TM-150/300/500/1000T

TMC-150/300/500/1000

Vacuum Tumbling Machine

Operation Manual

Version 6.9.2

PROMARKS INC

1915 E. Acacia Street, Ontario, CA91761, U.S.A
TEL : 1-909-923-3888
FAX : 1-909-923-3588
http://www.promarksvac.com

S/N: _____ **QC SIGNATURE:** _____

TABLE OF CONTENTS

1. INSTALLATION

1.1 Physical Installation:

Place your new TM/TMC machine on a solid and level surface close to an electrical power source. Please note that it is always best to avoid the use of any extension cords as their use can cause a voltage drop that can result in the vacuum pump laboring on startup and possibly causing your circuit breaker to trip.

1.2 Electrical Installation:

Most TM/TMC machines sold in the US market operate on 110V/1PH/60HZ power. Therefore electrical installation is as simple as just plugging the power cord supplied with your machine into a standard 110 receptacle. As noted above avoid the use of an extension cord. If your machine was ordered with power requirements other than 110V/1PH/60HZ then it should have been received with NO plug at the end of the power cord. In this case we strongly recommend that a licensed electrician be employed to handle the electrical connection to your machine.

2. MAINTENANCE

2.1 General Machine Maintenance

Your TM/TMC Series machine should always be kept clean and should have the following items checked on a periodic basis. Before the start of each shift remove the machine's side cover and check the following: the water trap should be empty, check the drive chain for proper tightness and lubrication. Another item that should be inspected daily is the drum cover's seal, replace it if it is damaged. Approximately every three (3) years the oil in the chain drive's gear box should be changed.

2.2 Vacuum Pump Maintenance

While the side cover is removed check the oil level in the vacuum pump, add oil if it is low. Be sure to use a proper grade oil approved for vacuum pumps. This type of oil can be purchased direct for Promarksvac or your local distributor. The oil in your vacuum pump should be changed about every 500 hours of run time on the vacuum pump. Vacuum pump oil will also become contaminated by water vapor during the course of normal use. Water vapor is not removed by the water trap filter and you must run the vacuum pump “blanked off” for about 20 minutes per day at the end of the shift after the drum has been cleaned and dried. Below you will find the recommended procedure for TM/TMC models.

2.2a TMC Models: Connect the vacuum hose to the drum and set the ball valve in the off position then switch on the vacuum pump and allow it to run for 20 minutes.

2.2b TM Models: Use the instruction in section 5 below to set up a short “Pump Cleaning” program. Set a 2 minute mixing time and a 1 minute rest time and set

The control to repeat this sequence 10 times. Run this program after the drum has been cleaned and dried. Run the program with the drum cover locked in place.

3. CLEANING

3.1 Basic Cleaning Procedures

At the end of each shift or when product type is being changed the following cleaning procedures should be considered as a bare minimum. The entire machine including inside the drum should be washed down with an approved cleaning solution. On TM model machines the vacuum snorkel should be removed from the machine and completely sterilized.

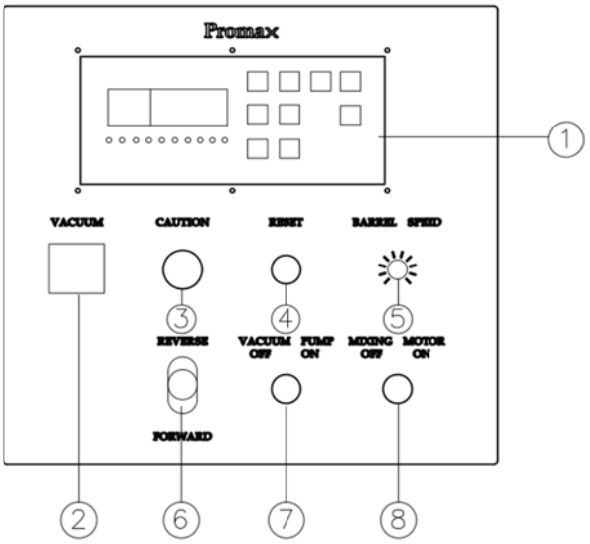
3.2 Development of an Approved Biological Cleaning Procedure

Promarksvac would encourage you to work with a certified sanitation engineer to develop a robust biological cleaning procedure that fits your specific needs.

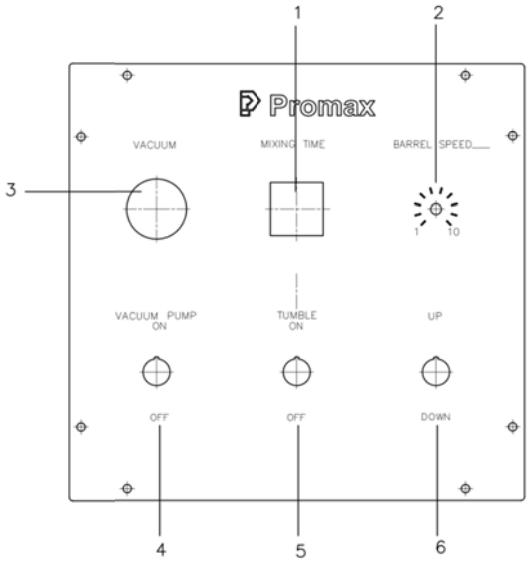
4. MACHINE CONTROLS

4.1 TM Models

1. PV-03 Control Panel
2. Vacuum switch
3. Caution light
4. Reset switch
5. Barrel speed control
6. Forward/Reverse switch
7. Vacuum pump On/Off
8. Mixing motor On/Off

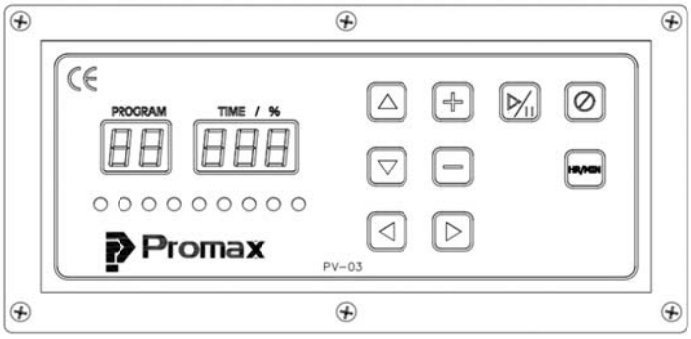


4.2 TMC Models



1. Mixing timer
2. Barrel speed control
3. Vacuum gauge
4. Vacuum pump On/Off
5. Mixing motor On/Off
6. Forward / Reverse jog switch

5. OPERATION



5.1 TM Models: PV-03 Control Panel

1. When the power is ON you will see the STB LED is illuminated. Wait for 2 seconds and you see the Program and the Time/Cycle screens illuminate. Now you are ready to set program parameters.

2. Press the SHIFT button and you can illuminate the Mix Time, Rest Time

or Press Cycle LEDs. Once the correct LED is illuminated set as shown below. Total Time cannot be set.

2.1 Mix Time: With the Mix Time LED illuminated use the Up/Down arrow buttons to set more or less Mixing Time. Please note that if you wish to set a time greater than 1 hour you need to use the Hour / Minute button to toggle between Minutes and Hours.

Example: To set 1 hour and 20 minutes: Press the Hour/Minute button and you will see a dot appear on the lower right hand side of the Time/ Cycle display. You are now setting Hours. Press the UP button and a 1 will appear. Now press the Hour/Minute button and the dot will disappear. You are now setting Minutes. Press the UP button until the number 20 appears in the Time/ Cycle window. You have now set 1HR /20MIN of mixing time per cycle.

3. Press the SHIFT button until the Rest Time LED illuminates: Repeat the same procedure as above to set the Rest Time.

4. Press the SHIFT button until the Cycle LED is illuminated: Use the UP/DOWN button to set how many time you want the Mixing Time & Rest Time you set to repeat.

5. Press the SHIFT button until the Total Time LED is illuminated: You will see the total time the program you have created will take to run. This is Mixing Time + Rest Time X the number chosen for number of cycles

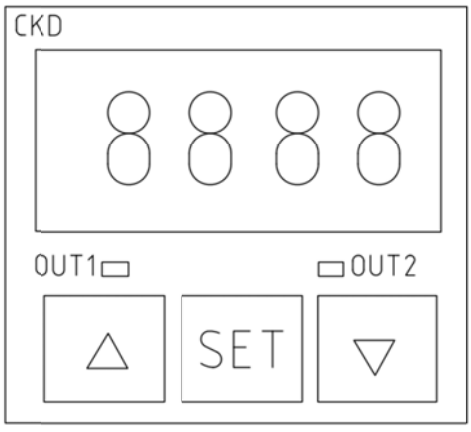
6. The PV-03 control panel can store up to 20 recipes. To program different recipes Press the SHIFT button until the STB LED is illuminated then use the UP/Down arrow buttons and you will see number 1 -20 appear in the Program Screen. Choose the number you wish to set and follow the procedure above.

7. To activate the chosen program push the Start/Pause button once. If you

want to pause the machine push the Start/Pause button during a cycle and again to restart the cycle. To completely STOP the cycle press the Stop Cycle button or press the Emergency Stop.

5.2 TM Models: Digital Vacuum Switch

TM Series machines are equipped with the digital vacuum switch shown below (next page). This unit allows you to set a vacuum pressure for processing as well as a low limit vacuum setting. If during the cycle the vacuum pressure drops to the low limit setting the vacuum pump will automatically re-engage and bring the vacuum pressure back up the high (process) vacuum setting. Your machine come factory preset for -700mmHg as the high vacuum setting and -600mmHg for the low limit setting. The instructions below will allow you to reset these two set points if needed.



Instructions for Setting High and Low Vacuum Settings

1. Press and hold the SET button for about 5 seconds. You will see **LOC** appear on the screen.

2. Press either the UP or the DOWN button once and **ULK** will appear on the screen.

3. Press the SET button multiple times to scroll through unneeded screens until you see **OUT 1 -700** flash in the screen.

4. Press the DOWN button to lower the high vacuum setting (-700 is max so no need to go up)

5. Press the SET button and **OUT 2 -600** should appear and flash in the display.

6. Use the Up/Down button to increase or decrease this setting. This setting should be at least 25 below the high vacuum setting.

7. Press the SET button and a 0 should appear in the display.

8. Press both the Up & Down button simultaneously and the display should flash off then back to 0.

9. Hold the SET button down until ULK appears in the display.

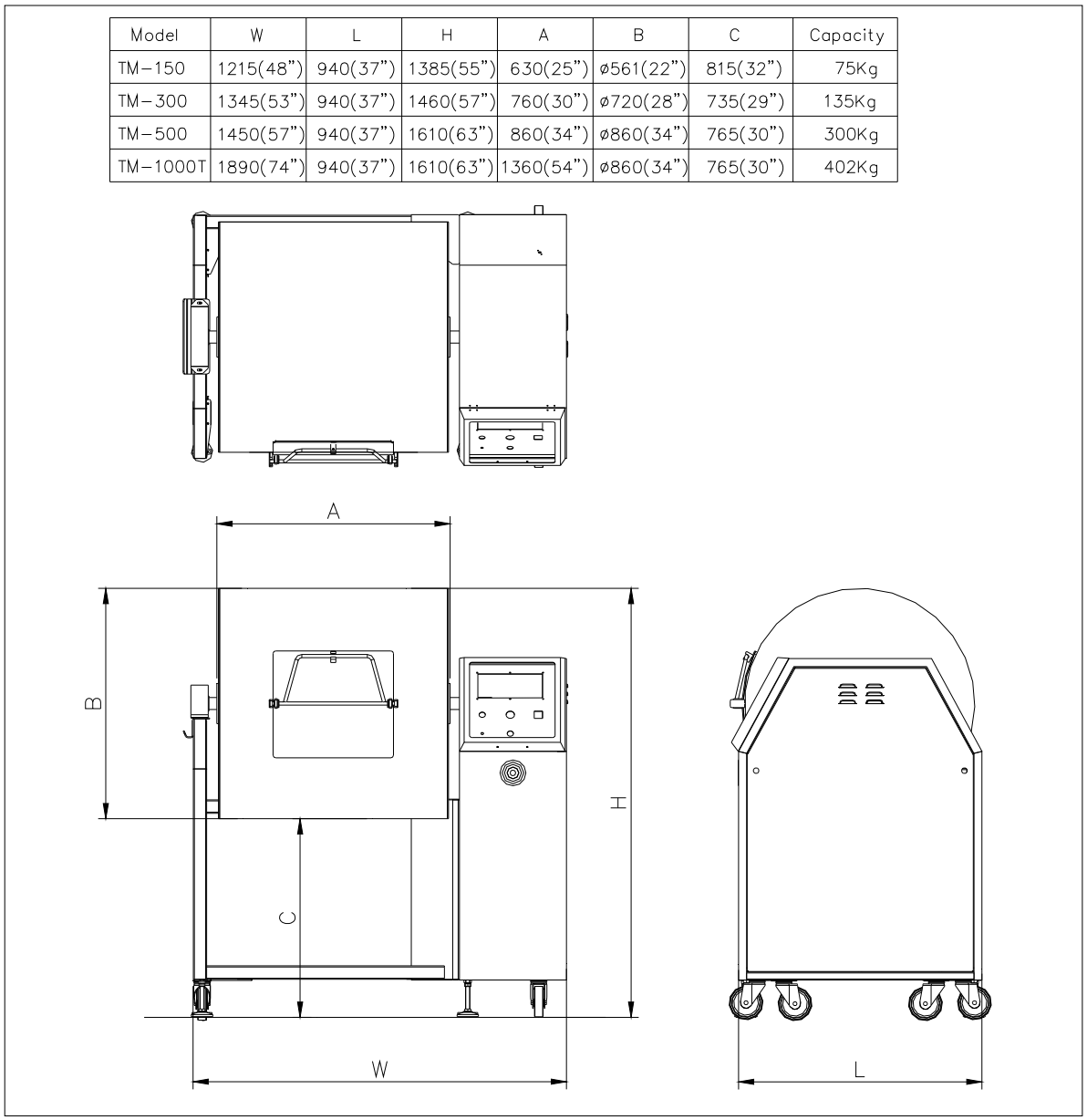
10. Press either the Up or the Down button and LOC will appear in the display.

11. Press the SET button. Your changes are now locked.

6. MACHINE SPECIFICATION

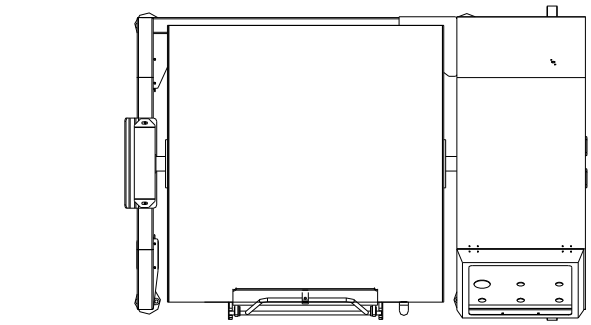
6.1 TM MODELS

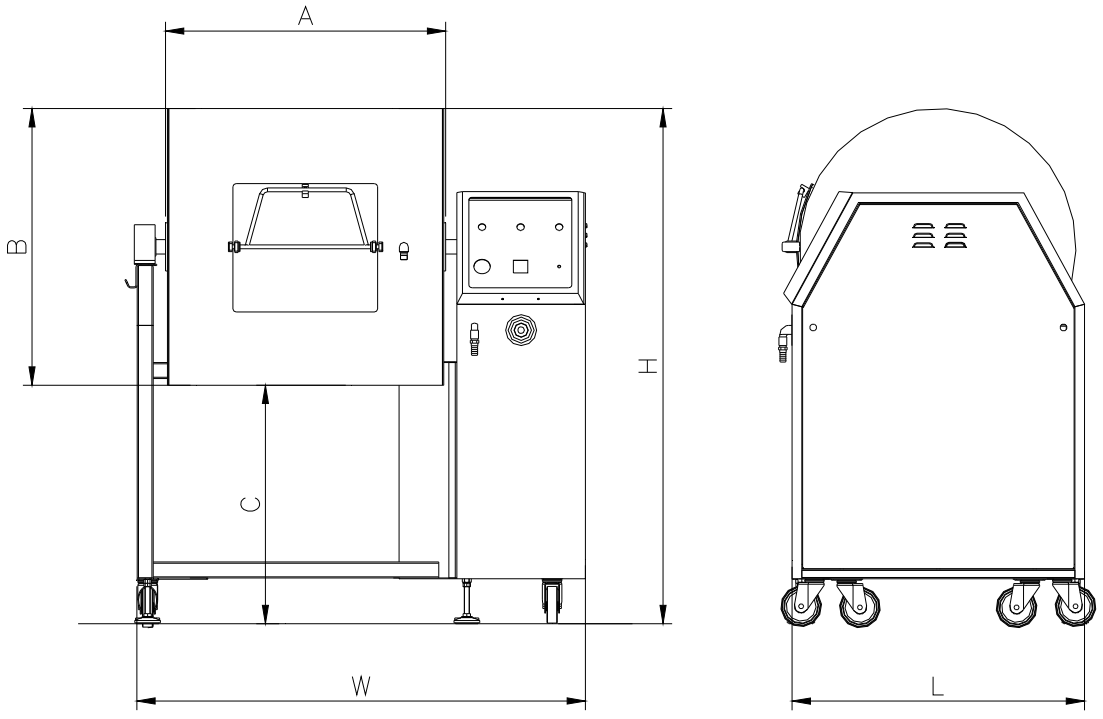
Model	W	L	H	A	B	C	Capacity
TM-150	1215(48")	940(37")	1385(55")	630(25")	ø561(22")	815(32")	75Kg
TM-300	1345(53")	940(37")	1460(57")	760(30")	ø720(28")	735(29")	135Kg
TM-500	1450(57")	940(37")	1610(63")	860(34")	ø860(34")	765(30")	300Kg
TM-1000T	1890(74")	940(37")	1610(63")	1360(54")	ø860(34")	765(30")	402Kg



6.2 TMC MODELS

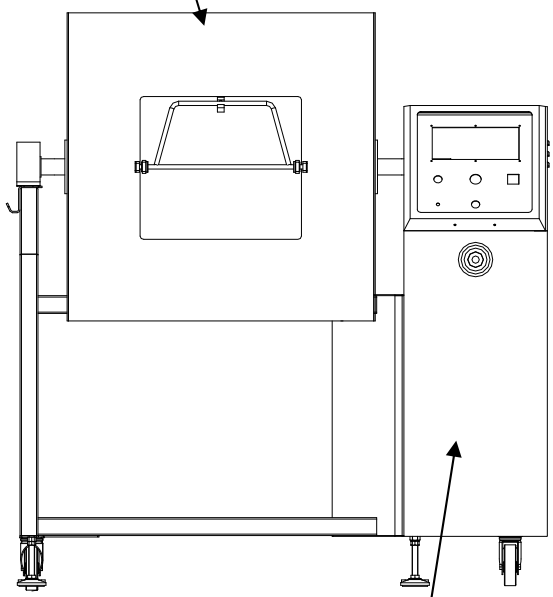
Model	W	L	H	A	B	C	Capacity
TMC-150	1207(48")	940(37")	1378(54")	675(27")	ø545(22")	832(33")	75Kg
TMC-300	1392(55")	940(37")	1520(60")	860(34")	ø670(27")	850(33")	135Kg
TMC-500	1392(55")	940(37")	1610(63")	860(34")	ø860(34")	765(30")	300Kg
TMC-1000	1890(74")	940(37")	1610(63")	1360(54")	ø860(34")	765(30")	410Kg

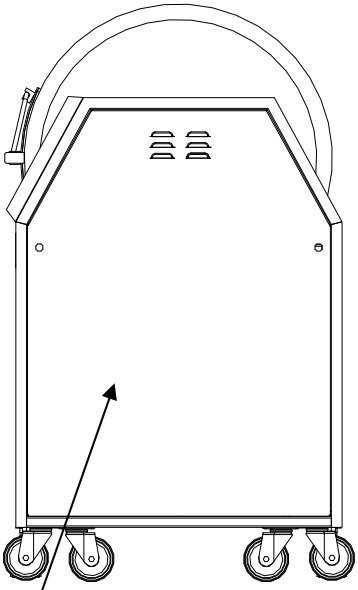




7. FABRICATION

7.1 DRUM BODY



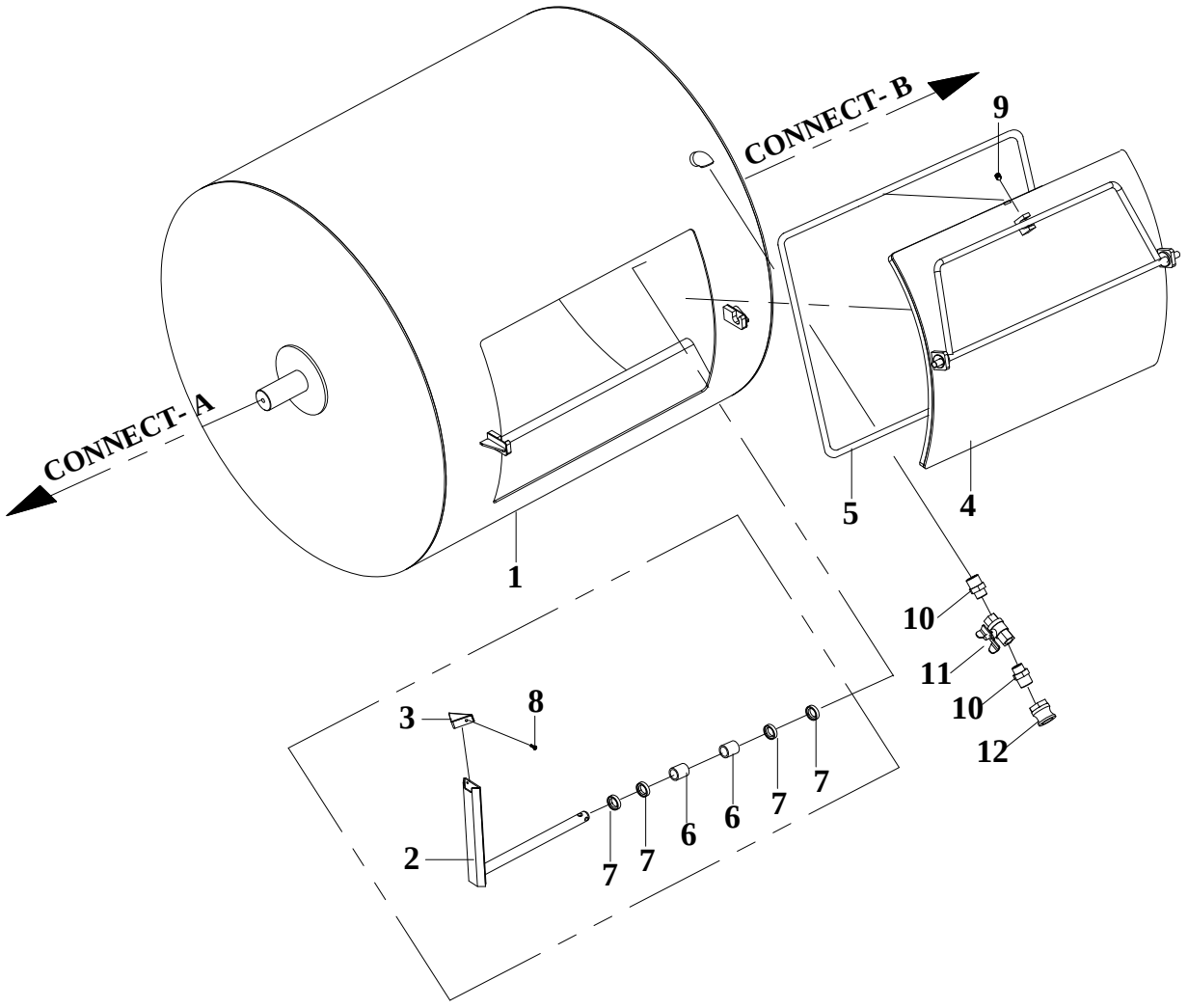


7.3 ELECTRICAL BOX

7.2 MACHINE CASE

7.1 DRUM BODY

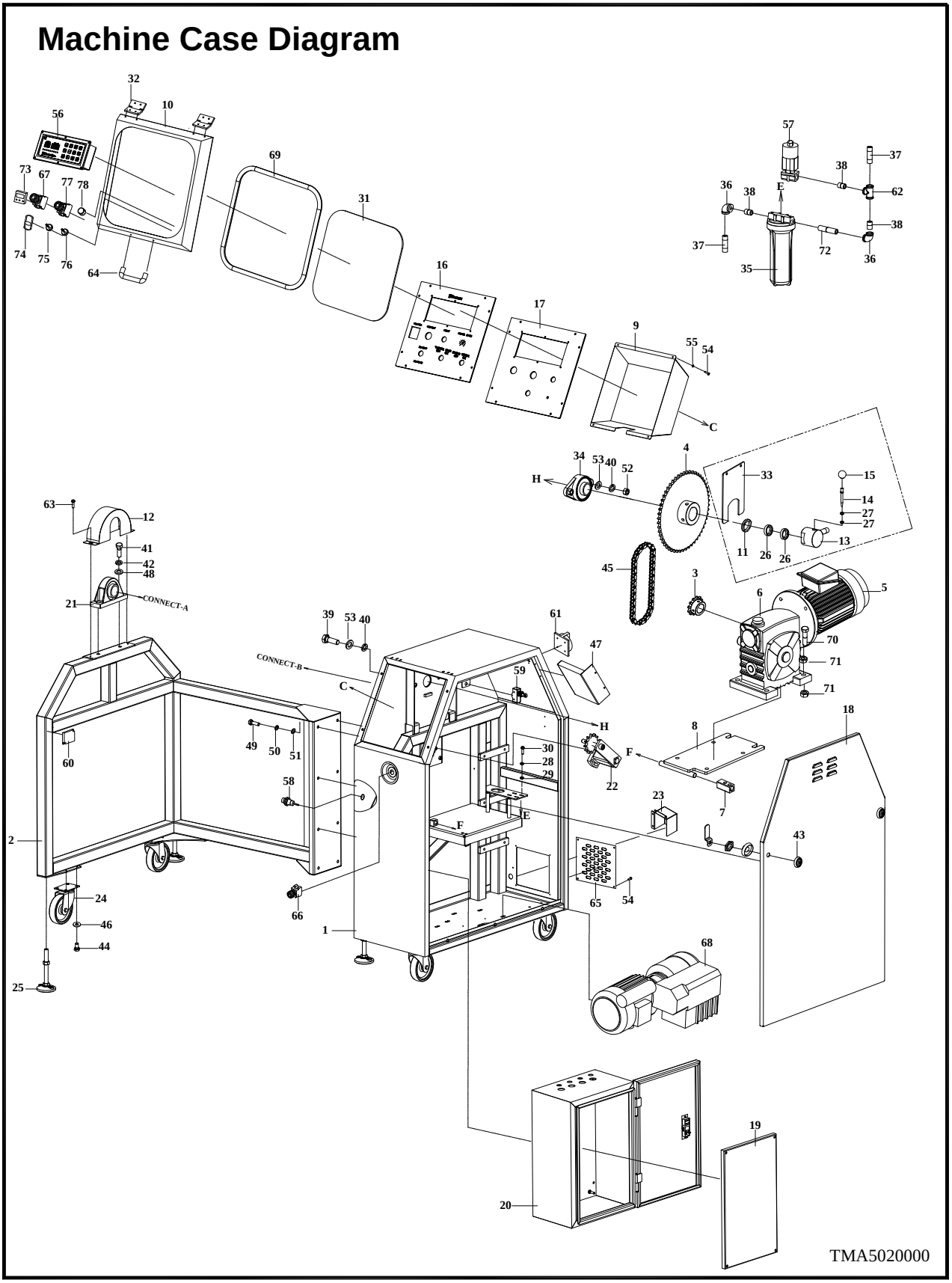
Drum Body Diagram



TM50100000

NO.	PART NO.	DESCRIPTION	QTY	NOTES
1	TMA1201000	Drum tank(TM150)	1	Option
	MC15201002	Drum tank(TMC150)	1	
	TMA3201000	Drum tank(TM300)	1	
	MC30201003	Drum tank(TMC300)	1	
	TMA5201000	Drum tank(TM500)	1	
	MC50201004	Drum tank(TMC500)	1	
	TMAK201002	Drum tank(TMT1000)	1	
	MC1K201002	Drum tank(TMC1000)	1	
2	TMA1212000	Snorkle (TM150)	1	Option (TM only)
	TMA3212000	Snorkle (TM300)	1	
	TMA5212000	Snorkle (TM500)	1	
	TMAK212001	Snorkle (TMT1000)	1	
3	TM3H213000	Tube cover	1	
4	MC15202001	Tank cover(TM150)	1	Option
	MC30202001	Tank cover(TM300)	1	
	MC50202000	Tank cover(TM500)	1	
	MC1K202000	Tank cover(TMT1000)	1	
5	3114467	Cover gasket	1	
6	2728915	Bearing ASM-2026-30	2	TM only
7	27400597	Oil seal TC20.30.7	4	TM only
8	2701502	Round head screw M5x10	2	TM only
9	2701809	Ball bolt M8x1.25	1	
10	2740006I	Fitting 3/4"x1/2"	2	TMC only
11	2909927	Fitting 1/2"x2P	1	TMC only
12	29093290	Fitting 316 TYPE A 3/4"	1	TMC only

7.2 MACHINE CASE DIAGRAM

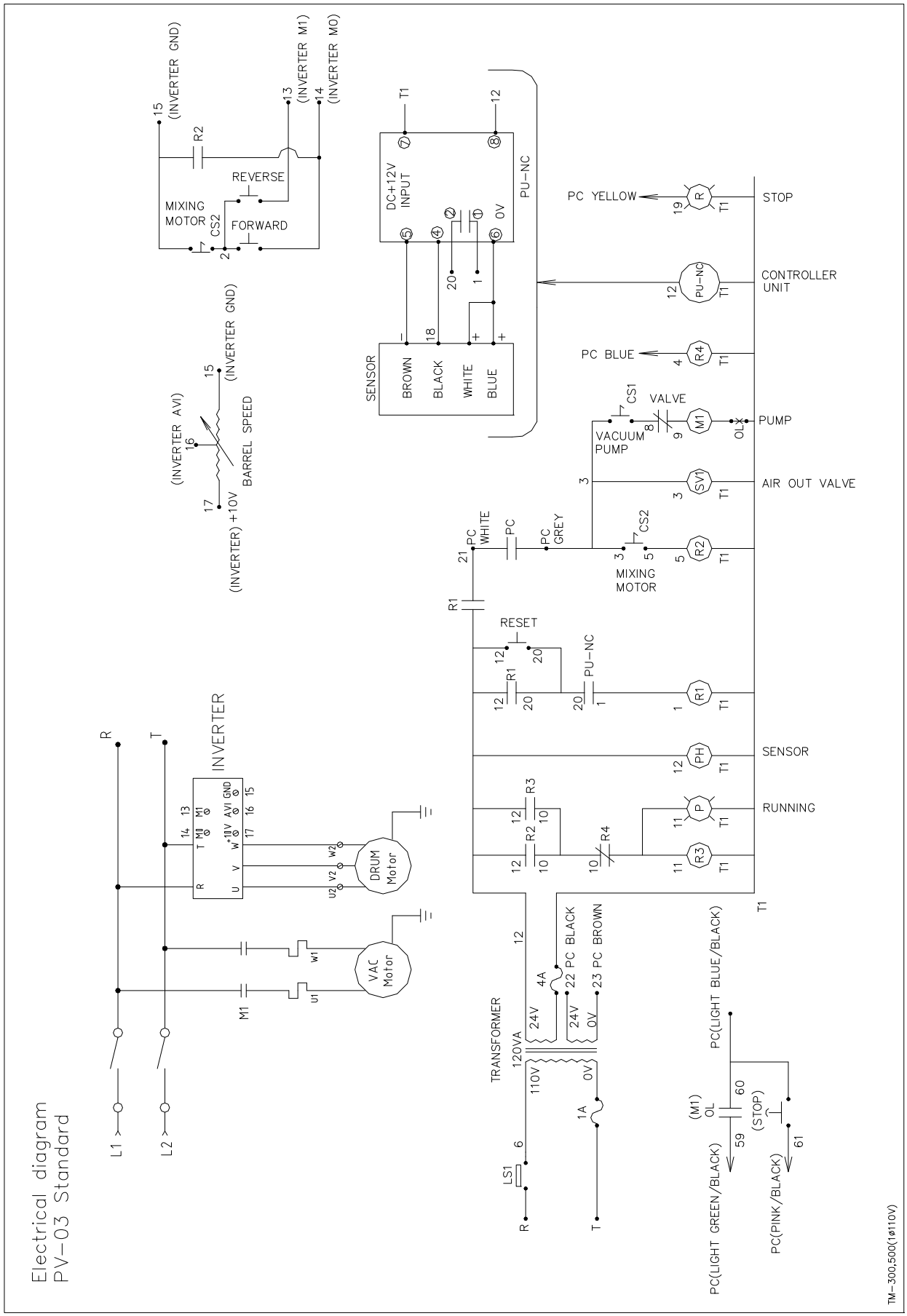


NO.	PART NO.	DESCRIPTION	QTY	NOTES
1	MC15101002	Frame(TM150)	1	Option
	MC50101004	Frame(TM300,500)	1	
	MC1K101002	Frame(TMC1000)	1	
	TMAK101001	Frame(TMC1000)Two pump	1	
2	MC15102002	Side frame(TM150)	1	Option
	MC30102001	Side frame(TM300)	1	
	MC50102002	Side frame(TM500)	1	
	MC1K102001	Side frame(TMC1000)	1	
	TMAK102001	Side frame(TMC-1000)Two pump	1	
3	MC50106001	Chain wheel	1	Option
	MC1K106000	Chain wheel (TMC1000)	1	
4	MC50107000	Chain wheel	1	Option
	MC1K107000	Chain wheel (TMC1000)	1	
5	2814532	Motor 1HP 4P 3ψ230-460V 50/60HZ	1	
6	2815288	LM-HMW-80-60-R-1HP	1	
7	MC50121000	Fixed mount	1	
8	MC50122002	Motor fixed plate	1	
9	TM3H129000	Cover plate	1	
10	TM3H130011	Control panel cover plate	1	
11	TM3H219000	Shaft bushing	1	TM only
12	TM3H139000	Cover plate	1	
13	TM3H215000	Vacuum connection	1	TM only
14	TM3H216000	Valve fixed shaft	1	TM only
15	2851053	Pin SR16	1	TM only
16	TM3H180000	Control panel plate	1	
17	TM3H181000	Control panel bottom plate	1	
18	TM3H190000	Side door	1	
19	MC50802001	Panel	1	
20	MC50801001	Electrical box	1	
21	2728531	Bearing pillow blockUCP209	1	
22	2714250	Chain wheel plate RSC-45-50S	1	
	2714251	Chain wheel plate RSC-45-60S	1	TMC1000
23	MC50123000	Cover plate	1	
24	27121411	Casters 4"	4	
25	2712222	Base leg	4	
26	2740059A	Oil seal TC40.55.10	2	TM only

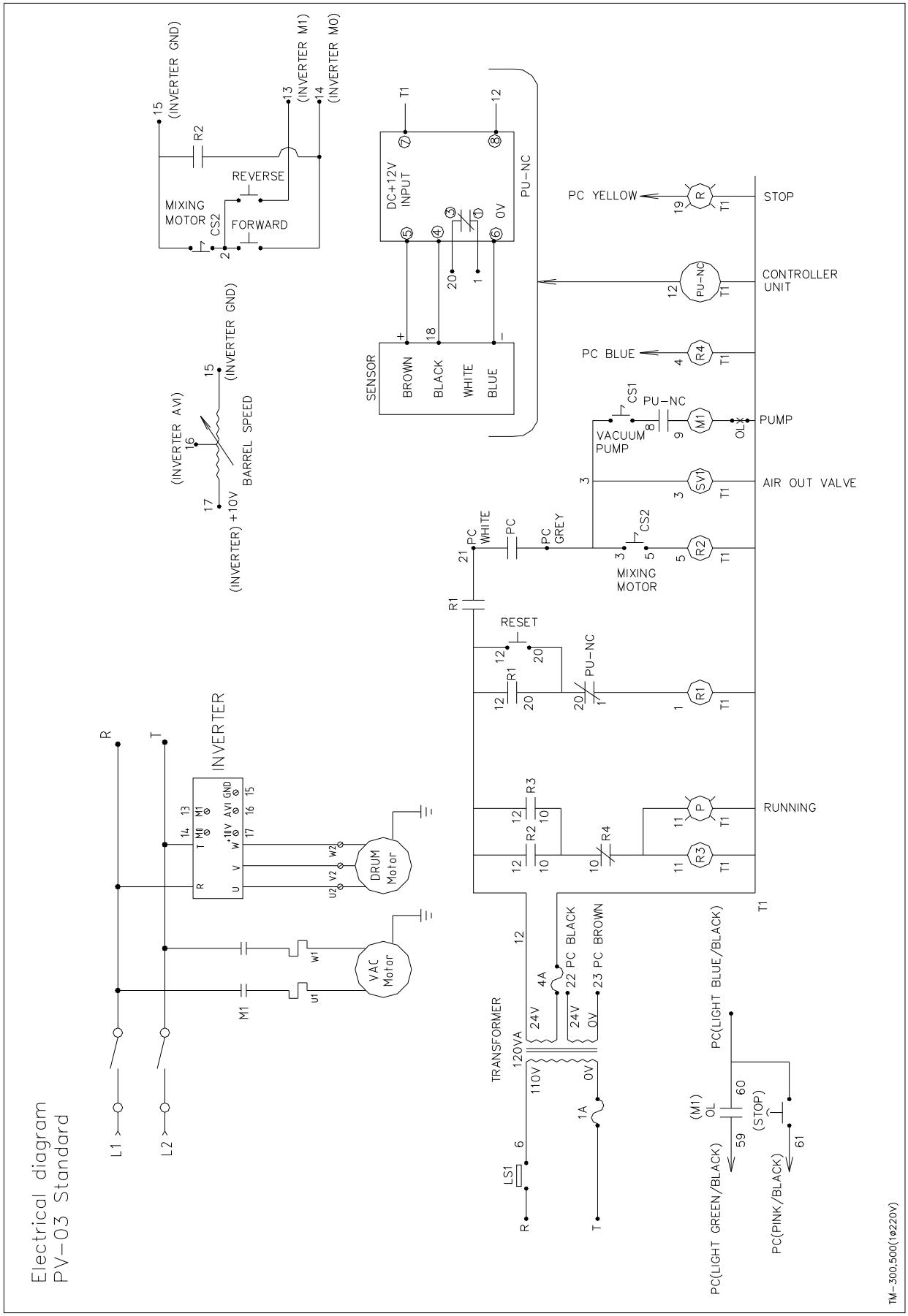
NO.	PART NO.	DESCRIPTION	QTY	NOTES
27	27400595	Oil seal TC8.18.7	2	TM only
28	2700408	Hex head screw M8x20	2	
29	2705152	Flat washer M8	2	
30	2705301	Split lock washer M8	2	
31	TM3H130022	Window	1	
32	28831391	Hinge	2	
33	TMA1103000	Fixed plate(TM150)	1	
	TMA3103000	Fixed plate(TM300,500)	1	
	TMAK103000	Fixed plate(TMA1000)	1	TM only
34	2728528	Bearing pillow block UCFL209	1	
35	2940001	Filter bottle 10"	1	
	2940011	Filter bottle 5"	1	
36	274000661	Elbow 1/2"	2	
37	290932569	Nipple 1/2"x60	4	
38	290932570	Nipple 1/2"x30	2	
39	270020291	Hex head screw M16x35	2	
40	2705328	Split lock washer M16	2	
41	270020290	Hex head screw M16x45	2	
42	2705322	Split lock washer M14	4	
43	2883349	Door lock C408K	2	
44	2700402	Hex head screw M6x16	5	
45	2713024-80	Chain RS50	1	Option
	27136064	Chain RS60(TMC1000)	1	
46	2705151	Flat washer M6	5	
47	TM5H116000	Electrical protect plate	1	
48	2705155	Flat washer M14	2	
49	27004001	Hex head screw M10x20	8	
50	2705304	Split lock washer M10	8	
51	2705189	Flat washer M10	8	
52	27071103	Nut M16	2	
53	2705329	Flat washer M16	2	
54	2703307	Round head screw M4x10	4	
55	2705306	Split lock washer M4	4	
56	2874044	Control panel	1	
57	29118089	Valve VXZ2BOFZIU(AC24V)	1	

NO.	PART NO.	DESCRIPTION	QTY	NOTES
58	2850613	Sensor	1	NOTE1
59	2853313	Limit switch	1	
60	28501030	Reflector	1	
61	28017051	Switch	1	
62	29090097	Tee branch valve 1/2"	1	
63	2701501	Round head screw M6x12	2	
64	2883343	Handle	1	
65	TM3H145000	Cover plate	2	
66	2870205	Switch AVLW43311-R 24V	1	
67	2872503	Button SCR-3041	1	
68	PRC020-110	Vacuum pump 110V	1	OPTION
	PRC020-220	Vacuum pump 220V	1	
69	2714752	Gasket L=1230	1	
70	27004560	Hex head screw M14x40	4	
71	27070094	Nut M14	4	
72	29093279	Nipple 1/2"x10cm	1	
73	2961018	Pressure switch, For S/N#PF13102424 to S/N#PF15062523	1	OLD VERSION
	2961019	Holder(w/cover), F/Pressure switch P/N#2961018		
	2961011	Pressure switch(w/cover), For S/N before PF13102424 and after PF15062523		NEW VERSION
74	28701852	Button M22DP-SF20GR	1	
75	2871220	Switch YW1S-2E10P	1	
76	2871119	Switch YWIS-2111P	1	
77	2870049	Switch green YW1B-M1E10G	1	
	28704940	Button guard ZBPO		
78	2896411	Variable resistor	1	
	2896418	Switch black		
NOTE1		OLD P/N#2850608 HAS BEEN AMENDED TO NEW P/N#2850613 FROM S/N#PF13102424		

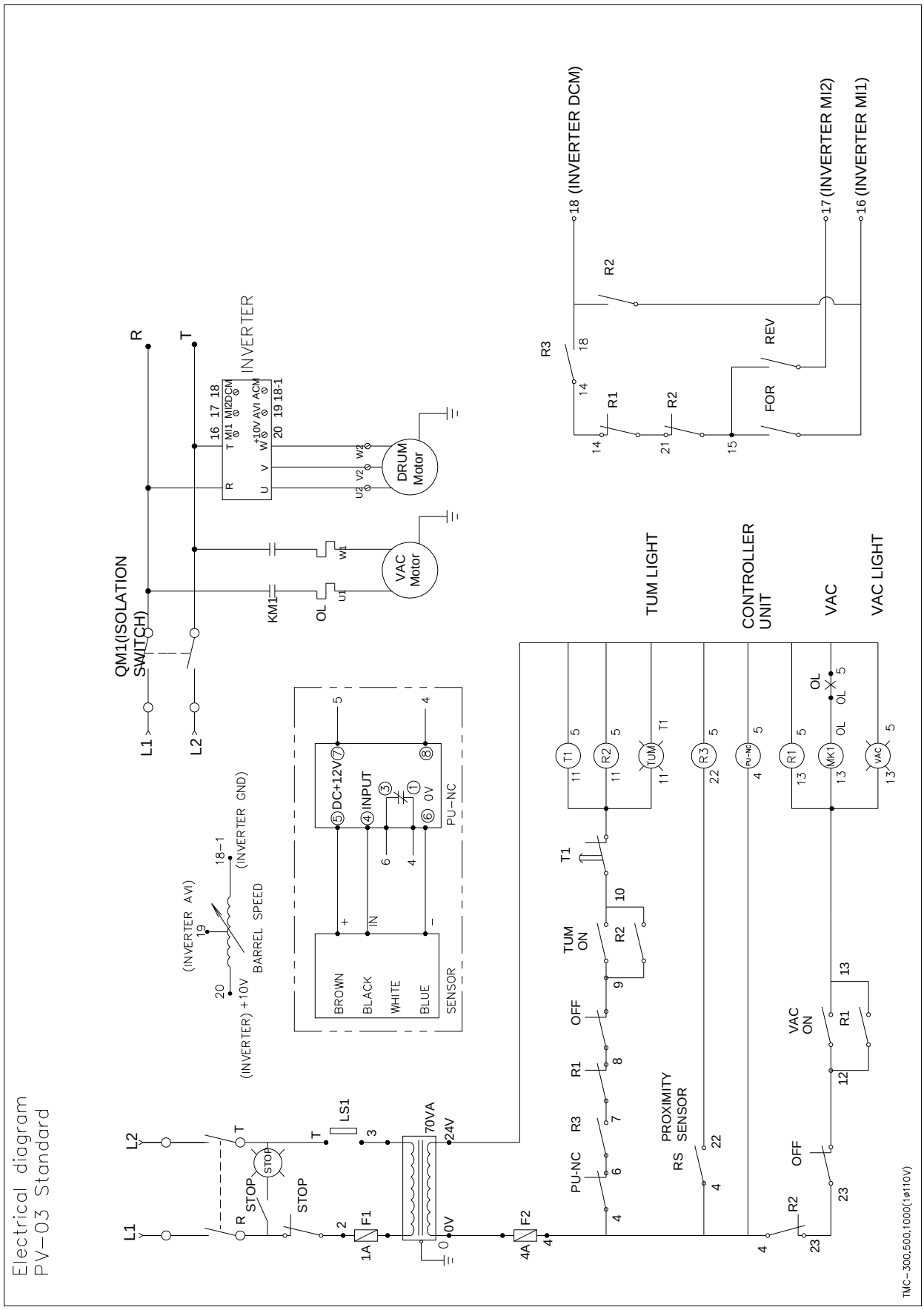
7.3 ELECTRICAL DIAGRAM(110V)



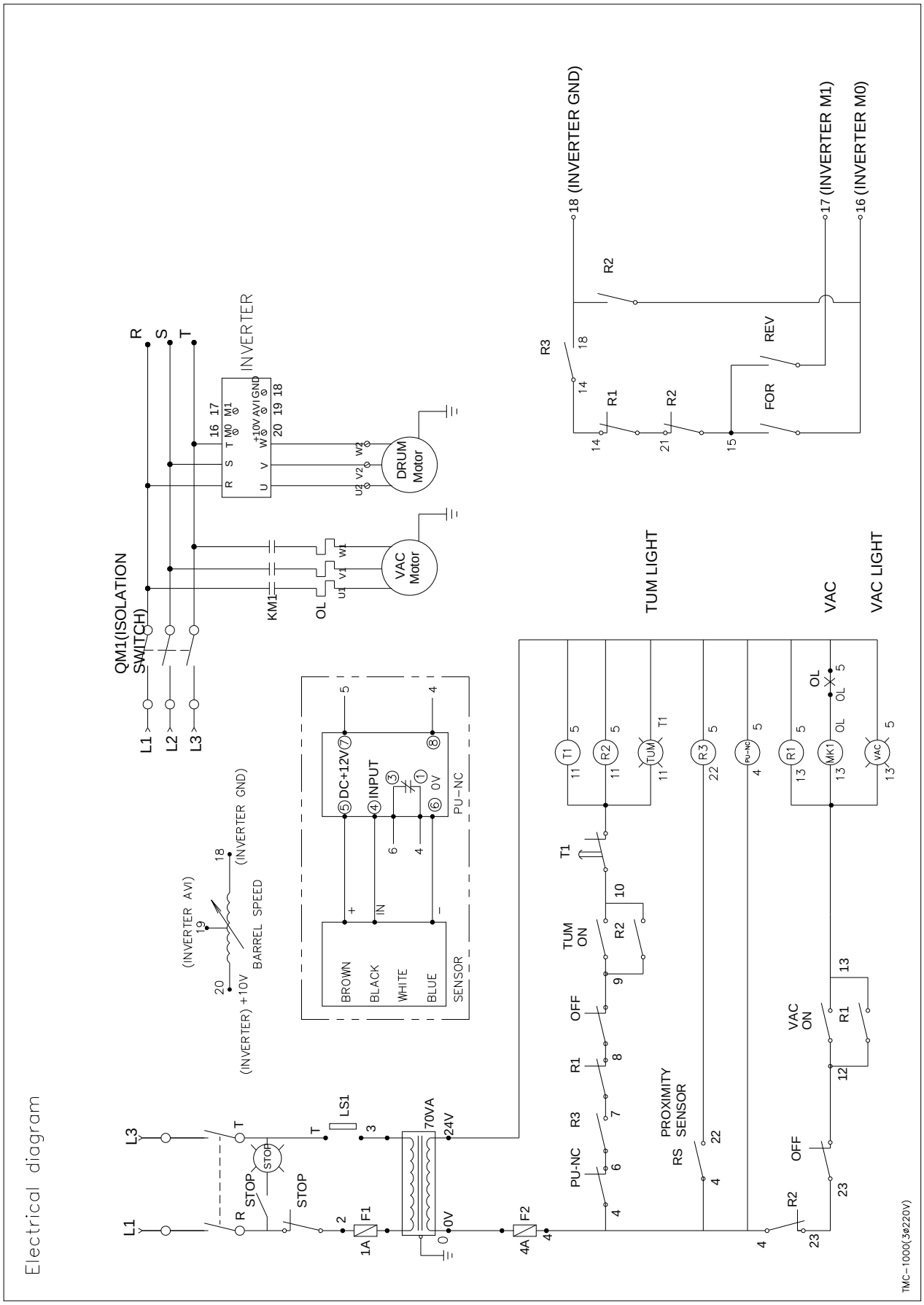
7.3 ELECTRICAL DIAGRAM(220V)



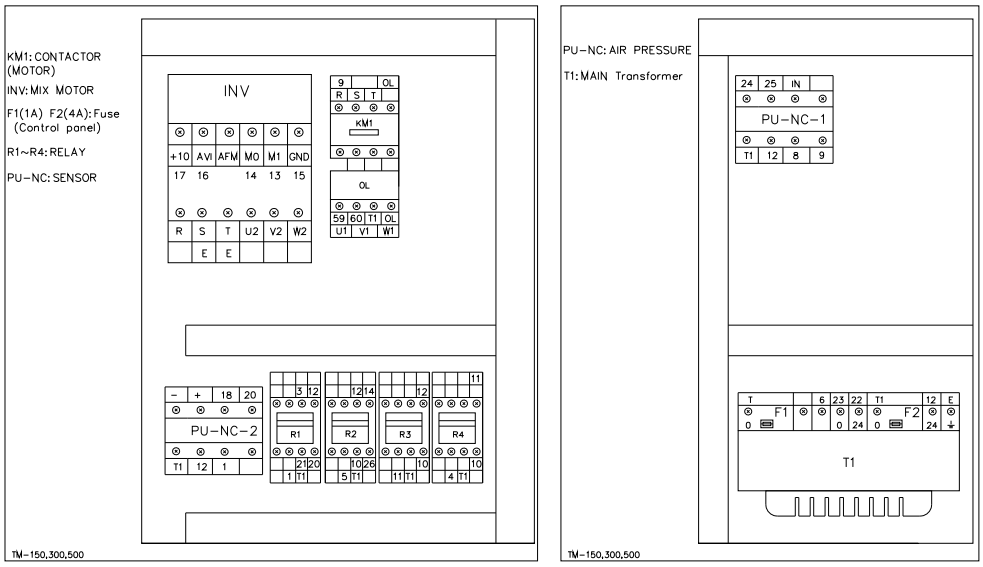
7.3 ELECTRICAL DIAGRAM(110V)



7.3 ELECTRICAL DIAGRAM(220V)

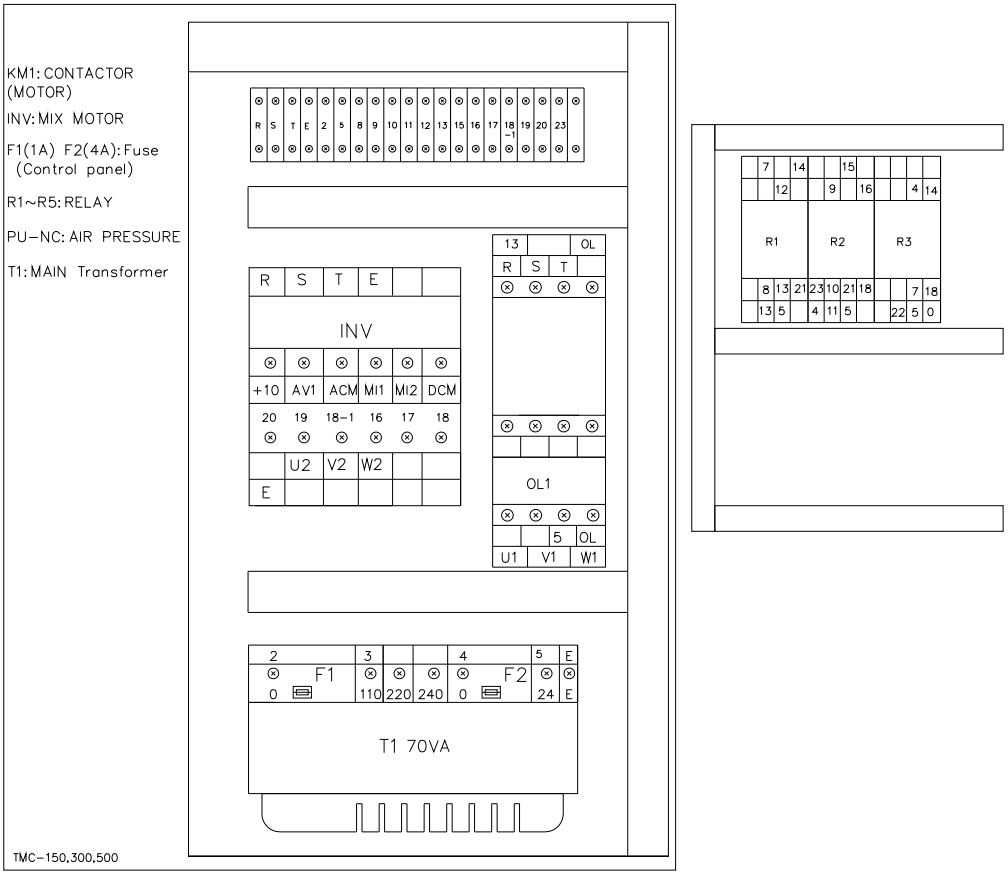


7.3 ELECTRICAL BOX



ITEM	PART NO.	DESCRIPTION	SPECIFICATION	Q'TY	NOTE
KM1	2810739	Contactor	CU-11-B5 (AC24V)	1	
R1~5	2830132	Relay	RU4S-C-A24	1	
	2831106	Socket,Relay	SY4S-05D	1	
T1	28960025	Transformer	120VA/110V.OF-24V UL	1	1ϕ 110V
	28960020	Transformer	120VA 0F-200-220/0-24, 0F-24 UL	1	1ϕ 220V
	28960023	Transformer	120VA 0F-400-440/0-24, 0F-24 UL	1	3ϕ 400V
KM1 OL	2811539	Relay, Overload	RHU-10K1(15-20A)	1	1ϕ 110V 20PUMP
	2811538	Relay, Overload	RHU-10K1(11.3-16A)	1	1ϕ 110V 21PUMP
	2811535	Relay, Overload	RHU-10K1(5.5-7.5A)	1	1ϕ 220V 21PUMP
	2811530	Relay, Overload	RHU-10K1(1.8-2.5A)	1	3ϕ 380/400V 21PUMP
IN1	2805128	INVERTER	VFD007S11A	1	1ϕ 110V TM500
	2805135	INVERTER	VFD004S11A	1	1ϕ 110V TM150.TM300
	2805057	INVERTER	VFD004S21A	1	1ϕ 220V TM150/300/500
	2805144	INVERTER	VFD004S43A	1	3ϕ 380/400V TM150/300/500
QM1	28017051	Switch selector	P1-32/EA/SVB	1	
PU-NC	2856019	Controller	DC12V 100mA (AC24)	1	

7.3 ELECTRICAL BOX



ITEM	PART NO.	DESCRIPTION	SPECIFICATION	Q'TY	NOTE
MS1	2810739	Contactor	CU-11-B5 (AC24V)	1	
MS2~3	2810758	Contactor	CU-18-4A	2	
TMR1.2.4.6	2832024	Time Relay	GE1A-B10HAD24	4	
TMR3.5	2833324	Time Relay	ANLY AMY-2 30S	2	
	2833329	Socket Relay	PYF08A-E MY2	2	
F1~F2	2890048	Fuse	20mm 1A	1	
R1~3	2830132	Relay	RU4S-C-A24	3	
	2831106	Socket Relay	SY4S-05D	3	
OL1~2	2811537	Relay, Overload	RHU-10K1(9-12.5A)	1	
	2811539	Relay, Overload	RHU-10K1(15-20A)	1	
T1	28960025	Transformer	120VA 110V/0-24V OF-24V UL	1	