

# OWNER'S MANUAL

RD-806HE

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**IMPORTANT:** Read these instructions before installing, operating or servicing this product.

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## MODEL: PT- 450/PT- 450M WELDING POSITIONER

**Serial Number : 200710017 ~ and later**

**Revised Date : Oct. 24, 2007**

**UNITED PROARC CORPORATION**

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**WARNING**

Read and understand this entire manual regarding the rules for users' safety before installing, operating, or servicing the equipment.

# INSTRUCTION

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**WARNING**

A procedure, which if not properly followed, may cause injury to the operator or others in the operating area.

Equipment Identification

The identification number specification or part number, model, and serial number of this unit usually appear on a nameplate attached to the control panel; record these numbers for future reference.

Receipt of Equipment

When you receive the equipment, check it against the shipping documents. Make sure it is complete and inspect the equipment for possible damage during shipping. If there is any damage, notify the carrier immediately to file a claim.

Furnish complete information concerning damage claims or mistake(s) in shipment to United ProArc Corporation: No. 3 Gungye 10<sup>th</sup> Road, Pingjen Ind. Park, Pingjen City, Taoyuan 324, Taiwan. Include the equipment identification number along with a description of the parts in question.

Move the equipment to the installation site before uncrating the unit. Use care to avoid damaging the equipment when using bars, hammers, etc. to uncrate the unit.

## INSTRUCTION

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### **WARNING**

Falling machine due to lifting device failure may cause death or injury.

- \* Lifting device may fail when overloaded.
- \* Avoid sudden jerks, drops or swinging.
- \* Check lifting device components visually for looseness and signs of metal fatigue.
- \* Before changing any hardware, check grade and size of bolts, and replace with bolts of equal or higher size and grade.

## SAFETY PRECAUTIONS

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### WARNING

Operation and maintenance involves potential hazards. All operators and personnel should be alerted to possible hazards and precautions should be taken to prevent possible injury.

#### Electrical Safety

##### MACHINE:

- \* The counter, safety device against excess current and electrical installation, are compatible with its maximum power and its main voltage.
- \* The connection, single-phase or three-phase, is possible on a stand compatible with the plug of its cable link.
- \* If the cable is connected with the electrical network, the earth, must never be cut by the protection device against electrical shocks.

##### WORK PLACE:

- \* Be very careful to avoid contact between metal part and phase conductor and the neutral of electric network.
- \* Electrical messes of different electrical machine and apparatus are connected between themselves and with the terminal of earth neutral wire.

##### INTERVENTIONS:

- \* Before control and repair, see the apparatus is switched off and insulated.
- \* Connection with fixed installation cable is impossible.
- \* It's on "STOP" and connection is impossible.
- \* Some apparatus are provided with starting circuit HT HF (with a plate). Never enter into the corresponding switch cupboard.
- \* Only qualified persons are authorized for intervention concerning electrical installation.

# **SAFETY PRECAUTIONS**

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Maintenance

- \* Often check the insulation and connection good state of apparatus and electrical accessories: taps, appliance cords, coatings, switch, extension cords, etc.
- \* Maintenance and repair of insulating coatings operations are very important.
- \* Do repair with a specialist or better replace defective accessories.
- \* Check regularly the right adjustment and the non-heating of electrical connections.

Individual Safety

- \* The operator must be dressed and protected in relation with his work.
- \* Avoid contacting metal parts connected or accidentally connected.
- \* Wear leather gloves with gauntlet.
- \* Safety clothes: gloves, apron, safety shoes protect the operator and his assistants against burns of hot parts, projections and slag.

## **LIMITED WARRANTY**

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**UNITED PROARC CORPORATION** warrants all new equipment to be free from defects in material and workmanship for a period of one (1) year, provided that the equipment is installed and operated according to instructions stated in this manual.

**UNITED PROARC's** obligation under this warranty policy is expressly limited to the replace or repair, at its option, of the defected part only. ProArc's option to repair or replacement of a defected part under this warranty shall be based on FOB Taiwan basis.

The warranty period begins on the date of sale to the original-purchase user of the equipment.

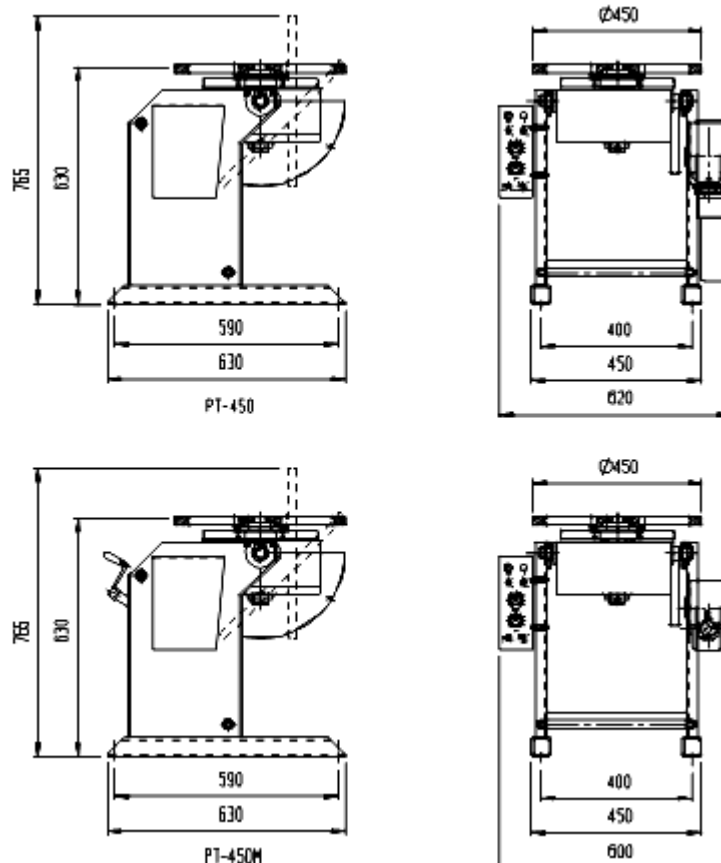
**UNITED PROARC CORPORATION** shall not be liable for any loss or consequential damage or express accruing directly or indirectly from the use of equipment covered by this warranty.

This warranty supersedes all previous ProArc warranties and is exclusive with no other guarantees or warranties expressed or implied.

This warranty excludes the consumable parts that are used in normal operation.

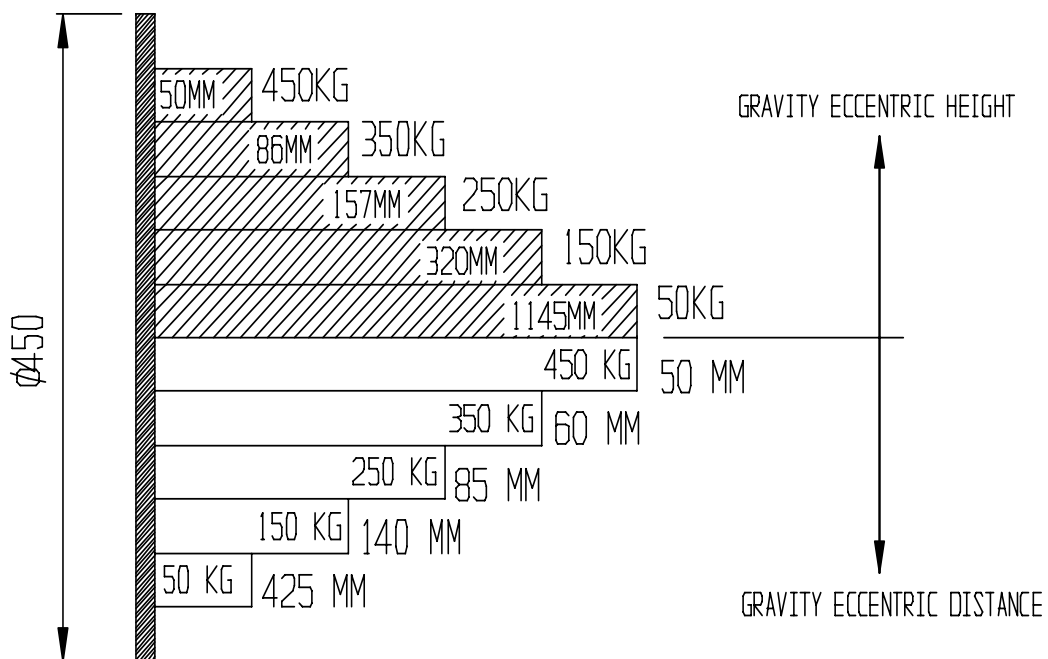
## 1.1 INTRODUCTION

Instruction	<ul style="list-style-type: none"> <li>* Welding positioner is normally used in the rotating and welding of the pipe or round work pieces.</li> <li>* It can be applied on all kinds of welding: SMAW, MIG, TIG, Plasma, etc.</li> <li>* It can adopt different fixture to get the welding effects you require.</li> </ul>
Main Features	<ul style="list-style-type: none"> <li>* The table can be tilted for 0~135°, which is convenient for all angles of the pipe welding or for adjusting welding angles. (It can adopt either manual or electrical operation.)</li> <li>* The table has a through hole of <math>\phi</math> 25 mm, which is convenient for the long pipe welding or the purge shielding gas.</li> <li>* On the table, there are 4T- slots, suitable for all kinds of fixtures and grippers.</li> <li>* Ground current conduction: 300amps (600amps option).</li> <li>* All units are high frequency protected.</li> </ul>



## 1.2 SPECIFICATIONS

MODEL	UNIT	<i>PT- 450(PT- 450M)</i>
POWER INPUT	~	1 PHASE 115V/230V 50/60Hz
CAPACITY (HORIZONTAL)	kg	450
RATED CENTRE OF GRAVITY	mm	50
RATED ECCENTRICITY	mm	150
TABLE DIAMETER	mm	450
ROTATION SPEED	rpm	0.1-2.5
SPINDLE THRU HOLE	mm	25
EARTHING	Amp	300
TILT RANGE	deg.	0-135
WELDING TIMER	sec.	0-60
OVERALL LENGTH (A)	mm	630
OVERALL WIDTH (B)	mm	650/(600)
OVERALL HEIGHT (C)	mm	630
WEIGHT	Kg	134(127)



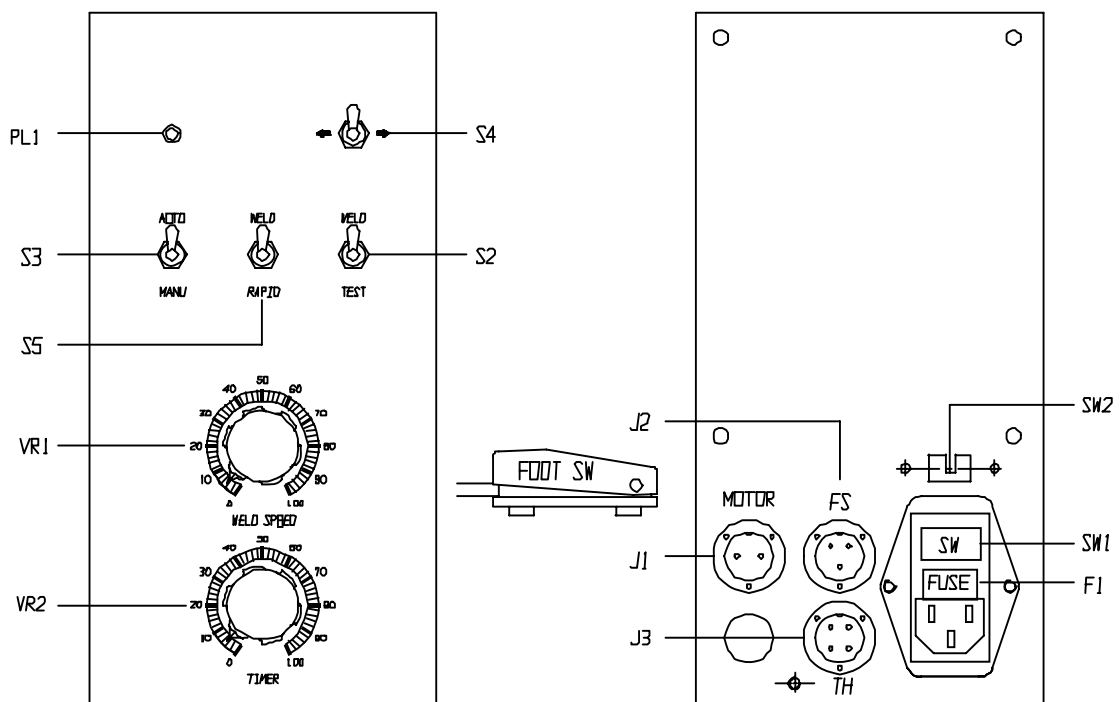
## 2.1 OPERATION PANEL

### Front Panel

- PL1 : Power indicator light
- VR1 : Speed adjustment
- VR2 : Weld timer control
- S2 : Weld/Test switch
- S3 : Auto mode: according to the timer adjustment  
Manual mode: Run/Stop control by remote foot switch
- S4 : Forward/Reverse switch
- S5 : Weld/Rapid Speed switch

### Rear panel

- J1 : Motor J1-1, J1-2 (2 Pin)
- J2 : Remote foot switch J2-1, J2-2 (3 Pin)
- J3 : To torch switch J3-1, J3-2 (4 Pin)
- F1 : Fuse
- SW1 : Power ON/OFF switch
- SW2 : Voltage SW 115V/230V



## 3.1 MAINTENANCE

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### Routine Maintenance

- \* After using the machine, make sure to turn off the input main power to prevent the leakage of the electricity.
- \* To make sure the function of the machine could work well for a long time, please keep clean all around the machine and the switch from the oil pollution.
- \* To make the machine run normally, the control box, the machine and the table should be kept clean all the time.
- \* Check at any time the lubrication of the reducer to extend the lifetime of the machine.
- \* Check if the cable is damaged or melted for overheat.
- \* Check the contactor, relay and other connectors are loose or melted.
- \* Check every limit switch is fixed or loses function.
- \* Regularly give the machine cleaning and the anti-rust maintenance.
- \* Regularly change and refill the lubrication of the worm reducer.

### 3.2 TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	REMEDY
After switch on, the power light doesn't light.	<ol style="list-style-type: none"> <li>1. No power input</li> <li>2. F1 fuses burns</li> <li>3. The indication light breaks down.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the switch.</li> <li>2. Change the fuse.</li> <li>3. Change the indication light.</li> </ol>
The motor has no movement.	<ol style="list-style-type: none"> <li>1. Forward/stop/reverse switch (SW4) breaks down.</li> <li>2. The relay (A) breaks down.</li> <li>3. The fuse on the speed control board breaks (3A).</li> <li>4. The speed control board breaks.</li> </ol>	<ol style="list-style-type: none"> <li>1. Change the switch (SW4).</li> <li>2. Change over-load relay.</li> <li>3. Change the fuse.</li> <li>4. Check the control board.</li> </ol>
The arc cannot start for welding.	<ol style="list-style-type: none"> <li>1. The ground cable is loose or breaks.</li> <li>2. Current collection carbon has loose contact.</li> <li>3. The circuit of (J3) welding torch switch works abnormally.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the ground cable. connectors for adjustment.</li> <li>2. Check the current collection carbon.</li> <li>3. Check the cable of the J3 plug.</li> </ol>
When using sequence control, the table cannot stop normally.	<ol style="list-style-type: none"> <li>1. The distance between the sensor and the stopper is not accurate.</li> <li>2. The sensor breaks down.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and adjust the distance for about 2mm.</li> <li>2. Change the sensor.</li> </ol>
The tilt cannot move or over tilt.	<ol style="list-style-type: none"> <li>1. The motor has no power.</li> <li>2. The reducer is damaged.</li> <li>3. The location of the limit switch is incorrect or breaks down.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the power.</li> <li>2. Change the reducer.</li> <li>3. Adjust to the correct location or change the switch.</li> </ol>

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## 4.1 PARTS LIST - MACHINE

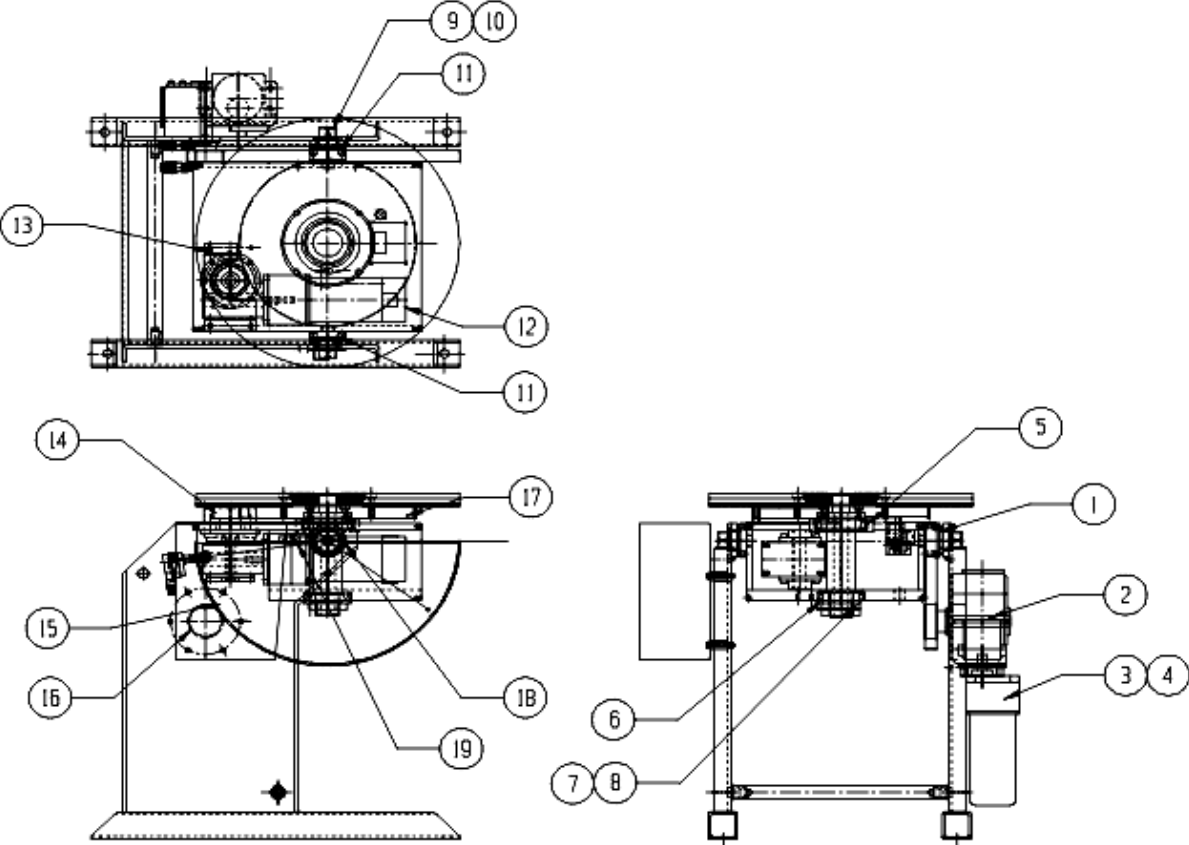
Fig. No.	Part No.	Description	Q'ty.	Remark
1	0332-3001	Linear Way Block	2	
2	5014-2220000-10	Drive pinion	1	
3	** 0353-0105	Reducer	1	PT-450M
	** 0353-0102	Reducer	1	PT-450
	** 0351-0117	Reducer	1	PT-450
	** 0361-0013	Motor	1	PT-450
4	** 0130-0016	Adjustable Handel	1	PT-450M
5	* 0305-1001	Bearing	1	
6	* 0305-0801	Bearing	1	
7	** 5014-1260000-10	Home limited bracket	1	
8	0120-0004	Nut	2	
9	5014-2230200-10	Angle base plate	1	
10	0120-0002	Nut	2	
11	5014-2230100-10	Angle base plate	2	
12	* 0352-0406	Worm Reducer	1	
	* 0351-0119	Reducer	1	
	* 0361-0012	Motor	1	
13	5014-3230000-10	Gear cover	1	
14	5014-1230000-10	Gear	1	
15	5014-2210000-10	Gear	1	
16	6500-0111	Standard Control Box	1	
17	5014-1220000-10	Gear	1	
18	5015-2100000-10	Angle scale	1	
19	5014-2250000-10	Indicator	1	

\*Recommended spare parts

\*\*Option

# 4.1 PARTS LIST - MACHINE

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## 4.1 PARTS LIST - MACHINE

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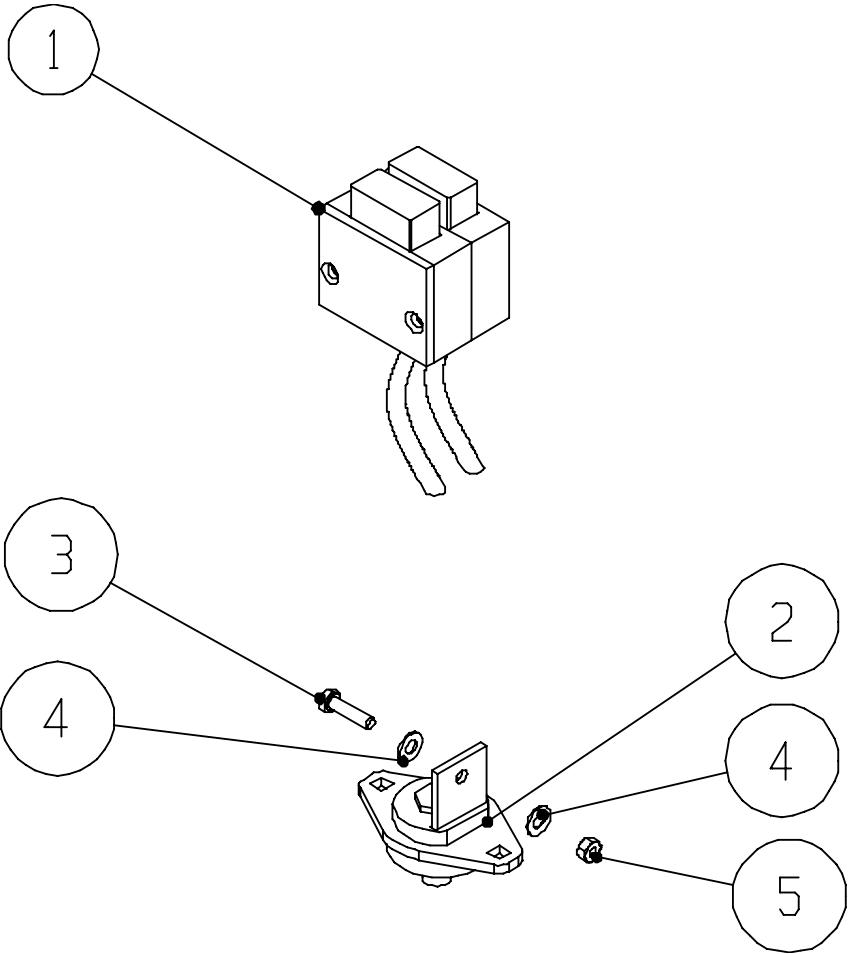
Fig. No	Part No	Description	Q'ty.	Remark
1	5010-2040100-10	PE plastic body	1	
	5010-2040200-10	PE plastic cover	1	
	* 0140-0022	Carbon brush	1	
	* 0144-0010	Spring	1	
2	* 4000-03946	Terminal	1	
3	0106-0803	Hex Cap Screws (Copper)	1	
4	0121-0804	Washer Copper	2	
5	0123-0802	Hex Nut Copper	1	

\*Recommended spare parts

\*\*Option

**4.1 PARTS LIST - MACHINE**

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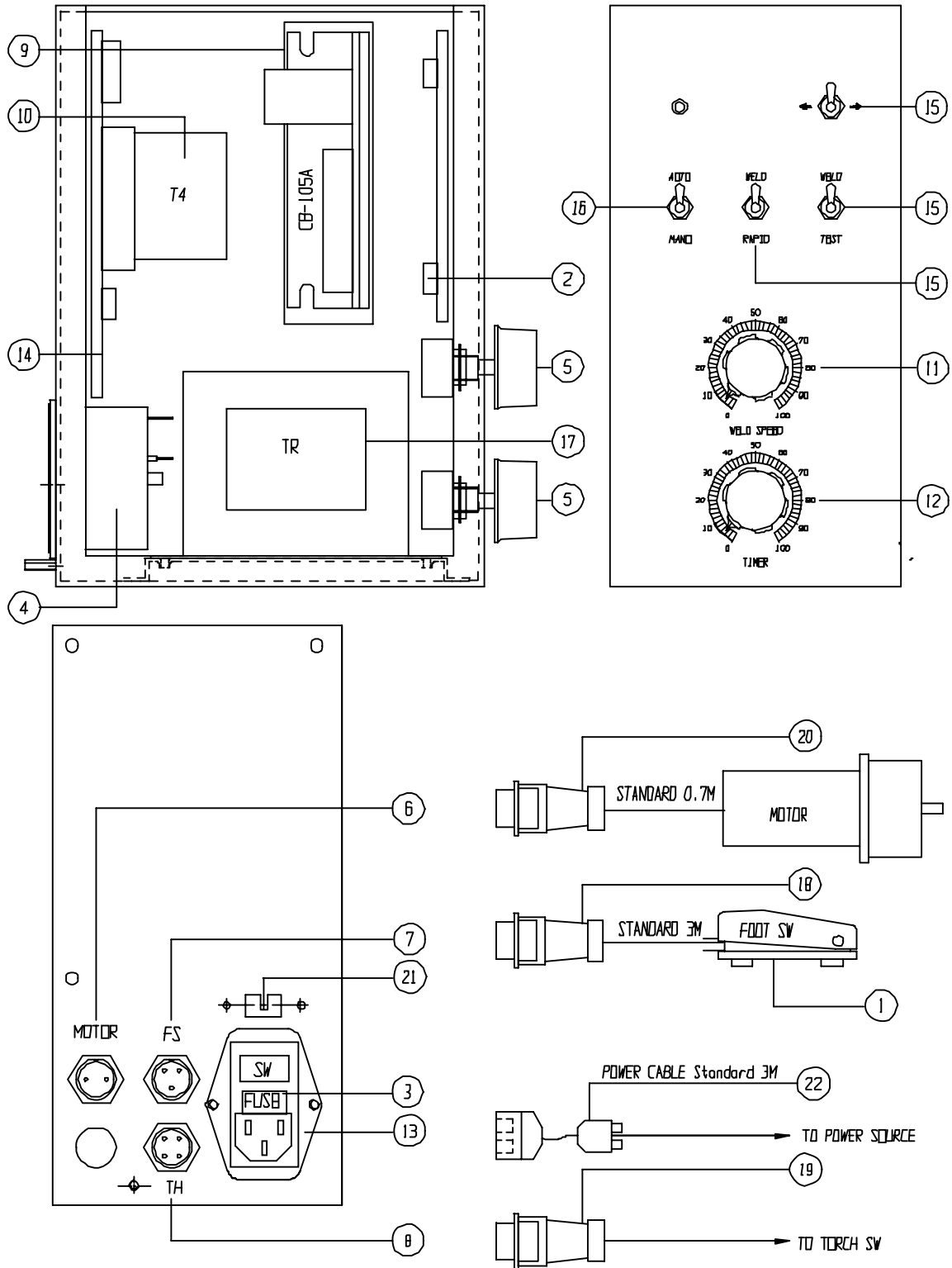
## 4.2 PARTS LIST - CONTROL BOX CB-001

Fig No.	Part No.	Description	Q'ty	Remark
1	3242-0003	Foot switch with 3M cable	1	Foot switch
2	6621-2220	Front panel board	1	Front panel board
3	* 3226-2001	FUSE 1A 20mm	1	Fuse
4	6620-1311	I/O board	1	I/O board
5	3216-0003	KNOB Blue	2	Knob
6	3124-2003	Metal connector 2 pin	1	J1
7	3124-2004	Metal connector 3 pin	1	J2
8	3124-2005	Metal connector 4 pin	1	J3
9	6651-0001	Motor speed control	1	Motor Control
10	6640-1001	PCB type 60S timer	1	T4
11	3747-1001	Potentiometer 10K ohm	1	VR1
12	3747-1002	Potentiometer 1M ohm	1	VR2
13	3331-2001	Power entry module	1	SW1
14	6620-1120	Relay board	1	Relay board
15	3213-1002	Toggle Switch M2012E	3	S2,S4,S5
16	3213-1004	Toggle Switch M2022E	1	S3
17	3311-0023	Transform 110/220/18/24V 3A	1	TR
18	3123-2004	Female Metal connector 3 pin	1	FS connector
19	3123-2005	Female Metal connector 4 pin	1	TH
20	3123-2003	Female Metal connector 2 pin	1	Motor connector
21	3217-2001	Voltage SW 115V/230V	1	SW2
22	3445-0001	Power cable 220V 3A 3M	1st	Power cable

\*Recommended spare parts

\*\*Option

## 4.2 PARTS LIST - CONTROL BOX CB- 001

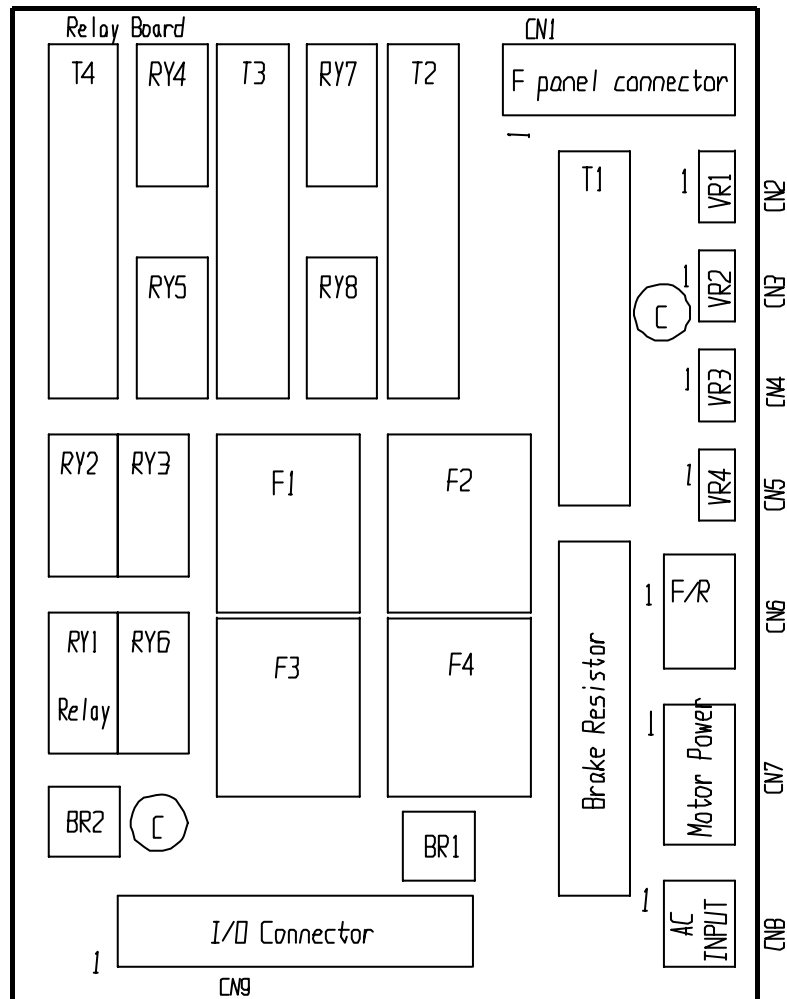


### 4.3 PARTS LIST - RELAY BOARD

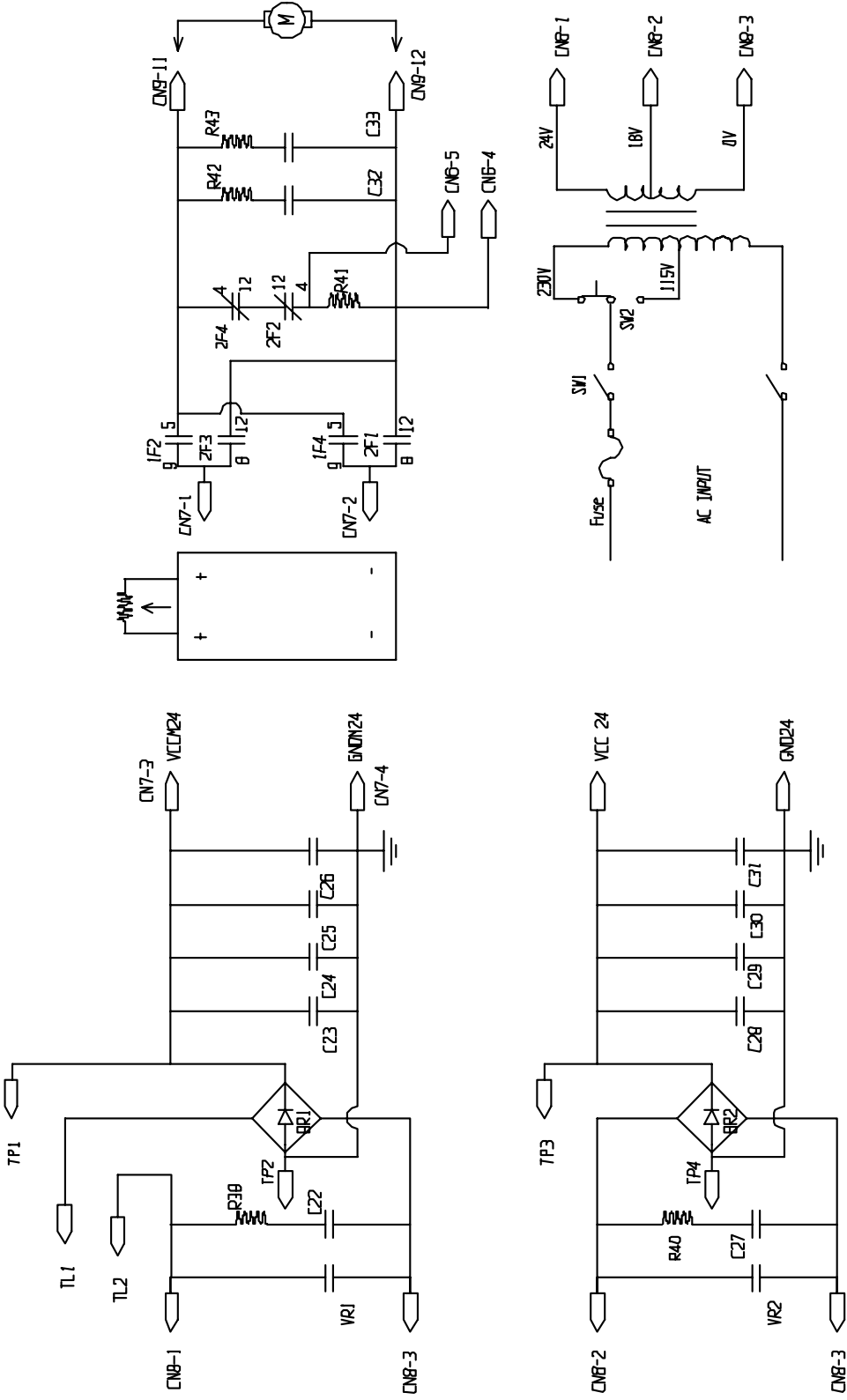
Fig No.	Part No.	Description	Q'ty	Remark
1	3746-5002	Cement 10ohm 10W	1	R41
2	* 3251-2202	Relay RM2S-U DC24V, contact DC24V 5A	4	F1-F4
3	3254-2203	Relay RY24W-K DC-24V, contact DC24V 3A	6	RY2-RY6,RY8

\*Recommended spare parts

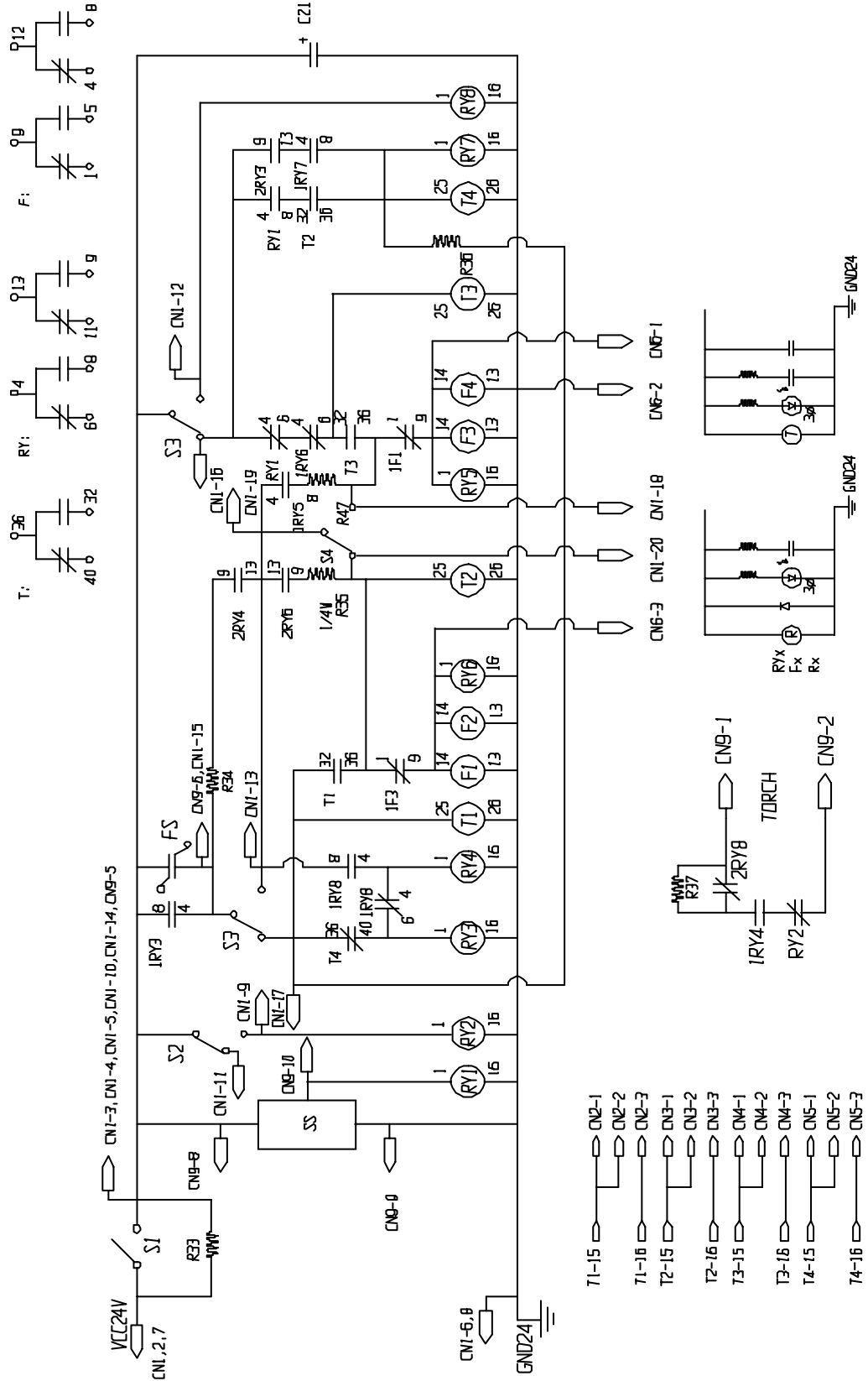
\*\*Option



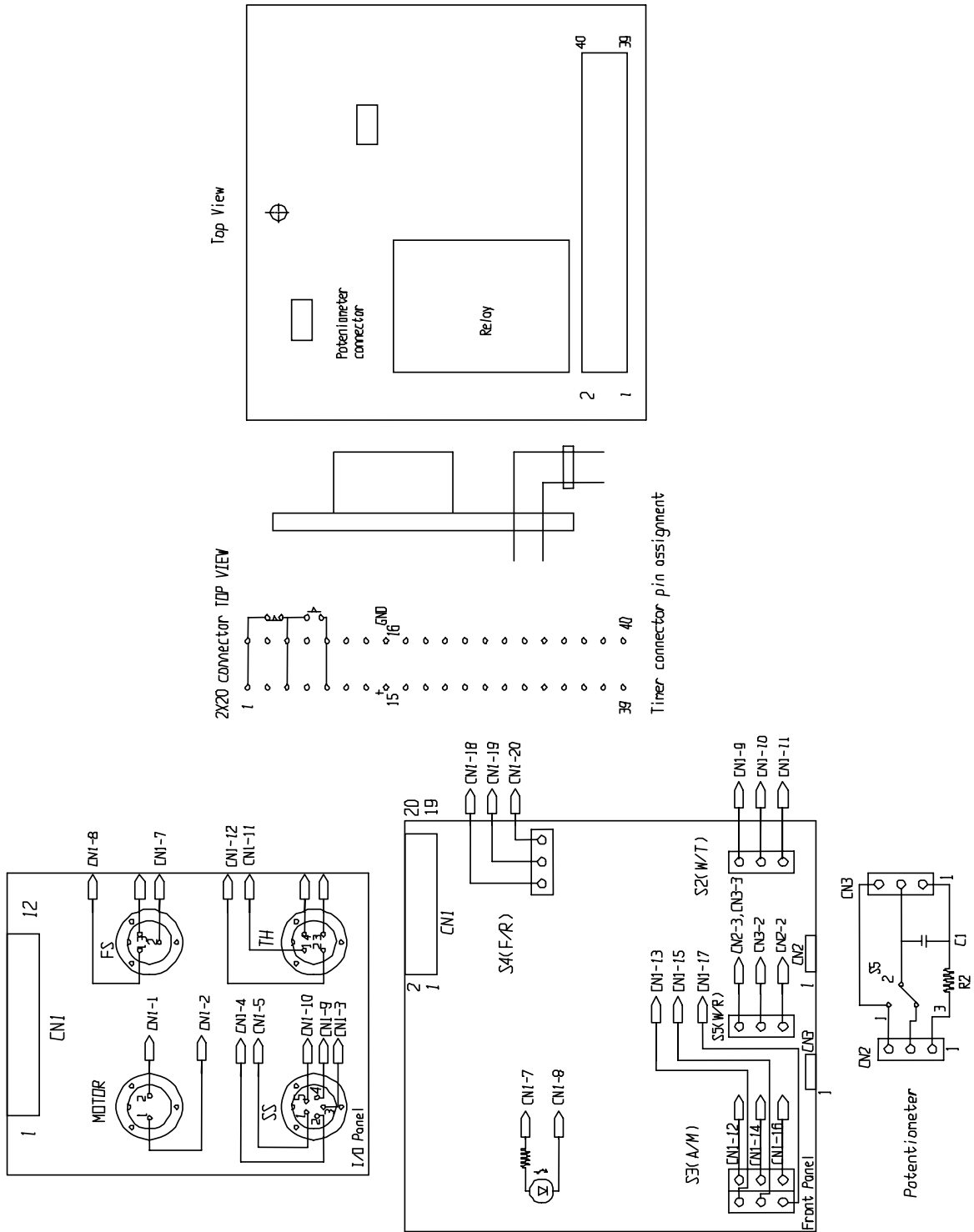
# 5.1 MAIN CONTROL CIRCUIT DIAGRAM



## 5.2 RELAY BOARD - CIRCUIT DIAGRAM



## 5.3 TIMER LOCATION / I/O INTERFACE DRAWING

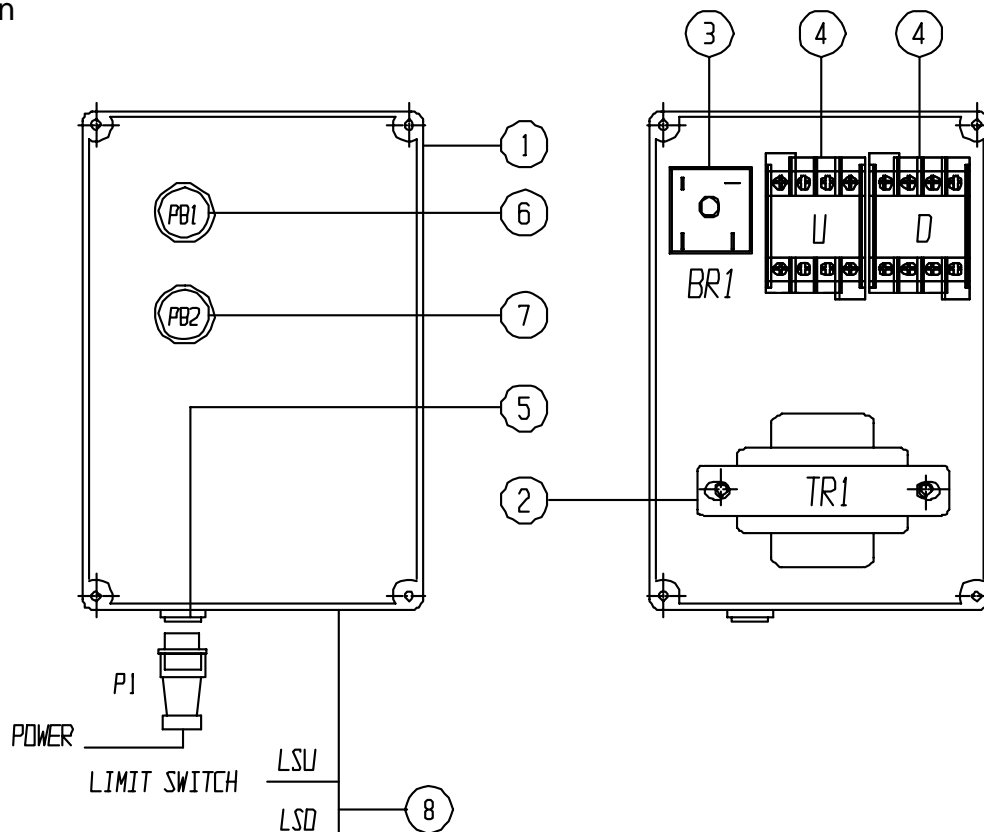


## 5.4 PARTS LIST - TILTING CONTROL BOX

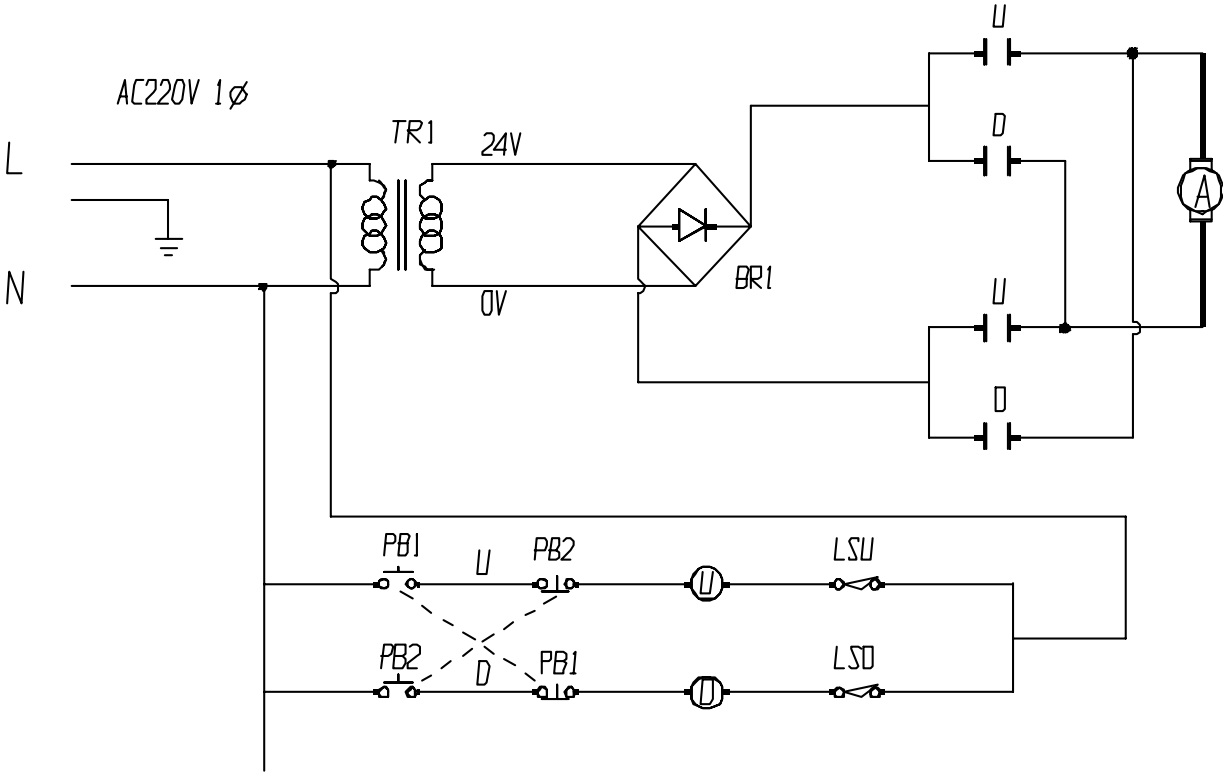
Fig No.	Part No.	Description	Q'ty	Remark
1	245-32210-10	ABS Box 150*220*80	1	BOX / PT450
2	3311-0023	Transformer, 115-230/18-24	1	TR1
3	3722-1901	Bridge Diode	1	BR1
4	** 3224-4002	Relay, AC220V	2	U,D
	** 3256-4004	Socket	2	U,D
5	3123-2201	Metal female connector, 3PIN	1	P1
	3124-2201	Metal male connector, 3PIN	1	P1
6	3214-4009	Push button (green)	1	PB1,
7	3214-4010	Push button (red)	1	PB2
8	3241-2002	Limit switch	2	LSU, LSD

\* Recommended spare parts

\*\* Option



### 5.5 DIAGRAM - TILTING CONTROL BOX



## REVISIONS

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Manual Number	Print Data	Changed Page	Revisions
RD-806GE	Nov.17, 2005		
RD-806HE	Oct. 24, 2007	4.1 (P7)	Revision : Part No.12 Worm Reducer 0351-0501 → 0352-0406