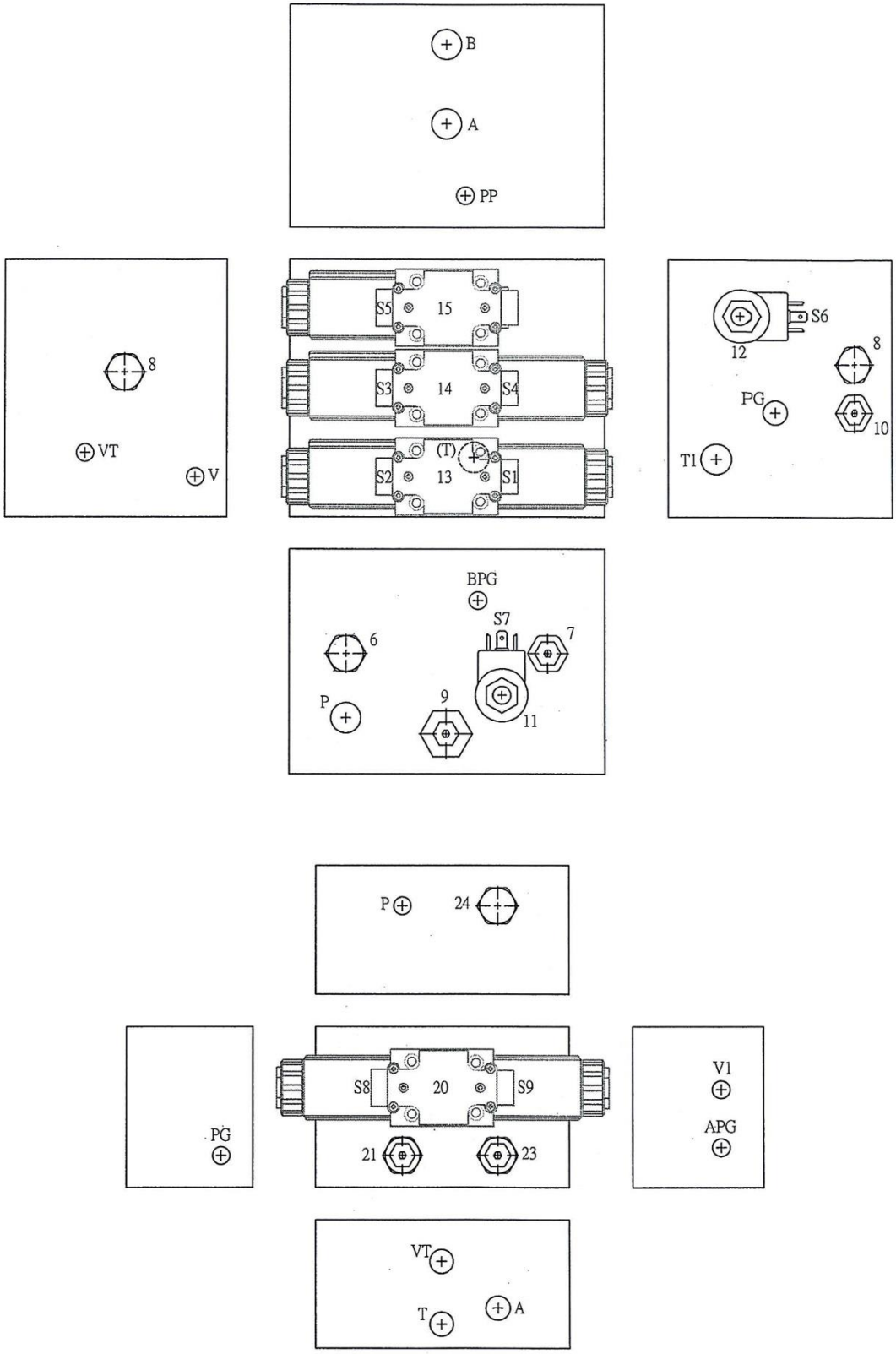
Fluorescent Bulb Replacement

The fluorescent bulb should light up when the disconnect switch is turned on. To replace the bulb, **Disconnect Power** to the machine. Access to the bulb is from the back of the press. Carefully rotate and remove the bulb from the fixture. Replace with bulb of the same size and wattage.

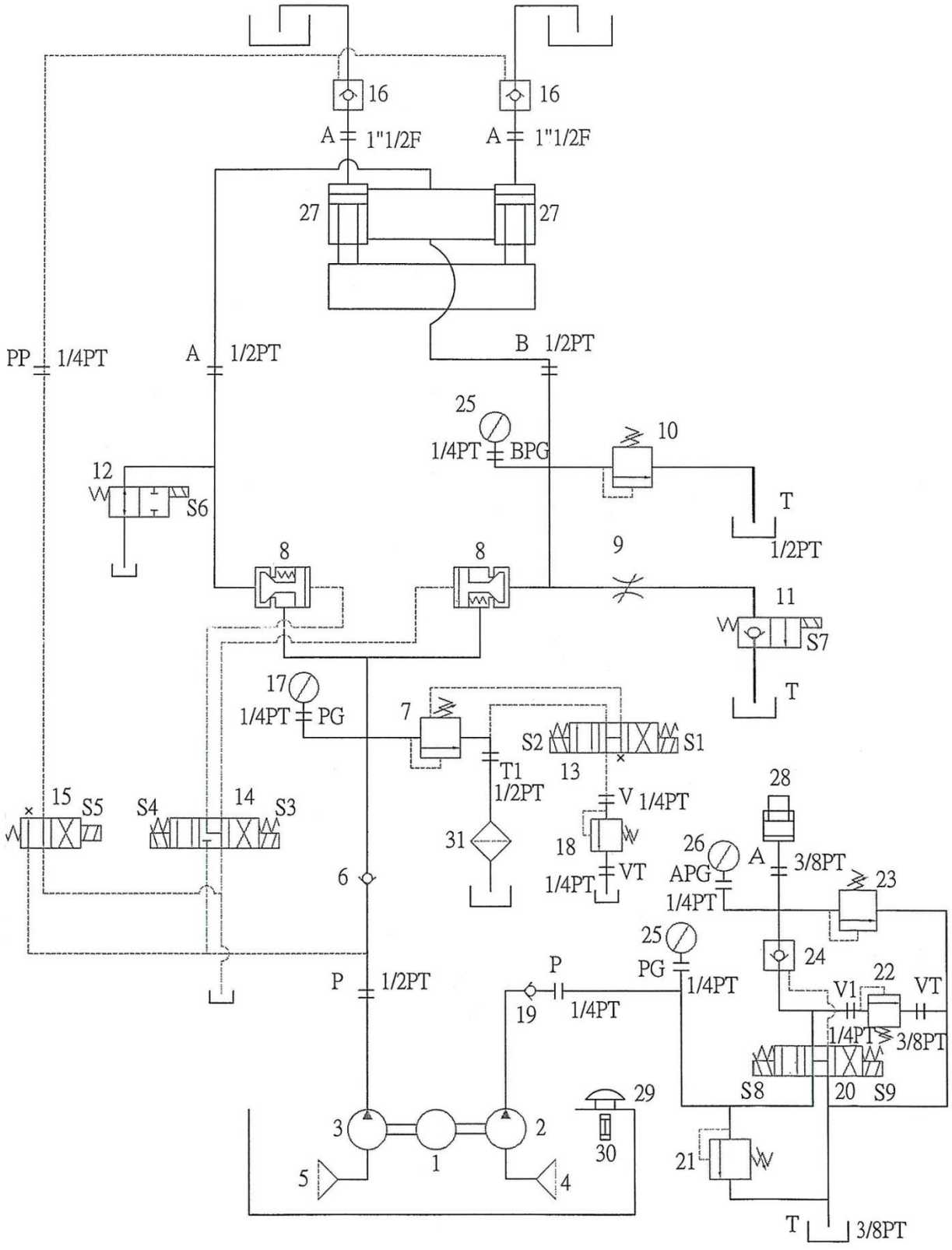
Machine Parts List

Item	Description
1	Bottom Beam Plate
2	Bottom Blade Table
3	Bottom Blade/Die
4	Upper Blade
5	Upper Blade Clamping Holder
6	Top Beam Plate
7	Rack Assembly
8	Depth of Bend Reduction Motor
9	Depth Encoder
10	Depth Adjustment Set
11	Hydraulic Cylinder
12	Left Side Safety Guard
13	Slide Way
14	Side Frame
15	Bearing Housing
16	Gear
17	Balance Rod
18	Right Side Safety Guard
19	Electrical Cabinet
20	Back Gauge Motor
21	Back Gauge Assembly with Finger Stops
22	Hydraulic Oil Tank

MANIFOLD BLOCK



HYDRAULIC SCHEMATIC



HYDRAULIC SOLENOID SEQUENCE IDENTIFICATION

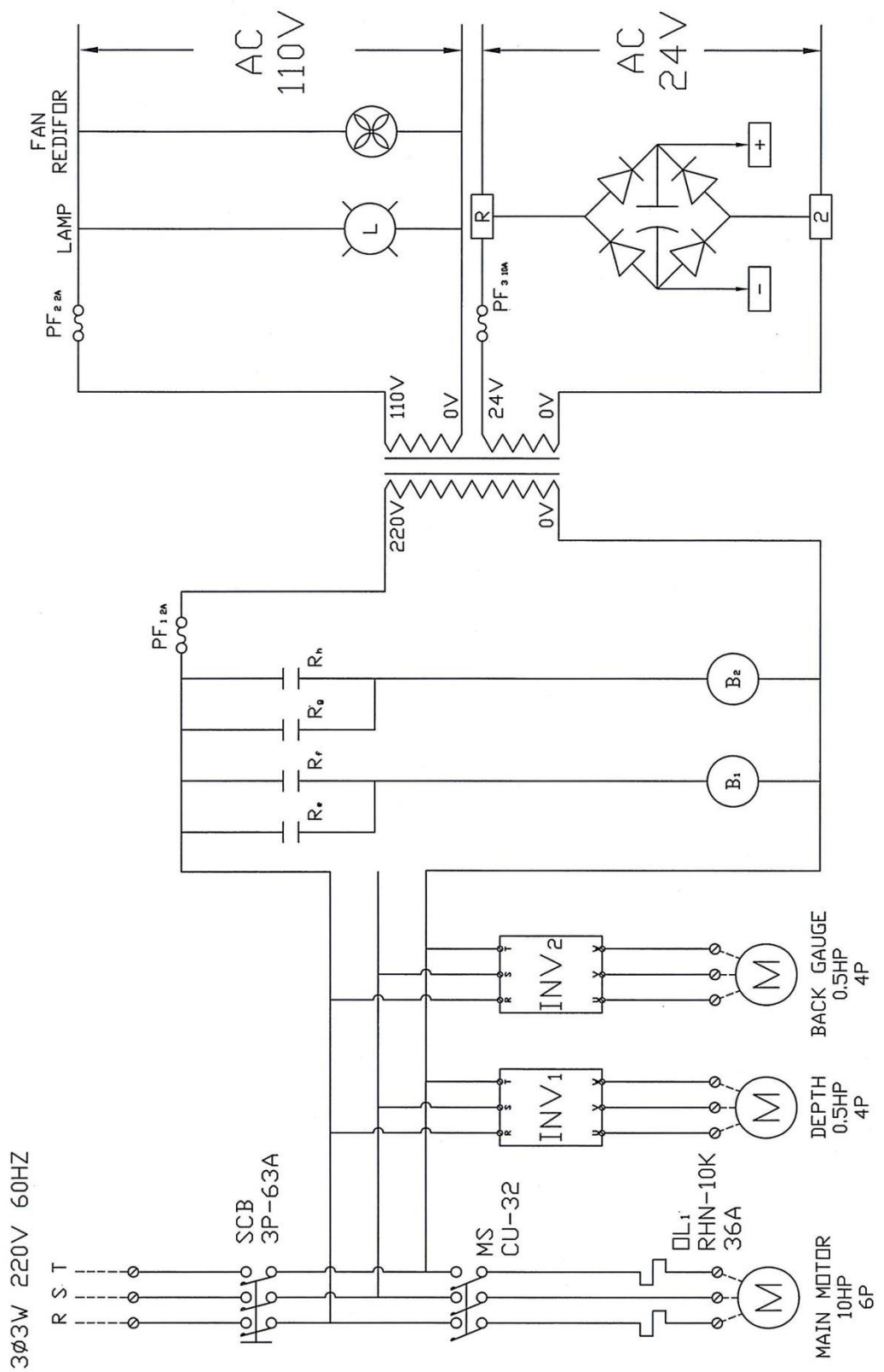
	S1	S2	S3	S4	S5	S6	S7	S8	S9
Fast Down	▲			▲	▲	▲	▲		
Slow Down	▲			▲		▲		▲	
Delay									
Up		▲	▲		▲				▲

HYDRAULIC PARTS IDENTIFICATION

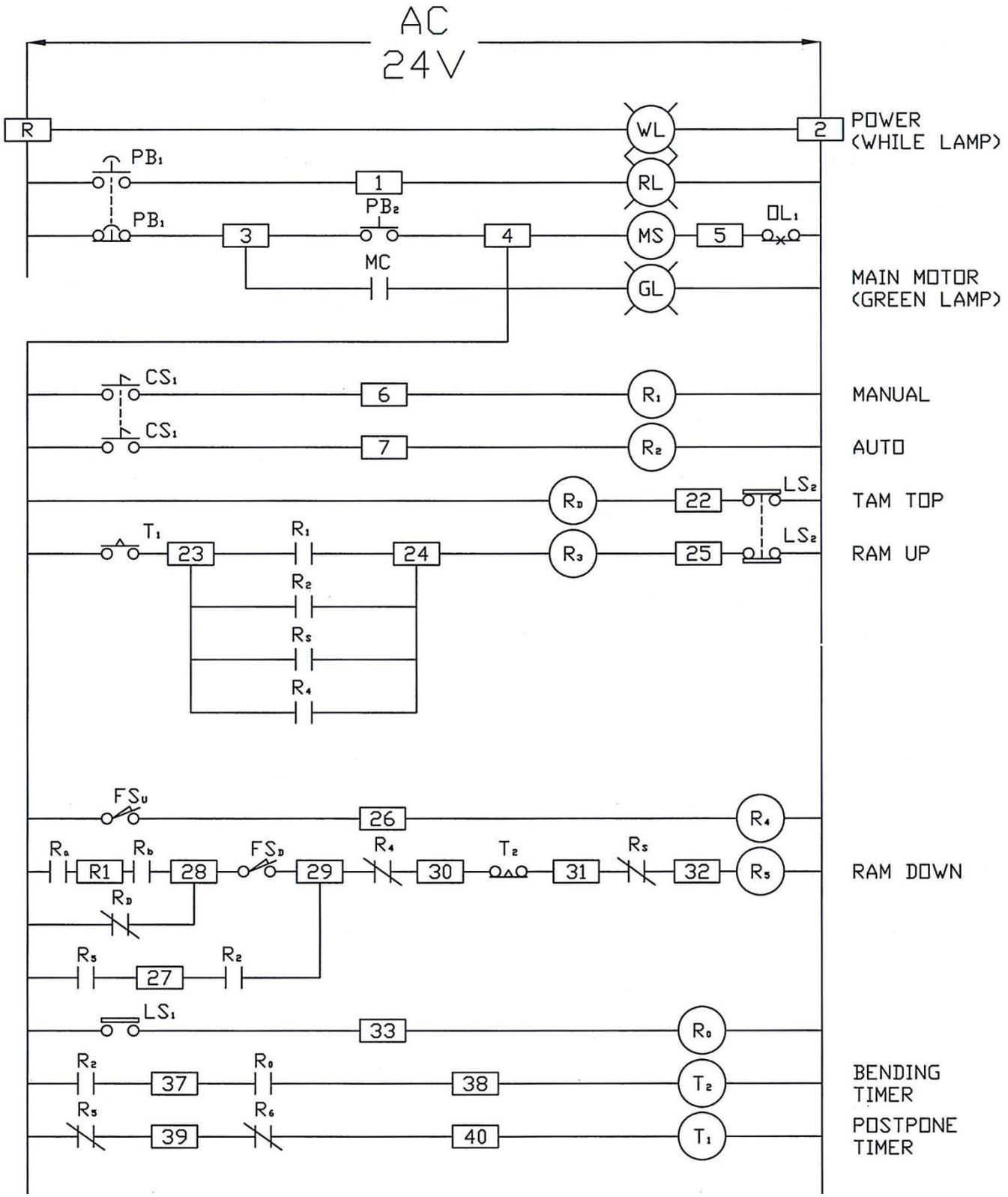
Item	Description	Specification
1	Motor	10HP*6P
2	Pump	K1P-2L
3	Pump	VQ15-17cc
4	Strainer	MF-04
5	Strainer	MF-08
6	Check Valve	CXCD XEN
7	Relief Valve	RVCA LCN
8	Logic Valve	LKDC XDN
9	Flow Regulator Valve	CNV-10
10	Relief Valve	RDDA LAN
11	Solenoid Valve	SV10-20
12	Solenoid Valve	SV08-25
13	Solenoid Valve	DG4V-3-0C
14	Solenoid Valve	DG4V-3-6C
15	Solenoid Valve	DG4V-3-2A
16	Prefill Valve	PF-50-FT-30
17	Pressure Gauge	AT-63 ~ *250Kg
18	Relief Valve	DT-01
19	Check Valve	CV-03
20	Solenoid Valve	DG4V-3-0C
21	Relief Valve	RP10A20AL
22	Relief Valve	RD08W20EF
23	Relief Valve	RDDA LCN
24	Relief Valve	CKCB XCN

Item	Description	Specification
25	Pressure Gauge	AT-63 ~ *250Kg
26	Pressure Gauge	AT-63 ~ *400Kg
27	Hydraulic Cylinder	140 ~ *200st
28	Hydraulic Cylinder	150 ~ *6st
29	Air Breather	HY-24
30	Oil Level With Thermometer	LG-3A
31	Strainer	SP034PUR 1-1/4" PT

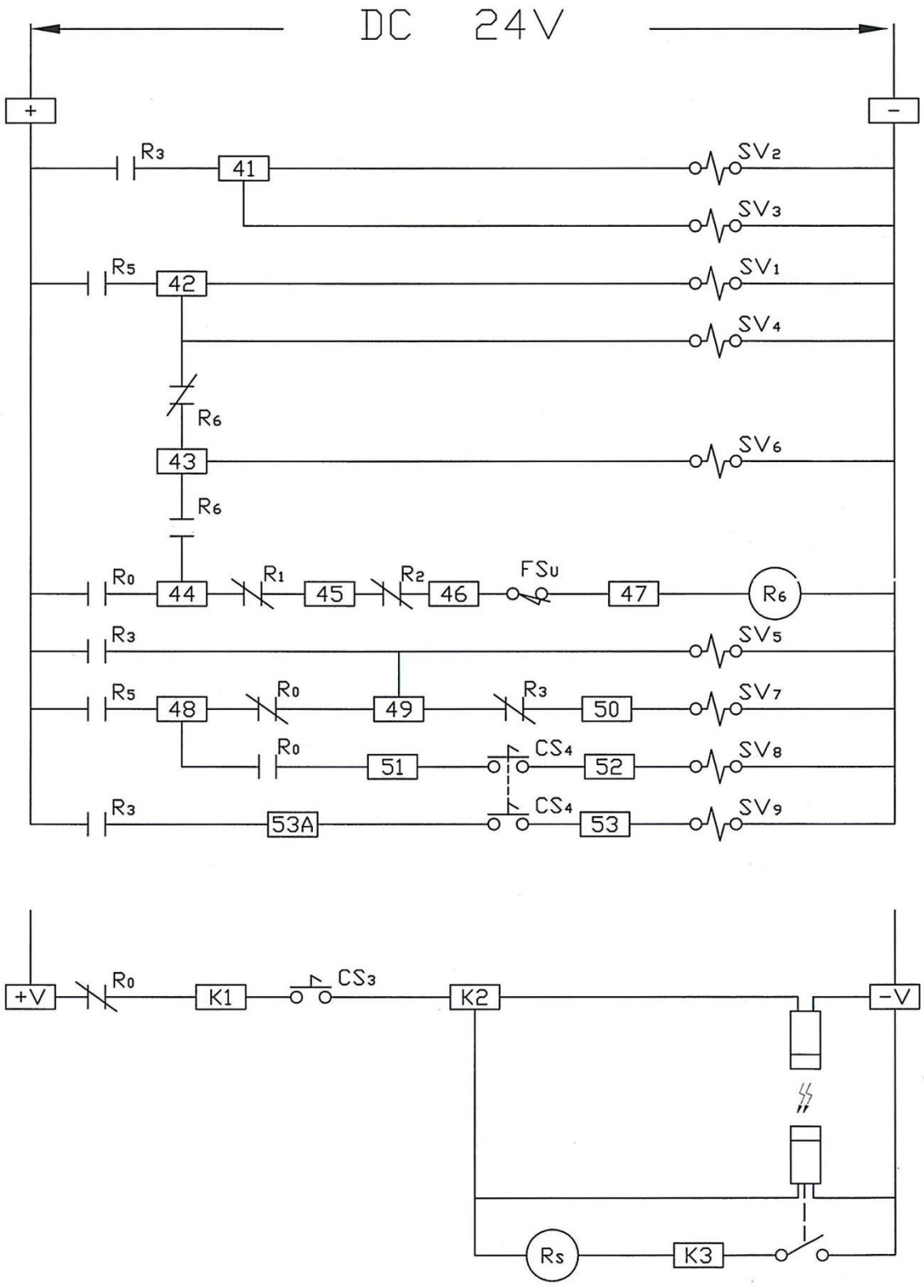
ELECTRICAL SCHEMATIC



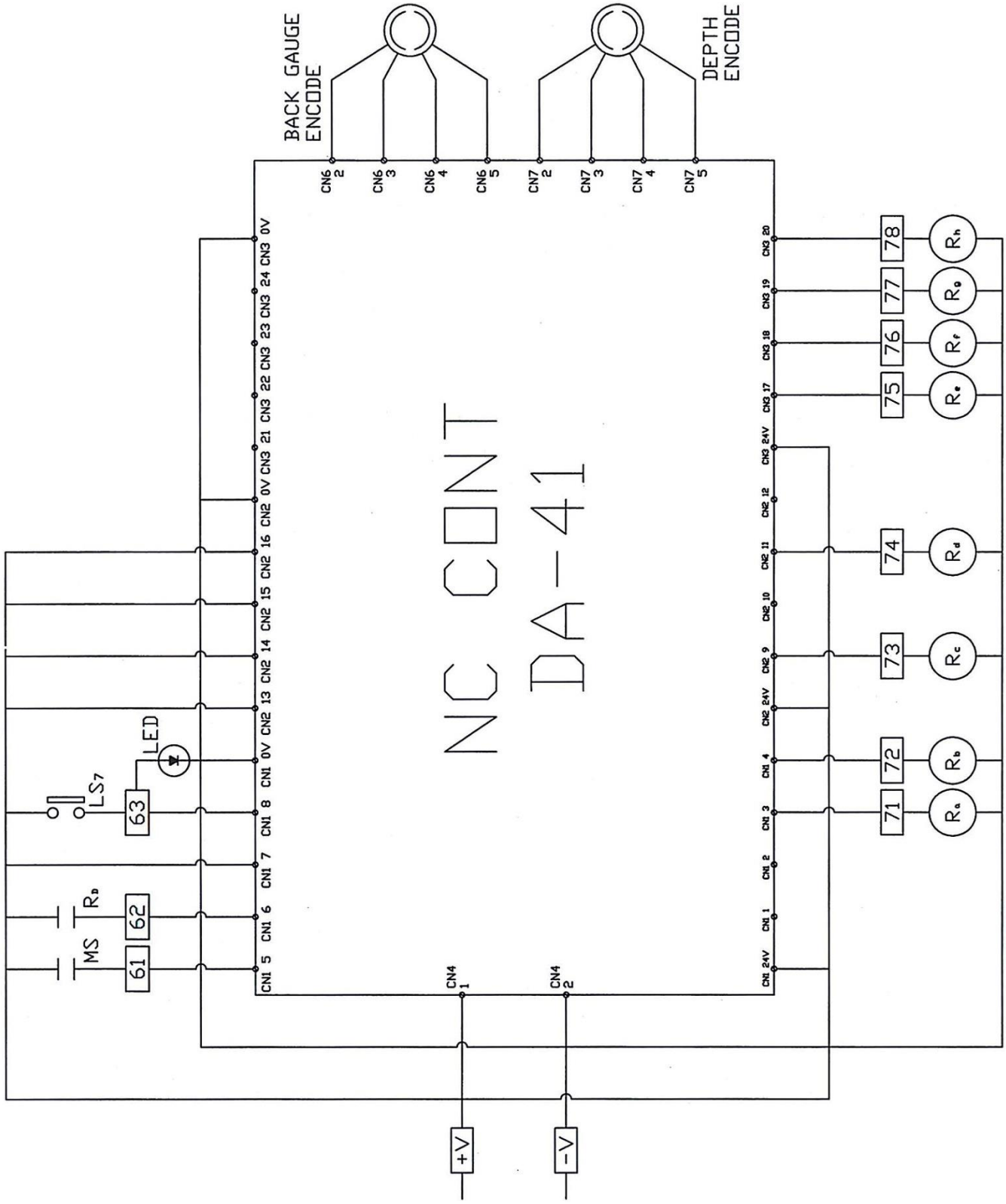
ELECTRICAL SCHEMATIC 24VAC



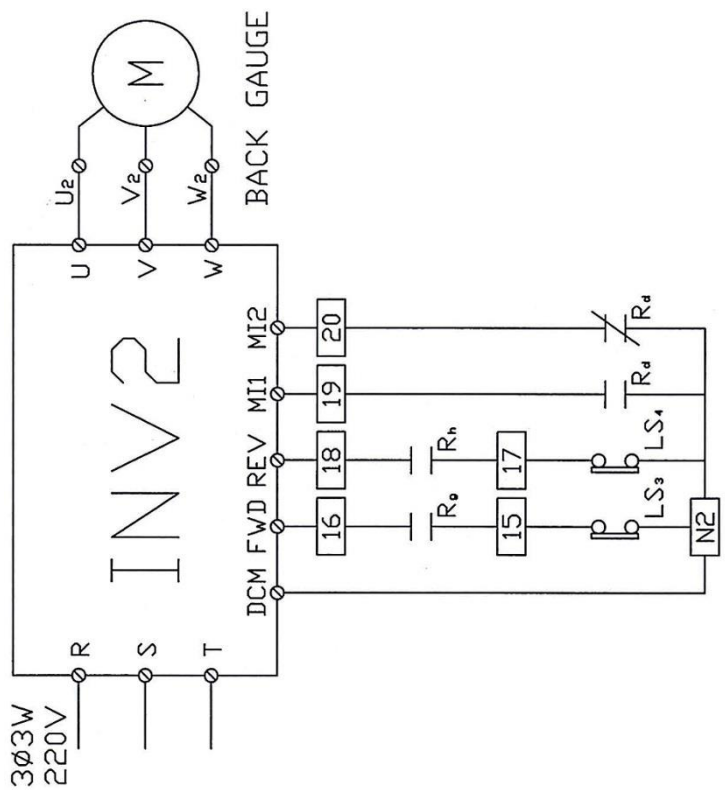
ELECTRICAL SCHEMATIC 24VDC (Sht. 1)

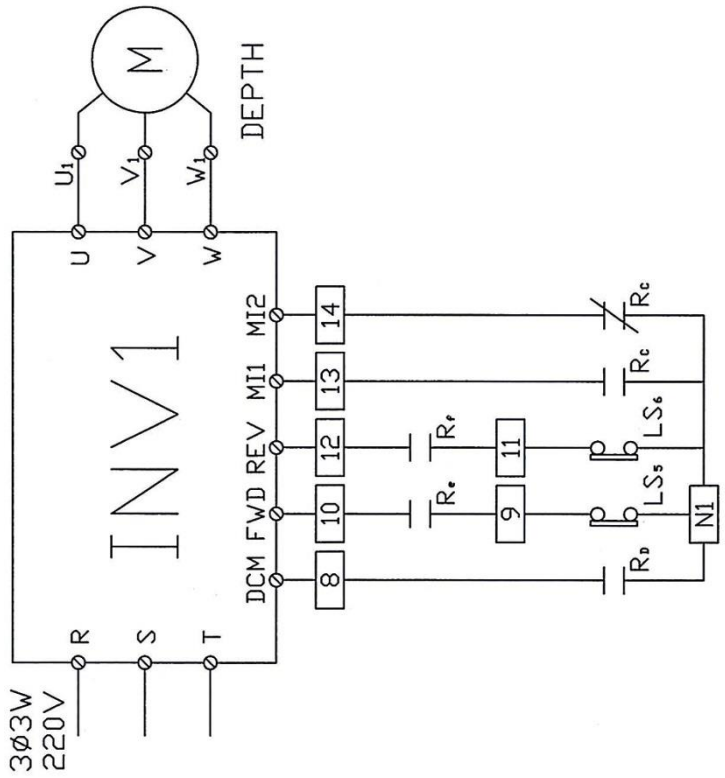


ELECTRICAL SCHEMATIC 24VDC (Sht. 2)

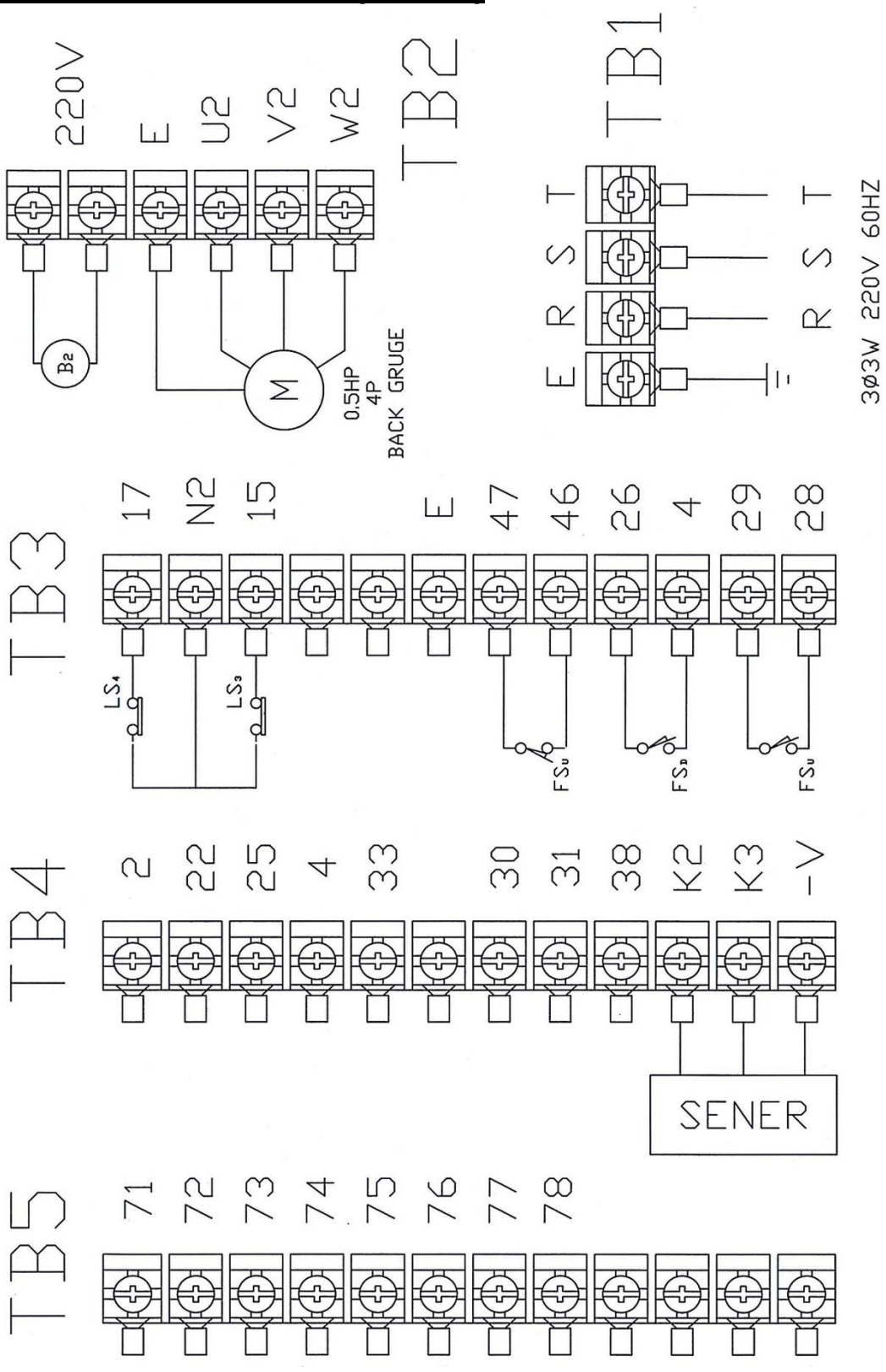


MOTOR INVERTER SCHEMATICS

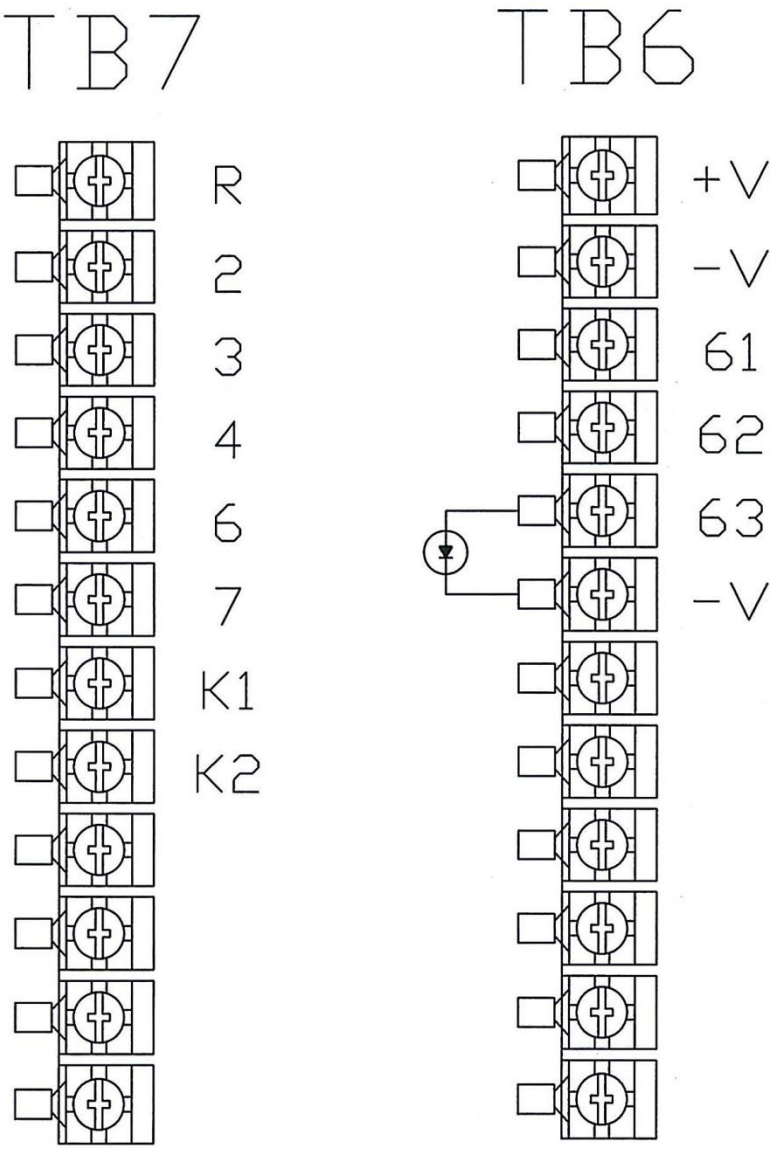




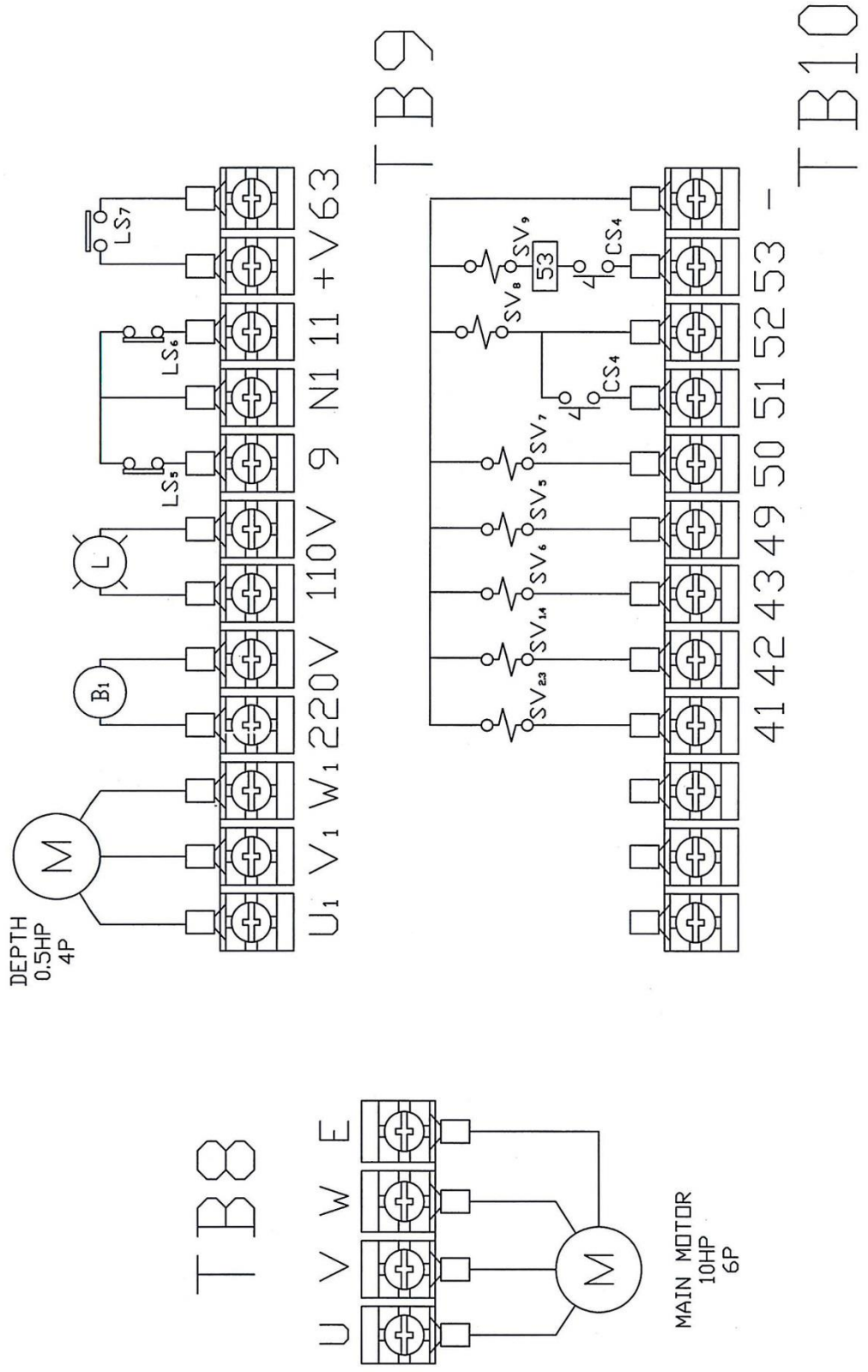
ELECTRICAL WIRE TERMINALS (T1 – T5)



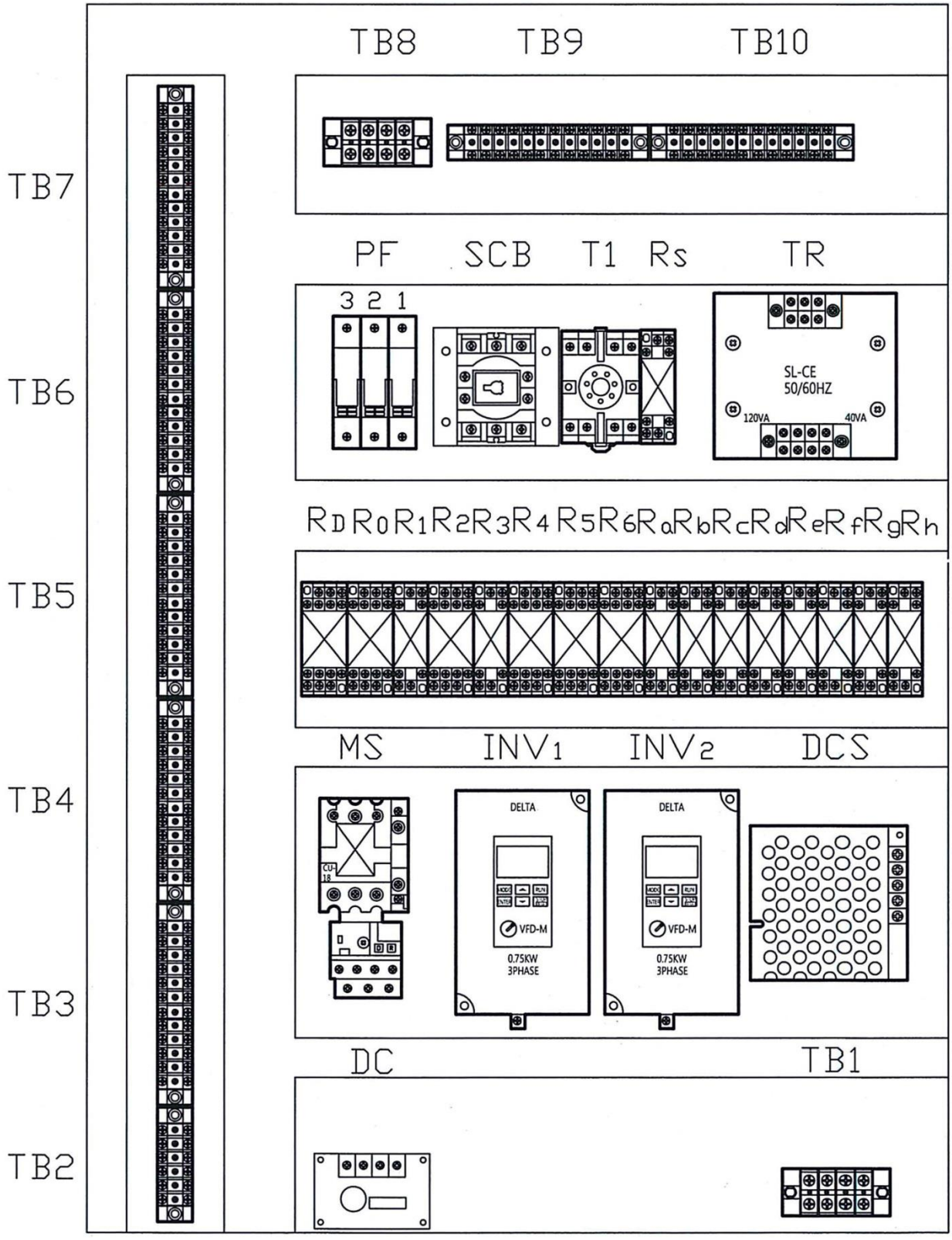
ELECTRICAL WIRE TERMINALS (T6 – T7)



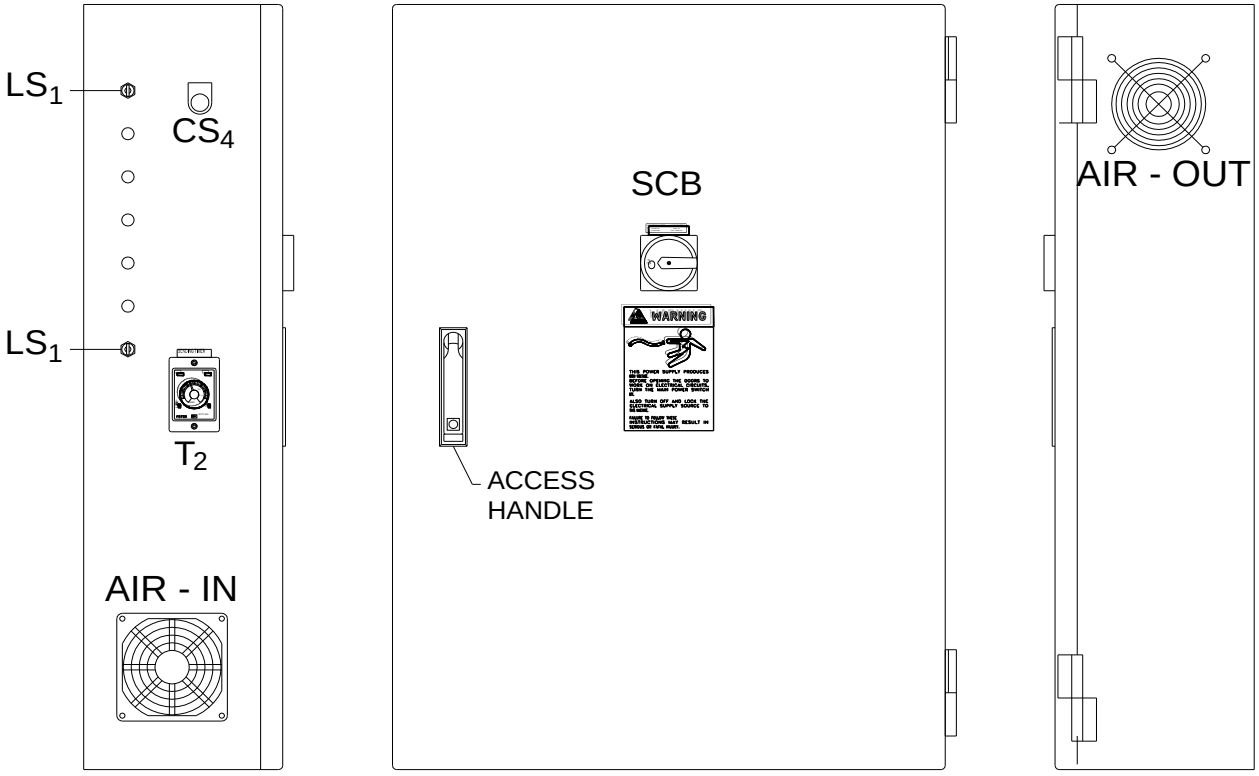
ELECTRICAL WIRE TERMINALS (T8 – T10)

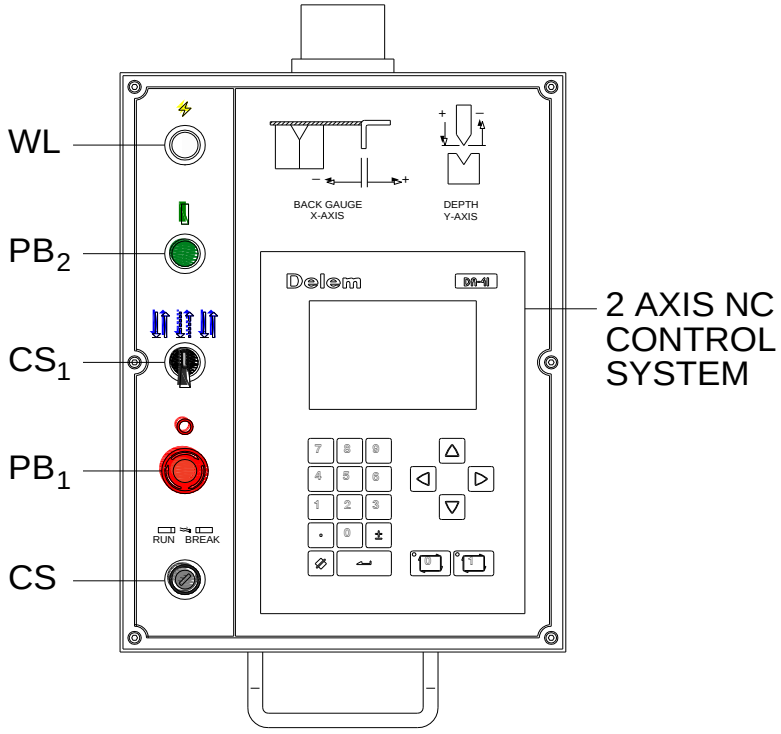


ELECTRICAL ENCLOSURE COMPONENTS



ELECTRICAL ENCLOSURES





ELECTRICAL ENCLOSURES

No.	Identification	Description	Specification
1	SCB	Main Disconnect Switch	P1-63
2	MCM	Magnetic Switch	HUO-32 24VAC 36A
3	INV	Inverter	007M23A
4	TR	Transformer	1ph, 220-440/24-110V 300VA 50/60hz
5	PF1-3	Fuse	PM F 10x38mm 2A, 2A,10A
6	DC	Power Supply	DC 24V 8A 2000uf
7	R1, R4	Power Relay	MY-2 AC 24V
8	Ra-Rh, RS	Power Relay	MY-2 DC 24V
9	R6	Power Relay	MY-4 DC 24V
10	RD, R0, R2, R3, R5	Power Relay	MY-4 AC 24V
11	T1	On Delay Timer	SPTN-M3-AC 24V 3Sec.
12	T2	On Delay Timer	SPTY-M3-AC 24V 3Sec.
13	TB1, TB8	Terminal Bus	4P 60A
14	TB9, TB10	Terminal Bus	12P 15A
15	TB3-TB7	Terminal Bus	12P 15A
16	WL	Pilot Light	30Ø 24V White
17	PB	Push Button	30Ø 1A1B Red (Lock)
18	PB2	Push Button	30Ø 1A Green
19	CS1	Selector Switch	30Ø 2A0B Black
20	CS	Key Selector Switch	30Ø 1A1B Black
21	LS1, LS2, LS7	Limit Switch	TM 1308
22	TB2	Terminal Bus	6P 15A
23	LS5, LS6	Limit Switch	TM 1703
24	LS3, LS4	Limit Switch	Hl 5000

TROUBLESHOOTING

⚠ WARNING: Make sure the electrical disconnect is OFF before working on the machine.

SYMPTOM	POSSIBLE CAUSE (S)	CORRECTIVE ACTION
Ram Does Not Move	Low working pressure.	Increase the working pressure. Insufficient hydraulic oil. Broken pipe or loose connection.
	Problem with motor.	No power, fuse burned out Motor burned out Incorrect motor rotation.
	Switch.	Foot switch disconnected. Button disconnected. Loose connection.
	Directional valve malfunction.	Check direction of valve per hydraulic oil diagram.
	Coil of electro-magnetic valve burned out.	Replace with qualified parts
	Overflow spring of valve broken.	Replace with qualified parts.
Ram Moves Slowly.	Insufficient hydraulic oil.	Fill oil reservoir to 80%-90% full
	Oil Filter.	Take out and replace.
	Ambient temperature too low / hydraulic oil too thick.	Replace with qualified hydraulic oil.
	Hydraulic valve defect.	Take valve out for cleaning if blocked by obstruction.

SYMPTOM	POSSIBLE CAUSE (S)	CORRECTIVE ACTION
Ram Reacts Abnormally	Dirty oil filter Hydraulic pump cannot suck oil from the tank.	Replace the oil filter Make sure oil tank has enough oil. Check hose and pipe connections for leaks.
Working Pressure Not Sufficient	Break in circuit breaker Break in motors overload protection switch Fuse burned out.	Fix short circuit on power wires. Check the power setting on the motor overload protection switch. Wires have short circuit. Footswitch wires broken. Electrical parts in enclosure burned out.
Motor Can Not Run or Breaks Down While Running.	Abnormal pressure gauge reading. Loose pump connection Relief and logic valves do not close completely. Temperature too high, hydraulic oil too diluted. Pump seal worn. Pump worn. Valve spindle worn.	Defective pressure gauge. Tighten connection. Clean obstruction from the valve stem. Replace with qualified hydraulic oil. Replace with qualified parts. Replace pump. Replace valve spindle.
Abnormal Noise	No slow ram speed. Abnormal directional valve. Stroke switch connection or defect.	Re-set the upper dogs position for slow speed. Broken wires on limit switch. Defective limit switch. Check directional valve to hydraulic oil diagram. Replace with qualified parts.

NOTES

NOTES

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