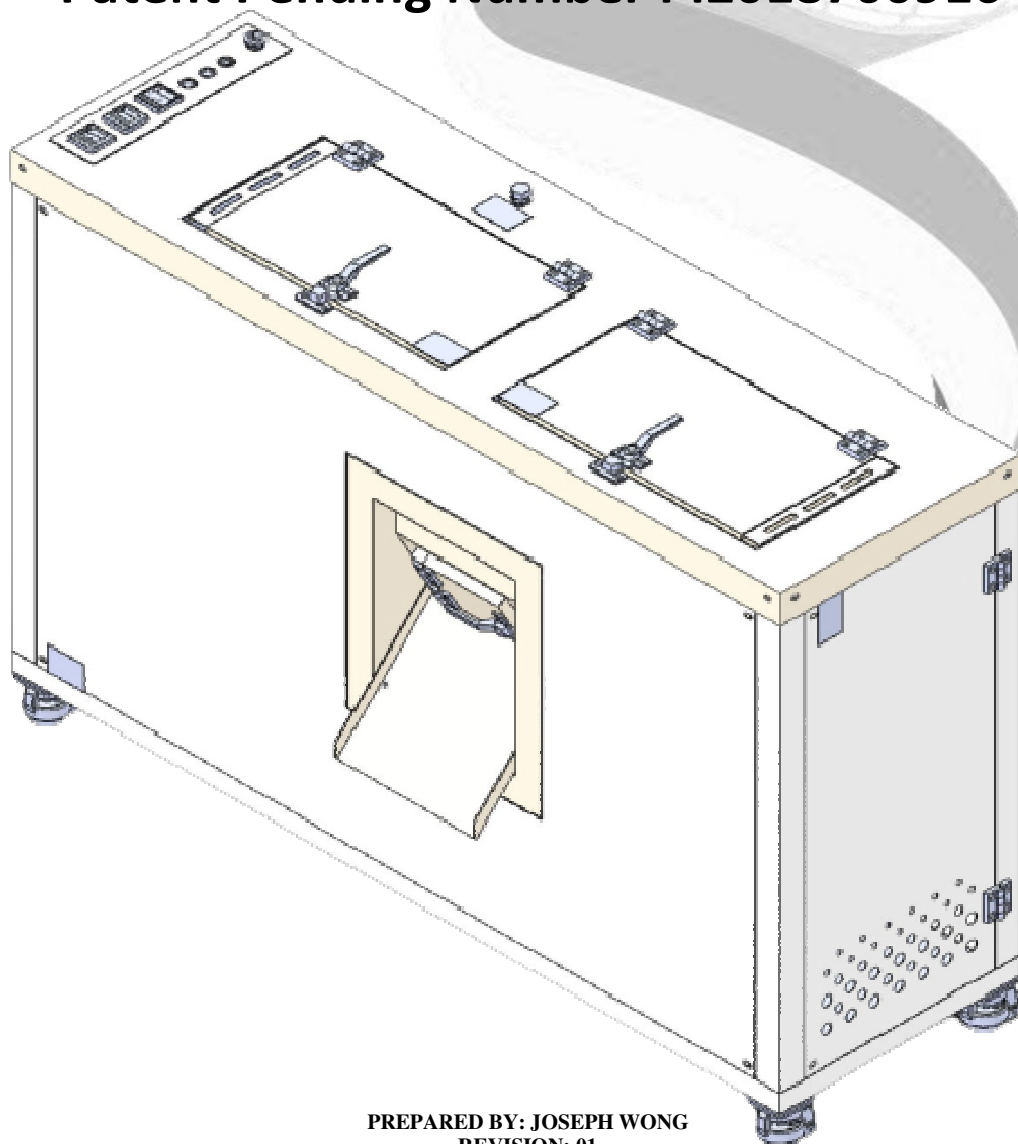




USER MANUAL
FOR
24HRS RAPID COMPOSTING MACHINE
BCM-50 Mk II

Patent Pending Number PI2018700916



PREPARED BY: JOSEPH WONG
REVISION: 01
DATED: 1 APRIL 2021

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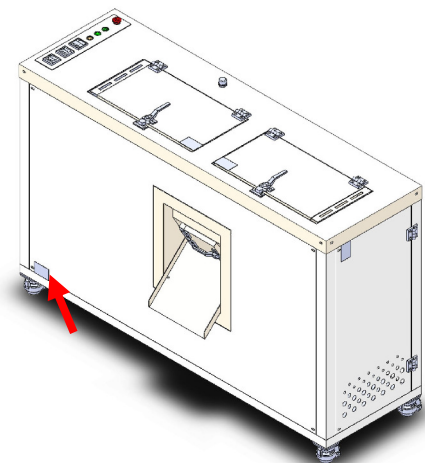
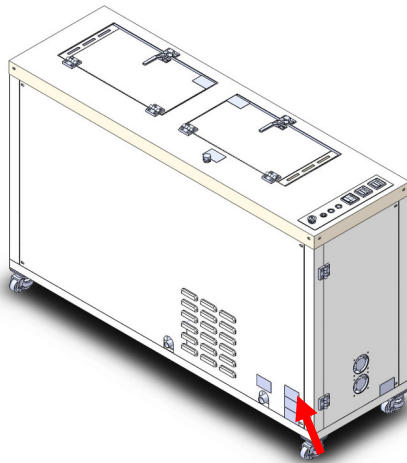
The purpose of this manual is to illustrate the technical details of the machine, the know-how of operating, the maintenance procedure, trouble shooting and repair and the set up procedure.

This manual will serve as guidance to the whole operation of the machine but in the case of serious breakdown, it is advisable to contact the company's technical staff for assistance.

For the parameter setting of the machine for various materials input, the technical data provided by this manual will only serve as guidance. To gain maximum result from the machine, trial and test run should be done in order to get the correct parameter.

2.0 GENERAL SAFETY PRECAUTION

2.1 High Voltage/ Hot Surface / Refer Manual



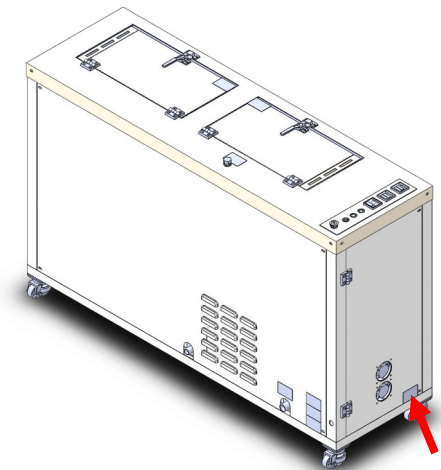
Location **(RED ARROW)**

Caution mark (1) located at bottom right of back cover.

Caution mark (2) located at bottom left of side cover.

Caution

Please lock out and tag out the machine before the cover is open as the internal may have high temperature surface and high voltage connection. Any mishap happen may cause serious injuries or death.

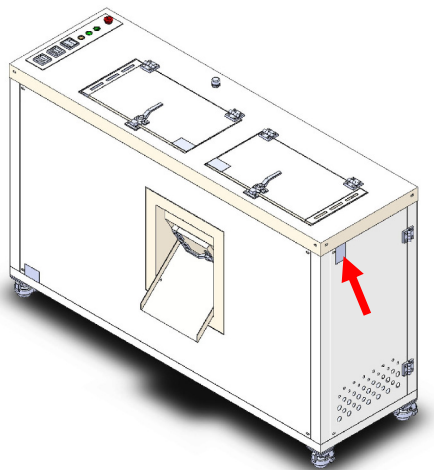


Location **(RED ARROW)**

Caution mark located at bottom right corner of the side door.

Caution

Please lock out and tag out the machine before the cover is open as the internal may have high temperature surface and high voltage connection. Any mishap happen may cause serious injuries or death.

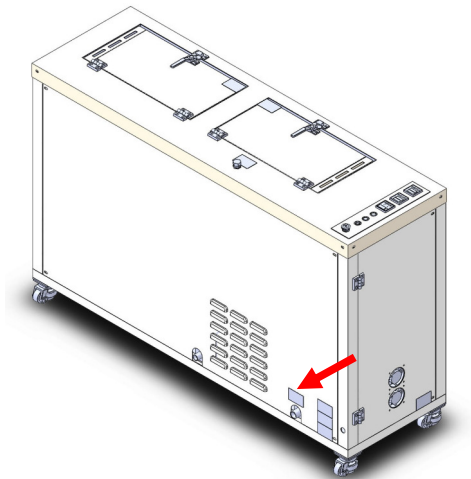


Location **(RED ARROW)**

Caution mark located at top left corner of the side door.

Caution

Please do not put your hand near to moving parts as this may cause serious injuries. Please ensure that the machine is lock out and tag out if any maintenance job is needed on the area.

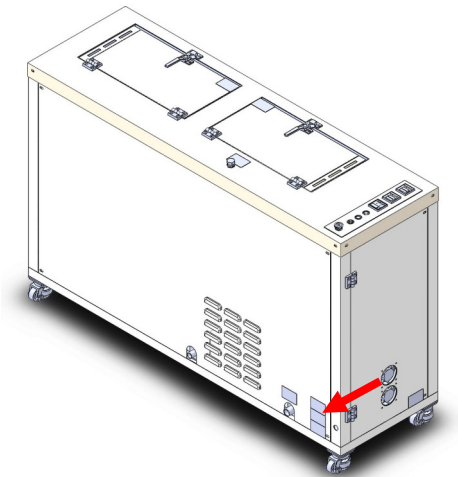
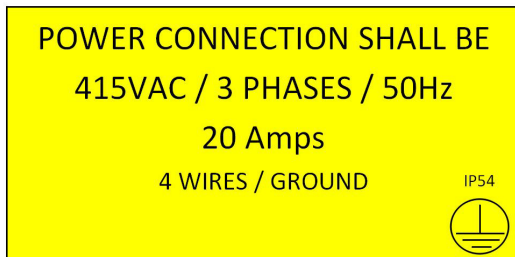


Location (RED ARROW)

Caution mark located at bottom right side of the back panel.

Caution

Please ensure that the exhaust of the machine is connected to the sewage line or monsoon drain. Hot exhaust release from the pipe may cause serious injuries.



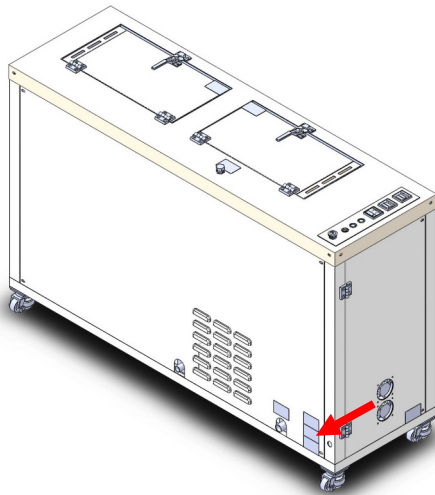
Location **(RED ARROW)**

Caution mark located at bottom right side of the back panel, beside the power cable.

Caution

Please ensure that the machine is connected to a power source that met the specification stated on the tag. Incorrect power rating may cause the machine to be malfunction, causing damages to the electrical components and possibly causing fire.

2.6 Machine Tag



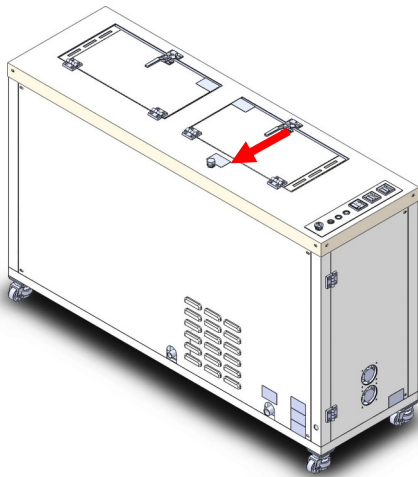
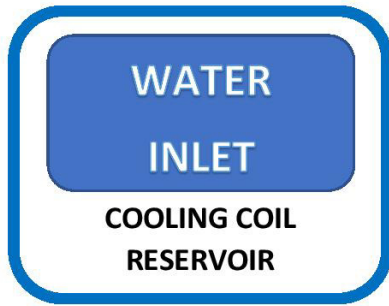
Location (RED ARROW)

Machine Tag located at bottom right side of the back panel, beside the power cable.

Caution

Please ensure that the machine tag is intact at the allocated area for identification and warranty purposes.

2.7 Water Inlet (Cooling Coil Reservoir)

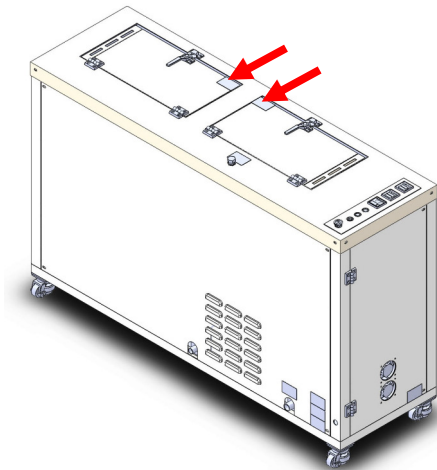


Location **(RED ARROW)**

Water Inlet (Cooling Coil Reservoir) located at top rear right side of the top panel.

Caution

Please ensure that the water level for the cooling coil reservoir is at sufficient level all the time to ensure that the condensation process worked at maximum level. Low water level may also cause the water pump to burn.



Location (RED ARROW)

Hot Surface located at top left corner of each top door.

Caution

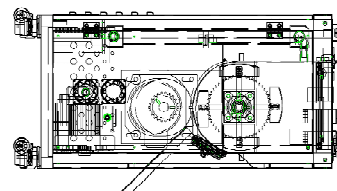
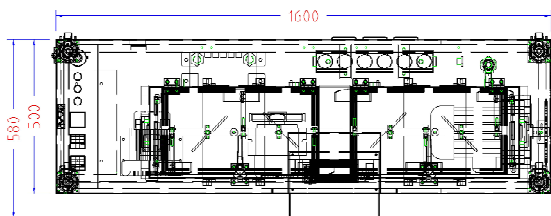
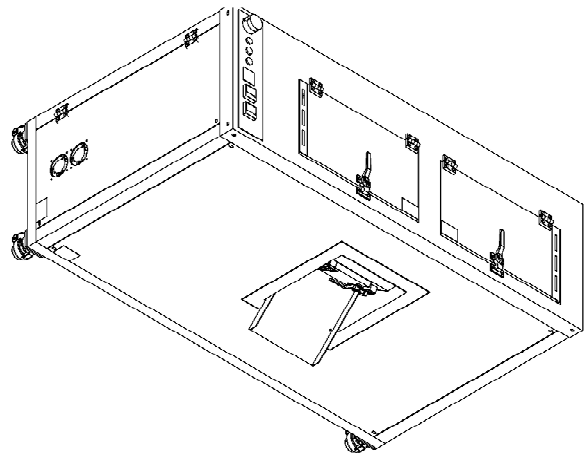
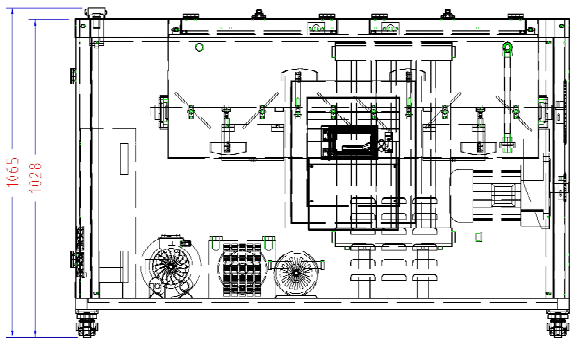
Do not put your hand close to this area as the temperature is around 50°C - 70°C and it may cause serious burn.

3.0 PRODUCT DESCRIPTION

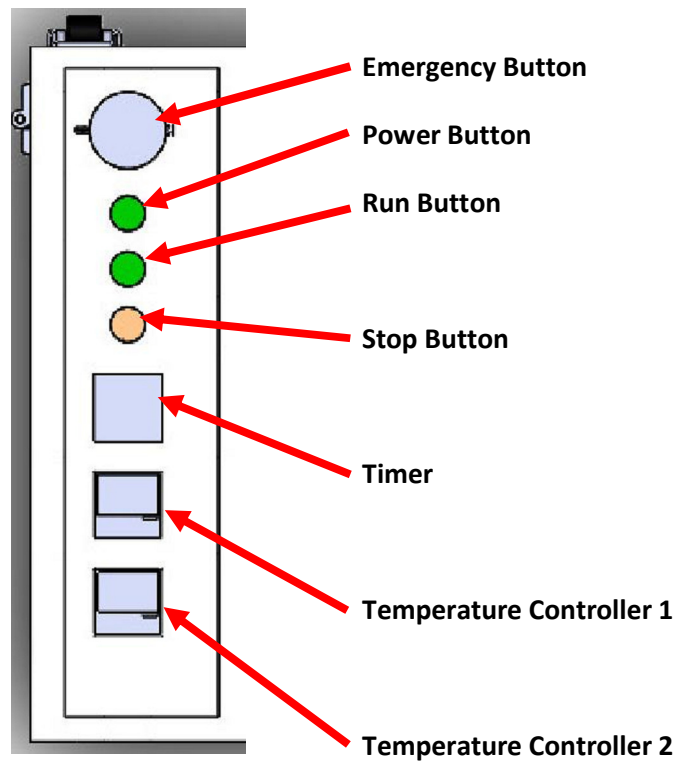
3.1	Machine Description		24 Hours Rapid Composting Machine
3.2	Model		BCM-100
3.3	Capacity		100 Lites
3.4	Maximum Load		50 Kgs
3.5	Dimension	(W)	50 cm
		(L)	160 cm
		(H)	106 cm
3.6	Weight		250 Kgs approx.
3.7	Power Rating	(V)	415 v / 50 Hz
		Phase	3
		(A)	20 Amps
		Wire	4 + Ground
3.8	Water Proof Standard		IP 54
3.9	Quality Standard		Machinery Device Directive - 2006/42/CE

4.0 PRODUCT LAYOUT

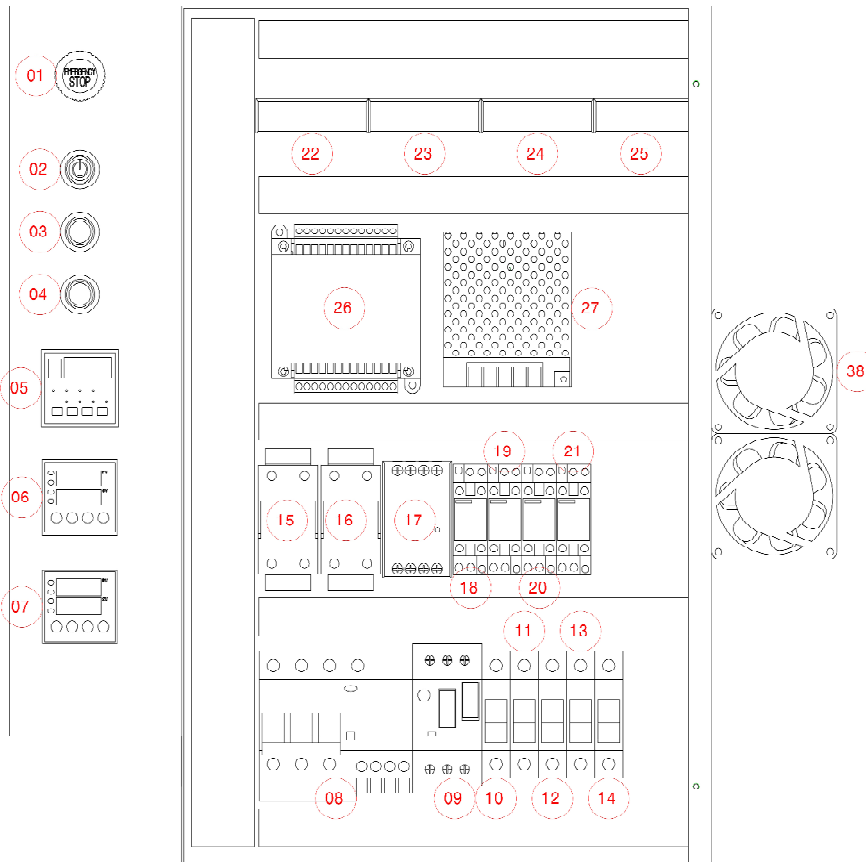
4.1 Machine Layout




4.2 Control Panel Layout



4.3 Electrical Panel Layout





DATE

SCALE

DRAWN BY

CHECKED BY

APPROVED BY

15 FEBRUARY 2021

N.I.S

JOSEPH K.H. WONG

21 / 2461 / 00 / GEC / 00

PART LIST			
NO	PART	SPEC	QTY
01	EMERGENCY BUTTON	22MM	1 PC
02	POWER BUTTON	GREEN SELF LOCK, 22MM	1 PC
03	RUN BUTTON	GREEN MOMENTARY, 22MM	1 PC
04	STOP BUTTON	ORANGE MOMENTARY, 22MM	1 PC
05	TIMER	XGHP48	1 PC
06	TEMP. CONTROLLER	REX-C100	1 PC
07	TEMP. CONTROLLER	REX-C100	1 PC
08	ELCB	32AMP, 3 PHASE	1 PC
09	MOTOR BREAKER	4-6.3AMP, 3 PHASE	1 PC
10	MCB	25AMP, 1 PHASE	1 PC
11	MCB	25AMP, 1 PHASE	1 PC
12	MCB	10AMP, 1 PHASE	1 PC
13	MCB	10AMP, 1 PHASE	1 PC
14	MCB	10AMP, 1 PHASE	1 PC
15	SSH	ZTS-25DA, 25AMP, 1 PHASE	1 PC
16	SSR	ZTG 25DA, 25AMP, 1 PHASE	1 PC
17	SSH	STR-10DA, 10AMP, 3 PHASE	1 PC
18	SSR	JQX 5F MY, 5AMP, 1 PHASE	1 PC
19	SSH	JQX-5F-MY, 5AMP, 1 PHASE	1 PC
20	SSR	JQX 5F MY, 5AMP, 1 PHASE	1 PC
21	SSH	JQX-5F-MY, 5AMP, 1 PHASE	1 PC
22	TERMINAL BLOCK	TD15-6	1 PC
23	TERMINAL BLOCK	TB15-6	1 PC
24	TERMINAL BLOCK	TD15-6	1 PC
25	TERMINAL BLOCK	TB15-6	1 PC
26	CONTROL BOARD	20MM	1 PC
27	POWER SUPPLY	25W-24VDC	1 PC
28	DOOR SENSOR	PROXIMITY, TL-05MC1	1 PC
29	DOOR SENSOR	PROXIMITY, TL-05MC1	1 PC
30	HEATER	4KW, 220V	1 PC
31	HEATER	4KW, 220V	
32	MOTOR	2200W, 415V, 3P	1 PC
33	COOLING COIL	AH0607, 220V	1 PC
34	WATER PUMP	280W, 220V	1 PC
35	AIR PUMP	HQ-550, 220V	1 PC
36	OZONE GENERATOR	1000MG/HR, 220V	1 PC
37	HOT AIR BLOWER	500W HEATER + 6W BLOWER	1 PC
38	COOLING FAN	80 X 80 X 38MM, 220V	2 PCS

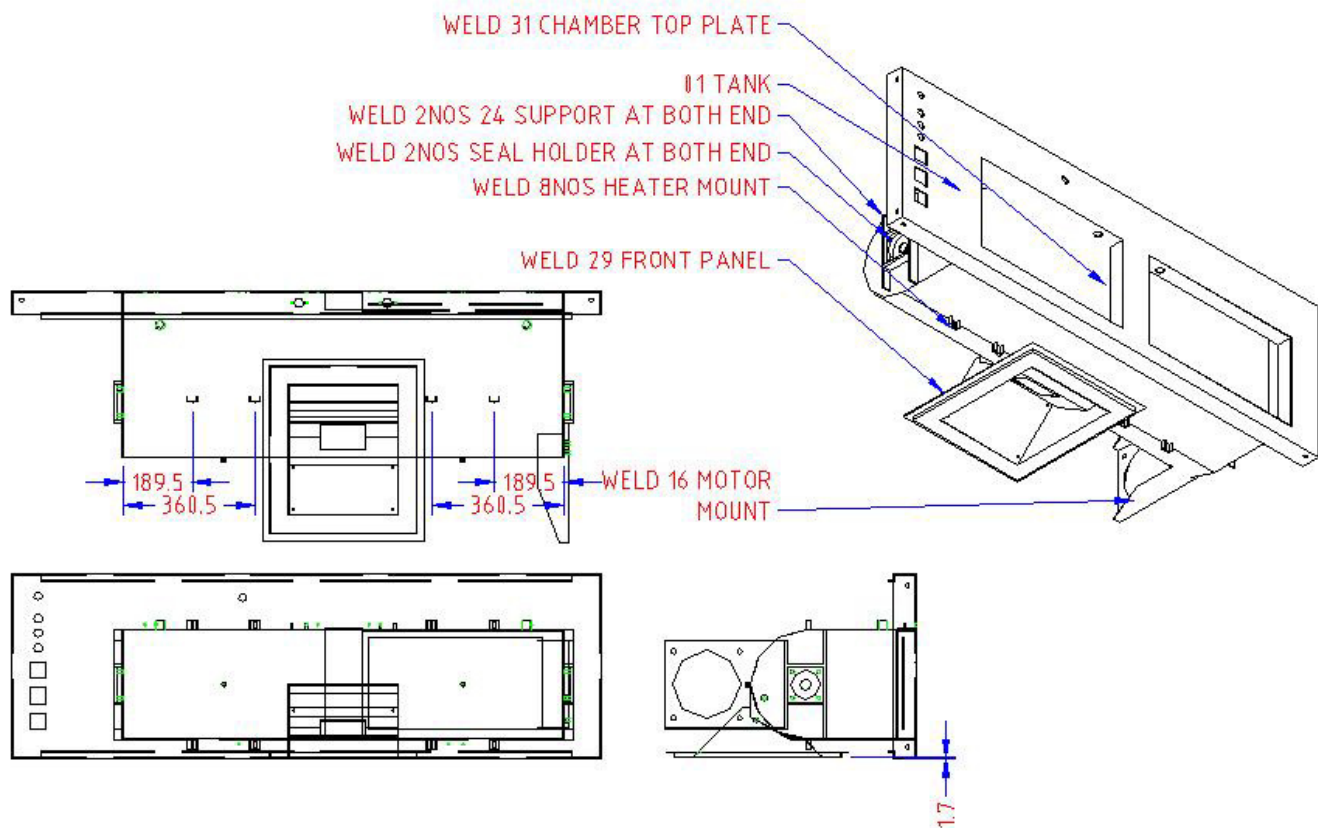
5.0 PART LIST				
	Part Number	Description	Qty	
5.1	202367-00-01-01	Tank	1	PC
5.2	202367-00-01-02	Seal Holder	2	PCS
5.3	202367-00-01-03	Seal Holder	2	PCS
5.4	202367-00-01-04	Shaft	1	PC
5.5	202367-00-01-05	Clamp	8	PCS
5.6	202367-00-01-06	Mixer	8	PCS
5.7	202367-00-01-07	Clamp	8	PCS
5.8	202367-00-01-08	Base	1	PC
5.9	202367-00-01-09	Stand	8	PCS
5.10	202367-00-02-10	Side Stand	1	PC
5.11	202367-00-02-11	Side Stand	3	PCS
5.12	202367-00-02-12	Side Cover	1	PC
5.13	202367-00-02-13	Side Cover	3	PCS
5.14	202367-00-02-14	Bottom Plate	1	PC
5.15	202367-00-02-15	Door Top	2	PCS
5.16	202367-00-02-16	Motor Mount	1	PC
5.17	202367-00-02-17	Caster Wheel Base	4	PCS
5.18	202367-00-02-18	Side Cover	1	PC
5.19	202367-00-03-19	Door Bottom	2	PCS
5.20	202367-00-03-20	Heater Plate	2	PCS
5.21	202367-00-03-21	Side Cover	1	PC
5.22	202367-00-03-22	Bracket	1	PC
5.23	202367-00-03-23	Bracket	2	PCS
5.24	202367-00-03-24	Bracket	2	PCS
5.25	202367-00-03-25	Support	2	PCS
5.26	202367-00-03-26	Stand	2	PCS
5.27	202367-00-03-27	Chute	1	PC

	Part Number	Description	Qty	
5.28	202367-00-04-28	Panel	1	PC
5.29	202367-00-04-29	Front Panel	1	PC
5.30	202367-00-04-30	Air Spring Cover	2	PCS
5.31	202367-00-04-31	Chamber Top Plate	1	PC
5.32	202367-00-04-32	Discharge Door Outer	1	PC
5.33	202367-00-04-33	Discharge Door Inner	1	PC
5.34	202367-00-04-34	Door Latch Mount	1	PC
5.35	202367-00-04-35	Door Hinge Mount	1	PC
5.36	202367-00-04-36	Top Door Seal	2	PCS
5.37	202367-00-05-37	Discharge Door Seal	1	PC
5.38	202367-00-05-38	Pivot	1	PC
5.39	202367-00-05-39	Bracket	1	PC
5.40	202367-00-05-42	Motor Sprocket	1	PC
5.41	202367-00-05-43	Mixer Sprocket	1	PC
5.42	202367-00-05-44	Heater Mount	8	PCS
5.43	202367-00-05-45	Sensor Mount	2	PCS
5.44	GH-400-80S	Induction Motor	1	PC
5.45	SY1-2110	Latch	2	PCS
5.46	120 Watts	Whirlpool Pump	1	PC
5.47	25 X 40 X 8	Viton Ring	2	PCS
5.39	UCF205	Flange Bearing	2	PCS
5.40	120N	GAS SPRING	2	PCS
5.41	RS60	Roller Chain	8	FT
5.42	GD60F	Castor Wheel	4	PCS
5.43	50 X 50	Stainless Steel Hinge	4	PCS
5.44	32A, 4P	ELCB	1	PC
5.45	32A 3P	MCB	1	PC
5.46	10A 1P	MCB	5	PCS

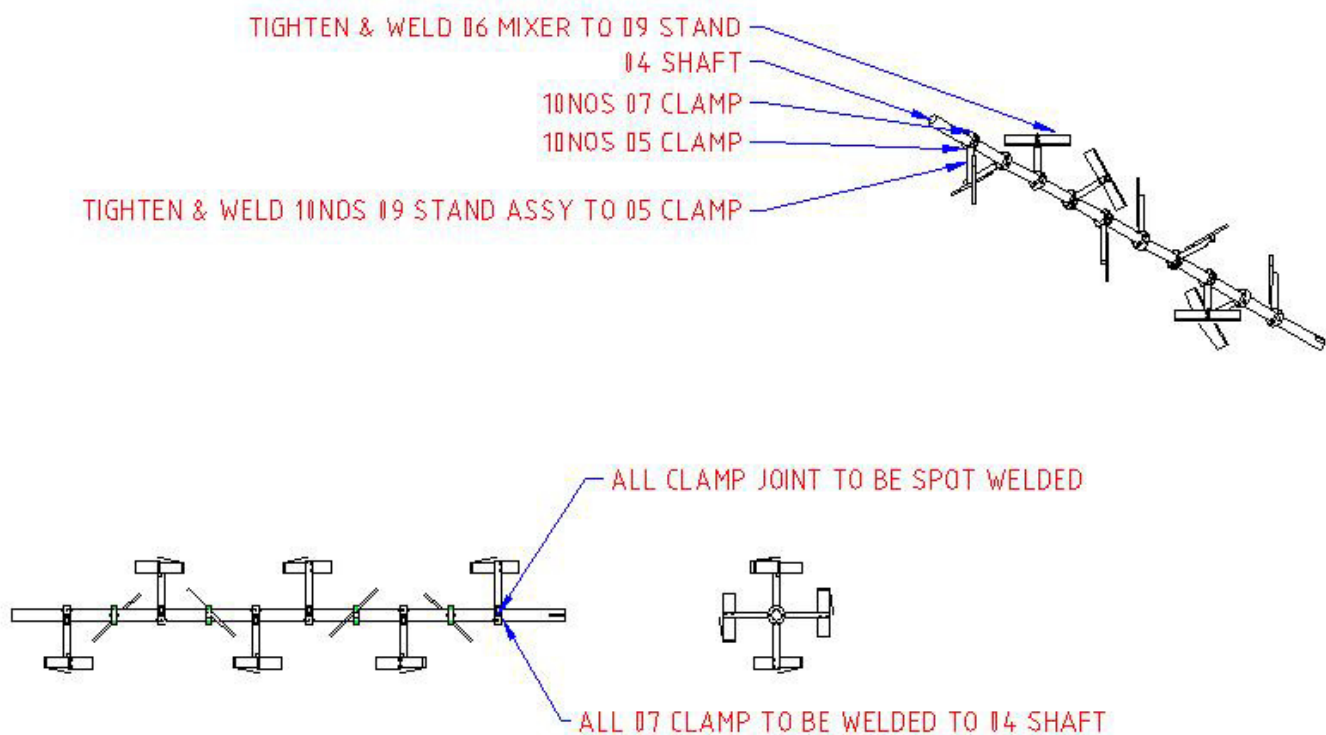
	Part Number	Description	Qty	
5.47	25W-24VDC	Power Supplier	1	PC
5.48	ZTS-25DA	SSR	1	PC
5.49	ZTS-10DA	SSR	6	PCS
5.50	NR4F 2-2.6A	Overload Relay	1	PC
5.51	FX1C-24-MR	PLC Board	1	PC
5.52	REX-C100	Temperature Controller, RKC	2	PCS
5.53	PRDL-12-14D	Proximity Sensor	2	PCS
5.54	XGHPG-140-B	Timer	1	PC
5.55	22MM	Power Push Button	1	PC
5.56	22MM	Momentary Push Button	2	PCS
5.57	22MM	Emergency Button	1	PC
5.58	AH607	Cooling Unit	1	PC
5.59	280W	Water Pump	1	PC
5.60		Condenser Coil	1	PC

6.0 PART LOCATION

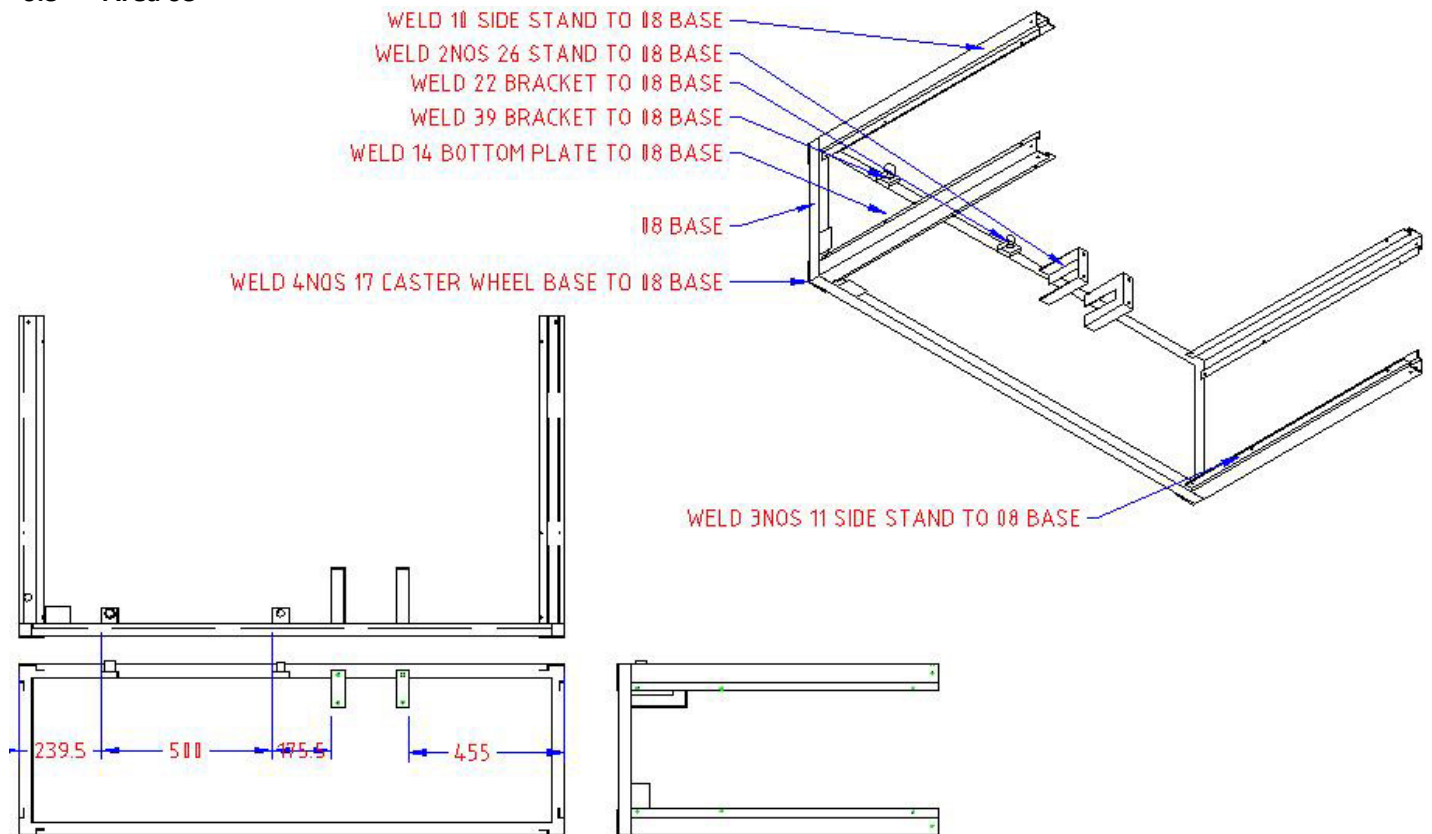
6.1 Area 01



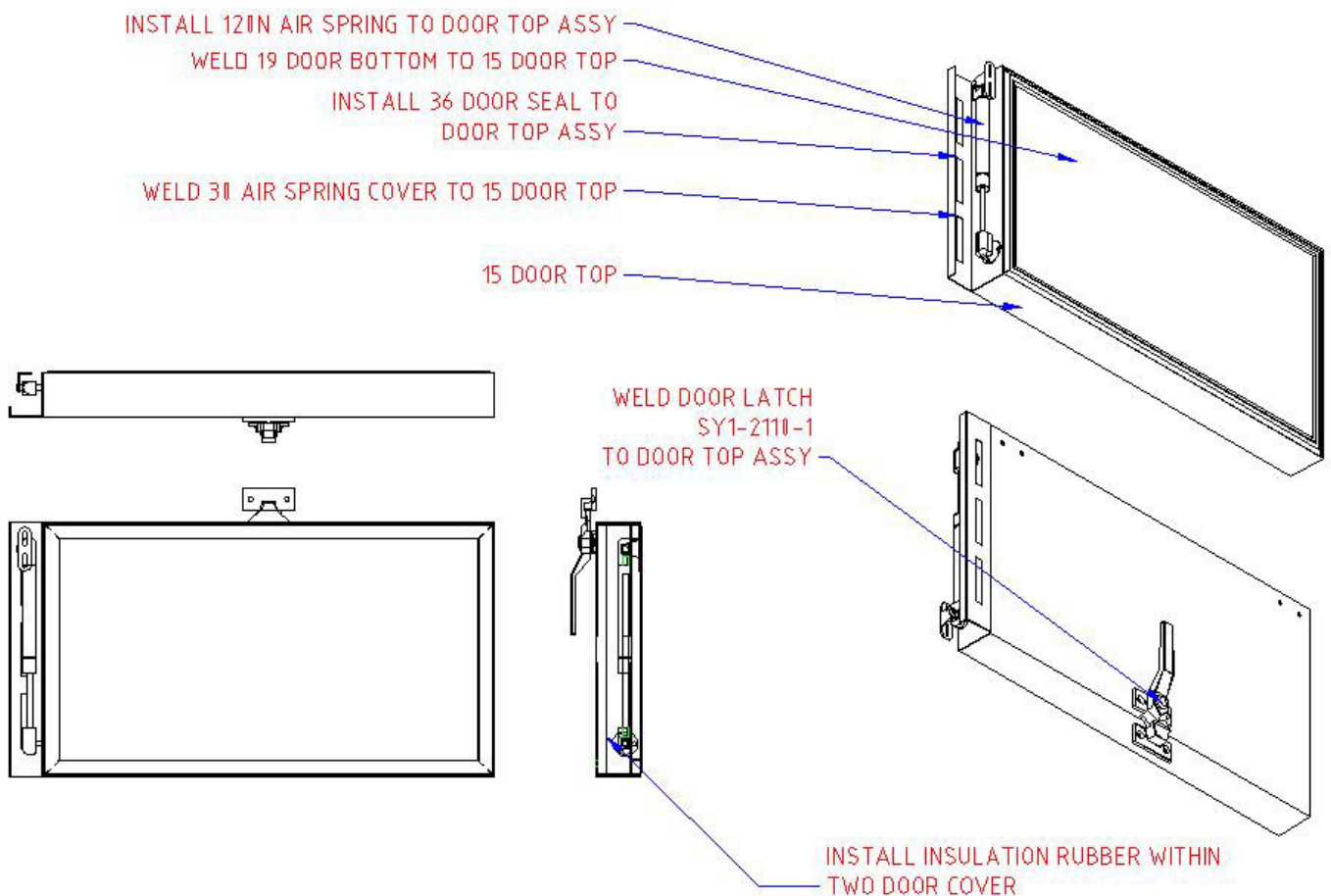
6.2 Area 02



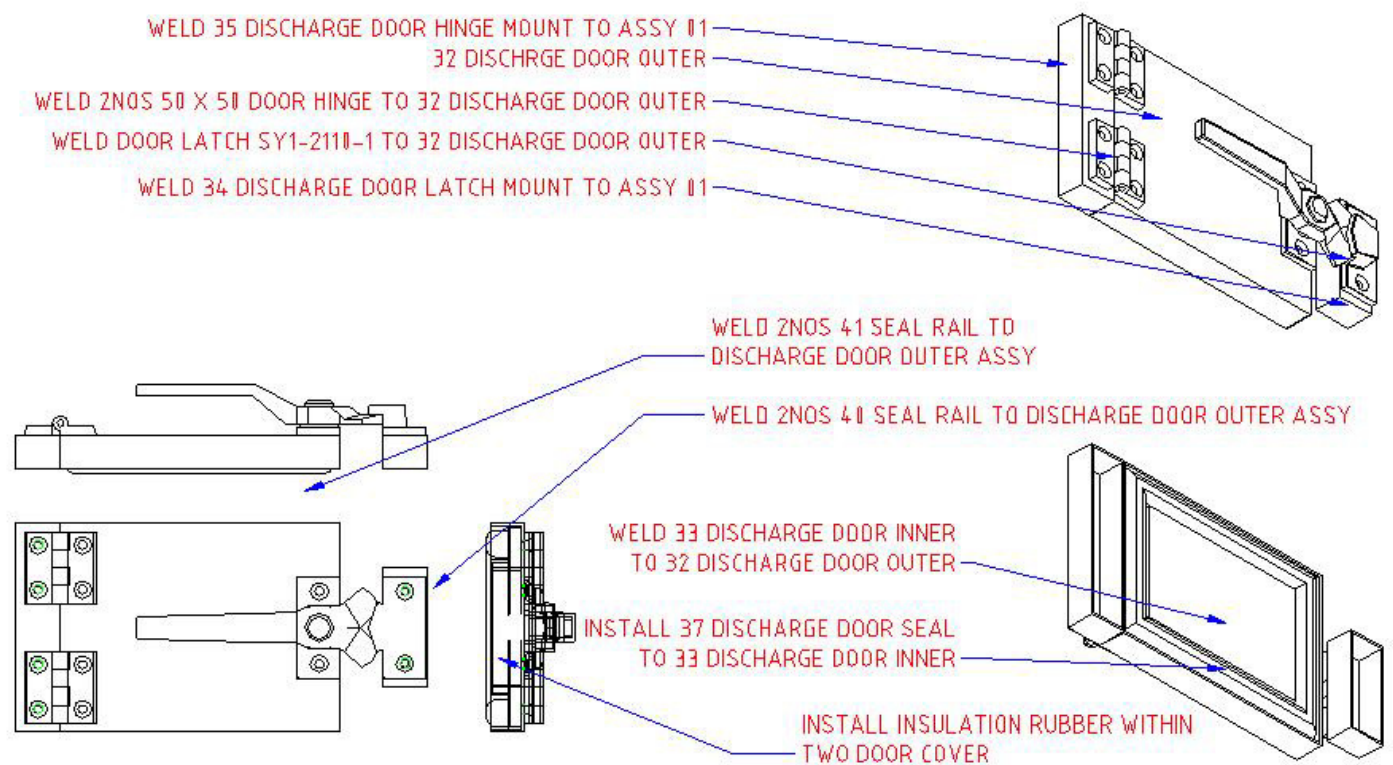
6.3 Area 03



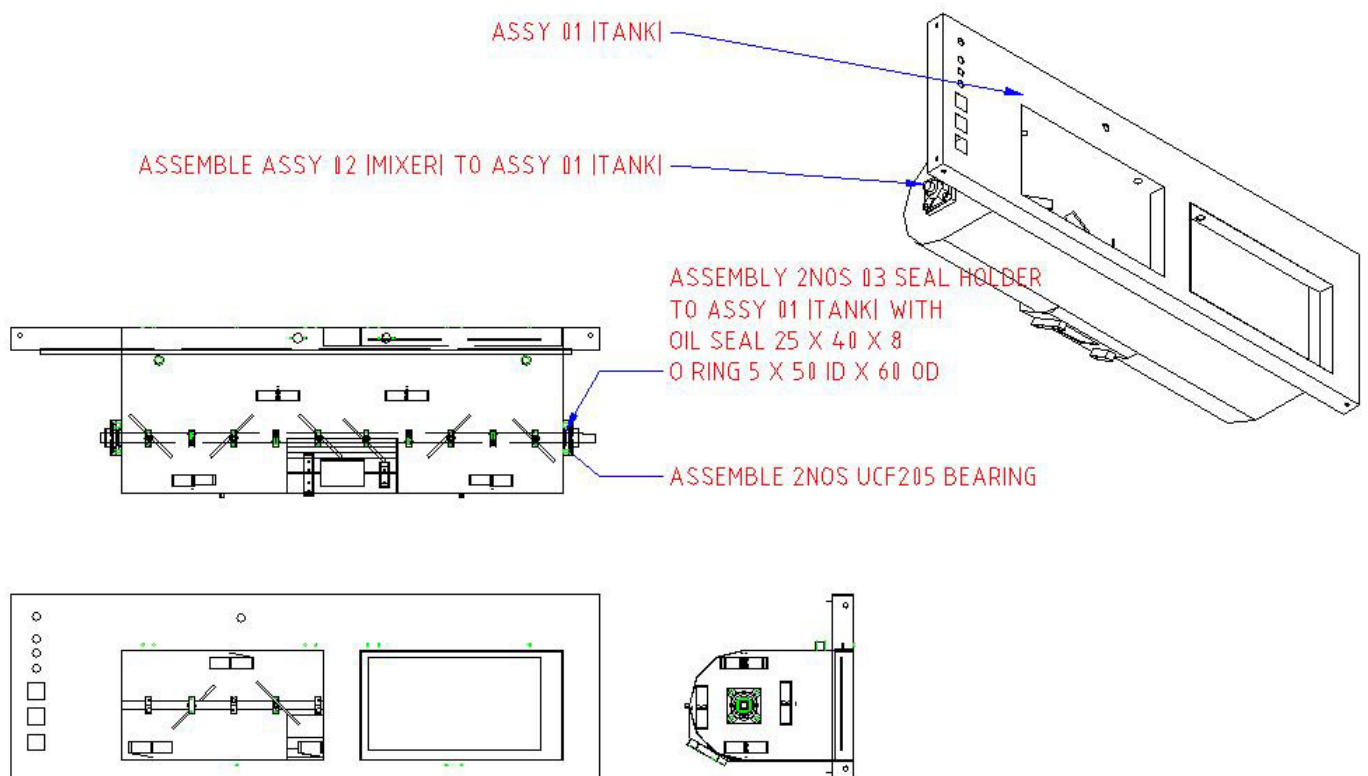
6.4 Area 04



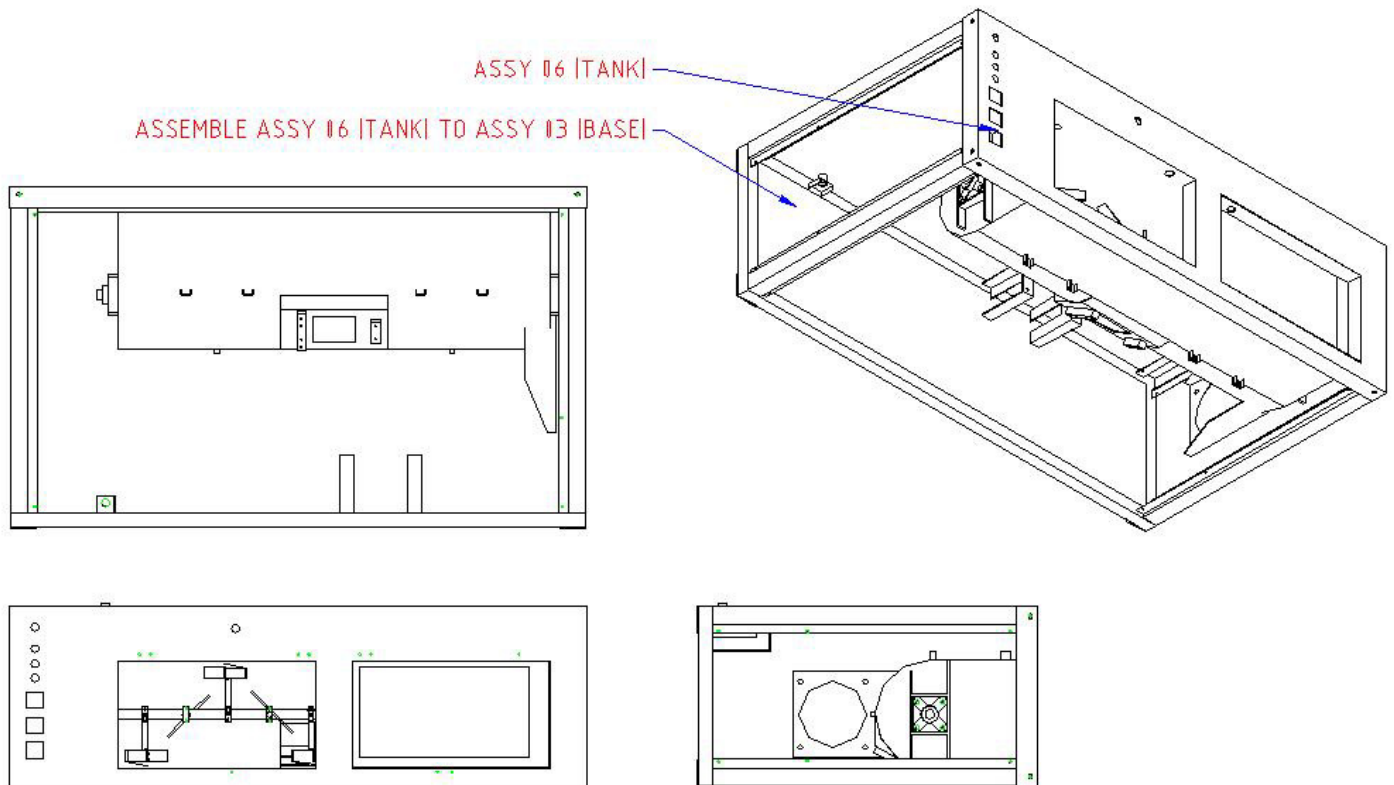
6.5 Area 05



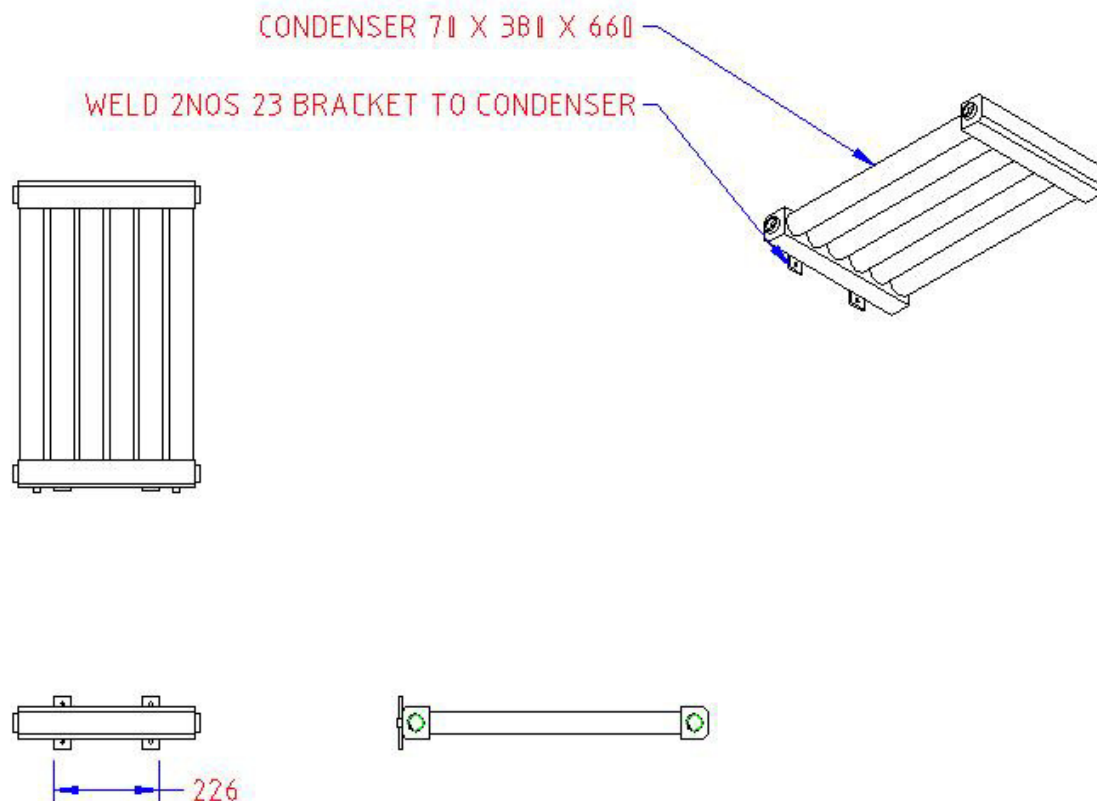
6.6 Area 06



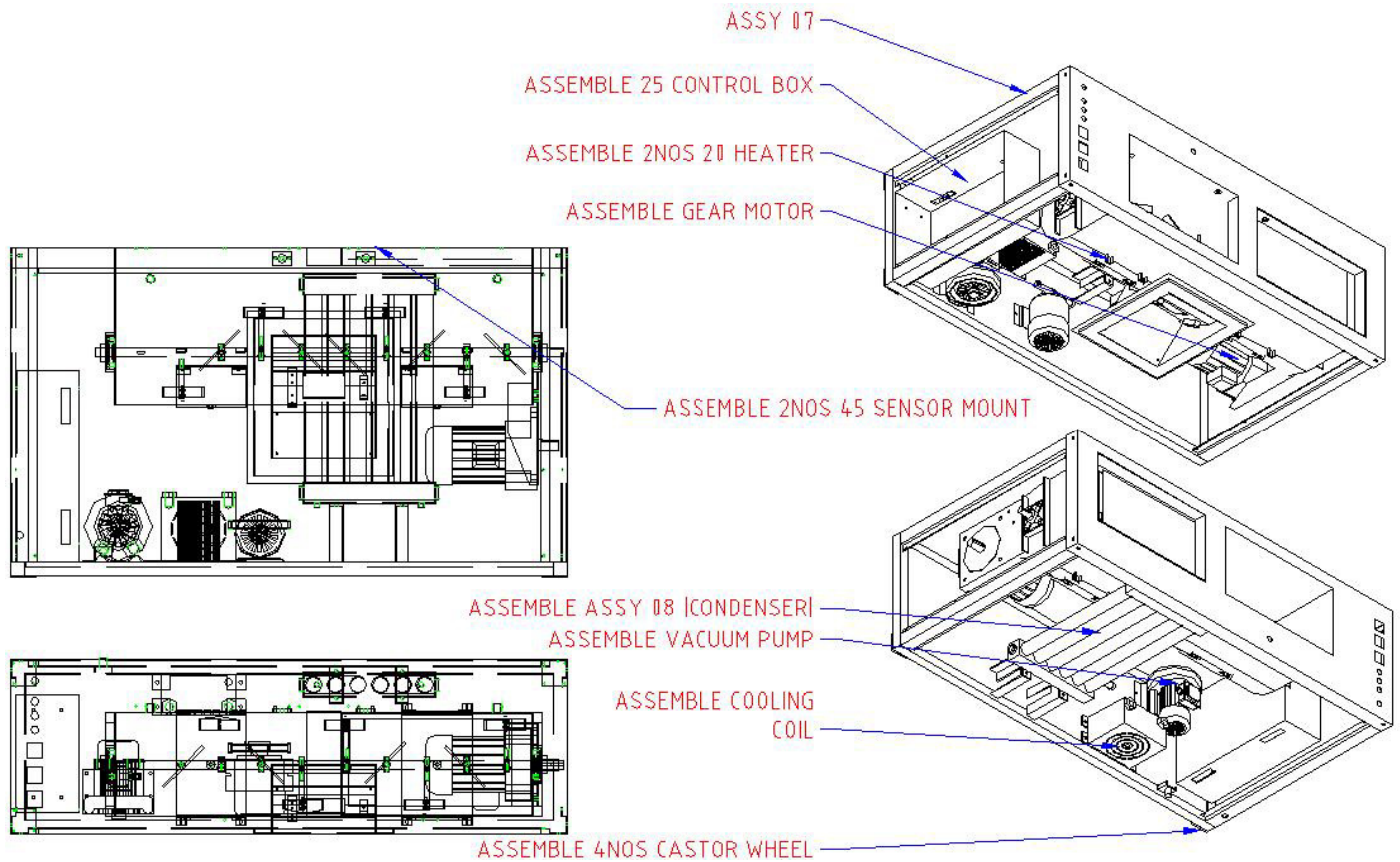
6.7 Area 07



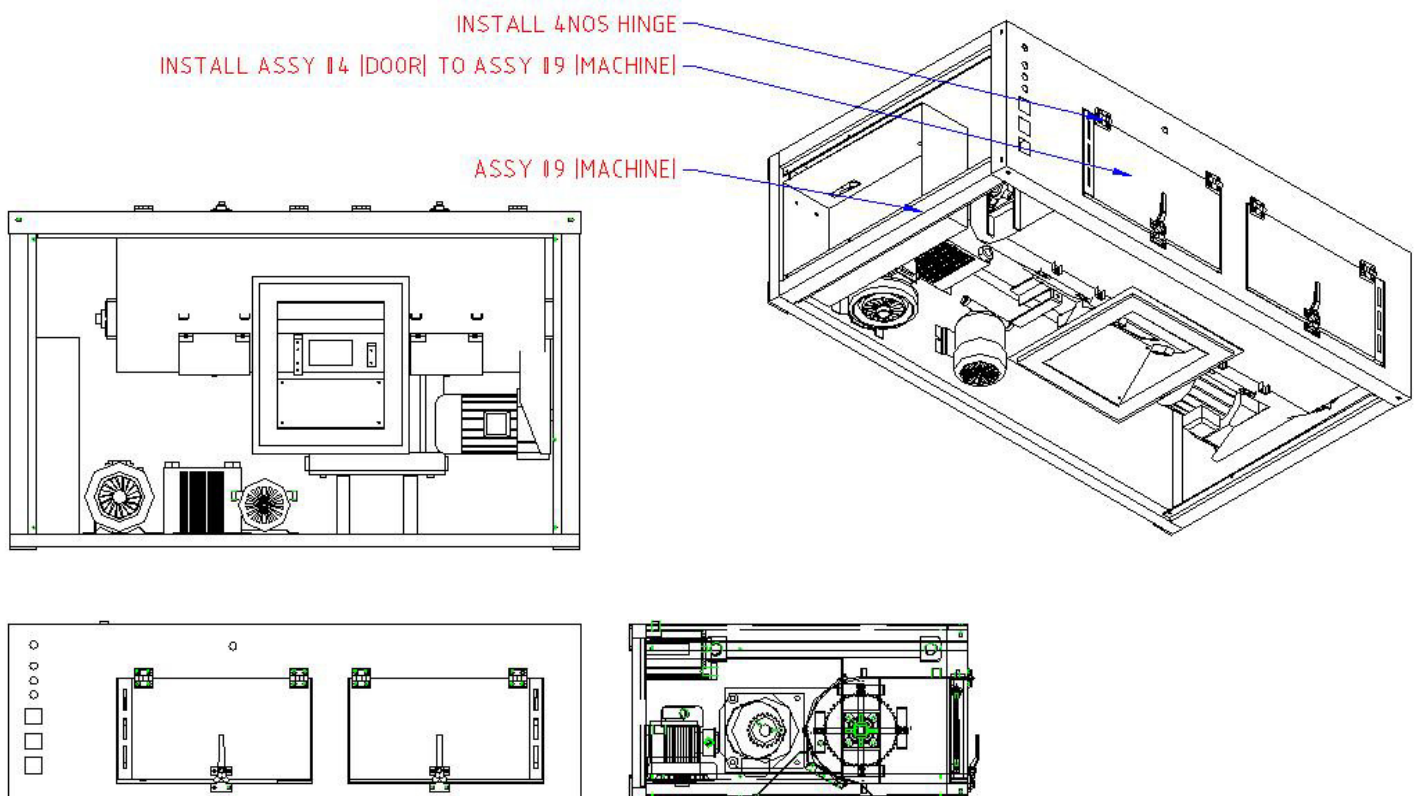
6.8 Area 08



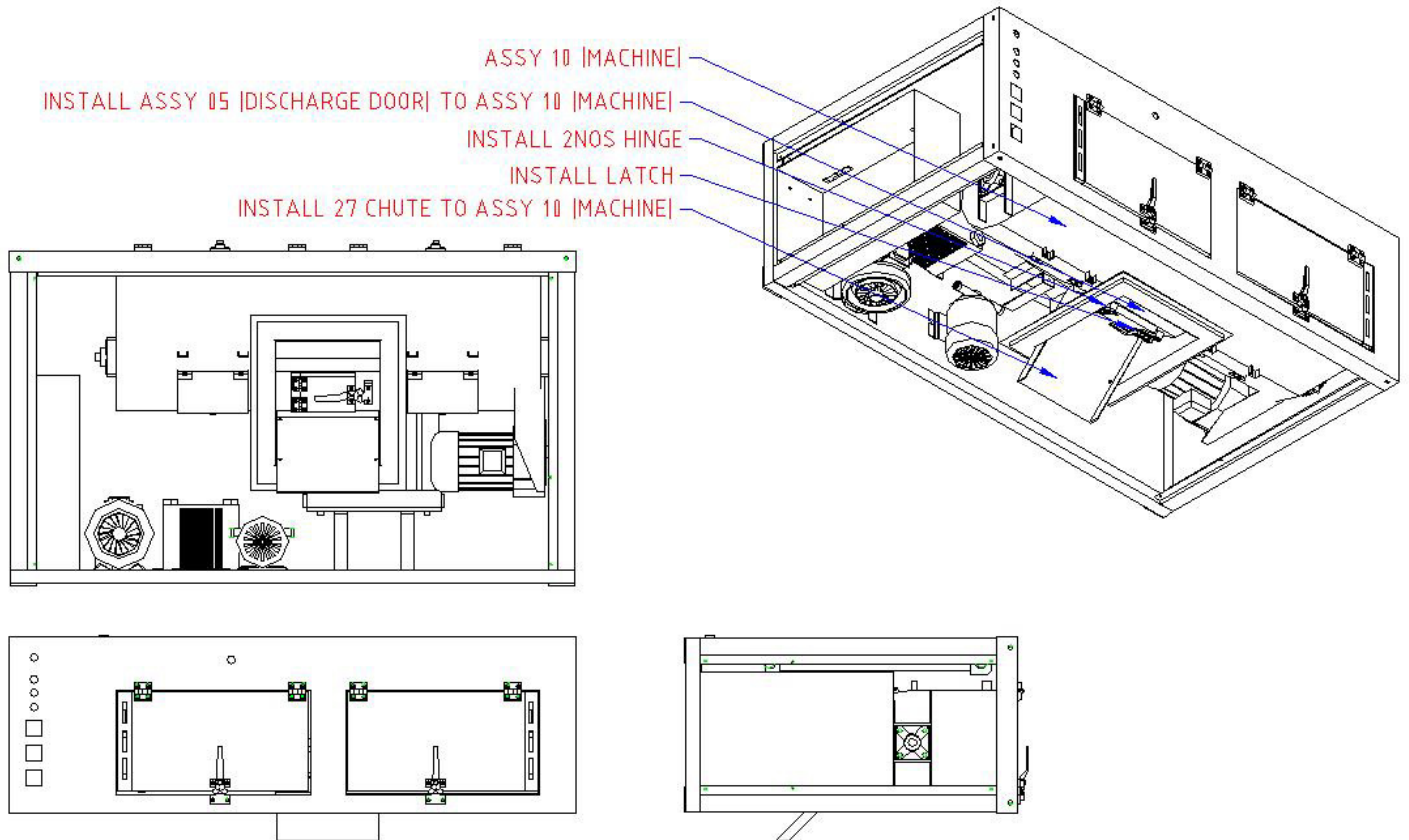
6.9 Area 09



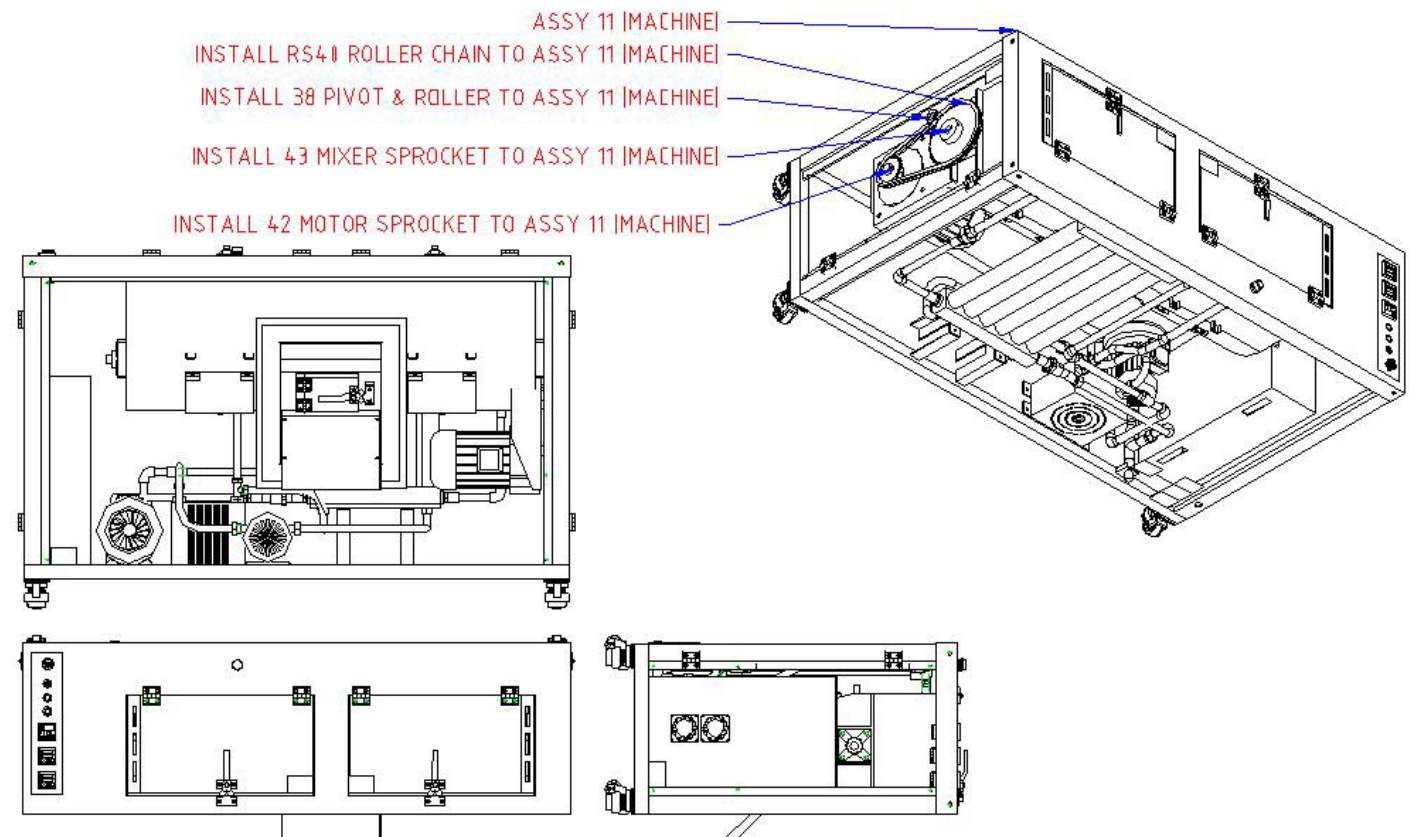
6.10 Area 10



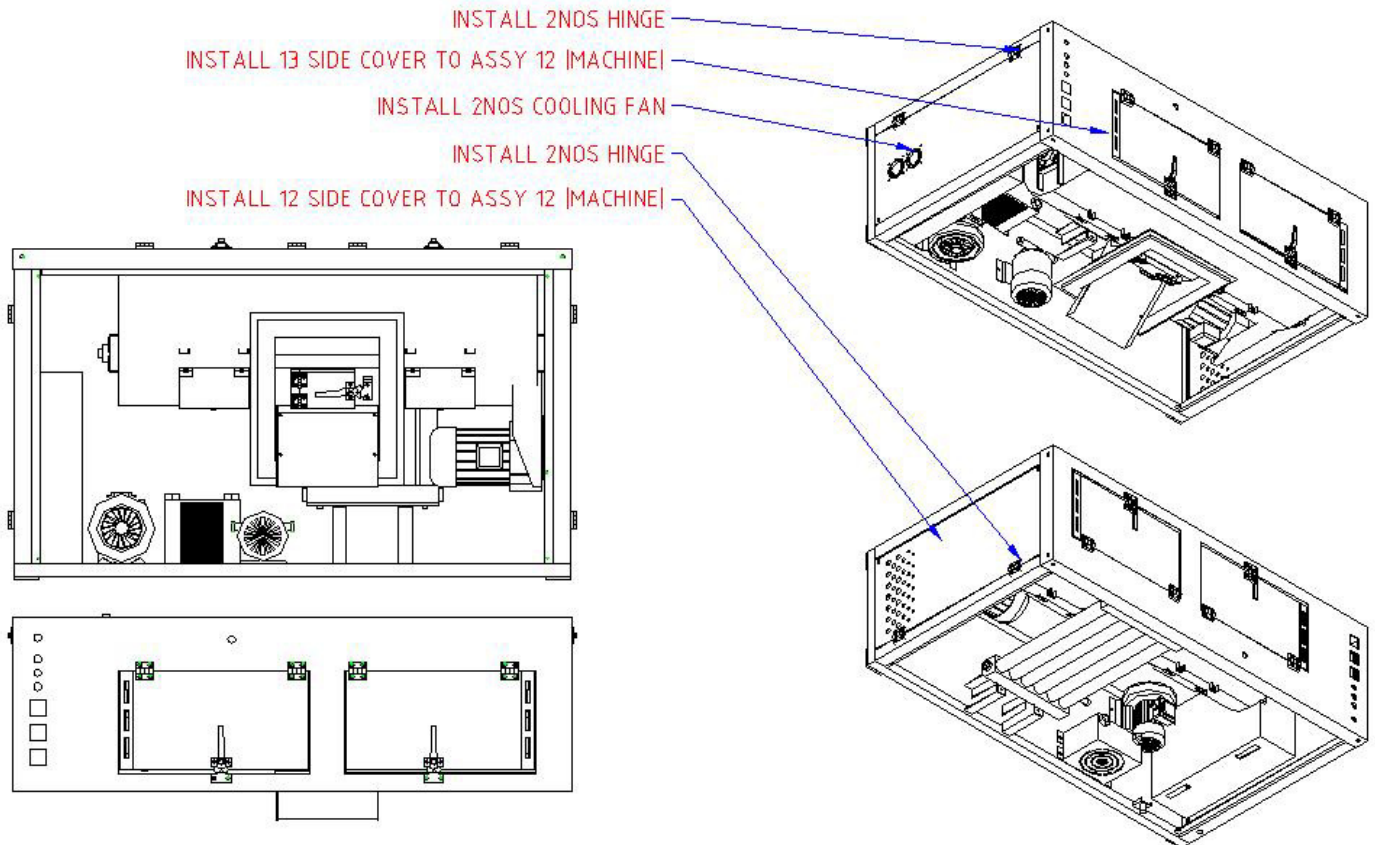
6.11 Area 11



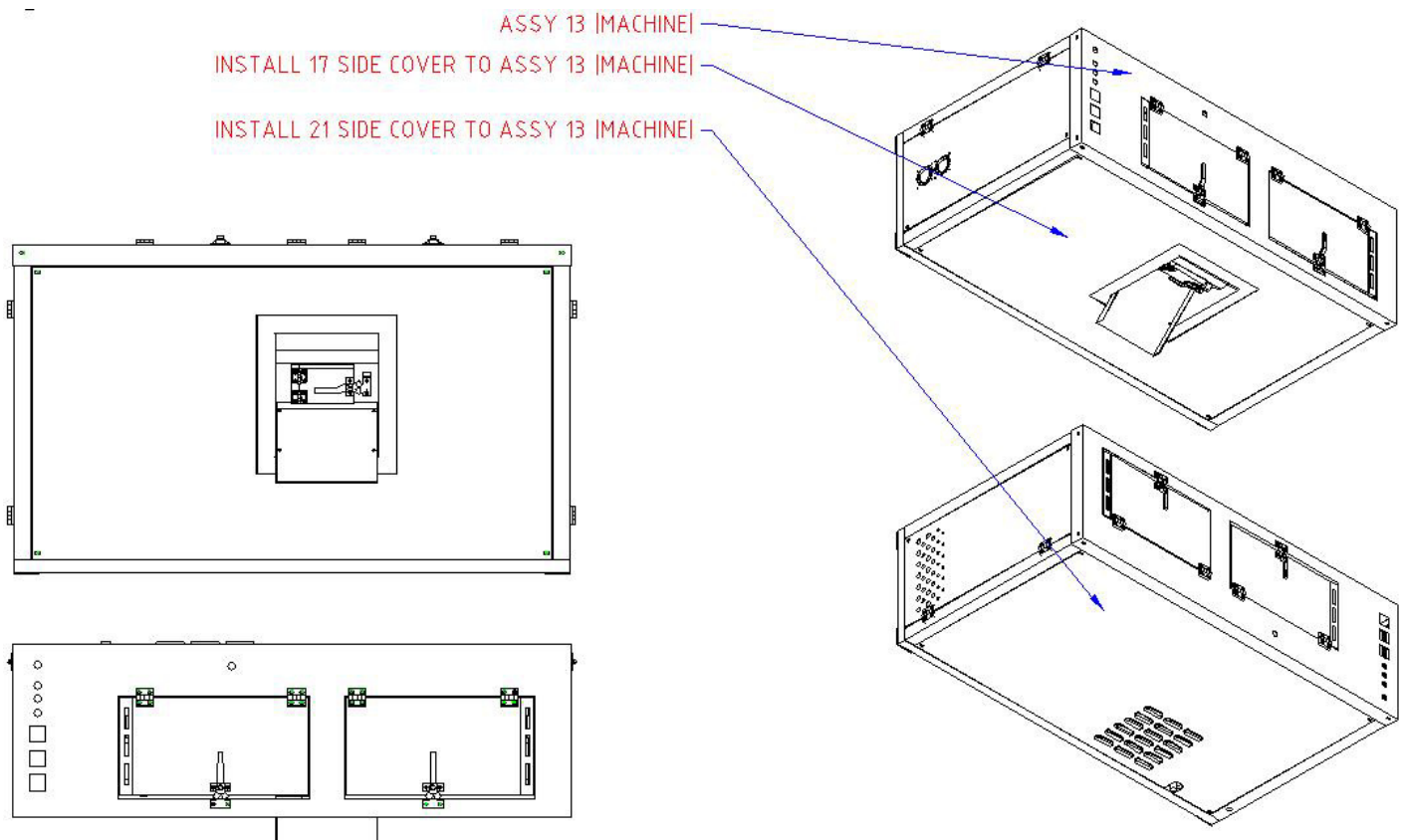
6.12 Area 12



6.13 Area 13

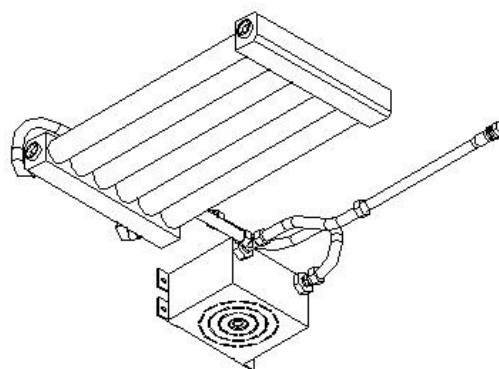
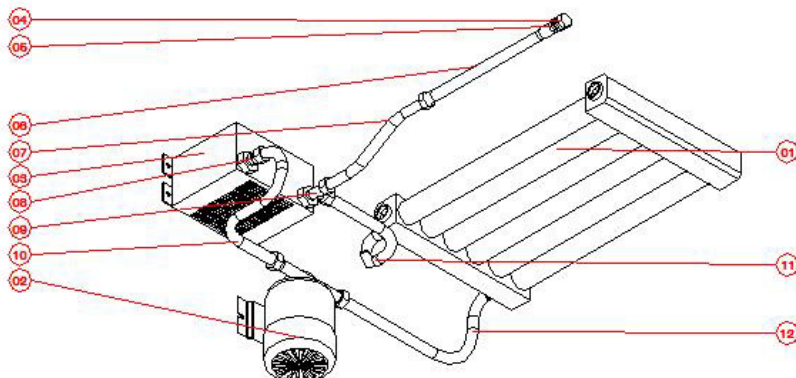


6.14 Area 14



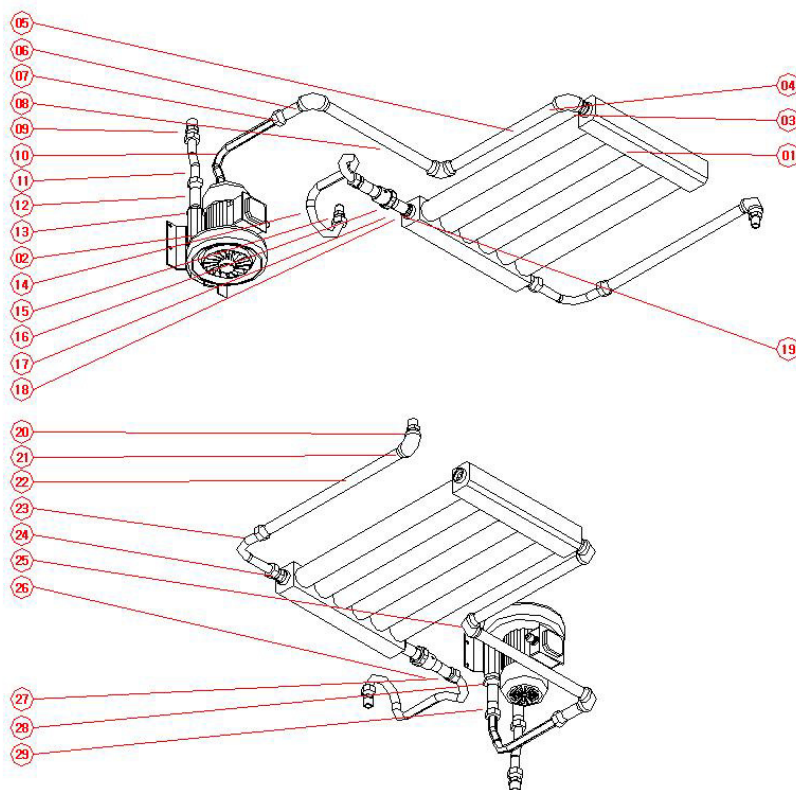
6.15 Area 15

NO	DESCRIPTION	PART NUMBER	QTY
01	CONDENSING UNIT 70 X 380 X 660		1 PO
02	WATER PUMP 280W		1 PO
03	COOLING COIL AH0807		1 PO
04	SUS TANKER BUCKER DN15	PS-TKA-DN15-L500X	1 PO
05	SUS BUCKER DN15	PS-BOK-DN15-DN15X	1 PO
06	SUS PIPE DN25 L300	PS-PIP-DN15-L300X	1 PO
07	FLEXIBLE WATER PIPE DN15 L300	PS-FWP-1515-L300X	1 PO
08	SUS NIPPLE DN15	PS-NPL-DN15-DN15X	1 PO
09	SUS TEE DN15	PS-TJM-DN15-DN15X	1 PO
10	FLEXIBLE PIPE DN15 DN20 L400	PS-FWP-1520-L400X	1 PO
11	FLEXIBLE PIPE DN15 L300	PS-FWP-1515-L300X	1 PO
12	FLEXIBLE PIPE DN15 DN20 L400	PS-FWP-1520-L400X	1 PO

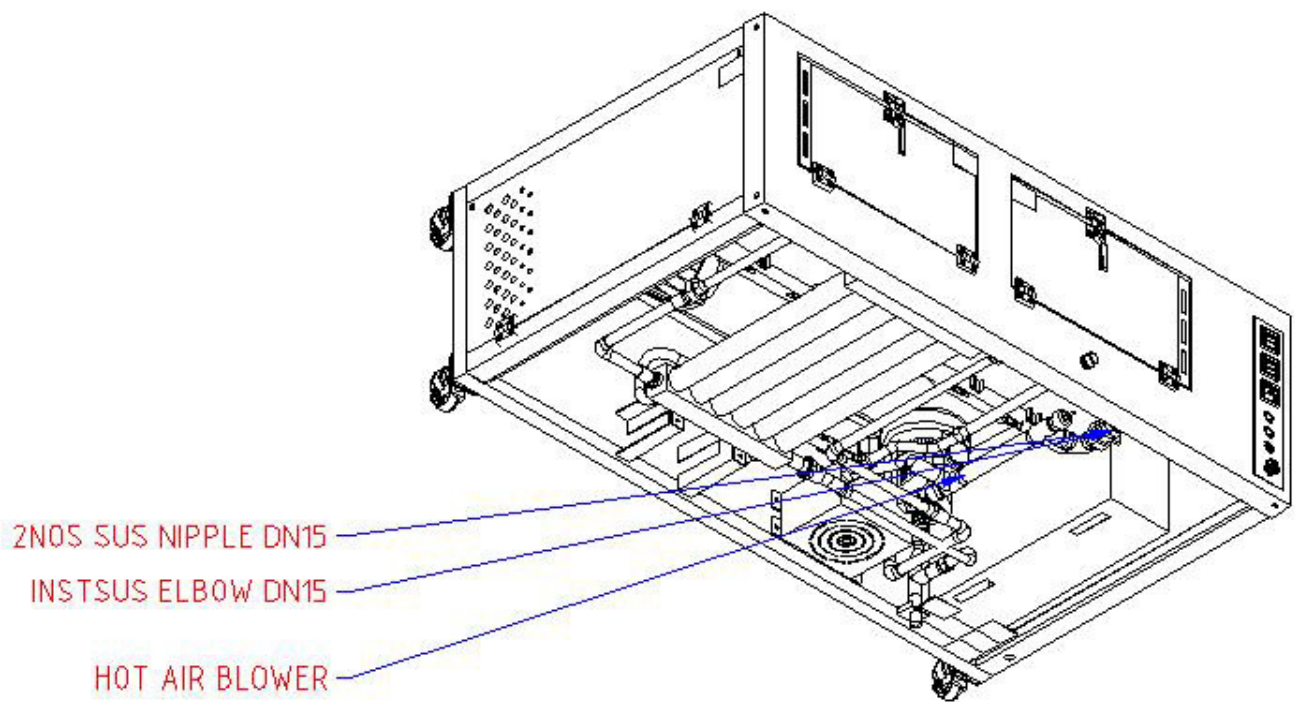


6.16 Area 16

NO	DESCRIPTION	PART NUMBER	QTY
01	CONDENSING UNIT 70 X 380 X 660		1 PC
02	VACUUM PUMP 180		1 PC
03	SUS NIPPLE DN20	PS-NPL-DN20-DN20X	1 PC
04	SUS ELBOW DN20	PS-EBX-DN20-DN20X	1 PC
05	SUS PIPE DN20 L400	PS-PIP-DN20-L400X	1 PC
06	SUS ELBOW DN20	PS-EBX-DN20-DN20X	1 PC
07	SUS PIPE DN20 L100	PS-PIP-DN20-L100X	1 PC
08	SUS PIPE DN20 L400	PS-PIP-DN20-L400X	1 PC
09	SUS NIPPLE DN20	PS-NPL-DN20-DN20X	1 PC
10	FLEXIBLE AIR HOSE DN20 L300	PS-FAH-DN20-L300X	1 PC
11	FLEXIBLE AIR HOSE DN20 L200	PS-FAH-DN20-L200X	1 PC
12	SUS PIPE DN20 L200	PS-PIP-DN20-L200X	1 PC
13	SUS BUSH DN20 DN25	PS-BSH-DN20-DN25X	1 PC
14	FLEXIBLE WATER PIPE DN15 L300	PS-FWP-1515-L300X	1 PC
15	SUS NIPPLE DN15	PS-NPL-DN15-DN15X	1 PC
16	PVC NON RETURN VALVE DN15		1 PC
17	PVC PIPE DN15 L30		1 PC
18	PVC ADAPTOR DN15		1 PC
19	SUS BUSH DN15 DN20	PS-BSH-DN15-DN20X	1 PC
20	SUS NIPPLE DN15 DN20	PS-NPL-DN15-DN20X	1 PC
21	SUS ELBOW DN20	PS-EBX-DN20-DN20X	1 PC
22	SUS PIPE DN20 L500	PS-PIP-DN20-L500X	1 PC
23	FLEXIBLE AIR HOSE DN20 L200	PS-FAH-DN20-L200X	1 PC
24	SUS NIPPLE DN20	PS-NPL-DN20-DN20X	1 PC
25	SUS ELBOW DN20	PS-EBX-DN20-DN20X	1 PC
26	PVC PIPE DN15 L30		1 PC
27	PVC ADAPTOR DN15		1 PC
28	SUS BUSH DN20 DN25	PS-BSH-DN20-DN25X	1 PC
29	SUS PIPE DN20 L100	PS-PIP-DN20-L100X	1 PC



6.17 Area 17



7.0 INSTALLATION & ADJUSTMENT

7.1 Machine will be packed in wooden crate.



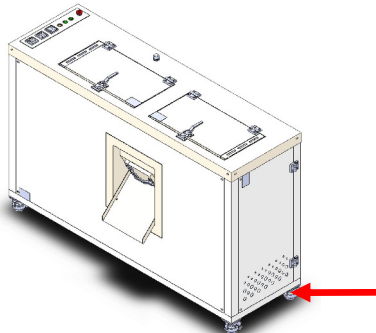
7.2 Unpack the wooden crate. (Please ensure that no damages were done to the machine)

7.3 Packing List

- Composting Machine x 1 Unit
- High Temperature Microbe x 1 Pack

7.4 Move machine to the allocated area.

7.5 Secure machine by adjusting the 4 numbers of leveling stand located at the bottom of the machine.



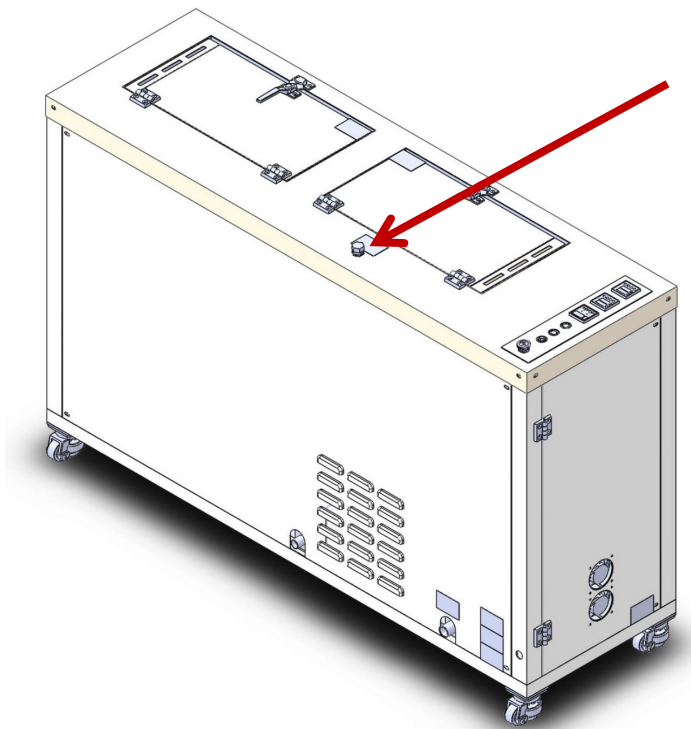
7.6 Plug up the machine to the power source.

- 415 V
- 20 Amps
- 3 Phase
- 4 Wire
- Ground wire

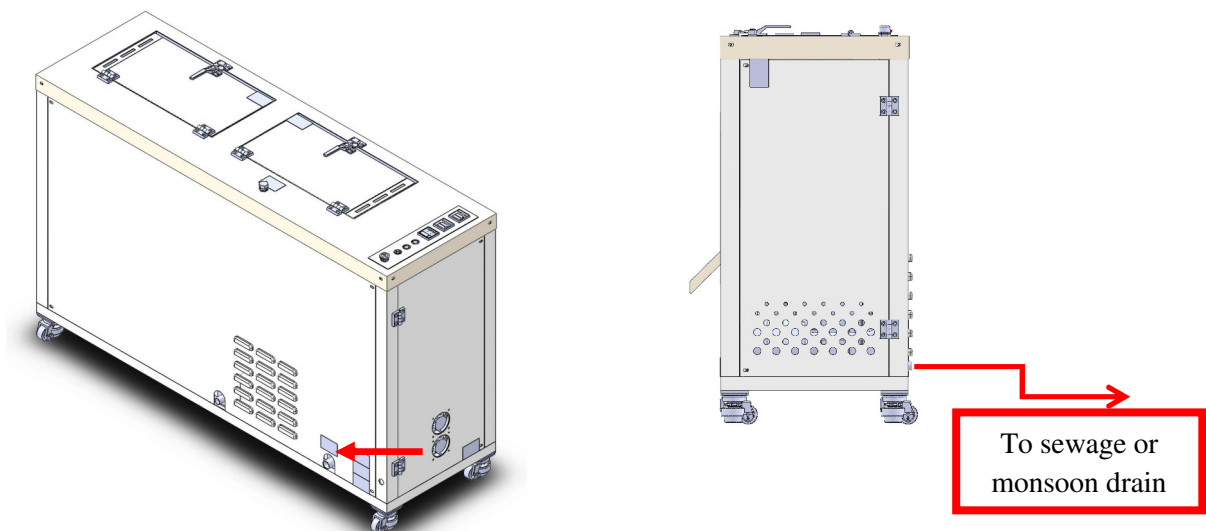
7.7 Before the machine is power on, check the following item.

- Open the control box door and check for loose components and loose connection. This is to ensure that the electrical components work perfectly, ensure not short circuit and current leakage. It is important that no serious injuries or death cause by the electrical leakages.
- Open the Top Hatch to ensure that the Mixer is intact and no loose moving parts.
- Open the lower bottom cover, check the motor, pump and heater connection. Ensure that there are no loose connections.
- Open the Drive Chamber by removing two screws at the inner right side of the control box. After obtain access to the drive chamber, check for loose moving parts. Ensure all moving parts are tightened. Installing Exhaust pipe.

- Top up water for the cooling coil reservoir system.



7.8 Installing Exhaust pipe.



Please join the exhaust pipe (**red arrow**) to the sewage pipe or to the monsoon drain. The extension should not higher than the machine's exhaust pipe height.

7.9 Power on the machine.

7.10 Check the rotation of the mixer [motor to run at clock wise]. Change the incoming phase wire to ensure that the motor run at correct direction.

7.11 Factory Default Setting

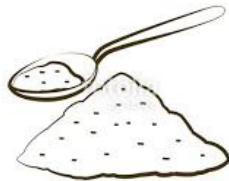
- Heater Temperature (Temperature Controller REX-C100, 95°C)
- Machine Run Time (Timer XGHPG-140-B is 10Hrs on Timer 1, 12Hrs on Timer 2 and 2Hrs on Timer 3)

8.0 STANDARD OPERATION PROCEDURE

8.1 Input Materials Preparation



Kitchen Waste



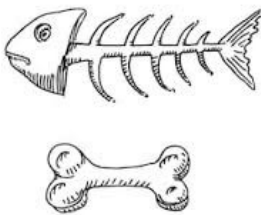
Starches



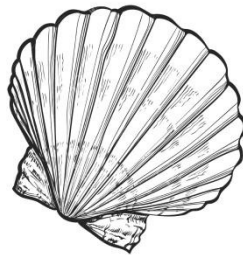
Coffee Ground



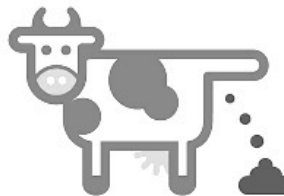
Meat



Fish & Bone



Shell



Animal Manure



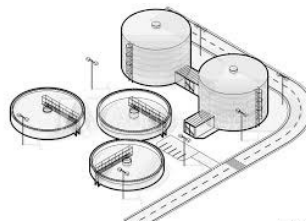
Wood Chip & Sawdust



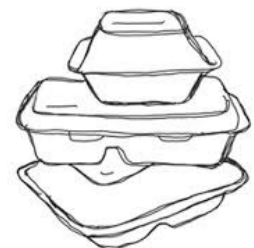
Dry Leaves & Branches



Grass Clipping & Straw



Waste Water Sludge



Bio Degradable Packaging

8.1.1 This machine is able to process all organic materials.

- Wet waste from kitchen and wet market.
- Garden waste.
- Manure.
- Industries Organic Waste.
- Waste Water Sludge
- Sludge from grease trap
- Waste/ Scrap paper and carton
- Fat, oil and fat (FOG). *Longer process time needed*
- Bio-degradable packaging materials. *Longer process time needed*

8.1.2 The machine will not be able to process inorganic product such as:

- Metal
- Plastic
- Glass
- Fabric
- Syntactic Rubber
- Fossil Oil Products

8.1.3 All materials to be processed by the machine will need to be prepared:

- All materials need to be shredded into particle with a size of 3-5mm in diameter.
- Shredded materials need to wash with water to clear out excessive oil.
- Materials shall be dripped dry.

8.1.4 All materials to be processed by the machine should have a moisture level of 50%-80%.

8.1.5 Water may be added to increase the moisture level if need.

8.1.6 Saw dust or dry compost produced can be used to lower the moisture level of materials if it is too high.

8.1.7 All materials loaded for composting must grind to smaller size (3mm in diameter) to give maximum result.

8.1.8 All materials must be rinsed off excessive FOG & salt and drip dry before is loaded into the machine.

8.2 CAUTION

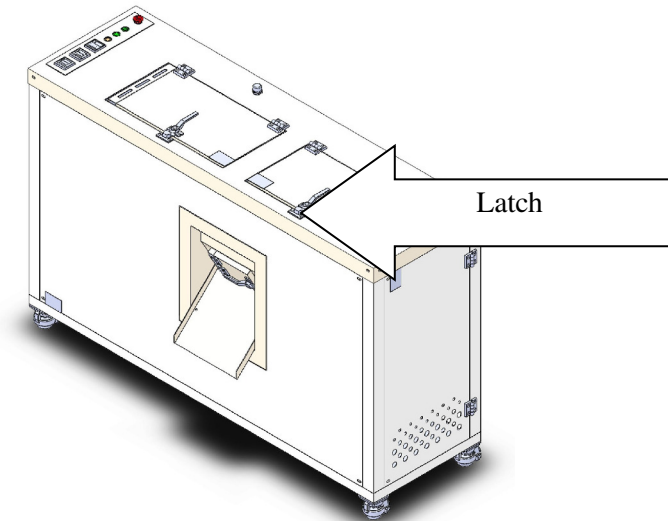
Please do not run **COPRA** in this machine as copra may cause spontaneous combustion during our process.



Copra (or khobara) is the dried meat or kernel of the **coconut**, which is the fruit of the **coconut palm** (*Cocos nucifera*). **Coconut oil** is extracted from copra, making it an important agricultural commodity for many coconut-producing countries. It also yields de-fatted coconut cake after oil extraction, which is mainly used as **feed** for livestock.

8.3 Machine Operation

8.3.1 Release 2 numbers of latch at the top of the machine.



8.3.1 Open the top hatch gently.

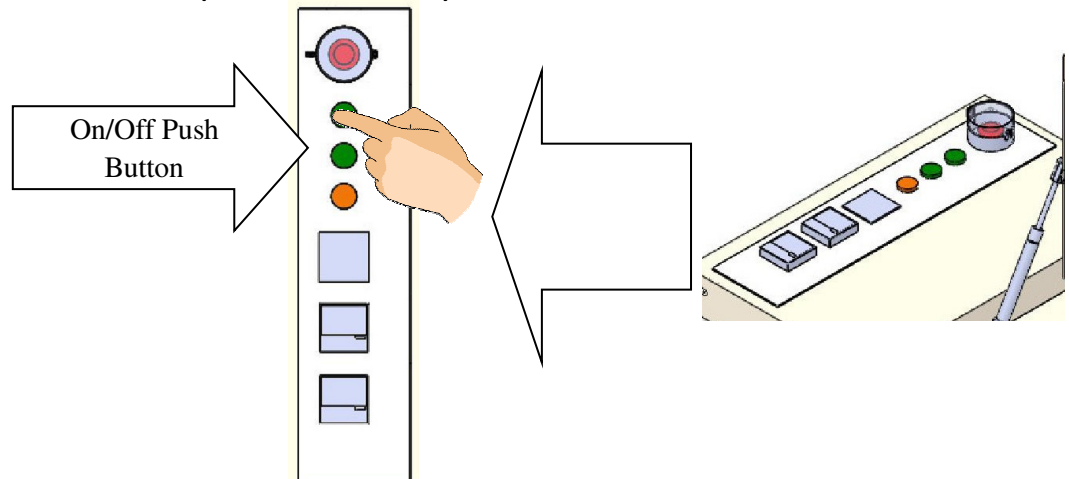
8.3.2 Pour in the prepared mixture into the machine (refer Para 8.1).

8.3.3 The mixture loaded into the machine shall at the level just cover the mixer. Excessive loading may broke the mixer.

8.3.4 * First/Initial Run*, Add in 1000 gram of GEC's Composting Powder into the chamber.

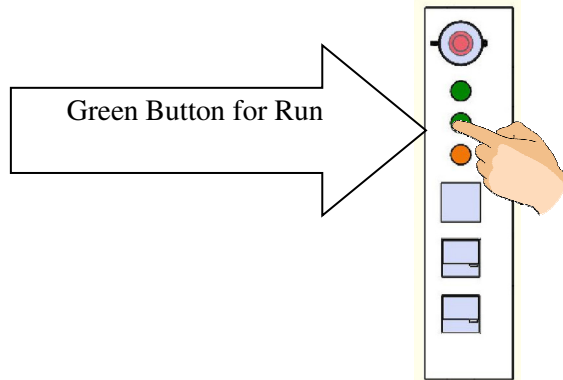
8.3.5 Closed the top hatch.

8.3.6 Switch on the machine. (Power Push Button)

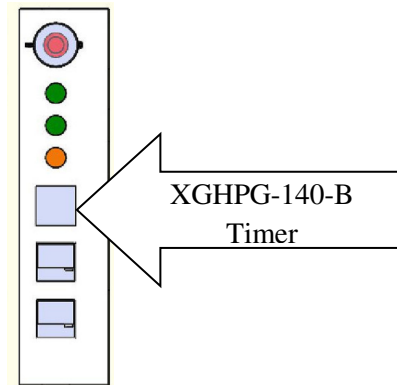


8.3.7 Allow the machine to boot up for 30 seconds.

8.3.8 Press the run button. (Green Push Button)

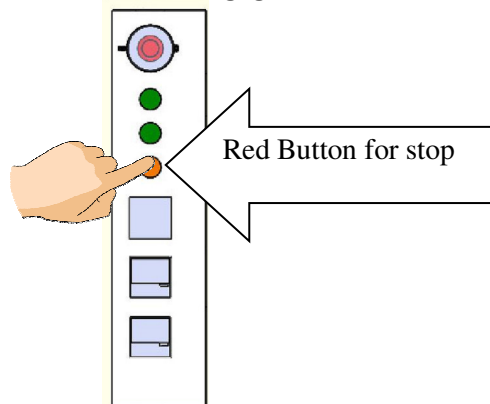


8.3.9 The machine will automatically shut down after the machine completed the cycle time set in the XGHPG-140-B Timer. (Refer Para 4.10)

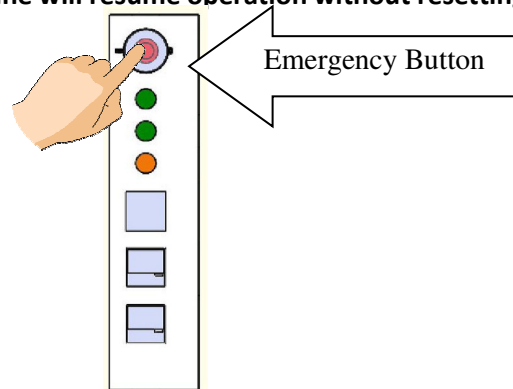


8.3.10 During the run time of the machine, if the top hatch is force open, the mixer will stop automatically. The machine will resume operation once the top hatch is secure.

8.3.11 During the operation of the machine, you may stop the machine by press the stop button. (Red Push Button). Once this button is engaged, the machine will be reset.



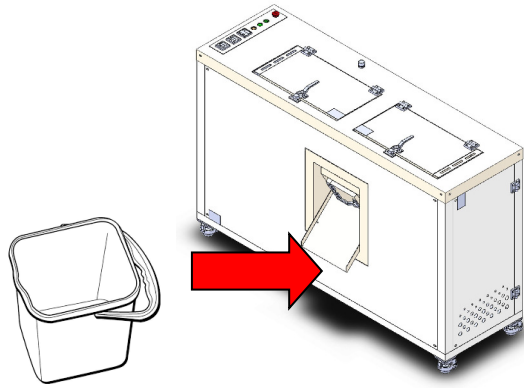
- 8.3.12** In case of emergency, you may push the emergency button. Upon release of the emergency button, the machine will resume operation without resetting the machine.



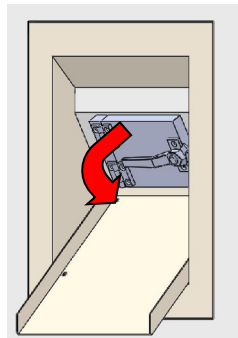
- 8.3.13** After completion of full operation cycle, you may discharge the machine by scooping out the compost with a scoop.
- 8.3.14** The end product from the process is an immature compost and it shall be kept in a dry storage area for a natural cooling down period of 48Hrs to 72Hrs.
- 8.3.15** After the cooling down period, check the temperature and Ph Level of the compost.
- 8.3.16** The temperature of the compost should not exceed 55°C. If it exceeds the required temperature, the compost shall be kept further to cool down the temperature.
- 8.3.17** Recondition the compost with lime stone powder or Bio-char powder to achieve the desire Ph Level.
- 8.3.18** Left 10% of the compost produced in the chamber to prepare for the next production run.
- 8.3.19** The High Temperature Microbes shall need to be replenished every 12 months.

8.4 Compost Discharge Process

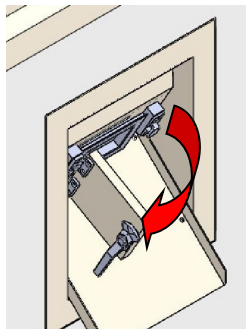
8.4.1 After completion of 24 hour cycle, Put a bit in front of the machine, under the chute.



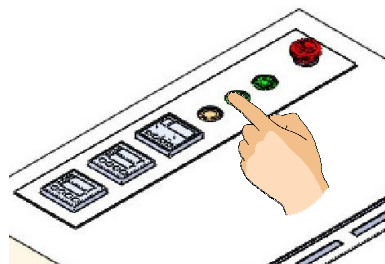
8.4.2 Turn the latch handle as indicated.



8.4.3 Open the discharge door.



8.4.4 Press the run button for auto discharge.



8.4.5 After complete discharge, press the stop.

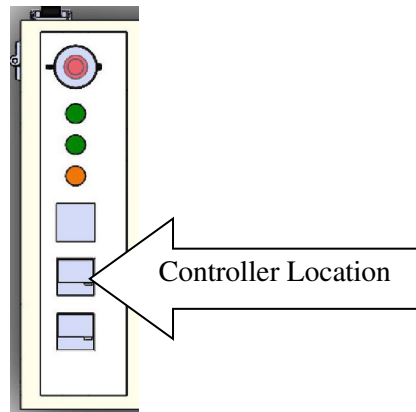
8.4.6 Before close the discharge door and latch on, ensure that the surrounding area is clean and free of residues.

8.5 Default Process

8.5.1	Heating Process	-	First 12 Hours
8.5.2	Dehydration Process	-	Last 2 Hours
8.5.3	Total Machine Run Time	-	24 Hours

8.6 Parameter Setting

8.6.1 REX-C100 Temperature Controller (Heating Temperature)



Press the left arrow key to start setting

SV value will be blinking.

Use the left, up and down button to do setting.

After setting completed.

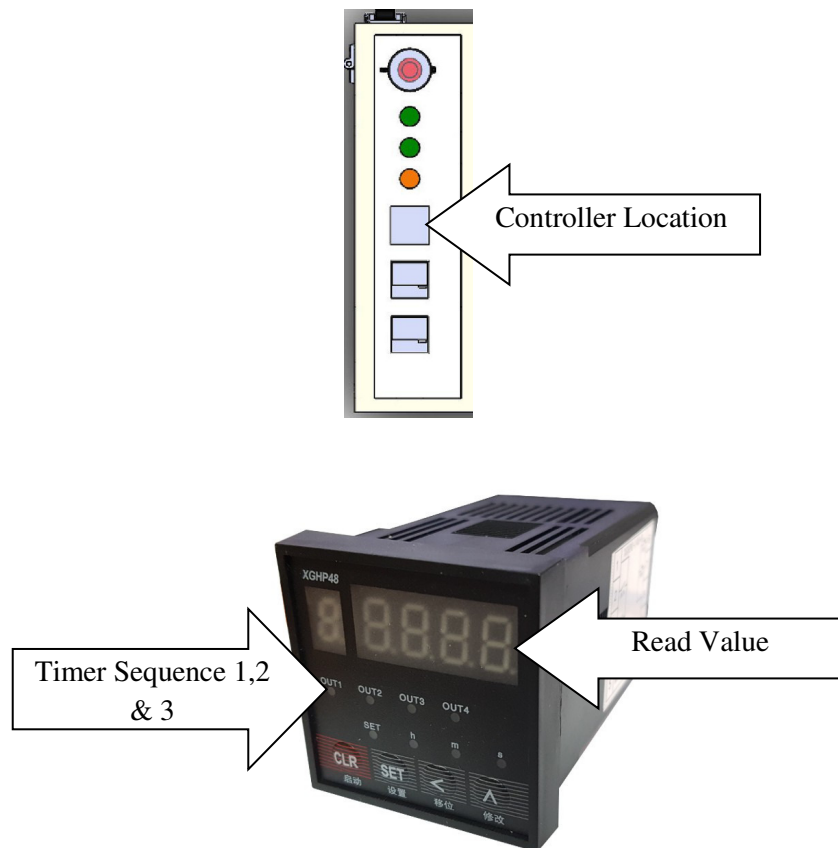
Press the set button for confirmation.

- Factory Default Setting is 95°C.

- Signal Out indicator in green show the controller is instructing the heater to run.

- For advance setting, please refer to the attached operation manual for the controller.

8.6.2 XGHPG-140-B Timer (Heater timing & Machine Run Time)



Press the run button and hold during the whole setting sequence.

Press the set key to start setting

Timer Sequence 1 will appear

Timer value will be blinking

Use the left & up button to do setting.

After completed setting for each sequence, press set button to confirm.

Timer Sequence will go to the next sequence.

Complete all 3 Timer sequence.

Release the run button and then press the stop button to complete the whole sequence.

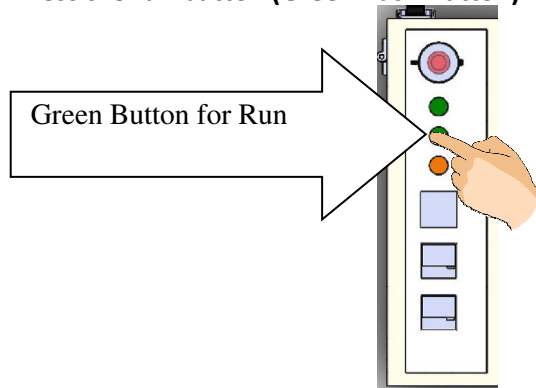
- Factory Default Setting is 12Hrs for T1, 10Hr for T2 and 2Hrs for T3.

- For advance setting, please refer to the attached operation manual for the controller.

8.7 2 Hours Run

8.7.1 In order to load the machine for multiple times before the full production run of 24 Hours, the machine is programmed to be able to run short sequence of 2 hours to sterilize the into waste to cut down the order problem and reduce bio hazard.

8.7.2 Press the run button (Green Push Button) for 10 seconds until the green light is blinking.



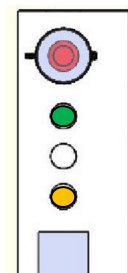
8.7.3 The machine will stop automatically after 2 hours.

8.7.4 After the sequence completion, open the top door to load new waste. Run the short sequence run (para 7.6.2).

8.7.5 After fully loaded the machine, you may run the full 24 hours run (para 7.2.9) to complete the fermentation process.

8.8 LED Indication

8.8.1

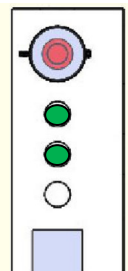


Power LED - ON
Run LED - Off
Stop LED - On

Machine Condition

Machine Power On
Machine on standby

8.8.2

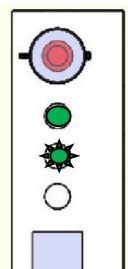


Power LED - ON
Run LED - On
Stop LED - Off

Machine Condition

Machine Power On
Machine Running

8.8.3

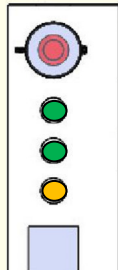


Power LED - ON
Run LED - Blinking
Stop LED - Off

Machine Condition

Machine Power On
Machine Running on 2 hrs process

8.8.4

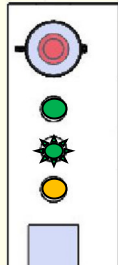


Power LED - ON
Run LED - ON
Stop LED - ON

Machine Condition

Machine Power On
Machine Running with top door open

8.8.5

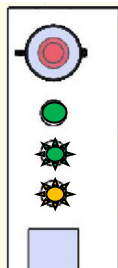


Power LED - ON
Run LED - Blinking
Stop LED - ON

Machine Condition

Machine Power On
Machine Running on 2 hrs process with top door open

8.8.6



Power LED - ON
Run LED - Blinking
Stop LED - Blinking

Machine Condition

Machine Power On
Motor trip

8.8.7



Power LED - Blinking
Run LED - Blinking
Stop LED - Blinking

Machine Condition

Emergency Button engaged

9.0 MAINTENANCE AND SCHEDULE

No	Maintenance Description	Maintenance Job	Schedule
1	Mixer	Check for broken mixer	After every run
2	Air Filter (Inside Mixer Chamber)	Clean with water and dry before fit back into position (Para 10.2.10)	Weekly
3	Power Roller Chain	Check for tensioning	Monthly
4	Mechanical Parts	Ensure all fasteners are properly tighten	Monthly
5	Electrical Connection	Ensure all connections are properly tighten	Monthly
6	Gear Box	Greasing	Monthly
7	Power Roller Chain	Greasing/ Oiling	Monthly
8	Flange Bearing UCFL205	Greasing	Monthly
9	Viton Seal	Check for leakage	Monthly
10	Chamber Wall	Check for leakage	Monthly
11	Air Filter (Inside Mixer Chamber)	Replace new filter	Yearly
12	Viton Seal	Replace new seal	Yearly
13	Water Cooling Reservoir System	Top up water (Para 2.7)	Monthly

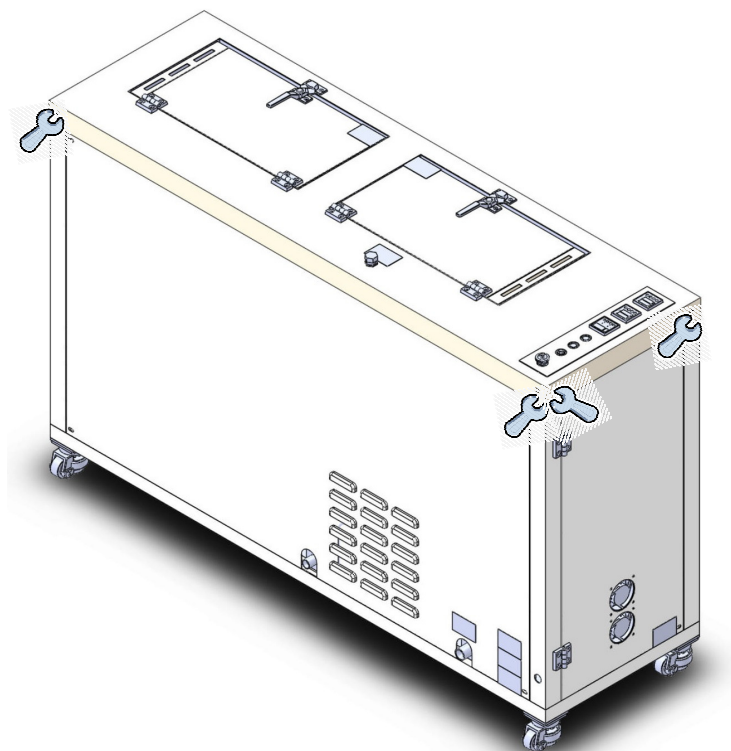
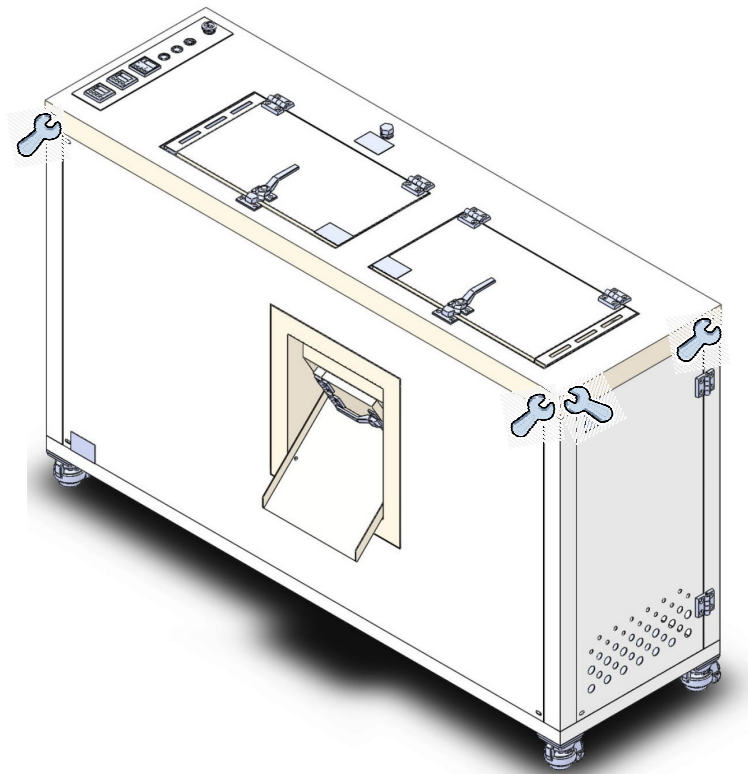
10.0 OPERATION AREA, STORAGE AND TRANSPORT

- 10.1 The machine shall operate under shed with ambient temperature not less than 20°C.
- 10.2 For storage purposes, the machine shall need to be kept under shed with temperature between -10°C to 75°C and moisture level control between 35%-65%.
- 10.3 To relocate the machine, the castor wheel mounted below the machine will help the machine to move freely provided it is fully purged and cleaned. The loaded weight may break the castor and damaged the structure of the machine during relocation.
- 10.4 In the case of transporting the machine, the machine shall crate and secure before it is transported.

11.0	MACHINE FAULT AND REPAIRING	
11.1	Trouble Shooting	
No	Problem	Potential Cause
1	Motor stop to run	<p>A) The proximity sensor mounted at the left hand side of the machine is:</p> <ul style="list-style-type: none"> - Out of position - Burned <p>B) The emergency button is engaged</p> <p>C) The motor's electrical connection is loose</p> <p>D) The motor is burned</p> <p>E) The PLC Controller is not functioning</p> <p>F) The Overload Relay trip</p>
2	The Whirlpool Pump stop to run	<p>A) The proximity sensor mounted at the left hand side of the machine is:</p> <ul style="list-style-type: none"> - Out of position - Burned <p>B) The emergency button is engaged</p> <p>C) The pump's electrical connection loosed</p> <p>D) The pump burned</p> <p>E) The PLC Controller is not functioning</p>
3	Machine cannot heat up	<p>A) The heater burned</p> <p>B) The SSR burned</p> <p>C) The thermocouple burned</p> <p>D) The temperature controller burned</p> <p>E) The setting of the temperature controller is incorrect</p> <p>F) The setting of XGHPG-140-B Timer is incorrect</p> <p>G) The PLC Controller is not functioning</p>
4	PLC Controller could not boot up	<p>A) The 24vdc power supply burned</p> <p>B) The PLC Controller is burned</p>
5	Timer XGHPG-140-B does not allow to do setting	<p>A) Refer Operation Manual of XGHPG-140-B to do the Setting</p> <p>B) The Timer burned</p>
6	Machine do not run when push run button	<p>A) The emergency button is engaged</p> <p>B) The top hatch is not properly closed</p> <p>C) The proximity sensor is out of position</p> <p>D) The proximity sensor burned</p> <p>E) The PLC Controller burned.</p>
7	Air flow of the machine is low or non	<p>A) The air filter in the mixer chamber is clogged</p> <p>B) The whirlpool pump burned</p>
8	Machine trip	<p>A) Main motor trip</p> <p>B) Whirlpool pump trip</p> <p>C) Heater burned</p> <p>D) Wire insulation damaged causing electrical leakage</p> <p>E) One of the components in the control box burned</p>

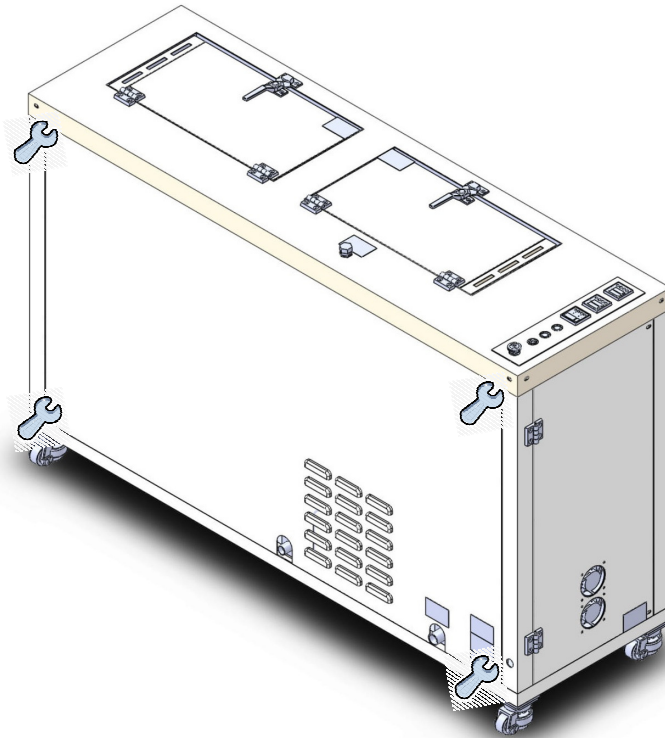
11.2 Dismantling Procedure

11.2.1 Top Cover



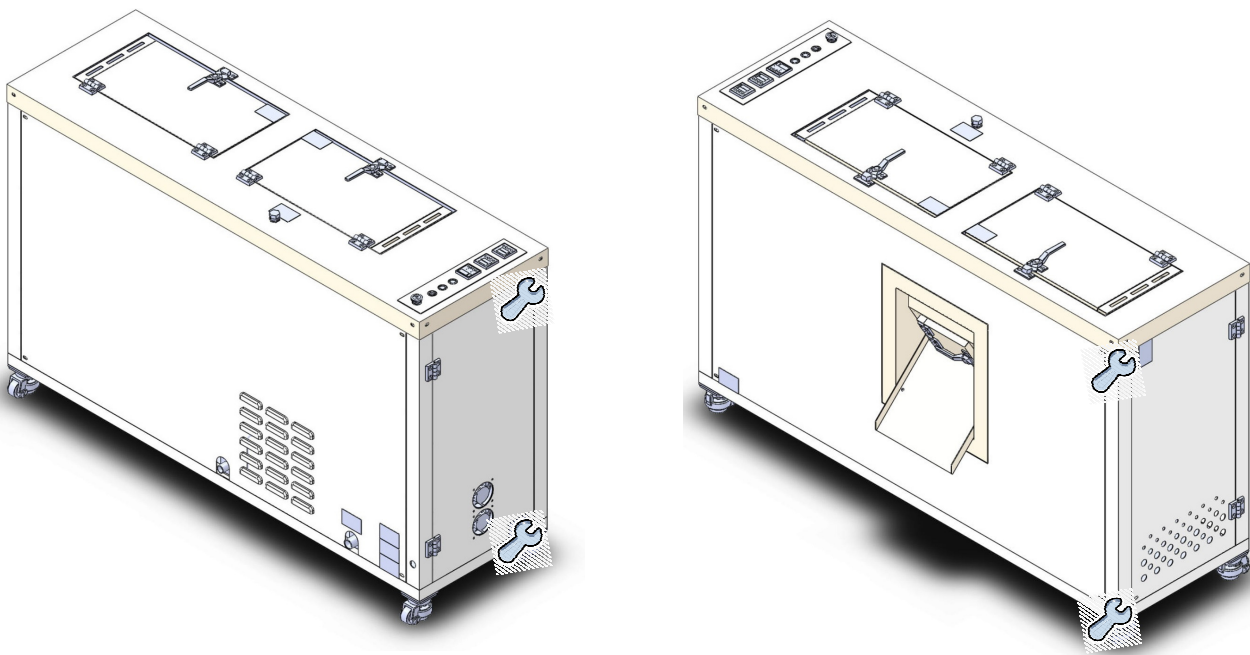
Dismantle 8 number of M6 bolts to open the top cover.
Please ensure that appropriate wrench or spanner used to avoid damages on the bolt.

11.2.2 Rear Cover



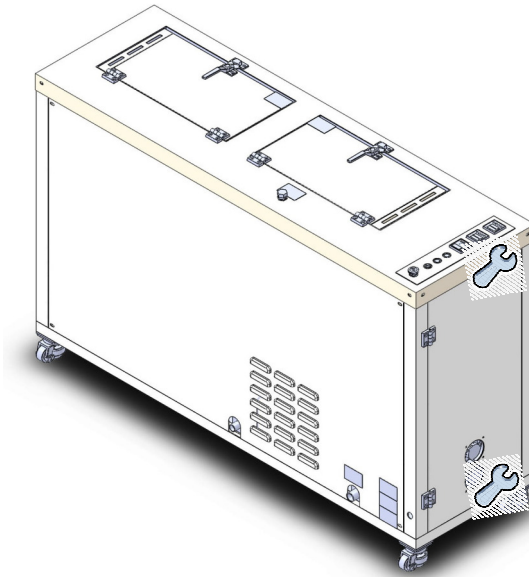
Dismantle 4 number of M6 bolts to open the rear cover.
Please ensure that appropriate wrench or spanner used to avoid damages on the bolt

11.2.3 Side Cover



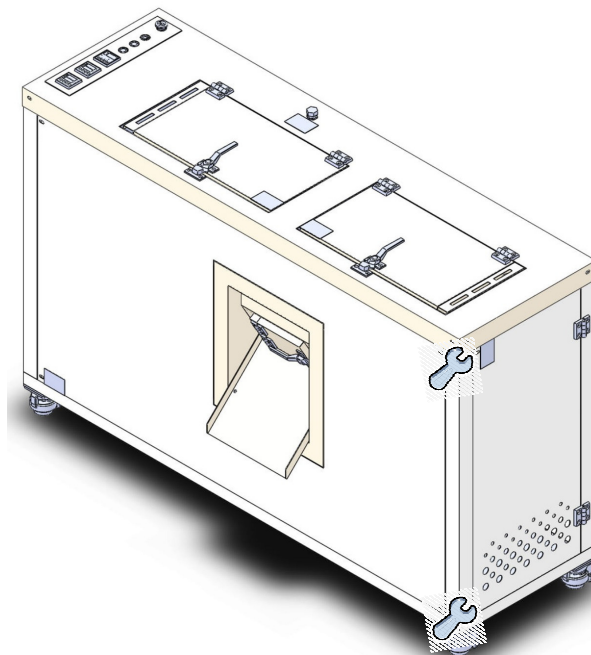
Dismantle 4 number of M6 bolts to open the side cover.
Please ensure that appropriate wrench or spanner used to avoid damages on the bolt.

11.2.4 Control Box Door



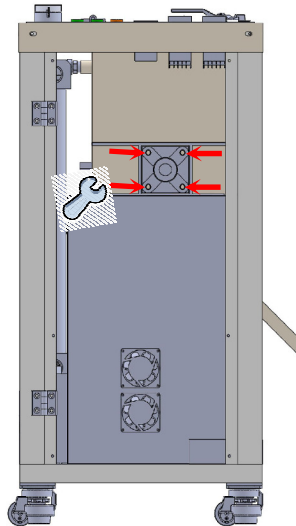
Dismantle 2 number of M6 bolts to open side door to access to Control Panel.

11.2.5 Drive Area



Dismantle 2 number of M6 bolts to open the side door.
Please ensure that appropriate wrench or spanner used to avoid damages on the bolt.

11.2.6 Dismantling Bearing & replacing Viton Seal at control panel side



Open the Control Box.

Dismantle the roller chain (disengage the connection link).

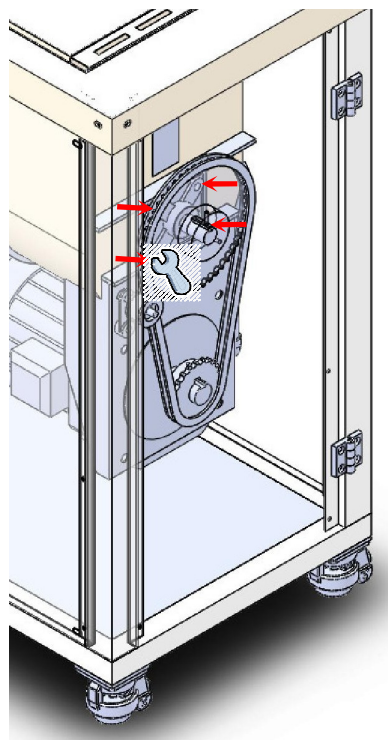
Dismantle the upper sprocket (unlock the set screw and use a puller to disengage the sprocket).

Dismantle 4 number of M12 nuts to open access to the bearing and viton seal.

Please ensure that appropriate wrench or spanner used to avoid damages on the nut.

Use a bearing puller to dismantle the bearing.

11.2.7 Dismantling Bearing & replacing Viton Seal at drive area



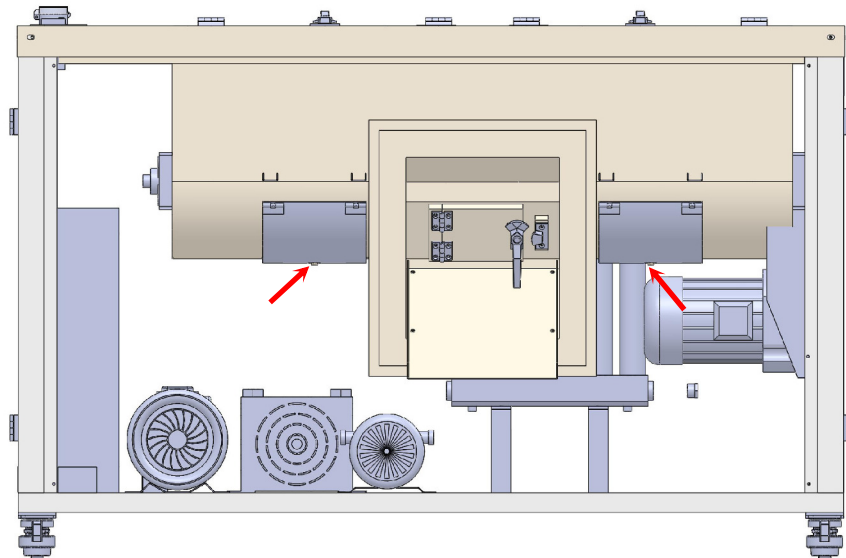
Open the top side cover.

Dismantle 4 number of M12 nuts to open access to the bearing and viton seal.

Please ensure that appropriate wrench or spanner used to avoid damages on the nut.

Use a bearing puller to dismantle the bearing.

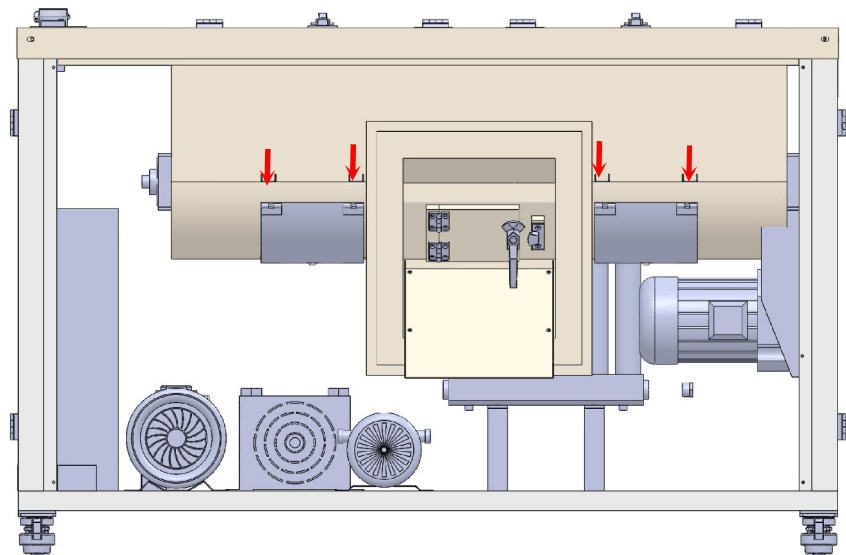
11.2.8 Access to Thermocouple



Open the rear cover.

Thermocouples (x2) are mounted at the middle of the heater.

11.2.9 Access to heater

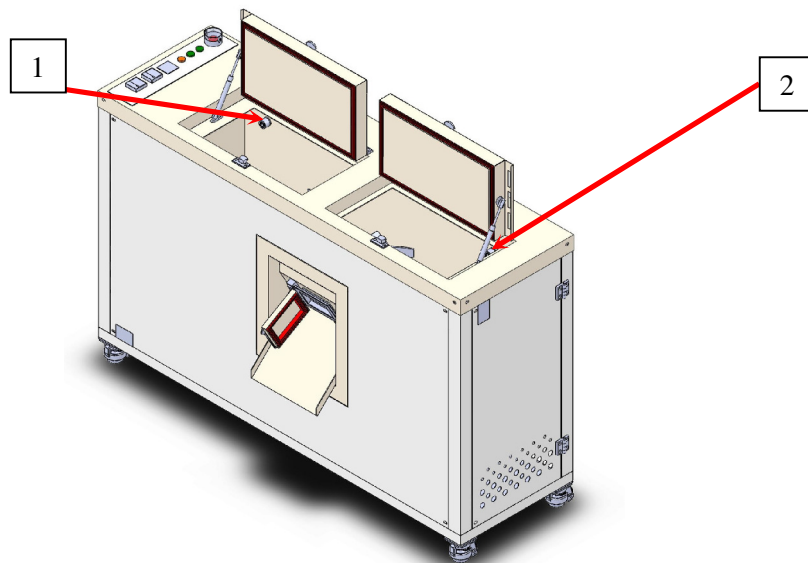


Open the top cover.

Dismantle 8 number of M5 cap screw at both side to dismantle the heater.

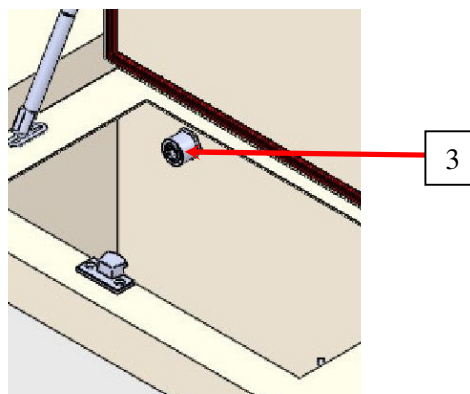
Please ensure that appropriate allen key used to avoid damages on the screw.

11.2.10 Access to Filter and Filter Maintenance

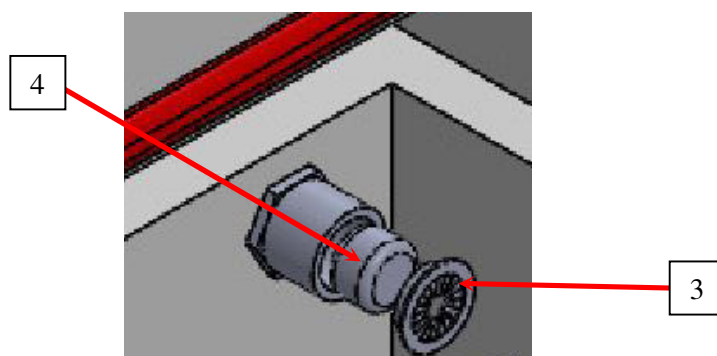


Open the top door.

Air inlet Filter [1] and air outlet filter are located at the top corner.



Use a flat head screw driver to open the cover [3] for the filter.

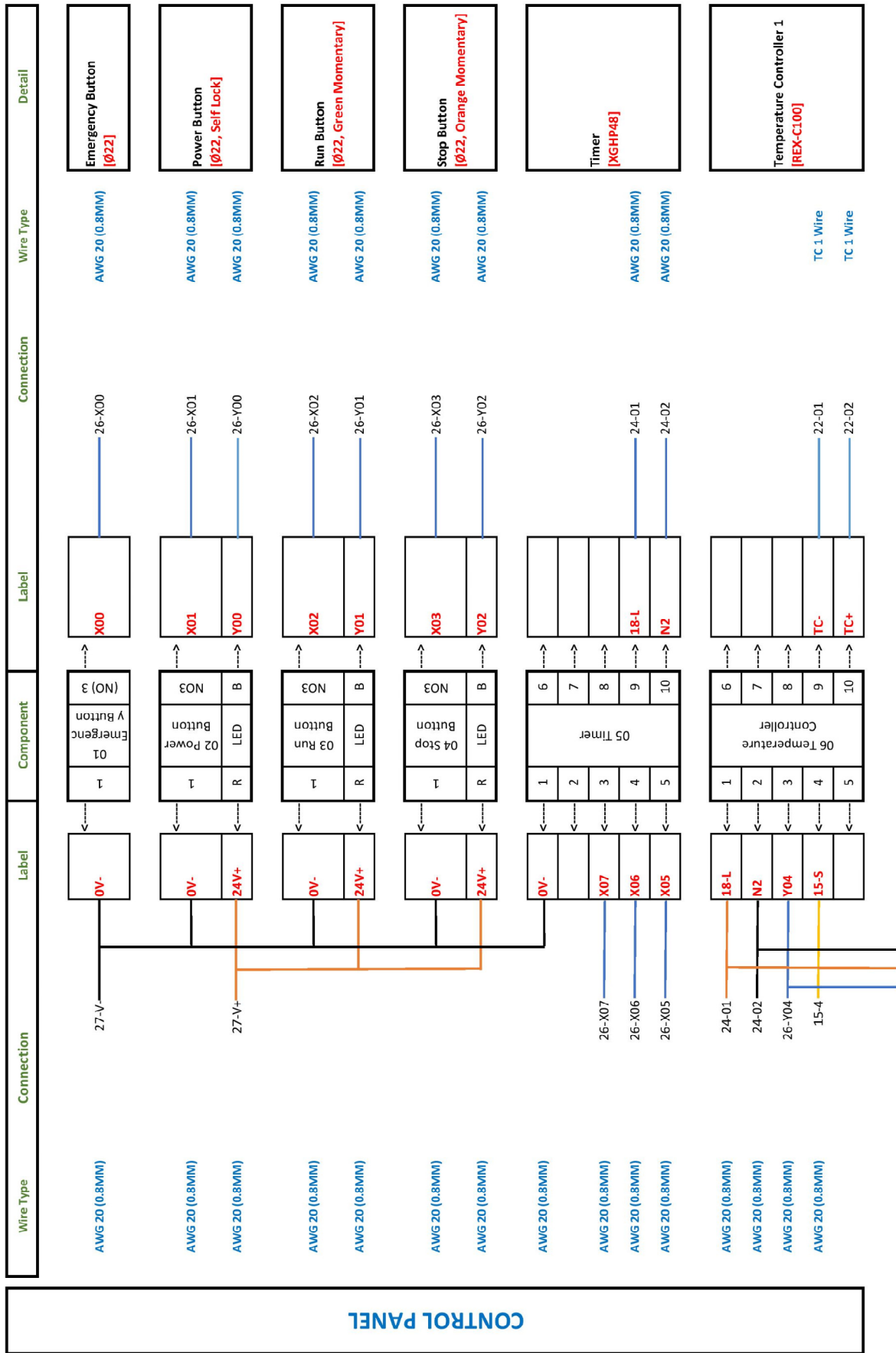


After the cover [3] is open, take out the filter sponge [4].

Washed the sponge [4] with detergent and rinse with water.

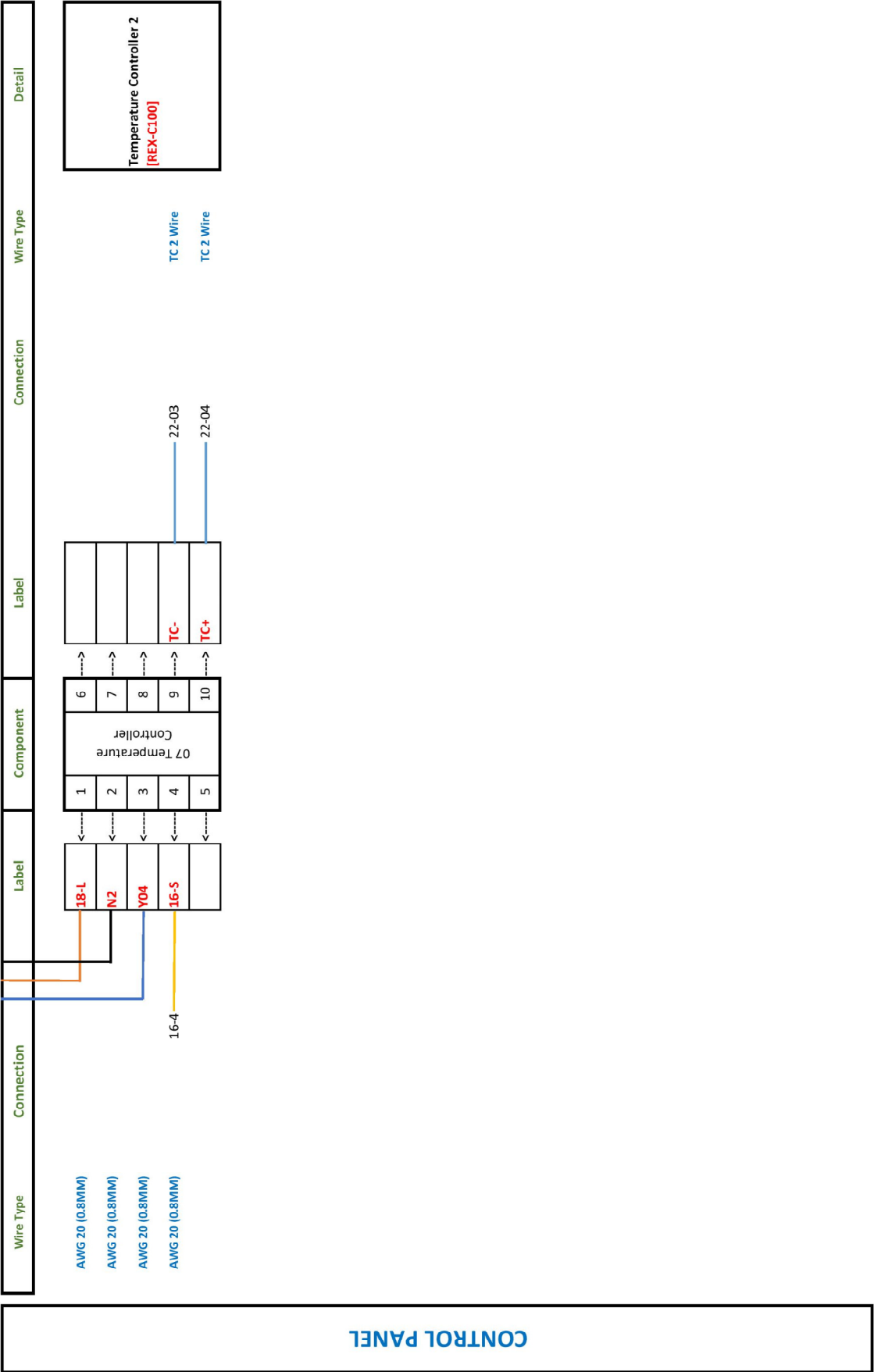
Assemble back the filter sponge [4] and cover [3].

BCM-50 ELECTRICAL

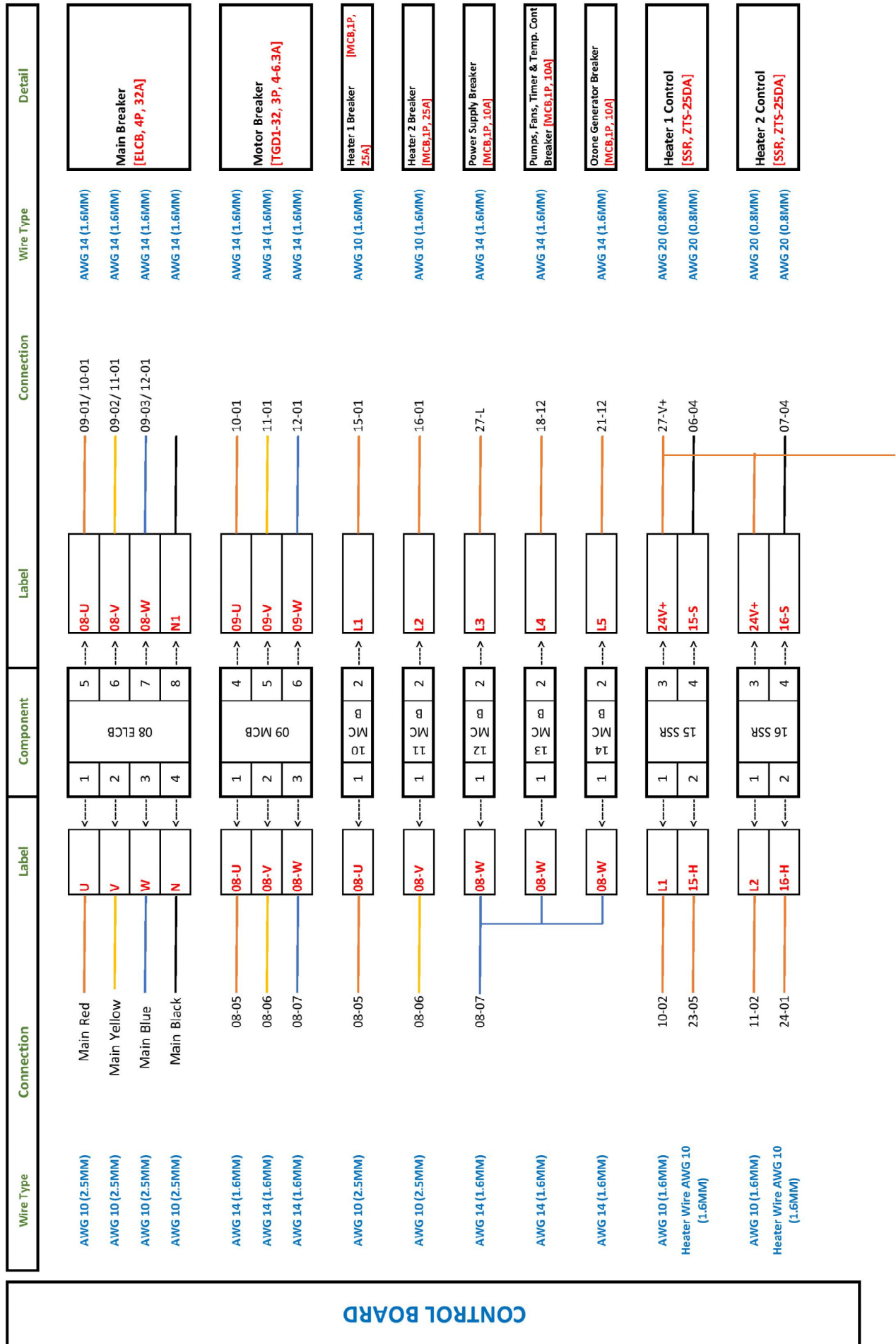


CONTROL PANEL

BCM-50 ELECTRICAL

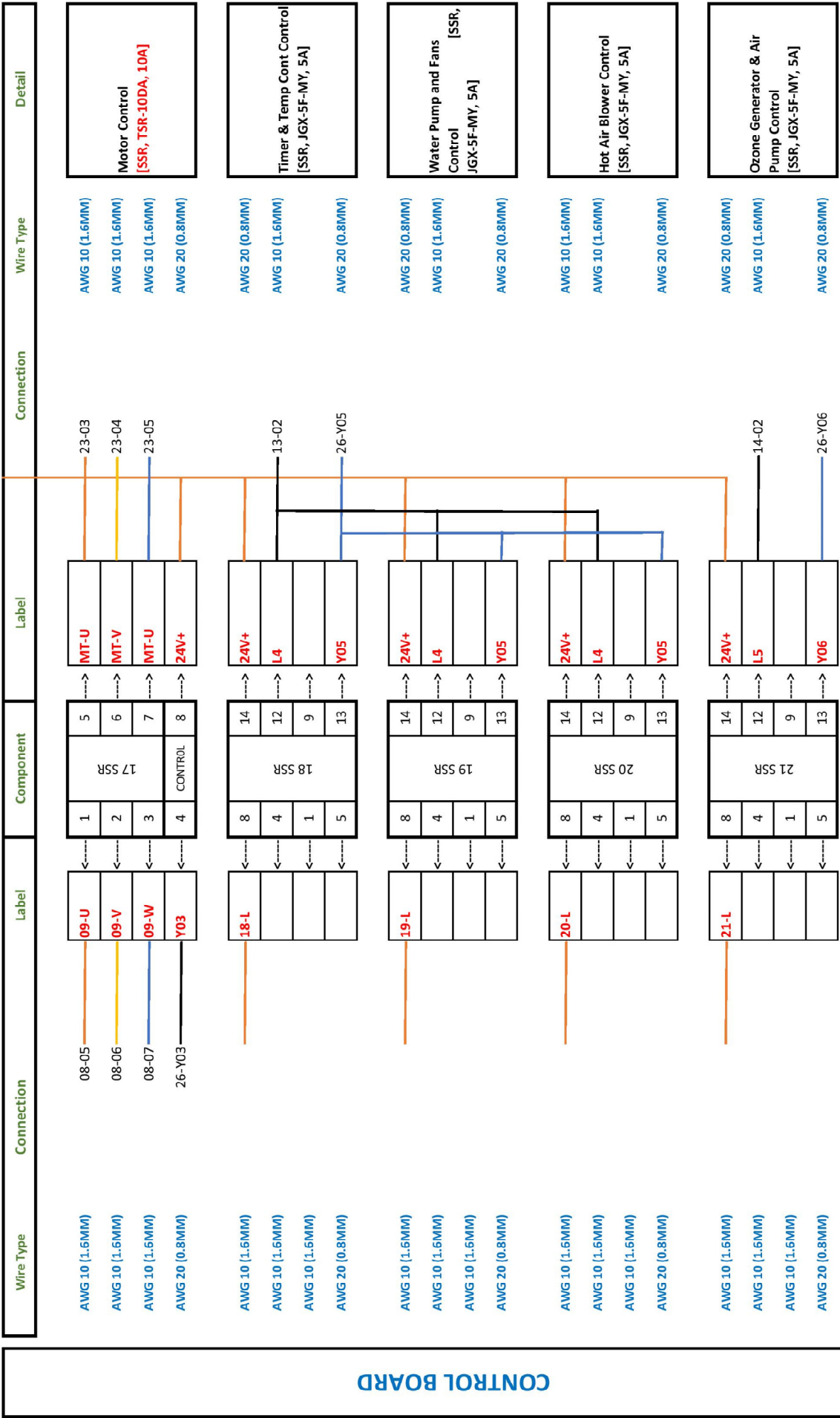


BCM-50 ELECTRICAL



CONTROL BOARD

BCM-50 ELECTRICAL

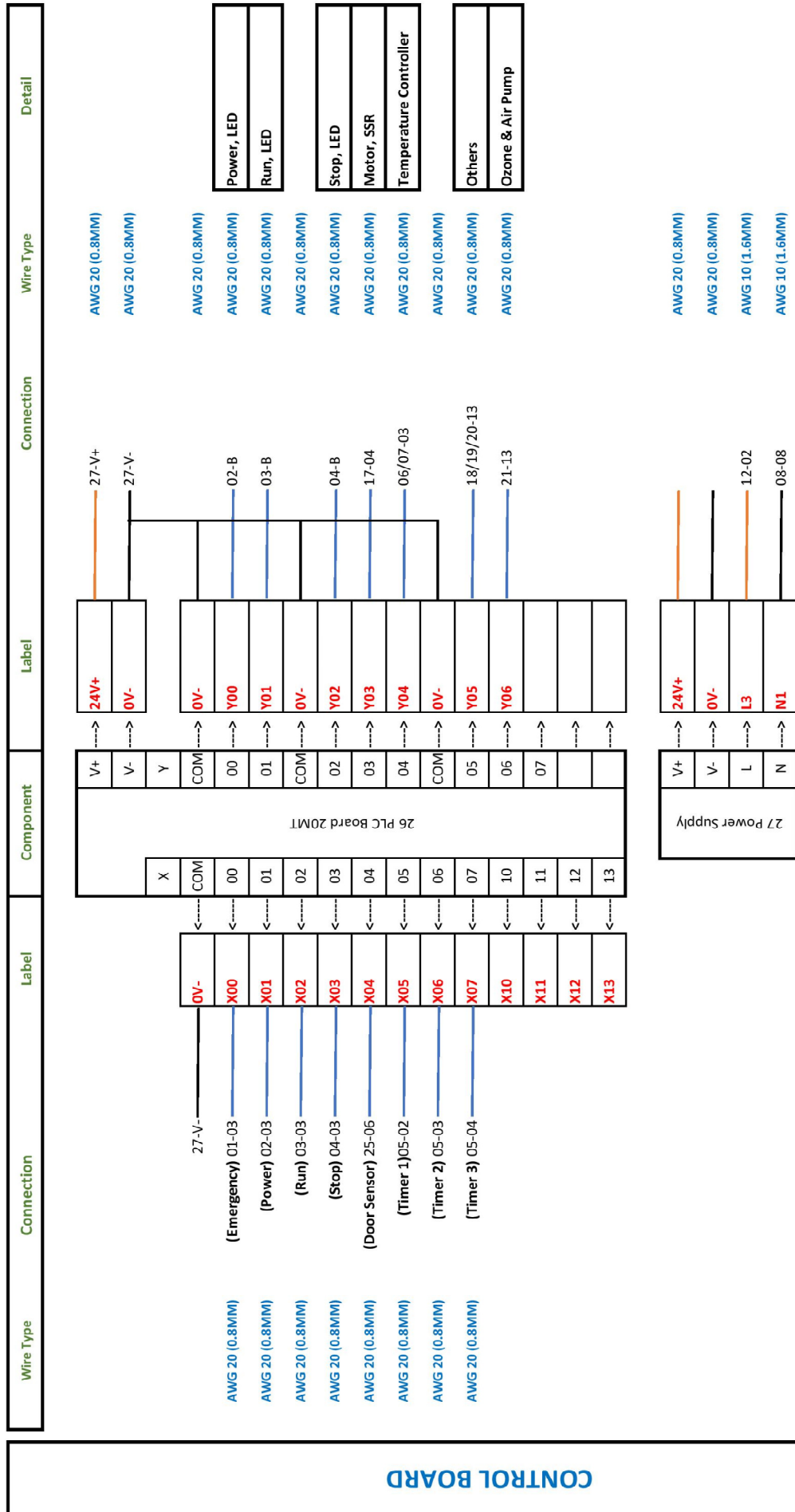


BCM-50 ELECTRICAL

CONTROL BOARD

Wire Type	Connection	Label	Component	Label	Connection	Wire Type	Detail
TC 1 Wire	06-09	TC-	22 Terminal Block TB1506	1	TC-	TC Wire	Thermocouple Heater 1
TC 1 Wire	06-10	TC+		2	TC+	TC Wire	Thermocouple Heater 2
TC 2 Wire	07-09	TC-		3	TC-	TC Wire	
TC 2 Wire	07-10	TC+		4	TC+	TC Wire	
Heater Wire AWG 10 (1.6MM)	15-02	15-H	22 Terminal Block TB1506	5	15-H	Heater Wire AWG 10 (1.6MM)	Heater 1 Power
AWG 10 (1.6MM)	08-08	N1		6	N2	Heater Wire AWG 10 (1.6MM)	Heater 2 Power
Heater Wire AWG 10 (1.6MM)	16-02	16-H		1	16-H	Heater Wire AWG 10 (1.6MM)	
AWG 10 (1.6MM)		N1		2	N2	Heater Wire AWG 10 (1.6MM)	
AWG 10 (1.6MM)	17-05	MT-U	23 Terminal Block TB1506	3	MT-U	AWG 10 (1.6MM)	Motor Power
AWG 10 (1.6MM)	17-06	MT-V		4	MT-V	AWG 10 (1.6MM)	
AWG 10 (1.6MM)	17-07	MT-W		5	MT-W	AWG 10 (1.6MM)	
				6			
CONTROL BOARD							
AWG 10 (1.6MM)	18-08	18-L	24 Terminal Block TB1506	1	18-L	AWG 10 (1.6MM)	Timer & Temperature Controller Power
AWG 10 (1.6MM)		N1		2	N2	AWG 10 (1.6MM)	
AWG 10 (1.6MM)	19-08	19-L		3	19-L	AWG 10 (1.6MM)	Water Pump, Cooling Coil & Cooling Fan Power
AWG 10 (1.6MM)		N1		4	N2	AWG 10 (1.6MM)	
AWG 10 (1.6MM)	20-08	20-L	24 Terminal Block TB1506	5	20-L	AWG 10 (1.6MM)	Hot Air Blower
AWG 10 (1.6MM)		N1		6	N2	AWG 10 (1.6MM)	
AWG 10 (1.6MM)	21-08	21-L		1	21-L	AWG 10 (1.6MM)	Ozone Generator & Air Pump Power
AWG 10 (1.6MM)		N1		2	N2	AWG 10 (1.6MM)	
AWG 20 (0.8MM)	27-V+	24V+	25 Terminal Block TB1506	4	24V+	AWG 20 (0.8MM)	Door Sensor Control
AWG 20 (0.8MM)	27-V-	0V-		5	0V-	AWG 20 (0.8MM)	
AWG 20 (0.8MM)	26-X04	X04		6	S-S	AWG 20 (0.8MM)	

BCM-50 ELECTRICAL



BCM-50 ELECTRICAL

Wire Type	Connection	Label	Component	Label	Connection	Wire Type	Detail
			28 Door Sensor	Brw Blu BLK	24V+ 0V- S-S	AWG 20 (0.8MM) AWG 20 (0.8MM) AWG 20 (0.8MM)	
			29 Door Sensor	Brw Blu BLK	24V+ 0V- S-S	AWG 20 (0.8MM) AWG 20 (0.8MM) AWG 20 (0.8MM)	
			30 Heater	1 2	15-H N2	Heater Wire AWG 10 (1.6MM) Heater Wire AWG 10 (1.6MM)	
			31 Heater	1 2	16-H N2	Heater Wire AWG 10 (1.6MM) Heater Wire AWG 10 (1.6MM)	
			32 Motor	U1 V1 W1	MT-U MT-V MT-W	AWG 10 (1.6MM) AWG 10 (1.6MM) AWG 10 (1.6MM)	
			33 Cooling Coil	1 2	19-L N2	AWG 10 (1.6MM) AWG 10 (1.6MM)	
			34 Water Pump	1 2	19-L N2	AWG 10 (1.6MM) AWG 10 (1.6MM)	
			35 Air Pump	1 2	21-L N2	AWG 10 (1.6MM) AWG 10 (1.6MM)	

COMPONENTS

BCM-50 ELECTRICAL

COMPONENTS

Wire Type	Connection	Label	Component	Label	Connection	Wire Type	Detail
			36 Ozone Generator	1	---->	21-L	AWG 10 (1.6MM)
				2	---->	N2	
			37 Hot Air Blower	1	---->	20-L	AWG 10 (1.6MM)
				2	---->	N2	
			38 Cooling Fan	1	---->	19-L	AWG 10 (1.6MM)
				2	---->	N2	

12.0 ATTACHMENT

12.1 CE certification

12.2 MSDS for GEC's Composting Powder

12.3 References for NPK Level for different materials

12.4 Reference for C:N level

CERTIFICATE OF COMPLIANCE



The Governing Board of
Progressive International Certifications Limited hereby grant to:

GEC INTEGRATION SDN BHD

ADDRESS :- 2980-02, KOMPLEKS CHAI LENG, JALAN BARU, 13700 PRAI,
PENANG, MALAYSIA.

Is in compliance with
MACHINERY DEVICE DIRECTIVE - 2006/42/EC

For the following product

**24 HOUR WASTE COMPOST MACHINES/SYSTEMS SUCH AS SELLING NATURAL,
ENVIRONMENTALLY SAFE, TREATMENT METHODS AND MACHINES.
DETAILS AS PER SUPPLEMENT 0001**

In accordance with
TCF No. CE/01

The present certificate exclusively refers to the product above identified, in accordance to TCF submitted in PICL. Any
Changes or modification implemented on the mentioned product will not be covered by this certificate.

Registration No.: PICL/CE/0221/3632

Certificate Issue Date: 06.02.2021

1st Surveillance: 02.2022

2nd Surveillance: 02.2023

Certificate Expire Date: 05.02.2024

Head of Certificate



This Certificate of Registration is granted subject to the Regulations approved by the Board.

PROGRESSIVE INTERNATIONAL CERTIFICATIONS LTD.

Office 4, 219, Kensington High Street, Kensington, London, W8 6BD, England.

E-mail.: info@picluk.com, Website: www.picluk.com

For current validity of this certificate. Please visit our website

USE OF ACCREDITATION MARK INDICATES ACCREDITATION IN RESPECT OF THE ACTIVITIES COVERED BY
ACCREDITATION INSTITUTE ASSESMENT BODY (EUROPE) CERTIFICATION NUMBER 004

CERTIFICATE OF COMPLIANCE



The Governing Board of
Progressive International Certifications Limited hereby grant to:

ANNEXURE: I LIST OF PRODUCTS

SR. No	PRODUCT RANGE	PRODUCT NAME
1	1 KG	24 HOUR WASTE COMPOST MACHINE
2	5 KG	24 HOUR WASTE COMPOST MACHINE
3	15 KG	24 HOUR WASTE COMPOST MACHINE
4	100 KG	24 HOUR WASTE COMPOST MACHINE
5	200 KG	24 HOUR WASTE COMPOST MACHINE
6	300 KG	24 HOUR WASTE COMPOST MACHINE
7	500 KG	24 HOUR WASTE COMPOST MACHINE
8	1000 KG	24 HOUR WASTE COMPOST MACHINE
9	2000 KG	24 HOUR WASTE COMPOST MACHINE
10	3000 KG	24 HOUR WASTE COMPOST MACHINE
11	4000 KG	24 HOUR WASTE COMPOST MACHINE
12	5000 KG	24 HOUR WASTE COMPOST MACHINE
13	10 Ton	24 HOUR WASTE COMPOST SYSTEM
14	15 Ton	24 HOUR WASTE COMPOST SYSTEM
15	20 Ton	24 HOUR WASTE COMPOST SYSTEM
16	25 Ton	24 HOUR WASTE COMPOST SYSTEM

PAGE 1 OF 2

Registration No.: PICL/CE/0221/3632

Certificate Issue Date: 06.02.2021

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USE OF ACCREDITATION MARK INDICATES ACCREDITATION IN RESPECT OF THE ACTIVITIES COVERED BY
ACCREDITATION INSTITUTE ASSESMENT BODY (EUROPE) CERTIFICATION NUMBER 004

CERTIFICATE OF COMPLIANCE



The Governing Board of
Progressive International Certifications Limited hereby grant to:

ANNEXURE: I LIST OF PRODUCTS

SR. No	PRODUCT RANGE	PRODUCT NAME
1	30 Ton	24 HOUR WASTE COMPOST SYSTEM
2	40 Ton	24 HOUR WASTE COMPOST MACHINE
3	50 Ton	24 HOUR WASTE COMPOST MACHINE
4	1000 KG	24 HOUR BIO REMEDIATION MACHINE
5	2000 KG	24 HOUR BIO REMEDIATION MACHINE
6	3000 KG	24 HOUR BIO REMEDIATION MACHINE
7	4000 KG	24 HOUR BIO REMEDIATION MACHINE
8	5000 KG	24 HOUR BIO REMEDIATION MACHINE
9	500 KG	BIO CHAR MACHINE
10	1000 KG	BIO CHAR MACHINE
11	2000 KG	BIO CHAR MACHINE
12	500 KG	24 HOUR WASTE COMPOST MACHINE
13	1000 KG	24 HOUR WASTE COMPOST SYSTEM
14	2000 KG	24 HOUR WASTE COMPOST SYSTEM
15		TROLLEY SANITIZING MACHINE
16		SANITIZING SPRAY BOOTH
17		OZONE GENERATOR

PAGE 2 OF 2

Registration No.: PICL/CE/0221/3632

Certificate Issue Date: 06.02.2021

1st Surveillance: 02.2022

2nd Surveillance: 02.2023

Certificate Expire Date: 05.02.2024

Head of Certificate



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USE OF ACCREDITATION MARK INDICATES ACCREDITATION IN RESPECT OF THE ACTIVITIES COVERED BY
ACCREDITATION INSTITUTE ASSESMENT BODY (EUROPE) CERTIFICATION NUMBER 004

MATERIAL SAFETY DATA SHEET

Not classified as hazardous according to criteria of the American standards.

1.0 IDENTIFICATION

Product Name	COMPOSTING POWDER
Other Name	N/A
Chemical name	Bacterial Blend
Product Use	Use as additive for GEC Composting Machine and Assisted Fermentation Vessel
Company Name	GEC Integration Sdn Bhd
Address	See Below
Phone	See Below

2.0 HAZARD IDENTIFICATION

Hazard Classification	Not Classified as Hazardous According to American Standards All non toxic
Dangerous Goods	Not Classified as Dangerous Good According to The Criteria of The American Standards
Signs And Symptoms Of Acute Overexposure	See Below
Irritation	Non Irritant to Skin or Eyes
Antidote	Treat Symptomatically
16 Cfr Rating	Non-Toxic
NFPA Rating	(NFPA 704) Health 0 Fire 0
Flash Point	N/A
Auto-Ignition Temperature	N/A
Extinguishing Media	N/A
Fire Fighting Protection	N/A
Unusual Fire Hazards	N/A

3.0 COMPOSITION INFORMATION ON INGREDIENTS

Ingredient: C Tlv: Hazards	Contains no hazardous materials. All non toxic
Dot Hazard Class	No DOT Regulated
Appearance	Brown Powder
Hazardous Polymerization	Will Not Occur



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MATERIAL SAFETY DATA SHEET

4.0 FIRST AID MEASURES

Signs And Symptoms Of Acute Overexposure	No Adverse Effects Have Been Found
Advise To Doctor	Treat Symptomatically
Inhalation	Normal Use Should Not Cause Irritation. If Reaction occurs, Remove to Fresh Air and Consult Your Physician.
Ingestion	Product Is Not To Be Taken Internally. If This Occurs Do Not Induce Vomiting, Rinse Mouth And Drink 1 Or 2 Large Glasses Of Water And Seek Medical Attention.
Skin	Normal Use Should Not Cause Irritation. Wash Skin With Soap And Water After Contact with Product. If Irritation Occurs, Consult Your Physician.
Eyes	If Product Contacts Eye Area, Flush with Water for 15 Minutes.
First Aid Facilities	Fresh Water To Drink Or To Rinse Where Affected

5.0 FIRE FIGHTING MEASURES

Extinguishing Media	N/A Use Appropriate Media Depending On The Source Of Fire
Flammable limits	N/A
Unusual Fire Hazards	None
Hazard From Combustible Products	If Involved In A Major Fire, This Product Does Not Emit Toxic Fumes, including Carbon Monoxide, Dioxide or Oxides of Sulfur
Precautions For Fire Fighters	Precautions Appropriate to The Source of Fire
Special Fire Provisions	None
Personal Protection	Use as Directed

6.0 ACCIDENTAL RELEASE MEASURES

Release Or Spill Procedures	In The Event of a Spill or Leak, Dispose of Waste In Compliance With The Local Regulations
Emergency Procedure	Slippery When Spills. Clean up Spills Immediately To Avoid Further Accident. Spills may be Softly Brushed up when Handling Large Spills, Wear Safety Boots, Safety Glasses and Gloves
Disposals	Dispose of Waste by Sending to Landfill, or in Accordance with the Local Regulations

7.0 HANDLING AND STORAGE

Storage	Avoid Extreme Heat, Store In A Cool Dry Place, Do Not Freeze. Store In Original Container. Shelf Life : 2 Years
Handling	This Product Is Intended to Use as Treatment of Waste Water.
Other Precautions	Good Housekeeping Procedures. Container Disposal : Do Not Reuse Container. When Empty Dispose of in Accordance with Local Laws And Ordinances.



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MATERIAL SAFETY DATA SHEET

8.0 EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Standards	None Established For This Product
Biological Limits	None Allocated
Engineering Controls	No Special Engineering Controls Required
Personal Protective Equipments	Protect Eyes with Splash Proof Glasses. Protect Skin with Rubber Gloves and Apron. When Handling in Bulk, Observe Good Industrial Hygiene Practice. No Other Protection Required.

9.0 PHYSICAL AND CHIMICAL PROPERTIES

Hazardous Polymerization	N/A
Appearance	Beige Powder
pH	N/A
Flash Point	N/A
Flammable Limits	Non Flammable Non Combustible
Auto-Ignition Temperature	N/A
Solubility In Water	Emulsifiable
Chemical Family	Bacteria Blend
Specific Gravity	.885
Boiling Point	310°F
Evaporation Rate	< 1 %
Vapor Density	0.012

10.0 STABILITY AND REACTIVITY

Chemical Stability	Non Chemical Product. Stable Product. Observe The Conditions Required For Storage And Handling
Conditions To Avoid	Extreme Heat or cold Strong Acids and Bases
Incompatibility	Not Compatible with Strong Acids
Hazardous Decomposition Products	N/A
Hazardous Polymerization	N/A

11.0 TOXICOLOGICAL INFORMATION

Health Hazard Information :	See Below
<u>Effects Of Overexposure</u>	No Adverse Effects Have Been Found
Ingestion	If Taken Internally May Be Harmful, Consult A Physician.
Skin	Prolonged Contact May Irritate Skin.
Eyes	No Adverse Effects Have Been Found
Toxicity Data	No Toxicity Data Available



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MATERIAL SAFETY DATA SHEET

12.0 ECOLOGICAL INFORMATION

Ecotoxicity	Non Toxic. No Data Available
Persistent And Degradability	100 % Bio-Degradable
Mobility	No Data Available

13.0 DISPOSAL CONSIDERATIONS

Waste Disposal	Normally Suitable for Disposal at Approved Waste Site
Legislation	Dispose of in Accordance with Local Regulations

14.0 TRANSPORT INFORMATION

Proper Shipping Name	None Allocated
Class And Subsidiary Risk	None Allocated
Packing Group	None Allocated
Special Precautions	None Allocated
Hazard Chemical Code	None Allocated

15.0 OTHER INFORMATION

Contact Point	Joseph Wong
Title	Technical Consultant
Phone	+6012 508 0559
After Office Hours	Same
Shelf Life Of Product	2 Years Under Required Conditions

The information contained in this Material Safety Data Sheet is believed to be accurate and reliable ; however GEC Integration Sdn Bhd shall not be liable for any inaccuracy in the information or for any loss, injury or damage, whatsoever arising from the use of this product as conditions and methods of use are beyond our control. Users should read this Material Safety Data Sheet and evaluate the information in the context of how the user intends to use and handle this product in the workplace, including the use of this product with other products.

Date of issue : 15th of January 2021.



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12.3 References for NPK Level for different materials

Alfalfa Pellets (3-1-2) avg release 40g/sq ft

Corn Gluten (6-0-0) avg release 15g/sq ft

Compost (1-1-1) slow release 125g/sq ft

Bird guano (10-3-1 variable) fast release 25g/sq ft

Cow manure (2-0-0 variable) avg release 60g/sq ft

Horse manure (5-2.5-6 variable) avg release 20g/sq ft

Soybean meal (6-1.5-2) avg release 20g/sq ft

Worm castings (1-0-0) slow release 150g/sq ft

Kelp (1-0.2-2) fast release 15g/sq ft

Insect manure (4-3-2) fast release 35g/sq ft

Fish emulsion (5-2-2 liquid) fast release 1ml/sq ft

Cottonseed meal (6-2-2) avg release 20g/sq ft

Bone meal (2-11-0) slow release 25g/sq ft

Blood meal (12-0-0) fast release 10g/sq ft

Alfalfa Hay: 2.45/05/2.1

Apple Fruit: 0.05/0.02/0.1

Apple Leaves: 1.0/0.15/0.4

Apple Pomace: 0.2/0.02/0.15

Apple skins(ash) : 0/3.0/11/74

Banana Residues (ash): 1.75/0.75/0.5

Barley (grain): 0/0/0.5

Barley (straw): 0/0/1.0

Basalt Rock: 0/0/1.5

Bat Guano: 5.0-8.0/4.0-5.0/1.0

Beans, garden(seed and hull): 0.25/0.08/03

Beet Wastes: 0.4/0.4/0.7-4.1

Blood meal: 15.0/0/0

Bone Black: 1.5/0/0

References for NPK Level for different materials (cont'l)

Bonemeal (raw): 3.3-4.1/21.0/0.2

Bonemeal (steamed): 1.6-2.5/21.0/0.2

Brewery Wastes (wet): 1.0/0.5/0.05

Buckwheat straw: 0/0/2.0

Cantaloupe Rinds (ash): 0/9.77/12.0

Castor pomace: 4.0-6.6/1.0-2.0/1.0-2.0

Cattail reeds and water lily stems: 2.0/0.8/3.4

Cattail Seed: 0.98/0.25/0.1

Cattle Manure (fresh): 0.29/0.25/0.1

Cherry Leaves: 0.6/0/0.7

Chicken Manure (fresh): 1.6/1.0-1.5/0.6-1.0

Clover: 2/0/0/0 (also contains calcium)

Cocoa Shell Dust: 1.0/1.5/1.7

Coffee Grounds: 2.0/0.36/0.67

Corn (grain): 1.65/0.65/0.4

Corn (green forage): 0.4/0.13/0.33

Corn cobs: 0/0/2.0

Corn Silage: 0.42/0/0

Cornstalks: 0.75/0/0.8

Cottonseed hulls (ash): 0/8.7/23.9

Cottonseed Meal: 7.0/2.0-3.0/1.8

Cotton Wastes (factory): 1.32/0.45/0.36

Cowpea Hay: 3.0/0/2.3

Cowpeas (green forage): 0.45/0.12/0.45

Cowpeas (seed): 3.1/1.0/1.2

Crabgrass (green): 0.66/0.19/0.71

Crabs (dried, ground): 10.0/0/0

Crabs (fresh): 5.0/3.6/0.2

References for NPK Level for different materials (cont'l)

Cucumber Skins (ash): 0/11.28/27.2

Dried Blood: 10.0-14.0/1.0-5.0/0

Duck Manure (fresh): 1.12/1.44/0.6

Eggs: 2.25/0.4/0.15

Eggshells: 1.19/0.38/0.14

Feathers: 15.3/0/0

Felt Wastes: 14.0/0/1.0

Field Beans (seed): 4.0/1.2/1.3

Field Beans (shells): 1.7/0.3/1.3

Fish (dried, ground): 8.0/7.0/0

Fish Scraps (fresh): 6.5/3.75/0

Gluten Meal: 6.4/0/0

Granite Dust: 0/0/3.0-5.5

Grapefruit Skins (ash): 0/3.6/30.6

Grape Leaves: 0.45/0.1/0.4

Grape Pomace: 1.0/0.07/0.3

Grass (imature): 1.0/0/1.2

Greensand: 0/1.5/7.0

Hair: 14/0/0/0

Hoof and Horn Meal: 12.5/2.0/0

Horse Manure (fresh): 0.44/0.35/0.3

Incinerator Ash: 0.24/5.15/2.33

Kentucky Bluegrass (green): 0.66/0.19/0.71

Kentucky Bluegrass (hay): 1.2/0.4/2.0

Leather Dust: 11.0/0/0

Lemon Culls: 0.15/0.06/0.26

Lemon Skins (ash): 06.33/1.0

Lobster Refuse: 4.5/3.5/0

References for NPK Level for different materials (cont'l)

Milk: 0.5/0.3/0.18

Millet Hay: 1.2/0/3.2

Molasses Residue

(From alcohol manufacture): 0.7/0/5.32

Molasses Waste

(From Sugar refining): 0/0/3.0-4.0

Mud (fresh water): 1.37/0.26/0.22

Mud (harbour): 0.99/0.77/0.05

Mud (salt): 0.4.0/0

Mussels: 1.0/0.12/0.13

Nutshells: 2.5/0/0

Oak Leaves: 0.8/0.35/0.2

Oats (grain): 2.0/0.8/0.6

Oats (green fodder): 0.49/0/0

Oat straw: 0/0/1.5

Olive Pomace: 1.15/0.78/1.3

Orange Culls: 0.2/0.13/0.21

Orange Skins: 0/3.0/27.0

Oyster Shells: 0.36/0/0

Peach Leaves: 0.9/0.15/0.6

Pea forage: 1.5-2.5/0/1.4

Peanuts (seed/kernals): 3.6/0.7/0.45

Peanut Shells: 3.6/0.15/0.5

Pea Pods (ash): 0/3.0/9.0

Pea (vines): 0.25/0/0.7

Pear Leaves: 0.7/0/0.4

Pigeon manure (fresh): 4.19/2.24/1.0

Pigweed (rough): 0.6/0.1/0

References for NPK Level for different materials (cont'l)

Pine Needles: 0.5/0.12/0.03

Potato Skins (ash): 0/5.18/27.5

Potaote Tubers: 0.35/0.15/2.5

Potatoe Vines (dried): 0.6/0.16/1.6

Prune Refuse: 0.18/0.07/0.31

Pumpkins (fresh): 0.16/0.07/0.26

Rabbitbrush (ash): 0/0/13.04

Rabbit Manure: 2.4/1.4/0.6

Ragweed: 0.76/0.26/0

Rapeseed meal: 0/1.0=2.0/1.0=3.0

Raspberry leaves: 1.45/0/0.6

Red clover hay: 2.1/0.6/2.1

Redrop Hay: 1.2/0.35/1.0

Rock and Mussel Deposits

From Ocean: 0.22/0.09/1.78

Roses (flowers): 0.3/0.1/0.4

Rye Straw: 0/0/1.0

Salt March Hay: 1.1/0.25/0.75

Sardine Scrap: 8.0/7.1/0

Seaweed (dried): 1.1-1.5/0.75/4.9 (Seaweed is loaded with micronutrients including: Boron, Iodine, Magnesium and so on.)

Seaweed (fresh): 0.2-0.4/0/0

Sheep and Goat Manure (fresh): 0.55/0.6/0.3

Shoddy and Felt: 8.0/0/0

Shrimp Heads (dried): 7.8/4.2/0

Shrimp Wastes: 2.9/10.0/0

Siftings From Oyster Shell Mounds: 0.36/10.38/0.09

Silk Mill Wastes: 8.0/1.14/1.0

Silkworm Cocoons: 10.0/1.82/1.08

References for NPK Level for different materials (cont'l)

Sludge: 2.0/1.9/0.3

Sludge (activated): 5.0/2.5-4.0/0.6

Smokehouse/Firepit Ash:0/0/4.96

Sorghum Straw:0/0/1.0

Soybean Hay: 1.5-3.0/0/1.2-2.3

Starfish: 1.8/0.2/0.25

String Beans (strings and stems, ash): 0/4.99/18.0

Sugar Wastes (raw): 2.0/8.0/0

Sweet Potatoes: 0.25/0.1/0.5

Swine Manure (fresh): 0.6/0.45/0.5

Tanbark Ash: 0/0.34/3.8

Tanbark Ash (spent): 0/1.75/2.0

Tankage: 3.0-11.0/2.0-5.0/0

Tea Grounds: 4.15/0.62/0.4

Timothy Hay: 1.2/0.55/1.4

Tobacco Leaves: 4.0/0.5/6.0

Tobacco Stems: 2.5-3.7/0.6-0.9/4.5-7.0

Tomatoe Fruit: 0.2/0.07/0.35..Hot compost kill seed.

Tomatoe Leaves: 0.35/0.1/0.4

Tomatoe Stalks: 0.35/0.1/0.5

Tung Oil Pumace: 6.1/0/0

Vetch Hay: 2.8/0/2.3

Waste Silt: 9.5/0/0

Wheat Bran: 2.4/2.9/1.6

Wheat (grain): 2.0/0.85/0.5

Wheat Straw: 0.5/0.15/0.8

White Clover (Green): 0.5/0.2/0.3

Winter Rye Hay: 0/0/1.0

References for NPK Level for different materials (cont'l)

Wood Ash: 0/1.0-2.0/6.0-10.0 (A note on Wood ash: Wood Ash can contain chemicals that could harm plants and also carcinogens so, they should be composted in moderation)

Wool Wastes: 3.5-6.0/2.0-4.0/1.0-3.

12.4 References of C:N level for difference base materials:

Material	C:N
ASHES, WOOD	25:1
CARDBOARD, SHREDDED	350:1
CORNS STALK	75:1
FRUIT WASTE	35:1
LEAVES	60:1
NEWSPAPERS, SHREDDED	175:1
PEANUT SHELL	35:1
PINE NEEDLES	80:1
SAWDUST	325:1
STRAW	75:1
WOOD CHIPS	400:1
ALFALFA	12:1
CLOVER	23:1
COFFEE GROUND	20:1
FOOD WASTE	20:1
GARDEN WASTE	30:1
GRASS CLIPPING	20:1
HAY	25:1
MANURES	15:1
SEAWEED	19:1
VEGETABLES SCRAP	25:1
WEEDS	30:1

THE END