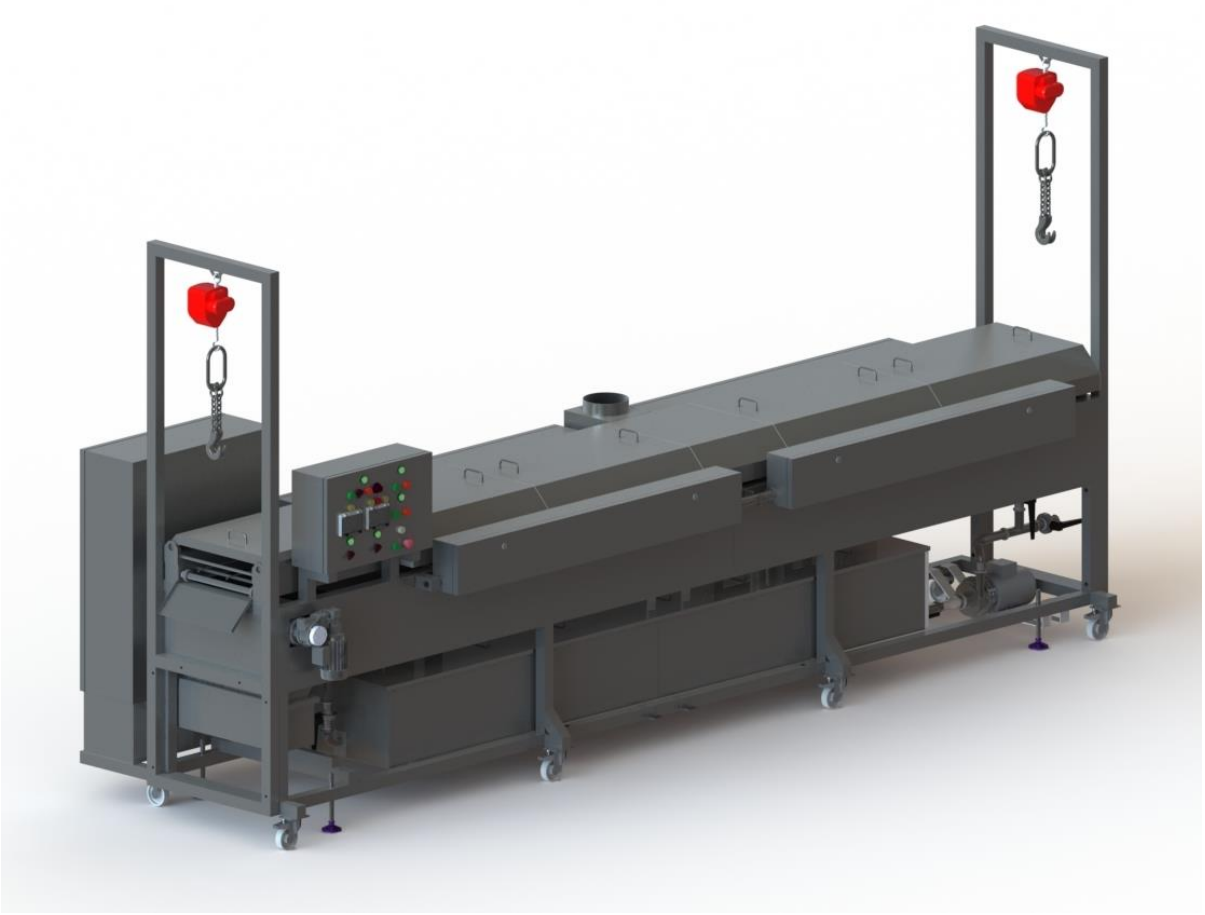
ECONOFRY

Instruction Manual



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ECONOFRY

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(1) INTRODUCTION

The Econofry forms part of the Deighton Manufacturing (UK) Ltd Frying Line System and is used to flash fry or fully cook a variety of food products

1.1 Production Flexibility

Quick, simple conveyor height and speed adjustment allows a variety of product sizes and frying requirements to be processed and this is delivered as a complete unit, moveable on castors for production. Once in the production environment it can be used either as a stand alone unit or as part of a production line.

1.2 Simple and Smooth Operation

The Econofry runs on a 3 phase supply and is operated from a control panel. A variable speed conveyor system allows products to be passed into the fryer and through a bath of cooking oil. The oil is heated by a series of immersion elements and temperature is controlled by an electronic temperature controller. There is also a safety temperature controller fitted which will not allow the oil to reach an unsuitably high temperature. The Econofry is also fitted with low oil detection which will prevent the fryer operating with an unsuitably low oil level.

1.3 Hygiene

The Econofry is easy to clean and to achieve this the conveyor can be removed (using the hoists if fitted) and the elements rotated out of the way for cleaning.

(2) TECHNICAL SPECIFICATION

Econofry

	600 x 5M	400 x 5M
Weight	1400kg	1150kg
Product Output	1200kg/hr Approx (flash fry 100g burger)	800kg/hr Approx (flash fry 100g burger)
Product Thickness	6 to 35mm	6 to 35mm
Oil Capacity (hot)	659 litres	488 litres
Oil Capacity (cold)	588 litres	435 litres
Power	82.8kW	72kW
Conveyor Motor	370W	370W
Conveyor Width	600mm	400mm
Width	1540mm	1350mm
Length	4815mm	4815mm
Electrical Supply	380/415V 3 Phase	380/415V 3 Phase

	300 x 5M	200 x 5M
Weight	1040kg	930kg
Product Output	600kg/hr Approx (flash fry 100g burger)	400kg/hr Approx (flash fry 100g burger)
Product Thickness	6 to 35mm	6 to 35mm
Oil Capacity (hot)	403 litres	334 litres
Oil Capacity (cold)	359 litres	298 litres
Power	64.8kW	34.5kW
Conveyor Motor	370W	180W
Conveyor Width	300mm	200mm
Width	1240mm	1100mm
Length	4815mm	4815mm
Electrical Supply	380/415V 3 Phase	380/415V 3 Phase

	600 x 3M	400 x 3M
Weight	953kg	750kg
Product Output	600kg/hr Approx (flash fry 100g burger)	400kg/hr Approx (flash fry 100g burger)
Product Thickness	6 to 35mm	6 to 35mm
Oil Capacity (hot)	351 litres	260 litres
Oil Capacity (cold)	313 litres	232 litres
Power	43.2kW	32.4kW
Conveyor Motor	180W	180W
Conveyor Width	600mm	400mm
Width	1460mm	1240mm
Length	2820mm	2820mm
Electrical Supply	380/415V 3 Phase	380/415V 3 Phase

	300 x 3M	200 x 3M
Weight	655kg	510kg
Product Output	300kg/hr Approx (flash fry 100g burger)	200kg/hr Approx (flash fry 100g burger)
Product Thickness	6 to 35mm	6 to 35mm
Oil Capacity (hot)	214 litres	178 litres
Oil Capacity (cold)	191 litres	159 litres
Power	32.4kW	23kW
Conveyor Motor	180W	180W
Conveyor Width	300mm	200mm
Width	1140mm	1060mm
Length	2820mm	2820mm
Electrical Supply	380/415V 3 Phase	380/415V 3 Phase

	250 x 5M	600 x 7M x 65mm
Weight	880kg	2220kg
Product Output	600kg/hr Approx (flash fry 100g burger)	2160kg/hr Approx (flash fry 100g burger)
Product Thickness	6 to 35mm	6 to 65mm
Oil Capacity (hot)	377 litres	1175 litres
Oil Capacity (cold)	336 litres	1047 litres
Power	41kW	162kW
Conveyor Motor	180W	550W
Conveyor Width	250mm	600mm
Width	1170mm	1855mm
Length	4850mm	7120mm
Electrical Supply	380/415V 3 Phase	380/415V 3 Phase

(3) INSTALLATION PROCEDURE

3.1 Check the Econofry for transport damage and report any immediately to Deighton Manufacturing Ltd.

Note: If using a forklift truck ensure the forks are placed under the horizontal cross members

3.2 Before Operating the machine:-

Remove any packaging material

Position the fryer relative to any other equipment it is to connect with. Connect the machine to the correct supply, entering through the main control box at the rear of the fryer.

Remove transit nuts in conveyor (if fitted)

3.3 Ensure that no electrical cables are near the fryer tank and conveyor and that they do not prevent the easy removal of the conveyor unit or rotation of the element cabinets for cleaning

3.4 Switch the conveyor on to check its direction. Run conveyor for a few minutes to check everything is well.

3.5 Position any related equipment carefully so that it stands in the correct relationship to the fryer. Adjust any outfeed conveyor to suit the fryer.

3.6 Clean the fryer. (see cleaning instructions – with water and detergent)

(4) OPERATING THE MACHINE

4.1 Ensure no water or cleaning solution is held in the fryer or pipe work.

Important – Make sure the Tank is Dry

For control panel layout see drawing overleaf

4.2 Connect the fryer to the appropriate supply
Turn the mains isolator on
Ensure the emergency stop buttons are released
Press the reset button and the white power light will be illuminated
At this stage the low level and production level warning lights will both be lit

4.3 Fill the fryer with cooking oil until the low level light goes out

Do Not Use Solidifying Fat in This Fryer

4.4 Set the cooking temperature by setting the temperature controller on the control panel (refer to temperature control settings)
The temperature range is factory set to give temperature setting from 80°c - 200°c, normal cooking temperature being approximately 180°c

4.5 The heaters can then be switched on by turning the FRYER HEATERS selector switch to on. A green light illuminated will signify operation

The conveyor can be switched on by turning the CONVEYOR selector switch to on. A green light illuminated will signify operation

When the oil reaches a preset temperature (the green light will go off) switch the heaters off. If the oil is below production level (indicated by the production level light being on) then top the level up until the light goes out. Turn the heaters on again.

Note. Be careful not to overfill the oil!

4.6 Throughout production maintain a constant level of oil by topping up when the production level light is lit, stopping when it is extinguished. The oil operating level should generally be at a height where the bottom section of the upper belt is just below the oil level.

4.7 The top belt can be changed in level by lifting or lowering the internal side plates using the 4 adjustment screws located on the top face of the fryer.

The angle of the infeed belt can also be changed using the 2 adjusting screws on the top face of the fryer at the input end.

4.8 Set the conveyor speed to give the required frying time by adjusting the variable speed knob situated next to the conveyor stop button on the control panel

When the correct speed is achieved, note the reading for future reference. With experience the correct temperature and frying times can be developed for your range of products

4.9 If the over temperature light comes on it will be necessary to open the control panel and press the reset button on the cover of the temperature relay marked OTR.

The over temp light will illuminate if the over temp stat operates

If the light comes on, the cause should be found and rectified

It could be:-

1) Faulty thermostat
2) Fault in temp controller
3) Fault in safety temp controller
4) Bent probes

4.10 During production fumes should be extracted to a suitable outlet. For this purpose there is a fume exit on top of the fryer to which a suitable ducting can be attached

4.11 Ensure all guards are in place during production

4.12 To prevent excess fumes, conveyor lids are provided. These will also protect from the moving conveyor and hot spatter

4.13 **Ensure the expansion nuts holding the conveyor in position are not locked tight, they should be finger tight only to allow the conveyor to expand.**

Temperature Controller Setting Instructions

The display shows the temperature of the oil and, when the elements are in operation, will rise until it reaches the pre-set temperature at which point the elements will switch off.

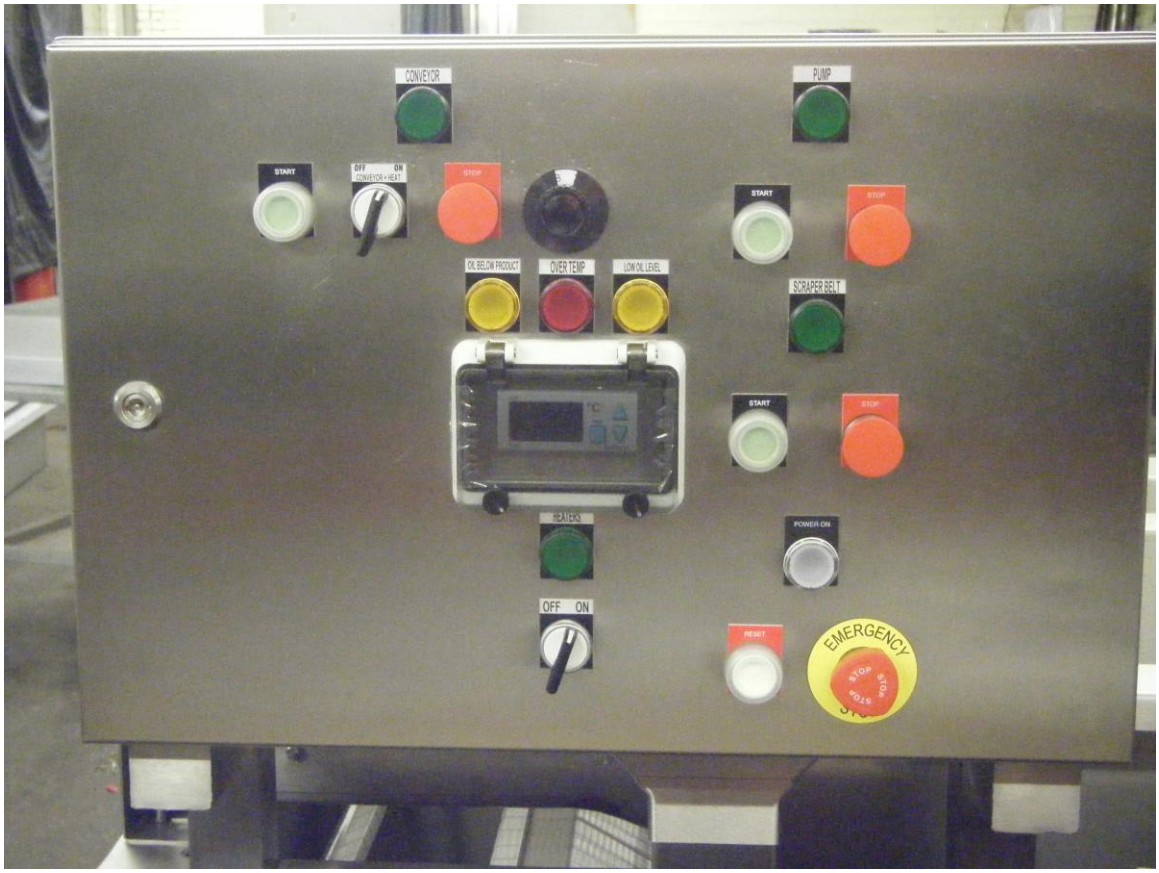
To adjust the set point:-

1) Press the thermometer button and the display will show the set temperature

2) Whilst keeping the thermometer button depressed, adjust the set point with the up and down arrow keys

3) Once the desired set point has been reached release the thermometer button

The oil will now heat up to the new temperature setting.



(5) DISMANTLING AND CLEANING

It is recommended that after every 40 hours of production the machine is cleaned.

Refer to Section 6 of this manual relating to the safety instructions.

WARNING: Always isolate the machine before cleaning.

WARNING: Ideally the oil should be left to cool overnight before commencing cleaning.

The Econofry is of a stainless steel construction which can be cleaned using hot soapy water. Electrical control panels are to be wiped down, tanks and hoods can be power hosed.

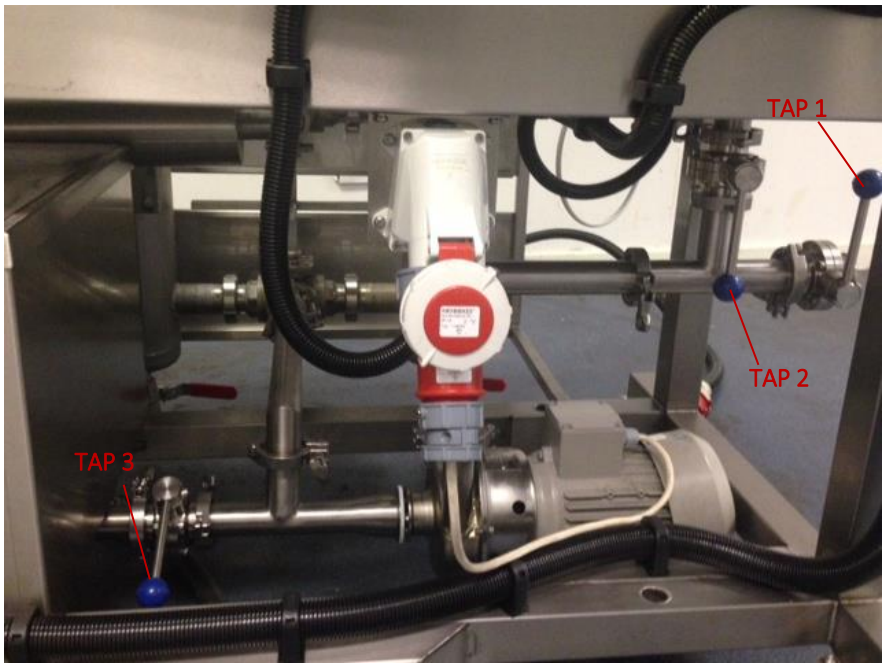
Use only hot soapy water, **DO NOT** use strong alkaline/acid based cleaners.

5.1 PREPARING THE FRYING TANK FOR CLEANING

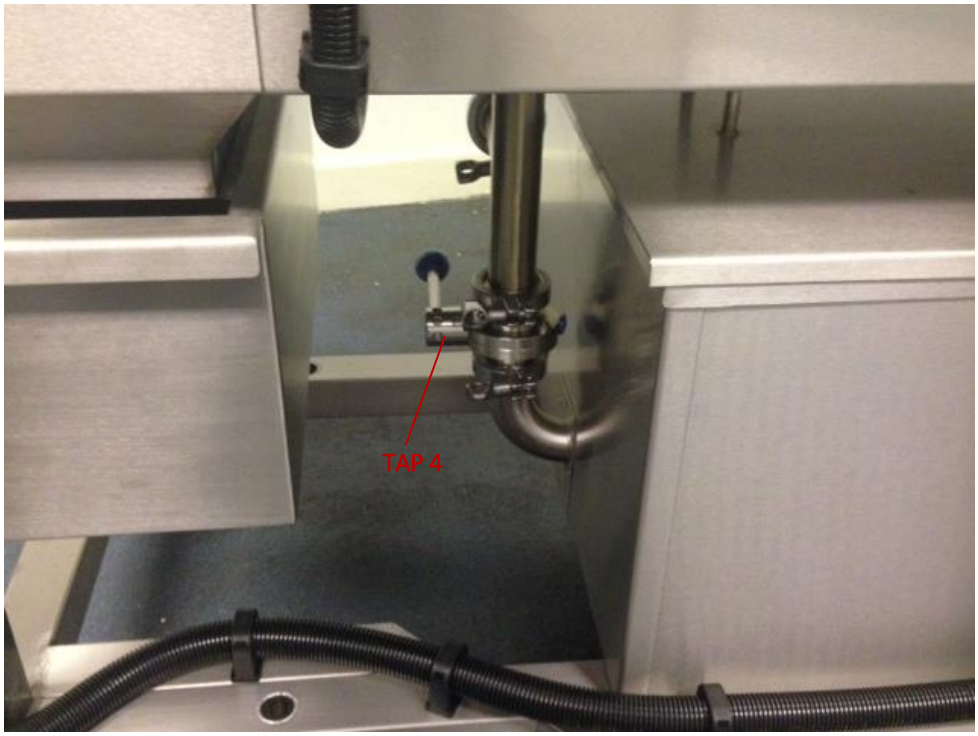
5.1.1 Remove the cover hoods from the frying tank.

5.1.2 Drain the oil from the frying tank into the storage tank.

CLOSING AND OPENING OF TAPS.



Tap 1 should be closed. (Outlet pipe for empting system.)



Tap 2 should be opened. (From pump to frying tank.)

Tap 3 should be opened. (From storage tank to pump)

Tap 4 should be opened. (From frying tank to storage tank.)

5.1.3 With the taps now in the stated positions, the oil should drain directly through the channelled pipes from the frying tank into the storage tank.

5.1.4 Once the oil has drained from the frying tank into the storage tank;

Tap 4 should be closed. (From frying tank to storage tank)

Tap 3 should be closed. (From storage tank to pump)

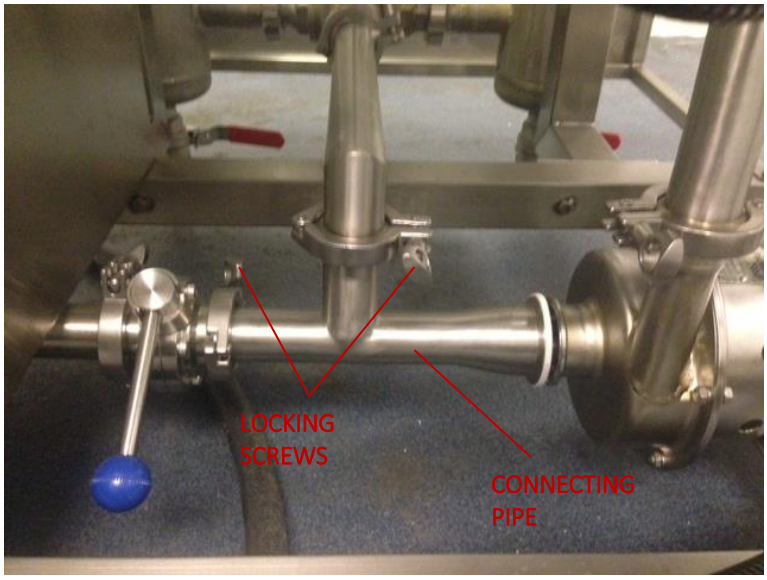
5.1.5 Once per week the conveyor, kettle and elements should be washed with a suitable detergent solution to remove debris and any carburised particles. The solution should be heated to 90°c by turning on the machine and conveyor circulated in the solution. The fryer should be restored to as-new condition each week.

5.1.6 To drain out detergent solution, make sure fryer is turned off;

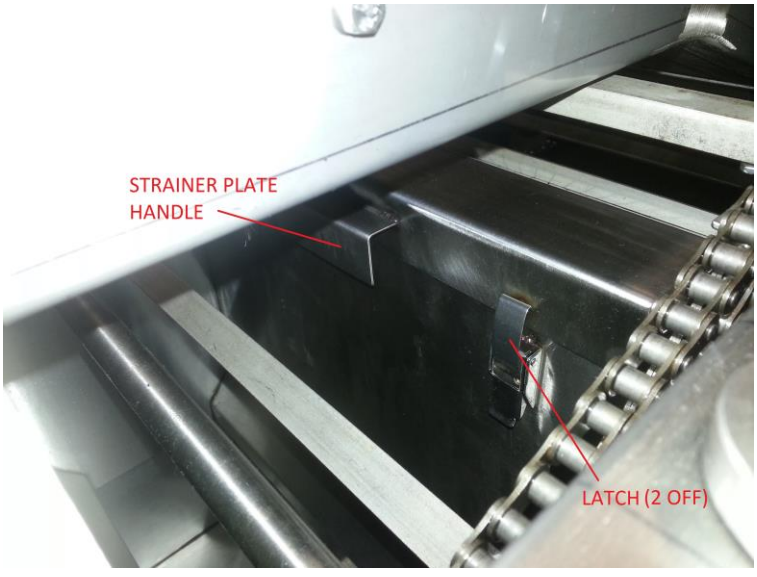
Tap 1 and **Tap 2** ONLY should be opened to drain out from frying tank.

5.1.7 Wash out the fryer tank again without detergent, keeping water away from electrical components and drain.

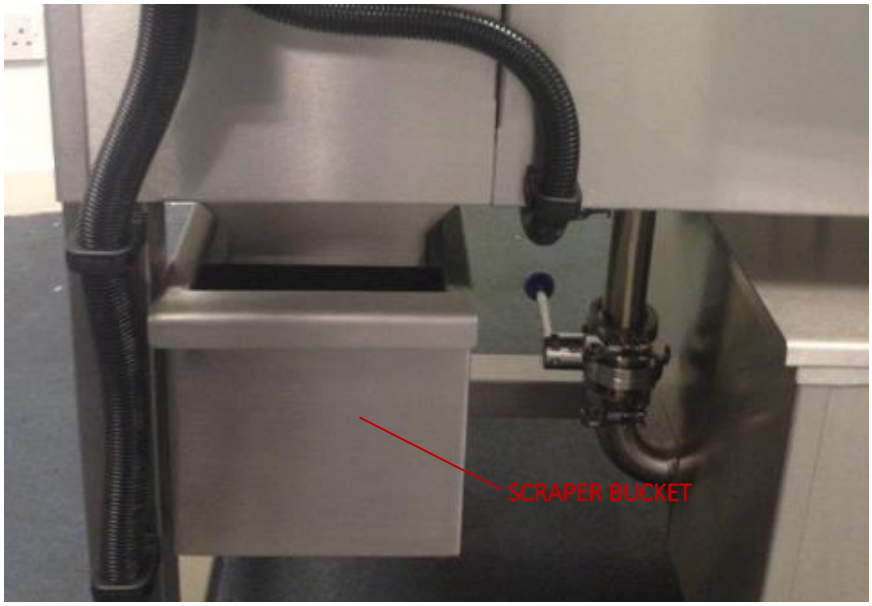
5.1.5 Since the oil has been drained from the frying tank to the storage tank, there will still be oil in the connecting pipes. This connecting pipe can be removed for cleaning by unscrewing the wingnuts as shown in the following pictures. This pipe should be hosed out,



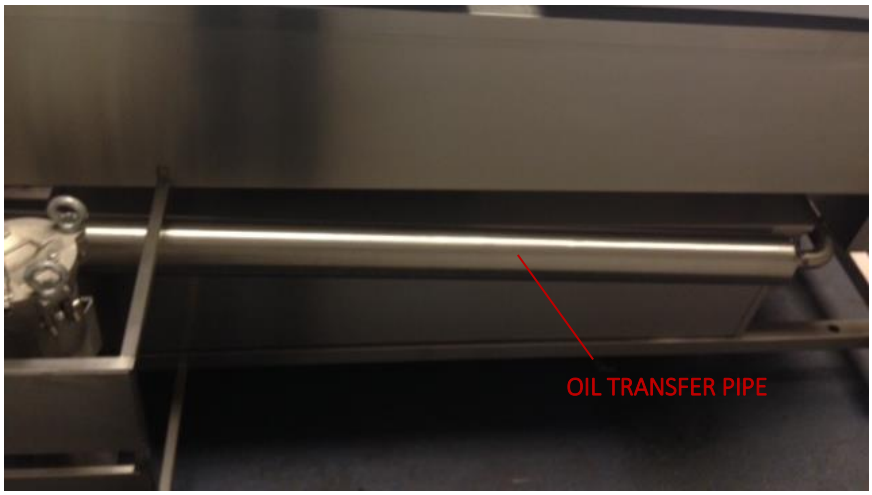
5.1.6 Unclip latches and remove strainer plate to allow cleaning.

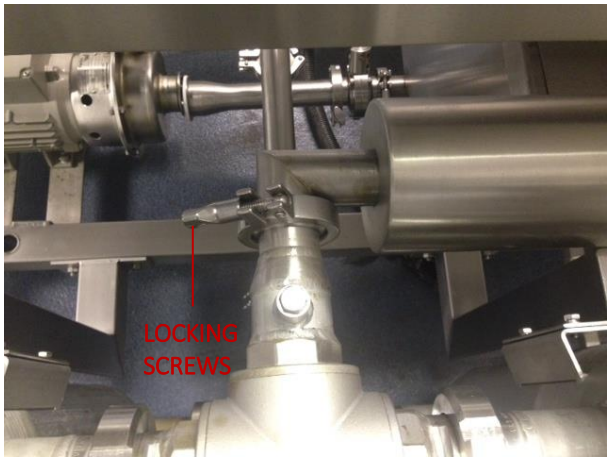


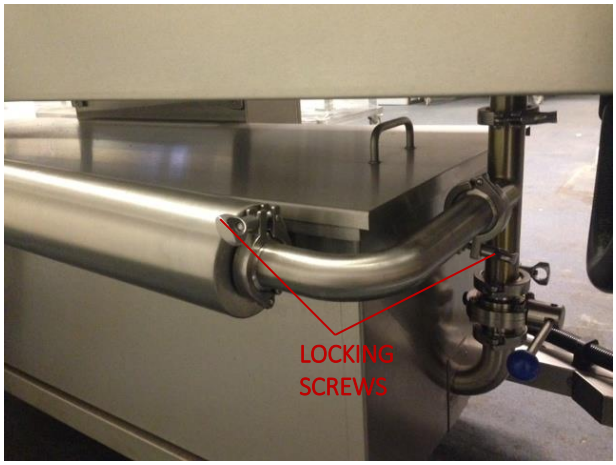
5.1.7 Remove and clean the scraper bucket. This will contain cooking oil and contaminants from the oil.



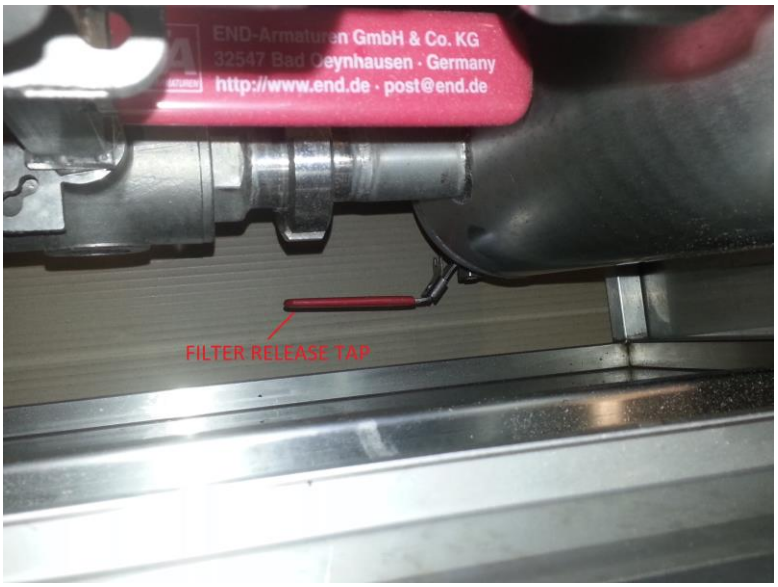
5.1.8 Remove the oil transfer pipe attached to frying tank, storage tank and filter system. Unlock the three screws, remove and clean out the pipe, hose down and air dry.



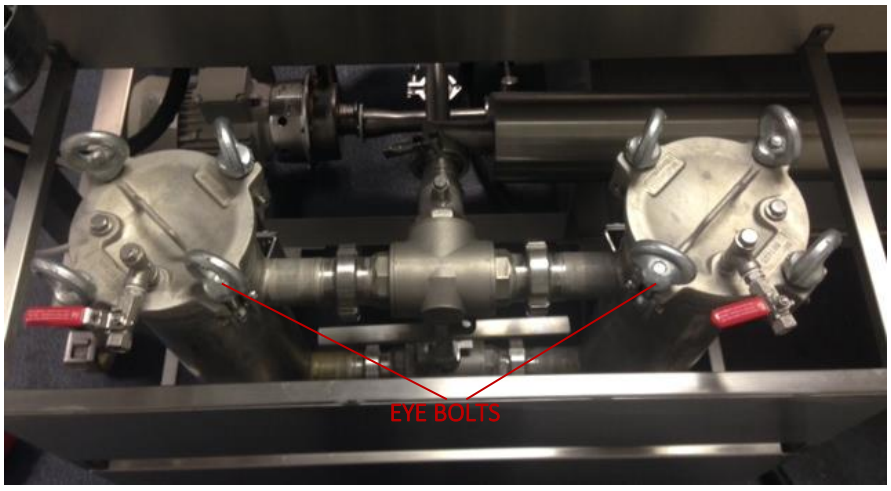




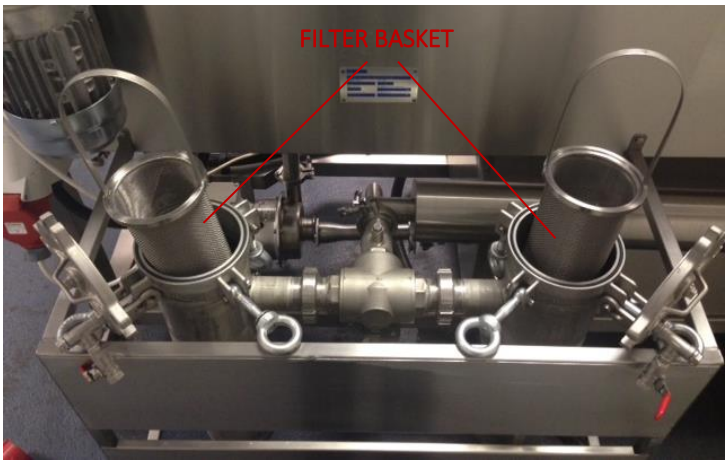
5.1.9 Oil should be drained from the filters, open the valves on both filters.



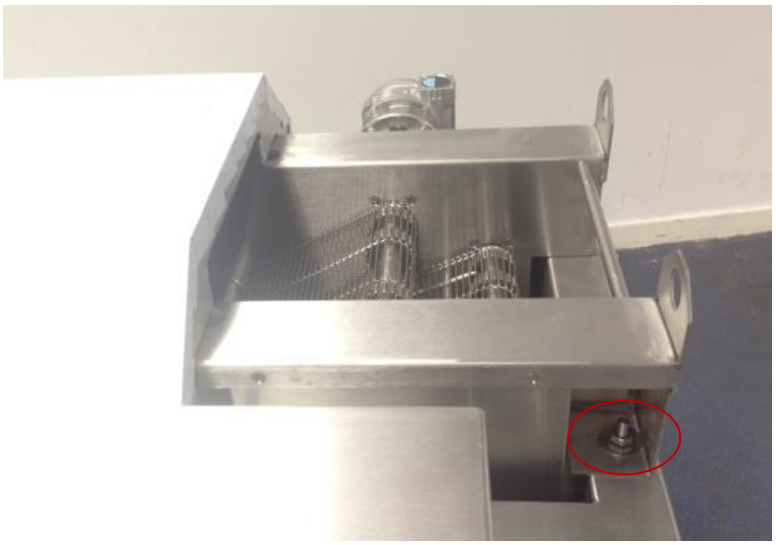
5.1.10 Once the oil has drained from the filters, open the top covers and remove filters. Unscrew the eye bolts and rotate away from the top.



5.1.11 Remove filter basket, hose the insides of the container plus the baskets.



5.1.12 Press the stop buttons for the conveyor and scraper system. Isolate the machine. Unscrew the expansion nuts holding the conveyor system in place around all corners.



5.1.13 Jet wash frying tank and conveyor with hot soapy water. Rinse thoroughly with clean water.

5.1.14 Unplug the socket that connects the motor before removing the conveyor system.

5.1.15 Then using the hoists lift the conveyor out of the tank. Unlock the cabinet bracket and rotate the control cabinet forward away from the frying tank.

5.1.16 On the control panel press the green button for the "**Scraper System"**.

5.1.17 The frying tank should be hosed down again with hot soapy water now the conveyor has been moved out of the way. Rinse with clean water.

5.1.18 Let the tank and conveyor drain and air dry before reassembly.

5.1.19 Ensure components are completely dry before reassembling and refitting to the machine.

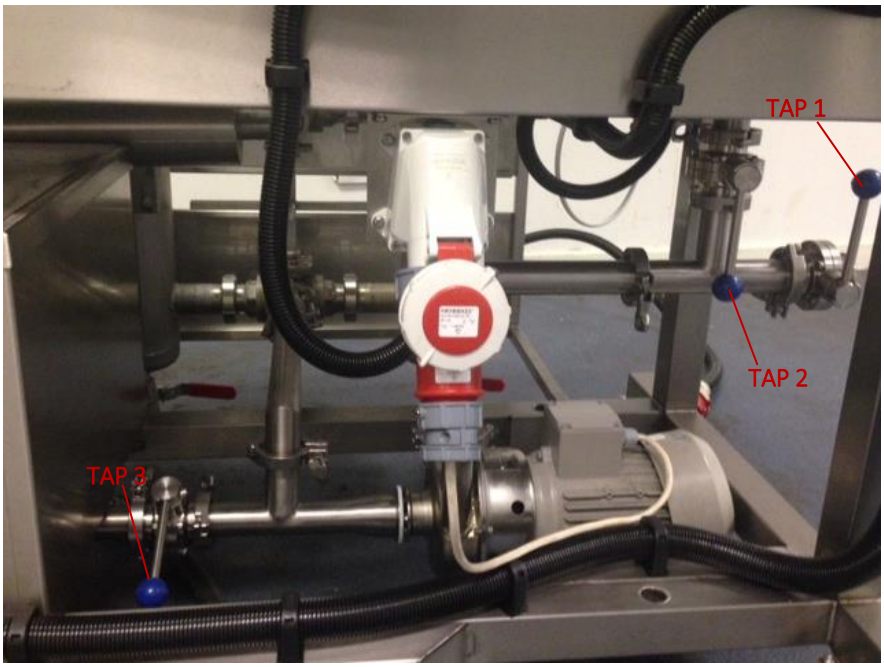
5.1.20 Return control cabinet to its working position and lock in place. Drop conveyor back in position, replace piping, filters and scraper bucket.

Ensure eye bolts on the filters are locked down tight.

Ensure the expansion nuts holding the conveyor in position are not locked tight, they should be finger tight only to allow the conveyor to expand.

5.1.21 To empty cooking oil from the storage tank into the frying tank.

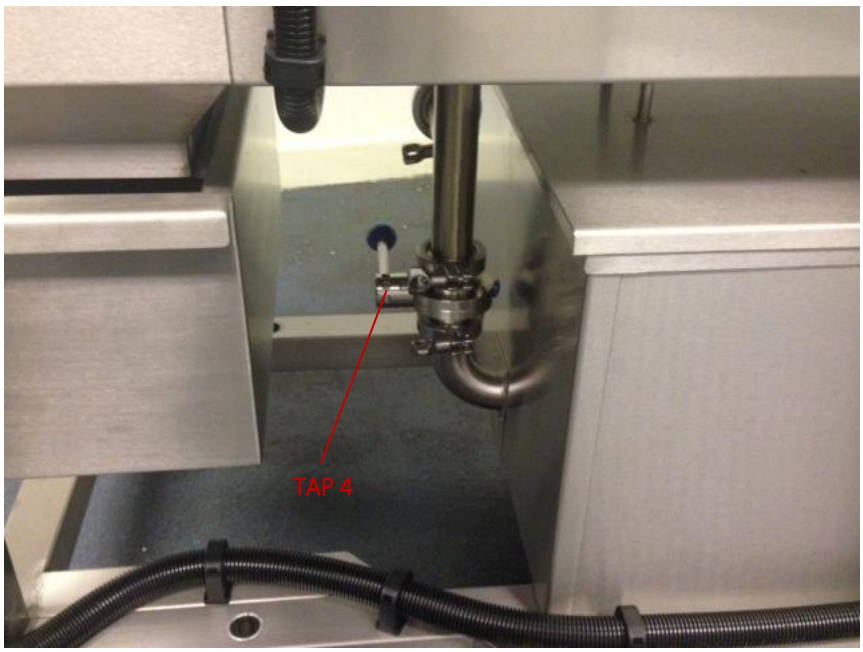
Close tap 1.



Tap 1 should be closed. (Outlet pipe for empting system.)

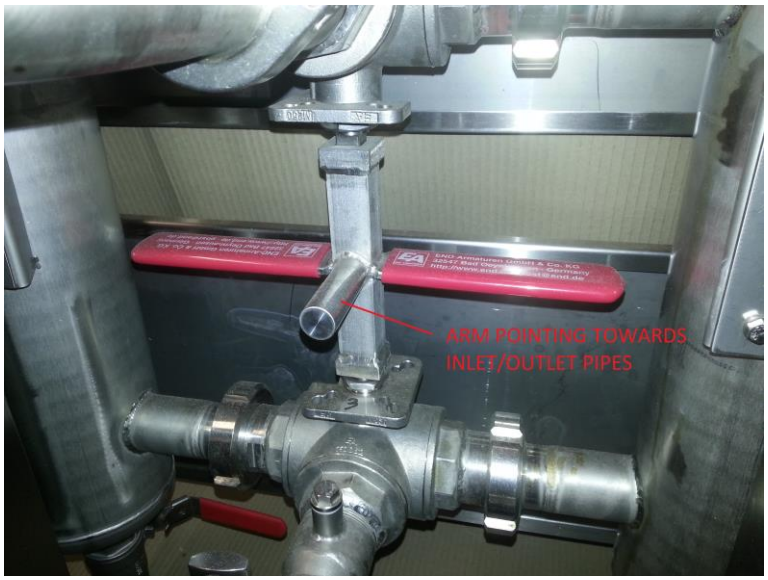
Tap 2 should be open. (From pump to frying tank.)

Tap 3 should be opened. (From pump to storage tank.)



Tap 4 should be closed. (From storage tank to frying tank.)

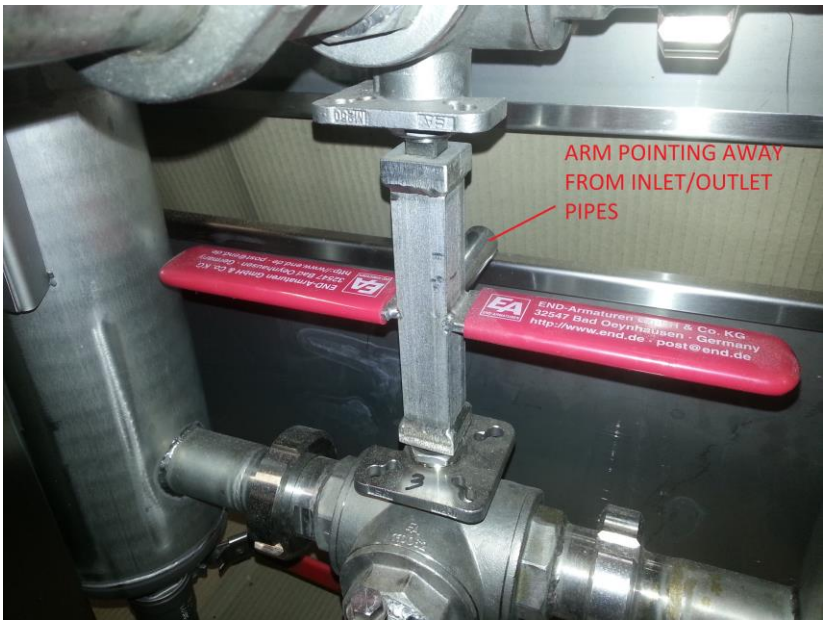
Ensure the filter system switch is closed.



Bar pointing into the fryer, indicates both filters open and in use.

The handle can be switched to several positions, making it possible to not only operate with both filters but also allowing either filter to be opened or closed independently or for both filters to be closed (for cleaning or maintenance). The round bar being the directional indicator.

To close both filters, rotate by pointing away from the fryer



5.1.21 With the taps now in the stated positions and filers close. Connect the electrical supply, depress the “power on” button and the green start button for the pump, this will pump the oil from the storage tank into the frying tank.

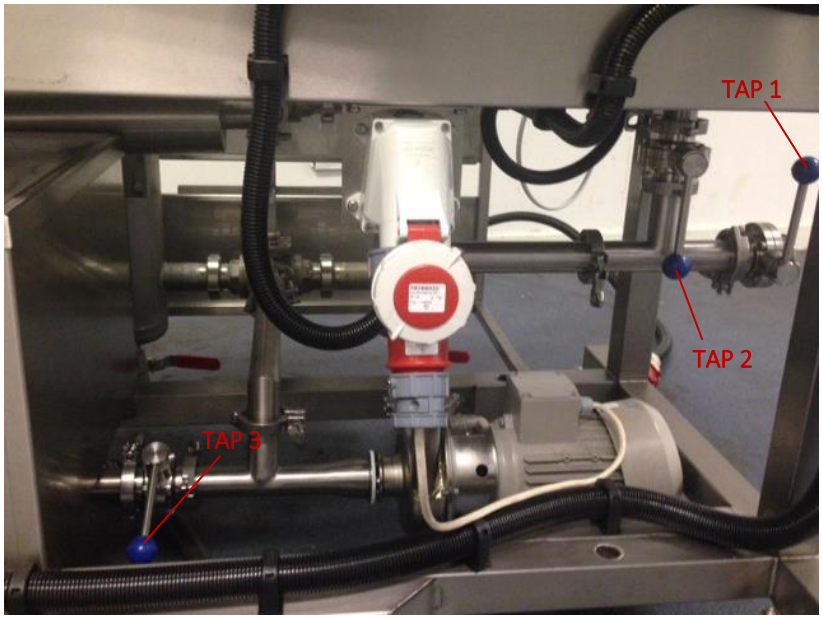
5.1.22 When the storage tank has been emptied, the **‘Oil Below Product’** light should go out, depress the red stop button to stop pump.

5.1.23 **Immediately close tap 2.**

5.2 PREPARING THE STORAGE TANK FOR CLEANING

5.2.1 Remove the cover hoods from the storage tank.

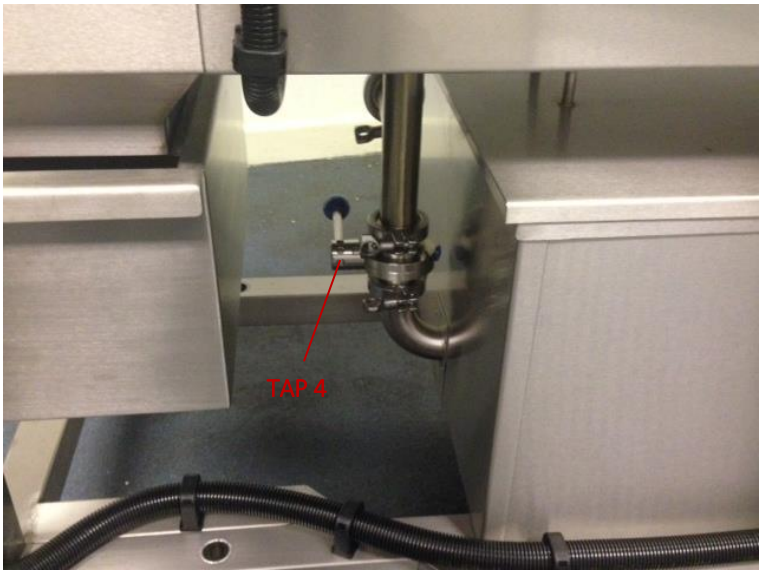
CLOSE TAPS 1, 2 AND 4 FIRST



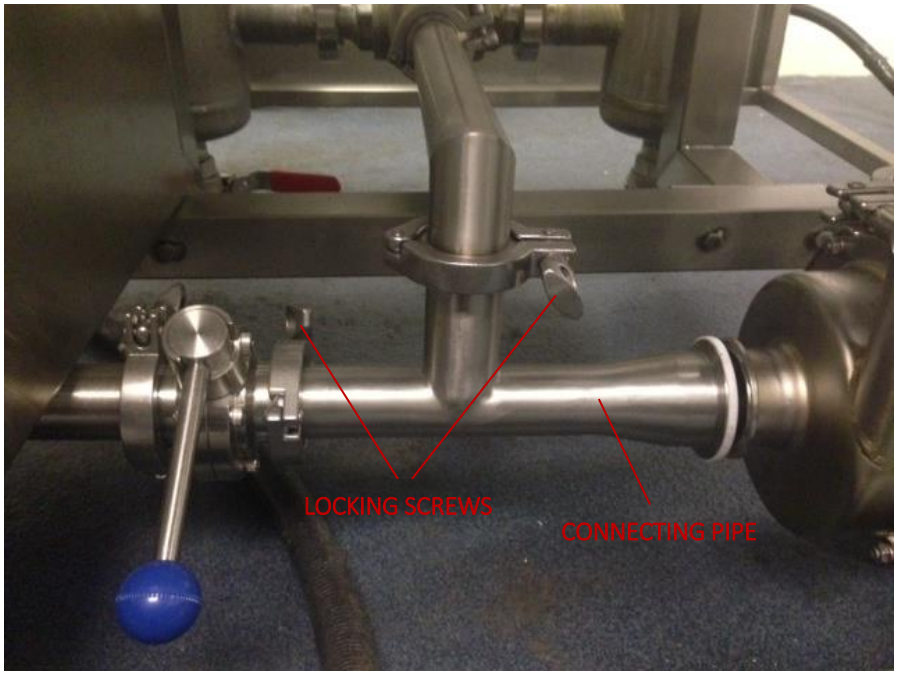
Tap 1 should be closed. (Outlet pipe for empting system.)

Tap 2 should be closed. (From pump to frying tank.)

Tap 3 should be opened. (From pump to frying tank.)



Tap 4 should be closed. (From frying tank to storage tank.)



5.2.2 Remove the oil transfer connecting pipe attached to the storage tank, pump and filter pipe.
Unlock the two screws, remove and clean out pipe, hose down and air dry.

5.2.3 The storage tank should be jet washed with hot soapy water. Rinse thoroughly with clean water and ensure no residue is left in the tank.

5.2.4 Let the tank drain and air dry before reassembly the oil transfer connecting pipe

5.2.5 Ensure connecting pipe is completing dry before reassembling and refitting to the machine.

5.2.6 After all components has been reassembled and adjusted;

Filters should be opened

Tap 4 should be opened. (From frying tank to storage tank.)

Tap 3 should be opened. (From pump to frying tank.)

Tap 2 should be opened. (From pump to frying tank.)

Tap 1 should be closed. (Outlet pipe for empting system.)

5.2.7 Once steps above have been followed you can run fryer for production ensuring all traces of water have been drained out.

(6) SAFETY

CAUTION

By their very nature, deep fat fryers are inherently a potential hazard unless sensibly operated.

Remember that: -

6.1 THEY CONTAIN A SUBSTANTIAL AMOUNT OF COOKING OIL AT HIGH TEMPERATURE, WHICH, IF NOT PROPERLY USED, CAN CAUSE INJURY.

6.2 THE COOKING OIL, PARTICULARLY AT HIGH TEMPERATURE, IS A POTENTIAL FIRE RISK.

6.3 WATER, EVEN VERY SMALL AMOUNTS, WHEN LEFT IN THE PIPELINE ETC. WILL BE TURNED TO STEAM AT WORKING TEMPERATURES BY THE OIL AND WILL EXPAND TO A CONSIDERABLE EXTENT DISPLACING THE OIL EVEN TO THE POINT OF OVERFLOWING THE KETTLE RIM.

6.4 SEDIMENT FROM THE FRYING PROCESS WHEN AT WORKING TEMPERATURES MAY, ON BEING EXPOSED TO THE AIR, BURST INTO FLAMES, IF IT IS PRESENT IN LARGE QUANTITIES.

6.5 ENSURE THAT A SUFFICIENCY OF SUITABLE FIRE EXTINGUISHERS OR BLANKETS IS PRESENT IN THE VICINITY OF THE FRYER AND THAT EMPLOYEES KNOW HOW TO USE THEM.

Whilst every reasonable effort and precaution are taken by Deighton Manufacturing limited in the design and manufacture of its products to comply with the provisions of Health and Safety at Work Act, 1974, all products must be properly used. Purchasers are reminded of their obligations under the Act to ensure that all installations and operation should be safe with no risk to health.

Therefore: -

6.6 ENSURE THE EQUIPMENT IS INSTALLED, OPERATED AND MAINTAINED BY TRAINED AND AUTHORISED PERSONNEL.

6.7 DO NOT REMOVE OR TAMPER WITH ANY GUARDS AND ON NO ACCOUNT OPERATE THE MACHINE WITHOUT THE PROPER GUARDS IN PLACE

6.8 ENSURE EVERYONE IS CLEAR BEFORE STARTING.

6.9 KEEP HANDS AND LOOSE CLOTHING AWAY FROM MACHINES WHEN RUNNING.

(7) MAINTENANCE

Maintenance generally involves periodic checks. The following is a checklist – replace any suspect parts.

7.1 Inspect the conveyor belt for signs of wear and damage.

7.2 Check the entire conveyor bearing brushes.

7.3 Inspect conveyor gears, chains and chain wheels.

7.4 Check the operation and accuracy of the temperature controller. Using an external probe and comparing readouts can achieve this.

7.5 Check the valves and replace any that are leaking.

7.6 Check and replace any that are leaking.

7.7 After several years, if the fryer is slow to heat or fails to maintain the set temperature, the heating elements should be checked and replace if necessary.

7.8 An electrician should check the soundness of the control panel door seals and cable glands so preventing water ingress.

(8) FAULT FINDING GUIDE

8.1 CONVEYOR: -

Conveyor belt slipping or jumping – should this occur, check that the drive chains are not to slack. Also inspect the bearing housings.

Note: All the guards must be replaced correctly before running the conveyor.

Lateral shaft movement – check bearing and bush assembly.

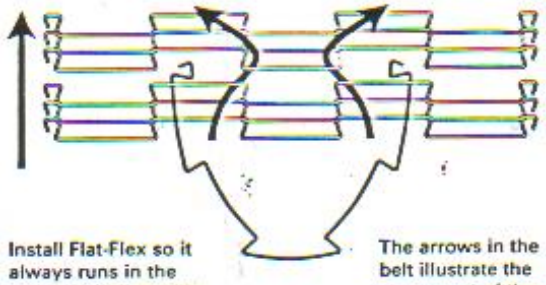
8.2 MOTOR FAILURE: -

Check motor overload to make sure the overload has not tripped out. Before resetting the overload, check to find out why this has occurred. To reset the inverter remove power from the machine for a least 30 seconds. On restate the overload trip will reset.

Wire Belt Repair / Splicing Instructions

1. Isolate the machine from the mains supply
2. Access the belt
3. Remove the damaged links and count them
4. Replace the same number of links ensuring the belt is in the same orientation
5. See instructions on following page for splicing of belt
6. On long belt lengths it is easier if the belt is not under tension when joining
7. When belt is joined straighten the spliced in strand and ensure the belt meshes with the drive sprockets
8. Run the machine slowly until the joined in piece has completed one revolution
9. The machine is now ready for production

1



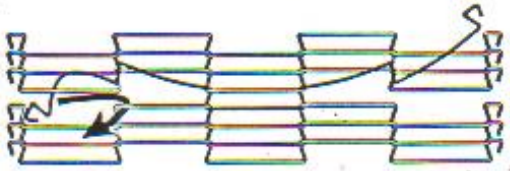
Install Flat-Flex so it always runs in the direction indicated by this arrow - closed end of loop toward direction of travel

The arrows in the belt illustrate the movement of the splicing strand between steps.

When bending the splicing strand, try to limit bending to straight portions of the strand rather than in the "z" bend area.

2

3



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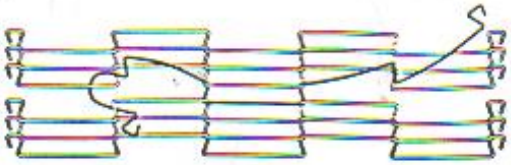
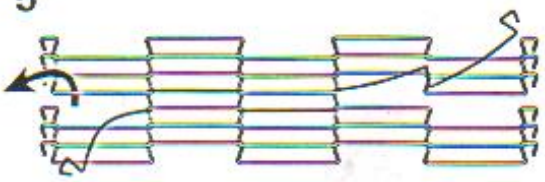


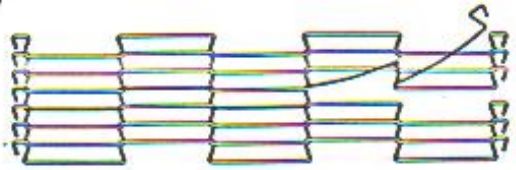
Splice one side completely before starting the other side.

5



6

7



After completing splicing the belt, it is advisable to go along the width of the belt straightening the spliced in strand.

PROBLEM / LIKELY CAUSE	Rapid Oil Breakdown	Smoking oil	Oil Darkness	Grease Soaked Product	Gumming	Foaming	SOLUTION
Overheating	☆	☆	☆		☆	☆	Check temperature controller for proper operation
Salt on food to be fried			☆				Salt foods after frying
Oil Contamination	☆	☆	☆			☆	Filter oil continuously
Poor Cleaning Practices	☆		☆				Clean fryer thoroughly
Insufficient Oil Turnover	☆	☆	☆		☆		Maintain min. qty. of oil or increase qty. of food fried
Frying with excess moisture on product	☆	☆		☆		☆	Remove surplus water before frying
Rapid Oil Breakdown		☆				☆	Use a more stable frying oil
Oil not stable enough for conditions	☆		☆		☆		
Frying at low temperatures				☆			Increase frying temp also check temp controller
Excess Breading or Battering				☆			Remove surplus breadcrumb & batter
Frying Oil Breakdown				☆			Replace oil with fresh oil
Presence of Cleaning Residue						☆	Rinse fryer thorough after cleaning agent has been drained

FILTER SYSTEM

Description

Deighton Manufacturing can supply an in-line filter system for use with their Econofry range of fryers. These filters clean the oil constantly while the fryer is in operation to a specified particle size, generally 200 – 500 microns. The cooking oil is pulled through the filters, from the outfeed end of the fryer, by a centrally mounted centrifugal pump, and pumped back into the infeed end of the fryer.

The double bag filter housings are made of stainless steel and are supplied with a manual switch over for parallel or single operation. This allows the exchange of the filters without interruption to the production process. The switch over is in the form of a central handle operating 2, 3 way ball valves.

Technical Specification

Material:	Housing; Stainless steel Basket; Stainless Steel Seals; Viton
Inlet/Outlet:	1 ½" TriClamp
Filter Bags:	Stainless steel basket 500 micron
Temperature:	200°c
Pressure:	max 10 bar

Safety Instructions

The filter systems are designed for the specific purpose of the filtration of oil and should not be used for liquids whose;

Chemical resistance against the used materials is not guaranteed

Operating temperature is exceeding the maximum stated in the technical specification

Operating pressure is exceeding the maximum shown in the technical specification

If you have to carry out maintenance or repairs please note;

- The filter housing is a pressure vessel and can be under pressure
- Before opening the filter housing please make sure that the vessel is not under pressure and that all inlet and outlet lines are closed
- Protect all inlet and outlet lines against unintentional or unauthorised opening
- Before restart of operation ensure that all mechanical instruments are mounted correctly and vessel is sealed.

Operation

For start of operation and filter exchange

- Open vent
- Slightly open outlet
- Slightly open inlet to fill up vessel
- Close vent after filling
- The filter will be set under pressure now
- Check the housing for leakage
- In case of leakage close inlet and outlet again, open vent to discharge the pressure. Drain the liquid. Check housing and seals for damage. Restart operation again.
- If there is no leakage, first the outlet, then the inlet can be opened fully.
- Slightly open and close the vent to release air from the system if necessary

Switch over

The filter is equipped with a manual switch over for parallel or single operation. This allows filter exchange without process interruption.

The handle can be switched to several positions, so that it is possible to operate either left or right filter housing and also it is possible to operate both housings in parallel. In the other position both housings can be closed. The round bar points in the direction of whichever housing is in operation.


Both closed


Both open


Left open


Right open

Filter Exchange

Before cleaning out filters ensure;

- That the vessel is not under pressure and all inlet and outlet lines are closed
- Protect all inlet and outlet lines against unintentional or unauthorised opening
- When opening the housing take notice of safe handling practices
- Before restart of operation all housing is sealed

To change filter proceed as follows;

- Close inlet and outlet and allow to cool
- Slightly open vent to allow pressure release
- Open drain
- Open filter housing by removing ring nuts and lift cover
- Pull out basket and clean
- Check gaskets and sealing
- Close cover and tighten ring nuts
- Close drain and restart when required


Open cover


Remove basket


Clean & replace


Close cover

Maintenance

During operation please take care of the following;

- Max pressure or temperature should not be exceeded
- Pressure shocks should be avoided
- No leakage is found

The filter system should be run whenever the fryer is in operation for maximum cleaning effect.

Ensure the valves are positioned correctly as follows;

- Valve at outfeed end of fryer closed (perpendicular to pipework)
- Valve between storage tank and pump (if applicable) closed (perpendicular to pipework)
- Valve between pump and fryer (vertical) open
- Drain valve at infeed end of fryer closed

The filter system can be switched on by pressing the pump start button.

Note: The pump should not be run dry as this will damage the seals.

SEDIMENT REMOVAL SYSTEM

Deighton Manufacturing can supply the Econofry systems with a sediment removal system. This system consists of a series of stainless steel scraper bars travelling along the bottom of the flat bed fryer and dragging any sediment towards the outfeed end of the fryer. At the outfeed end of the fryer the bars travel up an inclined strainer plate to remove any excess oil before depositing the sediment in a waste bin. When full this bin can be removed, without interruption to the frying process, and cleaned out.

The scraper system should only be operated when submersed in oil and it is recommended only when the oil is up to production temperature. This system can be used in conjunction with the filter system to remove the large sediment before filtering.

To operate the scraper system press the scraper belt start button, the green light will be Illuminated and the belt in motion.

STORAGE TANK

Deighton Manufacturing can supply the Econofry with and additional storage tank for ease of cleaning or storage of oil when running the conveyor system dry.
The oil from the frying tank can be easily drained from the outfeed end of the fryer into the enclosed storage tank situated beneath the fryer. When required the oil is then pump back into the frying tank via a centrifugal pump.

The Storage tank can be supplied with a number of elements which can be used to keep the oil at a nominal temperature while the conveyor is been used dry.

The oil can be emptied into the storage tank by opening (handle parallel to pipe work) the valve at the outfeed end of the fryer.

To switch the elements on turn the storage tank heaters switch to the on position. The heaters will only operate when the low oil level light is extinguished. The temperature can be set as per main fryer elements.

To pump the oil back into the fryer close the valve at the outfeed end of the fryer and open the valve between the storage tank and pump, press the pump start button.

Note: Do not run the pump dry as this will damage the seals in the pump housing. The valve between the storage tank and pump must be open before operation.

HOIST SYSTEM

Deighton Manufacturing can supply a hoist system for its Econofry system. This utilises two chain blocks on lifting frames for ease of removal of the conveyor from the fryer tank.

The lifting frames should be securely bolted to the fryer frame using the fasteners provided. Attach the chain block to eye bracket on the frame and then attach the chain sling to the chain block and lifting eyes on the conveyor.

Ensure the expansion nuts have been removed from the conveyor before attempting to lift. Both ends should be lifted simultaneously at a steady rate, ensuring that the conveyor is kept level, up to its maximum height. The elements can then be rotated out of the tank for cleaning.

When lowering, the conveyor should once again be kept level and guided into its seating position on the 4 locating studs. Ensure conveyor is correctly seated and re fasten expansion nuts. The lifting tackle and frames can then be removed if desired.

RECOMMENDED SPARES LIST

Econofry

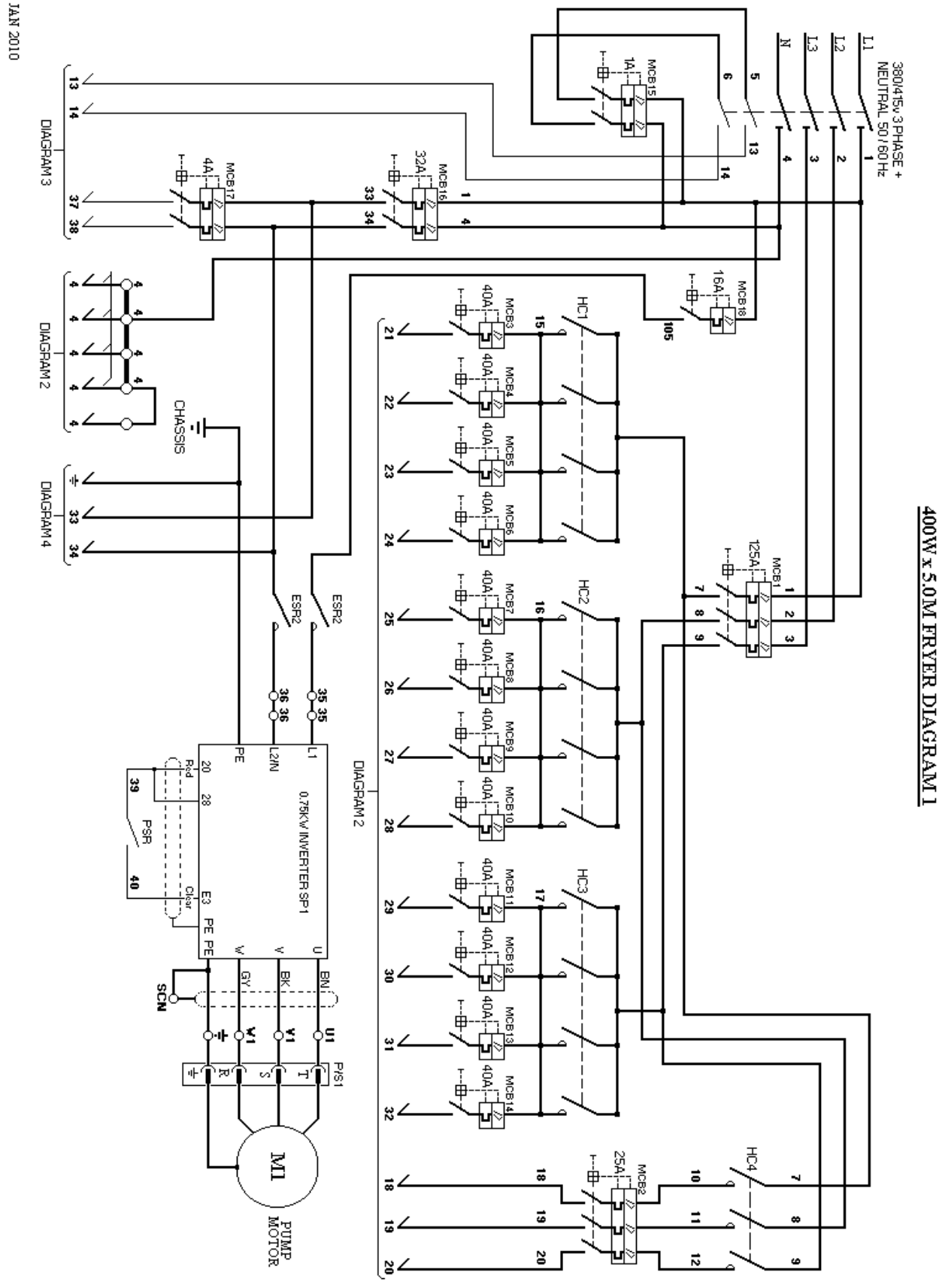
Description	Part Number				Qty
Width	600mm	400mm	300mm	200/250mm	
Heating Element	EF3561	EF356A	EF356E	EF356B	2
Wire Belt	EF2403	EF2404	EF241A	EF241/EF2405	
Heat Resistant Shaft Bush	EF251	EF251	EF251	EF251	6
Bearings	EF262	EF262	EF262	EF262	2
1 ½" High Temperature Seal	WER2751	WER2751	WER2751	WER2751	2
1 ½" Triclover Seal Clamp	WER273	WER273	WER273	WER273	1
Control Relay	EF1211	EF1211	EF1211	EF1211	1
Auxiliary Relay	EF1212	EF1212	EF1212	EF1212	1
30kw Contactor	EF1207	EF1207	EF1207	EF1207	1
Start Button	F1004	F1004	F1004	F1004	1
Start Button Boot	F1004A	F1004A	F1004A	F1004A	1
Stop Button	F1005	F1005	F1005	F1005	1
Start Button Contact Block	F1006	F1006	F1006	F1006	1
Stop Button Contact Block	F1007	F1007	F1007	F1007	1
E stop Button	EF1406	EF1406	EF1406	EF1406	1
Temp Sensor	EF1017	EF1017	EF1017	EF1017	1

Digital Controller	ASC343C	ASC343C	ASC343C	ASC343C	1
Bulb	EF1253	EF1253	EF1253	EF1253	2
Conveyor motor	EF100A 180w 27rpm ratio 46				
Scraper motor	EF100 60w 4rpm ratio 420				

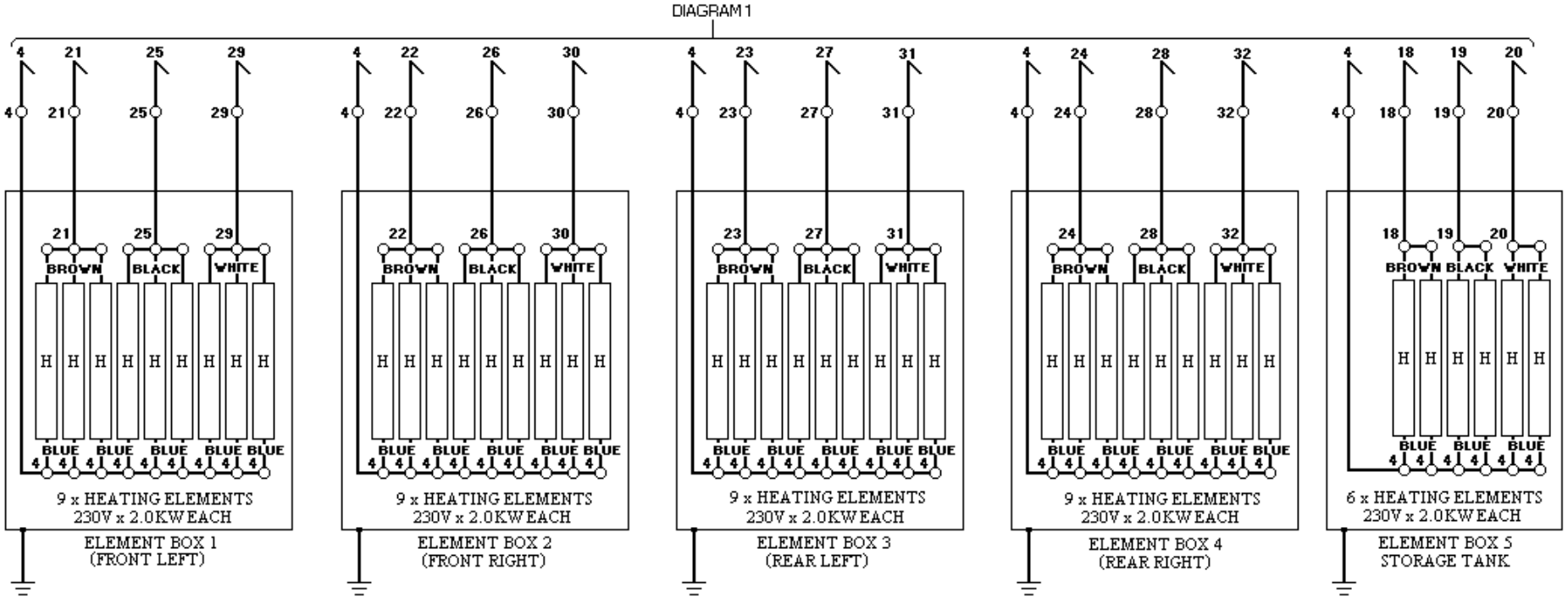
Teflon Belt

200 wide x 330 long	EF2480-4
200 wide x 670 long	EF2480-3
250 wide x 670 long	EF2484
300 wide x 330 long	EF2483-3
300 wide x 670 long	EF2481-4
400 wide x 330 long	EF2483
400 wide x 670 long	EF2479-2
600 wide x 330 long	
600 wide x 670 long	EF2482-2

WIRING DIAGRAMS



400W x 5.0M FRYER DIAGRAM 2



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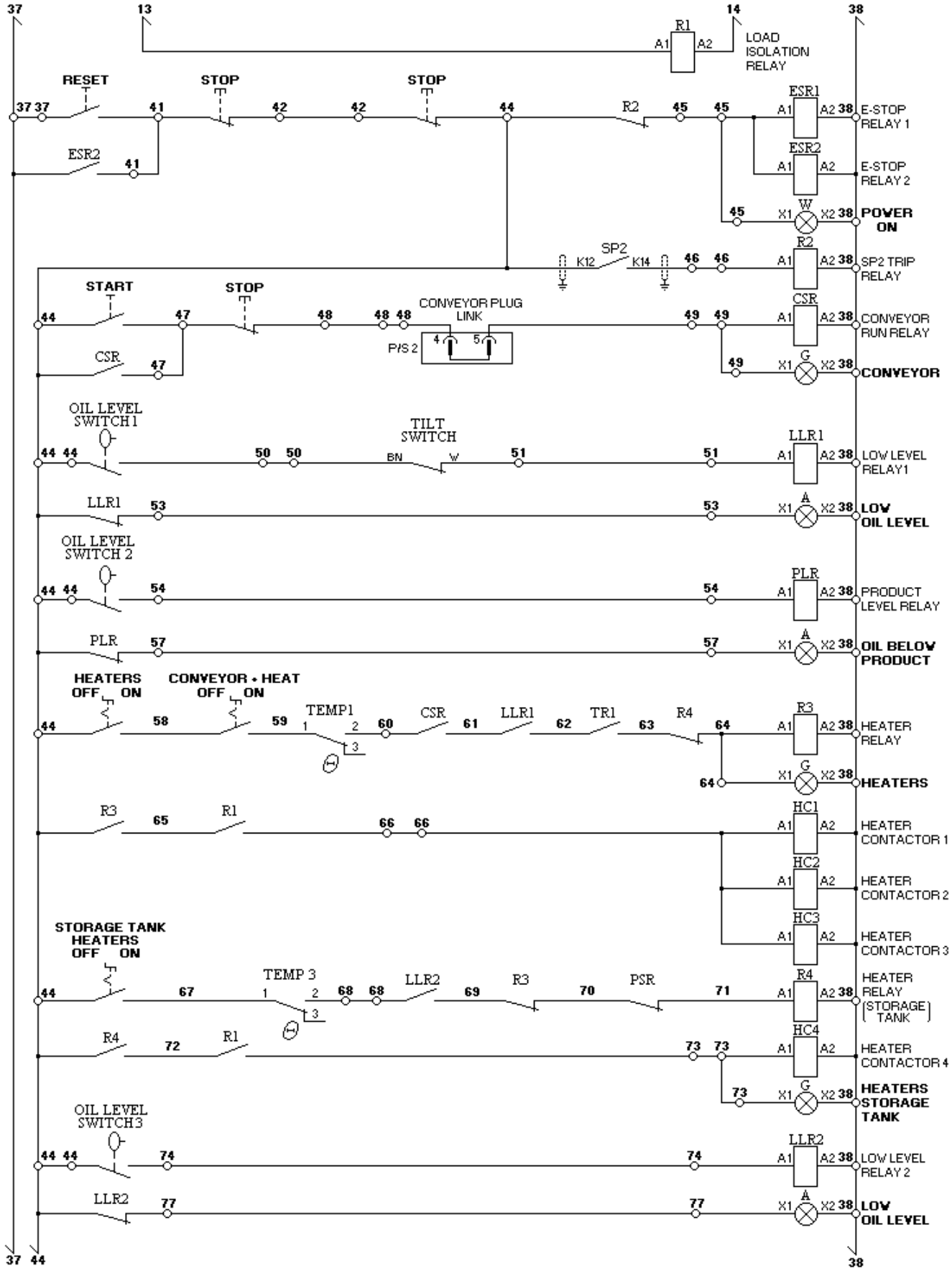
400W x 5.0M FRYER DIAGRAM3



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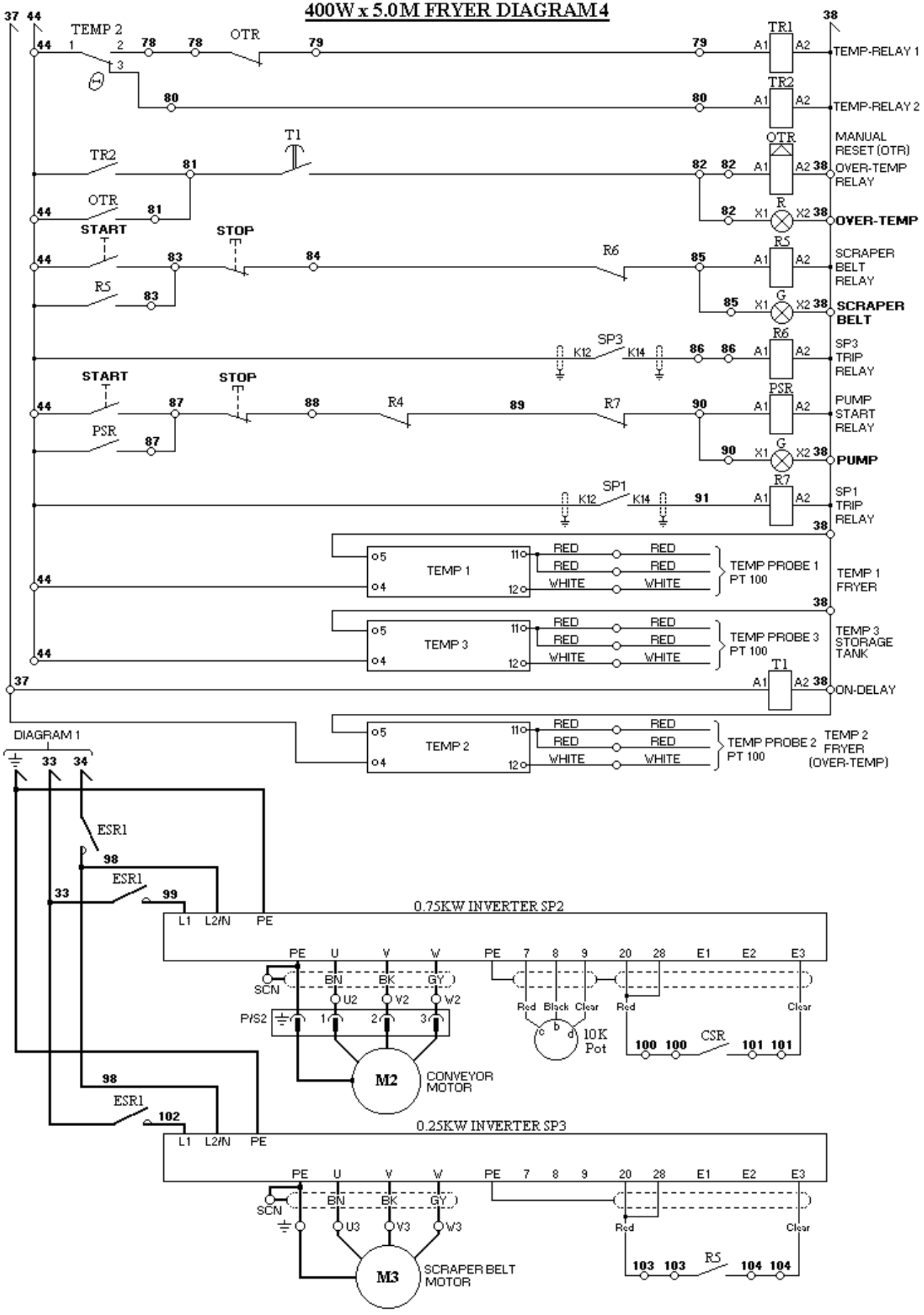
400W x 5.0M FRYER DIAGRAM4



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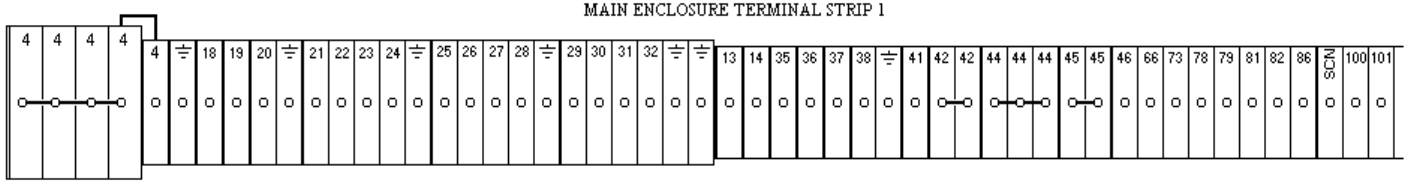
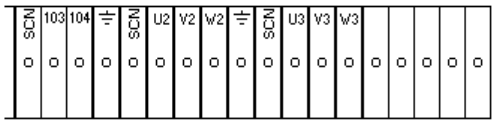
400W x 4.5M FRYER DIAGRAM 5

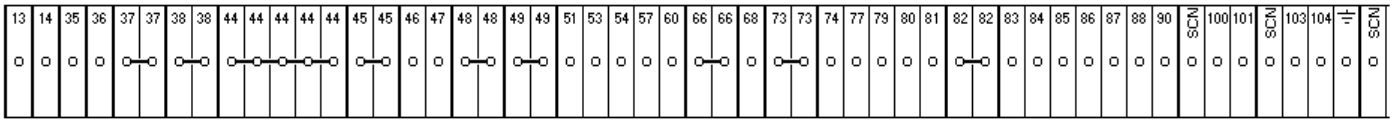
MAIN ENCLOSURE TERMINAL STRIP 1

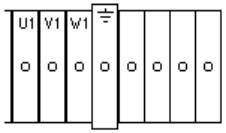


MAIN ENCLOSURE TERMINAL STRIP 1

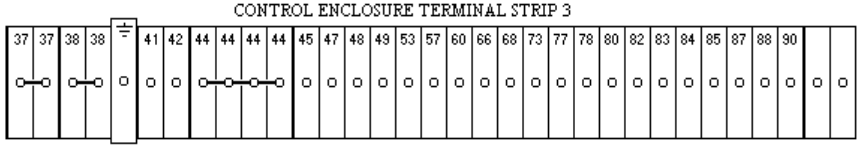


AUX ENCLOSURE TERMINAL STRIP 2





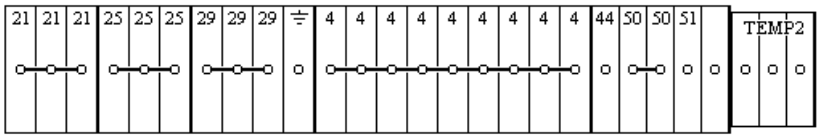
CONTROL ENCLOSURE TERMINAL STRIP 3



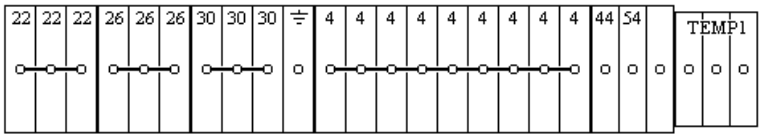
WIRE NUMBERS NOT USED :- 43, 52, 55, 56, 75, 76

400W x 4.5M FRYER DIAGRAM 6

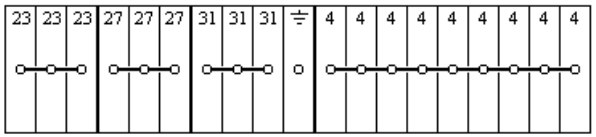
(FRONT LEFT)
ELEMENT BOX 1 TERMINAL STRIP 4



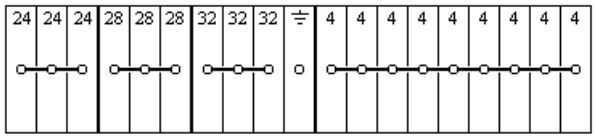
(FRONT RIGHT)
ELEMENT BOX 2 TERMINAL STRIP 5



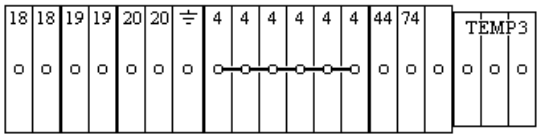
(REAR LEFT)
ELEMENT BOX 3 TERMINAL STRIP 6



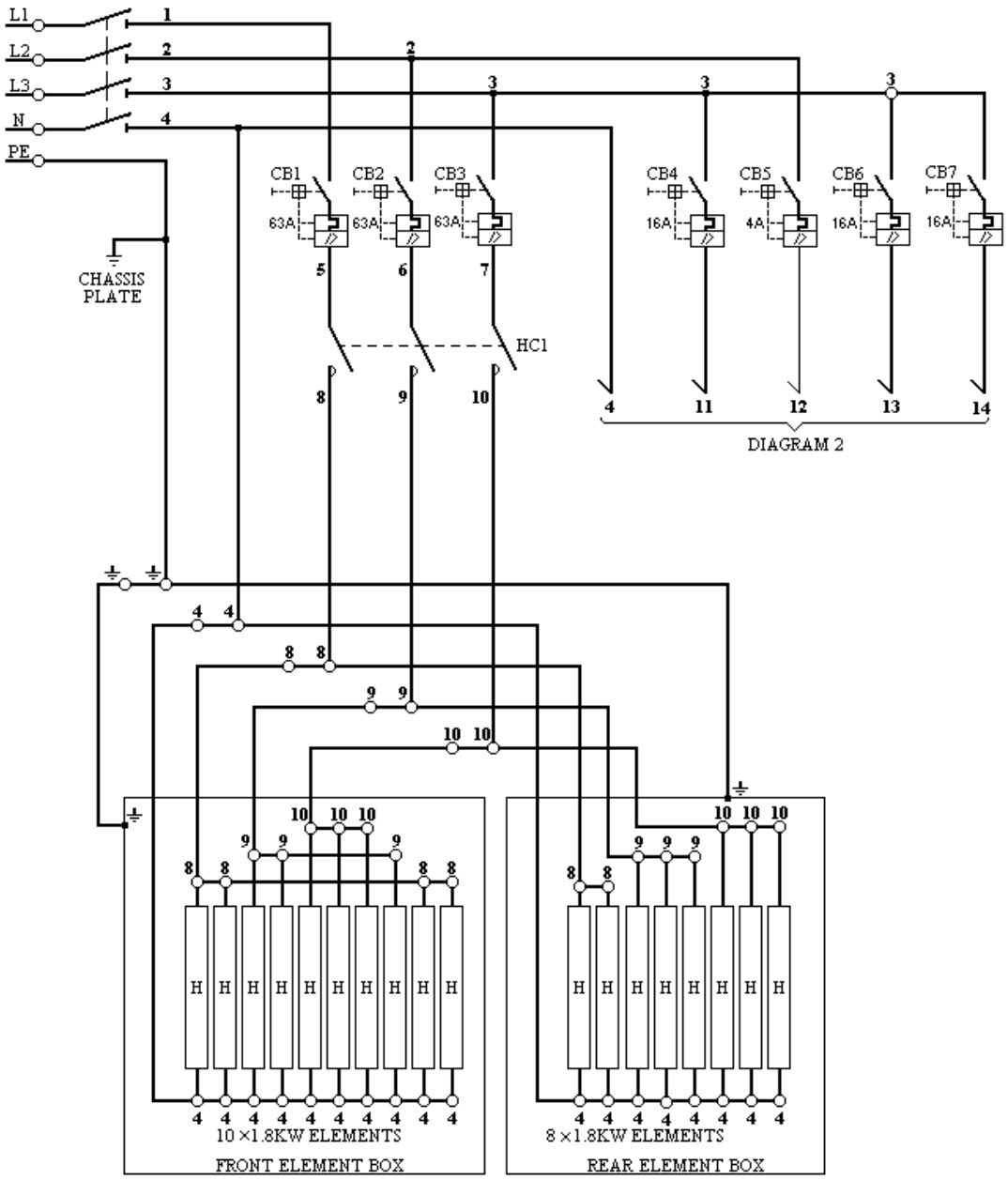
(REAR RIGHT)
ELEMENT BOX 4 TERMINAL STRIP 7



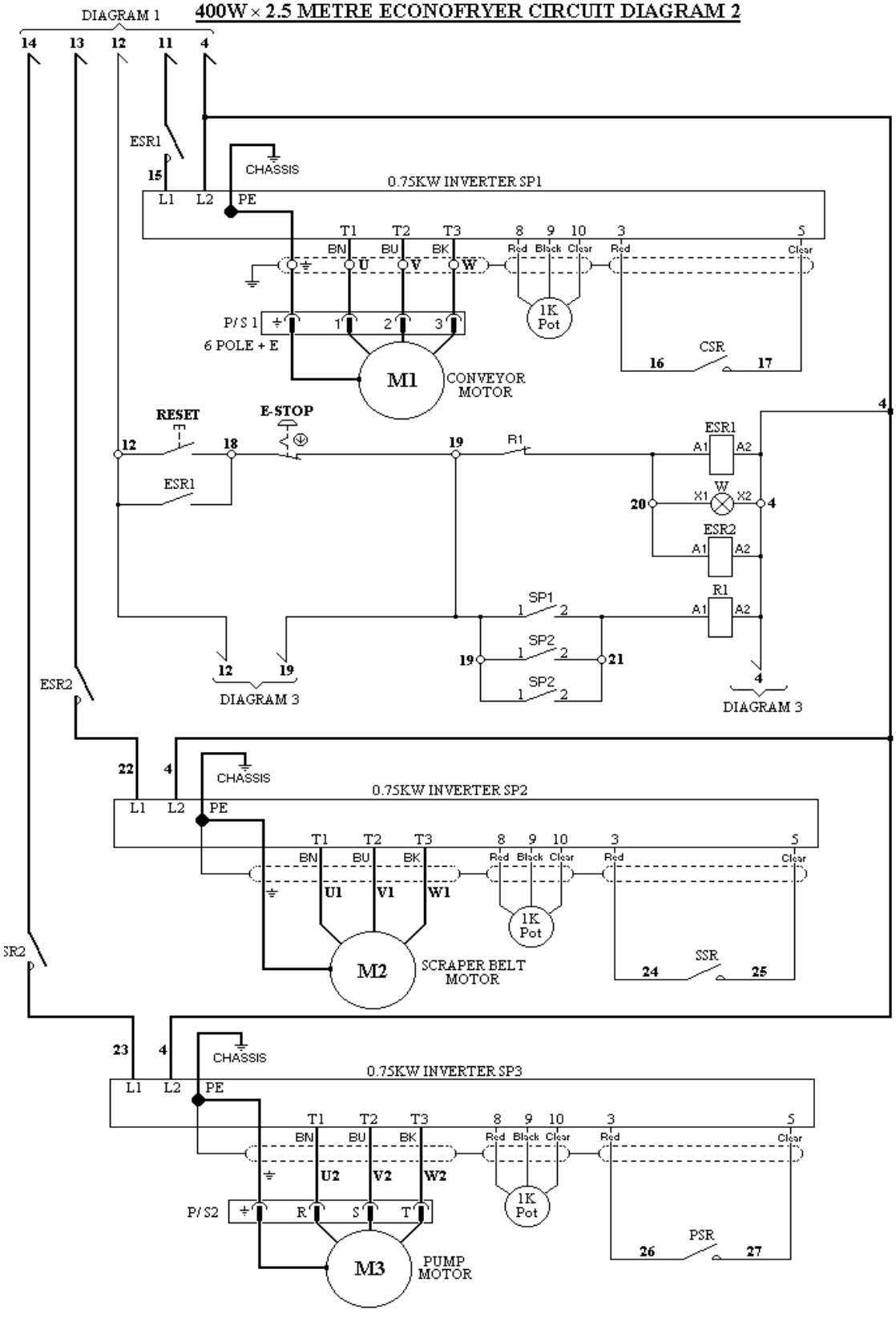
ELEMENT BOX 5 (STORAGE TANK) TERMINAL STRIP 8



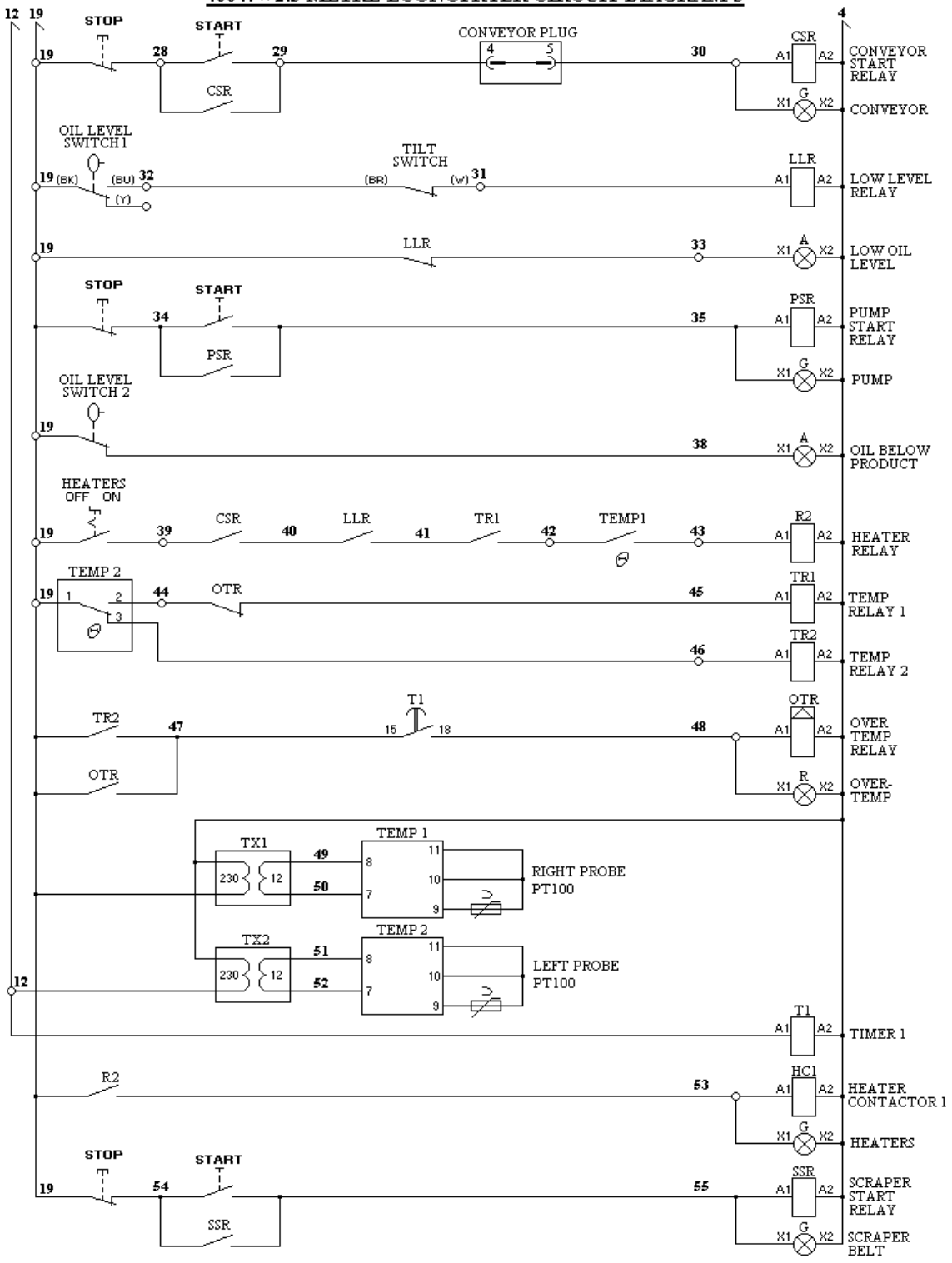
400W * 2.5M WIDE ECONOFRYER CIRCUIT DIAGRAM 1



400W × 2.5 METRE ECONOFRYER CIRCUIT DIAGRAM 2

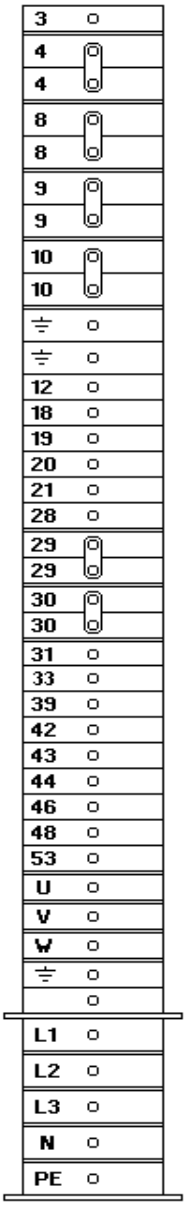


400W × 2.5 METRE ECONOFRYER CIRCUIT DIAGRAM 3

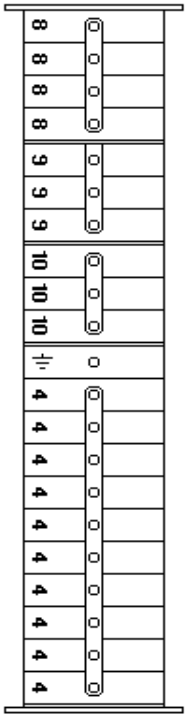


400 WIDE x 2.5 M ECONOFRY TERMINAL DIAGRAM 4

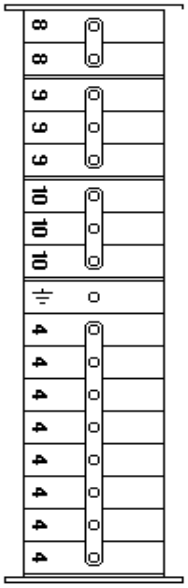
MAIN CONTROL BOX TERMINALS



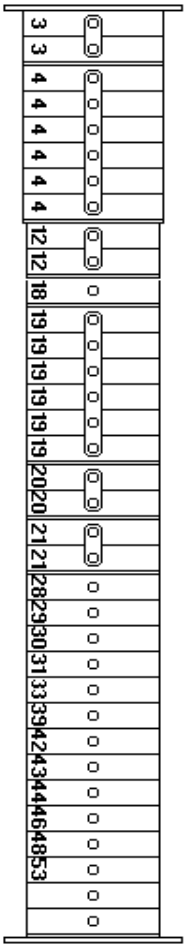
FRONT ELEMENT BOX ELEMENT TERMINALS

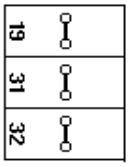


REAR LEFT ELEMENT BOX ELEMENT TERMINALS

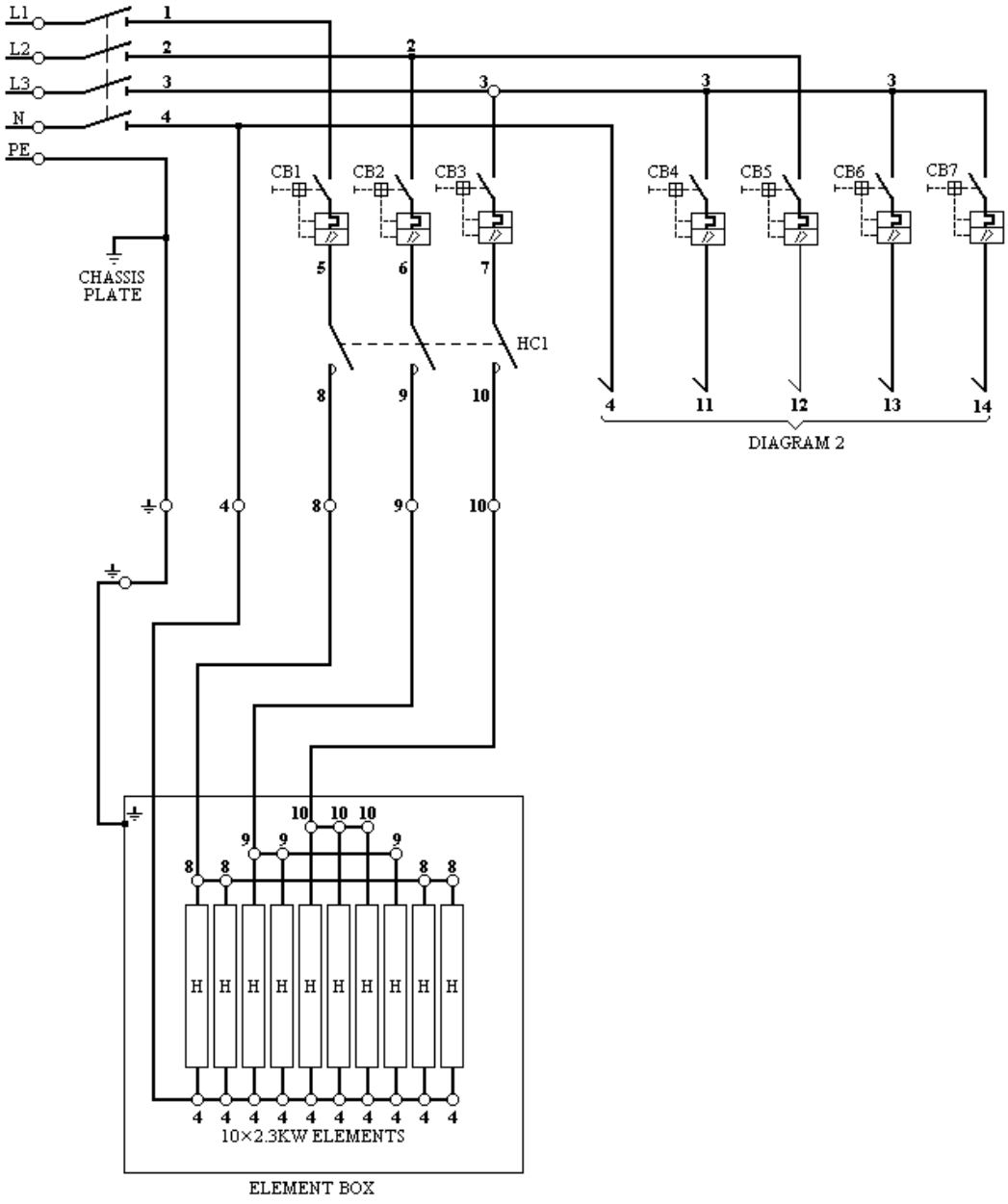


ELEMENT BOX CONTROL TERMINALS

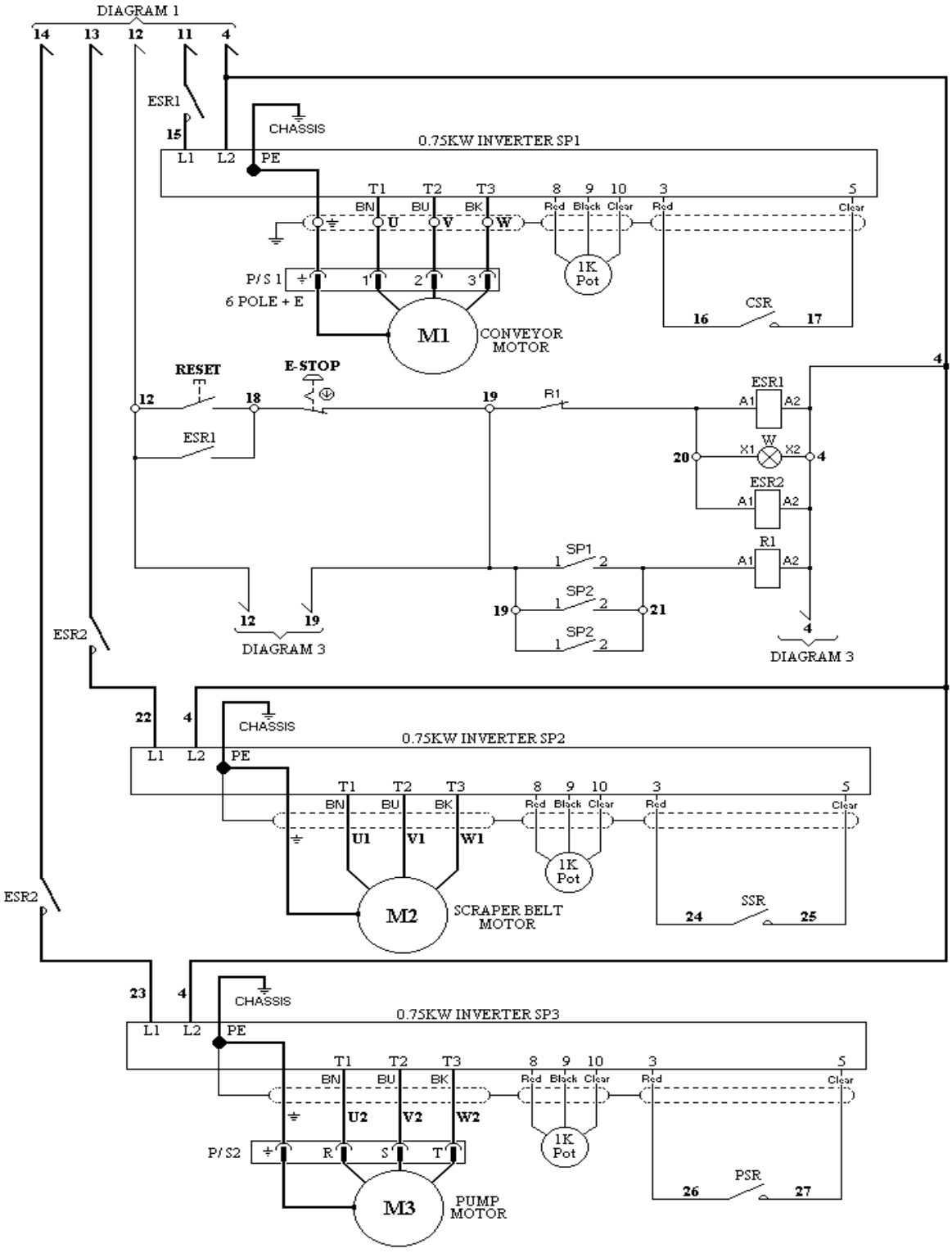




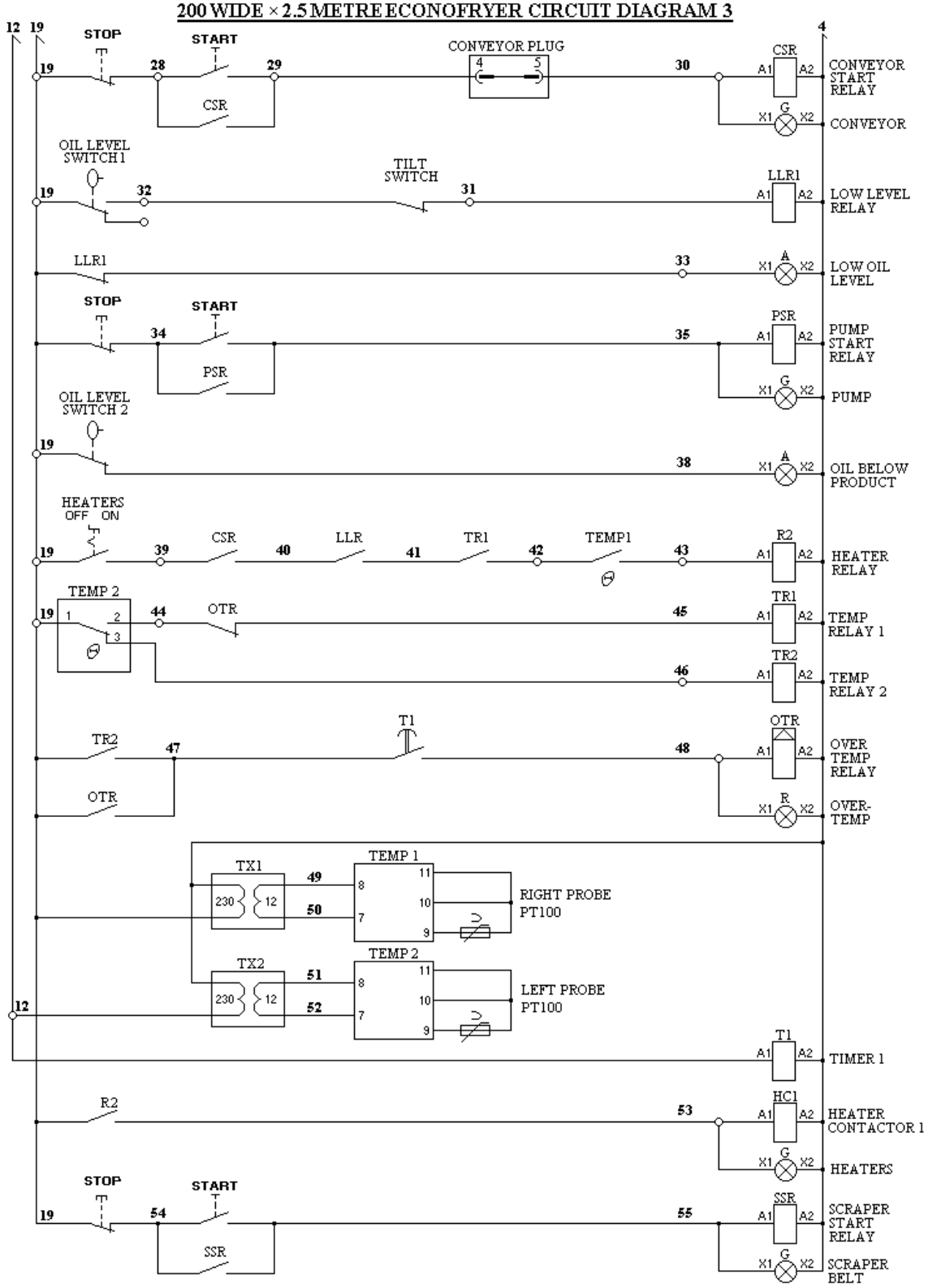
200 WIDE × 2.5 METRE ECONOFRYER CIRCUIT DIAGRAM 1



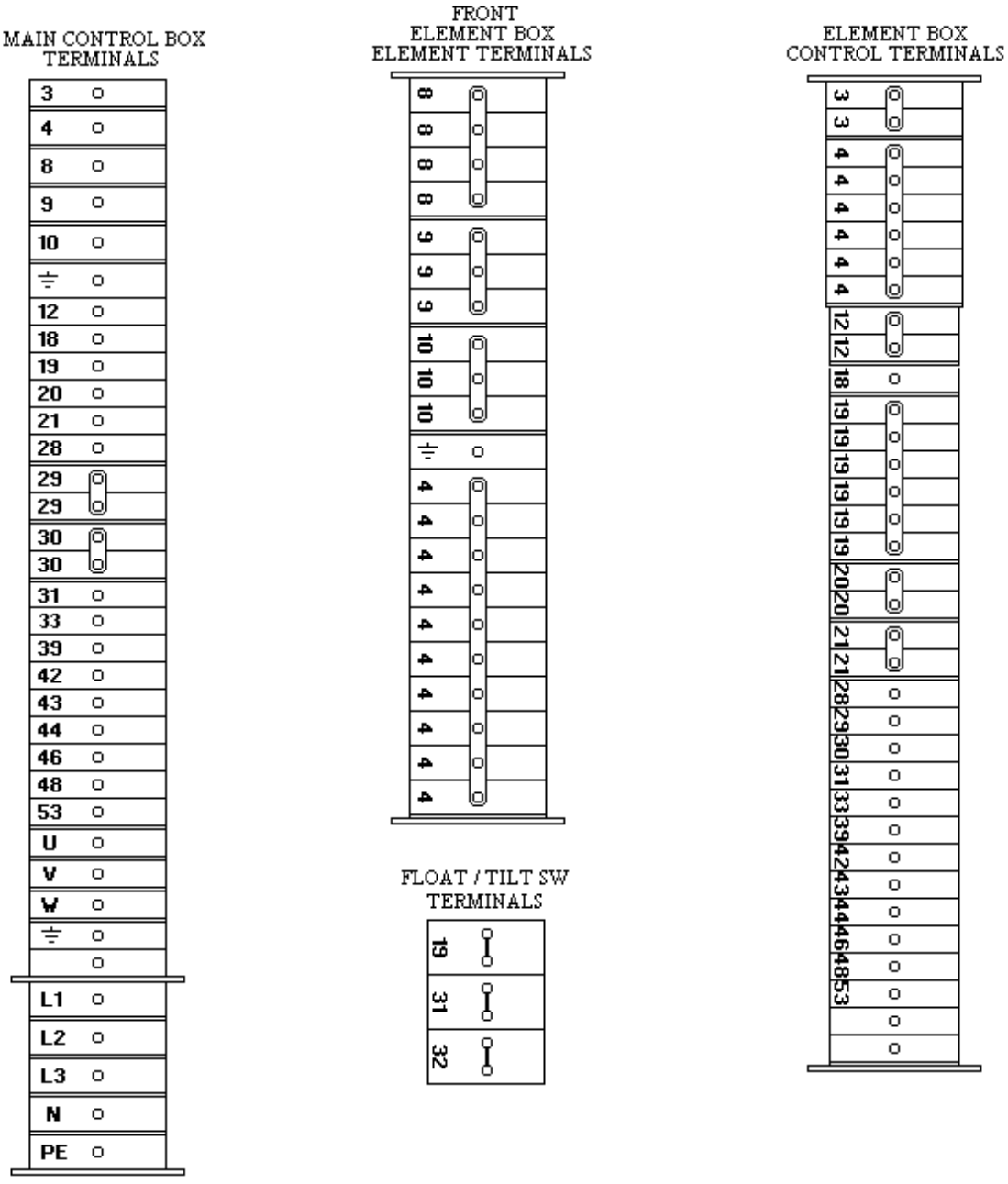
200W × 2.5 METRE ECONOFRYER CIRCUIT DIAGRAM 2



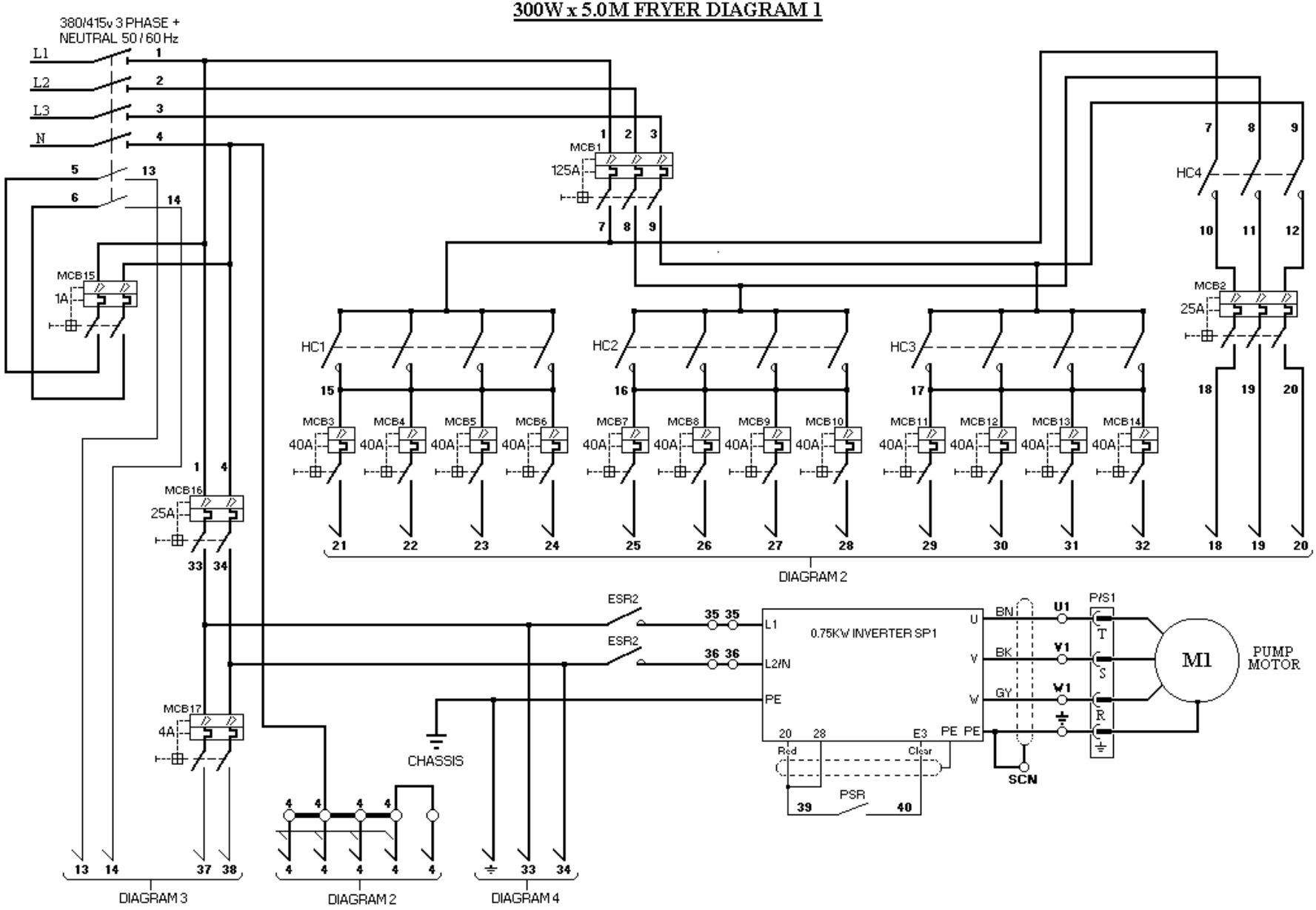
200 WIDE × 2.5 METRE ECONOFRYER CIRCUIT DIAGRAM 3



200 WIDE × 2.5 METRE ECONOFRYER TERMINAL DIAGRAM 4



300W x 5.0M FRYER DIAGRAM 1



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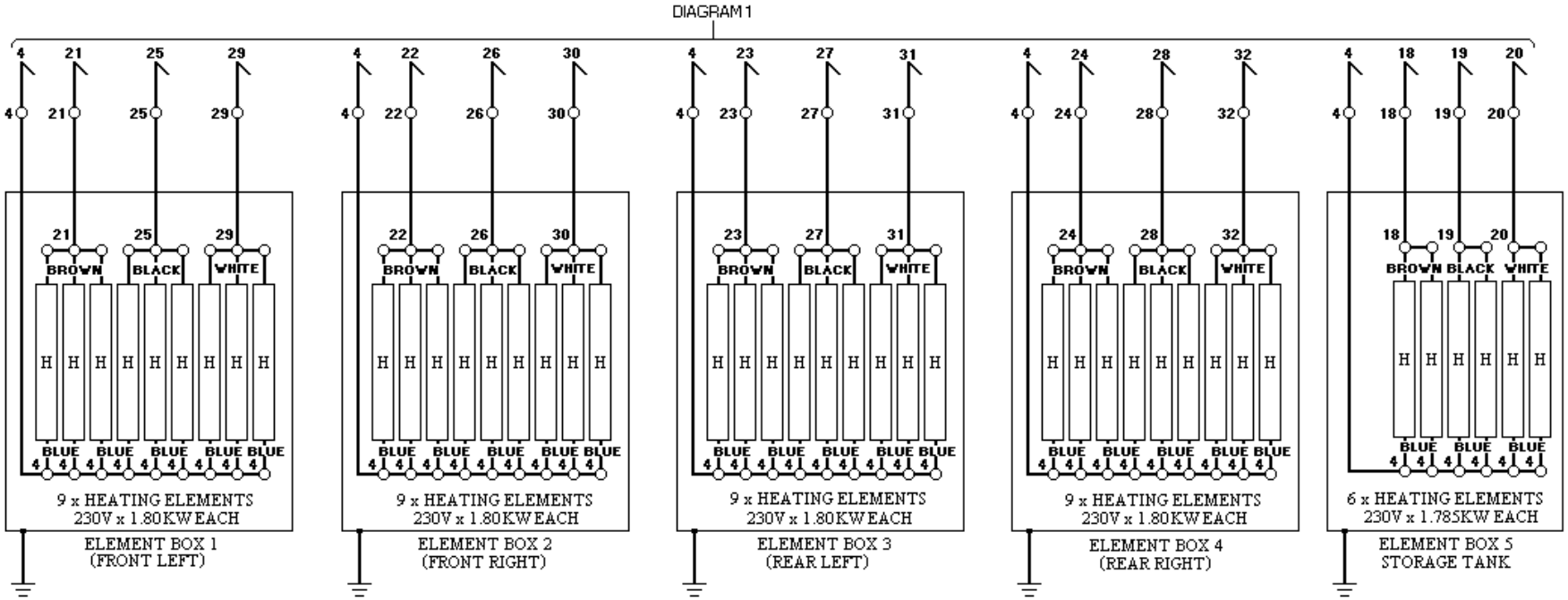
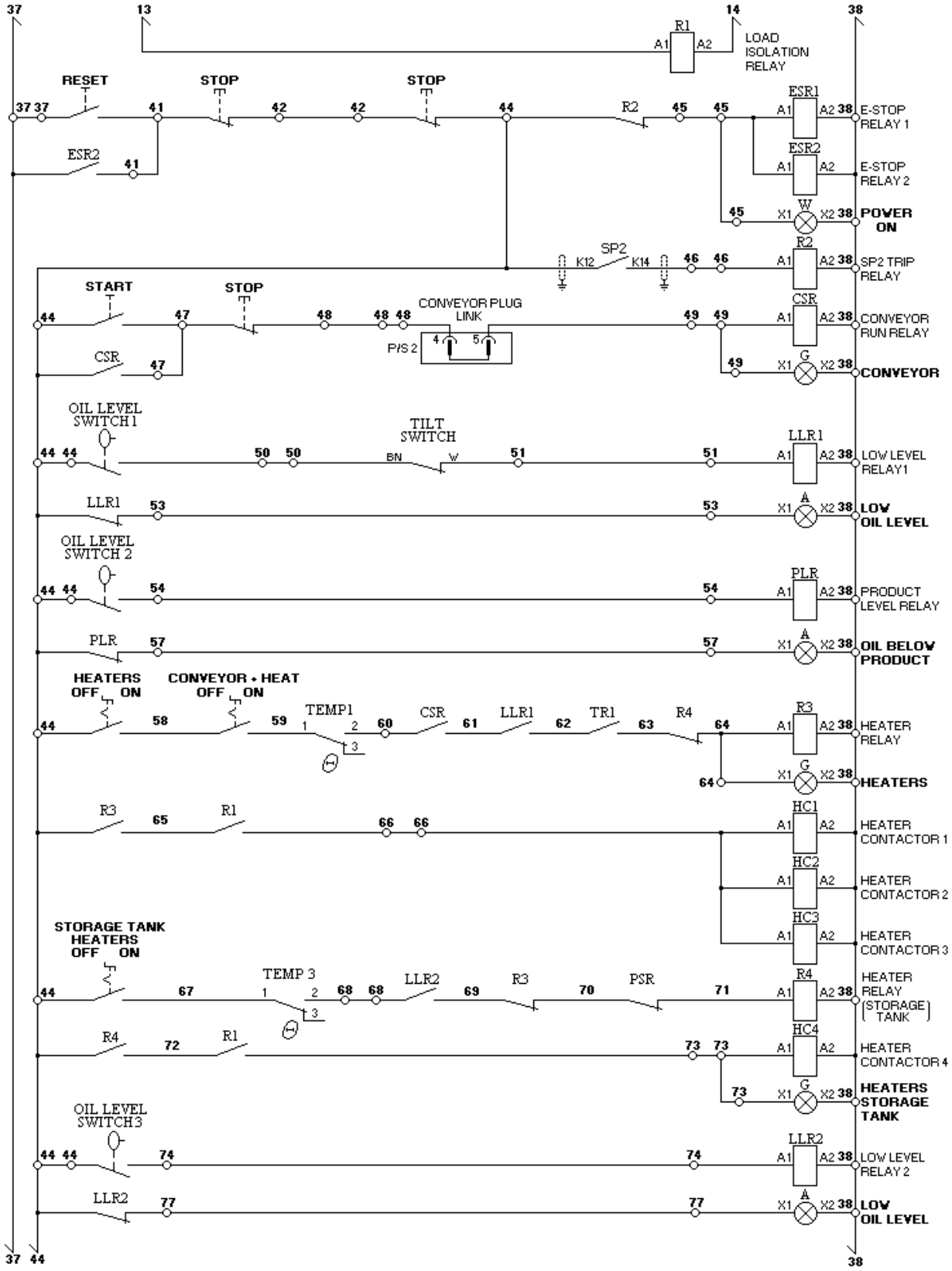
300W x 5.0M FRYER DIAGRAM 2



300W x 5.0M FRYER DIAGRAM3



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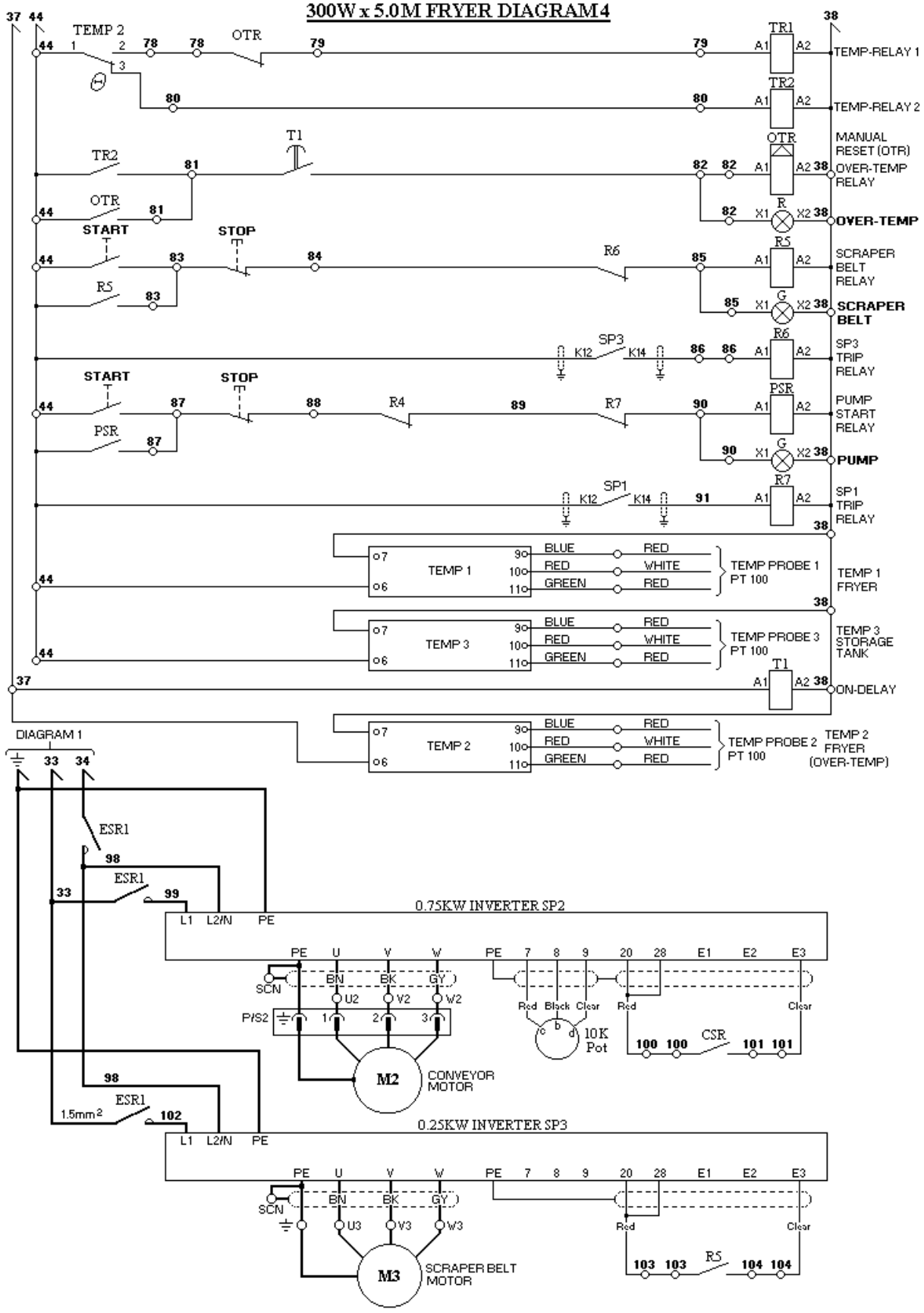
300W x 5.0M FRYER DIAGRAM4



JAN 2010

PARAMETER SETS FOR TEMP (1) , (2) , (3) ETC1311-R-230VAC CONTROLLERS

TEMP 1	TEMP 2	TEMP 3
HYS 1	**HYS 1**	**HYS 1**
UPL 190	**UPL 205**	**UPL 30**
LoL 70	**LoL 205**	**LoL 10**
Eon 0	**Eon 0**	**Eon 0**
Ect 10	**Ect 10**	**Ect 10**
oFS 0	**oFS 0**	**oFS 0**
EXTERNAL TEMPERATURE CONTROLLER FOR FRYER TANK	OVER - TEMP TEMPERATURE CONTROLLER FOR FRYER TANK	EXTERNAL TEMPERATURE CONTROLLER FOR STORAGE TANK

HYS = Hysteresis for set point.
UPL = Upper limit of the set point.
LoL = Lower limit of the set point.
Eon = Error relay on time.
Ect = Error relay output time.
oFS = Temperature offset value.

To change temperature set point press and hold ▼ or ▲ buttons.

To view parameters press and hold ■ until **Con** is displayed.

Press ▼ to display **HYS,▼ UPL,▼ LoL,▼ Eon,▼ Ect,▼ oFS.**

Press ■ to display data stored in each parameter.

The unit will return to temperature display after a short period when no buttons are pressed.

TO MODIFY PARAMETERS STORED IN TEMP CONTROLLER PRESS AND HOLD ■ BUTTON UNTIL **Con** IS DISPLAYED.

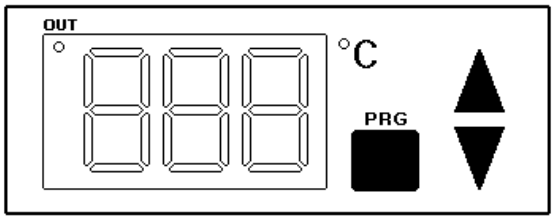
PRESS ▲ BUTTON TO DISPLAY **SEC** THEN PRESS ▼ BUTTON TO DISPLAY **Cod**.

PRESS AND HOLD ■ BUTTON AND USE ▲ BUTTON UNTIL DISPLAY SHOWS **311**.

PRESS DOWN ARROW TO DISPLAY **Aco** ,PRESS AND HOLD ■ BUTTON PRESS ▼ BUTTON UNTIL **PYE** IS DIPLAYED.

THE PARAMETERS CAN NOW BE MODIFIED, WHEN COMPLETE CARRY OUT ABOVE INSTRUCTIONS UNTIL **Aco** IS DISPLAYED, PRESS AND HOLD ■ AND USE ARROW KEYS TO DISPLAY **Pno** NOW THE PARAMETERS CANNOT BE MODIFIED.

The unit will return to temperature display after a short period when no buttons are pressed.



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