

Challenge CMT-330TC ***Three-Knife Book*** ***Trimmer***

Instruction Manual



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CMT-330TC

Three-Knife Trimmer

Installation and Operator's Manual

Serial Numbers: 330TC-A-161000 and up



The Challenge Machinery Company

6125 Norton Center Drive
Norton Shores, MI 49441 USA
ChallengeMachinery.com

SERIAL No.: _____

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1. Introduction

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Introduction

The introduction section of this manual is intended to provide installers and operators with basic information. Safety recommendations are made, and machine options and specifications are listed.

1.1 Warranty Information

READ THIS MANUAL BEFORE OPERATING!

Follow all precautions and instructions. For parts and service contact the Authorized Challenge Dealer from whom the machine was purchased. Always give the **SERIAL NUMBER** and **MODEL** of your machine to ensure the correct parts are sent.

* WARRANTY INFORMATION *

PLEASE REVIEW THE ENCLOSED WARRANTY INFORMATION SHEET

It is very important that you read and understand the conditions outlined in the *Warranty Information Sheet* attached to the outside of the shipping container of your machine. You must **FILL IN THE WARRANTY REGISTRATION FORM** found at www.challengemachinery.com/warranty in order for the warranty to be issued for this machine.



CAUTION

The CMT-330 requires 80 – 90 psi (5.5 – 6.2 bar) regulated, dry, non-lubricated compressed air that meets or exceeds ISO 8573.1 Class 2.4.2. Failure to do so may cause damage to the machine and will result in THE WARRANTY BEING VOIDED.

RECORD YOUR MACHINE SERIAL NUMBER

in the space provided on the front cover of this manual.

FILL IN THE WARRANTY REGISTRATION FORM

found at:

www.challengemachinery.com/warranty

IF YOU BOUGHT A USED MACHINE, it is important to have the following information on record at Challenge. Copy this page, fill in the information and send it care of The Challenge Service Department, 6125 Norton Center Drive • Norton Shores • MI 49441.

* INSTALLATION INFORMATION *

Model: **CMT-330TC**

Serial No.:

Company Name:

Address:

City:

State/Province:

ZIP Code

Phone No.:

Date Installed:

Dealer Name:

Dealer City:

1.2 Factory Accuracy Settings

The following accuracy settings were determined for this machine at the factory:

Attach Accuracy Label Here

1.3 Warning Label Definitions

Warning labels are posted throughout the machine to indicate areas where physical injury may occur.



Read the instruction manual.

The instruction manual should be read and understood before operating this machine.



Do not operate with more than one person!

One person only should operate this machine at a time.



Cut / Crush Hazard!

Do not operate with covers removed.
Do not disable safety devices.



Crush Hazard!

Do not operate with covers removed.
Do not disable safety devices.



Crush / Entanglement Hazard!

Do not operate with covers or guards removed.



Electrical Shock Hazard!

Disconnect power before removing cover.



Electrical Shock Hazard!

Disconnect power before removing cover.

1.4 Note Definitions

The formats of three specific types of notes found throughout this manual indicate the level of danger or importance associated with the task presented. The format of warning notes, caution notes, and regular notes imply a certain level of danger. The following examples give a description. Associate the text format with its level of danger or importance.

Warning Definition:



WARNING

A warning indicates an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in injury or loss of life.

Caution Definition:



CAUTION

A Caution indicates an operating or maintenance procedure, practice, or condition that, if not strictly observed could result in damage to, or destruction of, equipment.

Note Definition:

Note: A regular note indicates an operating or maintenance procedure, practice, or condition that is necessary to accomplish a task efficiently.

1.5 Safety

Before installing or operating any equipment, it is important to take precautions. Read and thoroughly understand the safety precautions outlined below.

- This machine is designed for one-person operation. Never operate the machine with more than one person.
- Safe use of this machine is the responsibility of the operator. Use good judgment and common sense when working with and around the machine and its accessories.
- Read and understand all instructions thoroughly before using the machine. If questions remain, contact your Authorized Challenge Dealer. Failure to understand the operating instructions may result in personal injury.
- Only trained and authorized individuals should operate this machine.
- Only trained and authorized service technicians should service this machine.
- Do not alter safety guards or devices. They are there for your protection. Severe laceration or dismemberment may result if safety devices are altered.
- Disconnect power and lock out before performing any maintenance. See Section 1.6 , Power Lockout Procedure.
- Observe all caution and instruction labels on this machine.
- Be extremely careful when handling and changing knives. Severe lacerations or dismemberment could result from careless handling procedures.

- Perform the Safety Systems Check given on page 4-10 before each shift begins.
- Keep all conveyors and elevator accessories clear of foreign objects. Do not place foreign objects within the machine. Cutting anything other than qualifying perfect bound books could result in serious damage to the machine and create safety hazards. A qualifying perfect bound book will fall into the size range described in the specifications on page 1-8.
- Make sure all applicable accessories are securely bolted to the main machine. Tip hazards may result from unsecured accessories.
- If the machine operates abnormally, consult a Challenge authorized service agent.

1.6 Power Lockout Procedure

For maximum safety while making ADJUSTMENTS or REPAIRS to your machine, lock out the main power disconnect switch. The switch should be moved to the OFF position and a padlock securely fastened through the loop. The person adjusting or servicing the machine should hold the key.



Figure 1-1. Main Power Disconnect

1.7 Packing List

Compare the contents of the crate against the following lists and the packing slip to be sure all items are included with your shipment.

1.7.1 Base Machine/Options

This parts list includes the base machine and any accessories that may have been ordered with it.

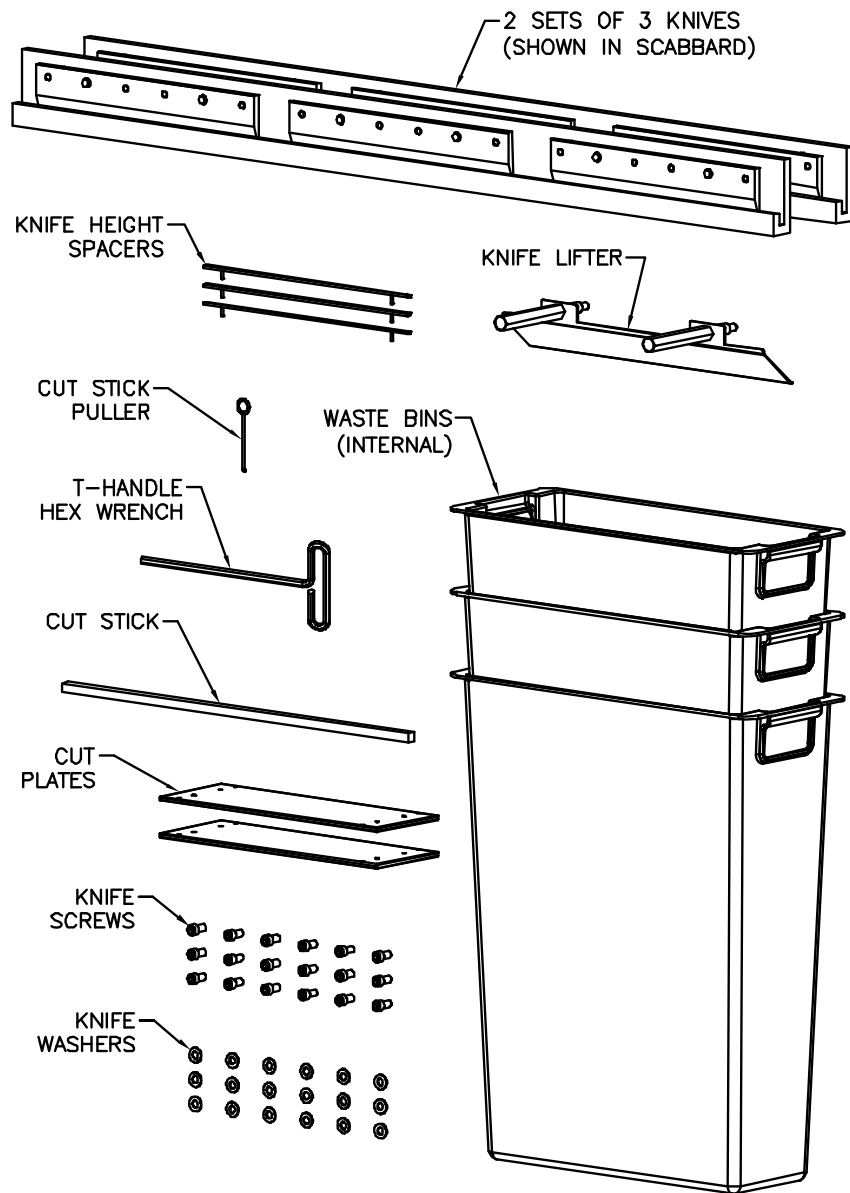


CMT-330TC Shown with Tilt Conveyor, Elevator, Pile Feeder, and Vertical Stacker

Part Number	Description	Qty.
CMC-330TCA-SW	CMT-330TC Basic Machine, Internal Waste (60HZ)	1
CMC-330TCA-EW	CMT-330TC Basic Machine, External Waste (60HZ)	
CMC-330TCA-SW-015	CMT-330TC Basic Machine, Internal Waste (50HZ)	
CMC-330TCA-EW-015	CMT-330TC Basic Machine, External Waste (50HZ)	
<i>Infeed Options</i>		
56630TCLA & 56431TCLA	Tilt Infeed Conveyor and Cooling Elevator	1
58600TCLA-IL	Book Pile Feeder – Inline	1
58600TCLA	Book Pile Feeder – Stand Alone	1
59230TCLA	Short Hand Feed Conveyor	1
56433TCLA	Long Hand Feed Conveyor	1
<i>Outfeed Options</i>		
58100TCLA	Vertical Outfeed Stacker	1
56430TCLA	Exit Conveyor	1
59099TCLA	Exit Ramp	1

1.7.2 Standard Accessories

The following list contains the supplied, standard accessories for the CMT-330TC.

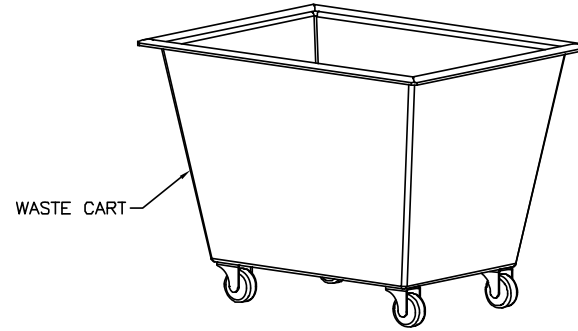


Part Number	Description	Qty.
56248	Knives (HSS) - Set of 3	2
56275	Knife Height Spacer	3
56028	Knife Lifter	1
5064	Cut Stick Puller	1
W-164	5/16" T-Handle Hex Wrench	1
56303	Cut Stick	1
56317	Cut Plate	2
H-6918-606	Knife Screw	18
8815-2	Knife Washer	18
56143	Internal Waste Bin (SW models)	3

1.7.3 Optional Items

The following items are optional:

Part	Description
56248-1	Tungsten Carbide Knives – Set of 3
56248-2	Super HSS Knives – Set of 3
41058	Waste Cart
K-56030-3	Spare Parts Kit – CMT-330TC
K-56040	Oil Change Kit
K-56031	Oil Change Tool Kit
S-1991-3	Hydraulic Fluid (5 Gal.)



1.7.4 Consumables

The CMT-330TC uses the following consumable items:

Part	Description	Qty.	Frequency
56569	UHMW Tape (Joggers)	2 x 14 in.	1 yr.
SU-30-103	Grease (Ext. Pressure)	Bulk	1 wk.
SU-30-104	Grease (Rycotac EP)	Bulk	each knife change
56228	Face Clamp Pad	1	6 mo.
56184	Right Clamp Pad	1	6 mo.
56184-1	Left Clamp Pad	1	6 mo.
56178-1	Center Pad	1	6 mo.
56248	HSS Knives (set of 3)	1	5,000 – 10,000 books
56248-2	Super HSS 5X Knives (set of 3)	1	25,000 – 50,000 books
56248-1	Tungsten Carb. Knives (set of 3)	1	25,000 – 80,000 books
56303	Cut Stick	1	rot. 1,000, change 8,000 books
56317	Cut Plate	2	rot. 1,000, change 4,000 books

The following consumables are found in **Oil Change Kit, K-56040**.

Part	Description	Qty.	Frequency
56041	Filter Element (Air)	1	1 yr.
H-227-1	Filter Element (Oil)	1	1 yr.
S-1991-3	Grade 46 Hydraulic Fluid	5 gal.	1 yr.

1.8 Specifications



WARNING

The CMT-330TC was designed specifically for use with the Challenge infeed and exit accessories. If any other accessories are used, it is the purchaser's responsibility to comply with **ANSI B65.4 Safety Standard for Three-Knife Trimmers**. Failure to comply with this standard could result in personal injury or death.



CAUTION

The CMT-330TC was specifically designed to trim **perfect bound books only**. Trimming other materials with the CMT-330TC may result in safety hazards or damage to the machine.

For trimmable book sizes, see section 1.8.1

Multiple Book Mode: Note that up to 3 books may be stacked in multiple book mode. The total thickness is not to exceed 1-1/4 in. (32 mm). Larger pile thicknesses may be cut, but the trim may be less accurate and more out-of-square. Always test before running books outside the published specifications.

Sound Emission:

A-weighted sound pressure level measured in an enclosed room at operator level (6 feet/183 cm):

Machine in idle state: 60 dB

Machine trimming: 74 dB

NOTE: Challenge reserves the right to make changes to any product or specification without notice and without incurring responsibility to existing units.

Description	US Units	Metric Units
Max. start book	13.00 (spine) x 13.00 in.	330 (spine) x 330 mm
Min. start book, off-line (Hand-Feed)	7.00 (spine) x 5.00 in.	178 (spine) x 127 mm
Min. start book, near-line (Pile Feeder)	7.00 (spine) x 5.00 in. (single book mode) 7.00 (spine) x 8.00 in. (multi-book mode)	178 (spine) x 127 mm 178 (spine) x 203 mm
Min. start book, in-line (Tilt + Elevator)	7.00 (spine) x 8.00 in. (single book mode) 7.00 (spine) x 9.00 in. (multi-book mode)	178 (spine) x 203 mm 178 (spine) x 229 mm
Min. finish book	5.82 (spine) x 3.94 in.	148 (spine) x 100 mm
Max. finish book	12.10 (spine) x 12.90 in.	307 (spine) x 328 mm
Max. face (fore-edge) trim	8.00 in.	203 mm
Max. top (head) trim	6.00 in.	152 mm
Book thickness range	0.10 to 2.00 in.	2.5 to 51 mm
Min. Trim, all sides:	0.10 in.	2.5 mm
CMT-330TC Basic Machine		
Width	38 in.	97 cm
Width with brackets/covers removed	35 in.	89 cm
Depth	90 in.	229 cm
Height	62 in.	157 cm
Net Weight	2,900 lb.	1,300 kg
Shipping Weight	3,200 lb.	1,400 kg
Floor Loading	70 PSI	483 kPa
Optional Waste Bin Capacity	43 gal.	164 L
Oil Capacity	5 gal.	19 L
Air Consumption	9 CFM @ 90 PSI	255 LPM @ 620 kPa
Maximum Blade Re-sharpening	1/4 in.	6.4 mm
Memory	99 jobs	
Time to change book size	6 sec. or less	
Throughput	up to 400 books/hr. (single book mode) up to 800 books/hr. (multi-book mode)	
Electrical Requirements		
60 Hz Machines	60 Hz, AC, 3 phase, 208/230 Volts, 20 Amps (service size 30 Amps)	
50 Hz Machines	50 Hz, AC, 3 phase, 380/415 Volts, 16.5 Amps (service size 20 Amps) 50 Hz, AC, 3 phase, 200-208 Volts, 20 Amps (service size 30 Amps)	
56630TCLA Tilt Infeed Conveyor (130 lb/59 kg net) (200 lb/91 kg ship) (4.9 PSI/ kPa load)		
Height x Width x Depth	28 x 40 x 32 in.	71 x 102 x 81 cm
Compatible binder exit heights:	17 to 26 in.	43 to 66 cm
56431TCLA Cooling Elevator (400 lb/181 kg net) (470 lb/213 kg ship) (14.2 PSI/ kPa load)		
Height x Width x Depth	48 x 23 x 46 in.	122 x 58 x 117 cm
58600TCLA Book Pile Feeder (430 lb/195 kg net) (500 lb/227 kg ship) (15.2 PSI/ kPa load)		
Height x Width x Depth	56 x 22 x 57 in.	142 x 56 x 145 cm
59230TCLA Standard Hand Feed Conveyor (50 lb/23 kg net) (80 lb/36 kg ship) (0 load – mounts to trimmer)		
Height x Width x Depth	11 x 16 x 19 in.	28 x 41 x 48 cm
56433TCLA Long Hand Feed Conveyor (80 lb/36 kg net) (120 lb/54 kg ship) (6.4 PSI/ kPa load)		
Height x Width x Depth	42 x 35 x 19 in.	107 x 89 x 48 cm
58100TCLA Outfeed Stacker (330 lb/150 kg net) (400 lb/181 kg ship) (11.6 PSI/ kPa load)		
Height x Width x Depth	45 x 19 x 53 in.	114 x 48 x 135 cm
56430TCLA Exit Conveyor (70 lb/32 kg net) (100 lb/45 kg ship) (5.6 PSI/ kPa load)		
Height x Width x Depth	40 x 47 x 19 in.	102 x 119 x 48 cm
59099TCLA Exit Ramp (7 lb/ 3 kg net)		
Height x Width x Depth	5 x 10 x 15 in.	13 x 25 x 38 cm

Note: See Section 1.10 for floor space requirements of the CMT-330TC with various option configurations.

1.8.1 Book Size Chart

The physical parts of a book are defined as follows and will be referenced as such throughout this manual. Book dimensions are referenced as “spine length” x “top (or bottom) edge length”.

Spine: The edge of a book where the pages are bound together.

Top edge: Also known as the head, the top edge is the edge of the book that is facing away from the reader.

Bottom edge: Also known as the foot, the bottom edge is the edge of the book that is facing toward the reader.

Face: The face or fore-edge is the edge of the book from which it is opened.

Book block: A book block is the printed and collated form of a book that does not include the cover. It contains all front and end matter as well as the text block.

Untrimmed book: An untrimmed book is a book block that has been bound with a cover but has not yet been trimmed to finish size.

Trimmed book: A trimmed book has been bound and trimmed to a finish size.

The charts on Figure 1-2 can be used to determine if a specific book layout can be trimmed by the CMT-330TC. Using the trimmed spine height (h) and the bottom trim (x), make sure the desired book size falls within the shaded region of the chart. The overall untrimmed and trimmed book dimensions must also be less than the maximum allowed (See 1.8 Specifications).

The CMT-330TC software will not allow a book to be cut outside this range. The operator should be aware of these size constraints before books are printed.

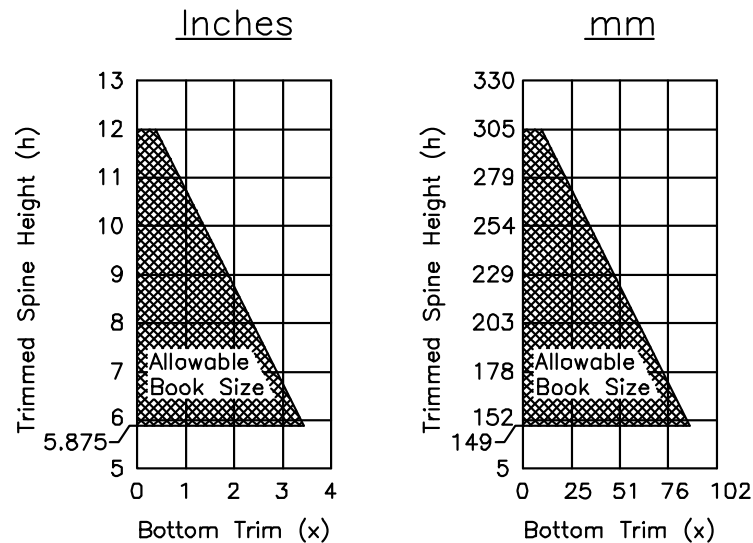
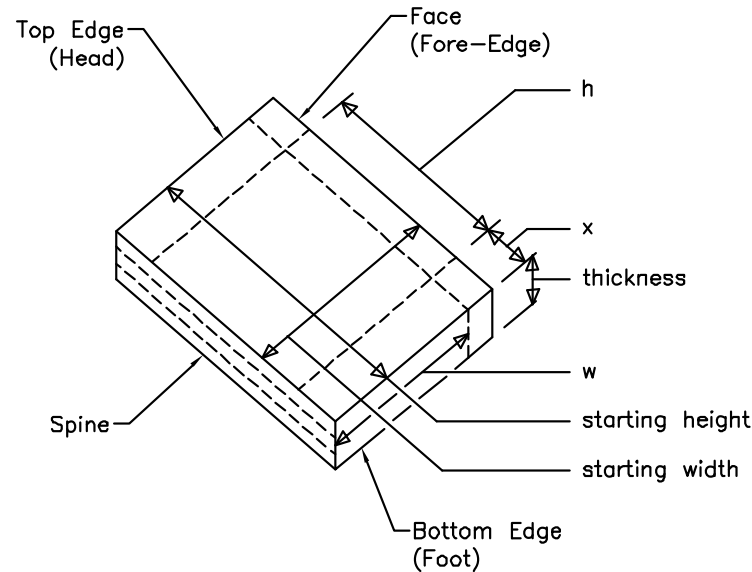


Figure 1-2. Book Size Charts

1.9 General Locations

Become familiar with general machine locations. This manual frequently refers to these locations. In order to understand the instructions presented, it is necessary to have a working knowledge of machine locations.

Figure 1-3 helps to locate the front, back, right, and left sides of the machine, as well as other important locations on the machine. Remember these references while reading instructions in this manual. Refer back to this figure as necessary.

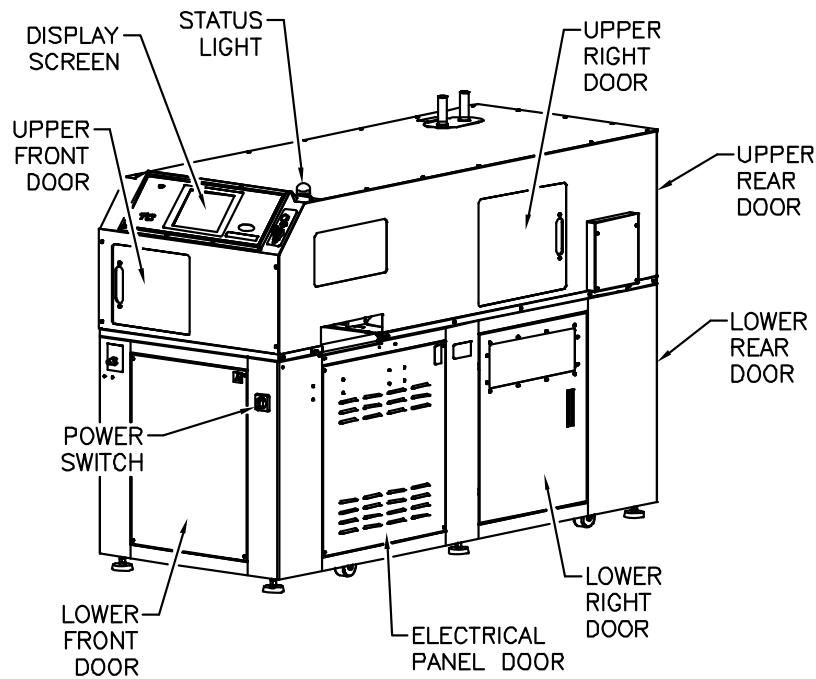


Figure 1-3 Locations

1.10 Floor Space Requirements

The installation site must have adequate space and utilities to support the trimmer with its setup options. It requires a supply of compressed air and electricity. Refer to Section 1.8 Specifications on page 1-8 to verify that the site can accommodate these requirements. Use the following figures to determine floor space requirements for the configuration to be installed. Note the air and power hook-up locations. Air and power lines should be dropped from the ceiling in order to have clear access to the waste bins using a rolling cart.

1.10.1 Tilt + Elev. + Stacker

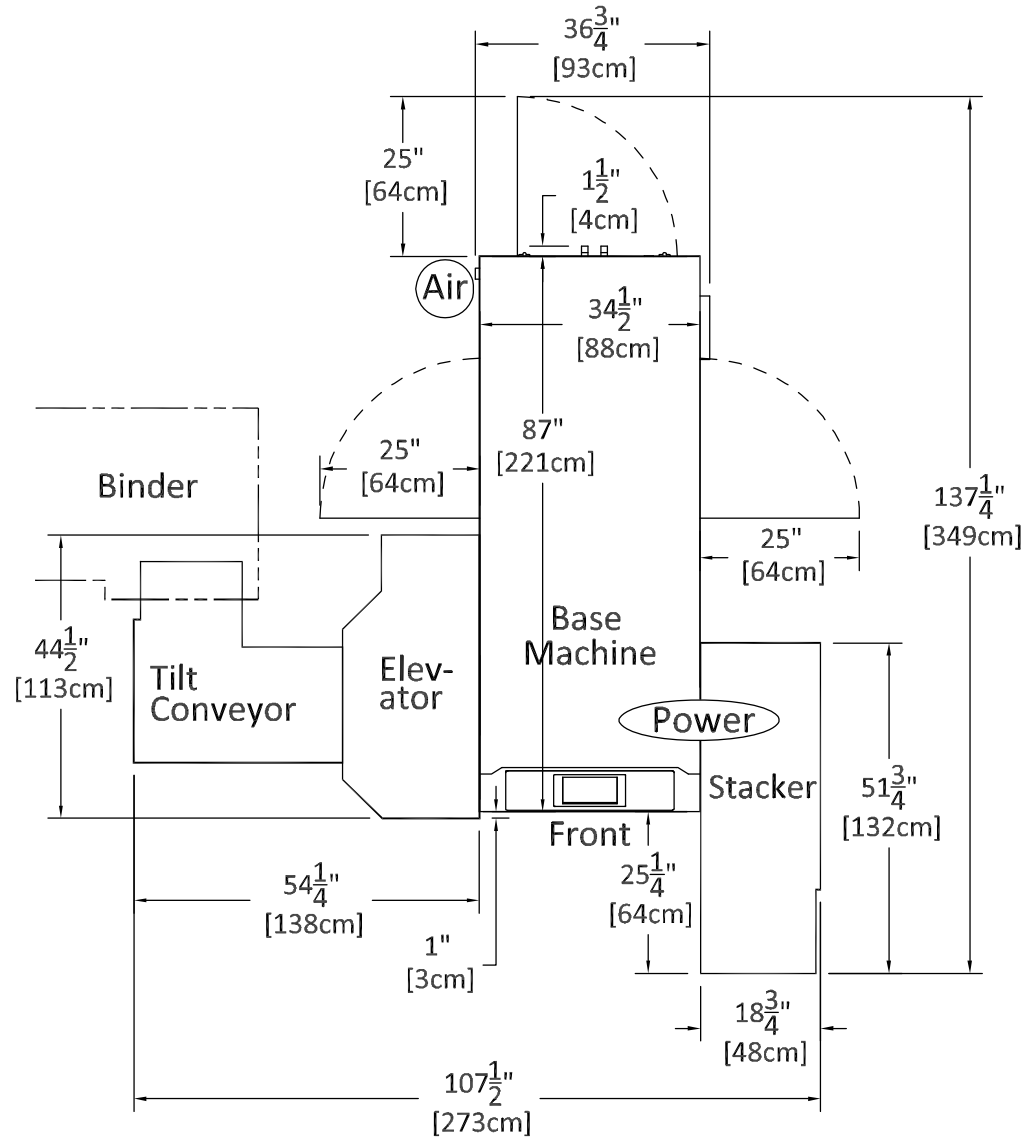
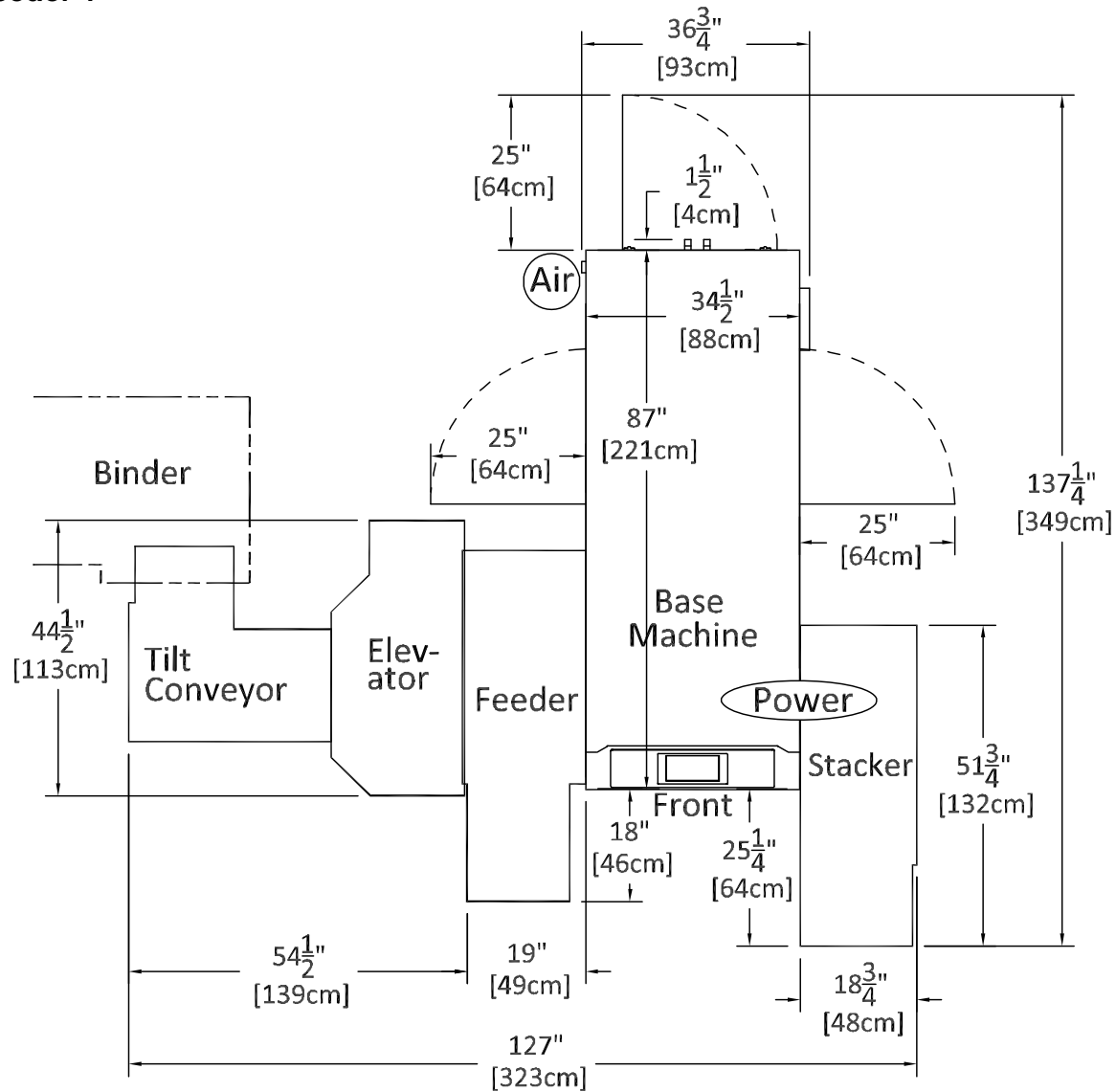


Figure 1-4
In-line Tilt Conveyor with Elevator and Stacker Configuration

1.10.2 Tilt + Elev. + Pile Feeder + Stacker



**Figure 1-5
In-line Tilt Conveyor with Elevator, In-Line Pile Feeder and Stacker Configuration**

1.10.3 Pile Feeder + Stacker

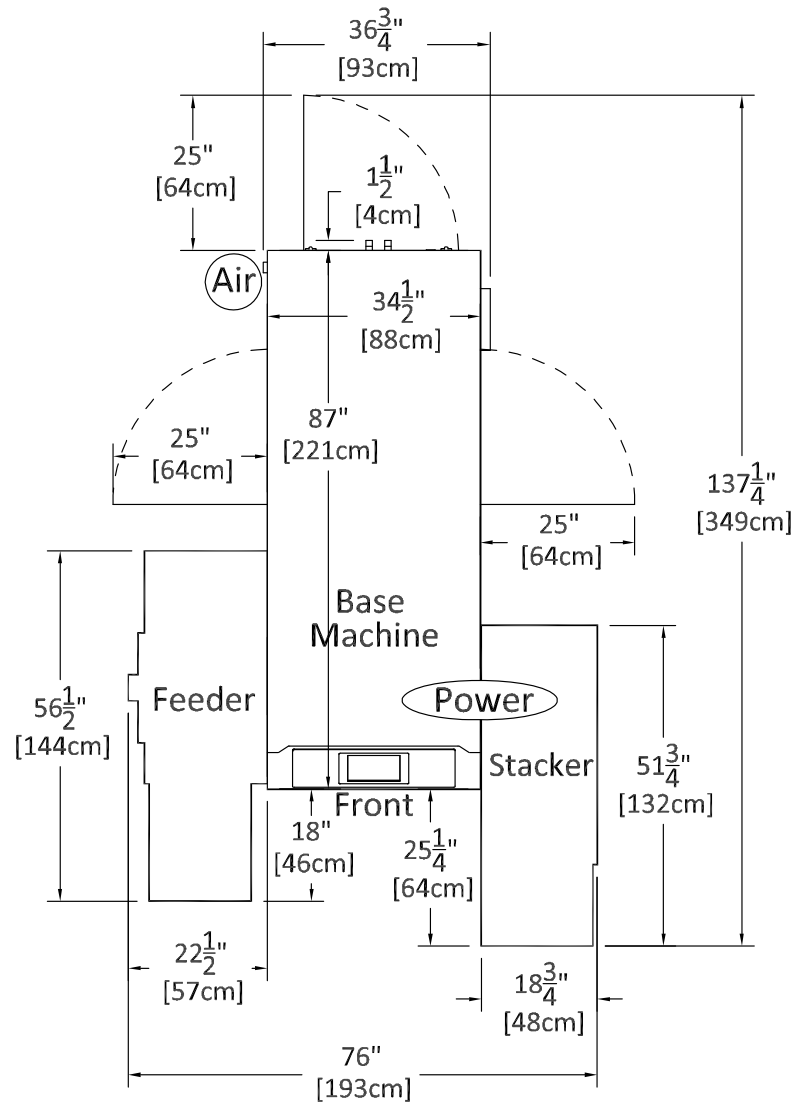


Figure 1-6
Pile Feeder and Stacker Configuration

1.10.4 Hand Feeder + Stacker

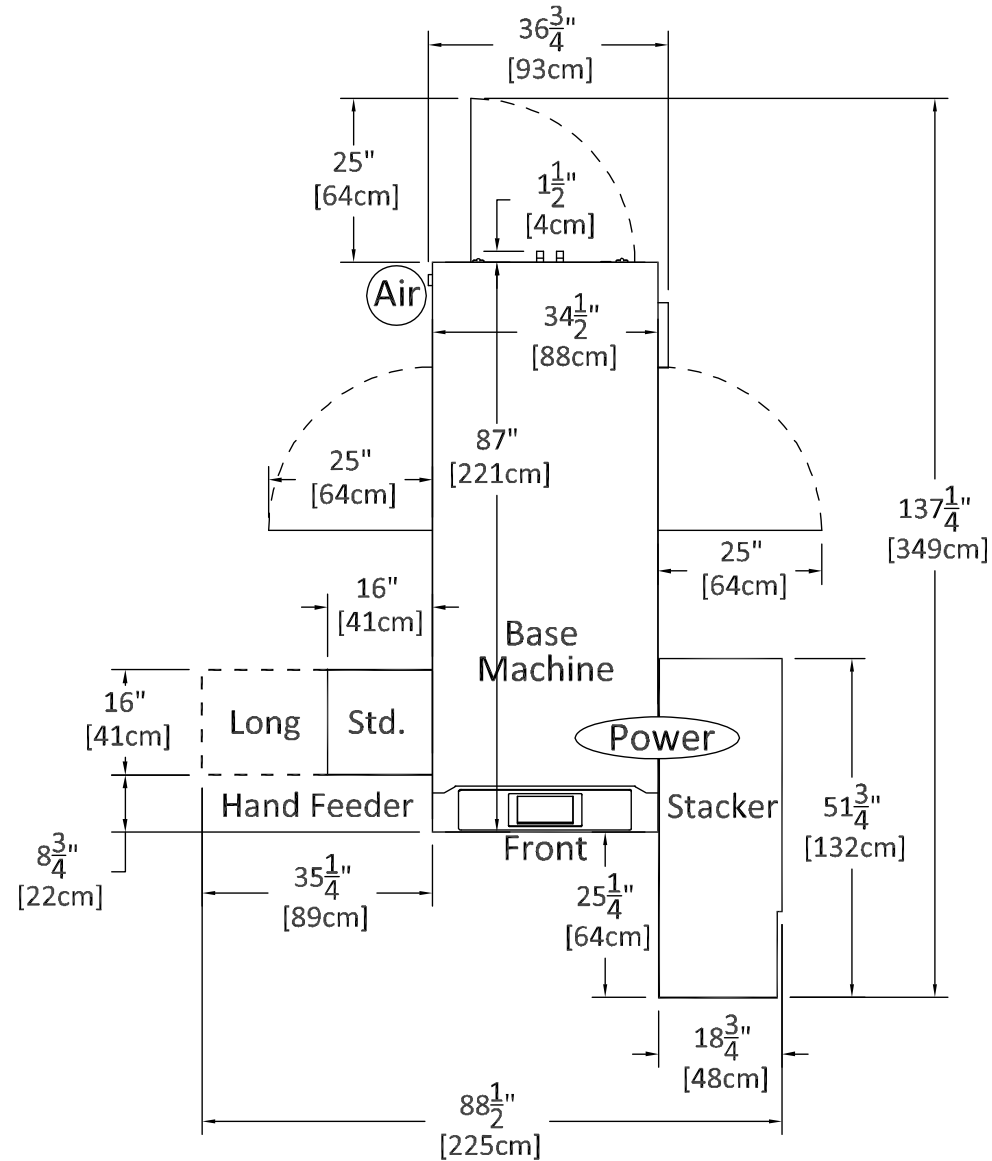


Figure 1-7
Hand Feeder and Stacker Configuration

1.10.5 Tilt + Elevator + Exit Conveyor

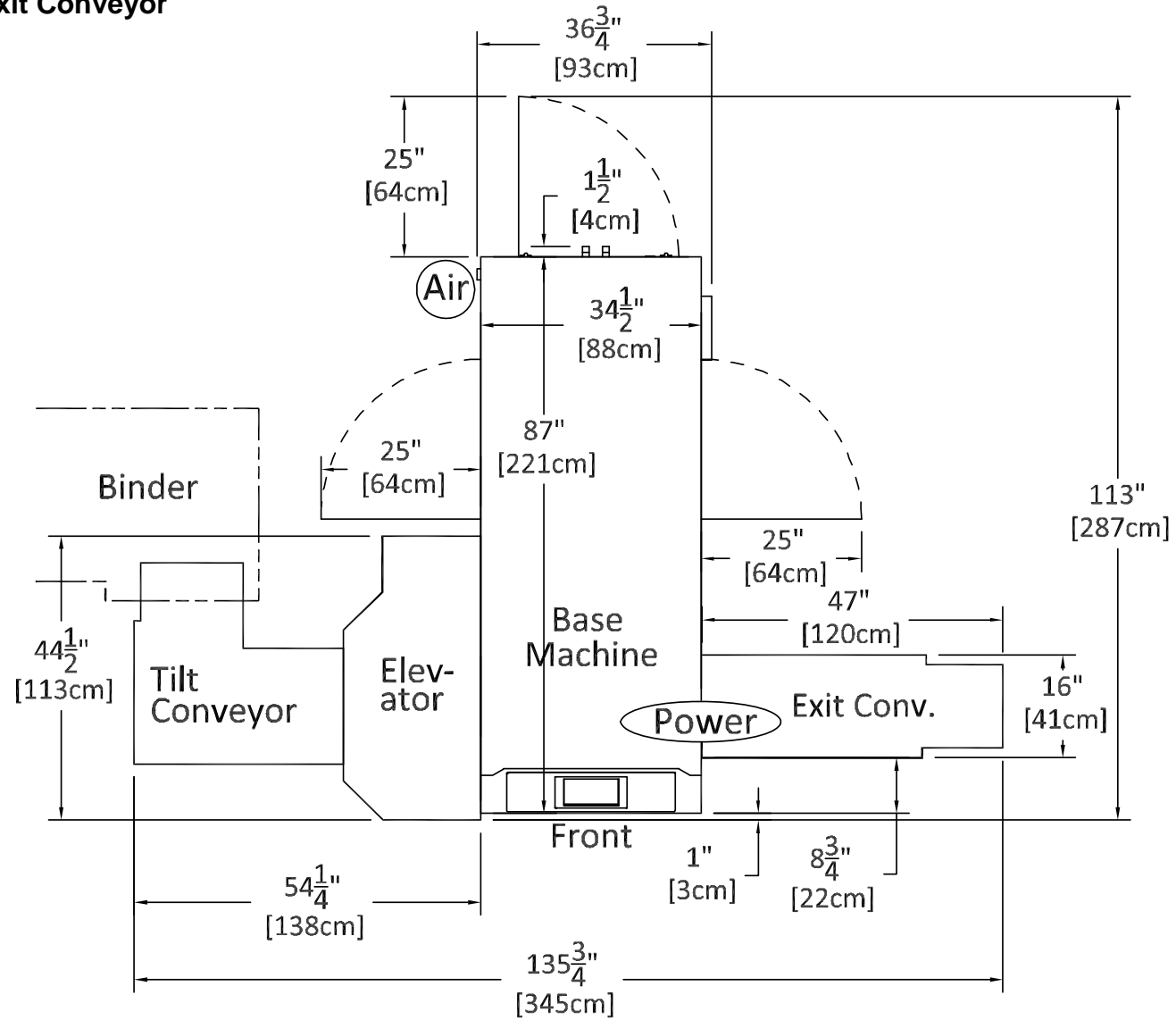
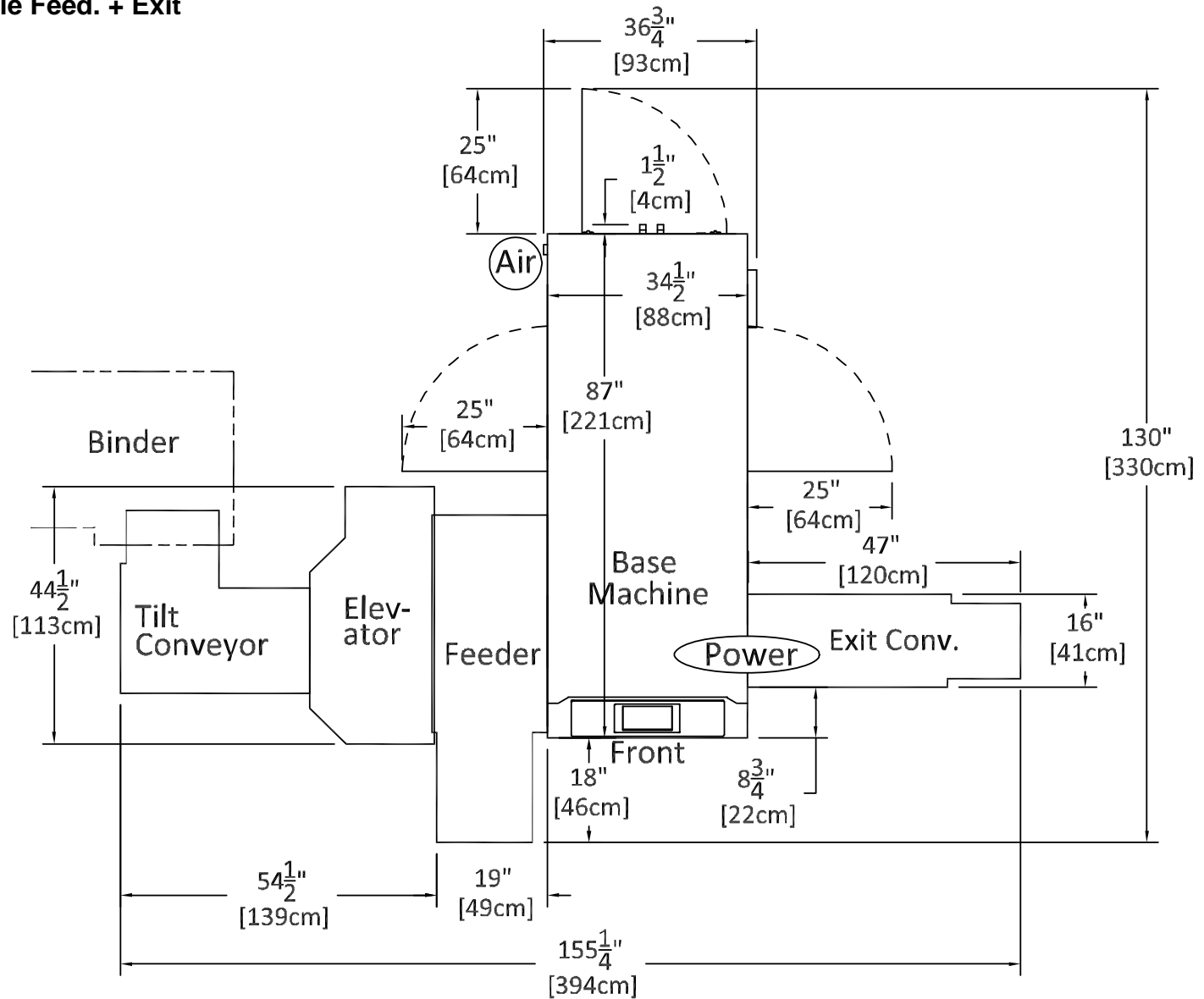


Figure 1-8
In-line Tilt Conveyor with Elevator and Exit Conveyor Configuration

**1.10.6 Tilt + Elev. + Pile Feed. + Exit
Conv.**



**Figure 1-9
In-line Tilt Conveyor with Elevator, In-line Pile Feeder and Exit Conveyor Configuration**

1.10.7 Pile Feeder + Exit Conveyor

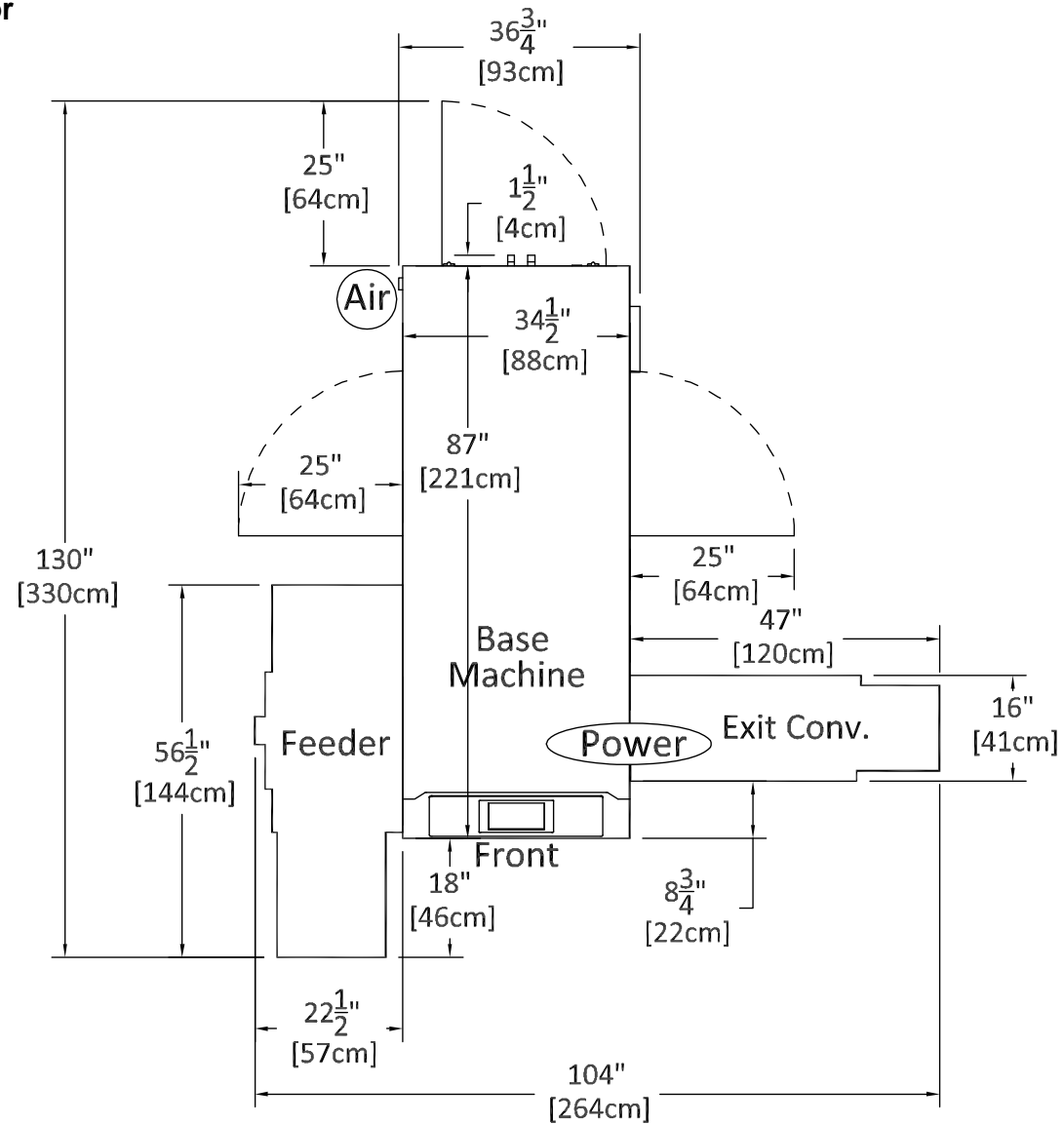
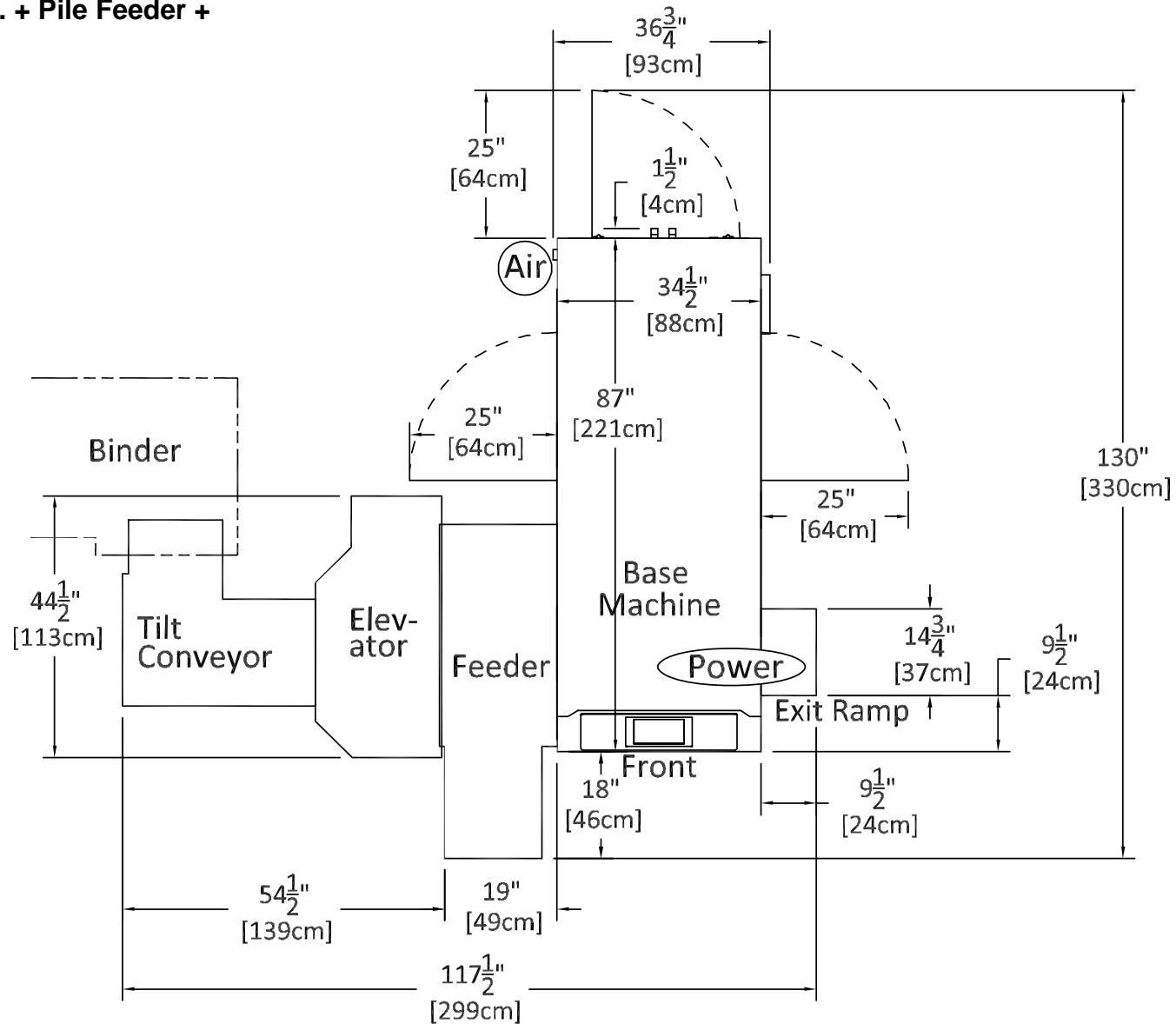


Figure 1-10
Pile Feeder and Exit Conveyor Configuration

1.10.10 Tilt + Elev. + Pile Feeder + Ramp



**Figure 1-13
In-line Tilt Conveyor with Elevator, In-line Pile Feeder and Exit Ramp Configuration**

1.10.11 Pile Feeder + Exit Ramp

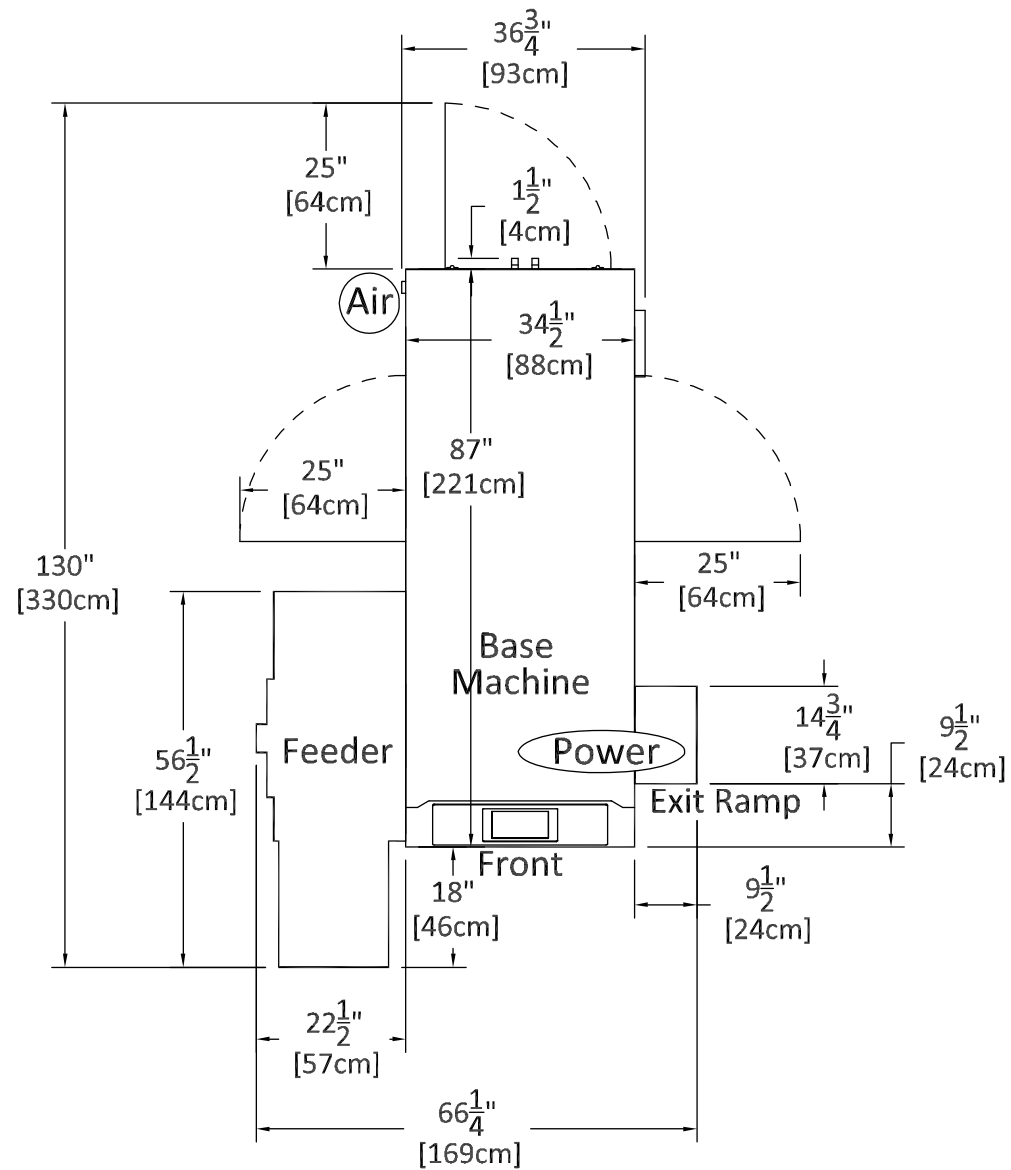


Figure 1-14
Pile Feeder and Exit Ramp Configuration

1.10.12 Hand Feeder + Exit Ramp

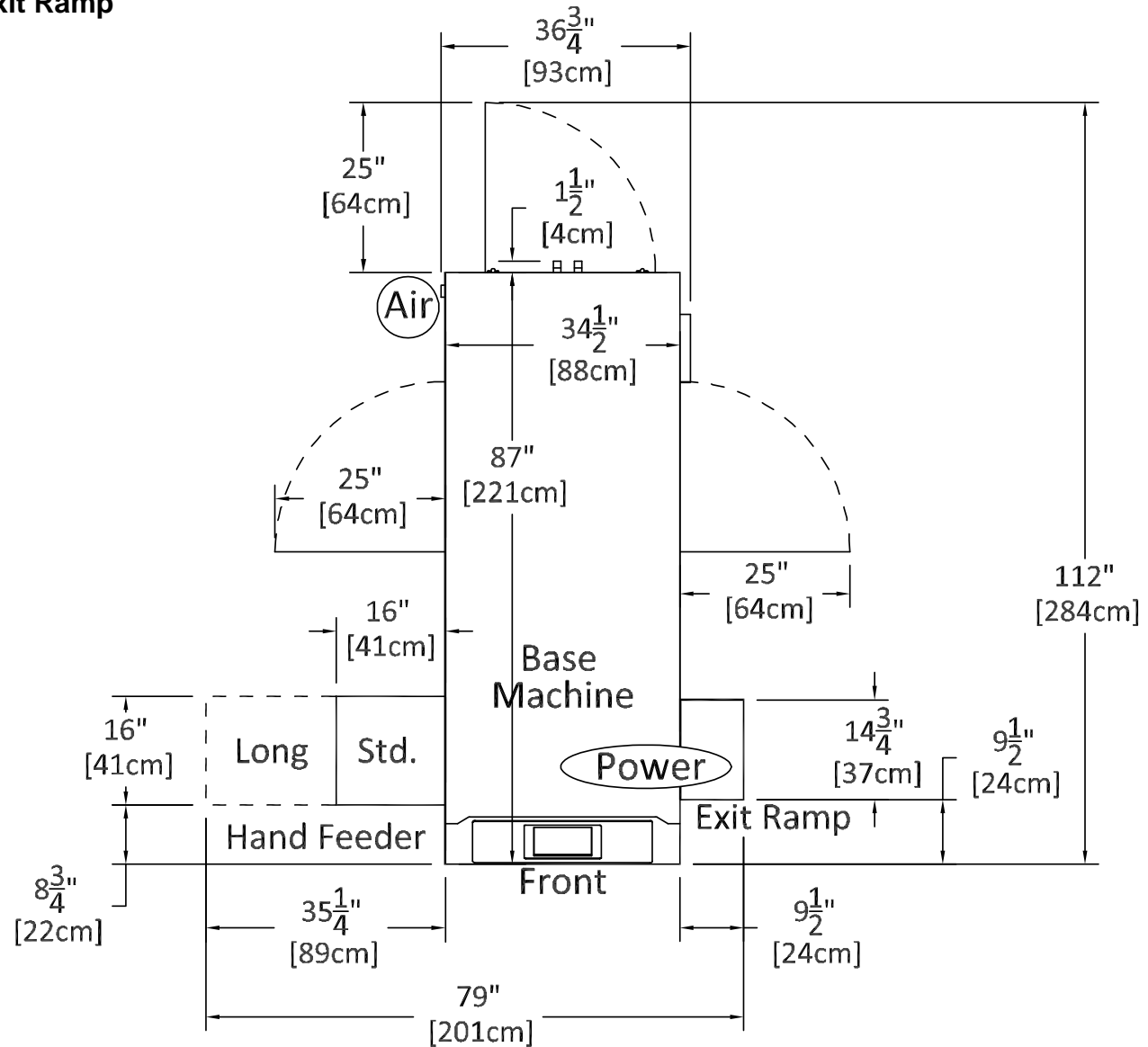


Figure 1-15
Hand Feeder and Exit Ramp Configuration

NOTES

2. Installation Guide

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Introduction

The installation guide provides information and instructions essential to the proper setup of each of the CMT-330TC and its accessory options.

2.1 Shipping Claims

The CMT-330TC has been packed to prevent damage during shipment. Claims for damage or loss are the responsibility of the recipient. Inspect all shipments as soon as they are received. If there is any noticeable damage, note it on the freight bill. Visual and/or hidden damage must be reported to the claims department of the carrier within 15 days. Contact your dealer if you need any assistance. Check the contents of the crate against both the packing list on page 1-5 and the freight bill. Make sure there are no missing items.

2.2 Unpacking

Remove the packing materials and the four lag screws. Lag screws are located in the frame, behind each of the lower side doors as shown in Figure 2-1.

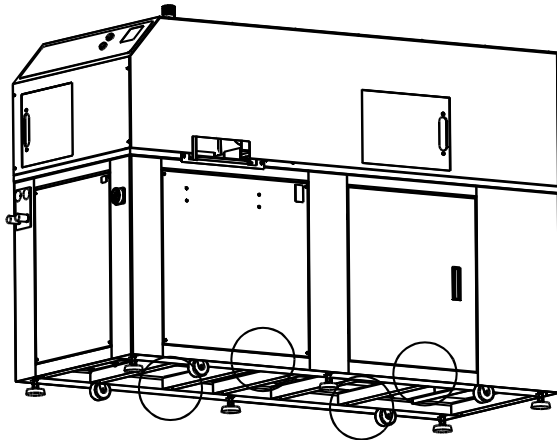


Figure 2-1. Lag Screw Locations

Remove Lag Screws

1. Remove the four screws from each of the two lower front side doors using a 1/8" hex-drive wrench.
2. Using a 9/16" wrench, remove the lag screws from the two front locations shown in Figure 2-1.
3. Open the two lower rear side doors and remove the waste bins.
4. Remove the two rear lag screws from the two rear locations shown in Figure 2-1.
5. Reinstall the waste bins and close the rear side doors.
6. Reinstall the two front side doors.

Use a forklift to remove the machine from the skid and place it as close as possible to its installation location. The machine has accessory power cables and air hoses wrapped-up and placed inside the machine. Be careful not to pinch or entangle these in the forks.

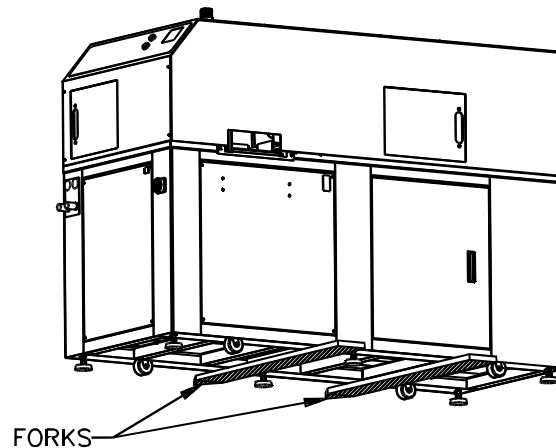


Figure 2-2. Fork Locations for Lifting

2.3 Moving

Once the machine is near its final location, it can be rolled into place.



WARNING

Do not roll on a graded surface. Roll only on a flat surface. Personal injury could result.

It may be necessary to raise the six leveling pads in order to roll the machine. A pad is located under each corner of the machine and the center of each side. Using either a 3/4" open-ended wrench or an adjustable wrench, turn the leveling pad counterclockwise to raise it.

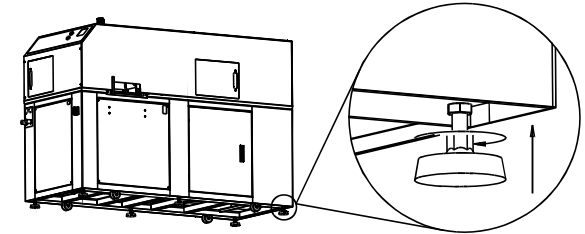


Figure 2-3. Leveling Pads

Push the CMT-330TC into position. Do not lower the leveling pads at this time. Its final position may require slight adjustment depending upon the setup.

2.4 Infeed Setup

The CMT-330TC can be used either in-line with a perfect binder or as a stand-alone three-knife trimmer. The following table lists the infeed options for each application.

In-Line infeed options:

Option 1:
*Tilt Infeed Conveyor
+ Cooling Elevator*

Option 2:
*Tilt Infeed Conveyor
+ Cooling Elevator
+ Pile Feeder*

Stand-Alone infeed options:

Option 3:
Book Pile Feeder

Option 4:
Standard Hand-feed Conveyor

Option 5:
Long Hand-feed Conveyor

The following procedures show how to setup each of the 5 infeed options.

2.4.1 Tilt Conveyor + Elevator

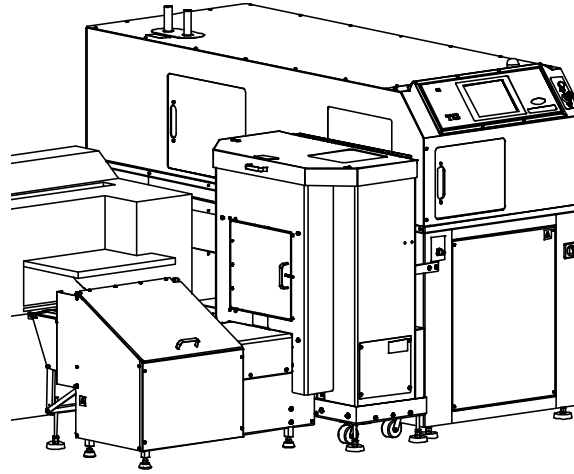


Figure 2-4. Tilt Conv. + Elevator

Setup Procedure

1. Position the Tilt Infeed Conveyor in front of the binder such that height-adjustable portion of the conveyor is centered on the exit chute of the binder.

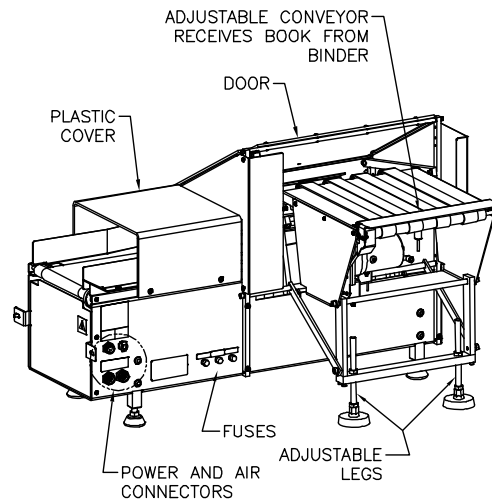


Figure 2-5. Tilt Infeed Conveyor

2. The top of the conveyor belt at the right end of the tilt infeed conveyor should be set to about 13-7/8" (35.2 cm) from the floor and level (Figure 2-6). Adjust the leveling pads as necessary.

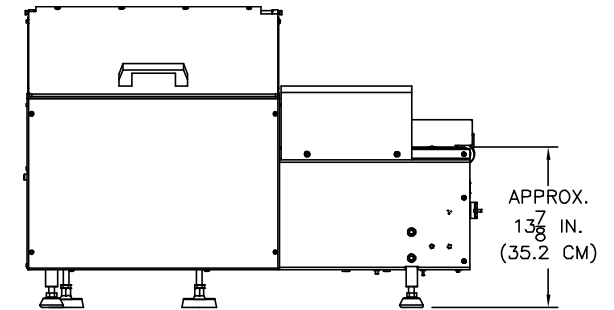


Figure 2-6. Height Adjustment

3. The height-adjustable portion should be set to the height of (or slightly below) the bottom of the binder's exit chute. After adjusting the legs, lock into place with jam nuts.

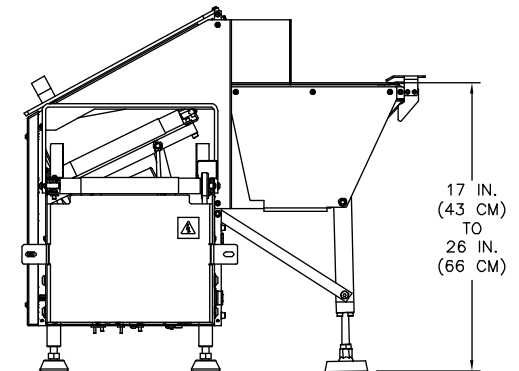


Figure 2-7. Adjustment Range

4. Move the entire conveyor close to the binder to minimize the distance between the adjustable conveyor and the binder's exit chute.
5. Wheel the elevator into approximate position next to the tilt infeed conveyor.

- Turn down the leveling pads and raise the elevator until the top shelf is 36-1/32" (91.5 cm) from the floor as shown in Figure 2-8.

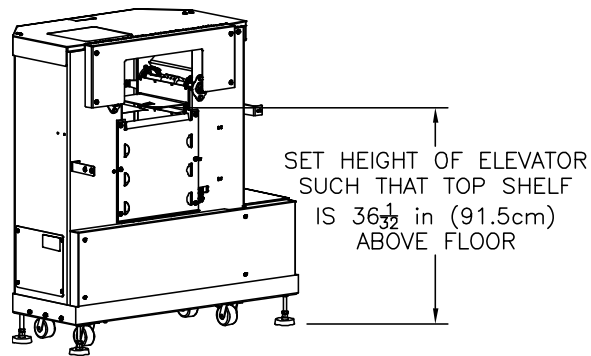


Figure 2-8. Elevator Height Setting

- Align the elevator with the infeed conveyor and attach as shown in Figure 2-9 using the hardware provided.

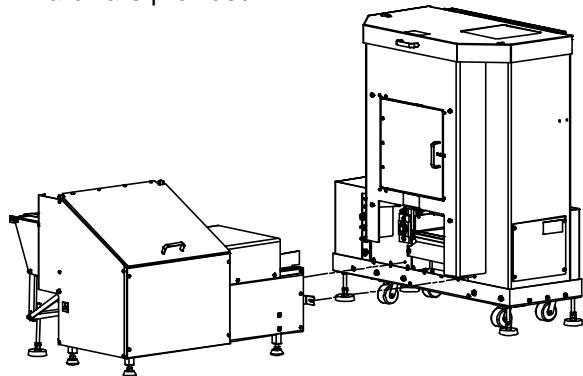


Figure 2-9. Elevator Attachment to Infeed Conveyor

- On the trimmer, adjust the height of the infeed bracket (Figure 2-10) if necessary. The flat, horizontal surface of the bracket should be 1/32" (1mm) below the trimmer's infeed conveyor belt.

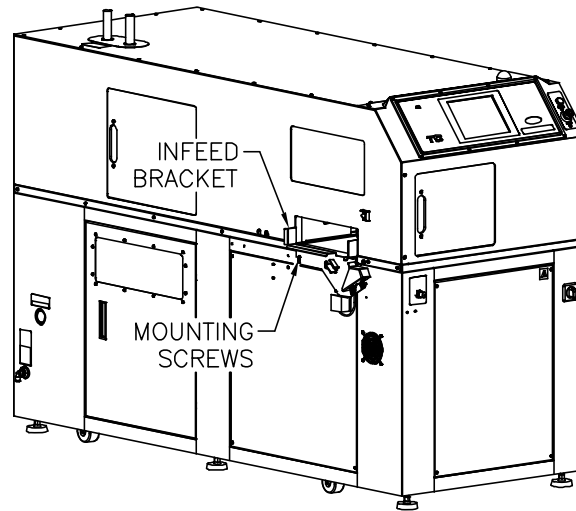


Figure 2-10. Infeed Bracket

- Move the trimmer into position against the elevator, aligning the mounting brackets on the elevator to the corresponding holes in the side of the trimmer. Once the trimmer height is set properly according to Section 2.5 Trimmer Height Setup, attach the elevator to the trimmer using supplied mounting hardware (Figure 2-11).

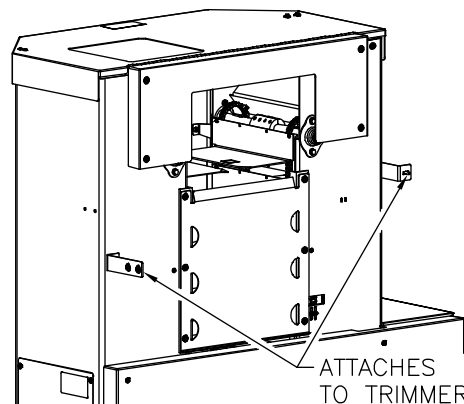


Figure 2-11. Elevator Attachment to Trimmer

Cable and Air Tubing Connections

- Remove the lower front panel of the trimmer and locate the yellow power cable coiled up inside the trimmer that is labelled with the number that corresponds to the label on the elevator near the input connectors. The power cables are the larger diameter cables with 7-pin connectors on the end.
- Route the power cable under the hydraulic unit and out of the left side of the trimmer.
- Connect the power cables as shown in Figure 2-12.

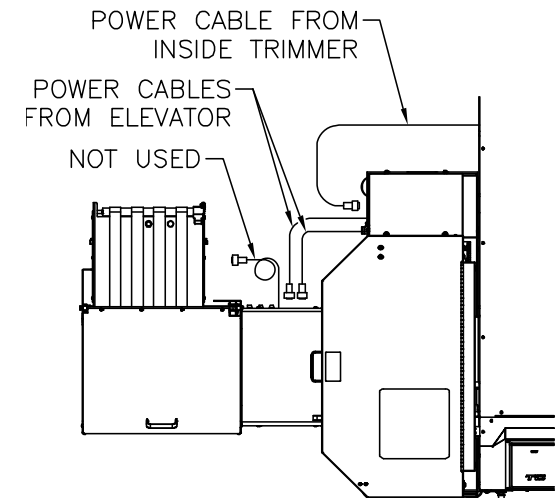


Figure 2-12. Power Cable Connections

- Now locate the yellow communication cable coiled up inside the trimmer that is labelled with the number that corresponds to the label on the elevator near the input connectors. It is a small diameter cable with a 3-pin connector on the end. Also locate any separate communication cables that were supplied with the infeed/outfeed options.
- Connect the communication cables as shown in Figure 2-13.

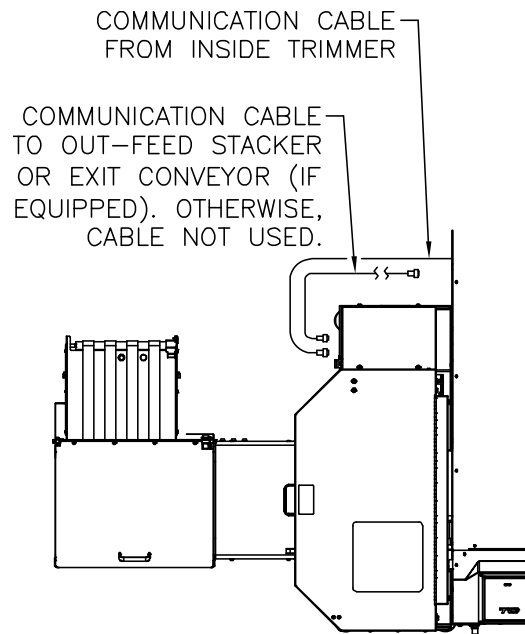


Figure 2-13. Comm. Cable Connections

6. Now locate the coiled-up line of blue air tubing with a red and white connector on the end that is labelled with the numbers that correspond to the labels on the elevator and tilt-conveyor near the input connectors. Also locate any separate air tubing sections that may have been supplied with the infeed/out-feed options.
7. Connect the air tubing as shown in Figure 2-14.

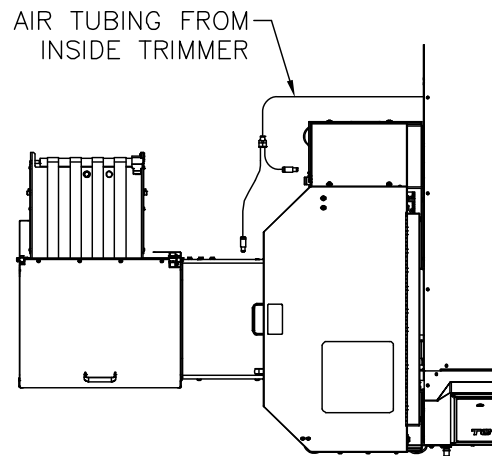


Figure 2-14. Air Tubing Connections

Now go to Section 2.5 Trimmer Height Setup to continue the setup process.

2.4.2 Tilt Conv. + Elevator + Pile Feeder

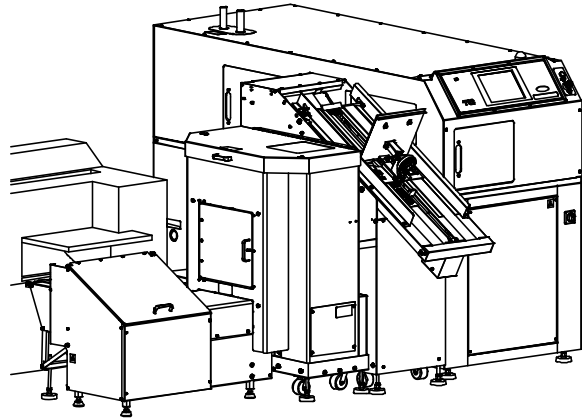


Figure 2-15. Infeed Conv. + Elevator + Pile Feeder

Setup Procedure

1. Perform installation steps 1 through 8 for In-feed Option 1, Tilt Conveyor + Elevator.
2. Setup the book pile feeder according to the instruction and parts manual supplied with the book pile feeder.
3. Attach the pile feeder to the elevator.
4. Move the trimmer into position against the pile feeder, aligning the mounting brackets on the pile feeder to the corresponding holes in the side of the trimmer. Once the trimmer height is set properly according to Section 2.5 Trimmer Height Setup, attach the pile feeder to the trimmer using supplied mounting hardware.

Cable and Air Tubing Connections

1. Remove the lower front panel of the trimmer and locate the yellow power cable coiled up inside the trimmer that is labelled with the number that corresponds to the label on the elevator near the input connectors. The

power cables are the larger diameter cables with 7-pin connectors on the end.

2. Route the power cable under the hydraulic unit and out of the left side of the trimmer.
3. Connect the power cables as shown in Figure 2-16.

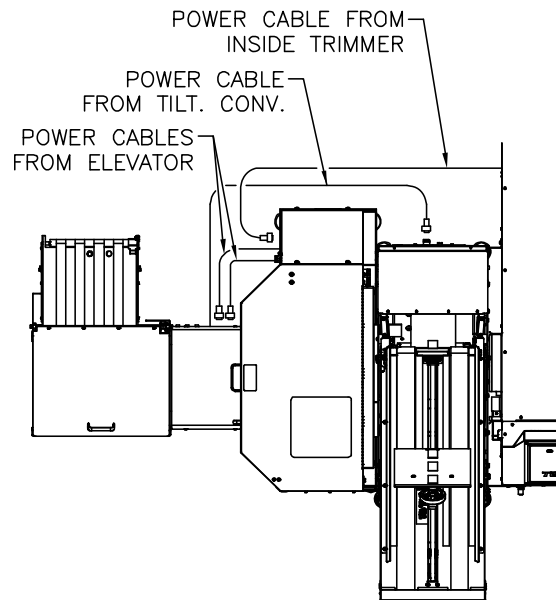


Figure 2-16. Power Cable Connections

4. Now locate the yellow communication cable coiled up inside the trimmer that is labelled with the number that corresponds to the label on the elevator near the input connectors. It is a small diameter cable with a 3-pin connector on the end. Also locate any separate communication cables that were supplied with the infeed/outfeed options.
5. Connect the communication cables as shown in Figure 2-17.

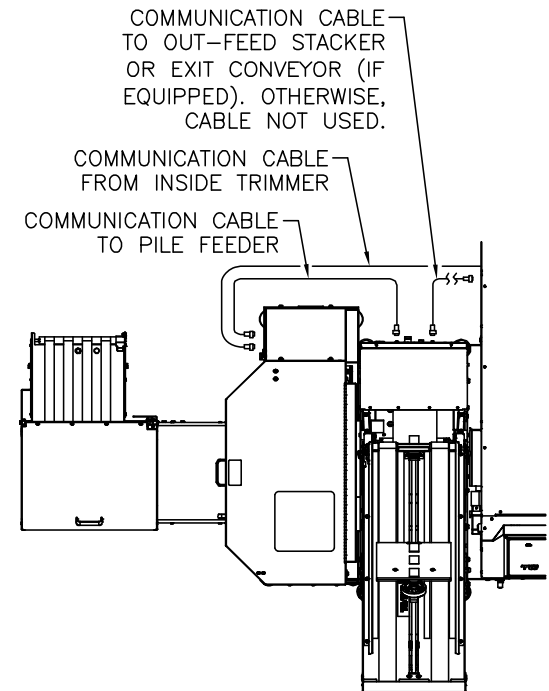


Figure 2-17. Comm. Cable Connections

6. Now locate the coiled-up line of blue air tubing with a red and white connector on the end that is labelled with the numbers that correspond to the labels on the pile feeder, elevator, and tilt conveyor near the input connectors. Also locate any separate air tubing sections that may have been supplied with the infeed/outfeed options.
7. Connect the air tubing as shown in Figure 2-18.

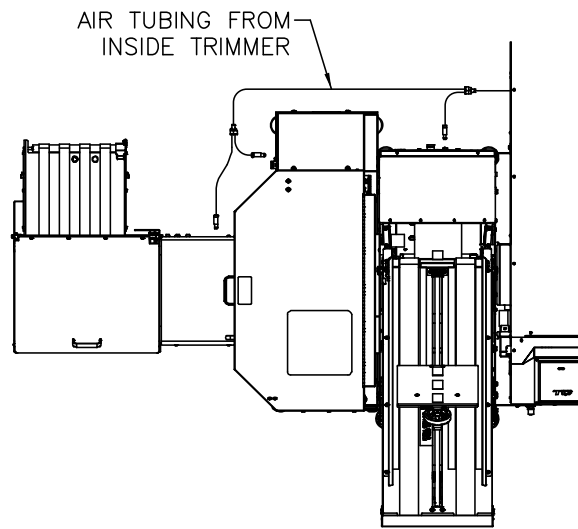


Figure 2-18. Air Tubing Connections

Now go to Section 2.5 Trimmer Height Setup to continue the setup process.

2.4.3 Pile Feeder (Stand Alone)

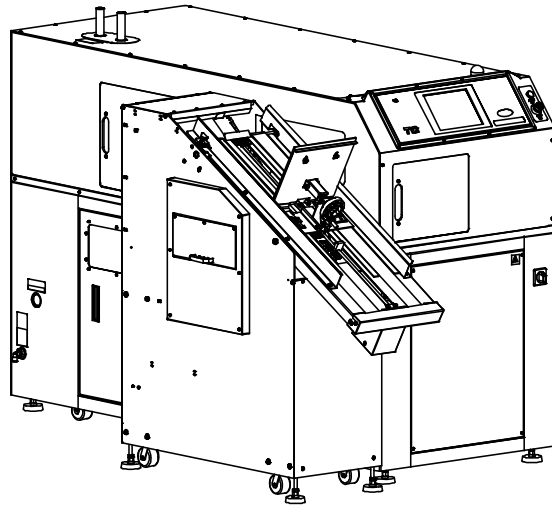


Figure 2-19. Pile Feeder

Setup Procedure

1. Setup the book pile feeder according to the instruction and parts manual supplied with the book pile feeder.
2. Move the trimmer into position against the pile feeder, aligning the mounting brackets on the pile feeder to the corresponding holes in the side of the trimmer. Once the trimmer height is set properly according to Section 2.5 Trimmer Height Setup, attach the pile feeder to the trimmer using supplied mounting hardware.

Cable and Air Tubing Connections

1. Remove the lower front panel of the trimmer and locate the yellow power cable coiled up inside the trimmer that is labelled with the number that corresponds to the label on the pile feeder near the input connectors. The power cables are the larger diameter cables with 7-pin connectors on the end.

2. Route the power cable under the hydraulic unit and out of the left side of the trimmer.
3. Connect the power cable as shown in Figure 2-20.

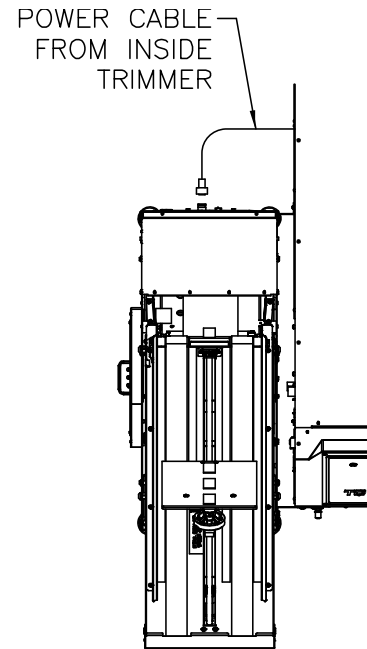


Figure 2-20. Power Cable Connection

4. Now locate the yellow communication cable coiled up inside the trimmer that is labelled with the number that corresponds to the label on the pile feeder near the input connectors. It is a small diameter cable with a 3-pin connector on the end. Also locate any separate communication cables that were supplied with the infeed/outfeed options.
5. Connect the communication cables as shown in Figure 2-21.

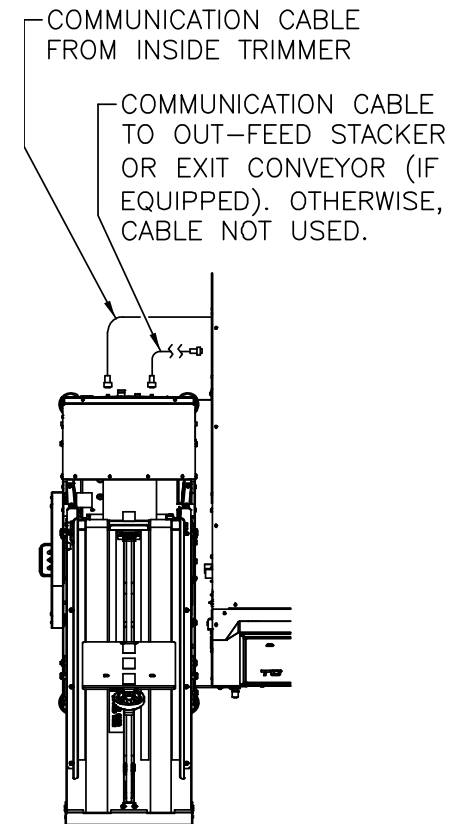


Figure 2-21. Comm. Cable Connections

6. Now locate the coiled-up line of blue air tubing with a red and white connector on the end that is labelled with the number that corresponds to the label on the pile feeder near the input connectors.
7. Connect the air tubing as shown in Figure 2-22.

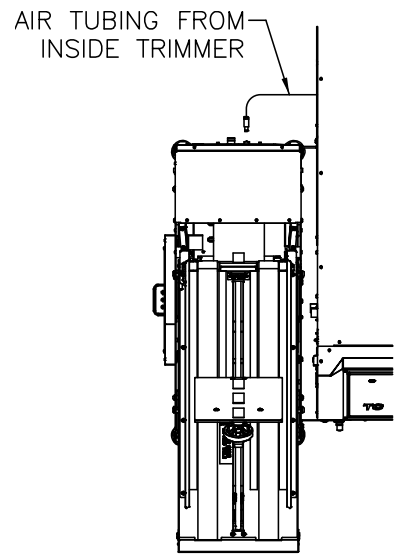


Figure 2-22. Air Tubing Connection

Now go to Section 2.5 Trimmer Height Setup to continue the setup process.

2.4.4 Standard Hand-Feed Conveyor

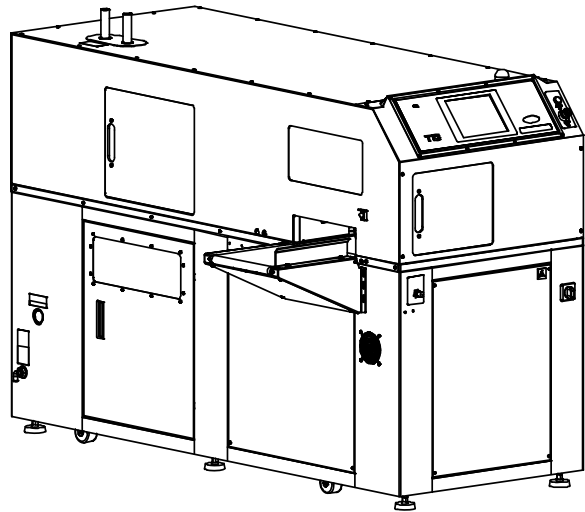


Figure 2-23. Standard Hand-Feed Conveyor

Setup Procedure

1. Move the trimmer to the desired location.
2. Remove (6) sets of screws and washers fastened to the left side of the trimmer as shown in Figure 2-24. Save them for later use.
3. Make sure the reflector bracket is in place as shown in Figure 2-24.

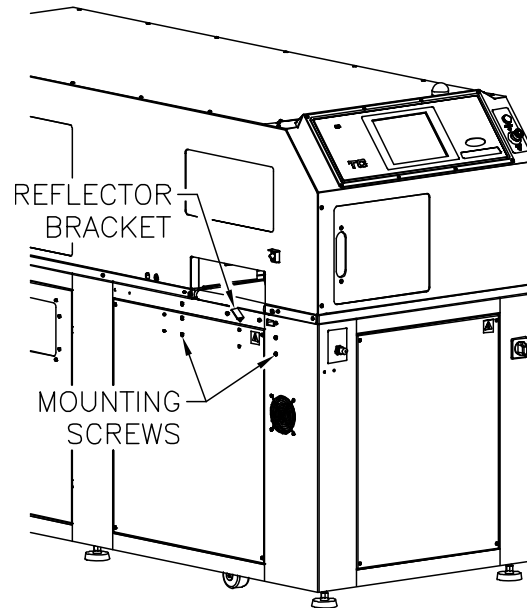


Figure 2-24. Hand Feed Mounting Hardware

4. Fasten the conveyor to the trimmer using the hardware from step 2.

Cable Connections

1. Remove the lower front panel of the trimmer and locate the yellow power cable coiled up inside the trimmer that is labelled with the number that corresponds to the label on the hand-feed conveyor near the input connectors. The power cable has a 5-pin connectors on the end.
2. Route the power cable under the hydraulic unit and out of the left side of the trimmer.
3. Connect the power cable as shown in Figure 2-25.

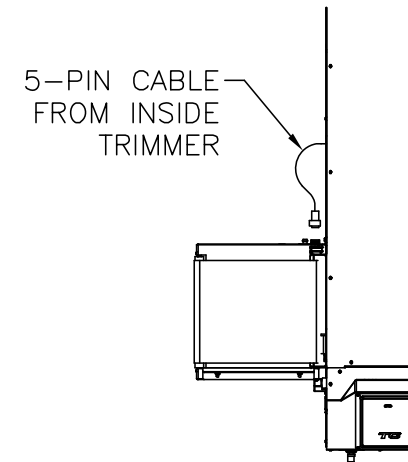


Figure 2-25. Power Cable Connection

Now go to Section 2.5 Trimmer Height Setup to continue the setup process.

2.4.5 Long Hand-Feed Conveyor

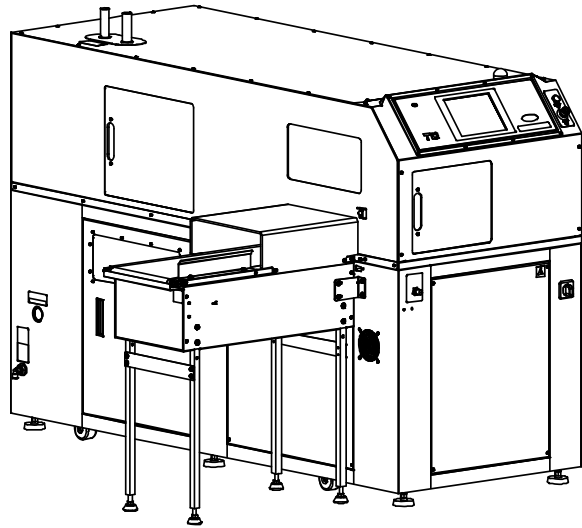


Figure 2-26. Long Hand-Feed Conveyor

Setup Procedure

1. Move the trimmer to the appropriate location.
2. Remove (4) sets of screws and washers fastened to the left side of the trimmer as shown in Figure 2-27. Save them for later use.
3. Make sure the reflector bracket is in place as shown in Figure 2-27.

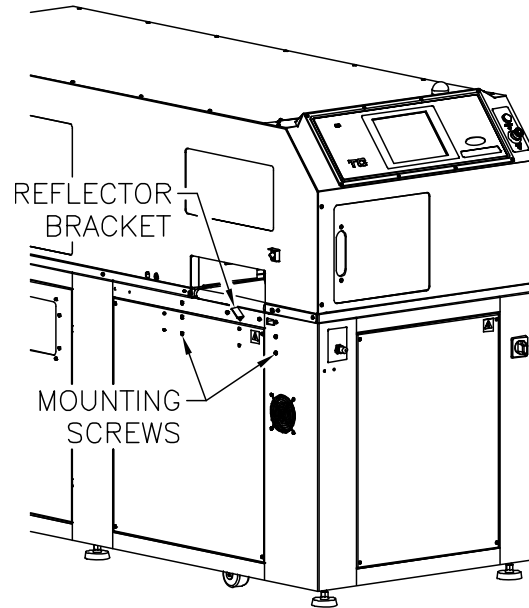


Figure 2-27. Hand Feed Mounting Hardware

4. Initially set the Hand-Feed Conveyor's leveling pads at approximately 2-1/4" (5.7 cm) as shown in Figure 2-28

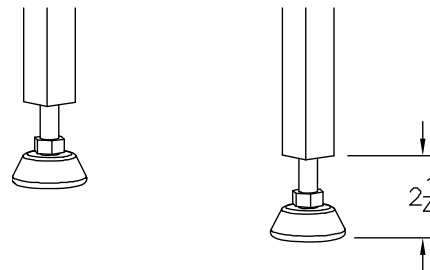


Figure 2-28. Hand-feed Leveling Pads

5. Move the Hand-Feed Conveyor to the left-hand side of the trimmer such that the slots in the conveyor mounting brackets line up with the holes in the trimmer's left-hand side. It may be necessary to adjust the Hand-

Feed Conveyor's leveling pads in order for the mounting brackets to line up properly.

6. Fasten the conveyor to the trimmer using the hardware from step 2.

Cable Connections

1. Remove the lower front panel of the trimmer and locate the yellow power cable coiled up inside the trimmer that is labeled with the number that corresponds to the label on the hand-feed conveyor near the input connectors. The power cable has a 5-pin connectors on the end.
2. Route the power cable under the hydraulic unit and out of the left side of the trimmer.
3. Connect the power cable as shown in Figure 2-29.

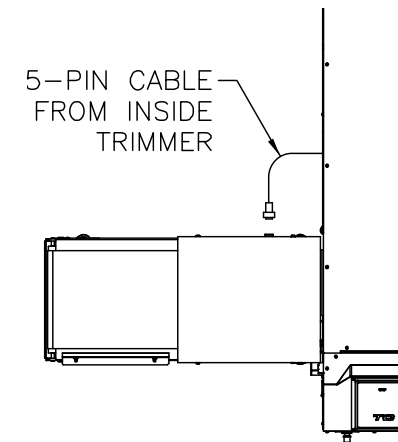


Figure 2-29. Power Cable Connection

Now go to Section 2.5 Trimmer Height Setup to continue the setup process.

2.5 Trimmer Height Setup

With the trimmer positioned in its final location, follow these steps to complete the trimmer setup:

1. Remove the trimmer's lower front door and raise the front end of the machine by adjusting the front two leveling pads. The final table height should be 36" (914mm) from the floor. Use a level to make sure the table is level from left to right.
2. Open the rear doors and raise the rear end of the machine by adjusting the rear two leveling pads until the trimmer table is level.
3. Check the front end of the machine with the level to make sure the front is still level. Adjust as necessary.
4. Now lower the two pads at the center of the machine such that the trimmer is firmly supported by all (6) leveling pads. Double-check that the table is still level.
5. Lock all (6) leveling pads in place by tightening the jam nuts against the inside of the machine's base as shown in Figure 2-30. The nuts are accessed from below the machine.

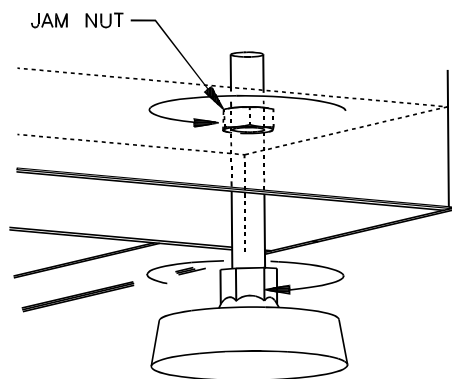


Figure 2-30. Tighten Jam Nuts

2.6 Outfeed Setup

There are (3) available CMT-330TC outfeed options:

Option 1:
Vertical Outfeed Stacker

Option 2:
Exit Conveyor

Option 3:
Exit Ramp

Any of these options can be used regardless of the trimmer configuration (in-line or stand-alone).

The following procedures show how to setup each of the 3 outfeed options.

2.6.1 Vertical Outfeed Stacker

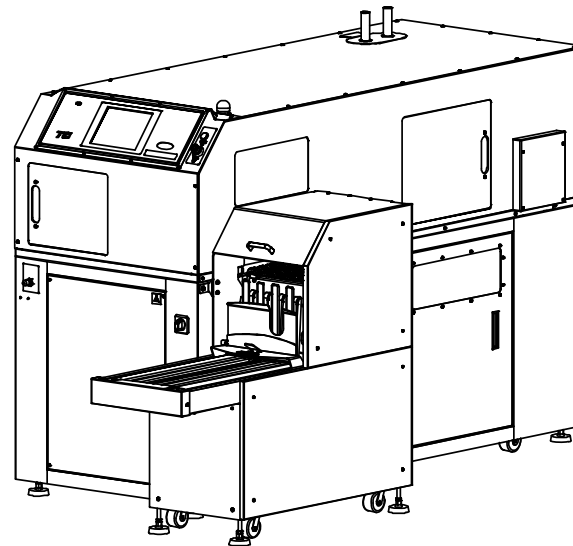


Figure 2-31. Vertical Outfeed Stacker

Setup Procedure

1. Setup the outfeed stacker according to the instruction and parts manual supplied with the outfeed stacker.
2. Remove (2) sets of screws and washers from the right side of the trimmer, just above the power panel cover. Save them for later use.
3. Move the Outfeed Stacker into position against the trimmer, and adjust the leveling feet of the stacker until the slots in the stacker's mounting brackets line up with the holes in the side of the trimmer.
4. Fasten the Outfeed Stacker to the trimmer using the hardware from step 2.

Cable and Air Tubing Connections

1. Remove the lower front panel of the trimmer and locate the yellow power cable coiled up inside the trimmer that is labelled with the

number that corresponds to the label on the outfeed stacker near the input connectors. The power cables are the larger diameter cables with 7-pin connectors on the end.

2. Route the power cable under the electrical enclosure and out of the right side of the trimmer.
3. Connect the power cable as shown in Figure 2-32.

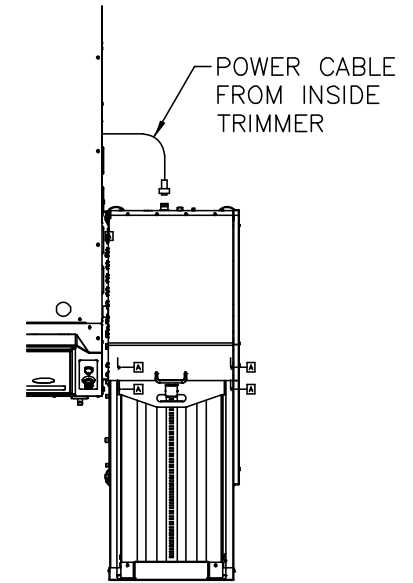


Figure 2-32. Power Cable Connection

4. Now locate the yellow communication cable that is labelled with the number that corresponds to the label on the outfeed stacker near the input connectors. It is a small diameter cable with a 3-pin connector on the end. The cable will come from either the elevator or pile feeder (if equipped), otherwise from inside the trimmer.
5. Connect the communication cable as shown in Figure 2-33.

COMMUNICATION CABLE
FROM ELEVATOR OR PILE
FEEDER IF EQUIPPED.
OTHERWISE, CABLE COMES
FROM INSIDE TRIMMER.

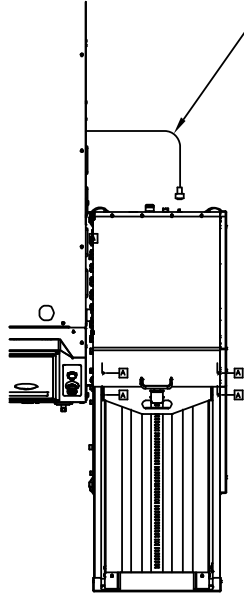


Figure 2-33. Comm. Cable Connections

6. Now locate the coiled-up line of blue air tubing with a red and white connector on the end that is labelled with the number that corresponds to the label on the outfeed stacker near the input connectors.
7. Connect the air tubing as shown in Figure 2-34.

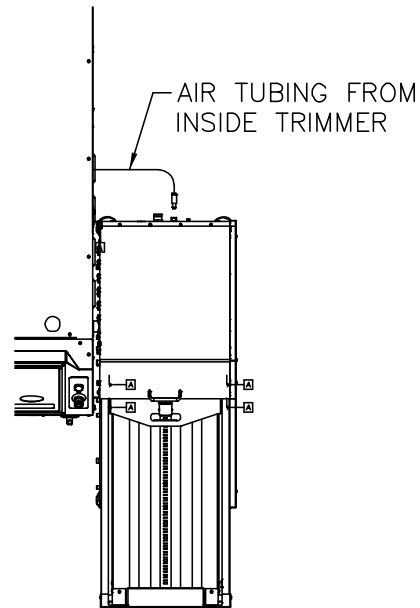


Figure 2-34. Air Tubing Connection

Now go to Section 2.7 Main Power Hookup to continue the setup process.

2.6.2 Exit Conveyor

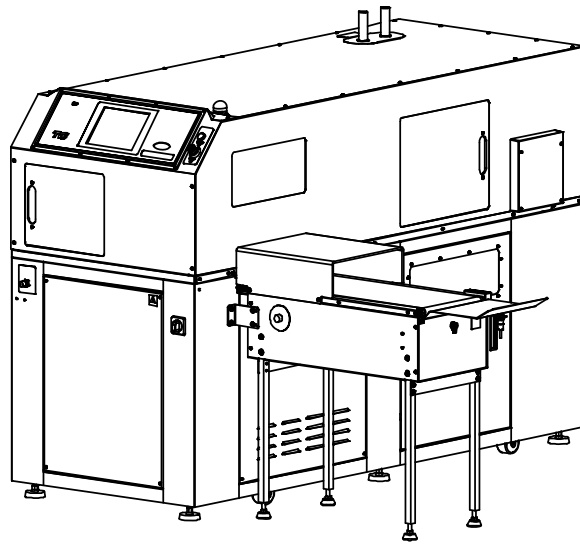


Figure 2-35. Exit Conveyor

Setup Procedure

1. Remove (4) sets of screws and washers from the right side of the trimmer, near and on the power panel cover. Save them for later use.
2. Adjust the leveling feet of the Exit Conveyor such that the conveyor surface is approximately 33-7/8" (86.0 cm) from the floor and level, as shown in Figure 2-36.

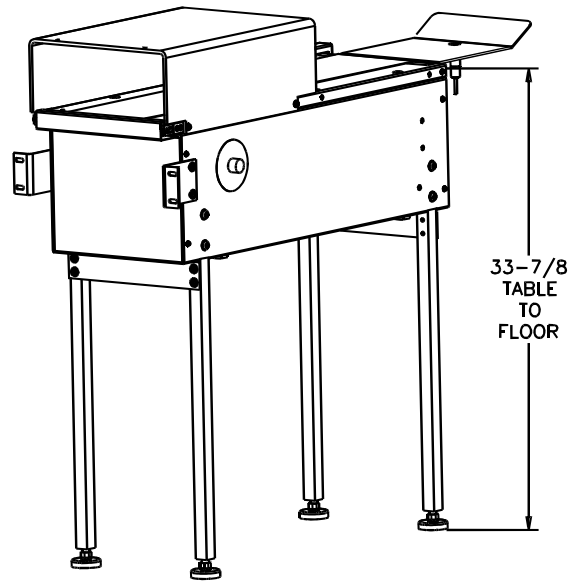


Figure 2-36. Exit Conveyor Height

3. Move the Exit Conveyor to the right-hand side of the trimmer such that the slots in the conveyor mounting brackets line up with the holes in the side of the trimmer.
4. Fasten the conveyor to the trimmer using the hardware from step 1.

Cable and Air Tubing Connections

1. Remove the lower front panel of the trimmer and locate the yellow power cable coiled up inside the trimmer that is labelled with the number that corresponds to the label on the exit conveyor near the input connectors. The power cables are the larger diameter cables with 7-pin connectors on the end.
2. Route the power cable under the electrical enclosure and out of the right side of the trimmer.
3. Connect the power cable as shown in Figure 2-37.

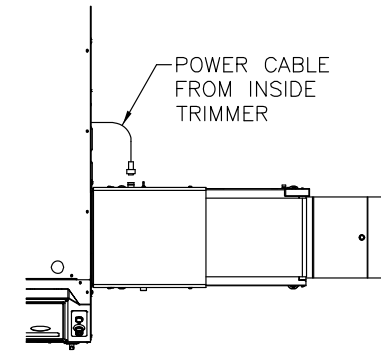


Figure 2-37. Power Cable Connection

4. Now locate the yellow communication cable that is labelled with the number that corresponds to the label on the exit conveyor near the input connectors. It is a small diameter cable with a 3-pin connector on the end. The cable will come from either the elevator or pile feeder (if equipped), otherwise from inside the trimmer.
5. Connect the communication cable as shown in Figure 2-38.

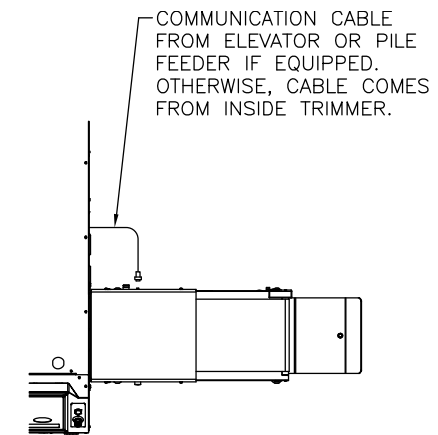


Figure 2-38. Comm. Cable Connections

Now go to Section 2.7 Main Power Hookup to continue the setup process.

2.6.3 Exit Ramp

Setup Procedure

To install the Exit Ramp option, simply attach the Exit Ramp as shown in Figure 2-39 below using the hardware provided.

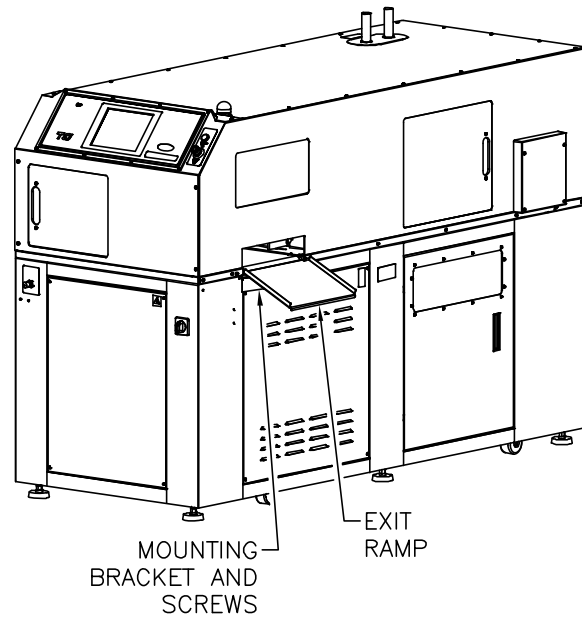


Figure 2-39. Exit Ramp Placement

Now go to Section 2.7 Main Power Hookup to continue the setup process.

2.7 Main Power Hookup

This section describes how to hookup main power to the CMT-330TC. These procedures should be performed by a licensed electrician that is familiar with the local electrical codes in your area.

An adequate power supply must be provided to the machine. See Section 1.8 Specifications on page 1-8 for power requirements. Power to the trimmer should be on its own circuit with a lockable, disconnect switch. Too many machines on the same circuit will reduce power to each machine. Insufficient voltage may cause overheating, loss of cutting/clamping force, and/or failure to operate.

The following table lists recommended wire sizes for different voltage options. If a wire is run over 75 feet (23 meters), the next size wire should be used. Be sure to always follow your local electrical codes.

Recommended Wire Sizes for Main Power Hookup			
V	Circuit Size A	Minimum Wire Size # AWG	Metric Wire mm ²
380/415	20	12	2.5
230	40	8	10
208	40	8	10

Power Hookup Procedure



WARNING

Shock Hazard! Always disconnect power at main disconnect switch before working on the trimmer. Lock it out to prevent accidental power up. See Power Lockout Procedure on page 1-4.

1. Locate the electrical panel door at the lower right-hand side of the machine (Figure 2-40) and remove the door.

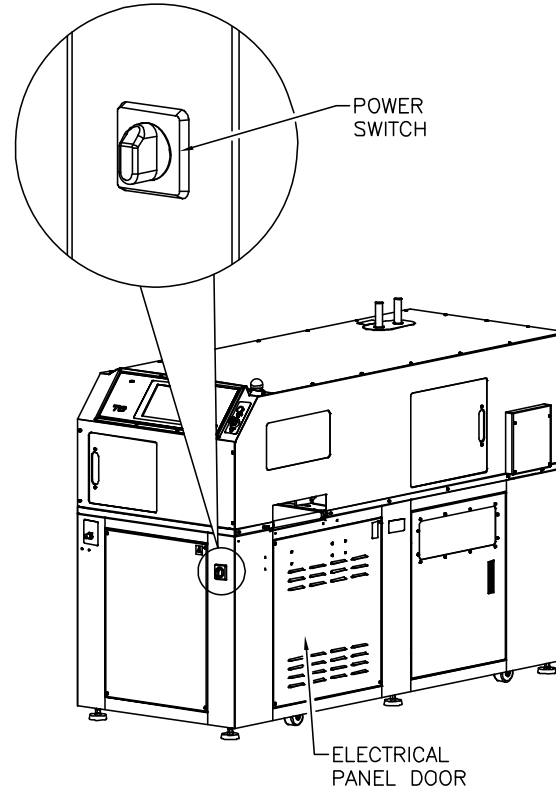


Figure 2-40. Power Panel Door

2. Route the incoming power cable under the right-hand side of the machine and behind the power panel enclosure.
3. Locate the cable hole in the lower left-hand corner of the power panel Figure 2-41. Mount a strain relief in this hole.
4. Route the cable through the strain relief and into the power panel area.
5. Locate the terminal block at the lower, left-hand corner of the power panel Figure 2-41.

The ground screw is located beneath the terminal block.

6. Fasten the ground lead to the ground terminal lug as shown in Figure 2-41.

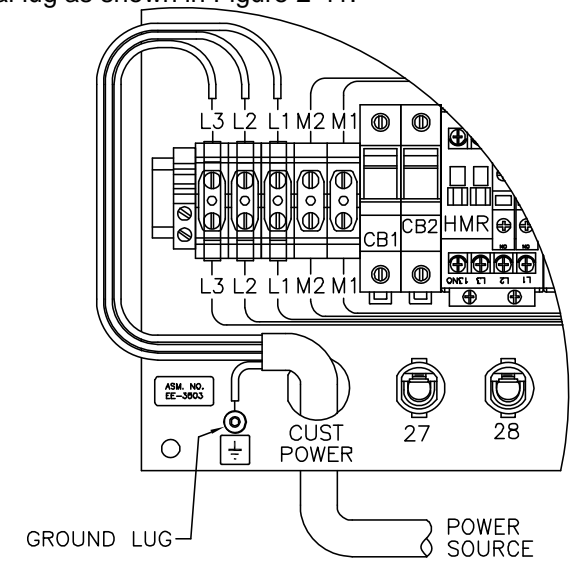


Figure 2-41. Power Panel

7. Fasten the three power leads to the three terminals **L1**, **L2**, and **L3** (Figure 2-41) on the main power terminal block.
8. Replace all panel doors.
9. Make sure compressed air is connected to the machine and is switched on (See Section 2.8 Main Air Hookup).
10. Unlock and switch on (I) the supply power disconnect switch.
11. Switch on (I) the machine's power.
12. Press the green start button key on the front console (Figure 2-42) to initiate the machine.

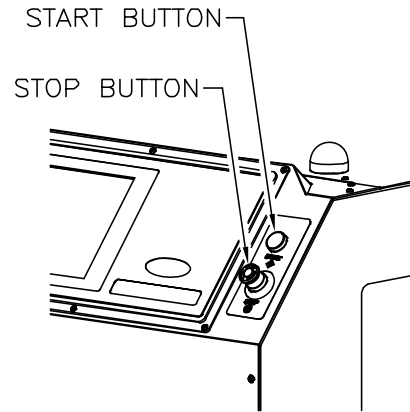


Figure 2-42. Start Button

13. The machine was shipped with the cutting mechanism in the down position. If power is hooked up correctly, the mechanism will automatically rise up to the up position when the start button is pressed. If power is incorrectly connected, the mechanism will remain in the down position.

If power was correctly connected, skip steps 14-18 and go to Section 2.8 Main Air Hookup.

14. Switch off (○) the machine's main power switch.
15. Switch off (○) the main power disconnect switch and lock it out.
16. Remove the power panel door at the right-hand side of the machine.
17. Exchange any two of the main power leads at the terminals **L1**, **L2**, or **L3**.
18. Repeat steps 8-13.

2.8 Main Air Hookup

Compressed Air Requirements

The CMT-330TC requires 80 – 90 PSI (550 – 620 kPa) regulated, dry, non-lubricated compressed air at a minimum of 9 cfm at 90 PSI (255 LPM at 620 kPa), and a minimum air quality of: **ISO 8573.1 Class 2.4.2.**

Air Quality Classifications ISO 8573.1 2001

SOLIDS		
ISO QUALITY CLASS	Particle size in microns	
1	0.1	
2	1	
3	5	
4	15	
5	40	
6	-	
WATER		
@ 100 psig (6.9 bar) Pressure Dew Point		
ISO QUALITY CLASS	°C	°F
1	-70	-94
2	-40	-40
3	-20	-4
4	+3	+38
5	+7	+45
6	+10	+50
OIL		
Including Liquid and Vapor		
ISO QUALITY CLASS	Mg/m ³	ppm
1	0.01	0.008
2	0.1	0.08
3	1	0.8
4	5	4
5	25	21
6	-	-



CAUTION

Failure to use dry, non-lubricated compressed air that meets or exceeds the preceding requirements may cause damage to the machine and will result in THE WARRANTY BEING VOIDED.

Procedure

The main air connector shown in Figure 2-43 is a female 3/8 NPT port. Use a male 3/8 NPT fitting and Teflon thread tape to connect a compressed air line.

The trimmer's on/off air valve is located at the rear of the trimmer, next to the rear door (see Figure 2-43).

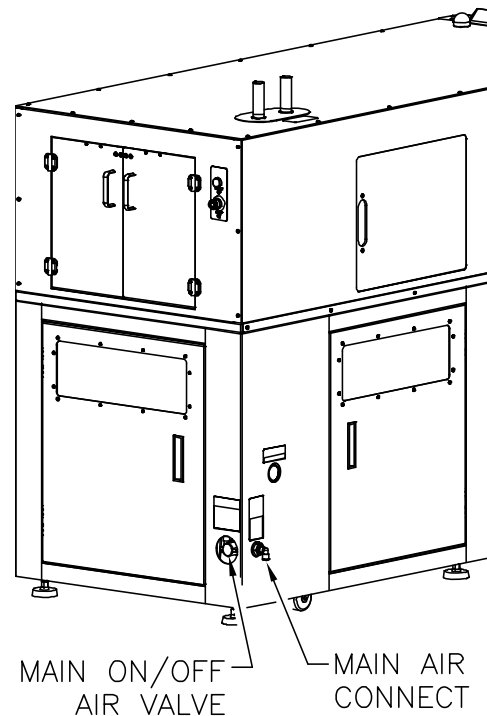


Figure 2-43. Main Air Connect

It may be helpful to use a flexible hose to connect the machine to compressed air in case the location of the machine needs to be adjusted.

2.9 Cleaning

It may be necessary to clean the trimmer and accessories after installation. If so, use a mild, non-abrasive soap and water solution and a moist cloth.

Do not use petroleum or acid-based cleaners or solvents to clean the console or any part of the trimmer and accessories. Doing so may result in permanent damage.

3. Operator's Guide

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Introduction

The operator's guide provides instructions essential to operating the CMT-330TC, including programming instructions and trimming options.

3.1 The TC Console

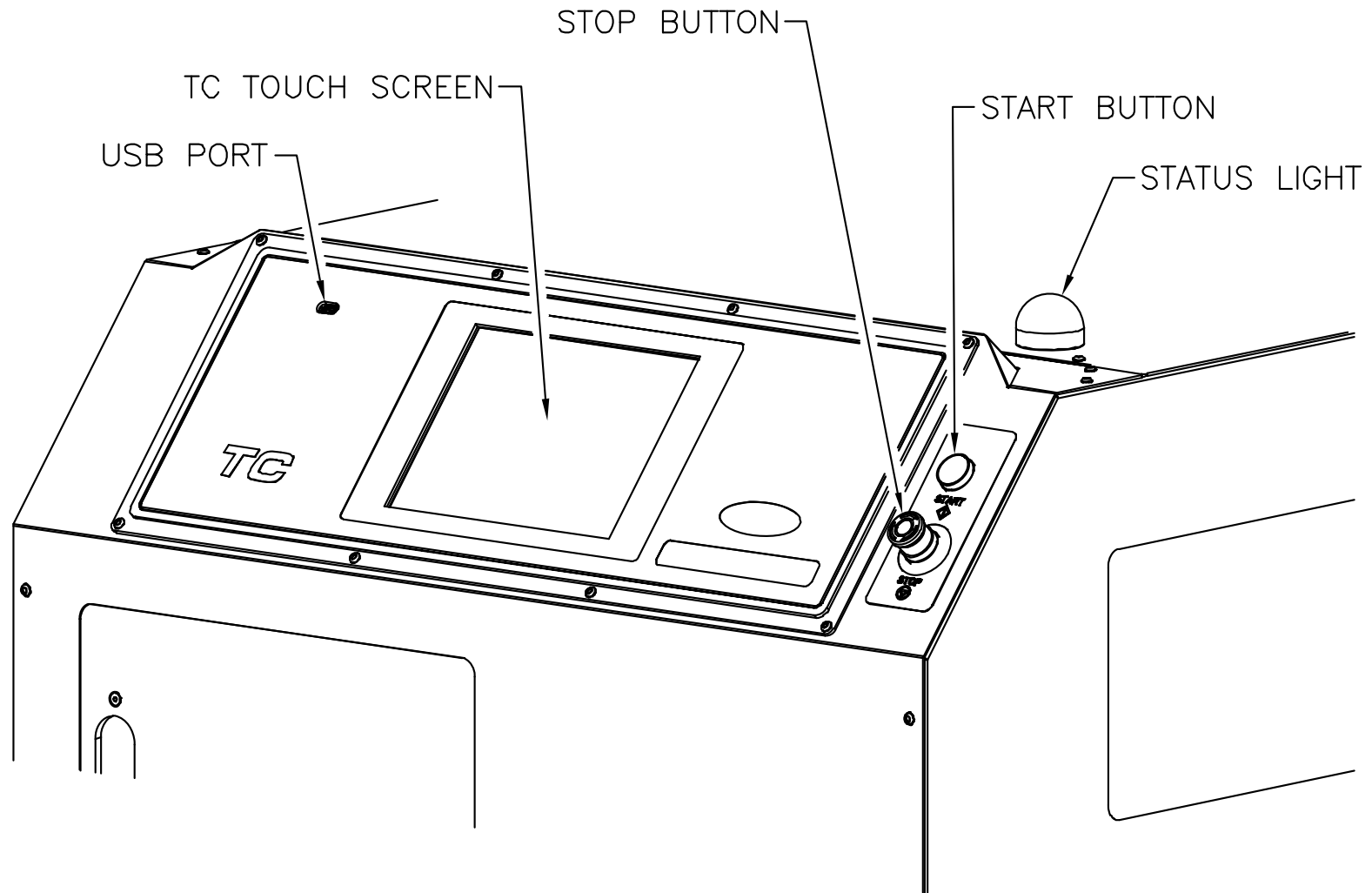


Figure 3-1. CMT-330TC Console

3.2 Power up

To switch the power on to the CMT-330TC, turn the main power switch clockwise.

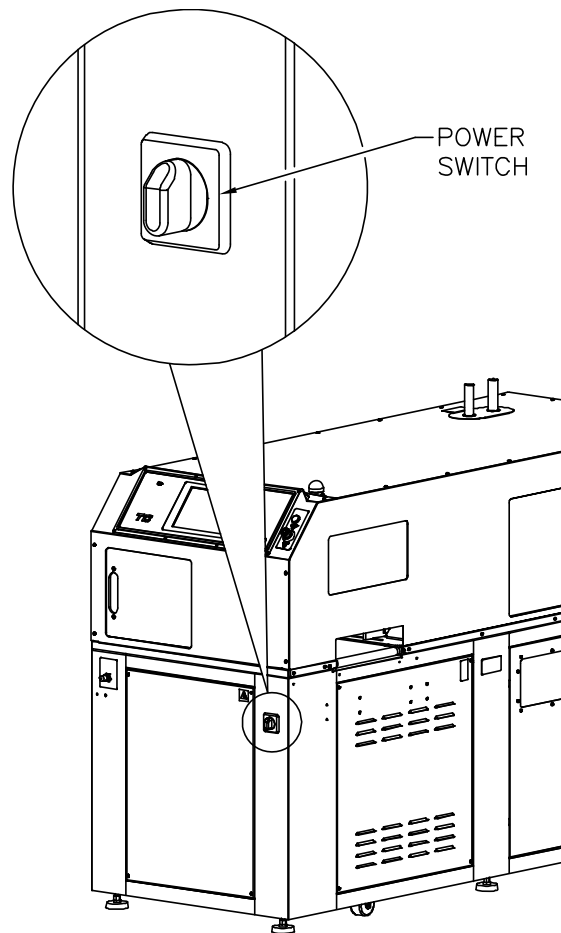


Figure 3-2. Power Switch

When the power on, the startup screen should appear as follows:

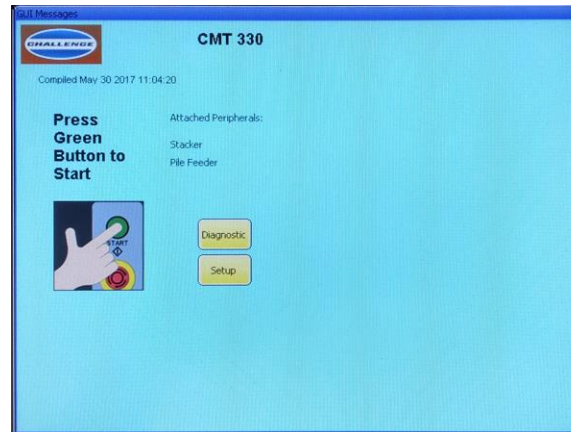


Figure 3-3. Start Up Screen

The startup screen lists the detected installed peripherals (infeed/outfeed options). If the list is not correct, re-check the infeed and outfeed communication connections as described in Section 2. Installation Guide.

Press the green start button (Figure 3-3) to initialize the machine (or follow the instructions on the screen if there is a different message).

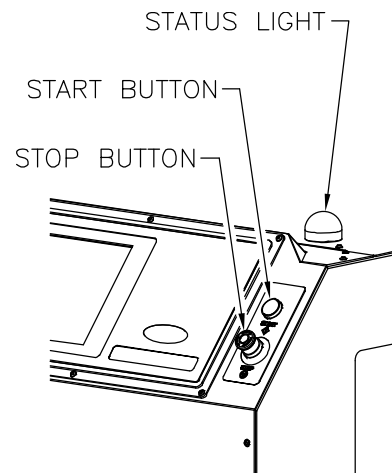


Figure 3-4. Start Button

Once the machine is initialized, the Run screen will appear and display the installed infeed and outfeed accessories (Figure 3-5).

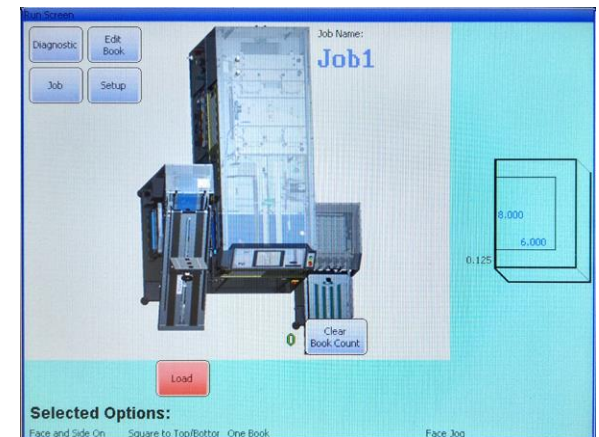


Figure 3-5. Run Screen

The trimmer is now ready to trim books to the dimensions shown on the right side of the screen. Later sections describe how to program and operate the CMT-330TC.

3.3 Status Light

The status light (Figure 3-4) informs the operator of the current operational state of the trimmer and/or accessories. The possible status light indications are as follows:

Solid Green – The trimmer is running and is ready to trim books or is trimming books.

Flashing Yellow – The trimmer is not running. Action must be taken to start the trimmer. For example, the outfeed device needs to be emptied or the start button needs to be pressed.

Flashing Red – There is an error in the trimmer and/or accessories that needs to be resolved before the trimmer will be able to run.

3.4 Jobs

A job is a programmed set of dimensions and options that are stored in memory and then later used to trim a particular run of books. To create, edit, or run a job, start by pressing the “Job” button to bring up the Job List screen (Figure 3-6).

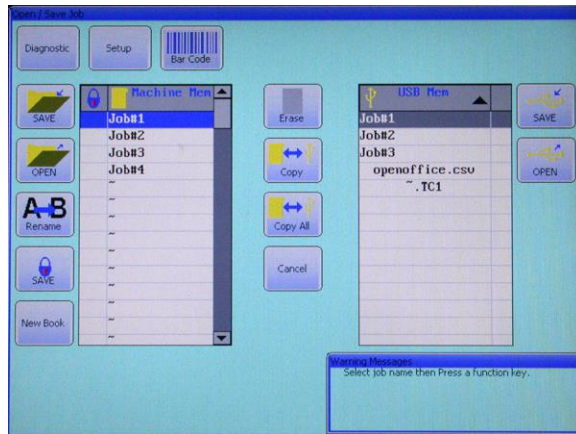


Figure 3-6. Job List Screen

In the Job List screen, all previously programmed jobs are displayed. The area on the left lists jobs stored in machine memory and the area on the right lists jobs stored on USB memory (if installed). The buttons on the left correspond to machine memory jobs only, the buttons on the right correspond to USB memory jobs only, and the buttons in the middle apply to either type.

3.4.1 Creating a New Job

To create a job, press the “New Book” button at the lower left of the screen. You will then be prompted to enter a job name (Figure 3-7).

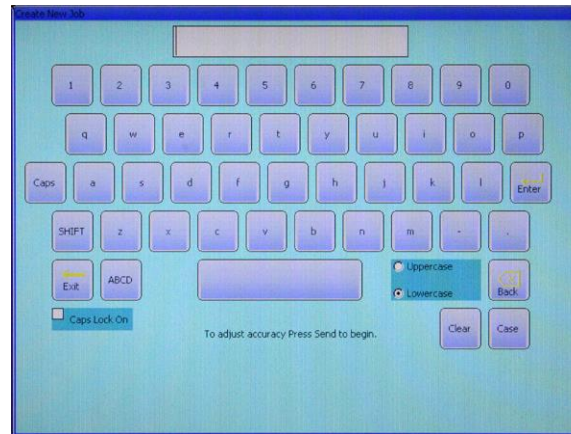


Figure 3-7. Job Name Screen

When finished entering in a job name, press the “Enter” button. This will bring up the Book Edit screen as shown in Figure 3-8.

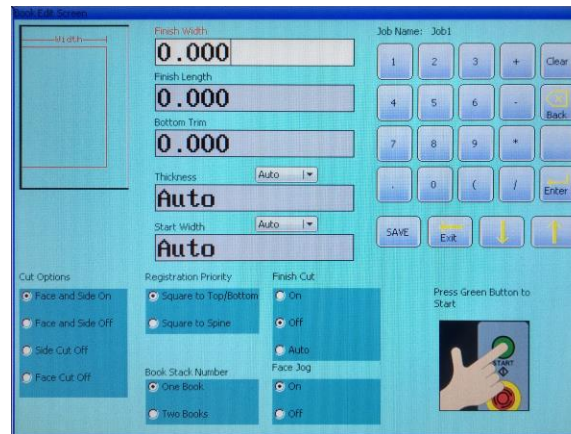


Figure 3-8. Book Edit Screen

Now key in the desired dimensions of the finished book. The graphic on the left side of the screen will show which dimension you are entering. There are sensors in the machine that will determine the thickness and the starting width of the book, however if you wish to enter in these dimensions manually, change the pull down

menu or menus from “Auto” to “Manual” and enter in the dimensions.

There are several additional options in this screen that can be set that will also be saved with the job. A description of each of these options can be found in Section 3.4.8 Job Options.

When finished, press “SAVE” to save the job or press “Exit” to cancel all entries and go back to the Job List screen.

3.4.2 Running a Job

If the desired job is not already open then it must first be opened from the Job List screen, which can be opened by pressing the “Job” button. Then select the job to be run by clicking on it so that it becomes highlighted. The job can be from either the machine memory list or USB memory list. Once a job is highlighted, click on the corresponding “Open” button to bring up the Book Edit screen (Figure 3-8). Then to run the job, press the green Start button next to the console. This will bring up the Job Run screen (Figure 3-9).

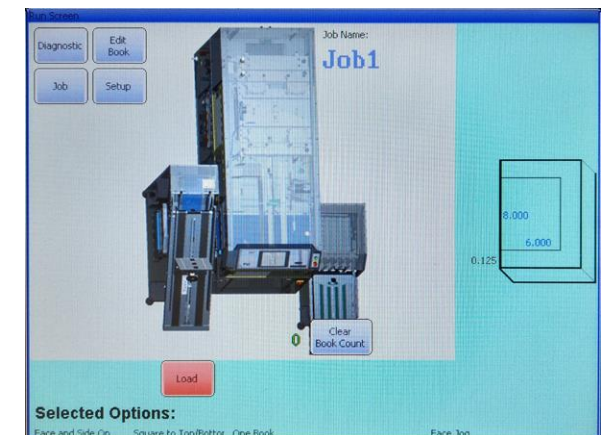


Figure 3-9. Job Run Screen

Look for any messages on the screen that may require user input prior to trimming books. Once these are addressed, the machine will initialize and be ready to trim books. Use your attached infeed device to feed untrimmed books into the trimmer.

Note: If you have the Tilt Conveyor + Elevator + Pile Feeder infeed configuration, you can select which device you would like to use to feed books by pressing the corresponding “Feed” button on the screen.

3.4.3 Editing an Existing Job

To edit an existing job, first go to the Job List screen (Figure 3-6) by pressing the “Job” button. Then select the job to be edited by clicking on it so that it becomes highlighted. The job can be from either the machine memory list or USB memory list. Once a job is highlighted, click on the corresponding “Open” button to bring up the Book Edit screen (Figure 3-8).

It is also possible to edit a job directly from the Run screen by simply pressing the “Edit Book” button. This will bring up the Book Edit screen (Figure 3-8) for the job that was currently active in the Run screen.

Once in the Book Edit screen, touch the text box containing the dimension you would like to change (or use the arrow keys to move to it), then key in the new value and press “Enter”. You can also change any of the job options in this screen by simply clicking on the desired selection.

When finished, press “SAVE” to save the job, or press “Exit” to cancel all entries and go back to the Job List screen. To start the job, press the green Start button next to the console.

3.4.4 Lock/Unlock a Job

Locking a job prevents it from being edited. To lock a job, first go to the Job List screen (Figure 3-6) by pressing the “Job” button. Then select the job to be locked by clicking on it so that it becomes highlighted. Note: Only jobs stored in machine memory can be locked. Once a job is highlighted, click on the “Lock/Save” button. A star will appear next to the job name to indicate that it is locked. Click the button again to unlock the job.

3.4.5 Deleting a Job

Deleting a job will permanently remove it from memory. To delete a job, first go to the Job List screen (Figure 3-6) by pressing the “Job” button. Then select the job to be deleted by clicking on it so that it becomes highlighted. The job can be from either the machine memory list or USB memory list. Locked jobs cannot be deleted and therefore must be unlocked first. Once a job is highlighted, click on the “Delete” button. Follow the prompts on the screen to delete the file.

3.4.6 Storing Jobs on a USB Drive

In order to store a job on a USB memory drive, the drive must first have a folder on it called “CMC”. The USB memory drive supplied with the trimmer already has this folder on it and it is recommended that you use this drive for storage due to the possible incompatibility of some other drives.

Jobs are stored on a USB drive by copying the job or jobs from the machine memory to the USB memory. To do this, see Section 3.4.7 below.

3.4.7 Copying Jobs

To copy jobs, first go to the Job List screen (Figure 3-6) by pressing the “Job” button. If using a USB drive, make sure the drive is inserted before going to the Job List screen.

To copy a single job, select the job to be copied by clicking on it so that it becomes highlighted. The job can be from either the machine memory list or USB memory list. Now press the “Copy” button and follow the prompts on the screen. When asked to save the job, be sure to click on the appropriate “Save” button (machine memory or USB memory) of where you would like to save the copied job.

To copy all jobs from one memory type to another, click on the “Copy All” button and follow the prompts on the screen.

3.4.8 Job Options

Each job contains various options that will affect different aspects of the trimming process. These options are set from within the Book Edit screen (Figure 3-10). To get to this screen, see Section 3.4.3 Editing an Existing Job.

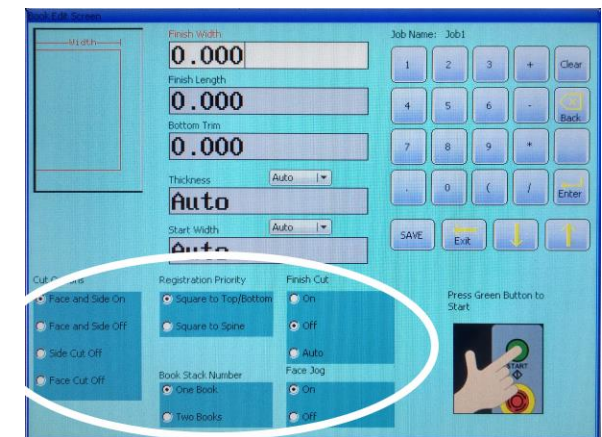


Figure 3-10. Book Edit Screen

3.4.8.1 Cut Options

The cut options determine which sides of the book will be trimmed. The following diagram shows the different sides of the book:



Figure 3-11. Book Sides

Face and Side On: All three sides of the book will be trimmed (top, bottom, and face).

Face and Side Off: None of the sides of the book will be trimmed, the book will simply pass through the trimmer.

Side Cut Off: The top and bottom sides will not be trimmed, only the face of the book will be trimmed.

Face Cut Off: The face will not be trimmed, only the top and bottom sides will be trimmed.

3.4.8.2 Registration Priority

This option sets the behavior of the left, right, and face joggles during registration.

Square to Top/Bottom: The side joggles will remain extended while the face jogger retracts and the book leaves the registration area. This results in the top and bottom sides of the book being the predominant references for squaring.

Square to Spine: The face jogger will remain extended while the side joggles retract and the book leaves the registration area. This results in the spine of the book being the predominant reference for squaring.

3.4.8.3 Book Stack Number

This screen is used to set the number of books that will be stacked and trimmed together (one, two, or three).

It is important to set this parameter correctly in order to obtain the best results. Failure to do so may prevent books from being registered properly.

3.4.8.4 Finish Cut

The finish cut option turns on a sequence where each side of the book will be trimmed twice – once to remove the bulk of the scrap, then a second time to trim the book down to its final size. Trimming a book by this method provides the best quality of cut because it eliminates the cut-quality issues (such as angled cut or spine damage) that can be caused by trimming a large amount of scrap. The width of the trim that is trimmed off during the secondary cut is adjustable and is set in Setup -> Parameters (see Section 3.6.1 Parameters).

When the finish cut option is set to “Auto”, the trimmer will automatically add a finish cut for books thicker than a specific thickness, but not for books below that thickness. The threshold thickness is set in Setup -> Parameters (see Section 3.6.1 Parameters).

3.4.8.5 Face Jog

This option determines if the face jogger will be used during the registration process. It may be helpful to turn this off for thin, flimsy books.

3.5 Barcode Mode

When using the CMT-330TC in barcode mode, the trimmer receives trim sizes for each book by scanning a bar code on the book’s cover as it enters the trimmer.

To put the trimmer in barcode mode, first go to the Job List screen by pressing the “Job” button. Once in the Job List screen, press the barcode button near the top (Figure 3-12).

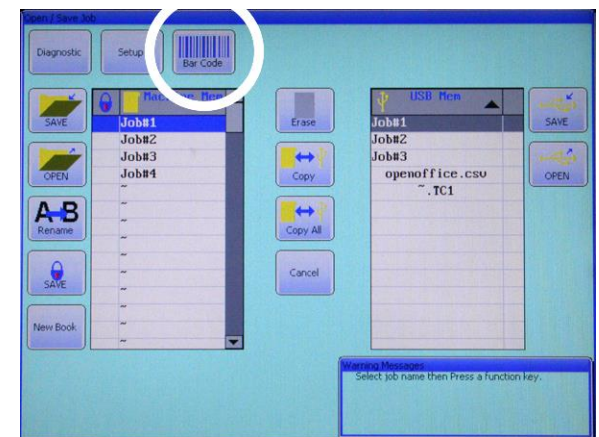


Figure 3-12. Book Edit Screen

This will bring up the Barcode Job Edit screen as follows:

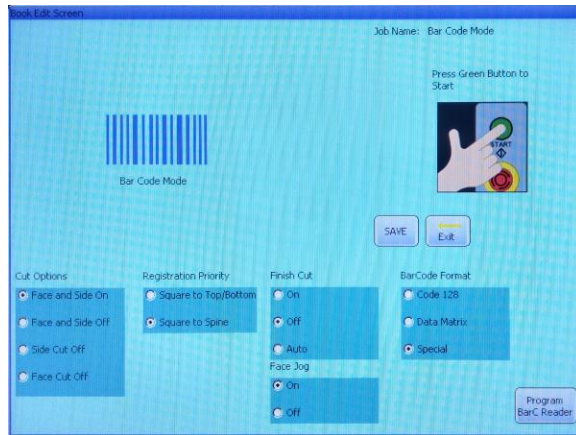


Figure 3-13. Barcode Job Edit Screen

Here, the various job options are set that will be used for trimming in barcode mode. These settings are not stored in the printed barcode so they will not change from book to book. See Section 3.4.8 Job Options for information about each setting.

This screen also shows the current barcode format setting (Code 128, Data Matrix, etc.) near the lower right of the screen. To change this setting, first select the desired format, then press the “Program BarC Reader” button. The barcode scanner should emit a brief sequence of beeps indicating that the programming was successful for the selected barcode format.

When the job options have been set, press the “SAVE” button to save the settings. To start the job, press the green Start button next to the console. This will bring up the Barcode Run screen (Figure 3-14).

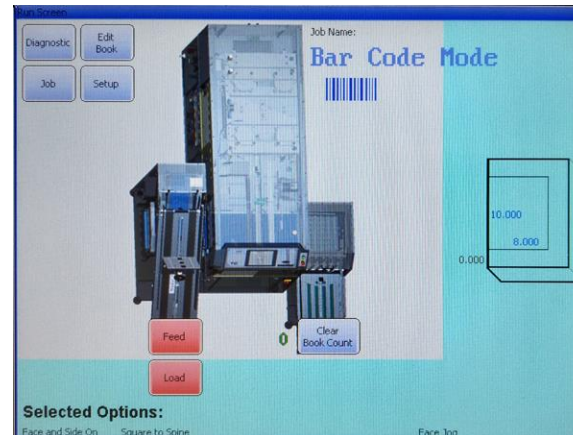


Figure 3-14. Barcode Run Screen

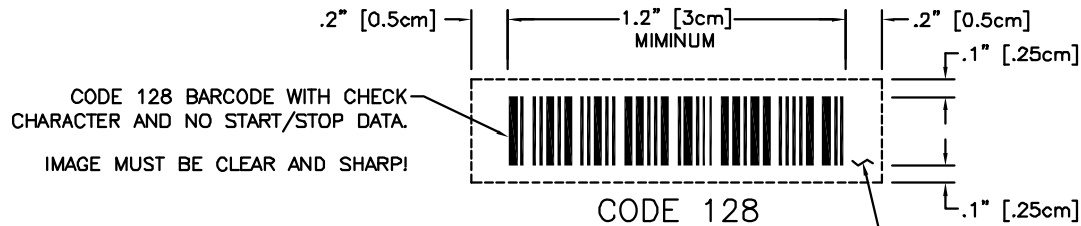
Look for any messages on the screen that may require user input prior to trimming books. Once these are addressed, the machine will initialize and be ready to trim books. Use your attached infeed device to feed untrimmed books into the trimmer.

Note: If you have the Tilt Conveyor + Elevator + Pile Feeder infeed configuration, you can select which device you would like to use to feed books by pressing the corresponding “Feed” button on the screen.

3.5.1 Bar Code Specifications

For the barcode specifications and requirements, refer to Figure 3-15 on the following page.

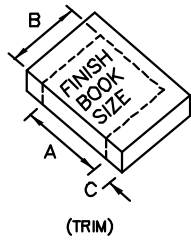
BARCODE SPECIFICATIONS



CODE 128 BARCODE WITH CHECK CHARACTER AND NO START/STOP DATA.
IMAGE MUST BE CLEAR AND SHARP!

14 DIGIT CODE: XXXXXXXXXXXXXXXX

A B C



- A: 2 DIGIT WHOLE INCHES + 3 PLACE DECIMAL INCHES
(3 DIGIT WHOLE MM + 2 PLACE DECIMAL MM)
- B: 2 DIGIT WHOLE INCHES + 3 PLACE DECIMAL INCHES
(3 DIGIT WHOLE MM + 2 PLACE DECIMAL MM)
- C: 1 DIGIT WHOLE INCHES + 3 PLACE DECIMAL INCHES
(2 DIGIT WHOLE MM + 2 PLACE DECIMAL MM)

EXAMPLES:
FOR A = 11.375", B = 8.5", & C = 0.25",
BAR CODE TEXT WOULD BE: 11375085000250

FOR A = 290MM, B = 215MM, & C = 5.5MM,
BAR CODE TEXT WOULD BE: 29000215000550

ALLOWABLE PRINTED BARCODE LOCATION ON BOOK

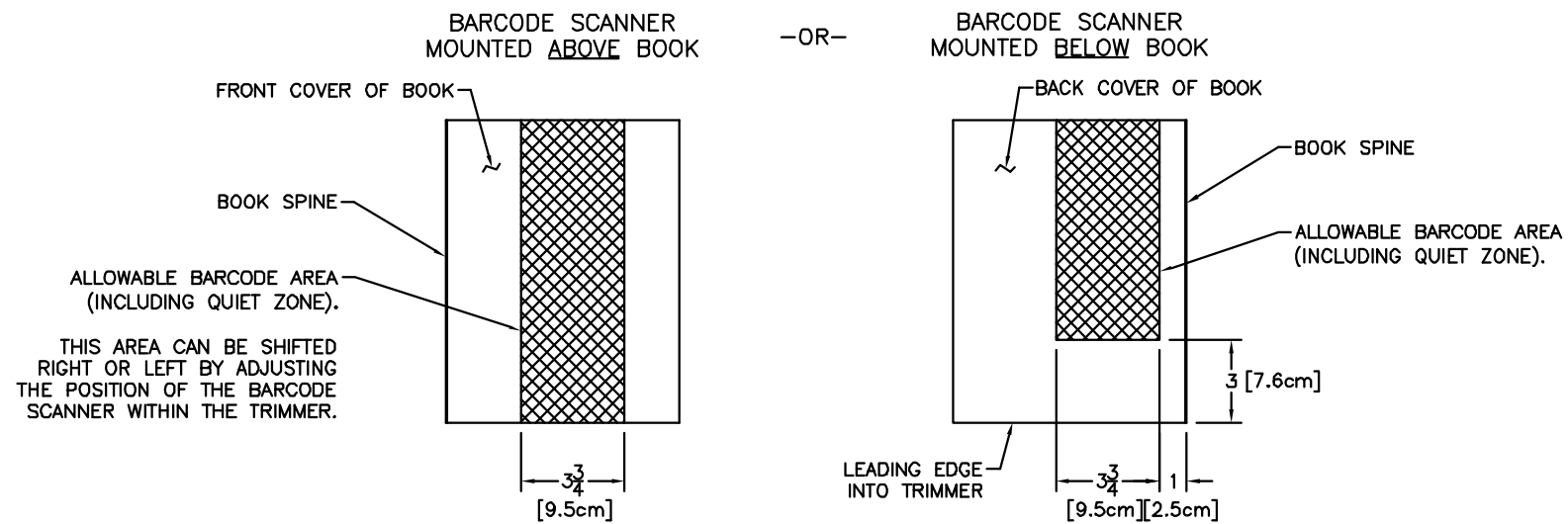


Figure 3-15. Barcode Specifications

3.6 Setup Options

The setup options on the CMT-330TC can be accessed from by pressing the “Setup” button located near the top of the screen. The “Parameters” tab will be active initially. Each tab of the setup options are described in detail below.

3.6.1 Parameters

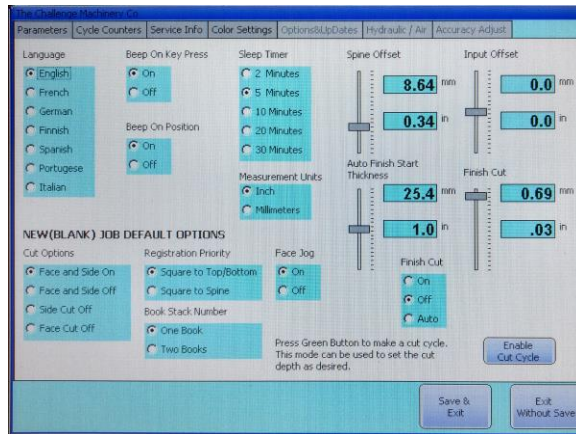


Figure 3-16. Parameters

The Parameters tab is used to control several different functions of the trimmer.

Language – Sets the language to be shown on the display.

Beep On Key Press – Turns on or off the audible beep heard when pressing the screen.

Beep On Position – Turns on or off the audible beep heard when the gripper has moved into its ready position.

Sleep Timer – Determines how long before the machine waits to go to sleep after non-use.

Measurement Units – Sets the default measurement units to be displayed.

New (Blank) Job Default Options – Sets the default job option settings for new jobs.

Spine Offset – This determines the position of the book when trimmed by the side knives. It is used to align the spine with the notches in the clamps.

Auto Finish Start Thickness – This sets the minimum thickness of books that will trigger a finish cut when finish cut is set to “Auto”.

Input Offset – This adjusts how far an incoming book travels on the conveyors before it is clamped by the gripper.

Finish Cut – This adjusts the width of trim that will be trimmed off during the secondary cut when trimming books in finish cut mode.

Enable Cut Cycle Button – Pressing this button allows a cut cycle to be initiated by pressing the green start button on either the front or rear of the machine. This is useful when adjusting the cut depth.

3.6.2 Cycle Counters

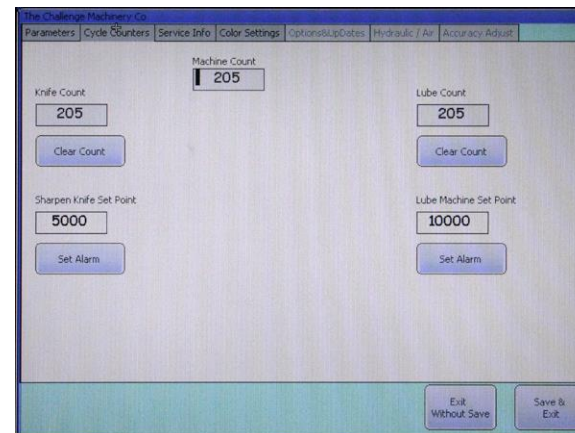


Figure 3-17. Cycle Counters

This tab is used to edit and reset reminders for knife changes and machine lubrication. It also gives knife counts and total cycle counts for the machine.

3.6.3 Service Info

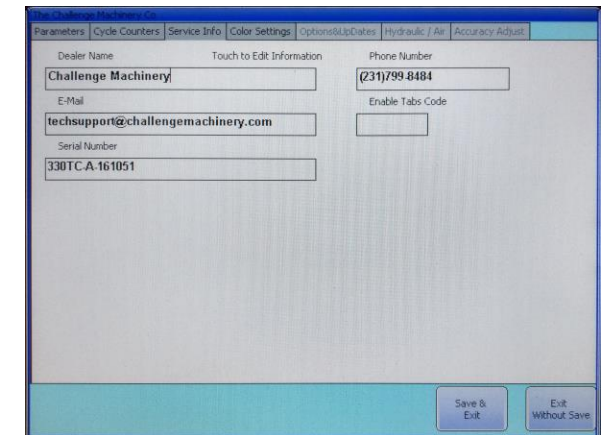


Figure 3-18. Service Info

This tab is used to store the phone number of your dealer so that it can be quickly recalled when service or additional supplies are needed. Simply touch the box you wish to change and a keyboard will appear.

This tab is also where the code is entered in order to access the three locked tabs. This is necessary because there are settings in the three locked tabs that can adversely affect the trimmer’s operation if not set properly. Caution must be taken when using the three locked tabs.

3.6.4 Color Settings

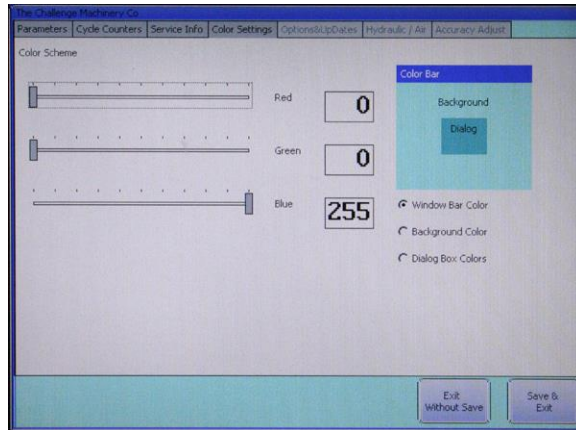


Figure 3-19. Color Settings

This tab is used to change the colors of the display to the operator's preferences. There are three areas that can be set: The color bar, background color, and dialog box colors. Use the slider bars to select the colors as desired. Press the dot next to the appropriate text to change to the next selection.

3.6.5 Options & Updates

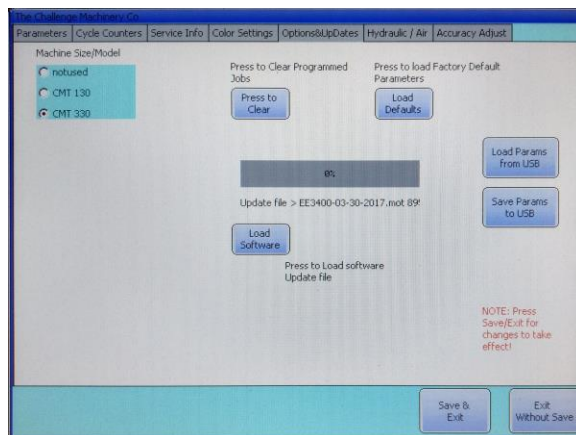


Figure 3-20. Options & Updates

The Options & Updates tab is used to set certain factory settings and also to perform software updates. This screen is not accessible unless the code **6125** is entered into the Enable Tabs Code input box on the Service Info tab.

Note: Settings on this screen must be set correctly, or else damage to machine could result! Use caution when editing!

Machine Size/Model – Specifies which model of trimmer the TC controller is installed on. This is set at the factory and should only need to be set once.

Press to Clear Programmed Jobs – This will wipe out all the machine memory containing programmed jobs. All jobs stored on the machine will be lost.

Press to Load Factory Default Parameters – This can be useful when it is necessary to return to factory settings.

Load Software and Program Flash – Used to update the CMT-330TC software. The latest software version as well as step-by-step updating instructions can be found at:

www.challengemachinery.com/software

Load Params from USB – Pressing this button loads parameter settings that were stored previously using “Save Params to USB”. This is useful if parameter settings are ever lost due to a catastrophic failure.

Save Params to USB – Pressing this button saves all current parameter settings to a USB drive. This should be done as a precautionary measure prior to a software upgrade in the event of a catastrophic failure.

3.6.6 Hydraulic/Air

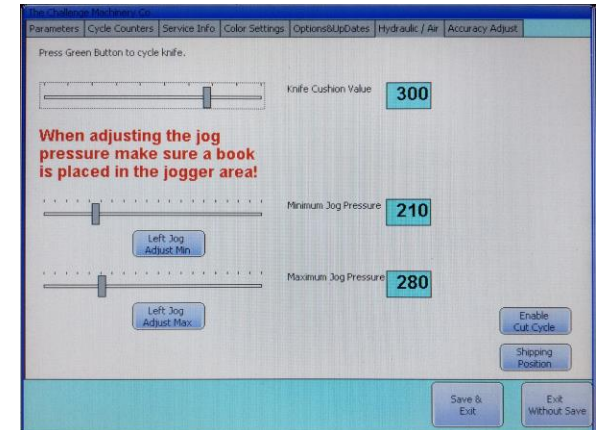


Figure 3-21. Hydraulic/Air

This tab is used to set various hydraulic and pneumatic settings for the trimmer. This screen is not accessible unless the code **6125** is entered into the Enable Tabs Code input box on the Service Info tab.

Note: Settings on this screen must be set correctly, or else damage to machine could result! Use caution when editing.

Knife Cushion Value – Sets the amount of “cushion” that the hydraulic system exhibits near the bottom of a cut cycle.

Minimum Jog Pressure – Sets the minimum pressure that the trimmer will use for the left hand side jogger. Press the button below the slider to test this value on very thin books.



CAUTION

Caution: When testing the jog pressure, make sure to place a book in the jogger area first! Failure to do so may result in damage to the jogger cylinder!

Maximum Jog Pressure – Sets the maximum pressure that the trimmer will use for the left hand side jogger. Press the button below the slider to test this value on very thick books.



CAUTION

Caution: When testing the jog pressure, make sure to place a book in the jogger area first! Failure to do so may result in damage to the jogger cylinder!

Enable Cut Cycle Button – Pressing this button allows the user to initiate a cut cycle by pressing the green start button on either the front or rear of the machine. This is helpful when adjusting the cut depth.

Shipping Position Button – Pressing this button allows the user to put the machine’s cutting mechanism into shipping position by pressing the green start button on either the front or rear of the machine.

3.6.7 Accuracy Adjust

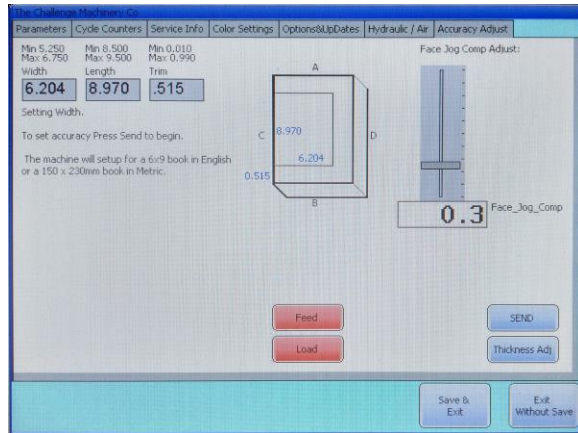


Figure 3-22. Accuracy Adjust

This tab is used to calibrate the trimmer’s dimensional accuracy. This screen is not accessible unless the code **6125** is entered into the Enable Tabs Code input box on the Service Info tab.

Note: Settings on this screen must be set correctly, or else damage to machine could result! Use caution when editing!

To adjust the accuracy, follow the instructions displayed on the screen.

Face Jog Comp Adjust – This setting determines the position of the book during registration with respect to the face jogger. This setting is used to ensure that the face jogger makes proper contact with each book. The higher the number, the farther forward the book will be positioned.

Thickness Adj – This button starts the calibration process for the automatic book thickness sensor. To calibrate the sensor, follow the instructions on the screen.

3.7 Diagnostics

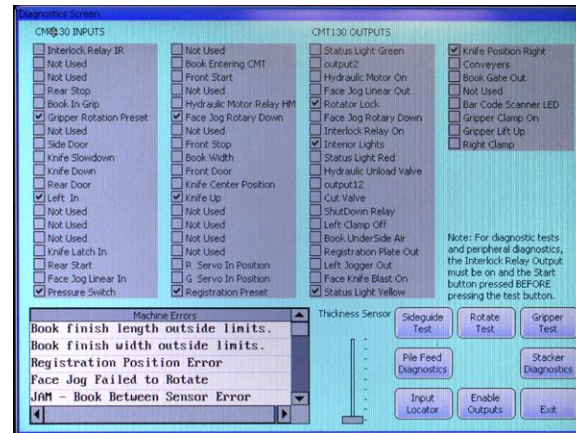


Figure 3-23. Diagnostics

The Diagnostics screen (Figure 3-23) is used by technicians to perform a variety of diagnostics and tests. The diagnostics screen also displays the recent error messages which can be helpful for troubleshooting purposes.

For a detailed description of the items on the Diagnostics screen and how to use them, as well as a list of possible error codes, consult the CMT-330TC Service Manual available at: www.challengemachinery.com.

NOTES

4. Routine Tasks

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4.7.1 Safety Check-Off Sheet	4-11

Introduction

Certain tasks should be performed on a regular basis. For example, the safety systems check should be done before each shift, the waste bins must be emptied when full, and the knives should be replaced when cut quality becomes unacceptable. This section will describe these tasks and more. Performing as many of these tasks before a shift begins prevents down time while a job is in progress and ensures safe operation of the machine.

4.1 Book Underside Air Lift

The book underside air lift uses a blast of air to reduce scratching on the bottom cover as the books moves through the machine. The amount of lift may require adjustment depending on the thickness of books being trimmed.

To adjust:

1. Locate the book underside air lift adjustment knob as shown in Figure 4-1 below.

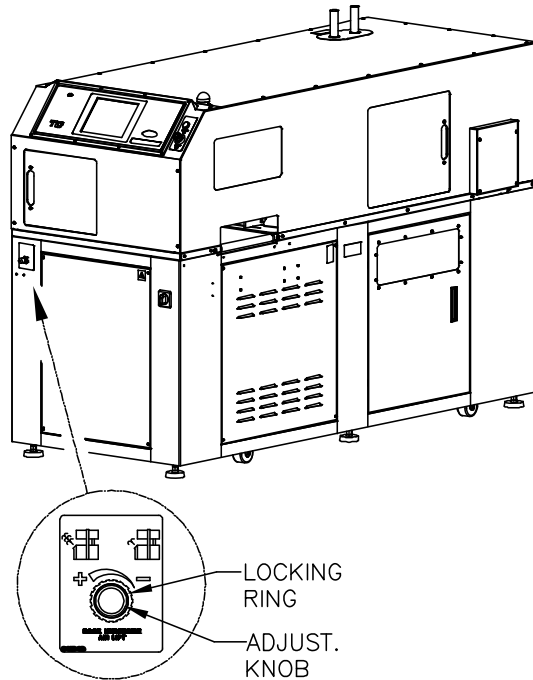


Figure 4-1. Underside Air Blast

2. Locate the red locking ring and unlock it by pulling it toward you (away from the machine).
3. To increase the amount of lift, such as for thicker books, adjust the valve counter-clockwise.

4. To decrease the amount of lift, such as for thinner books, adjust the valve clockwise.
5. When finished adjusting, push the locking ring back in to lock it in place.

4.2 Waste Bins

The three waste bins may require emptying in the middle of a shift, but it is a good idea to do it before a shift begins. Sensors detect when a waste bin is full. If any one of the three waste bins become full during a job run, a message is displayed on the screen stating which waste bin is full. The trimmer will continue to run however.

Use the following procedure to empty waste bins.

1. If running, stop the trimmer by pressing the red stop button located next to the console (Figure 4-2). It may be helpful to press the stop button in between trimming cycles since any books that are mid-cycle when the machine is stopped will not be completely trimmed and will be ejected at next startup.

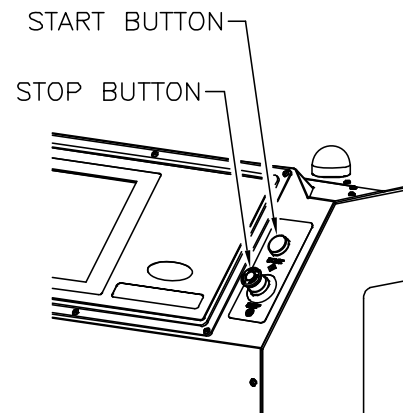


Figure 4-2. Stop Button Location

2. Figure 4-3 and Figure 4-4 show the waste bin locations. Internal waste models have the bins located inside each door. External waste models have the bins located just outside each door.

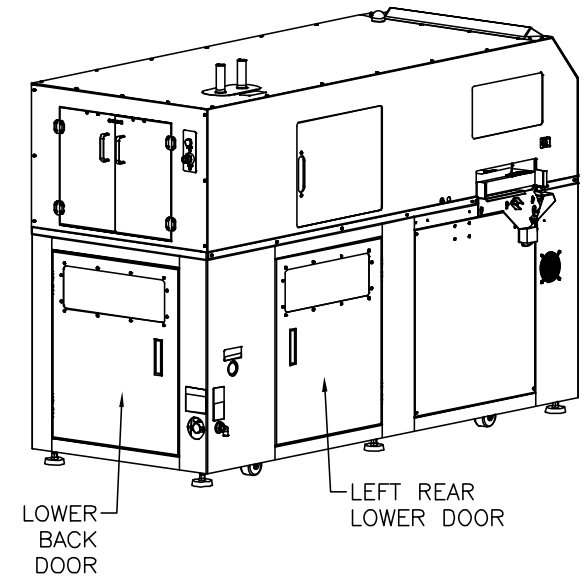


Figure 4-3. Waste Bin Locations

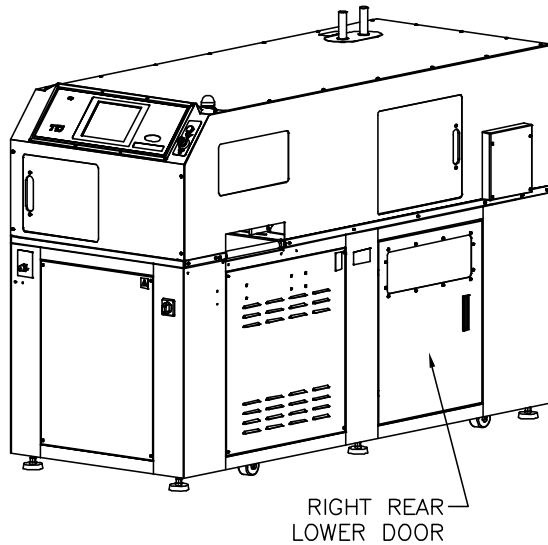


Figure 4-4. Waste Bin Location

3. Open the door (if necessary) and remove the waste bin to empty it. Replace with an empty bin and close the door (if necessary).
4. Repeat for all bins that need emptying. When finished, press the green start button to continue.

Tip: Using additional waste bins will reduce down time. To order additional waste bins, contact your authorized Challenge dealer. The part number is listed in Section 1.7.2 Standard Accessories.

4.3 Cut Plates

The cut plates are located underneath each side knife and they are accessed by opening the sliding doors on each side of the machine. A flat-blade screwdriver is helpful when removing cut plates.

The cut plates should be changed or rotated at every knife change. They may require changing more often if deep grooves or jagged edges can

be seen along the score marks. Worn cut plates can negatively affect cut quality.

New cut plates can be purchased from your authorized Challenge dealer. The part number is listed in Section 1.7.4 Consumables.

Procedure to change or rotate cut plates

1. Set the book height cutting dimension to 6 inches so the side knives move to the center of the trimmer.
2. Switch off (O) main power at the front of the trimmer and lock out the main power disconnect switch as described in section 1.6 Power Lockout Procedure on page 1-4.
3. Open a sliding door on either the left or right side of the trimmer.
4. Remove the clear plastic waste chute guide from the table.
5. Lift and wiggle the edge of the cut plate until it slides off the four pins in the table. If necessary, slide the end of a flat-blade screwdriver between the slot in the table and the cut plate (Figure 4-5). Carefully pry the plate up with the screwdriver. Alternate between each of the two slots until the cut plate is free.

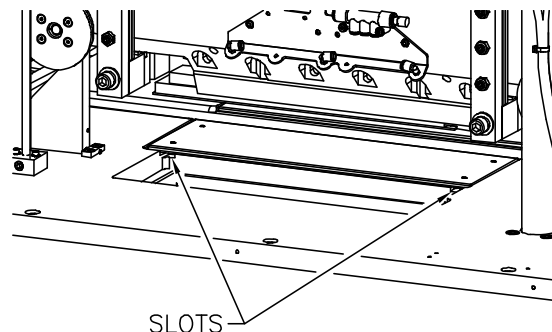


Figure 4-5. Slots Under Cut Plates

6. Inspect the cut plate for wear. It may be used two times (once on each surface) before disposal. If only one side of the plate is used, turn the plate over and reinstall it with the smooth side up. Replace the cut plate with a new one if both sides are used.

Hint! Depending on what locations on the cut plates are most worn, they may be able to be rotated 180° before they are turned over. By using this method of rotation, each cut plate may be used four times.

7. Reinstall the clear plastic waste chute guide.
8. Securely close the sliding door.
9. Repeat steps 3 through 8 for the cut plate on the other side of the trimmer.

4.4 Cut Stick

The cut stick is located at the rear of the machine in the table beneath the face knife. It is accessed through the upper rear doors.

The cut stick should be changed or rotated at every knife change. It may require changing more often if deep grooves or jagged edges can be seen along the score marks. A worn cut stick can negatively affect cut quality.

New cut sticks can be purchased from your authorized Challenge dealer. The part number is listed in Section 1.7.4 Consumables.

Procedure to change or rotate cut stick

1. Switch off (O) main power at the front of the machine and lock out the main power disconnect switch as described in Section 1.6 Power Lockout Procedure on page 1-4.
2. Open the two upper rear doors.
3. Locate the Cut Stick Puller provided with the machine. It is stored on the inside of the left

rear lower door. The cut stick puller has a finger hold and hook (Figure 4-6).

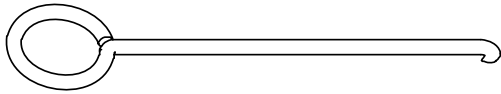


Figure 4-6. Cut Stick Puller

- Hook the Cut Stick Puller over the right end of the cut stick (Figure 4-7) with a finger in the loop of the puller. Keep the Cut Stick Puller in-line with the cut stick.

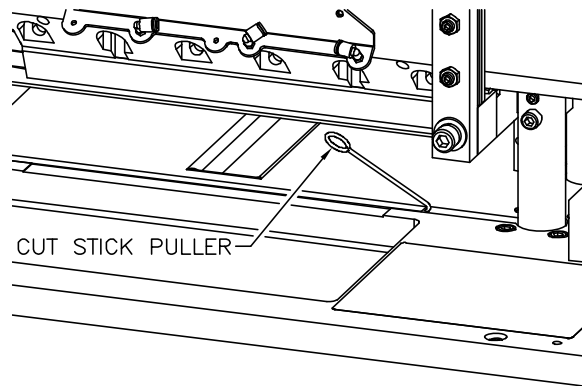


Figure 4-7. Pulling Cut Stick Up

- Pull the Cut Stick Puller at a slight angle (Figure 4-7) over the cut stick until the end of the cut stick comes out of the table.
- Remove the remaining cut stick from the table by hand.
- Inspect the cut stick for wear. It may be used 8 times (twice on each surface) before disposal. To use a surface twice, reinstall the cut stick by turning it such that the end that came out of the right end of the slot goes into the left end of the slot. If a surface has been used twice, rotate the stick to an unused surface before reinstalling (Figure

4-8). If all (4) surfaces have been used twice, replace the stick with a new one.

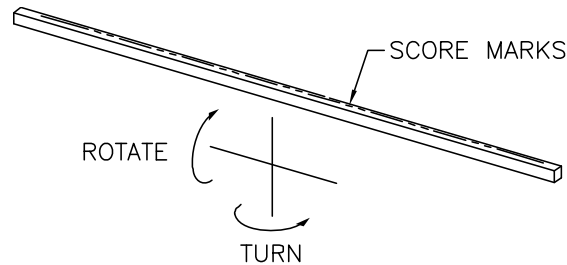


Figure 4-8. Cut Stick Rotation

- Firmly press the new or rotated cut stick all the way down into the slot. The top of the cut stick should be flush with the table.
- Securely close the upper rear doors.

4.5 Knife Change



WARNING

Changing knives can be very dangerous unless safety precautions are observed and extreme care is taken when handling knives. Keep handling of unprotected knives to an absolute minimum. Have the scabbard nearby and insert knife immediately. Warn people of any unprotected knife.



WARNING

Knife changing is a **ONE PERSON OPERATION!** More than one person changing a knife creates safety hazards.



WARNING

Even used knives are extremely sharp! Use extreme care when handling new, re-ground, and used knives.



WARNING

Disconnect and lockout power as described in Section 1.6 Power Lockout Procedure on page 1-4.

The knives may be removed or installed in any order. The knives are located behind the doors shown in Figure 4-9 and Figure 4-10.

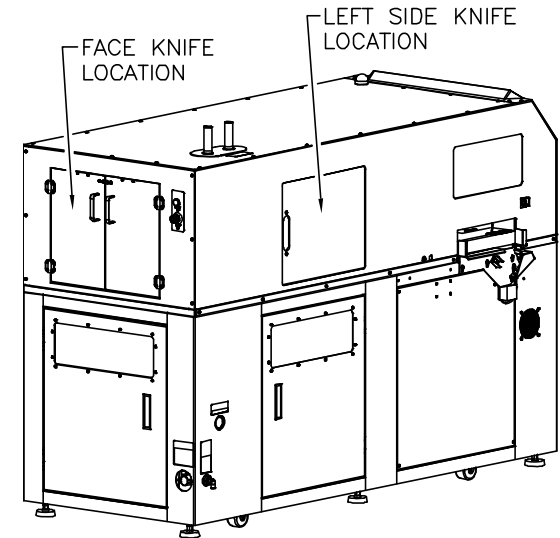


Figure 4-9. Left and Face Knife Locations

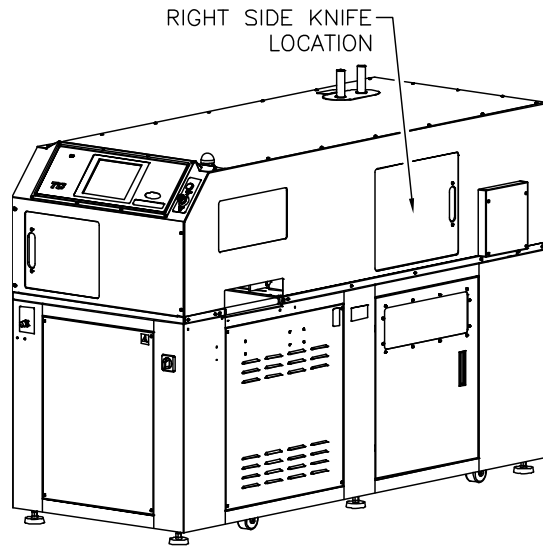


Figure 4-10. Right Side Knife Location

Locate a stable cart or table approximately 36" tall, the knife lifter, the T-handle hex wrench, an empty scabbard, and a sharp knife (Figure 4-11).

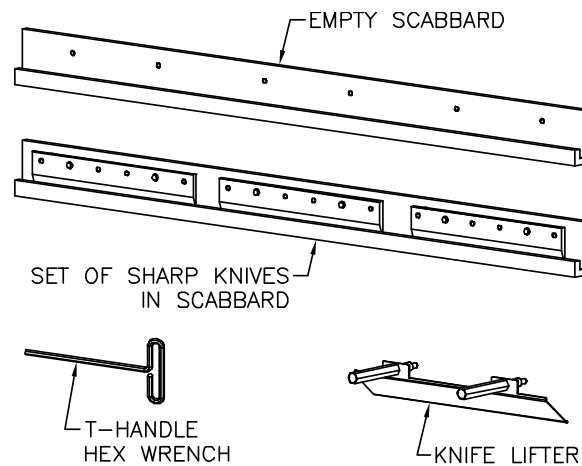


Figure 4-11. Knife Replacement Supplies

4.5.1 Knife Removal

1. Switch off (O) main power at the front of the machine and lock out the main power disconnect switch as described in Section 1.6 Power Lockout Procedure on page 1-4.
2. Place the empty scabbard on a nearby, stable surface. Open the appropriate door to access the knife being changed.
3. Using the T-handle hex wrench, remove the **two** knife bolts that are in **open slots** in the knife bar (Figure 4-12). They are the second and fifth bolts from either end of the knife. Set the bolts aside and save for knife installation.

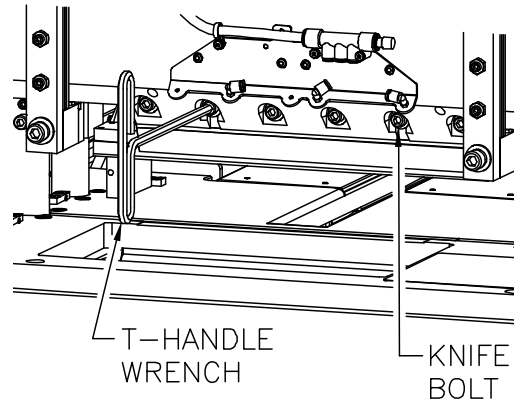


Figure 4-12. Knife Bolt Locations

4. Place the knife lifter in position, aligning each lifter handle with the holes from which the two knife bolts were removed in the previous step. Turn the handles clockwise until the lifter is securely fastened to the knife bar (Figure 4-13).

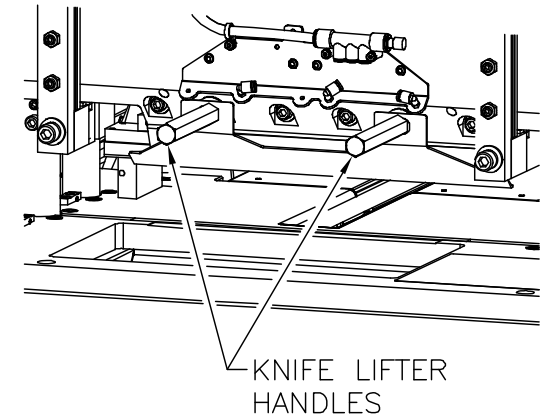


Figure 4-13. Knife Lifter

5. Use the T-handle wrench to remove the remaining four knife bolts. Save the bolts with the two previously removed.



WARNING

Make certain to have a scabbard on the cart or table, prepared to receive a knife. The holding screws should be removed from the scabbard. The protecting edge of the scabbard should be facing the person changing the knife when placing the knife in it. Make sure the cart or table is nearby. Do not carry the knife across obstructed or slippery floors. Warn people nearby that a knife is being removed.

6. Slowly turn the knife lifter handles counter-clockwise, only until the knife is released from the machine. **DO NOT** turn the handles any more than what is required to free the knife.
7. When the knife is free, move it down and clear of the knife bar.
8. Hold the knife lifter with knife at a safe distance from the body. Other people should

not be nearby. Carry the lifter to the cart containing the prepared scabbard.

9. Place the knife lifter with knife into the scabbard such that the edge of the knife is in or near the scabbard slot.
10. Carefully turn the knife lifter handles counterclockwise and disconnect the lifter from the knife while the knife-edge remains in the scabbard slot.
11. Align the two knife-bolt holes with the holes in the scabbard such that no portion of the knife-edge remains exposed.
12. Place scabbard screws into each hole and turn them clockwise to tighten.
13. Use a wrench to secure the knife to its scabbard.
14. Repeat all steps for each of the three knives.

With the knives removed, the replacement knives may be installed as described below.



WARNING

Changing knives can be very dangerous unless safety precautions are observed and extreme care is taken when handling knives. Keep handling of unprotected knives to an absolute minimum. Have the scabbard nearby and insert knife immediately. Warn people of any unprotected knife.



WARNING

Knife changing is a **ONE PERSON OPERATION!** More than one person changing a knife creates safety hazards.



WARNING

Even used knives are extremely sharp! Use extreme care when handling new/re-ground knives and used knives.

4.5.2 Knife Installation

1. Make sure main power is turned off at the front of the machine and the main power disconnect switch is locked out as described in Section 1.6 Power Lockout Procedure on page 1-4.
2. **Turn both knife depth adjustment handles counterclockwise until they stop** (Figure 4-14). This will set the knife depth to the highest position.

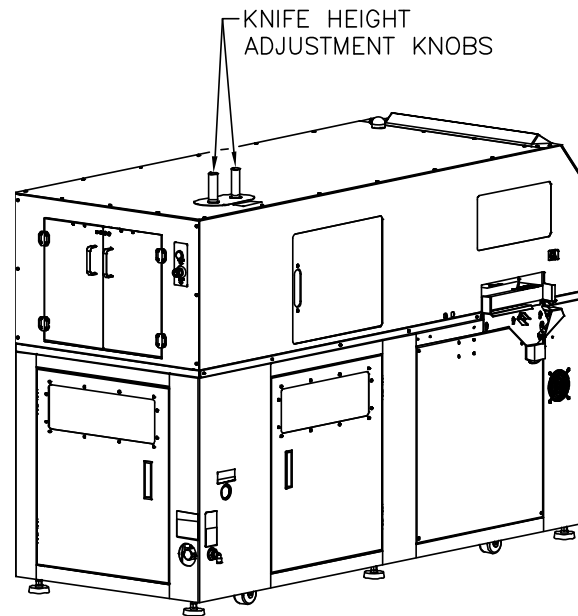


Figure 4-14. Knife Adjustment Knobs



CAUTION

Failure to raise the knife depth setting up could result in damage to the new knives and/or cut stick/plates.

3. Open the appropriate door to access the area where the knife is being installed.
4. Place the scabbard containing the replacement knives on a nearby cart or table. Make sure the scabbard has its protected edge facing the installer. Have the knife lifter nearby.
5. Locate the appropriate knife for the location being installed. Both side knives are identical and are 15.5" (39.4 cm) long. The face knife is 14.5" (36.8 cm) long.
6. Carefully remove the two screws that fasten the knife to its scabbard. Carefully unwrap and wipe clean the knife if necessary.

Note: To prevent corrosion, new knives are coated with light oil. It should be **WIPED OFF WITH CARE.**
7. Place the knife lifter on the knife and align the left handle with the second hole from the left end of the knife. Align the right handle with the second hole from the right end of the knife.
8. Turn the lifter handles clockwise until the ends of the handles touch the scabbard under the knife.
9. Turn the handles counterclockwise 1/2 turn so the ends of the handles will not interfere with the clamp inside the machine.
10. Hold the knife lifter with knife at a safe distance from the body. Other people should not be nearby. Carry the lifter to the installation location.

- Place the knife behind the knife bar while aligning the lifter handles to the open bolt slots in the knife bar as shown in Figure 4-15.

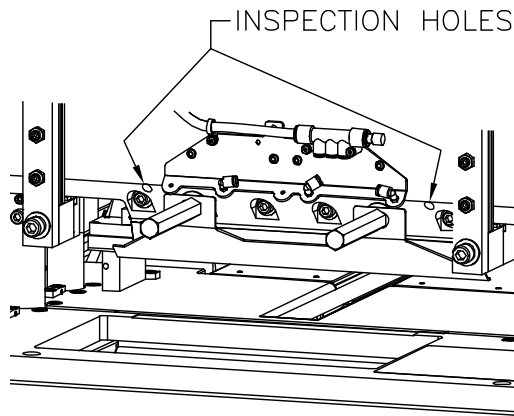


Figure 4-15. Knife Installation

- Lift the knife into the knife bar until the knife will not go up any further. Look into the inspection holes to make sure the knife is as far up as possible (Figure 4-15).



CAUTION

The knife must be at the extreme “up” position. Failure to do this could result in damage to the knife and/or cut stick/plate.

- Turn the lifter handles clockwise and securely fasten the lifter and knife to the knife bar. Make certain the knife does not move down as the handles are tightened.
- Place four knife bolts into the four available holes in the knife and tighten them to 35-40 lbf·ft (47-54 N·m).
- Turn the lifter handles counterclockwise and remove the lifter from the machine.
- Place two knife bolts into the holes from which the knife lifter handles were removed

and tighten the bolts to 35-40 lbf·ft (47-54 N·m).

- Repeat all steps for each of the three knives.

Once the knives have been installed, the cutting depth must be adjusted as described in Section 4.6 Knife Depth Adjustment.



CAUTION

The knives must be adjusted after every knife change. Improper knife adjustment may cause damage to the machine.

4.5.3 Knife Life and Sharpening Info



WARNING

Knives are DANGEROUS!!! They are heavy and very sharp, even after use. Keep the edge away from your body and keep the area clear of others when handling knives. Never touch the cutting edge! To prevent personal injury and damage to the knife, always keep knives in their holders with screws tightened. You are aware of the dangers, but others may not be. Never attempt to hone, polish, or service the knife in any way. Failure to follow safety procedures may result in severe lacerations or dismemberment.

Knife Blade Life

The number of cuts that a knife makes before it needs to be sharpened can be affected by many factors. One important factor is the type of paper being cut. Abrasive paper, such as recycled paper, soft paper such as newsprint paper, binding glue thickness, cover stock material, etc. can all significantly affect knife blade sharpness. Also, if the knife depth is set too deep, the knife will cut

too deep into the cut plate or cut stick and can dull the knife blade prematurely.

A properly cared for HSS knife (standard equipment) can last between 5,000 and 10,000 cuts before it needs to be sharpened.

A properly cared for SHSS knife (optional) can last between 25,000 and 50,000 cuts before it needs to be sharpened.

A properly cared for tungsten carbide (WC) knife (optional) can last between 25,000 and 80,000 cuts before it needs to be sharpened.

Be sure to set the knife alarm according to the knife type that is installed (See Section 3.6.2 Cycle Counters).

The operator should continually check the quality of the trim to determine when the knife blade needs to be sharpened. Some characteristics that indicate a blade needs sharpening are:

- The knife hesitates or stalls while making a cut.
- The sheets are not all cut to the same length (usually the top few sheets are longer than the rest of the sheets - this is sometimes called “draw”).
- Cut marks appear on the cut face of the book.
- The profile of the cut (side view) is not perpendicular to the table.
- The cut does not appear straight when viewed from the top.
- The knife makes a “rougher” sound as it passes through paper.
- Nicks are visible on the cutting edge of the knife.

Sharpening Specifications

Knives for the CMT-330TC are shipped from Challenge with a 20° bevel angle. Challenge recommends that a 20° bevel angle be maintained when sharpening knives.

The beveled surface should be ground to a 16 micro finish and **MUST** be back-honed to remove any burrs to prevent premature chipping of the blade edge.

The knives should be ground such that the height of each knife (from the sharp edge to the top) is within $\pm .002$ " (0.05 mm) along the entire length of the knife.

The three knives in a set must be ground so that the height tolerance between the three knives with respect to each other are within $\pm .002$ " (0.05 mm).

4.5.4 Knife Spacers

Each time a set of knives are sharpened, a small amount of material is removed. Once the knife height (Figure 4-16) gets below approximately 2-5/8" (67mm), the knives will not cut all the way through books, even when the knife depth is adjusted as far down as it will go. When this happens, knife spacers may be placed on top of each knife as shown in Figure 4-16 prior to installing the knives. The spacers are stored inside the left rear lower door.



WARNING

When knife spacers are used, the knife edges should never be below the surface of the clamps once installed. If this happens, the knives are too tall and the spacers should be removed. Failure to do so creates safety hazards, and damage to the machine could result.

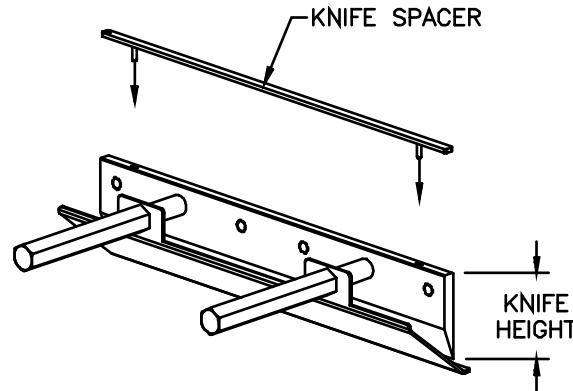


Figure 4-16. Knife Height

KNIFE HEIGHT	USE SPACER?
2.63" to 2.75" (67 to 70 mm)	NO
2.50" to 2.63" (63 to 67 mm)	YES

The knives should not be sharpened to less than 2.50 in. (63.5 mm).

4.5.5 Knife Care Tips



WARNING

Knives are DANGEROUS!!! They are heavy and very sharp, even after use. Keep the edge away from your body and keep the area clear of others when handling knives. Never touch the cutting edge! To prevent personal injury and damage to the knife, always keep knives in their holders with screws tightened. You are aware of the dangers, but others may not be. Never attempt to hone, polish, or service the knife in any way. Failure to follow safety procedures may result in severe lacerations or dismemberment.

Here are some helpful knife care tips:

- It is a good idea to own 3 sets of knives: one set in the machine, one set as a backup, and one set at the grinder being sharpened.

- A worn cut plate or cut stick can affect the cut quality of the bottom sheets. When this happens, rotate or change the cut plate and/or cut stick, even if it's not time to sharpen the knife.
- While removing or installing a knife, be careful not to allow the edge to bump against the machine. Nicks will result.
- If a knife bolt is damaged, replace it.
- Make sure knife bolts are always securely tightened.
- Store knives in a dry environment to prevent corrosion.
- Never attempt to service a knife in any way.

4.6 Knife Depth Adjustment

The knife depth requires adjustment after every knife change. The knife depth can also be adjusted if the knife is not fully cutting through books.



WARNING

Knife adjustment is a ONE PERSON OPERATION! More than one person adjusting the knife creates safety hazards.

Initial Actions

Locate a few books approximately 1/2" (13mm) thick. No tools are needed.

Procedure

1. At the touch screen on the front console, press the "Setup" button to bring up the setup options screen. The "Parameters" tab should be active. Now press the "Enable

Cut Cycle” button near the lower right corner.

2. Locate the knife height adjustment knobs at the left rear of the machine (Figure 4-14).
3. If the knives were just replaced or installed, turn the knife height adjustment knobs all the way counterclockwise until they stop. This will set the knife depth to the highest position. If the knife was not just replaced or installed, raise the knife depth slightly by turning the knife height adjustment knobs counterclockwise approximately three full revolutions.
4. Open the doors to access the three knife areas.
5. Examine the cut plates and cut stick, and rotate or replace if necessary (See Sections 4.3 Cut Plates and 4.4 Cut Stick).
6. Place a scrap book underneath the face knife such that the knife will cut a small amount of trim off the face of the book. The spine should be facing the front of the machine.
7. Place a scrap book under the side knives such that the knives will cut a small amount of trim off the top and bottom of the book, making sure that the spine is lined up with the relief notches in the clamps. The spine should be facing the front of the machine.
8. Securely close all doors.
9. Press and hold the remote cut button (Figure 4-14) for about 1 second. The hydraulic motor will turn on and the cutting mechanism will perform a cut cycle for both the side and face knives.
10. Open the doors and check each book. If the bottom cover of either book is not fully cut through, set the knife depth deeper by turning the appropriate knife adjustment knob

1/4 revolution clockwise (adjusting the corresponding knife or knives down).

11. Repeat steps 6 through 10 as necessary until the bottom covers are cut completely without the knives cutting too deep into the cut plates or cut stick.

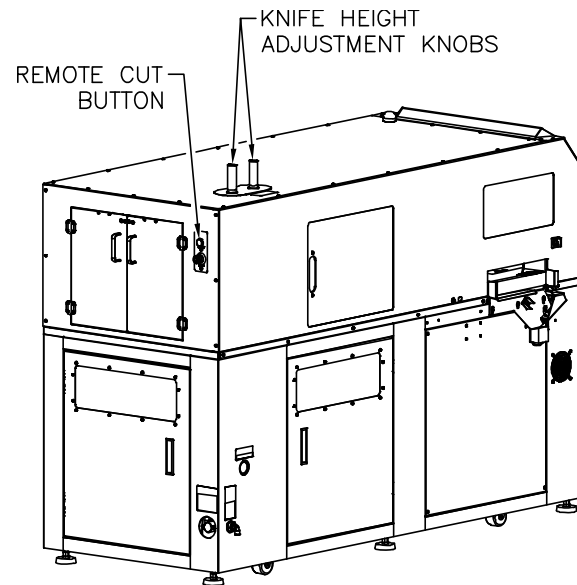


Figure 4-17. Knife Adj. Knob & Remote Cut Button

4.7 Safety Systems Check

Test Frequency: **Daily**



CAUTION

Only one person should perform this test at a time.

Use the following procedures to test the safety devices throughout the machine. If the machine fails any safety system test, **DO NOT USE** the machine. Have the machine serviced by an authorized service technician.

Console Stop Button:

1. Switch on the main power.
2. Press the green start button on the front console and wait for the trimmer to initialize.
3. Press the red stop button at the console. All motors should stop running.
4. Twist the red stop button to release it.

Rear Stop Button:

1. Switch on the main power.
2. Press the green start button on the front console and wait for the trimmer to initialize.
3. Press the red stop button at the rear of the trimmer. All motors should stop running.
4. Twist the red stop button to release it.

Front Sliding Door Interlock:

1. Switch on the main power.
2. Press the green start button on the front console and wait for the trimmer to initialize.

3. Open the front sliding door. All motors should stop running.
4. Close the door.

Right Rear Sliding Door Interlock:

1. Switch on the main power.
2. Press the green start button on the front console and wait for the trimmer to initialize.
3. Open the right rear sliding door. All motors should stop running.
4. Close the door.

Left Rear Sliding Door Interlock:

1. Switch on the main power.
2. Press the green start button on the front console and wait for the trimmer to initialize.
3. Open the left rear sliding door. All motors should stop running.
4. Close the door.

Back Double Door Interlock:

1. Switch on the main power.
2. Press the green start button on the front console and wait for the trimmer to initialize.
3. Open one of the two upper back doors. All motors should stop running.
4. Close the door.
5. Press the green start button on the front console and wait for the trimmer to initialize.
6. Open the other of the two upper back doors. All motors should stop running.
7. Close the door.

Right Rear Lower Door Interlock:

1. Switch on the main power.
2. Press the green start button on the front console and wait for the trimmer to initialize.
3. Open the right rear lower door. All motors should stop running.
4. Close the door.

Left Rear Lower Door Interlock:

1. Switch on the main power.
2. Press the green start button on the front console and wait for the trimmer to initialize.
3. Open the left rear lower door. All motors should stop running.
4. Close the door.

Lower Back Door Interlock:

1. Switch on the main power.
2. Press the green start button on the front console and wait for the trimmer to initialize.
3. Open the lower back door. All motors should stop running.
4. Close the door.

Use the Safety Check-Off Sheet on the following page to record the initials of the person performing the tests and the date the tests are performed. Make photocopies of the check-off sheet as necessary.

NOTES

5. Book Quality

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Introduction

Occasionally it may be necessary to troubleshoot book quality issues. The sections that follow provide possible causes and solutions to various cut quality issues.

Most quality issues are resolved by changing the knives and cut plates/stick. Other quality issues such as accuracy and squareness should be referred to an authorized service technician.

5.1 Burr Marks

Description

Burr marks are found on books trimmed with a knife that has a burred cutting edge. Figure 5-1 illustrates the appearance of burr marks.

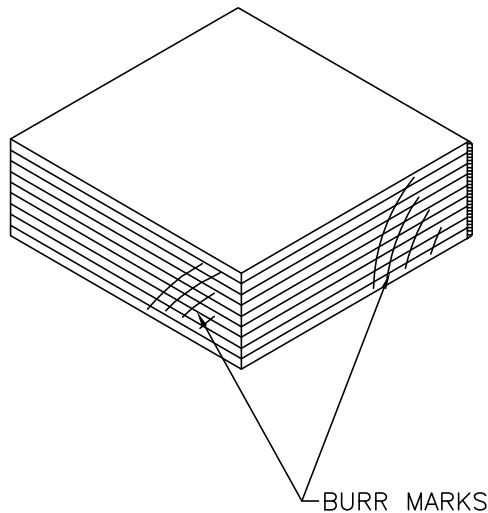


Figure 5-1. Burr Marks

Possible Causes

- Burrs on knives can occur from improper knife handling.
- Burrs may also occur from cutting hard, irregular materials, or books with staples.

Solutions

- Replace the knives (see Section 4.5 Knife Change).

5.2 Jagged Bottom Cover

Description

Books can appear as though the bottom few sheets and cover were torn apart rather than sharply cut. Tearing of the bottom sheets and cover occur when deep score marks develop in the cut stick. The cover is pushed into the score mark, folded over and torn.

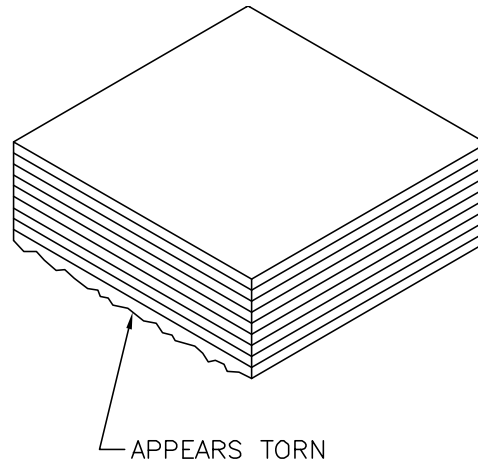


Figure 5-2. Jagged Cover

Possible Causes

- The cut plates and/or stick may be worn.
- The knives may be dull.

Solutions

- Rotate or replace the cut plates and/or cut stick (see Section 4.3 Cut Plates and/or 4.4 Cut Stick).
- Replace the knives (see Section 4.5 Knife Change).

5.3 Burr Marks/Jagged Cover

Description

A jagged bottom cover may also accompany burr marks. A burred knife may not fully cut into the cut stick. As a result, it will leave a jagged bottom cover.

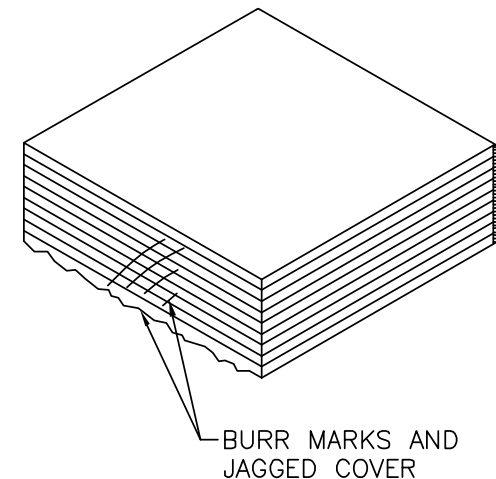


Figure 5-3. Burr Marks/Jagged Cover

Possible Causes

- A knife is burred, and the cut plates and/or cut stick is worn.

Solutions

- Rotate or replace the cut plates and/or cut stick (see Section 4.3 Cut Plates and/or 4.4 Cut Stick).
- Replace the knives (see Section 4.5 Knife Change).

5.4 Rectangular Crease Lines

Description

Indentations or crease lines may appear in a rectangular pattern in the center of the book.

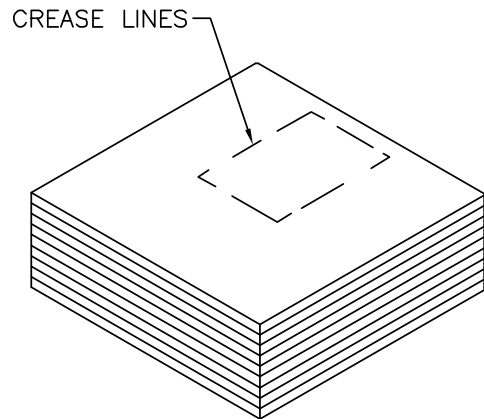


Figure 5-4. Crease Lines on Cover

Possible Causes

- The gripper has too much clamp pressure for the stock being cut.

Solutions

- Reduce the gripper clamp pressure until crease lines disappear on test books (see CMT-330TC Service Manual to adjust).

5.5 Linear Crease Lines

Description

Indentations or crease lines may appear in a rectangular pattern in the near the edges of the book.

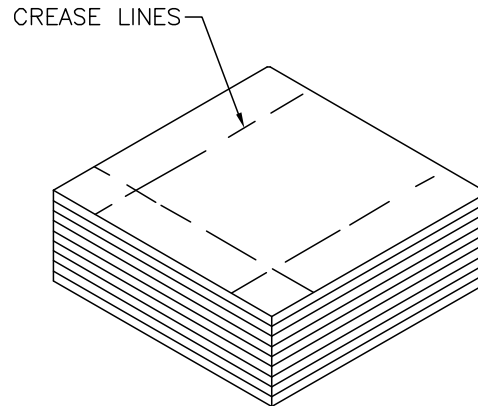


Figure 5-5. Linear Crease Lines

Possible Causes

- The clamp has too much clamp pressure for the stock being cut.

Solutions

- Reduce the clamp pressure until crease lines disappear on test books. Use the clamp pressure adjustment knob located inside the lower back door (if equipped).

Note: Reducing the clamp pressure too much will cause other quality problems such as draw. Only reduce clamp pressure by necessary amounts. Do not reduce the clamp pressure below 40 PSI.

5.6 Wrinkles in Spine

Description

Wrinkles may appear in the spines of the book near where the book was clamped.

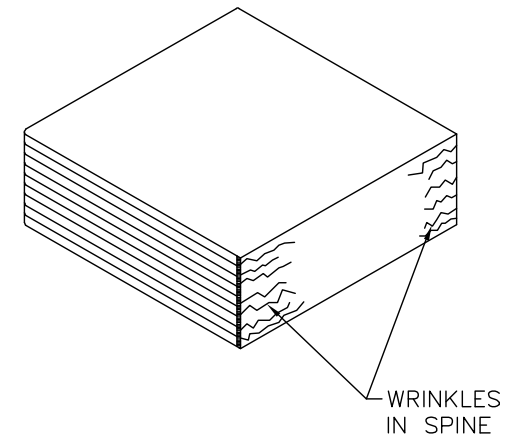


Figure 5-6. Wrinkles in Spine

Possible Causes

- The spine does not line up correctly with the notch in the side knife clamps.
- The clamp has too much clamp pressure for the stock being cut.

Solutions

- Adjust the spine offset amount (see CMT-330TC Service Manual to adjust).
- Reduce the clamp pressure until crease lines disappear on test books. Use the clamp pressure adjustment knob located inside the lower back door (if equipped).

Note: Reducing the clamp pressure too much will cause other quality problems such as draw. Only reduce clamp pressure by necessary amounts.

5.7 Draw

Description

The cut face appears to have a slope because all of the sheets are cut at different lengths.

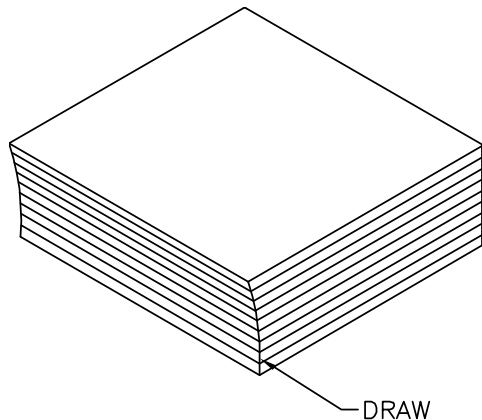


Figure 5-7. Draw

Possible Causes

- Clamp pressure may be too low.
- The knife may be dull.

Solutions

- If trimmer is equipped with optional clamp pressure adjustment, make sure it is not set too low. Clamp pressure should be 40-90 PSI. Adjust if necessary using the clamp pressure adjustment knob located inside the lower back door.
- Replace the knives (see Section 4.5 Knife Change).

5.8 All Sheets Not Cut

Description

Bottom sheets are not being cut.

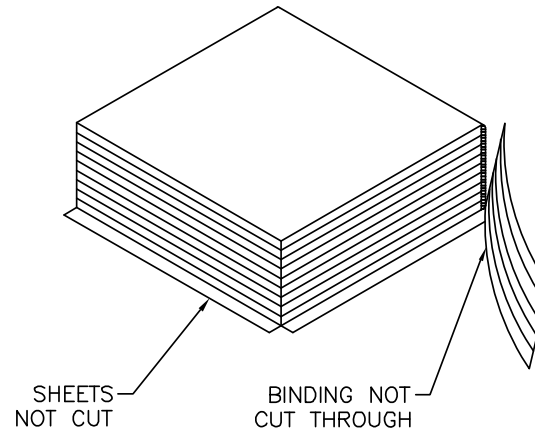


Figure 5-8. Not Cutting Through

Possible Causes

- The knives are not adjusted deep enough.
- The cut plates and/or cut stick may be worn.

Solutions

- Adjust the knife depth (see Section 4.6 Knife Depth Adjustment).
- Rotate or replace the cut plates and/or cut stick (see Section 4.3 Cut Plates and/or 4.4 Cut Stick).

5.9 Books Not Accurately Trimmed

Description

Books are not being trimmed to the dimensions or locations that are intended.

Possible Causes

- The trimmer's accuracy is not set correctly.
- Books are not registering in the registration area properly, causing the books to be misaligned in the gripper when being trimmed.

Solutions

- Recalibrate the machine's accuracy settings (See Section 3.6.7 Accuracy Adjust).
- Recalibrate side jogging pressure (See Section 3.6.6 Hydraulic/Air).
- If necessary, refer the problem to an authorized service technician.

5.10 Books Not Square

Description

Books appear as though they are not cut square.

Possible Causes

- Books are allowed to cool with a twisted binding as shown in Figure 5-9. When a book is straightened after trimming, it looks similar to the book shown in Figure 5-10. This is the most common cause of out of square.
- Cover overhangs the book. The overhang reduces the reliability of the squaring process within the trimmer.
- Glue was applied past the binding, leaving a knob-like protrusion. The protrusion interfered with the trimmer's registration and squaring process.
- Normal wear has forced the cutting or registration mechanisms out of square.

Solutions

- Carefully handle books that have soft bindings. Keep twist out of the binding while glue is setting.
- Cut the cover to match the size of the untrimmed book and/or reduce jogging pressure (Section 3.6.6 Hydraulic/Air).
- Adjust the binder such that glue will not be applied past the end of the binding.
- If normal wear has forced the cutting or registration mechanisms out of square, refer the problem to an authorized service technician.

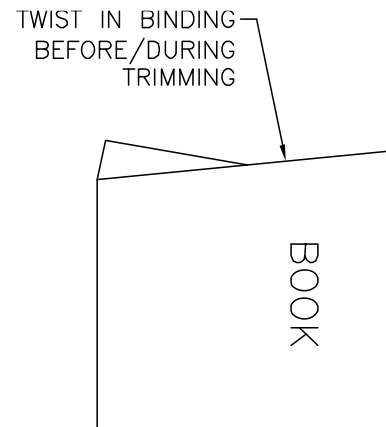


Figure 5-9. Twisted Binding

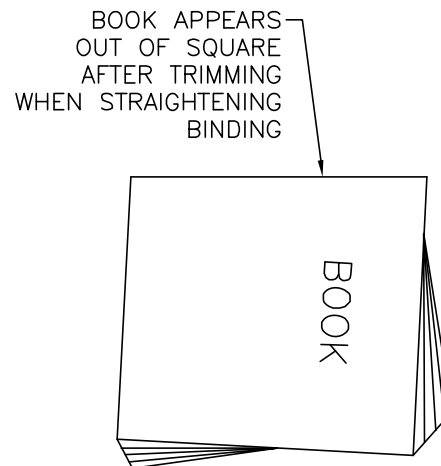


Figure 5-10. Straightened Binding

Inch / Metric Conversion Chart

in.	fractional in.	mm	in.	Fractional in.	mm	in.	fractional in.	mm
0.016	1/64	0.40	0.344	11/32	8.73	0.672	43/64	17.07
0.031	1/32	0.79	0.359	23/64	9.13	0.688	11/16	17.46
0.047	3/64	1.19	0.375	3/8	9.53	0.703	45/64	17.86
0.063	1/16	1.59	0.391	25/64	9.92	0.719	23/32	18.26
0.078	5/64	1.98	0.406	13/32	10.32	0.734	47/64	18.65
0.094	3/32	2.38	0.422	27/64	10.72	0.750	3/4	19.05
0.109	7/64	2.78	0.438	7/16	11.11	0.766	49/64	19.45
0.125	1/8	3.18	0.453	29/64	11.51	0.781	25/32	19.84
0.141	9/64	3.57	0.469	15/32	11.91	0.797	51/64	20.24
0.156	5/32	3.97	0.484	31/64	12.30	0.813	13/16	20.64
0.172	11/64	4.37	0.500	1/2	12.70	0.828	53/64	21.03
0.188	3/16	4.76	0.516	33/64	13.10	0.844	27/32	21.43
0.203	13/64	5.16	0.531	17/32	13.49	0.859	55/64	21.83
0.219	7/32	5.56	0.547	35/64	13.89	0.875	7/8	22.23
0.234	15/64	5.95	0.563	9/16	14.29	0.891	57/64	22.62
0.250	1/4	6.35	0.578	37/64	14.68	0.906	29/32	23.02
0.266	17/64	6.75	0.594	19/32	15.08	0.922	59/64	23.42
0.281	9/32	7.14	0.609	39/64	15.48	0.938	15/16	23.81
0.297	19/64	7.54	0.625	5/8	15.88	0.953	61/64	24.21
0.313	5/16	7.94	0.641	41/64	16.27	0.969	31/32	24.61
0.328	21/64	8.33	0.656	21/32	16.67	0.984	63/64	25.00
						1.000	64/64	25.40