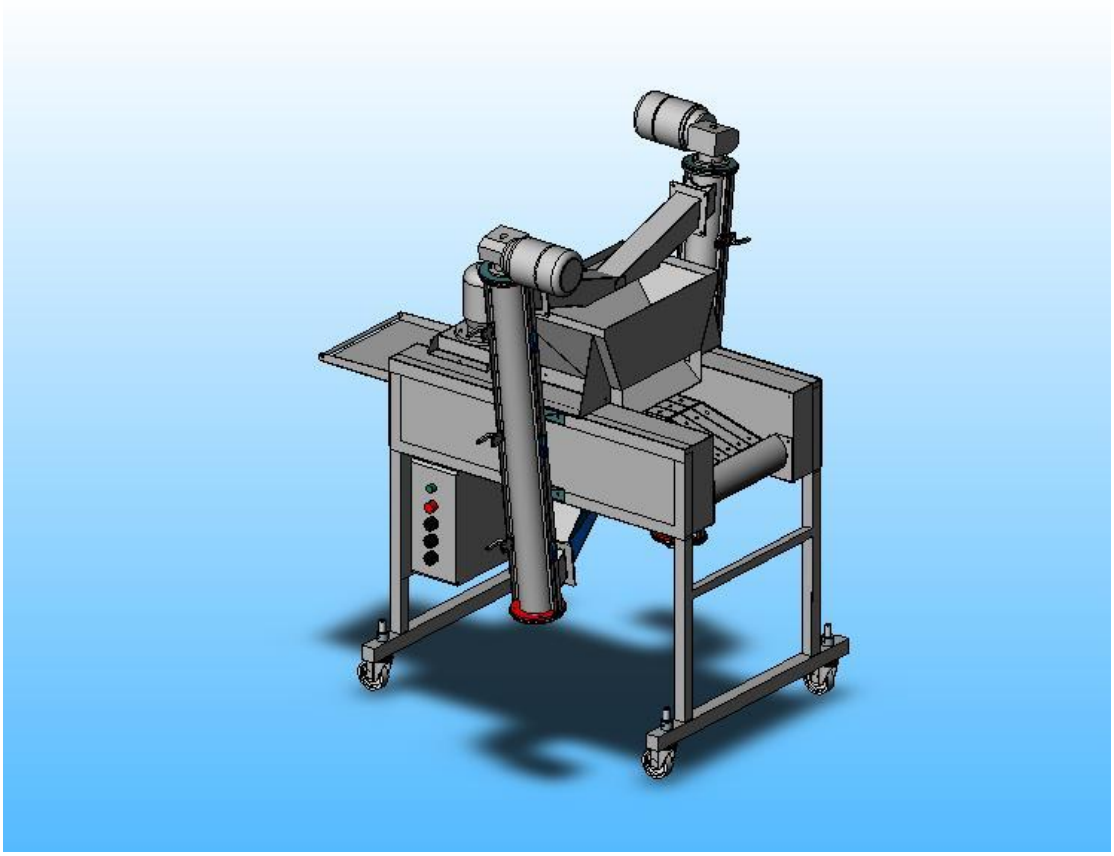
ECONOCRUMB

Instruction Manual



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ECONOCRUMB

CONTENTS

1. Introduction
2. Technical Specification
3. Installation / Preparation for Production
4. Operating the machine
5. Cleaning
6. Safety
7. Maintenance
8. Fault Finding Guide
9. Recommended Spares List
10. Wiring Diagrams

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(1) INTRODUCTION

The EconoCrumb forms part of the Deighton Manufacturing Limited Frying Line system and is used to coat a range of products with a variety of crumb types.

Production Flexibility

The machine has been developed to automate the process of crumbing formed or batter coated product. Coating a host of products including fish, ethnic and vegetable produce. The machine can handle a variety of crumb types including Japanese crumb. This ensures the operator can enjoy maximum versatility within his product range.

Simple and smooth Operation

The EconoCrumb can be hand or conveyor feed. Products being automatically fed through the machine coated, and then output ready for the next production requirement. Speed of production can be increased or decreased by a variable speed dial

Hygiene

The EconoCrumb is easy to clean and has fully sealed controls and motors.

Product Specification

The EconoCrumb will coat products up to 40 mm thick across the width of the belt

This manual provides information on the EconoCrumb and instructions on installation, operation, cleaning and maintenance.

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(2) TECHNICAL SPECIFICATION

Width;	**200mm**	**300mm**	**400mm**	**600mm**
Weight:	150 kg	240kg	280 kg	350 kg
Output(max):	240kg/hr	350kg/hr	450kg/hr	650kg/hr
Product Size(max):	40mm thick	40mm thick	40mm thick	40mm thick
Crumb Capacity:	30 litres	45 litres	60 litres	90 litres
Conveyor motor:	250w	370w	370w	370w
Auger Motor:	750w	2 x 750w	2 x 750w	2 x 750w
Blower Motor:	750w	750w	2 x 750w	2 x 750w
Belt (mm):	203 x 12.7	300 x 12.7	400 x 12.7	600 x 12.7
Electrical Supply:	380/410V 3 Phase 50Hz AC			
Belt Speed: Metres Per Minute				5 to 16.7

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(3) INSTALLATION

The EconoCrumb is delivered as a complete unit. Castors allow ease of mobility of the equipment, with simple locks to make the machine safe for production.

Once in the production environment it can be used either stand alone or linked to a line.

Pre Operation Checks

1. Check the EconoCrumb for transport damage and report any problems immediately to Deighton Manufacturing Ltd .
2. Lower the output conveyor into position by rotating it about its pivot centre.
3. Connect to the supply (see technical spec).
4. Check the crumb bed platform is correctly sited.
5. Check the crumb return/clean out guard is closed.
6. Check the auger door is closed.
7. Check and release the stop button.
8. Press the start button.

Installation is now complete and the machine can be sited ready for production.

Once installed the EconoCrumb should be cleaned ready for production (see cleaning)

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(4) OPERATING THE ECONOCRUMB

The EconoCrumb is simple to operate. Once connected to the supply the only requirement is to:-

1. Fill the machine with the required crumb and set up the crumbing zones.
2. Set the production rate.
3. Run production.
4. Check the coating quality.

Stage 1 SETTING UP THE CRUMBING ZONES

i) The crumb bed *An evenly distributed bed of crumb on the conveyor, ensures full coverage of the underside of the product.*

A crumb bed should be established as follows : -

1. Close the hopper crumb curtain plate
2. Fill the hopper with crumb.
3. Start up the machine (**RUN**) and open up the curtain plate.

The crumb bed will now start to form. As it forms crumb is recycled into the auger cycling system which will then start to refill the hopper.
To alter the depth of the bed and the amount of crumb entering the auger cycling system, the crumb control plate on the underside of the crumber tank can be adjusted.

Crumb should be added until the bed is approx. 10mm thick and the hopper is a quarter to half full.

ii) The crumb curtain *The crumb curtain showers the top and sides of the product ensuring that the whole product is evenly covered.*

1. Close the hopper crumb curtain control plate to a point where only a constant, fine curtain of crumb is filtered through.

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You should now notice the hopper filling up in response to lessening the flow of crumb from the hopper, through the crumb curtain.

Adjusting the speed of the conveyor will also effect the rate of the crumb cycling, therefore fine adjustments may need to be made once production rate has been set.

NB... It is the operators choice as to how deep the crumb bed should be, or heavy the flow of crumb through the curtain. It is these two factors that determine the level of crumb applied to each product, and will therefore, vary according to differing needs.

The operator should be careful not to over fill the machine as this will damage the crumb and ultimately stall the machine . The crumb should never be filled to the top of the hopper as this will stall the auger.

Excess crumb can be removed via the clean out guard (see cleaning)

Stage 2 <u>SETTING THE PRODUCTION RATE</u>

The conveyor speed and hence production rate can be adjusted by the variable speed dial situated on the front of the control panel. Set the speed to best suit your production requirements. The speed of the conveyor should be slightly quicker than that of the preceeding equipment.

Stage 3 <u>BEGIN THE PRODUCTION RUN</u>

1. Offer battered products up to the infeed end of the machine. Products should be ideally central on the belts and not touching the sides of the machine.

When conveyor feeding products into the machine, the linking conveyor must be clear of the moving parts of the machine before start up or damage may occur.

2 The product will now travel through the conveyor and emerge fully crumbed. Regularly check the products for coating quality, poor quality coverage indicates that the crumb hopper requires refilling or that the crumb curtain is blocked.

AT ANY TIME DURING THE PRODUCTION RUN PRESSING THE "E"MERGENCY STOP BUTTON WILL HALT THE MACHINE INSTANTLY.

(5) CLEANING

After a days production run it is recommended that the machine is cleaned.

Always isolate the machine from the mains supply before commencing cleaning.

The machine is predominately of stainless steel construction, but includes some plastic components (P.T.F.E. Polyacetal), and can be cleaned with hot soapy water.

Cleaning the EconoCrumb

1. Close the hopper curtain control plate.

2. Run the machine until either the hopper fills up or no crumb is recycling through the auger. top the machine , remove and empty the hopper .Repeat the process until the auger crumb recycling stops i.e. most of the crumb has been emptied.

3. Open the crumb clean out guard situated below the infeed. This is held in place by two clips which when released allows it to be rotated out of the way.

4. Suck out the remaining crumb using a vacuum machine.

The following items can then be removed for cleaning giving maximum access to clean the remaining machine tank and auger :

- **Return duct**
  Release the catches. Pull vertically down to release the ducting and clean with a vacuum followed by washing in hot soapy water if necessary.

- **Blower**
  Disconnect from the electrical panel by carefully disconnecting the quick release coupling. Lift off the blower assembly from the machine and clean with a vacuum and a damp cloth. The blower curtains can be lifted off for cleaning.

- **Hopper**
  Lift off the whole hopper assembly. The roller can then be removed for cleaning. This can then be cleaned with a vacuum followed by washing in hot soapy water if necessary.

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- **Internal crumb platform (5)**
  Pivot up the exit conveyor to slacken the belt enough to remove the crumb platform which is held on four studs. It may need a slight tap upwards to loosen. It can then be rotated slightly to enable its removal from the tank, past the out side of the now slack wire belt. This can then be cleaned with a vacuum followed by washing in hot soapy water if necessary.

The Auger and Tank can now be cleaned.

- **Auger**
  Release the door catches and open the door. Suck out the crumb with a vacuum cleaner.

- **Tank**
  Suck out any remaining crumb.

With care the auger and tank maybe lightly hosed with hot soapy water.

NB.. Do not pressure hose this machine

Avoid getting water on the electric's and motors

Always ensure the machine is completely dry before refilling with crumb - the machine will not run with wet crumb.

If any cleaning agents are used check their compatibility with the machine materials.

For extensive cleaning and maintenance the belt can be removed and cleaned separately.

FOR RE-ASSEMBLY REVERSE THE DISMANTLING PROCEDURE.

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(6) SAFETY

- Ensure that the equipment is installed, operated and maintained by trained and authorised personnel.
- Do not operate the machine without any guards in place (Crumb return guard, hopper, auger door fully closed, auger return duct guard in place).
- Keep hands and loose clothing away from moving parts, when running, or starting up the machine.
- Always isolate the machine before removing any guards or cleaning.
- Always ensure that the castor brakes are on when in situe.
- Avoid moving the machine over uneven surfaces.
- In an emergency press the “E” stop button situated on the front of the machine.

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(7) MAINTENANCE

Correct operation and cleaning of the equipment should keep the EconoCrumb in good working order. During periodic inspections, we recommend that you pay attention to the following checklist, and replace any suspect parts.

1. Inspect the conveyor belt for signs of wear and damage.
2. Check the auger door seals for damage.
3. Check the auger door and crumb clean out guard fixings / hinges for damage.
4. Inspect the conveyor belt sprockets for signs of wear and that they are secure
5. Check for any lateral movement in the main drive and auger shaft
6. An electrician should check the control panel door seals, cable glands and connectors for damage.
7. Check the auger door guard interlock.
8. Check the return crumb chute guard interlock.
9. Check the crumb cleanout interlock

GUARANTEE

The machine is guaranteed for twelve months against breakdown. The items not covered under the guarantee are those which wear through normal operation. Replacements are readily available from the manufacturer.

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(8) FAULT FINDING GUIDE

Insufficient crumb bed :-

A.

i. Close curtain control plate and fill up hopper.
ii. Open up curtain control fully until bed returns.
iii. Reset curtain control plate to give constant fine curtain.

B.

i. Increase hopper top up frequency.

C.

If no, or not enough crumb being recycled by the auger into the hopper, turn the machine off and open the auger door to check for blockages. Clear any blockage in auger recycling system and re initiate production.

D.

The crumb may be too wet. To avoid this :-
(i) ensure that the machine is allowed time to thoroughly dry after cleaning, before reloading the machine with crumb. Ensure that crumb supplies are stored in dry conditions.
(ii) prevent "carry over" from the enrober
(iii) maintain the crumb bed to prevent excess batter rubbing off on the wire belt and entering the crumb medium

No or intermittent curtain :-

(i) Check hopper crumb level and top up if necessary.
(ii) Open up curtain plate further.

Lumps of crumb blocking curtain opening :-
(i) This may be caused by poor crumb quality. Sieve through the crumb before filling the hopper to remove large bits.
(ii) Lumps may be caused by wet crumb, see above on how to avoid.

Inefficient auger recycling :-
(i) Check the auger, return and exit ducts for blockages.
(ii) Crumb too wet - see above on how to avoid.

Excessive crumb on product :-
(ii) Check pressure roller is fitted correctly .
(iii)Check blow off fan fitted working (check electrical connection is secure)

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The conveyor belt is slipping or jumping :-
(i) Too much crumb is in the machine conveyor
(ii) Check the wire belt for damage and that the wire belt sprocket wheels are secure.
(iii) Check the wire belt tension.

EconoCrumb will not start or has stopped :-
(i) Check all safety interlocks are engaged
(ii) Check 'E' Stop is not engaged
(iii) Check motor overloads :-

Faulty Blower / Auger
(i) Check the motor overload to make sure the overload has not tripped out .This can be manually reset from inside the control panel .

Before resetting the overload , check to find out why this has occurred .

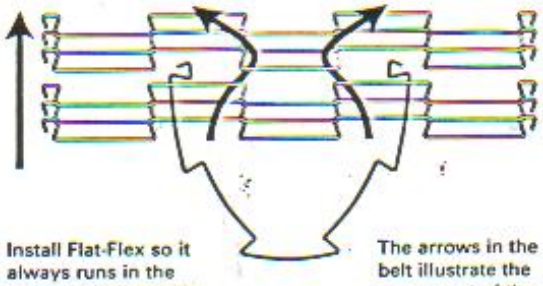
Conveyor
(i) Check the conveyor belt for any obstructions.
(ii) Check and reset the overload as above. To reset the inverter remove the power from the machine for at least 30 seconds. On restart the inverter overload trip will reset.

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

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1



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

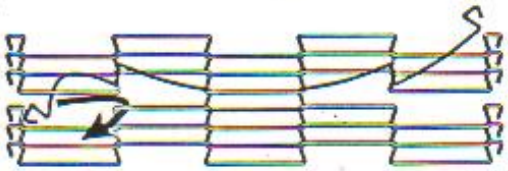
The arrows in the belt illustrate the movement of the splicing strand between steps.

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

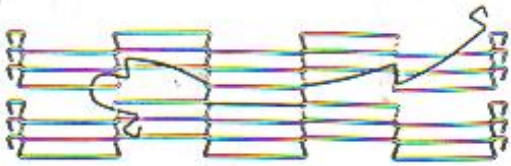
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3



4

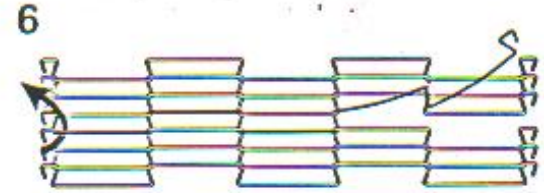


Splice one side completely before starting the other side.

5



6



7



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

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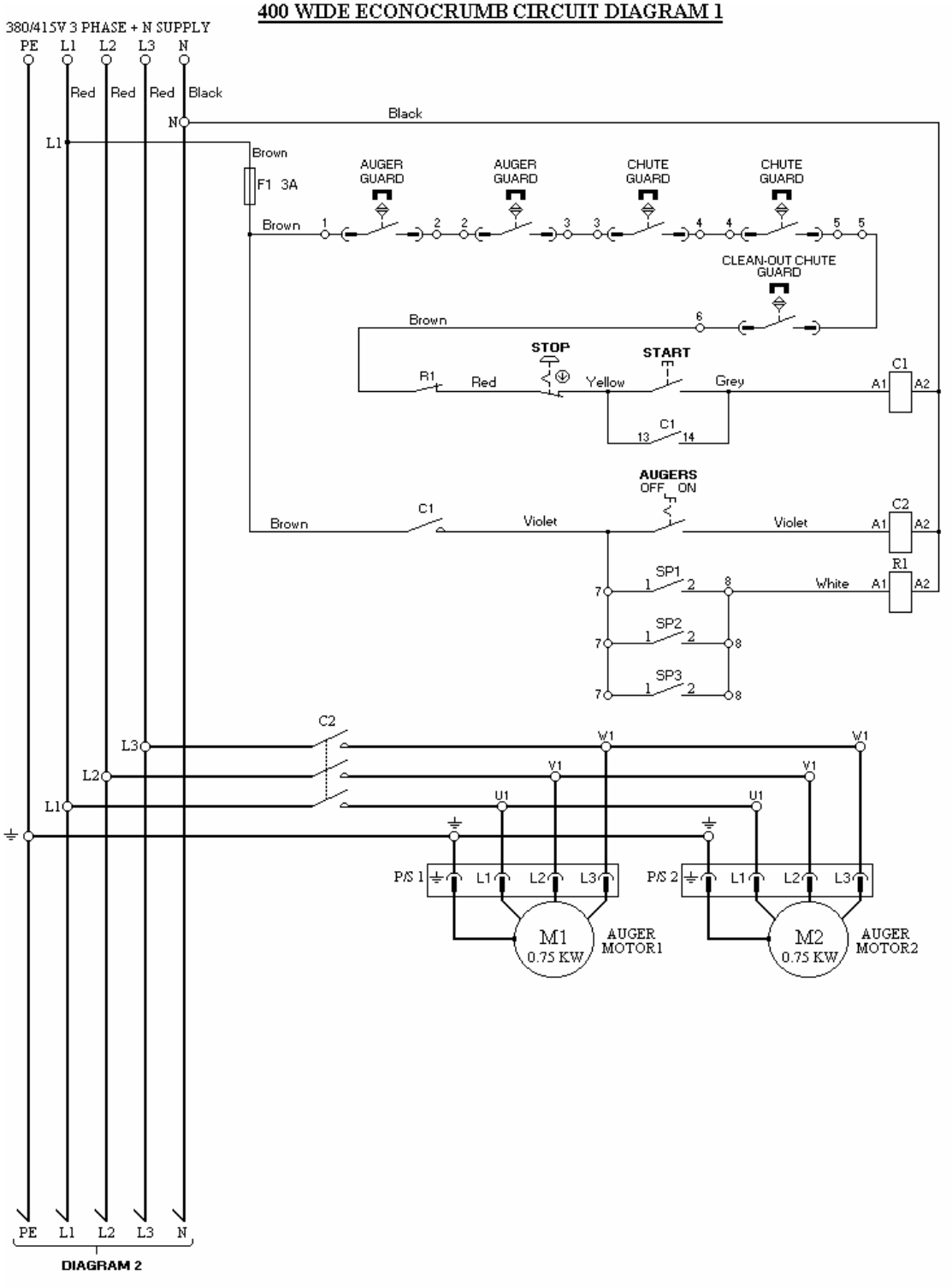
(9) RECOMMENDED SPARES LIST

Width;	200mm	300mm	400mm	600mm
Wire Belt	EC240	EC2405	EC2404	EC2402
Bearing	EC241	EC241	EC241	EC241
Bearing	EC242	EC242	EC242	EC242
Start Button	F1004	F1004	F1004	F1004
E Stop Button	EF1406	EF1406	EF1406	EF1406
Contact Block	F1006	F1006	F1006	F1006
Contact Block	F1007	F1007	F1007	F1007

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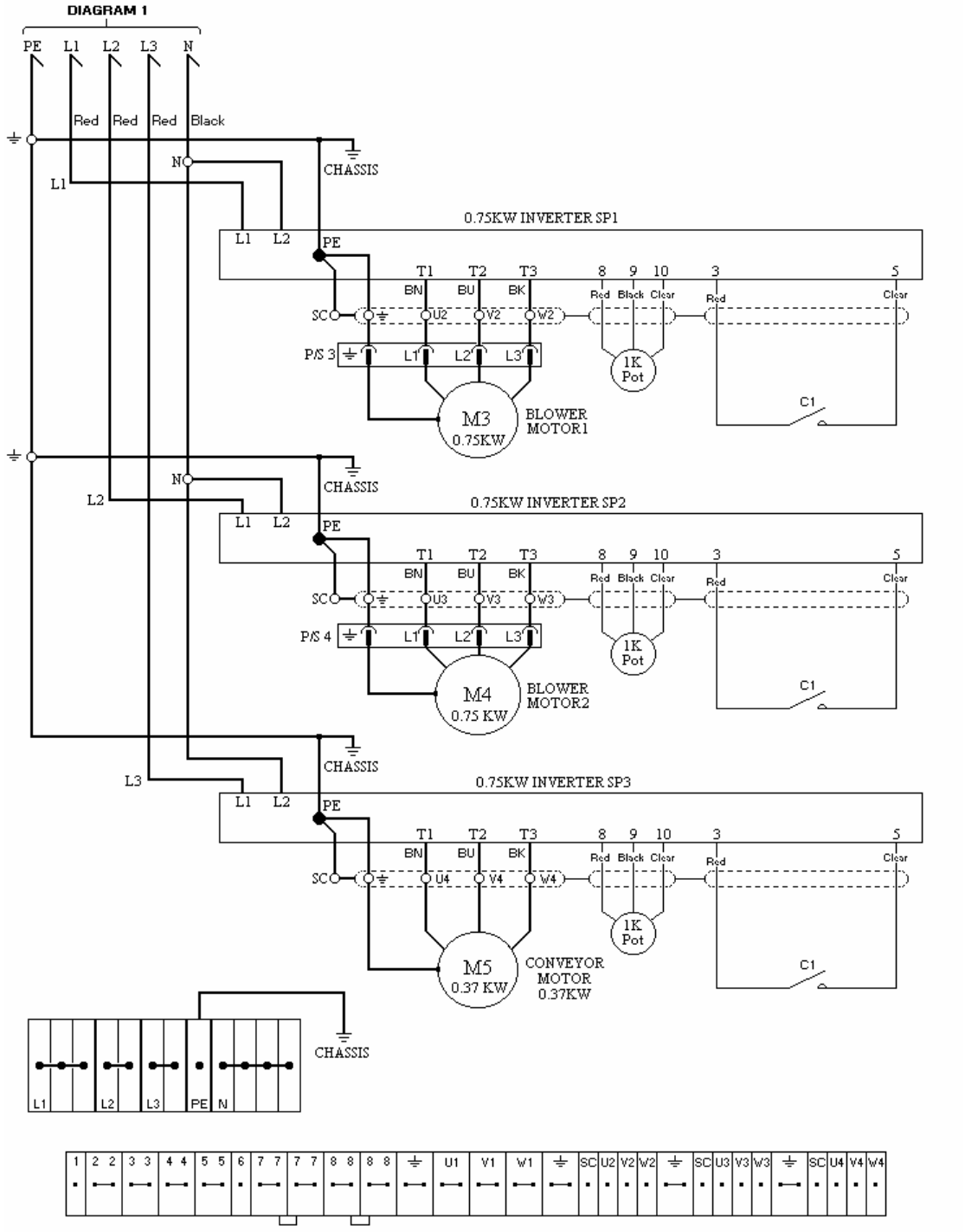
(10) WIRING DIAGRAMS

400 WIDE ECONOCRUMB CIRCUIT DIAGRAM 1



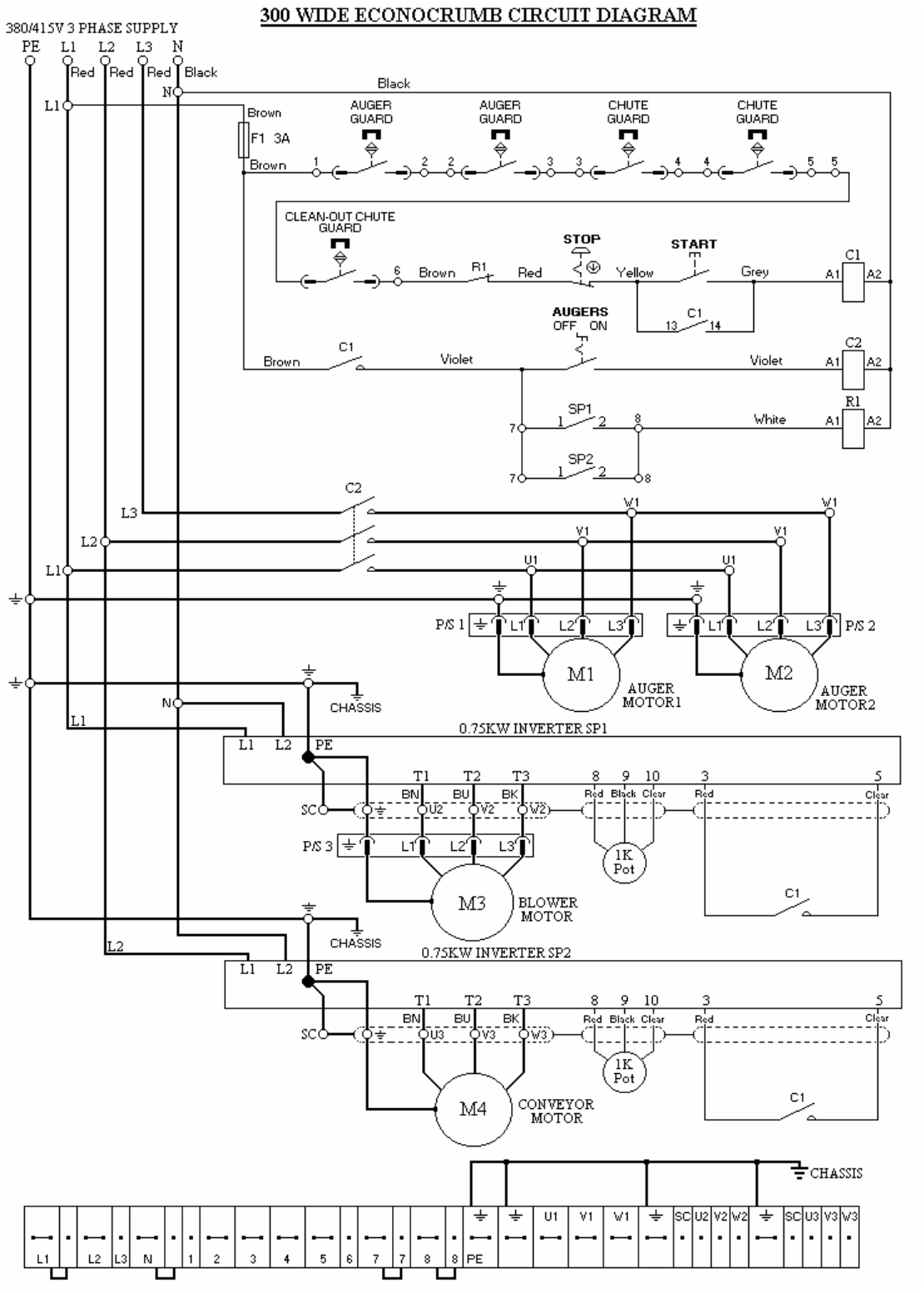
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400 WIDE ECONOCRUMB CIRCUIT DIAGRAM 2



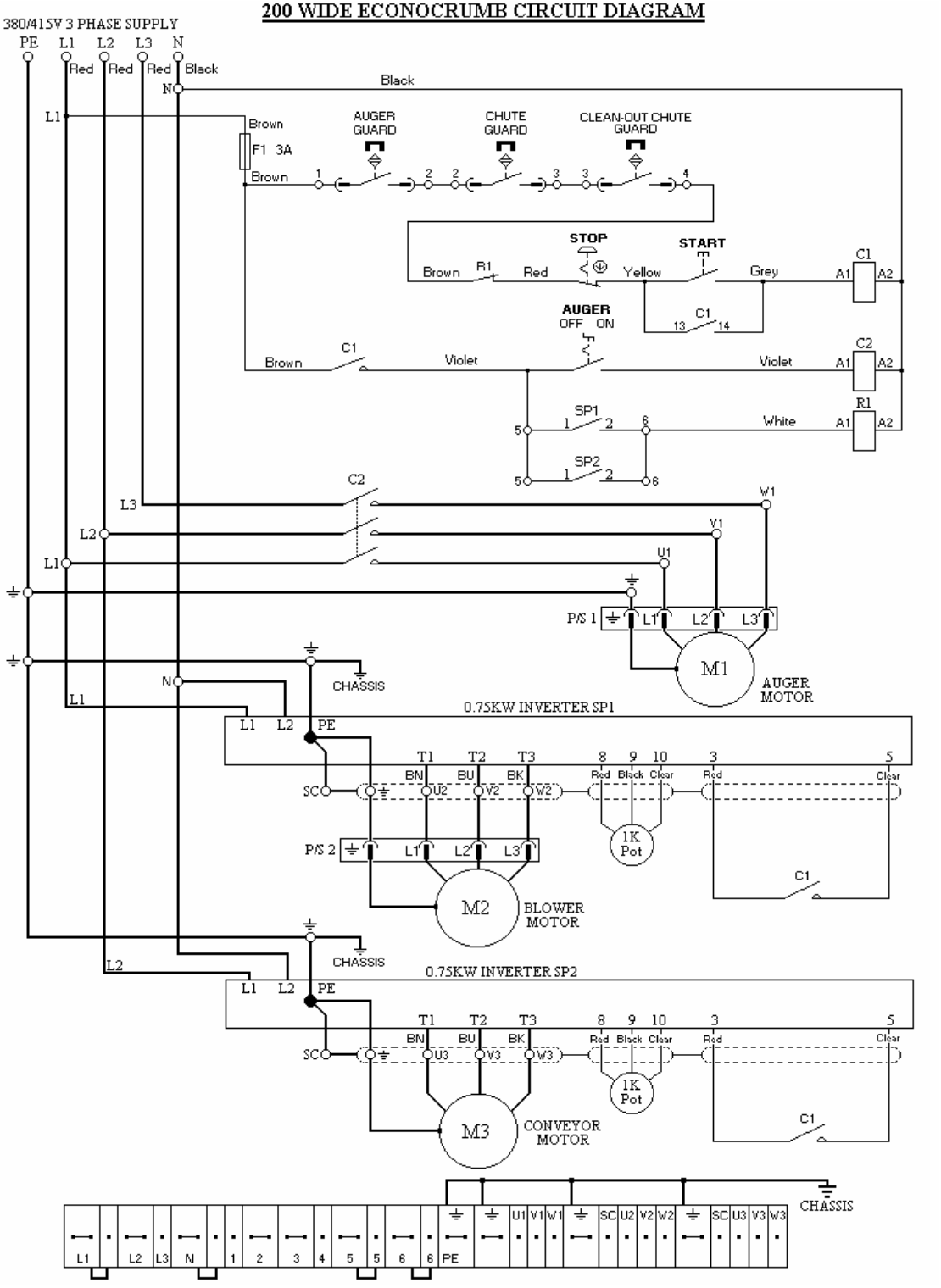
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300 WIDE ECONOCRUMB CIRCUIT DIAGRAM



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200 WIDE ECONOCRUMB CIRCUIT DIAGRAM



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