

User Guide

Extrusion Blender

XB Series Gravimetric Batch Blender

Installation

Maintenance

Operation

Troubleshooting

*Instant Access
Parts and Service*

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UGB005/0499



WARNING - Reliance on this Manual Could Result in Severe Bodily Injury or Death!

This manual is out-of-date and is provided only for its technical information, data and capacities. Portions of this manual detailing procedures or precautions in the operation, inspection, maintenance and repair of the product forming the subject matter of this manual may be inadequate, inaccurate, and/or incomplete and cannot be used, followed, or relied upon. Contact Conair at info@conairgroup.com or 1-800-654-6661 for more current information, warnings, and materials about more recent product manuals containing warnings, information, precautions, and procedures that may be more adequate than those contained in this out-of-date manual.

Please record your equipment's model and serial number(s) and the date you received it in the spaces provided.

It's a good idea to record the model and serial number(s) of your equipment and the date you received it in the User Guide. Our service department uses this information, along with the manual number, to provide help for the specific equipment you installed.

Please keep this User Guide and all manuals, engineering prints and parts lists together for documentation of your equipment.

Date:
Manual Number: UGB005/0499
Serial number(s):
Model number(s):

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INTRODUCTION

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no one gets hurt1-3*

PURPOSE OF THE USER GUIDE

This User Guide describes the XB series gravimetric extrusion blender and explains step-by-step how to install, operate, maintain and repair this equipment.

Before installing this product, please take a few moments to read the User Guide and review the diagrams and safety information in the instruction packet. You also should review manuals covering associated equipment in your system. This review won't take long, and it could save you valuable installation and operating time later.

HOW THE GUIDE IS ORGANIZED

Symbols have been used to help organize the User Guide and call your attention to important information regarding safe installation and operation.



Symbols within triangles warn of conditions that could be hazardous to users or could damage equipment. Read and take precautions before proceeding.



Numbers within shaded squares indicate tasks or steps to be performed by the user.



A diamond indicates the equipment's response to an action performed by the user.



An open box marks items in a checklist.



A shaded circle marks items in a list.

YOUR RESPONSIBILITY AS A USER

You must be familiar with all safety procedures concerning installation, operation and maintenance of this equipment. Responsible safety procedures include:

- Thorough review of this User Guide, paying particular attention to hazard warnings, appendices and related diagrams.
- Thorough review of the equipment itself, with careful attention to voltage sources, intended use and warning labels.
- Thorough review of instruction manuals for associated equipment.
- Step-by-step adherence to instructions outlined in this User Guide.

We design equipment with the user's safety in mind. You can avoid the potential hazards identified on this machine by following the procedures outlined below and elsewhere in the User Guide.

 **ATTENTION:**
READ THIS SO NO
ONE GETS HURT



WARNING: Improper installation, operation or servicing may result in equipment damage or personal injury.

This equipment should be installed, adjusted, and serviced by qualified technical personnel who are familiar with the construction, operation and potential hazards of this type of equipment.

All wiring, disconnects and fuses should be installed by qualified electrical technicians in accordance with electrical codes in your region. Always maintain a safe ground. Do not operate the equipment at power levels other than what is specified on the the equipment serial tag and data plate.



WARNING: Electrical shock hazard

This equipment is powered by single-phase and/or three-phase main voltage, as specified on the machine serial tag and data plate.

A properly sized conductive ground wire from the incoming power supply must be connected to the chassis ground terminal. Improper grounding can result in personal injury and erratic machine operation.

Always disconnect and lock out the incoming main power source before opening the electrical enclosure or performing non-standard operating procedures, such as troubleshooting or routine maintenance. Only qualified personnel should perform troubleshooting procedures that require access to the electrical enclosure while power is on.



WARNING: Do not remove or disable safety devices

Electrical interlocks are installed on the mixing chamber and material bin doors to prevent blender operation when the doors are opened.

 **ATTENTION:**
**READ THIS SO NO
ONE GETS HURT**



WARNING: Pinch hazard

This equipment is equipped with pneumatic slide gates, which are mounted on the blender frame beneath the material bins. Always disconnect and lock out the incoming compressed air and electrical power supplies before working near these slide gates. Failure to do so could result in serious injury.



WARNING: Rotating auger hazard

The mixing chamber and additive feeders contain rotating augers. Always stop the blender and disconnect the main power supply before opening the mixing chamber or opening the feeder drain door. Rotating augers can cause serious injury



CAUTION: Flying objects

The blender is equipped with a compressed-air gun that can be used for cleaning the bins and mix chamber. To avoid potential injury, you must observe all safety regulations that apply to the use of compressed air for cleaning equipment.

Adjust air pressure to no more than 60 psi. Wear protective goggles and clothing to prevent injury from flying particles and objects.

⚠ WARNING: Voltage hazard

Before performing maintenance or repairs on this product, you should disconnect and lock out electrical power sources to prevent injury from unexpected energization or start-up. A lockable device has been provided to isolate this product from potentially hazardous electricity.

HOW TO USE THE LOCKOUT DEVICE

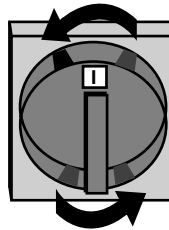


Lockout is the preferred method of isolating machines or equipment from energy sources. Your Conair product is equipped with the lockout device pictured below. To use the lockout device:

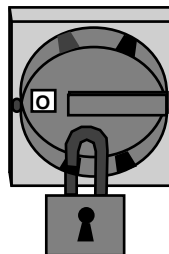
1 Stop or turn off the equipment.

2 Isolate the equipment from electrical power.

Turn the rotary disconnect switch to Off, or O position.



3 Secure the device with an assigned lock or tag.



4 The equipment is now locked out.

⚠ WARNING: Before removing lockout devices and returning switches to the ON position, make sure that all personnel are clear of the machine, tools have been removed and all safety guards reinstalled.

DESCRIPTION

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WHAT IS THE XB BLENDER?

XB series gravimetric batch blenders blend up to 10 materials at throughputs ranging from 1,300 to 2,600 pounds per hour. Material percentages, including regrind, are entered as a straight percentage of the blend. Up to 60 blend recipes can be entered and stored in the XB blender control for recall in sequential job orders.

When combined with the optional extrusion and yield control, the XB system provides higher production speeds and increased product yield per pound. The XB blender employs adaptive control and monitoring software that measures the throughput rate and automatically controls the extruder screw or take-off speed to achieve the specified pounds per hour of material used or the weight per length of extruded product.

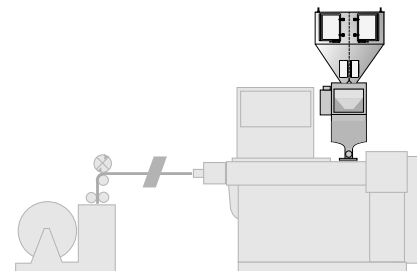
The standard XB control can achieve blended batches with 0.1% accuracy, while supporting full inventory control and reporting. With the extrusion control option, the XB blender also can control line or screw speeds with 0.5% accuracy.

TYPICAL APPLICATIONS

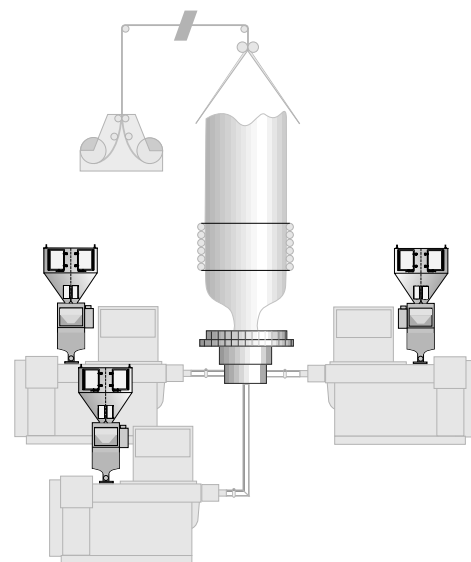
The XB blender can be mounted off-line on a floor stand for central blending, or on-line on the throat of an extruder for blending and extrusion control.

One XB blender can control a mono-extrusion line consisting of a blend of up to ten ingredients. Multiple blenders can be configured to control up to five extruders providing layer ratio control for co-extrusion of up to eight layers.

Co-extrusion requires the optional LRC-8000 layer ratio control system. The LRC-8000's central, PC-based console, allows an operator to control and monitor the blenders, extruders and any optional thickness or width profiling devices.



XB blender in mono-extrusion film line



XB blenders in co-extrusion film line

How It Works

The XB blender can control the extrusion process, as well as gravimetrically blend material. Throughput and haul-off control options allow you to:

- Monitor and control extruder throughput.
- Monitor line haul-off and control extruder throughput to provide yield control.

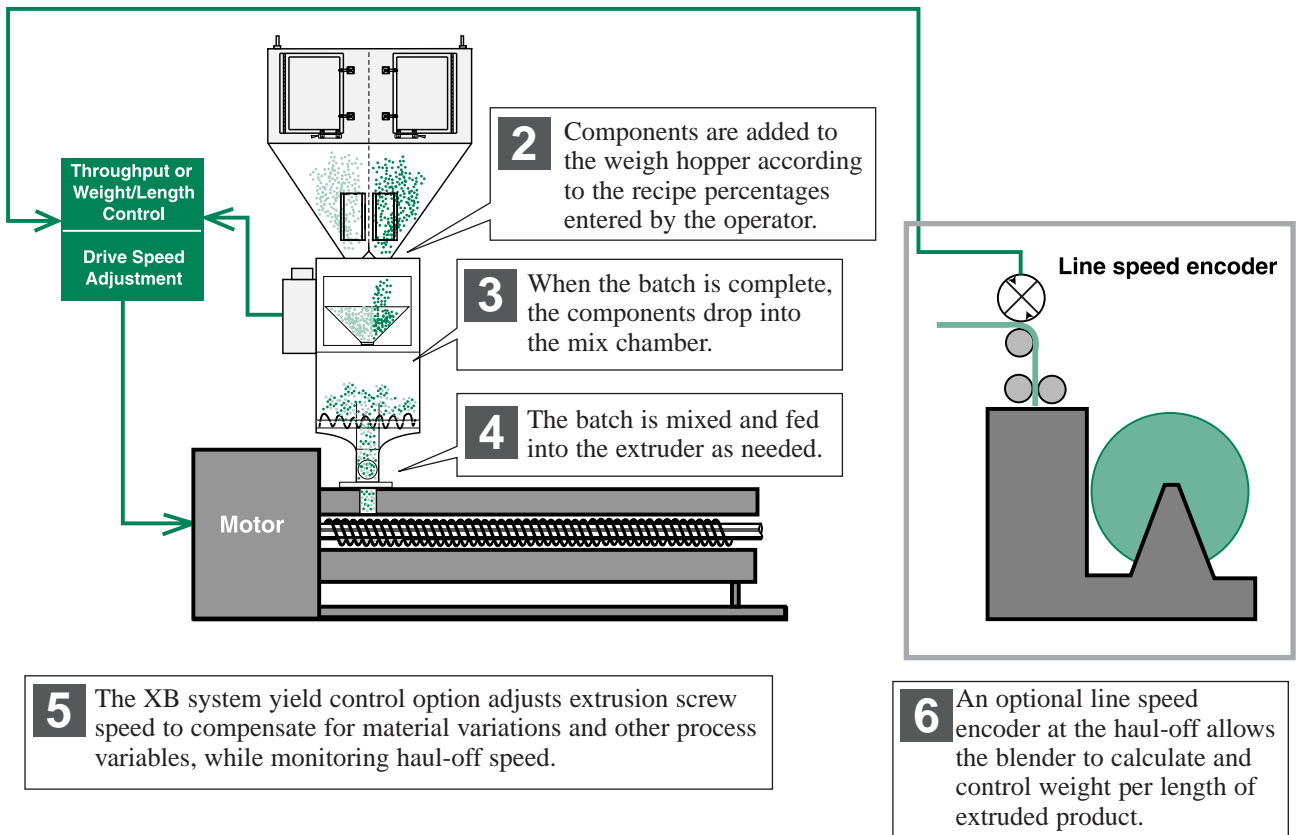
1

AUTO		PRODUCTION SUMMARY	
COMP. No.	SET %	ACT %	
1	50.0	50.0	
2	0.0	0.0	
3	40.0	40.0	
4	10.0	10.0	
THROUGHPUT	236.0	235.9	
THICKNESS SETPOINT		0.0	
LINE SPEED		0.0	
SCREW SPEED		0.0	
TOTAL WIDTH		0.0	

Using the keypad on the XB control, the operator enters the blend recipe as a percentage of each component or material.

For yield control, target values also can be entered as:

- pounds/hour or kilograms/hour for throughput control.
- pounds/feet or grams/meter for weight per length control.
- microns for thickness control.



FEATURES AND OPTIONS

Up to Six Material Bins

Located above the blender frame and slide valves, these bins contain the material to be deposited into the weigh hopper for blending.

Material Bin Access Doors

Hinged doors provide easy access to the material bins for cleaning. Electrical safety interlocks disable power when the doors are opened.

Viewing Windows

Clear visibility of material levels in the bins.

Pneumatic slide valves

One slide valve is located beneath each material bin for dispensing material into the weigh hopper.

Load Cell (above weigh hopper)

The load cell converts the mechanical force of the material load into an electrical signal. Since the load cell is a delicate transducer, it should be treated carefully and should not be subjected to severe mechanical shocks.

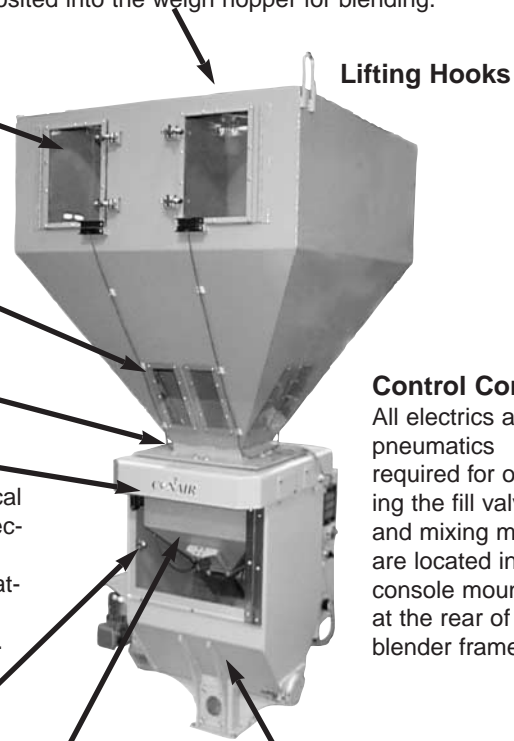
Mix Chamber Access Door

The lockable, hinged access doors allows you to see the batching cycle. Safety interlock disables air and power to the slide gates and mix motor.



Removable Weigh Hopper

The weigh hopper is supported by a bracket attached to the load cell. All material that enters this hopper is weighed, therefore the hopper must sit freely on this bracket with no obstructions in any direction. The dump flap and accompanying piston should be visible when looking through the transparent door of the blender. The weigh hopper slides out for easy cleaning.



Lifting Hooks

Control Console

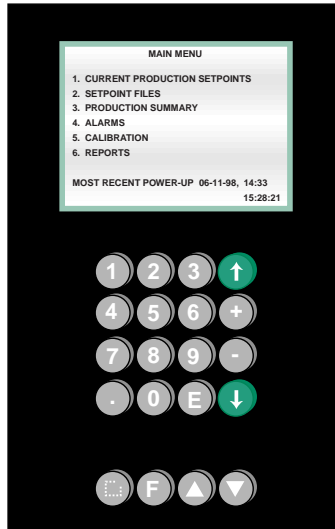
All electrics and pneumatics required for operating the fill valves and mixing motor are located in the console mounted at the rear of the blender frame.



Mixing Chamber

A level sensor inside the mixing chamber signals for more material when it is uncovered. Material drops into the mixing chamber, where the mix auger runs continuously. The patented, positive-displacement, reverse mixing auger provides improved uniformity of the blend, with no material separation. The auger is removable, without tools, for easy cleaning and maintenance.

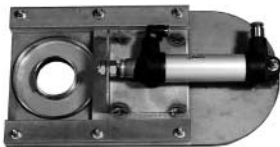
FEATURES AND OPTIONS



The standard XB blender control features:

- **A 16x40, high visibility LCD display.**
- **Simplified operator screens.** Enter and store up to 60 blend recipes by percentage of components. On completion of one job, press a button to move to the next job and recipe.
- **Real time production status reports and roll, order and shift summaries.** Display setpoints and actual weights per component, average throughput, total length, and thickness. Printed reports include time, date, order number and material usage.
- **Password protection** of all blending system parameters.
- **Remote mounting.** Supplied with 20 feet of remote cable (standard).

OPTIONS:



Material Flow Reducers (specified at time of order)

Flow reducers may be fitted to the material bin slide valves to improve the dispensing accuracy of components with small target weights. The standard 3-inch (75 mm) slide valve opening can be reduced to:

- 1.5 inch (37.5 mm) for ingredients added at 1 to 10%.
- 2 inches (50 mm) for ingredients added at 10 to 70%.



Flow Control Valve (required for off-line blending)

When the XB blender is used for central blending, a flow control, or pinch, valve must be installed between the mixing chamber discharge and the container or distribution system. This valve ensures proper mixing.



Extruder Interface Card (yield control option)

The extruder interface card connects the blender to the extruder controls, line speed device and reel change switches. The card is mounted in an orange enclosure, with a DIN rail and mounting bolts at the rear. It should be mounted in the extruder control cabinet where it will be easily accessible to Conair engineers, for diagnostics and servicing.



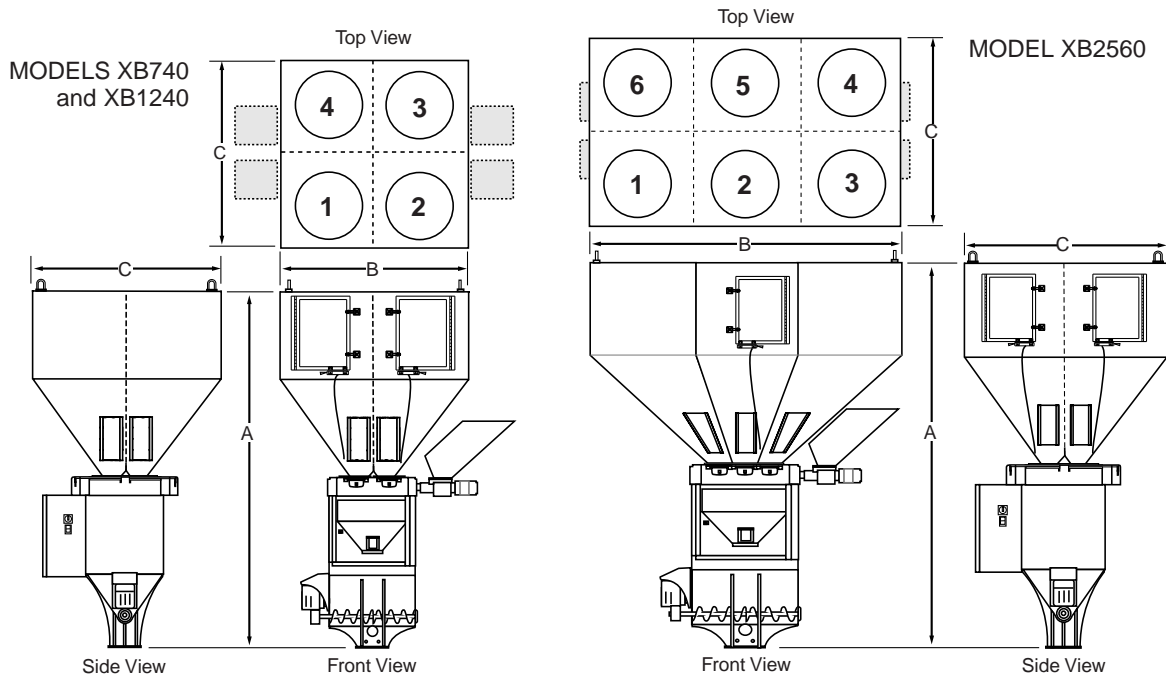
Line Speed Encoder (optional weight-per-length control)

This measures the film speed and the length of film produced, an integral part of the blender's weight per length calculation. The line speed device should be mounted on a film driven roller as close to the winder as possible.

Reel Change Inputs (for customer-supplied switches)

The system is equipped with two reel change inputs, one for each of the front and back winders. These inputs can be connected to two normally open switches. The switches momentarily close (connecting to ground) whenever a roll change occurs. The switches can be microswitches that are activated by the removal of the roll or the cutting mechanism, or a push button used by the operator. The latter method is prone to errors from delays in pushing the buttons. If the winder is equipped for automatic roll changes then spare relay contacts are usually available from the mechanism.

SPECIFICATIONS: XB SERIES BLENDER



MODELS	XB740	XB1240	XB2540	XB2560
Performance characteristics				
Batch size lbs {g}	15 {7000}	26 {12000}	55 {25000}	55 {25000}
Maximum throughput lbs/hr {kg/hr}*	1450 {658}	2270 {1030}	4400 {1996}	3600 {1633}
Bin Capacity - Main Ingredient ft ³ {liter}	1.8 {51}	1.8 {51}	two 2.5 {70.8}	2.5 {70.8}
			two 5.0 {142}	
Maximum number of materials	8	8	8	10
Number of discharge valves	4	4	4	6
Number of additive feeders	up to 4	up to 4	up to 4	up to 4
Dimensions inches (mm)				
A - Height above mounting plate†	63 {1600}	63 {1600}	68.75 {1746}	68.75 {1746}
B - Width‡	34 {864}	34 {864}	56 {1422}	56 {1422}
C - Depth‡	34 {864}	34 {864}	35 {890}	35 {890}
D - Controller height	13 {330}	13 {330}	13 {330}	13 {330}
E - Controller width	9 {229}	9 {229}	9 {229}	9 {229}
F - Controller depth	3 {76}	3 {76}	3 {76}	3 {76}
Weight lbs {kg}				
Installed	320 {145}	420 {191}	625 {284}	625 {284}
Shipping	425 {193}	560 {255}	745 {339}	745 {339}
Voltage Running load amps §				
110V/1 phase/60 Hz (control)	1.0	1.0	1.0	1.0
220V/3 phase/60 Hz (mixer)	2.3	2.3	3.1	3.1
400V/3 phase/50 Hz (mixer)	1.3	1.3	2.2	2.2
460V/3 phase/60 Hz (mixer)	1.1	1.1	1.9	1.9
575V/3 phase/60 Hz (mixer)	0.9	0.9	1.5	1.5
Compressed air requirements				
Discharge and dump valves	87 to 116 psi {6 to 8 bars},		1/4 in. NPT fitting	

MOUNTING INTERFACE

4.34 in.
110 mm

6.75 in.
170 mm

5.9 in.
150 mm

Drill 4 holes, 8.5 mm dia.

MAXIMUM LOADER SIZES

Model	Loader/receiver dia.	
	in.	mm
XB740	four 15	four 380
XB1240	four 15	four 380
XB2540	two 15	two 380
	two 20	two 508
XB2560	six 15	six 380
	or	
	four 15	four 380
	two 20	two 508

Maximum loader sizes may be used only when the loader is adjacent to loaders of a smaller diameter.

SPECIFICATION NOTES:

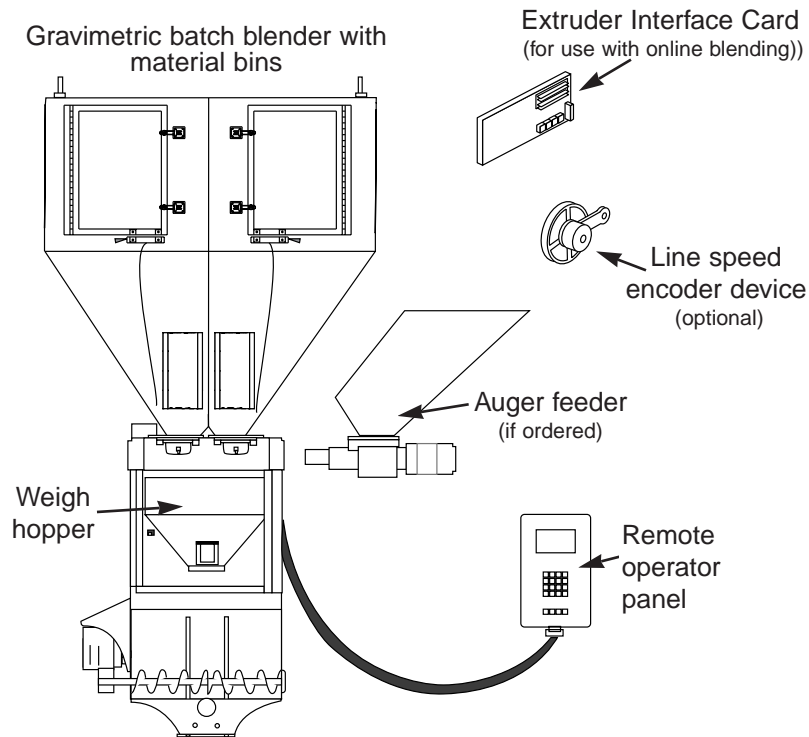
- * Maximum throughput rates are based on using all dispense valves. Use of feeders will reduce this rate.
- † Add 8.8 inches {223.5 mm} to the height if a flow control valve is used. A flow control valve should be used for central blending.
- ‡ Feeders will increase width and depth dimensions. Please refer to feeder specifications.
- § Each auger feeder requires an additional 1 amp @ 120V or 0.5 amp @ 240V.

INSTALLATION

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UNPACKING THE BOXES

Thoroughly search all cartons to ensure that all components have been removed. Before proceeding, the packing note and this manual should be studied. The following items should be found and identified:



Supplied hardware:

- Remote operator panel cable
- Mounting adapter flange (if ordered)
- Junction box and cable for line speed encoder
- Printer cable (optional)
- Serial communications cable (optional)

The packing list will indicate the presence of any additional special order items.

- 1 Carefully remove the blender and components** from the shipping container. Use the lifting lugs provided on top of the blender to gently remove the blender from its box, taking care not to damage the load cell or display console. The weigh hopper is packed separately from the blender enclosure.
- 2 Remove all packing material**, protective paper, tape and plastic. Do not discard cartons or packing material until you have inspected it for additional components.
- 3 Carefully inspect all components** to make sure no damage occurred during shipping, and that all components are present. Check the connectors for evidence of broken or bent pins. Immediately report any damage to the freight company. Immediately notify Conair about any missing items.
- 4 Take a moment to record serial numbers** and electrical power specifications in the blanks provided on the back of the the User Guide's title page. The information will be helpful if you ever need service or parts.

XB gravimetric blenders have been designed for installation on the extruder (on-line blending) or on a floor stand or mezzanine (off-line blending).

PREPARING FOR INSTALLATION

1 Make sure the mounting location provides:

- ❑ **A grounded power source supplying the correct current** for your blender model. Check the blender's name plate and data tag for the correct amps, voltage, phase and cycles. Field wiring should be completed by qualified personnel to the planned location for the dryer. All electrical wiring should comply with your region's electrical codes.
- ❑ **A compressed air source supplying** air at a pressure of 87 to 116 psi (6 to 8 bar) to operate the pneumatic dump valve in the weigh bin and the slide valves mounted to the top cover plate of the blender frame.
- ❑ **Minimum clearance for safe operation and maintenance.** We recommend at least 36 inches (91.4 cm) clearance on all sides of the blender frame for safe access to the mixing chamber, feeders and console. Maintain the appropriate clearance above the blender for safe installation, servicing and removal of material receivers or loaders.
- ❑ **Easy access to the operator panel.** You can mount the operator display panel in a remote location, where operators can easily monitor operation of the blender.

2 Make sure blender cables will *not* run near or parallel to near heavy power lines or cables supplying inductive loads. To ensure system accuracy the system cables should not run through areas where high electrostatic fields exist. If either of the above conditions exist, you may need to run the cables through electrically screened trunking.

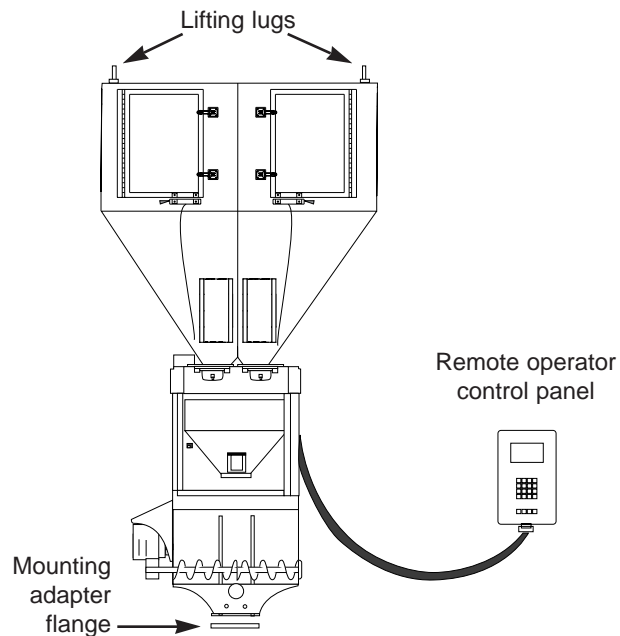
NOTE: *This system contains high quality power line filters. However, due to the high levels of electrical noise that can be present in industrial environments we recommend that the system should be powered via an Ultra Isolation Transformer to ensure reliable operation.*

INSTALLING THE BLENDER

⚠ WARNING: You are responsible for the structural integrity of this installation.

To prevent accident and injury:

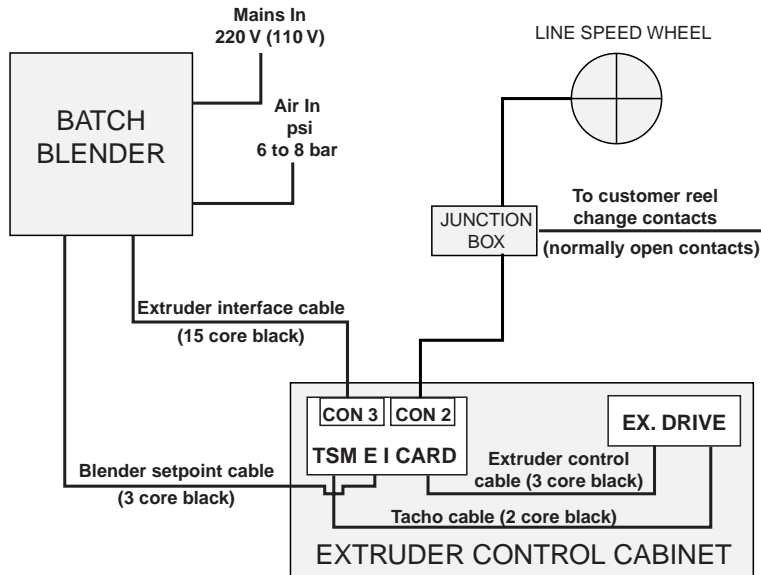
- Lift the blender into position using a hoist and the lifting lugs provided on the blender.
- Use mounting bolts of the appropriate length and diameter to secure the blender to the mounting surface.



- 1 Bolt the adapter flange to the mounting surface.** If no adapter is needed, proceed to the next step.
- 2 Gently lift the blender into position** on the extruder, floor stand or mezzanine. Use a hoist and the lifting legs provided. Take care not to damage the load cell, which is extremely sensitive to mechanical shock.
- 3 Secure the blender to the mounting flange with bolts.**
- 4 Mount the remote operator panel** where operators can easily monitor operator of the blender.
- 5 Connect the operator panel cable** (cable no. 33) to the 19-way circular connector on the bottom of the blender control cabinet.

ON-LINE BLENDING INSTALLATION

The blender and optional components connect to the extruder as diagramed below. For detailed information on connections to the extruder interface card, refer to the APPENDIX and PARTS/DIAGRAMS sections of this manual.



- 1** Mount the extruder interface card inside the extruder control cabinet. Route the extruder interface cable and the extruder setpoint cable from the blender to the extruder interface card.
- 2** Connect the setpoint and tacho cables from the extruder interface card to the drive for the extruder screw. (Only required for extruder control.) Connections are as follows:

SETPOINT CABLE		TACHO CABLE	
0 Volts	Green	Tacho+	Red
Setpoint voltage	Blue	Tacho-	Green
Ref. for drive	Red	Shield	White
Shield	Red/White		

Both cables have a Red/White core, which is the cable shield. Connect the shield to earth in the control cabinet. See wiring diagram 3.

- 3** Mount the line speed wheel (if included) close to the winder on a film driven roller. The mounting bracket should be positioned so that device will not slip, wobble or turn sideways as the roller rotates.
- 4** Route the line speed wheel cable to the extruder interface card in the control cabinet. Connect the line speed wheel and roll change switches to Con 2 (16 way header) on the extruder interface card. These are pre-wired into the 16 way plug provided. See wiring diagram 4.

IMPORTANT: Keep all signal cables away from high voltage supply lines or cables supplying inductive loads. To ensure system accuracy the system cables should not run through areas where high electrostatic fields exist. If either of the above conditions exist, you may need to run the cables through electrically screened trunking.

CONNECTING THE MAIN POWER SUPPLY



CAUTION: Always disconnect and lock out the main power sources before making electrical connections. Electrical connections should be made only by qualified personnel.

All of the electronics and feed mechanisms are operated using single phase electricity. The three phase supply is used only by the mixing motor on some models.

Connection terminals are located in the control cabinet attached to the rear of the blender frame. See **Wiring Diagram 1** in the PARTS/DIAGRAMS section.

1a For single phase only systems, connect:

MAIN SUPPLY WIRES	TERMINAL NO.
Live	42
Neutral	43
Earth	Green/yellow

1b For three-phase and single-phase systems, connect:

THREE PHASE		SINGLE PHASE	
Main supply wire	Terminal No.	Main supply wire*	Terminal No.
Earth	1	Live	6
Live 1	2	Neutral	7
Live 2	3	Earth	8
Live 3	4	*The single phase is taken from the three-phase supply.	
Neutral	5		

2 Connect the blender frame to an electrical earth ground.

IMPORTANT: Power should not be applied to any part of the system until it has been checked by authorized personnel who have received suitable training.

Always refer to the wiring diagrams that came with your blender before making electrical connections. The diagrams show the minimum size main power cable required for your blender, and the most accurate electrical component information.

Connect a non-lubricated source of compressed air to the pneumatics housed in the console on the rear of the blender frame.

CONNECTING THE AIR SUPPLY

The operating air pressure should be 87 to 109 psi (6 to 7.5 bars) to operate the dump and slide valves. Operating air pressure should not exceed 116 psi (8 bars).

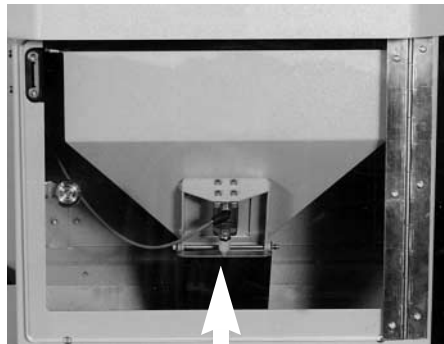
1 Carefully, place the weigh hopper onto the bracket in the mixing chamber.

The weigh hopper should be positioned so that it is free of any obstructions and is supported by the bracket attached to the load cell. The dump flap and accompanying piston should be visible when looking through the transparent door of the blender.



INSTALLING THE WEIGH HOPPER

2 Connect the air line to the dump flap piston.



XB blenders can support up to four additional components fed into the mixing chamber by auger feeders.

1 Mount the auger feeder to the side of the blender frame.

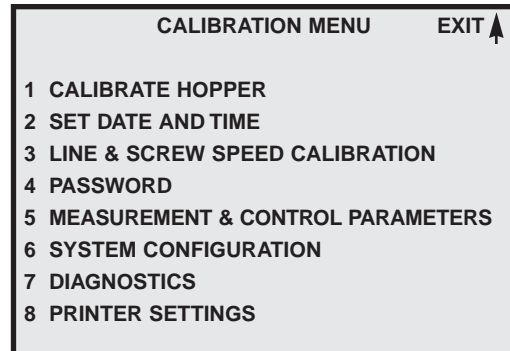
2 Connect the motor cable to the corresponding socket number on the bottom of the control cabinet.

MOUNTING FEEDERS

INITIAL SETUP

You will use the Calibration Menu primarily during initial setup and before normal operation. Because all of the system parameters can be changed from this menu, a password is required for access from the Main Menu.

IMPORTANT: We recommend that you change the factory-set password (35560) and restrict access to the new password to management and technical personnel. See *Changing the Password in the OPERATION section*.



During initial setup and calibration, you will use three of the Calibration Menu's eight options:

- System Configuration
- Calibrate Hopper
- Line & Screw Speed Calibration

The other five options on the Calibration Menu are discussed in detail in the OPERATION section of this User Guide.

1 Power up the blender using the red switch located on the side of the blender. Leave the RUN / STOP switch in the STOP position.

2 Place the blender in "pause" mode. Using the green arrow keys on the operator panel, go to the production summary page and press the "F" key to place the system in pause mode. When prompted, confirm your intentions by pressing the "E" key. The system is now in pause mode.



3 Configure the blending system. Proceed to the Main Menu by pressing the up arrow once. Press **5** to select Calibration. When prompted, enter the password (factory set to 35560). Press **6** to select System Configuration and proceed to the next page.



Calibration Menu: System Configuration (option 6)

Configure the system before the first operating cycle. Among the parameters you will set from this menu are: on-line or off-line blending; the units of measurement that will be used; the number and type of materials; and the language that will be displayed.

SYSTEM CONFIGURATION	
g/m (1) OR kg/hr (2)	1
REGRIND COMPONENT NO	1
NUMBER OF BLENDS	4
EXTRUDER STALL CHECK	ENABLED
BLENDER TYPE:	ONLINE
EXTRUDER CONTROL	
DATA ENTRY:	kg / lbs / hr CONTROL
FILL SENSITIVITY	OFF
PROD. SUMMARY UNITS:	METRIC
LINE NO:	01
FILL RETRY (00 = ALWAYS)	
DIAGNOSTICS	NO DIAGNOSTICS
LANGUAGE	ENGLISH
VACUUM LOADING	ON
CYCLE SPEED	SLOW

- 1 Use the up and down arrow keys   to scroll through the list of configuration options.
- 2 Enter or select the configuration option that matches your process. Use the numeric keypad to enter numeric values, and then press “E” to save the entries. Press the “E” key to toggle among data entry choices in other fields.

g/m(1) or kg/hr (2): The blender is capable of controlling throughput in weight per length (grams per meter) or weight per hour (kilograms per hour) mode. For g/m mode, press **1**. For kg/hr mode, press **2**.

REGRIND COMPONENT NO: Previously blended material may be entered into the blender as regrind. It is not necessary to include the already blended regrind in the blending percentage calculation. However, you need to tell the system which component is to be used for regrind when this regrind feature is enabled. Enter the number of the component (material bin or feeder) that holds the regrind.

NUMBER OF BLENDS: Enter the number of components (from 1 to 8) that you want to blend.

EXTRUDER STALL CHECK ENABLE: During normal operation, this feature should always be enabled. This tells the blender to set the extruder setpoint voltage to zero when the extruder is switched off. However, for test purposes, this safety feature can be disabled by pressing “E” on this line.

BLENDER TYPE: Select ONLINE if the blender is mounted to the throat of an extruder. Select OFFLINE if the blender is used stand-alone or for central blending. An off-line blender generally will be fitted with a flow control valve beneath the mixing chamber discharge to prevent material from escaping during the mixing cycle.

CONFIGURING THE SYSTEM

Calibration Menu: System Configuration (option 6) continued

SYSTEM CONFIGURATION	
g/m (1) OR kg/hr (2)	<u>1</u>
REGRIND COMPONENT NO	<u>1</u>
NUMBER OF BLENDS	<u>4</u>
EXTRUDER STALL CHECK	<u>ENABLED</u>
BLENDER TYPE:	<u>ONLINE</u>
EXTRUDER CONTROL	
DATA ENTRY: kg/ lbs / hr	<u>CONTROL</u>
FILL SENSITIVITY	<u>OFF</u>
PROD. SUMMARY UNITS:	<u>METRIC</u>
LINE NO:	<u>01</u>
FILL RETRY (00 = ALWAYS)	
DIAGNOSTICS	<u>NO DIAGNOSTICS</u>
LANGUAGE	<u>ENGLISH</u>
VACUUM LOADING	<u>ON</u>
CYCLE SPEED	<u>SLOW</u>

EXTRUDER/HAULOFF CONTROL: Select one of the two control mode options. In extruder mode, overall production is controlled by controlling the speed of the extruder screw. In haul-off mode, the winder speed is controlled to maintain a weight/meter setpoint.

DATA ENTRY: Use the “E” key to select from among three options. You can enter data for work orders as kilograms or pounds per hour throughput; micron control; or blending only.

FILL SENSITIVITY: This option should always be set to OFF. It is only used at the factory and refers to the alarming limits concerned with component fills.

LINE NO: Used only when there are several extrusion lines being monitored by a central computer. You can number each line so that the computer can identify the individual lines and monitor their operation.

FILL RETRY (00 = ALWAYS): This specifies the number of fill retries the blender will perform if a problem occurs while filling the weigh hopper. When set to 00, the system will not proceed to the next component until it achieves its target weight for the current component. If set to 1, the system performs one fill retry before proceeding to the next component. Enter 2 for two retries, 3 for three retries, etc.

DIAGNOSTICS: Used only by Conair factory/service.

LANGUAGE: Press “E” to select the language in which menus and information screens will be displayed.

VACUUM LOADING: Set to OFF. This option is not used.

CYCLE SPEED: This should always be set for slow, unless the system is operating at very high throughputs (for example, greater than 500 kg or 1100 lbs per hour).

Calibration Menu: Hopper Calibration (option 1)

Before normal operation, you should calibrate the weigh hopper. Hopper calibration must be done when the **hopper is empty** and the **system is in the pause mode**.

HOPPER CALIBRATION	
A/D COUNTS	37885
A/D TARE COUNTS	37288
WEIGHT (KG)	0.0032
WEIGHT CONSTANT	9683
(" . " TO TARE HOPPER)	
PG 2 ↓	

- 1 Select the Hopper Calibration menu.**
From the Main Menu, press **5** to select Calibration. When prompted, enter the password (factory set to 35560) and press **1** to select Calibrate Hopper.
- 2 Calibrate the empty weigh hopper.**
With the weigh hopper empty, allow the A/D counts (analog to digital converter reading) to stabilize. Then press the decimal point key **.** to tare the hopper. The A/D tare counts will change to the current A/D value and the weight reading will become zero. This now becomes the zero reference point for the load cell readings.
- 3 Calibrate the weigh hopper with a known weight.**
Place a known weight, e.g. 1 kg, on the frame of the weigh hopper and verify that the load cell is operating correctly. The weight will be displayed in the Hopper Calibration menu. If the correct weight is not displayed, enter the value in grams (example: 2 kg weight = 2000) and press the "E" key. Monitor the weight reading displayed.
- 4 Exit and then re-enter the Hopper Calibration menu.**
Press the up arrow **↑** once to exit the menu. Then press **1** to re-enter. The system has now derived a constant for the load cell to operate correctly.
- 5 Press the down arrow **↓** to view Page 2 of the Hopper Calibration menu.**

Page 2 screen

PG 1 ↑	
FILL TARGET WT (kg)	6.0
D/A VALUE	2048

Fill Target Weight (kg): This is the target weight that the blender will achieve each batch cycle. A typical target value would be 6 kg for a 6000 gram batch. To enter a target weight, press the number key(s) corresponding to the appropriate weight. Then press "E" to save the entry.

CALIBRATING THE WEIGH HOPPER

IMPORTANT: You must set the Fill Target Weight parameter correctly to avoid damaging the load cell or starving the extruder of material.

WARNING: Do not change the D/A Value under any circumstances. This value is for diagnostic purposes only. The digital analog output voltage represents the setpoint voltage being applied to the extruder drive. Changing this value will change the speed of the extruder screw.

CALIBRATING LINE AND SCREW SPEEDS

Changing from Pause Mode to normal operation: if the blender is still in pause mode, press the up arrow until you return to the Production Summary page. Now press the "E" key to revert from pause mode to normal operation.

Calibration Menu: Line and Screw Speed Calibration (option 3)

If the blender is still in pause mode, revert to normal operation.

The blender must be operating in on-line mode to calibrate line and screw speeds.

Page 2 of the Production

Summary menu shows whether the on-line or off-line blending control has been enabled.

LINE & SCREW SPEED CALIBRATION	
LINE SPEED CONST	2000
MAX SCREW SPEED (RPM)	200
MIN SCREW SPEED (RPM)	0
SCREW SPEED CONST RPM	1285
SCREW TARE (" " TO TARE)	683
D/A COUNTS PER RPM	20.67
LINE SPEED (T=1MIN) (m/Min)	32.05
LINE SPEED (T=1SEC) (m/Min)	32.23
SCREW SPEED (A/D COUNTS)	1156
SCREW SPEED (RPM)	38
MAXIMUM EXTRUDER SETPOINT	990

- 1 Select the Line and Screw Speed Calibration menu.**
From the Main Menu, press **5** to select Calibration. When prompted, enter the password (factory set to 35560) and press **3** to select Line & Screw Speed Calibration.
- 2 With the extruder stopped, tare the screw speed.**
Press the decimal point key **.** when the screw is at zero RPM. The Screw Tare is the A/D counts for the extruder screw speed when the extruder is stopped. This value should be initialized before adjusting the screw speed constant to ensure that the measured screw speed is zero when the extruder is off or stopped.
- 3 Enter the maximum RPM for the extruder.**
Using the arrow keys move to the Max Screw Speed (RPM) line and enter the maximum speed at which the extruder can run. This sets the maximum extruder setpoint and prevents the extruder from going above this value.
- 4 Increase the extruder screw speed to a known RPM.**
Bring the screw speed up to 50% of the maximum RPM.
- 5 Enter the actual extruder screw speed.** Toggle down to the Screw Speed Const and enter the RPM at which the screw is turning. When the screw speed constant is entered, the blender calculates the D/A Counts Per RPM. This value sets up the Max Extruder Setpoint at the bottom of the screen.


The blender is now calibrated for the extruder speed and can display the RPM in the Production Summary page.

Line Speed Const: This is relevant only if a line speed device is used. changing the line speed constant will change the displayed line speed. Enter 2000 as the nominal value for the standard Conair line speed wheel.

TESTING THE INSTALLATION

After calibration, operate the blender to test the installation. At the beginning of the test, power to the blender should be on. The blender should be in normal operating mode, with the RUN/STOP switch in the STOP position.

- 1 Place material in the material bins and any feeders that are installed.**
- 2 Verify that the mixing chamber door is closed and that the air supply is connected.**
- 3 Enter the blend recipe setpoints.**

Press the up arrow  to exit to the Main Menu. Press **1** to select Current Production Setpoints. Enter the material percentages and throughputs for the required order using the control keypad. The total blend percentage must equal 100%. If it does not equal 100%, you will not be allowed to exit this screen.

PRODUCTION SETPOINTS		
COMPONENT NO.	%	
REGRIND	"NO"	"E" FOR YES
1	60.0	
2	20.0	
3	17.0	
4	3.0	
WT/M SETPOINT (g/M)		50.00
SET WIDTH TOTAL (mm)		1500

- 4 Turn the black switch on the control cabinet from STOP to RUN.**

If the blender has been installed correctly:

- ◆ The mixing motor starts. The mix auger begins turning.
- ◆ The slide gate under the bin containing the first component opens and the material is dispensed into the weigh hopper. Once the percentage of the component target weight has been reached, dispensing stops and the material is allowed to settle.
- ◆ Each component is then dispensed into the weigh hopper in the same way. If feeders have been installed, the feed augers should begin turning and dispensing material into the weigh hopper according to the number and percentage of the component in the blend recipe.
- ◆ When all components have been dispensed and 100% of the batch weight has been reached, the weigh hopper dump valve opens because the level sensor in the mixing chamber is uncovered.
- ◆ Material is dispensed into the mixing chamber. If the level sensor is covered with material, the batch will be held in the weigh hopper until the sensor is uncovered.

continued on next page

TESTING THE INSTALLATION

During off-line blending:
A pinch valve must be used to control the flow of material from the mixing chamber to a container or distribution system. Closing this valve ensures proper mixing by allowing several batches to be dispensed to the mix chamber before material is discharged to the process.

- ◆ The mixing auger turns continuously, blending the material and moving it toward the center of the mixing chamber, where it is discharged into the throat of the extruder as material is needed to satisfy target setpoints for throughput or yield control.

NOTE: If the mixing auger is rotating in the wrong direction, then two wires of the three-phase power input wires (e.g. L1 and L2) need to be reversed.




- ◆ While the first batch mixes, the blender begins dispensing components into the weigh hopper for a second batch. When the target batch weight is reached, the material is discharged into the mixing chamber. The blender will repeat the dispensing and batch discharging cycles as long as the level sensor in the mixing chamber remains uncovered.

6 The test is over.



If everything worked correctly, continue to the *OPERATION* section. If the blender did not operate correctly, verify that all steps in Installation and Calibration have been completed correctly and refer to the *TROUBLESHOOTING* section.

TIP:
Blender operation can be monitored on the Production Summary screen.

Page 2 of the Production Summary screens (Blender Information) displays the operation of slide and dump valves as well as sensor status and control method.

To see this screen, press  to reach the Main Menu. Press  to select Production Summary. Then press  to go to the Blender Information page.

AUTO		PRODUCTION SUMMARY	
COMP. NO.	SET %	ACT %	
1	60.0	59.9	
2	20.0	20.0	
3	19.0	19.1	
4	1.0	1.0	
THROUGHPUT		150.0	149.9
WEIGHT/LENGTH (g/m)		50.0	50.0
LINE SPEED (m/min)			85
SCREW SPEED (RPM)			90
DRIVE SETPOINT (%)			53.2



BLENDER INFORMATION				EXIT 
COMP NO.	SLIDE VALVE	COMP SET WGT	COMP ACT WGT	
	CLOSED	3.600	3.598	
2	CLOSED	1.197	1.198	
3	OPEN	1.137	1.136	
4	CLOSED	0.060	0.060	
DUMP		CLOSED		
WEIGH HOPPER		CLOSED (SENSOR ON)		5.992
				5.992
CONTROL METHOD		ONLINE		*Kg/H*0

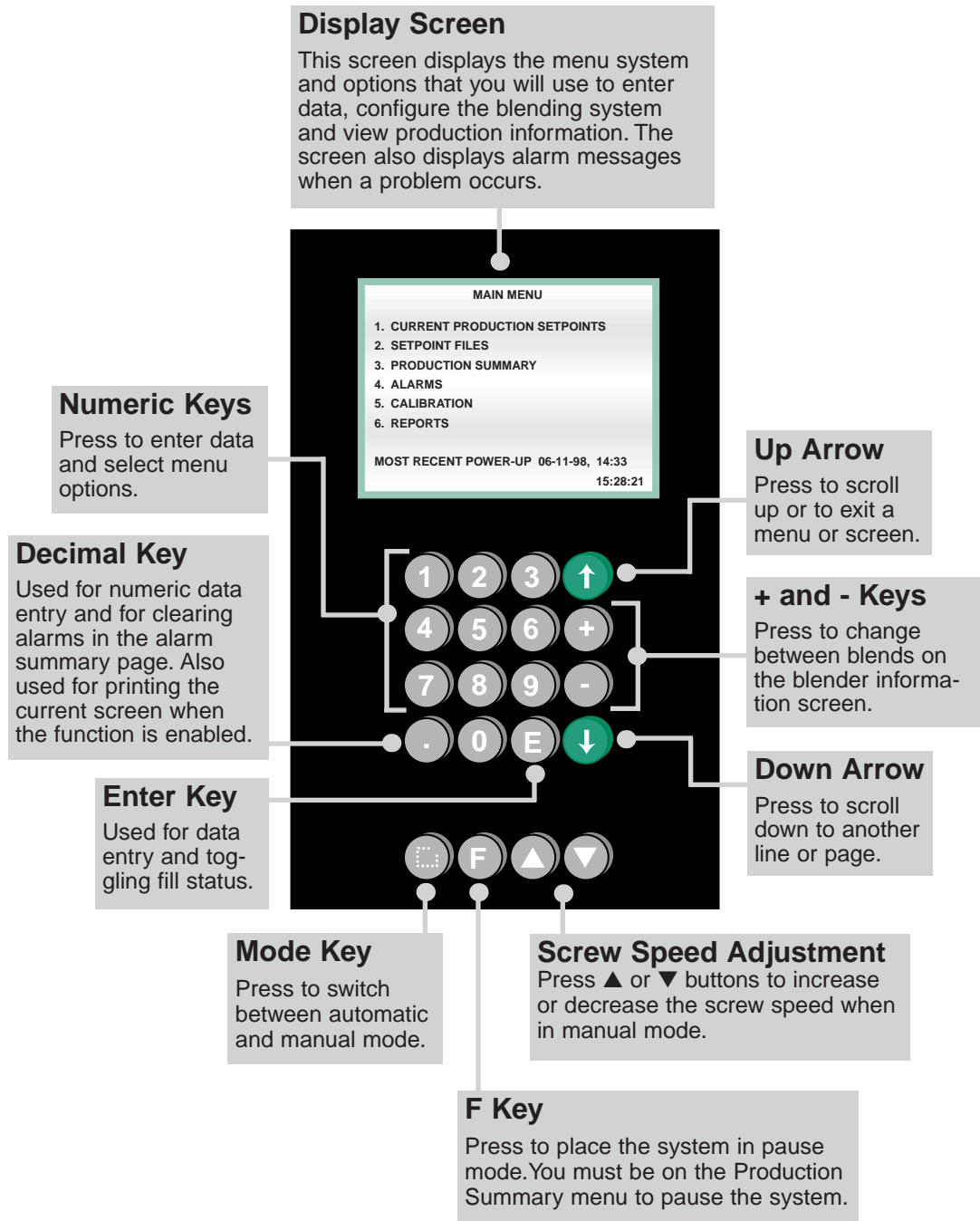
OPERATION

- *The XB control panel*4-2
- *The menu system*4-3
- *Operating the blender*4-4
- *Entering production setpoints*4-5
- *Calculating weight per length setpoints*4-5
- *The setpoint files menu*4-6
- *Scheduling production orders*4-6
- *Viewing and editing setpoint files* . . .4-7
- *Copying setpoint files*4-8
- *Changing the sequence of orders* . .4-8
- *Production summary menu*4-9
- *Alarm summary menu*4-10
- *Calibration menus*4-11
- *Setting time and date*4-12
- *Changing the password*4-12
- *Measurement and control parameters / Diagnostics*4-13
- *Enabling and disabling printers* . . .4-14
- *Report menus*4-14
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XB CONTROL PANEL

Use the XB blender control keypad and displayed menus to calibrate the blender and extrusion line and screw speeds; configure the system; enter material recipes and throughput data; schedule production runs; view production summaries; call up or print production reports; and view alarm messages.

To select a menu option, press the up arrow  or the number key associated with the option you want to use. Pressing the up arrow  also will return you to the previous screen.



You can access all menu options from the Main Menu, which also displays the current time and the date and time of the last blender reset or power-up.

THE MENU SYSTEM

MAIN MENU		
1	CURRENT PRODUCTION SETPOINTS	
2	SETPOINT FILES	
3	PRODUCTION SUMMARY	
4	ALARMS	
5	CALIBRATION	
6	REPORTS	
MOST RECENT POWER-UP 06-11-98 14:33		
15:28:21		

PRODUCTION SETPOINTS		
COMPONENT NO.	%	
REGRIND	"NO"	"E" FOR YES
1	60.0	
2	20.0	
3	17.0	
4	3.0	
WT/M SETPOINT (g/M)	50.00	
SET WIDTH TOTAL (mm)	1500	

Use to enter material and throughput setpoints

SETPOINT FILE S MENU	
1	ORDER QUEUE
2	VIEW/EDIT FILES
3	COPY FILES
4	ORDER CHANGE FACILITY

Use to edit, view and save up to 60 recipes and schedule production runs.

AUTO	PRODUCTION SUMMARY	
COMP. NO.	SET %	ACT %
1	60.0	59.9
2	20.0	20.0
3	19.0	19.1
4	1.0	1.0
THROUGHPUT	150.0	149.9
WEIGHT/LENGTH (g/m)	50.0	50.0
LINE SPEED (m/min)		85
SCREW SPEED (RPM)		90
DRIVE SETPOINT (%)		53.2

Displays material usage and status of blender and production run.

ALARM SUMMARY	
14:27	LEVEL SENSOR UNCOVERED
" " – TO CLEAR ALARMS	

Displays the cause of an alarm and the time at which it occurred.

CALIBRATION MENU	
1	CALIBRATE HOPPER
2	SET DATE AND TIME
3	LINE & SCREW SPEED CALIBRATION
4	PASSWORD
5	MEASUREMENT & CONTROL PARAMETERS
6	SYSTEM CONFIGURATION
7	DIAGNOSTICS
8	PRINTER SETTINGS

Use to calibrate and change system parameters. Password required.

REPORTS MENU	
1	CURRENT ORDER STATUS
2	ORDER REPORT
3	FRONT ROLL REPORT
4	BACK ROLL REPORT
5	SHIFT REPORT

Use to display various reports generated by the system.

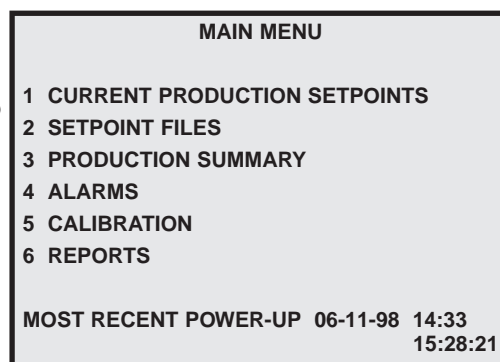
OPERATING THE BLENDER

Before starting the first normal operating cycle, you should configure the system and calibrate the weigh hopper and extruder screw and line speeds. If you have not done this, enter the Calibration menu and follow the Initial Setup and Calibration steps outlined in the *INSTALLATION* section of this manual.

- 1** Fill the material bins and any feeders that are installed.
- 2** Verify that the mixing chamber door is closed, and that the air supply is connected.
- 3** Power up the blender using the red switch located on the side of the blender. Leave the RUN / STOP switch in the STOP position.

- 4** Enter the blend recipe setpoints.

From the Main Menu, there are two ways to enter blend recipes and setpoints. You can use either the Current Production Setpoint or Setpoint Files options.



4a) For simple, single-recipe operation:

Press **1** to select Current Production Setpoints. Enter the material percentages and throughputs for the required order using the control keypad. The total blend percentage must equal 100%. If it does not equal 100%, you will not be allowed to exit this screen. For more information, see **Current Production Setpoints** in this section.

4b) For job-sequenced operation with multiple recipes:

Press **2** to select Setpoint Files options. Enter up to 60 production recipes using the View/Edit Recipes option. You can schedule the order in which these production recipes are run by using the Order Queue option. For detailed explanation, see **Setpoint Files** in this section.

- 5** Turn the black switch on the control cabinet from STOP to RUN. The blender will begin operating and controlling to the setpoints you have entered.

Menus and their options, including status reports and scheduling production orders, are explained on the following pages.

The production setpoints are entered on this page.

PRODUCTION SETPOINTS			
COMPONENT NO.	%		
REGRIND	"NO"	"E" FOR YES	
1	60.0		
2	20.0		
3	17.0		
4	3.0		
WT/M SETPOINT (g/M)		50.00	
SET WIDTH TOTAL (mm)		1500	


ENTERING PRODUCTION SETPOINTS

Enter the percentage of each component to one decimal place. The total percentage must equal 100. If the total percentage does not equal 100, an error message will be displayed.

If the Regrind function is enabled, the system does not deduct the percentage of the regrind component from the overall percentage. Instead the sum of the remaining components must equal 100% and the regrind is a percentage of the sum of these remaining components.

PRODUCTION SETPOINTS			
COMPONENT NO.	%		
REGRIND	"YES"	"E" FOR NO	
1	30.0		
2	64.0		
3	30.0		
4	6.0		
WT/M SETPOINT (g/M)		50.00	
SET WIDTH TOTAL (mm)		1500	

The total throughput setpoint is entered in kilograms/hour. The weight per length (WT/M) setpoint is entered in grams per meter.

Press the up arrow  to exit this page. The system will control to the new setpoints.

In weight per length mode, the user is prompted to enter the setpoint in grams per meter (g/m). To calculate the g/m:

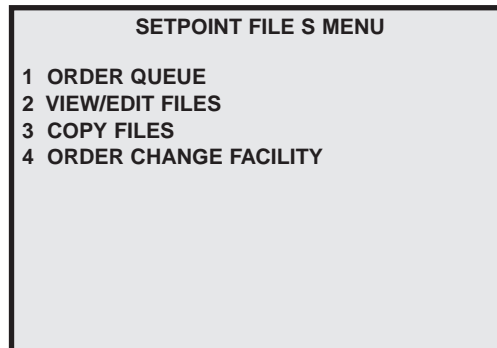
$$\text{g/m} = \text{thickness (microns)} \times 2 \times \text{width (meters)} \times \text{density}^*$$

* density = average density of all components

CALCULATING WEIGHT PER LENGTH SETPOINTS

THE SETPOINT FILES MENU

The Setpoint Files Menu allows you to manipulate files and to save up to 60 recipes in the blender system memory. Once a file has been saved, it can be recalled at any time in the future.



SCHEDULING PRODUCTION ORDERS

Setpoint Files Menu: Order Queue (option 1)

Use the order queue to schedule a list of blend recipes, or setpoint files, in the order in which they are to be run.

This is particularly useful for planning orders for a night shift or for a weekend.

ORDER QUEUE		
QUEUE	FILE NO	MAT CODE
1	05	267346
2	19	457845
3	02	780679
4	03	265757
5	02	567578
6	35	325684
7		



FILE 02 SUMMARY					
COMP #	1	2	3	4	5
TRGT %	75.0	20.0	4.0	1.0	0.0
CUSTOMER CODE	35602		SET Kgs/hr	50.00	
ORDER NO	326		SET g/m	21.00	

("+" to INSERT, "-" to DELETE)

The file at the top of the queue is the next production order to be loaded and will replace the job that is currently running.

You will use the View/Edit Menu, described on the next page, to enter and save the setpoint files for each production order.

To add and remove setpoint files in the Order Queue:

- 1 Use the   keys to scroll up and down through entries in the order queue. Note that a summary of the highlighted entry is displayed at the bottom of the screen.
- 2 Use the + key to insert an order or the - key to delete an order.

VIEWING AND EDITING SETPOINT FILES

Setpoint Files Menu: View/Edit Files (option 2)

Up to 60 order setpoints can be entered into files and stored in the system's memory. This allows you to recall regularly used recipes whenever necessary.



Pressing "E" on line 1 of the screen allows you to toggle between VIEW and EDIT modes. Data in the setpoint file can only be changed while in EDIT mode.

You can enter other information about the order for display purposes and reports.

EDIT		SETPOINT FILE	02	PAGE 1
TOTAL THRU-PUT (kg/h)		150.0		
SET WIDTH (TOTAL) mm		1500		
REGRIND		"NO"		
COMP	TARGET %	DENSITY		
1	50.0	0.920		
2	30.5	0.920		
3	14.5	0.920		
4	5.0	0.920		
"E" to TOGGLE VIEW/EDIT				
"+" to NEXT FILE				
"- " to PREVIOUS FILE				
O.NUM=12345 C.CODE=98765 M.CODE=45678				

VIEW		SETPOINT FILE	02	PAGE 2
FRONT ROLL LENGTH (m)		1000		
BACK ROLL LENGTH (m)		1000		
ORDER LENGTH (m)		10000		
ORDER WEIGHT (Kgs)		2000.00		
LINE SPEED (m/MIN)		20.0		
SHEET(1)/TUBE(0)		0		
FRONT SLIT REELS		01		
BACK SLIT REELS		00		
% DRY ADDITIVE		0.0		
TRIMMED WIDTH (mm)		600		
TRIM FED BACK (1=YES)		0		
MATERIAL CODE		3567		
CUSTOMER CODE		9452		
ORDER No		12		

To enter or edit setpoint files:

- 1** Highlight line 1 and press "E" to enter EDIT mode.
- 2** Use the   keys to scroll up or down to the correct line for entry.
- 3** Use the number keypad to enter the setpoints for each component and the throughput. Component percentages must total 100. The throughput setpoint will be in kilograms/hour or grams per meter, depending on the mode in which the blender is used (See Calibration Menus for system configuration information).
- 4** Use the + key to advance to the next setpoint file, or the - key to return to the previous setpoint file.

COPYING SETPOINT FILES

Setpoint Files Menu: Copy Setpoint Files (option 3)

The copy option allows you to copy setpoints from an existing file to a new one. This means that similar orders with slightly different setpoints can be set up quickly and easily.

```
COPY SETPOINT FILES
SOURCE FILE NO      08
DESTINATION FILE    15
COPY 08 TO 15? (1=YES)
COPY 01 TO 2-59? (1=YES)
```

Copying file 01 to all files is a procedure used for initializing all blender setpoint files during testing / commissioning.

WARNING: Exercise care when using the copy option. If this option is used in normal operation, it can overwrite all of the user's files.

CHANGING THE SEQUENCE OF JOB ORDERS

Setpoint Files Menu: Order Change Facility (option 4)

When one production order is completed and the next one is ready to run, you can load or abandon the next order by using the Order Change Facility menu.

```
ORDER CHANGE FACILITY
1 LOAD NEXT ORDER IN QUEUE (FILE 05)
2 ABANDON

FILE 05 SUMMARY
COMP #    1    2    3    4    5
TRGT %   75.0 20.0  4.0  1.0  0.0
CUSTOMER CODE 35602 SET Kgs/hr 50.00
ORDER NO      326 SET g/m   18.00
MATERIAL CODE 67346
```


The load and abandon options will be displayed along with the details of the next order in the queue.

If you select option 1, the screen at right will be displayed. To load the next order, you must confirm by pressing the "F" key.

```
CONFIRM ORDER CHANGE

"F" TO LOAD NEXT ORDER



"↑" TO ABANDON
```

Press  if you want to abandon the next production order.

PRODUCTION SUMMARY MENU

From the Production Summary menu, you can see the setpoint and actual values for component percentages and throughput; actual batch weights; and blender and production order status.


Pressing the “E” key displays the current status, material usage and throughput.

Pressing the  key returns you to the Main Menu. Pressing the  key will display more blender information.

When on the blender information page, you can open the fill valve on any component by pressing the “E” key. This is useful for draining the system at the end of an order.

Press the + or - key to scroll to components. Pressing the “E” key applies only to the selected component.

AUTO		PRODUCTION SUMMARY	
COMP. NO.	SET %	ACT %	
1	60.0	59.9	
2	20.0	20.0	
3	19.0	19.1	
4	1.0	1.0	
THROUGHPUT		150.0	149.9
WEIGHT/LENGTH (g/m)		50.0	50.0
LINE SPEED (m/min)		85	
SCREW SPEED (RPM)		90	
DRIVE SETPOINT (%)		53.2	


BLENDER INFORMATION				EXIT 
COMP NO.	SLIDE VALVE	COMP SET WGT	COMP ACT WGT	
1	CLOSED	3.600	3.598	
2	CLOSED	1.197	1.198	
3	OPEN	1.137	1.136	
4	CLOSED	0.060	0.060	
DUMP		CLOSED		
WEIGH HOPPER CLOSED (SENSOR ON)				5.992 5.992
CONTROL METHOD		ONLINE	*Kg/H*0	


To check order status and reset order totals:

Press the “E” key while viewing the Production Summary to display the Order Status screen.

Press the decimal key to reset the order totals. When the confirmation screen appears, press the “F” key to reset totals immediately, or the decimal key to reset totals at the next roll change.

The last line of the Order Status screen blinks when the blender is in the “waiting for the next roll change” mode.

12:23:45	ORDER STATUS	EXIT 	
ORDER No 35560			
COMP #	ORDER (Kg)	FRONT (Kg)	
1	23.45	12.23	
2	7.23	3.45	
3	4.12	2.34	
4	1.02	0.86	
TOTAL		35.82	18.88
ORDER LENGTH (m)		14545	ROLL #
FRONT ROLL LENGTH (m)		2345	05
BACK ROLL LENGTH (m)		2351	06
“ . ” TO RESET ORDER TOTALS			

CONFIRM ORDER RESET	
“ F ” RESET ORDER TOTALS NOW	
“ . ” RESET ORDER TOTALS AT NEXT ROLL CHANGE	
“  ” TO ABANDON	

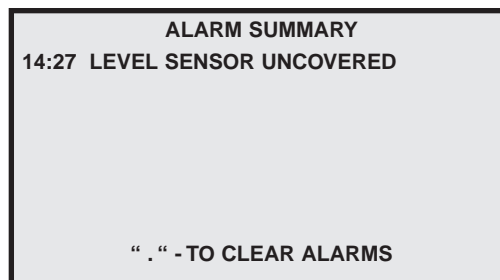
TIP: Resetting the production order totals can be useful when you have to discard a start-up roll of scrap material that should not be included in the order totals.

ALARM SUMMARY MENU

If a component alarm occurs on the blender, “ALARM” will flash beside the component number on the Production Summary screen.

If the alarm applies to more than one component, “System ALARM” will flash at the top of the Production Summary screen and the red beacon mounted on the blender frame will provide a visual warning. During a **system alarm** the blender automatically enters manual mode.

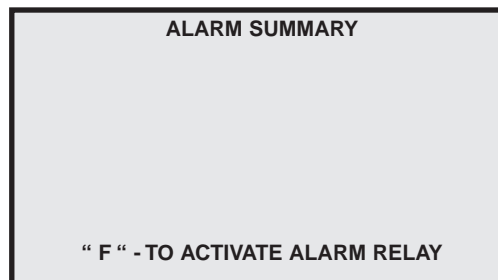
To find the cause of an alarm, go to the Main Menu and press the **4** key. The cause of the alarm and the time that it occurred will be displayed on the Alarm Summary screen.



Press the decimal key to clear all alarms. For information on what each alarm message means, **see the TROUBLESHOOTING section of this manual.**

TIP: You can test the alarm beacon connected to the relay outputs by going to the Alarm Summary screen when there are no alarm conditions.

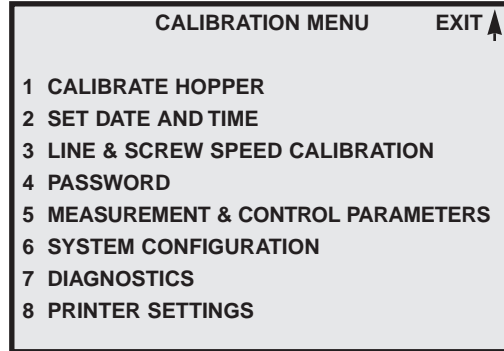
Press the “F” key to test the beacon. Press **↑** to return to the Main Menu after the test.



CALIBRATION MENUS

You will use the Calibration Menu primarily during initial setup and before normal operation. Because all of the system parameters can be changed from this menu, a password is required for access from the Main Menu.

IMPORTANT: We recommend that you change the factory-set password (35560) and restrict access to the new password to management and technical personnel. See **Password Entry (Option 4)**.







From the Calibration Menu, you can:

- Calibrate the blender's weigh hopper.
- Set time, date and shift start times.
- Calibrate the extruder line and screw speed.
- Set and change the blending system password.
- Set and change parameters that affect units of measurement (metric, English, microns); the language that is displayed; the number of extrusion lines; and how the blending system measures throughput and controls the extrusion lines.
- Set up a printer and enable or disable printer options.

Calibration Menu options 1 Calibrate Hopper; 3 Line & Screw Speed Calibration; and 6 System Configuration are described in detail in the *INSTALLATION* section of this User Guide.

Each of the Calibration Menu's other five options will be described in detail on the following pages.

To select a menu option, press the arrow keys   or the number key associated with the option you want to use.

Pressing the up arrow  also will return you to the previous screen. Repeatedly pressing the up arrow  will return you to the Main Menu.

SETTING TIME AND DATE

Calibration Menu: Set Time and Date (option 2)

Use this option to set the correct day, time and date and enter up to 4 shift start times.

By entering shift times, you can obtain detailed shift production reports.

The reports, discussed under Report Menus, show overall throughput of the blender, number of rolls produced, etc.

SET TIME AND DATE		
FRI, 27-03-98, 15:30:10		
TIME	(HHMMSS)	
DATE	(DDMMYY)	
DAY	(1=SUNDAY)	
SHIFT 1 TIME		00:00
SHIFT 2 TIME		08:00
SHIFT 3 TIME		16:00
SHIFT 4 TIME		-----
PRESS "E" FOR UNUSED SHIFTS		

The current day, time and date are displayed at the top of the menu. To set or change times:

- 1 Select the item to be changed.** Use the arrow keys to move to the appropriate line.
- 2 Enter the new value using the numeric keypad.** For example, to enter the 17th of March 1998, key in 170398.

CHANGING THE PASSWORD

WARNING: Because all of the system parameters can be changed from the Calibration Menus, We recommend that you change the factory-set password (35560) and restrict access to the new password to management and technical personnel.

Calibration Menu: Password Entry (option 4)

You must enter a password to gain access to the Calibration Menus. The password set at the factory is 35560.

To change the password:

PASSWORD ENTRY	
PASSWORD	
ATTENTION:	
PASSWORD	= 35560

- 1 Select the Password Entry menu.** From the Main Menu, press **5** to select Calibration. When prompted, enter the password (factory set to 35560) and press **4** to select Password Entry.
- 2 Enter a new password.** The password can have from one to six digits, and can be any numeric value between 1 and 999999. Use the numeric keypad to enter a new password. The password is displayed only when a new password has been entered. After exiting the Password Entry and Calibration Menu pages, the new password is no longer displayed.

Calibration Menu: Measurement and Control Parameters (option 5)

These parameters are set at the factory and determine how the system will measure and control the process.

MEASUREMENT AND CONTROL PARAMETERS		
CONTROL GAIN (0.50-0.99)		0.75
CONTROL AVERAGING (1-9)		03
WEIGHT AVERAGING (1-5)		02
MIXING TIME (1-99 SECONDS)		20

MEASUREMENT AND CONTROL PARAMETERS

Normally, you will not need to change these parameters. The Mixing Time parameter is displayed, and can be changed, only if the system is configured for off-line (central) blending.

Control Gain: This value sets the control gain for extruder screw speed corrections. The range 0.50 to 0.99. this value is normally set to 0.75. This means that the system will perform 75% of the require correction to the screw speed.

Control Averaging: This is the number of the batches that are averaged together in order to determine the blender throughput. This is normally set to 3.

Weight Averaging: This numbers sets the weight averaging process for the hopper readings. This is normally set to 2.

Mixing Time: Only visible when the blender is configured for off-line blending. Mixing Time represents the number of seconds that the material will be mixed before the valve in the mix chamber opens to discharge the material. During on-line blending, material mixing is continuous.

Calibration Menu: Diagnostics (option 7)

This menu provides information about the blender's computing system. The software revision and the protocol that the blender is using for serial communications is displayed at the bottom of the screen.

DIAGNOSTICS			
TRANSMIT	RECEIVE	CHECKSUM	TIMEOUTS
942888	942972	00	00
LEVEL SENSOR #1		ON	
LEVEL SENSOR #2		OFF	
SERIAL COMMS PROTOCOL:		TSM	
SOFTWARE REV:		BBLD12-2	

DIAGNOSTICS

ENABLING AND DISABLING PRINT OPTIONS

Calibration Menu: Printer Settings (option 8)

This menu allows you to connect a serial printer to the blending system and configure the printer port to accept that printer.

You also can choose what reports can be printed by enabling and disabling the various options.

PRINTER SETTINGS	
BAUD RATE	9600
8 DATA, 1 STOP, PARITY =	NONE
ENABLE/DISABLE PRINTING:	
ROLL REPORTS	ENABLE
ORDER REPORTS	ENABLE
SHIFT PRINT	DISABLE
ALARM SUMMARY	DISABLE
-----	DISABLE
-----	DISABLE
SCREEN PRINT	DISABLE
DIAG PRINT	DISABLE

To change the baud rate and parity settings:

- 1 Press “E” while on the corresponding line to toggle and select from among the choices.

To enable or disable a printing option:

- 1 Use the down arrow key  to move through the list.
- 2 Press “E” to toggle between ENABLE and DISABLE.

If Screen Print is enabled, you can print any information or display screen by pressing the decimal key “.”

For samples of available printouts, see the Appendix.

THE REPORTS MENU

The Reports Menu (option 6 on the Main Menu) allows you to view various reports that are generated by the blending system. A sample of each report can be found on the following pages.

REPORTS MENU	
1:	CURRENT ORDER STATUS
2:	ORDER REPORT
3:	FRONT ROLL REPORT
4:	BACK ROLL REPORT
5:	SHIFT REPORT

Reports Menu: Current Order Status (option 1)

This report allows you to check the status of the current order and reset the production order totals.

Resetting order totals can be useful when you have to discard a start-up roll of scrap material that should not be included in the order total.

Press the decimal key to reset the order totals.

When the confirmation screen appears, press the “F” key to reset totals immediately, or the decimal key to reset totals at the next roll change.

The last line of the Order Status screen blinks when the blender is in the “waiting for the next roll change” mode.

TIP: You can also reach the Order Status report from the Production Summary screen. Just Press the “E” key while viewing the Production Summary.

12:23:45 ORDER STATUS EXIT ↑		
ORDER No 35560		
COMP #	ORDER (Kg)	FRONT (Kg)
1	23.45	12.23
2	7.23	3.45
3	4.12	2.34
4	1.02	0.86
TOTAL	35.82	18.88
ORDER LENGTH (m) 14545 ROLL #		
FRONT ROLL LENGTH (m) 2345 05		
BACK ROLL LENGTH (m) 2351 06		
“ . ” TO RESET ORDER TOTALS		

CONFIRM ORDER RESET	
“ F ” RESET ORDER TOTALS NOW	
“ . ” RESET ORDER TOTALS AT NEXT ROLL CHANGE	
“ ↑ ” TO ABANDON	

CHECKING THE CURRENT ORDER STATUS

Reports Menu: Order Report (option 2)

This report shows all of the values for the previously completed order.

ORDER REPORT		
ORDER STARTED AT: 12-03-97, 10:50		
ORDER ENDED AT: 12-03-97, 18:25		
CUSTOMER CODE 123456		
MATERIAL CODE 456789		
ORDER No 345678		
ORDER LENGTH (m) 5475.80		
COMPONENT NO.	WEIGHT (Kgs)	TARGET %
1	1400.00	70.0
2	300.00	15.0
3	200.00	10.0
4	100.00	5.0
TOTAL	2000.00	100.0

ORDER REPORT

FRONT ROLL REPORT

Reports Menu: Front Roll Report (option 3)

This report shows all of the values for the previously completed front roll.

FRONT ROLL REPORT		ROLLS	06
ROLL STARTED AT:	12-03-97, 10:50		
ROLL ENDED AT:	12-03-97, 18:25		
CUSTOMER CODE	123456		
MATERIAL CODE	456789		
ORDER No	345678		
ROLL LENGTH (m)	5475.80		
COMPONENT NO.	WEIGHT (Kg)	TARGET %	
1	700.00	70.0	
2	150.00	15.0	
3	100.00	10.0	
4	50.00	5.0	
TOTAL	1000.00	100.0	

BACK ROLL REPORT

Reports Menu: Back Roll Report (option 4)

This report shows all of the values for the previously completed back roll.

BACK ROLL REPORT		ROLLS	06
ROLL STARTED AT:	12-03-97, 10:50		
ROLL ENDED AT:	12-03-97, 18:25		
CUSTOMER CODE	123456		
MATERIAL CODE	456789		
ORDER No	345678		
ROLL LENGTH (m)	5475.80		
COMPONENT NO.	WEIGHT (Kg)	TARGET %	
1	700.00	70.0	
2	150.00	15.0	
3	100.00	10.0	
4	50.00	5.0	
TOTAL	1000.00	100.0	

CURRENT SHIFT REPORT

Reports Menu: Current Shift Report (option 5)

This report shows material usage values for the current shift.

CURRENT SHIFT REPORT		12-03-97, 18:25:34	
START TIME:	12-03	18:00	
f			
	WEIGHT (Lb)	TARGET %	ACTUAL %
1	700.00	70.0	69.8
2	150.00	15.0	15.1
3	100.00	10.0	10.1
4	50.00	5.0	5.0
TOTAL	1000.00	100.0	100.0

MAINTENANCE

- *Maintenance schedule5-2*
- *Draining the blender for
material changes5-3*
- *Cleaning the auger feeders5-4*
- *Cleaning the blender5-5*

PREVENTATIVE MAINTENANCE SCHEDULE

The blender requires little maintenance. We recommend the following maintenance schedule and tasks.

● Whenever you change materials:

☐ Clean the blender.

To prevent contamination of subsequent batches, you should clean all bins and chambers thoroughly. Drain the material bins, weigh bin and mix chamber. Remove any residual material.

☐ Clean additive feeder(s) .

If you are using feeders to add material or colorant, you need to clean these feeders before filling them with different materials. Drain the feeder bin and remove any residual material.

● Weekly, or as often as needed:

☐ Inspect the air regulator filters.

There is a compressed air regulator on the blender. Check for condensation or other signs of water. Purge and clean the filter bowl if necessary.

☐ Inspect the mix auger.

Verify that the mix auger turns easily within the chamber. If the auger makes noise or does not turn easily, you may need to lubricate the ends of the auger with a commercial lubricant, such as WD-40. If the mix auger becomes sharp or damaged, replace it.

● Monthly:

☐ Inspect power cords, wires and electrical connections.

Check for loose or exposed wires, burned contacts, and signs of overheated wires. Check exterior power cords to the main power source. Replace damaged components.

☐ Inspect air connections, hoses, lines for wear or damage.

Check for damage, wear or loose connections. Tighten connections or replace damaged parts.



WARNING: Pinch and auger hazards.



This equipment is equipped with pneumatic slide gates beneath the material bins and rotating augers in the feeders and mixing chamber. Always disconnect and lock out the incoming power source before cleaning the blender or feeder. Always disconnect the compressed air source before working near the slide gates. Failure to do so could result in serious injury.

All feeders, material bins and the mixing chambers should be drained of material and cleaned thoroughly whenever you change ingredients to prevent contamination of subsequent batches.

At the end of an order, you can drain material from any component bin using the blender control and the throat drain port.

DRAINING THE BLENDER FOR MATERIAL CHANGES

1 Place a container, drain chute or hose at the throat drain port to catch the material.

2 Remove the drain port cap. Open the latch to the auger access door. Swing the door open, and remove the auger.



3 Go to the control's Blender Information screen.

From the Main Menu, press **3** to select Product Summary.

Press the down arrow **↓** to go to the Blender Information screen.

4 Use the control to open each component fill valve.

When on the Blender Information screen, you can open the fill valve on any component by pressing the "E" key. Press the + or - key to scroll to the component you want to drain, then press and hold the "E" key. Pressing the "E" key applies only to the valve for the selected component or dump valve. Continue this process for each valve and the weigh hopper until the material has drained through the mixing chamber and drain port.

BLENDER INFORMATION				EXIT ↑
COMP NO.	SLIDE VALVE	COMP SET WGT	COMP ACT WGT	
1	OPEN	3.600	3.598	
2	CLOSED	1.197	1.198	
3	CLOSED	1.137	1.136	
4	CLOSED	0.060	0.060	
DUMP				CLOSED
WEIGH HOPPER				CLOSED (SENSOR ON)
			5.992	5.992
CONTROL METHOD		ONLINE	*Kg/H*0	

5 Exit the Blender Information screen when the blender has been emptied of material. Press the up arrow **↑** key twice to return to the Main Menu.

6 Clean the blender and feeders thoroughly before resuming operation with different ingredients.

CLEANING THE AUGER FEEDERS

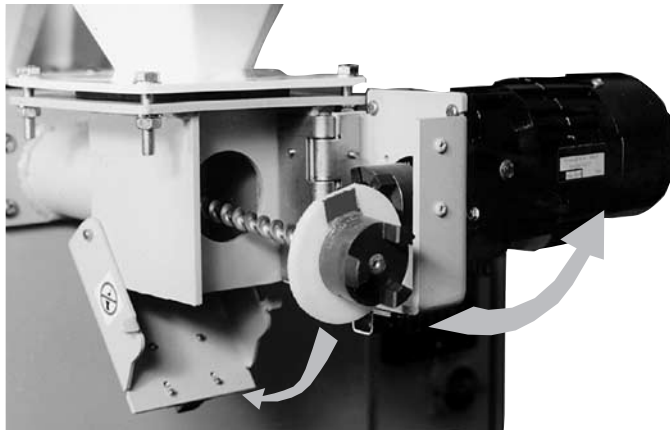


CAUTION: Flying objects

The blender is equipped with a compressed-air gun that can be used for cleaning the bins and mix chamber. To avoid potential injury, you must observe all safety regulations that apply to the use of compressed air for cleaning equipment.

Adjust air pressure to no more than 60 psi. Wear protective goggles and clothing to prevent injury from flying particles and objects.

- 1 Stop the blender, then disconnect and lock out the main power source.**
- 2 Remove and clean the feed auger.**
Open the latch to the auger access door. Swing the door open, and remove the auger.
- 3 Drain the feeder of material.**
Place a container beneath the feeder to catch the draining material. Open the hinged bottom of the feeder to drain the material.



- 4 Clean the feeder hopper and auger housing.**
Remove all material on the interior surfaces of the auger housing and feeder hopper, using a clean cloth, vacuum or compressed air.
- 5 Reassemble the feeder.**
Replace the auger and close the access doors, making sure to latch the doors securely.



CAUTION: Flying objects

The blender is equipped with a compressed-air gun that can be used for cleaning the bins and mix chamber. To avoid potential injury, you must observe all safety regulations that apply to the use of compressed air for cleaning equipment.

Adjust air pressure to no more than 60 psi.
Wear protective goggles and clothing to prevent injury from flying particles and objects.

CLEANING THE BLENDER

Whenever you change materials, you should clean all interior surfaces of the blender thoroughly using a clean cloth, vacuum or compressed air.

1 Stop the blender, then disconnect and lock out the main power source.

2 Clean the material bins. Open the bin access doors and remove all material.

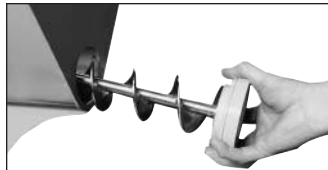
3 Remove and clean the weigh hopper.

Open the mixing chamber door and slide the weigh hopper out. Clean the weigh hopper.



4 Remove the mixing auger and clean the mixing chamber.

Pull the mixing auger out through the access hole on the side of the chamber. Clean the mix chamber.



5 Drain residual material through the throat drain port.



6 Reassemble

Close the throat drain port.
Place the mixing auger back into the mixing chamber.
Slide the weigh hopper back into the mix chamber, making sure that no obstructions prevent the hopper from resting evenly on the load cell bracket.

7 Close the mixing chamber and material bin doors.

TROUBLESHOOTING

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- *A few words of caution*6-2
- *Determining the cause of a problem*6-3

DIAGNOSTICS

- *Component alarms*6-4
- *System alarms*6-5

REPAIR

- *Checking the load cell*6-8
- *Checking and repairing fill valves*6-10
- *Checking and repairing feeders*6-11

BEFORE BEGINNING

You can avoid most problems by following the recommended installation, operation and maintenance procedures outlined in this User Guide. If you do have a problem, this section will help you determine what caused it and tell you how to fix it.

Before you begin troubleshooting:

- Find the wiring diagrams and other schematics that were shipped with your equipment.** These diagrams are the best reference for correcting a problem. The diagrams also will note any custom features, such as special wiring or control options, not covered in this User Guide.
- Verify that you have all instructional materials related to the XB blender, its control systems and its components.** Additional details about troubleshooting and repairing specific components are in these manuals.
- Verify that you have manuals for equipment located upstream and downstream from the blender.** Solving problems related to material conveyed to the blender or to extrusion quality may require troubleshooting malfunctions or incorrect operating procedures on other pieces of equipment in the extrusion line.

A FEW WORDS OF CAUTION



WARNING: This machines should be adjusted and serviced only by qualified technical personnel who are familiar with construction and operation of this type of equipment.



DANGER: Voltage hazard. Always disconnect and lock out the main power supply before opening the blender electrical enclosure.

Troubleshooting procedures that require access to the electrical enclosure while power is on should be performed only by qualified electrical technicians who know how to use electrical testing equipment and understand the hazards involved.

DETERMINING THE CAUSE OF A PROBLEM

Most problems will trigger one of the blender alarms.

If a **component alarm** occurs on the blender, “ALARM” will flash beside the component number on the Production Summary screen. During a component alarm, the blender continues to operate in automatic mode.

AUTO		PRODUCTION SUMMARY	
COMP. NO.	SET %	ACT %	
1	60.0	59.9	
ALARM 2	20.0	20.0	
3	19.0	19.1	
4	1.0	1.0	
THROUGHPUT		150.0	149.9
WEIGHT/LENGTH (g/m)		50.0	50.0
LINE SPEED (m/min)			85
SCREW SPEED (RPM)			90
DRIVE SETPOINT (%)			53.2

If the alarm applies to more than one component, “**SYSTEM ALARM**” will flash at the top of the Production Summary screen and the red beacon mounted on the blender frame will provide a visual warning. During a system alarm the blender automatically enters manual mode.

MANUAL		PRODUCTION SUMMARY	
COMP. NO.	SET %	ACT %	
SYSTEM ALARM			
1	60.0	59.9	
2	20.0	20.0	
3	19.0	19.1	
4	1.0	1.0	
THROUGHPUT		150.0	149.9
WEIGHT/LENGTH (g/m)		50.0	50.0
LINE SPEED (m/min)			85
SCREW SPEED (RPM)			90
DRIVE SETPOINT (%)			53.2

- 1 To find the cause of an alarm,** go to the Main Menu and press the **4** key.

The cause of the alarm and the time that it occurred will be displayed on the Alarm Summary screen.

ALARM SUMMARY	
14:27	LEVEL SENSOR UNCOVERED
“ . “ - TO CLEAR ALARMS	

- 2 To clear an alarm,** press the decimal key and fix the problem.

For information on what each alarm message means, refer to the diagnostic tables on the following pages.

COMPONENT ALARMS

When a problem affecting one of the material components occurs:

- ◆ “ALARM” flashes beside the component number on the Production Summary screen.
- ◆ The blender continues to operate in automatic mode.
- ◆ The Alarm Summary screen displays an alarm message.

Alarm message	Possible cause	Solution
Fill Problem on Blend x The blender was unable to fill the weigh hopper to the target weight from the component number displayed in the message.	Is the component bin or feeder empty?	Verify that there is material in the bin or feed hopper.
	Does the recipe call for more material than the component valve or feeder can deliver?	Verify that the feed auger or material slide valve opening is the correct size for this application. Trying to put too much material through a feed valve that has a flow reducer insert can cause this alarm.
	Has material “bridged” over the bin discharge, blocking material flow?	Verify that material is free to flow into the weigh hopper.
	Did the air-actuated slide valve for this component fail to open?	<input type="checkbox"/> Verify that the RUN/STOP switch is in the RUN position. <input type="checkbox"/> Verify that the valve is connected to compressed air supplying 87 to 116 psi {6 to 8 bar}. <input type="checkbox"/> Verify that the solenoid and relay is working correctly. See <i>Checking and Repairing Fill Valves</i>.
	Did the auger feeder fail to operate?	<input type="checkbox"/> Ensure that feeder cable connections to the bottom of the blender wiring cabinet are secure. <input type="checkbox"/> Verify that the feeder motor turns. See <i>Checking and Repairing Feeder Problems</i>.

SYSTEM ALARMS

When a problem affecting the blender control or more than one component occurs:

- ◆ “SYSTEM ALARM” flashes at the top of the Production Summary screen, and the red alarm beacon activates.
- ◆ The Alarm Summary screen displays an alarm message.
- ◆ The blender automatically enters manual mode.

Alarm message	Possible cause	Solution
Level Sensor Uncovered The level sensor in the mixing chamber failed to see material during a fill cycle.	Was there a component fill alarm?	A component may not have filled correctly, causing the weigh hopper to delay dumping the next batch into the mix chamber. Verify that component bins and feeders have material and are operating correctly.
	Is the level sensor faulty?	Check the level of material in the mixing chamber. If material is covering the level sensor even though it failed to detect material: <ul style="list-style-type: none"> <input type="checkbox"/> Verify that the level sensor wire is securely connected to the correct terminal in the blender wiring cabinet. <input type="checkbox"/> Verify that the level sensor sensitivity setting is correct.
Unable to Control Blend The blender was unable to control the throughput to the required setpoint, or it was unable to stay within the control dead-band.	Is the throughput to high for the blender or extruder screw?	<ul style="list-style-type: none"> <input type="checkbox"/> Verify that the correct target setpoints for components and throughput have been entered. <input type="checkbox"/> Verify that the blender and feeders are correctly sized to satisfy the throughput for this application. <input type="checkbox"/> Verify that the extruder can satisfy the throughput for this application.
	Is there excessive vibration?	Excessive vibration can also cause control alarms. Call Conair service if you suspect vibration is the problem.

SYSTEM ALARMS

When a problem affecting the blender control or more than one component occurs:

- ◆ “SYSTEM ALARM” flashes at the top of the Production Summary screen, and the red alarm beacon activates.
- ◆ The Alarm Summary screen displays an alarm message.
- ◆ The blender automatically enters manual mode.

Alarm	Possible cause	Solution
<p>Calibration Data Alarm</p> <p>The calibration data stored in the blender has become corrupted.</p>	<p>Has a new version of the control software been installed recently?</p>	<p>Verify and re-enter calibration information as needed. If the problem persists, contact Conair service technicians.</p>
<p>EEPROM Write Failure</p> <p>The blender computer has been unable to write data to the memory used to store calibration and setpoint data.</p>	<p>The control circuit board has failed.</p>	<p>Contact Conair service technicians immediately.</p>
<p>A/D Error</p> <p>The analogue to digital converter is over-range or has a negative polarity.</p> <p>WARNING: Hoppers should not be left in an A/D error alarm condition. The load cell can be damaged by being continuously overloaded.</p>	<p>Does the weight on the load cell exceed the maximum allowed?</p> <p>Is the load cell damaged?</p>	<p>Too much material has been allowed to enter the weigh hopper. Drain the material from the hopper. Verify that the target weight entered in page 2 of the weigh hopper calibration menu matches the maximum batch size allowed for this model. Reduce the target weight for the weigh hopper, if necessary. See <i>Calibrating the Weigh Hopper</i> in the <i>INSTALLATION</i> section.</p> <p>Verify that the load cell is weighing properly. See <i>Checking the Load Cell</i>.</p>

SYSTEM ALARMS

When a problem affecting the blender control or more than one component occurs:

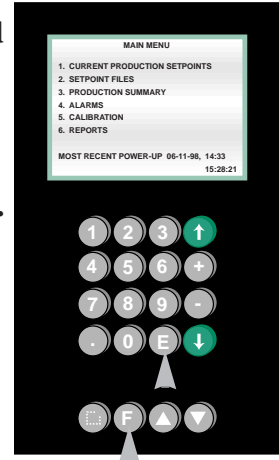
- ◆ “SYSTEM ALARM” flashes at the top of the Production Summary screen, and the red alarm beacon activates.
- ◆ The Alarm Summary screen displays an alarm message.
- ◆ The blender automatically enters manual mode.

Alarm	Possible cause	Solution
Extruder Stalled The extruder has stalled or stopped while the blender setpoint voltage controlling the extruder speed is still present.	Was the extruder switched off before you decreased the extruder speed setpoint on the blender to zero?	<p>Restart the extruder. When the blender detects a stalled extruder, it automatically sets the speed setpoint for the extruder motor to zero. When the extruder is restarted, the blender will start controlling again from zero RPM.</p> <p>WARNING: Even though this alarm can be disabled in the system configuration of the Calibration Menu, it is important to leave it enabled. If it is disabled, the extruder speed setpoint in the blender will not return to zero when the extruder stalls or stops. Restarting with the setpoint at a high speed can damage the extruder.</p>

CHECKING THE LOAD CELL

A malfunctioning load cell can lead to incorrect batch weights and persistent A/D Error alarms. The problem may be caused by material trapped around the load cell housing; a failure on the MCU 16 board, electrical noise; or a damaged load cell. To check the load cell:

- 1 Power up the blender using the red switch located on the side of the blender.** Leave the RUN / STOP switch in the STOP position.
- 2 Place the blender in “pause” mode.** Using the green arrow keys on the operator panel, go to the Production Summary page and press the "F" key to place the system in pause mode. When prompted, confirm your intentions by pressing the "E" key. The system is now in pause mode.
- 3 Clean the weigh hopper and load cell area.** Open the mixing chamber door and slide the weigh hopper out. Using the supplied air gun, clean the hopper and any dust that may be around the load cell. Ensure that there are no granules trapped around the housing of the load cell.
- 4 Check the mounting bolts for the load cell and bracket.** These bolts must be securely tightened. Two bolts mount the load cell to the block. Four bolts mount the block to the top plate of the blender chassis. Verify that the load cell cannot move from side to side on the mounting block. Also verify that the bolts securing the weigh hopper mounting bracket to the load cell are tight.
- 5 Place the weigh hopper back on the load cell and close the mixing chamber.**
- 6 Select the Hopper Calibration menu.** From the Main Menu, press **5** to select Calibration. When prompted, enter the password (factory set to 35560) and press **1** to select Calibrate Hopper.
- 7 Calibrate the empty weigh hopper.** With the weigh hopper empty, allow the A/D counts (analog to digital converter reading) to stabilize. Then press the decimal point key **0.** to tare the hopper. The A/D tare counts should change to the current A/D value and the weight reading will become zero. This now becomes the zero reference point for the load cell readings.



CHECKING THE LOAD CELL

8 Calibrate the weigh hopper with a known weight.
Place a known weight, e.g. 1 kg, on the frame of the weigh hopper. Verify that the weight is displayed correctly in the Hopper Calibration menu. Check the stability of the load cell readings (A/D counts). If the weight is correct and the A/D counts are stable, the load cell is working properly. If the A/D counts are not stable, proceed to Step 8.

9 Disconnect and lock out power to the blender.
Use the red switch on the side of the blender.

10 Open the blender electrical enclosure and locate Con 6 and Con 5 on the MCU 16 board.

11 Insert the dummy plug on Con 6 into Con 5.
Plug the load cell into Con 6.

IMPORTANT: Load cells or dummy plugs must not be removed or inserted into Con 5 or Con 6 while the blender is powered up. The blender should not be powered up unless the load cell and dummy plug are inserted in Con 5 and Con 6.

12 Repeat Steps 1, 2, 6 and 7.
By swapping the load cell with the dummy plug, you can see if the A/D counts are now stable. If they are not stable, there could be a problem with the A/D channel on the MCU 16 board. If they are stable, then there is a problem with the load cell that could be caused by electrical noise. Proceed to Step 13.

13 Disconnect and lock out power to the blender.
Use the red switch on the side of the blender.

14 Open the blender electrical enclosure and check the load cell wiring connections.
Verify that the load cell connections are secured properly. Look for shorts, loose wires or an unconnected shield wire. Repair, as needed.

CHECKING AND REPAIRING FILL VALVES



DANGER: Electrical shock hazard. Always disconnect and lock out the main power supply before opening the blender electrical enclosure. The solenoid valves are connected to the main voltage supply.


Procedures that require access to the electrical enclosure while power is on should be performed only by qualified electrical technicians who know how to use electrical testing equipment and understand the hazards involved.


There is one air-operated slide valve mounted beneath each material bin. These fill valves dispense components in the material bins to the weigh hopper. Additional components are dispensed by auger feeders mounted to the blender chassis.

Solenoids located in the blender electrical enclosure control the slide valves. The solenoid for each valve is controlled by computer activated triacs located on the GENOP or BBCON card located in the same electrical enclosure.

To check the fill valves:

- 1** Place the RUN/STOP switch in the RUN position.
- 2** Verify that the solenoids are attached to an air supply of 87 to 116 psi {6 to 8 bar}.
- 3** Manually activate each valve using the blender control.

From the Production Summary menu, press  to display the Blender Information screen. Press the + or - key to select a component. Press the “E” key to activate the valve for that component.

BLENDER INFORMATION			EXIT 
COMP NO.	SLIDE VALVE	COMP SET WGT	COMP ACT WGT
1	CLOSED	3.600	3.598
2	CLOSED	1.197	1.198
3	OPEN	1.137	1.136
4	CLOSED	0.060	0.060
DUMP	CLOSED		
WEIGH HOPPER			
CLOSED (SENSOR ON)			5.992
			5.992
CONTROL METHOD		ONLINE	*Kg/H*0

- 4** Listen as each solenoid valve is activated. Check the air pressure supplied to the system if you hear the valve switch, but the valve remains closed. If you do not hear the valve switch, check the mains voltage applied to the GENOP PCB (Con 1). If voltage is present, the problem may be the switching triac. If voltage is not present, check the fuse at terminal 45 on the DIN rail.

CHECKING AND REPAIRING FEEDERS



DANGER: Electrical shock hazard.


Always disconnect and lock out the main power supply before opening the blender electrical enclosure. The solenoid valves are connected to the main voltage supply.


Procedures that require access to the electrical enclosure while power is on should be performed only by qualified electrical technicians who know how to use electrical testing equipment and understand the hazards involved.

Blenders that mix more than four materials use side-mounted auger feeders to dispense the additional components. The feeders are controlled by triacs on the GENOP PCG. The connections from the GENOP or BBCON PCB to the feeder motors are located at the bottom of the blender wiring cabinet.

To check the feeders:

- 1 Place the RUN/STOP switch in the RUN position.**
- 2 Verify that the solenoids are attached to an air supply of 87 to 116 psi {6 to 8 bar}.**
- 3 Manually activate each feeder using the blender control.**

From the Production Summary menu, press  to display the Blender Information screen. Press the + or - key to select a component. Press the “E” key to activate the feeder for that component.

BLENDER INFORMATION				EXIT 
COMP NO.	SLIDE VALVE	COMP SET WGT	COMP ACT WGT	
1	CLOSED	3.600	3.598	
2	CLOSED	1.197	1.198	
3	CLOSED	1.137	1.136	
4	CLOSED	0.020	0.019	
5	OPEN	0.020	0.021	
6	CLOSED	0.020	0.020	
DUMP	CLOSED			
WEIGH HOPPER	CLOSED (SENSOR ON)		5.992 5.992	
CONTROL METHOD		ONLINE		*Kg/H*0

- 4 Check that the feeder motor turns as each feeder is activated.**

If the motor does not turn, ensure that the connector is securely fitted. If the connection is good, check the mains voltage on the GENOP or BBCON PCB and the voltage going to the motor when the feeder is activated.

Conair has made the largest investment in customer support in the plastics industry. Our service experts are available to help with any problem you might have installing and operating your equipment. Your Conair sales representative also can help analyze the nature of your problem, assuring that it did not result from misapplication or improper use.

WE'RE HERE TO HELP

To contact Customer Service personnel, call:



HOW TO CONTACT CUSTOMER SERVICE

From outside the United States, call: 814-437-6861

You can commission Conair service personnel to provide on-site service by contacting the Customer Service Department. Standard rates include an on-site hourly rate, with a one-day minimum plus expenses.

If you do have a problem, please complete the following checklist before calling Conair:

- Make sure you have all model, serial and parts list numbers for your particular equipment. Service personnel will need this information to assist you.
- Make sure power is supplied to the equipment.
- Make sure that all connectors and wires within and between control systems and related components have been installed correctly.
- Check the troubleshooting guide of this manual for a solution.
- Thoroughly examine the instruction manual(s) for associated equipment, especially controls. Each manual may have its own troubleshooting guide to help you.
- Check that the equipment has been operated as described in this manual.
- Check accompanying schematic drawings for information on special considerations.

BEFORE YOU CALL ...

Additional manuals and prints for your Conair equipment may be ordered through the Customer Service or Parts Departments for a nominal fee.

EQUIPMENT GUARANTEE

Conair guarantees the machinery and equipment on this order, for a period as defined in the quotation from date of shipment, against defects in material and workmanship under the normal use and service for which it was recommended (except for parts that are typically replaced after normal usage, such as filters, liner plates, etc.). Conair's guarantee is limited to replacing, at our option, the part or parts determined by us to be defective after examination. The customer assumes the cost of transportation of the part or parts to and from the factory.

PERFORMANCE WARRANTY

Conair warrants that this equipment will perform at or above the ratings stated in specific quotations covering the equipment or as detailed in engineering specifications, provided the equipment is applied, installed, operated and maintained in the recommended manner as outlined in our quotation or specifications.

Should performance not meet warranted levels, Conair at its discretion will exercise one of the following options:

- Inspect the equipment and perform alterations or adjustments to satisfy performance claims. (Charges for such inspections and corrections will be waived unless failure to meet warranty is due to misapplication, improper installation, poor maintenance practices or improper operation.)
- Replace the original equipment with other Conair equipment that will meet original performance claims at no extra cost to the customer.
- Refund the invoiced cost to the customer. Credit is subject to prior notice by the customer at which time a Return Goods Authorization Number (RGA) will be issued by Conair's Service Department. Returned equipment must be well crated and in proper operating condition, including all parts. Returns must be prepaid.

Purchaser must notify Conair in writing of any claim and provide a customer receipt and other evidence that a claim is being made.

WARRANTY LIMITATIONS

Except for the Equipment Guarantee and Performance Warranty stated above, Conair disclaims all other warranties with respect to the equipment, express or implied, arising by operation of law, course of dealing, usage of trade or otherwise, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

WIRING CONNECTIONS

Pin numbers and cable colors for the wiring diagrams are detailed below and on the following pages.

EXTRUDER INTERFACE CARD CABLE (Serial No's 1-BTBLN-1 to 19-BTBLN-1)			
XB Wiring Cabinet DIN Rail Connections		Extruder Interface Card Con 3 (16 Way Connector)	
TERMINAL	FUNCTION	CABLE COLOR	PIN NO.
1	- 12 volts	yellow	3
2	Auto/Man Input	Pink	13
3	Increase Input	Blue	11
4	Decrease Input	Orange	12
5	+ 12 volts	Red & Red/Blue	4 & 5
6	Cable Shield	White/Red	16
7			
21	Line Speed Signal	Grey	7
22	Ground	Black	1
23	Ground	Green	2
24	Front Roll Change	Yellow/Red	8
25	Back Roll Change	Violet	9
26	Auto/Man Lamp Output	Brown	14
27	Tacho +VE	White	15
28	Tacho - VE	Turquoise	2

SERIAL COMMUNICATIONS CABLE (Serial No's 1-BTBLN-1 to 19-BTBLN-1)			
LRC 9000 DIN Rail Crimp Connections		XB Console MCU 16 Board Port HC	
TERMINAL	FUNCTION	COLOR	PIN NO.
Blue	RX+	Blue	2
Yellow	RX -	Yellow	10
Green	Ground	Green	1
White	TX+	White	3
Black	TX -	Black	11
White/Red	**Cable Shield	White/Red	-

** Cable shield is connected at LRC 9000 connectors only.

TACHO CABLE: EXTRUDER INTERFACE CARD → EXTRUDER (All Blenders)		
Extruder Interface Card TACHO Connector		Extruder Control Cabinet Terminals To Be Provided
TERMINAL	FUNCTION	COLOR
+	TACHO+	Red
-	TACHO -	Green
	**Cable Shield	White/Red

** Cable shield is connected to earth terminal in extruder cabinet only.

SETPOINT CABLE: XB → EXTRUDER INTERFACE CARD (Serial No's 1-BTBLN-1 to 19-BTBLN-1)			
XB Wiring Cabinet DIN Rail Connections		Extruder Interface Card DAC Connector	
TERMINAL	FUNCTION	COLOR	PIN NO.
29	Reference Voltage	Red	2
30	Setpoint Voltage	Blue	1
31	0 Volts	Green	3
32	Cable Shield	White/Red	4

WIRING CONNECTIONS

SETPOINT CABLE: EXTRUDER INTERFACE CARD → EXTRUDER DRIVE (All Blenders)		
Extruder Interface Card Drive Connector		Extruder Drive Terminals To Be Provided
TERMINAL	FUNCTION	COLOR
2	Reference Voltage	Red
1	Setpoint Voltage	Blue
3	0 Volts	Green
4	Cable Shield	White/Red

CUSTOMER CONNECTIONS (IF DESIRED)

EXTRUDER INTERFACE CARD CABLE CON 2 (16 WAY CONNECTOR)		
PIN NO.	FUNCTION	COMMENTS
21	Ground	
22	Line Speed Signal Output	These outputs are only required where there are two or more XB blenders operating on a co-extrusion line. The line speed and roll change signals are applied to the extruder interface card of the first blender. These outputs are then connected to the next extruder interface card's inputs for the given signals.
23	Front Roll Change Output	
24	Back Roll change Output	
25	+ 12 Volts	
26	Ground	
27	Line Speed Signal Input	Connect to line speed wheel encoder if using weight per length control.
28	Front Roll Change Input	Connect to normally open switch contacts for indicating front roll change. (Switching to ground, 0v)
29	Back Roll Change Input	Connect to normally open switch contacts for indicating back roll change. (Switching to ground, 0v)
30	Ground	
31	Screw Speed Increment Input	Connect to ground, via normally open contacts to increase the speed of the extruder screw.
32	Screw Speed Decrement Input	Connect to ground, via normally open contacts to decrease the speed of the extruder screw.
33	Automatic / Manual Input	Connect to ground, via normally open contacts to put the system into automatic or manual mode.
34	Automatic / Manual Lamp Output	Connect to 12 volt lamp to indicate when the system is in automatic mode. Connect other terminal of the lamp to the +12 volt terminal, i.e. pin 36, con2.
35	+ 12 Volts	
36		

WIRING CONNECTIONS

CABLE CONNECTIONS PORT HB - MCU 16 (Serial No's 1-BTBLN-1 to 19-BTBLN-1)		
PIN NO.	COLOR	FUNCTION
1	Yellow/Red	Screw Speed Increase
6	Violet	Dump Flap Output
7	Orange	Off-line Mode Valve Output
8	Turquoise	Fill Output - Component No. 6
9	Pink	Fill Output - Component No. 5
10	Red	Fill Output - Component No. 1
11	Blue	Fill Output - Component No. 2
12	Black	Fill Output - Component No. 4
13	White	Fill Output - Component No. 3
14	Green/Red	Auto/Manual Input
15	Brown	Screw Speed Decrease
19	Red/Blue	+12 Volts
20	Yellow	- 12 Volts

CABLE CONNECTIONS PORT HD - MCU 16 (Serial No's 1-BTBLN-1 to 19-BTBLN-1)		
PIN NO.	COLOR	FUNCTION
1	Black & Orange	Ground
4	White	Auto/Manual Lamp Output
6	Red	Line Speed Signal Input
7	Blue	Front Roll Change Input
9	Violet	Tacho Signal Input
11	Green	Ground
15	Yellow	Back Roll Change Input

CABLE CONNECTIONS PORT HE - MCU 16 (Serial No's 1-BTBLN-1 to 19-BTBLN-1)		
PIN NO.	COLOR	FUNCTION
1	Green	Ground
3	White	Fill Output - Component No. 8
4	Black	Fill Output - Component No. 7
5	Red	+12 Volts
6	Yellow	Alarm Output

CABLE CONNECTIONS CON9 - MCU 16 (Setpoint Voltage to Extruder Drive)		
PIN NO.	COLOR	FUNCTION
1	Blue	Setpoint Voltage
2	Green	Ground

CABLE CONNECTIONS HGIF PCB (Level Sensor Input) (Serial No's 1-BTBLN-1 to 19-BTBLN-1)		
PIN NO.	COLOR	FUNCTION
1	Green	+12 Volts
2	Blue	Level Sensor Input
3	Red	Ground

WIRING CONNECTIONS

The following cable connections apply to system serial numbers 20-BTBLN-1 and upwards (Example: 21-BTBLN and 22-BTBLN-1).

REMOTE FRONT PANEL CABLE CONNECTIONS (Serial No's 1-BTBLN-1 to 19-BTBLN-1)			
Batch Blender Console 9 Way D-Type Connector (Female)		Remote Console Display Circular Connector	
PIN NO.	COLOR	FUNCTION	PIN NO.
1	Brown	RX -	A
2	Blue	TX+	B
3	White	TX -	C
4	Violet	RX+	D
5	Red	Ground	E
6	Black	Ground	F
7	Green	- 12 Volts	G
8	Yellow	+ 12 Volts	H
9	White/Red	Shield	

EXTRUDER INTERFACE CARD CABLE			
Batch Blender Console Circular Connector		Extruder Interface Card Con 3 (16 Way Connector)	
PIN NO.	FUNCTION	CABLE COLOR	PIN NO.
A	Ground	Black	1
B	Decrease I/P	Orange	12
C	Increase I/P	Blue	11
D	Auto/Manual Lamp	Brown	14
E	- 12 volts	Yellow	1
F	Line Speed Signal	Grey	7
G	Front Roll Change	Yellow/Red	8
H	Pot Control	Green/Red	10
V	Tacho Signal	White	15
J	+ 12 Volts	Red	4
K	Ground	Green	2
L	Ground	Turquoise	2
M	+ 12 Volts	Red/Blue	5
N	Auto/Manual I/P	Pink	13
U	Back Roll Change	Violet	9
-	Cable Shield	White/Red	16

SERIAL COMMUNICATIONS CABLE (Serial No's 1-BTBLN-1 to 19-BTBLN-1)			
LRC 9000 DIN Rail Crimp Connections		Batch Blender Console 15 Way D-type Connector (Male)	
TERMINAL	FUNCTION	COLOR	PIN NO.
Blue	RX+	Blue	2
Yellow	RX -	Yellow	10
Green	Ground	Green	1
White	TX+	White	3
Black	TX -	Black	11
White/Red	**Cable Shield	White/Red	-

** Cable shield is connected at LRC 9000 connectors only.

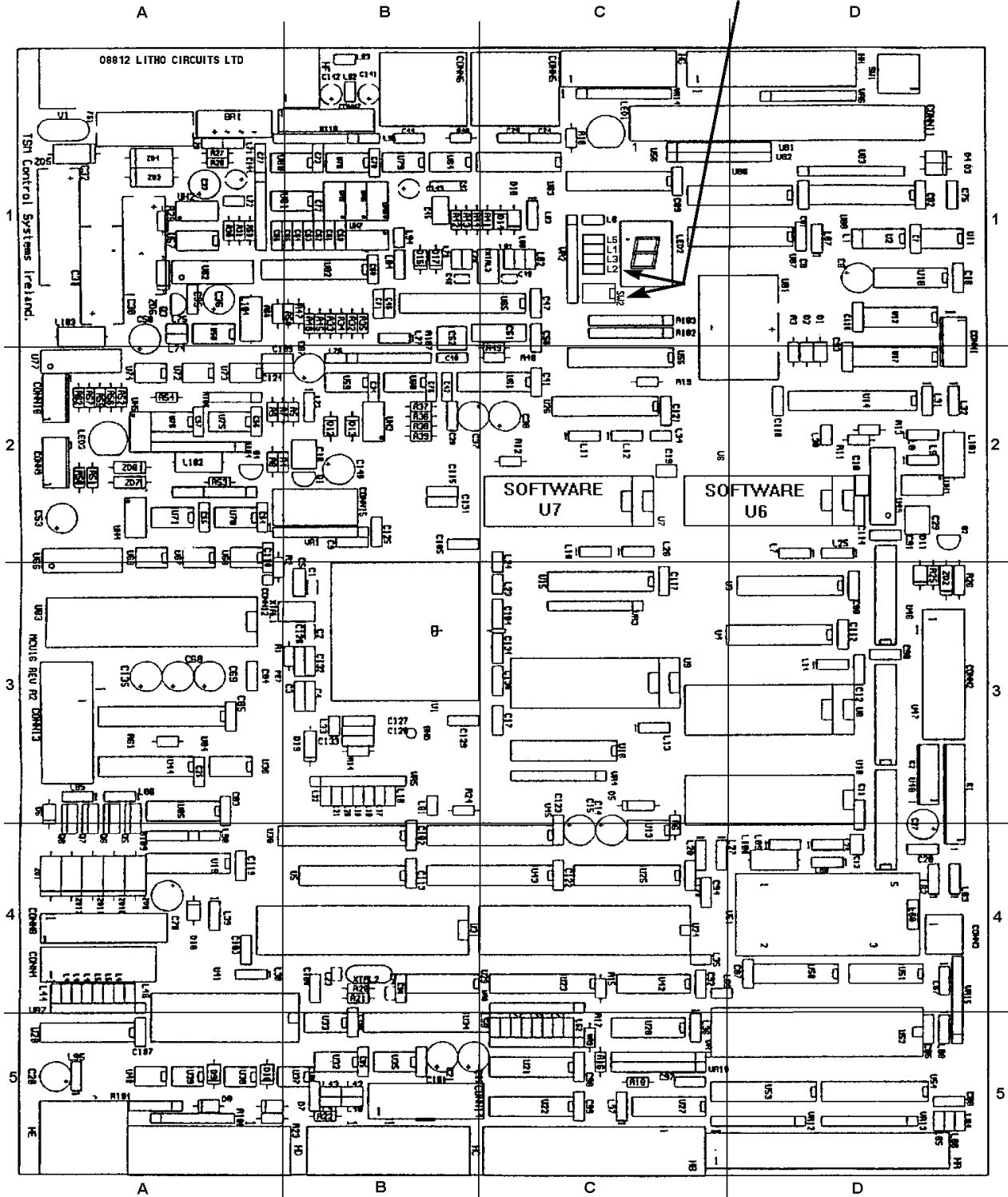
WIRING CONNECTIONS

CABLE CONNECTIONS CON9 - MCU 16 (Setpoint Voltage to Extruder Drive)		
PIN NO.	COLOR	FUNCTION
1	Blue	Setpoint Voltage
2	Green	Ground

CABLE CONNECTIONS CON 19 - BBCON PCB (Level Sensor Input)		
PIN NO.	COLOR	FUNCTION
1	Brown	+12 Volts
2	Black	Level Sensor Input
3	Blue	Ground

MCU 16 BOARD COMPONENT LAYOUT

SERIAL COMMUNICATIONS
SWITCH SW2 AND LINK L2

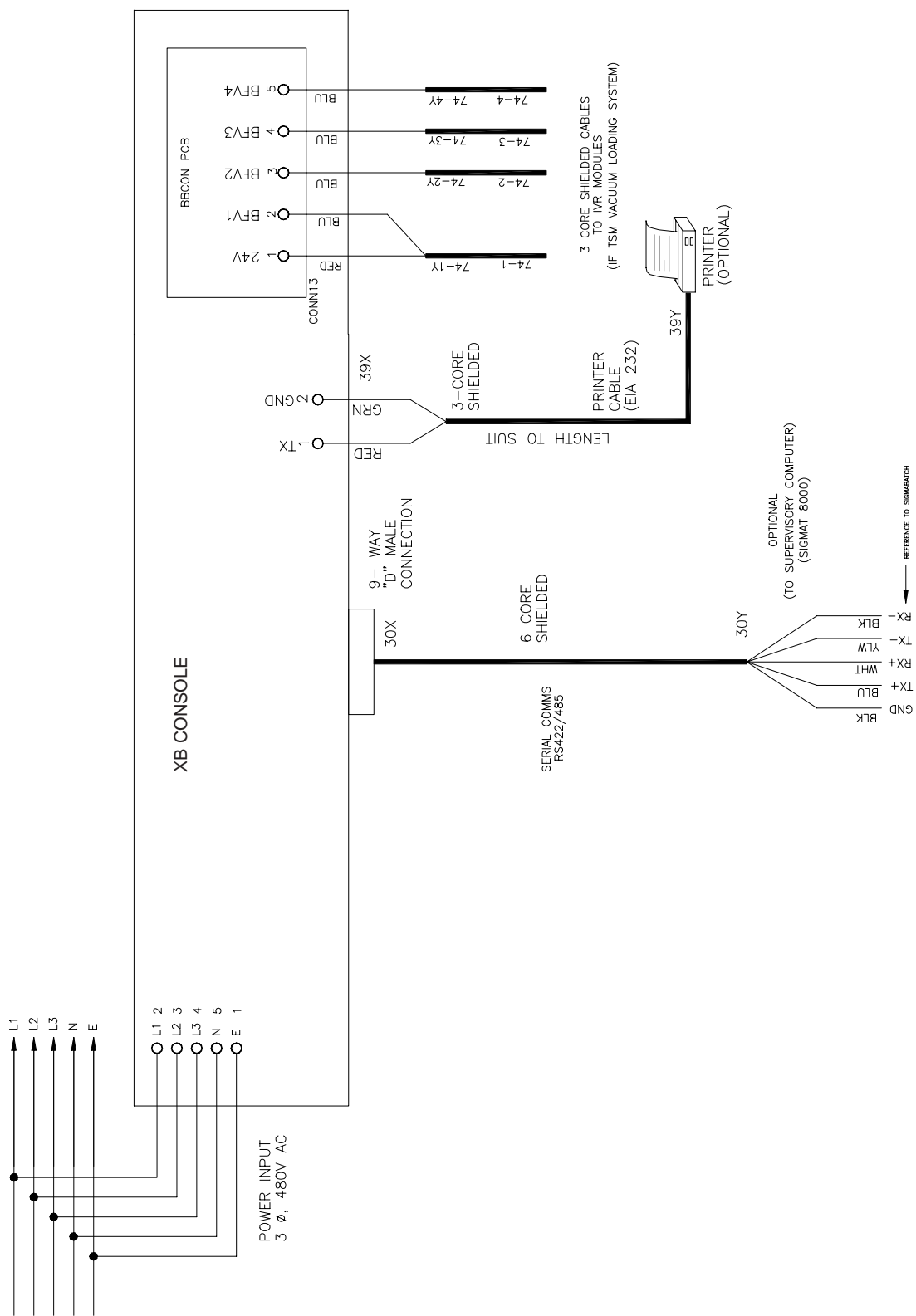


MCU 16 LINK SETTINGS				
LINK	FUNCTION	HARDWIRED ON PCB	BATCH BLENDER	LOCATION
L1	Connect battery back-up		FIT	D-1
L2	Option Link, reserved for serial communications address use		—	C-1
L3	Option Link			C-1
L4	Option Link			C-1
L5	Option Link, used for volumetric mode		FIT	C-1
L6	Option Link			C-1
L7	EPROM socket U6 PIN 30 1-2 = 5V, 2-3 = A18	1-2		D-2
L8	EPROM socket U6 PIN 3 1-2 = 5V, 2-3 = A16	2-3		D-2
L9	EPROM socket U6 PIN 1, 1-2 = Flash Programming Volts, 2-3 = 5V	2-3		D-2
L10	EPROM socket U7 PIN 30 1-2 = 5V, 2-3 = A18	1-2		C-2
L11	EPROM socket U7 PIN 3 1-2 = 5V, 2-3 = A16	2-3		C-2
L12	EPROM socket U7 PIN 1, 1-2 = Flash Programming Volts, 2-3 = 5V	2-3		C-2
L13	RAM, U9 PIN 28 1-2 = VBB (5V), 2-3 = A14		FIT 2-3	C-3
L14	RAM, U8 PIN 28 1-2 = VBB (5V), 2-3 = A14		FIT 2-3	C-3
L15	Not Used			
L16	Fit to enable IRQ1\, on board keypad		—	B-3
L17	Fit to enable IRQ2\, front panel		FIT	B-3
L18	Fit to enable IRQ3\, 6840 counter			B-3
L19	Fit to enable IRQ4\, 6522 VIA's		FIT	B-3
L20	Fit to enable IRQ5\, 2681 DUART		FIT	B-3
L21	Fit to enable IRQ6\, 16C550 and ext. XINT		—	B-3
L22	Fit to enable IRQ7\, real time clock		FIT	B-3
L23	Pass address line A17		FIT	C-3
L24	Pass address line A18		FIT	C-3
L25	EPROM socket, U6 PIN 31, 1-2 = 5V, 2-3 = MWR\ (memory write)	2-3		D-2
L26	EPROM socket, U7 PIN 31, 1-2 = 5V, 2-3 = MWR\ (memory write)	2-3		C-2
L27	EPROM socket PIN 1, 1-2 = Flash programming volts, 2-3 = 5V		2-3	C-4
L28	EPROM socket, U10 PIN 31 1-2 = 5V, 2-3 = MWR\		2-3	C-4
L29	EPROM socket, U7 PIN 30 1-2 = 5V, 2-3 = A17	1-2		D-4
L30	Fit to disable memory data bus			D-2
L31	U10, program ROM/data ROM select 1-2 = data ROM (EEPROM), 2-3 = prog. ROM	1-2		D-2
L32	U6, U7, program ROM/data ROM select 1-2 = data ROM (EEPROM), 2-3 = prog. ROM	2-3		D-2
L33	Fit link for 8 BIT operation			B-3
L34	Fit to enable data bus to board		FIT	C-2
L35	Fit to connect AN3 to VIA #1 CA2		—	C-4
L36	HB driver outputs, pullups/cathode = 5V/12V 1-2 = 5V, 2-3 = 12V	2-3		C-5
L37	HB PIN 8 function, PB7 O/P or LVLS I/P 1-2 = PB7 O/P, 2-3 = LVLS I/P		1-2	C-5

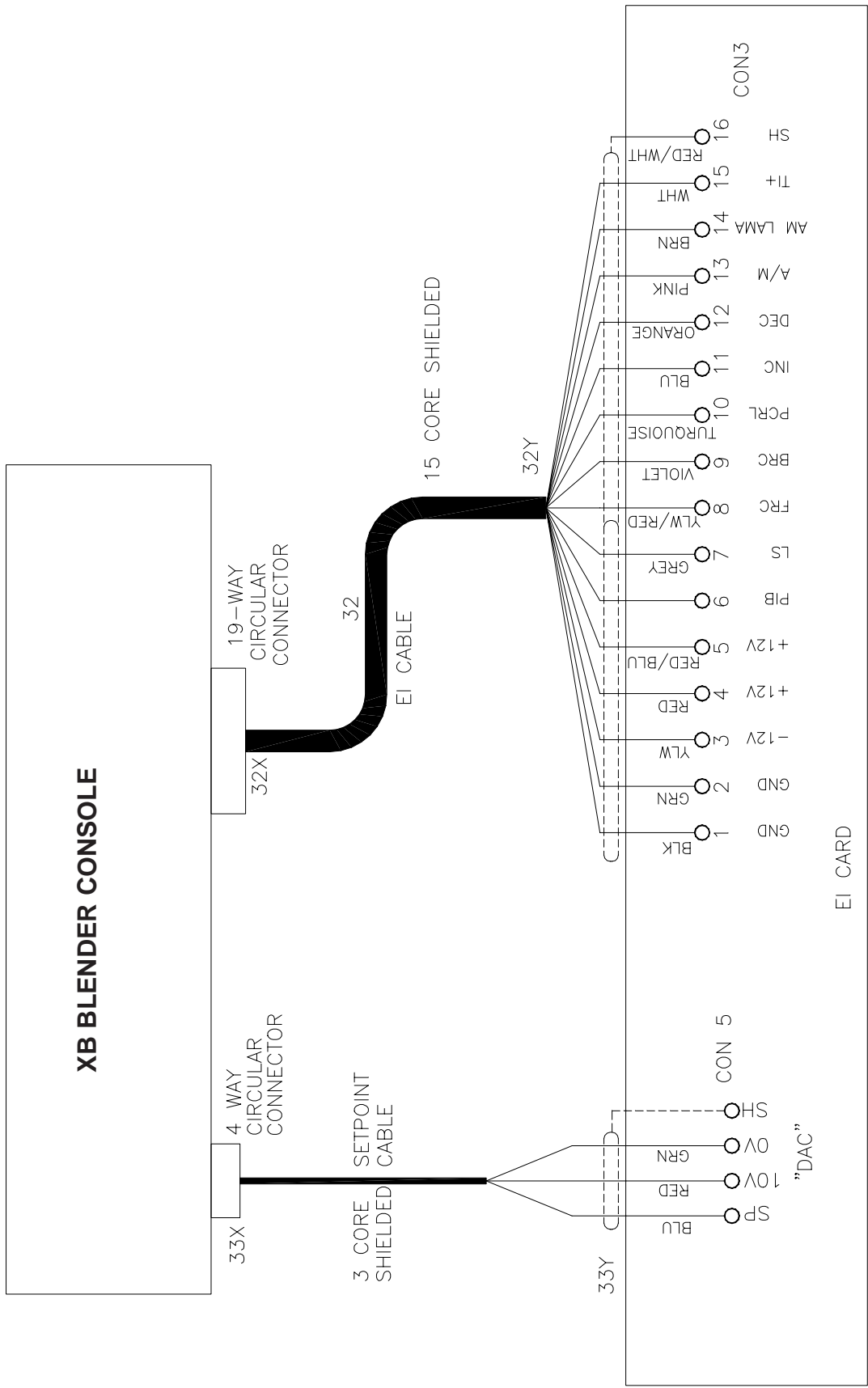
MCU 16 LINK SETTINGS				
LINK	FUNCTION	HARDWIRED ON PCB	BATCH BLENDER	LOCATION
L38	6840 C3 input selection, 1-2 = LSPD, 2-3 = BRC		1-2	A-4
L39	HD PIN 14 function 1-2 = CTR1 (counter) I/P, 2-3 = AN4		1-2	A-4
L40	Select for RS 422 / RS 485		**	B-5
L41	Select for RS 422 / RS 485		**	B-5
L42-64	Not Used			
L65	Fit to connect 5V to HA PINs 19 and 21		FIT	D-5
L66	Fit to connect +12V to HA PINs 14 and 38		FIT	D-5
L67-69	Not Used			
L70	Fit to bypass bridge rectifier on TACHO+		—	A-1
L71	Fit to bypass bridge rectifier on TACHO-		—	A-1
L72	Fit to incr. divide ratio by factor of 10		—	A-1
L73	Select SSPD Signal Source 1-2 = 0-20mV non isolated, 2-3 = 0-160mV		2-3	B-2
L74-76	Not Used			
L77	Select voltage source for HC16 A/D SSPD2 1-2 = isolated TACHO I/P, 2-3 = AN1 (0-10V)		2-3 (EI PCB)	B-1
L78	GND +VE input of instrumentation amp.		—	B-1
L79	GND -VE input of instrumentation amp.		—	B-1
L80	MAX 132 A/D VIN+ input = SSPD		—	C-1
L81	MAX 132 A/D VIN+ input = I, AMP O/P		FIT	C-1
L82	MAX 132 A/D Vrf+ input = 15mV I/P		—	C-1
L83	MAX 132 A/D Vrf+ input = 1-2 = 655mV, 2-3 = ratiometric input		2-3	C-1
L84	MAX 132 A/D Vrf- input 1-2 = ratiometric input, 2-3 = Agnd		1-2	B-1
L85	Select drive source for MOSFET O/P MF3 1-2 = OC3, 2-3 = PWMA		1-2	A-3
L86	Select drive source for MOSFET O/P MF4 1-2 = OC4, 2-3 = PWMA		1-2	A-3
L87	Select clock for front panel 1-2 = E, 2-3 = Buffered system clock		1-2	D-1
L88	U10 (EEPROM) socket PIN 29 function 1-2 = A14, 2-3 = MWR\		2-3	D-4
L89	U10 (EEPROM) socket PIN 3 function 1-2 = A15, 2-3 = A-14		—	D-4
L90	Fit to disable XINT from CONN11	1-2		A-4
L91-94	Not Used			
L95	HE PIN 4 function----Bubble Break /OP1 1-2 = BRCL, 2-3 = OP1		2-3	A-5
<p>NOTES: ** L40 and L41 are generally not fitted. Used for special applications. Contact Conair if in doubt.</p>				

PARTS/DIAGRAMS

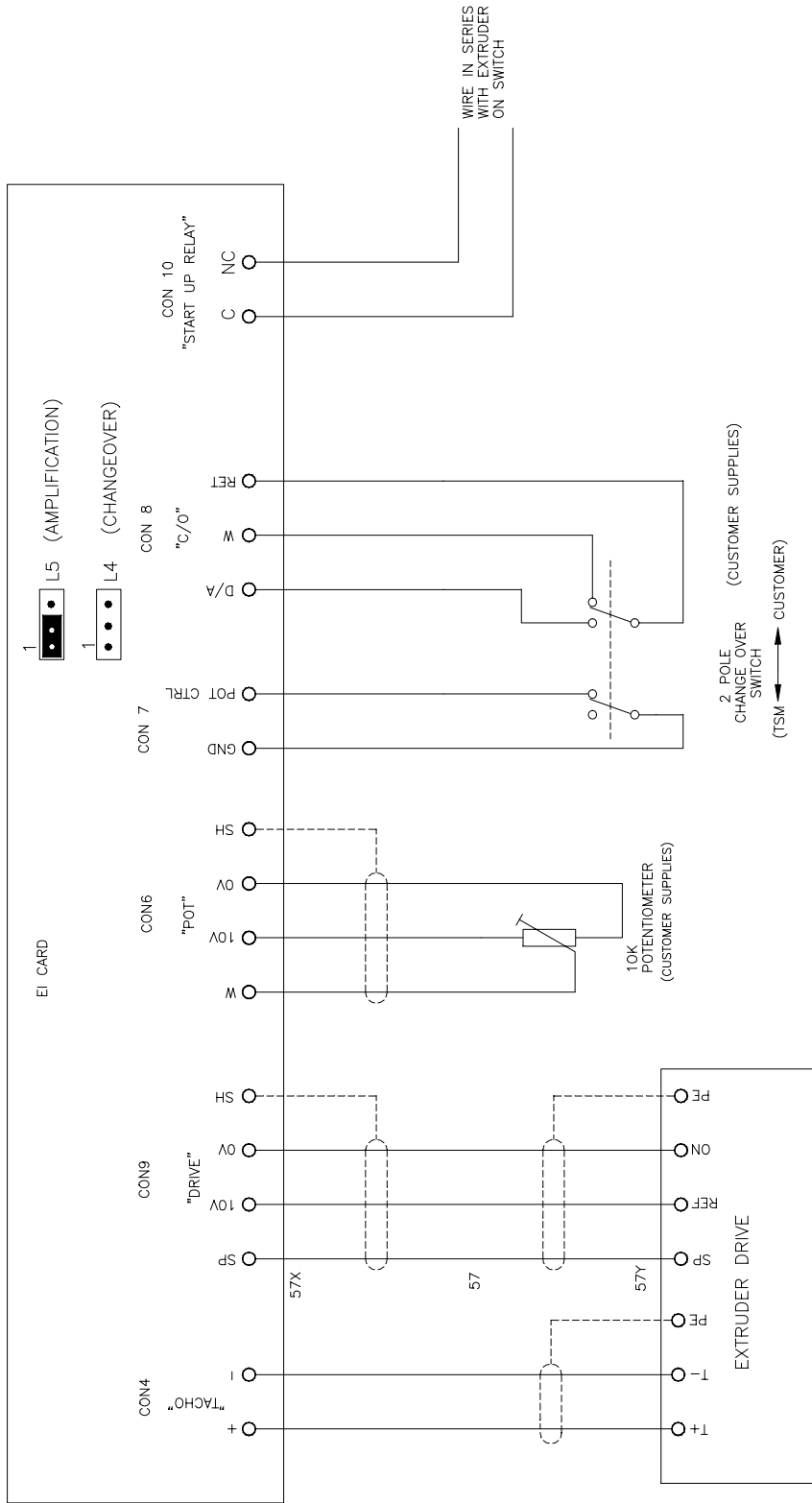
- ***XB control cabinet connectionsP-2***
- ***Extruder interface card connections P-3***
- ***Extruder interface card connections P-4***
- ***Line speed, roll change and extruder
control switch connectionsP-5***
- ***Blender wiring cabinet diagramP-6***
- ***Mains circuitry, single-phase motor .P-7***
- ***Blender console wiring diagramP-8***
- ***MCU 16 board wiring diagramP-9***
- ***BBCON PCB wiring diagramP-10***



WIRING DIAGRAM 1: XB CONTROL CABINET CONNECTIONS

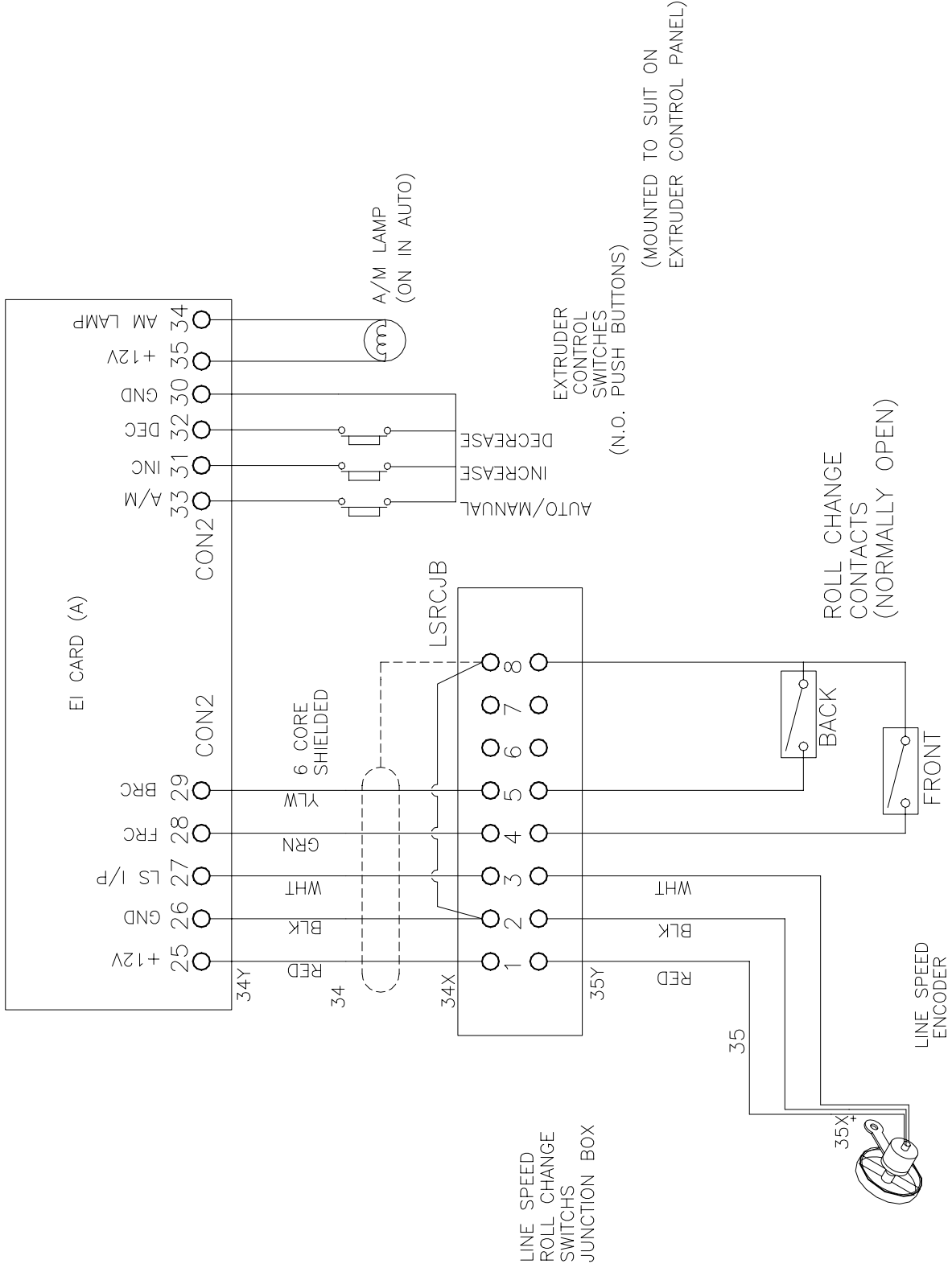


WIRING DIAGRAM 2: EXTRUDER INTERFACE CARD CONNECTIONS



NOTE:
 L4 FIT NO. LINKS
 L4 FIT 2 IS EQUIVALENT TO CHANGEOVER SWITCH IN "TSM" POSITION
 L5 FIT 1-2 POSITION 2-3 IS USED FOR SETPOINT VOLTAGES GREATER THAN 10V

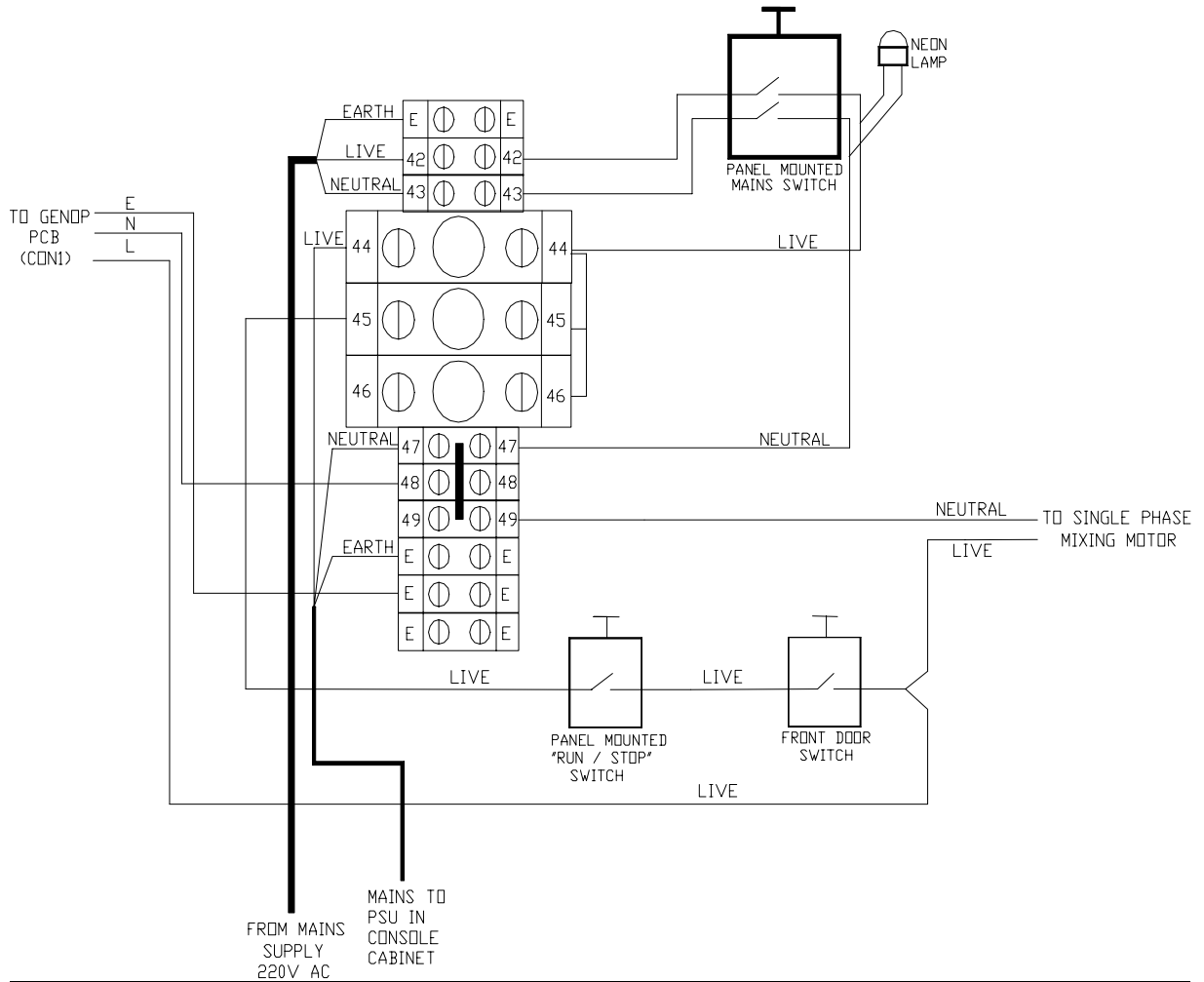
WIRING DIAGRAM 3: EXTRUDER INTERFACE CARD CONNECTIONS



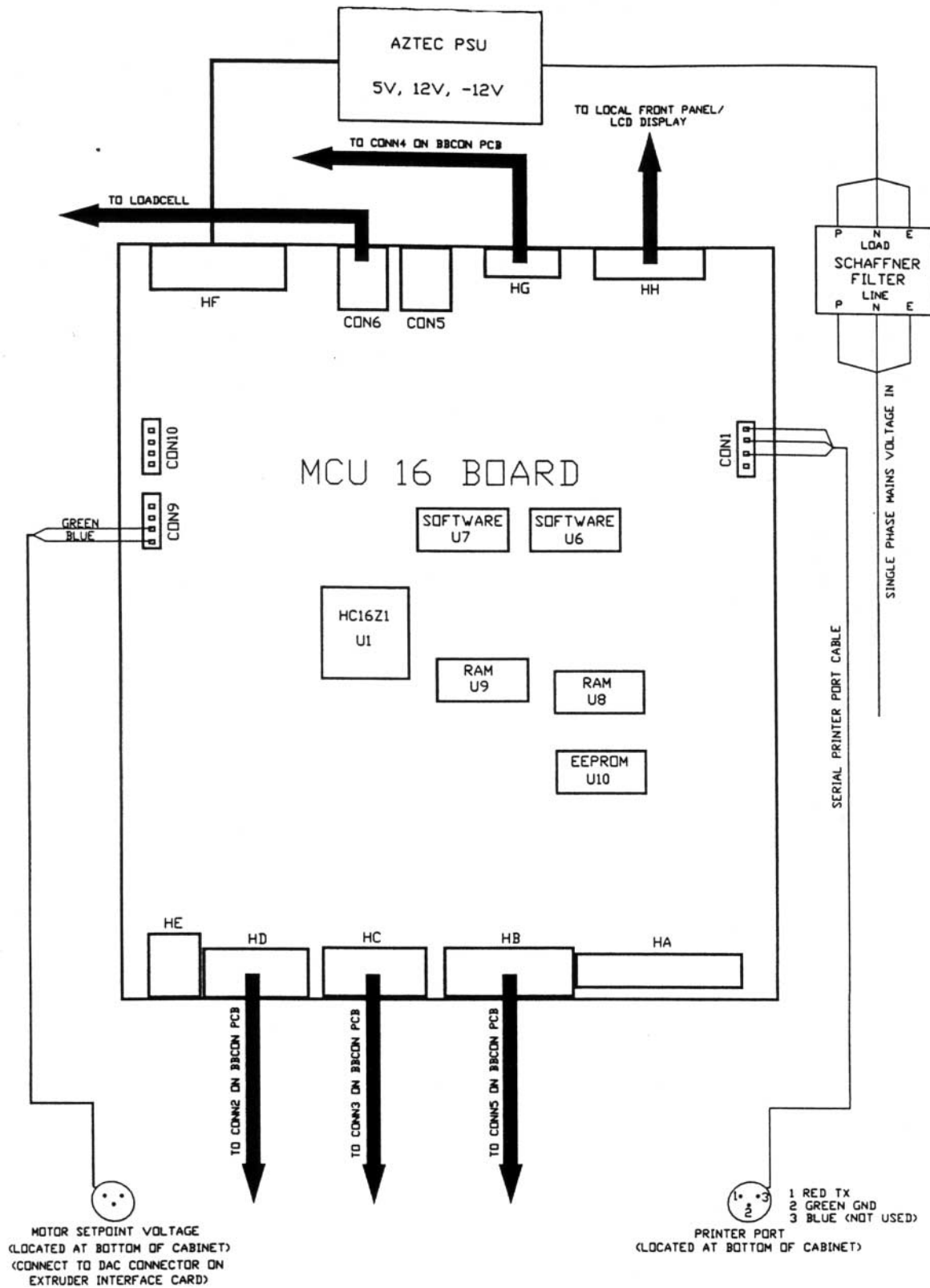
WIRING DIAGRAM 4: LINE SPEED, ROLL CHANGE AND EXTRUDER CONTROL SWITCH CONNECTIONS

ELECTRICAL MAINS CIRCUITRY, SINGLE-PHASE MIXING MOTOR

(Serial No's 1-BTBLN-1 to 19-BTBLN-1)



MCU 16 BOARD WIRING DIAGRAM



BBCON PCB WIRING DIAGRAM

