

Sterling Coilmaster Jr. TS Automatic Coil Binding Machine

Instruction Manual



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Sterling® Coilmaster JR TS

Issue 3 July 2017



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This manual contains very important safety information and must be read!

CMjr Operators Training Manual

Issue 3 July 2017

The Coilmaster Jr. is a desktop plastic spiral binder which will bind books from 1/8" to 13/16" (3mm to 21mm) thick utilizing 8mm to 25mm (5/16" to 1") diameter coil. The binding lengths can range from 4" (101.6mm) to 12" (304.8 mm). We recommend 4-1 pitch .248 or .2475 hole pattern. Also, 4-1 .250" pitch or 6 mm pitch can be supplied if necessary but will reduce the thickness of the book relative to the coil diameter.

Sequence of Operations: Place a book into the clamp and a new coil onto the coil chute. Push the coil slightly to the left onto the bullet so it rests just below the blue spinner wheel. To cycle the machine either press the cycle push button located on the upper left side of the aluminum book rest plate or foot pedal to start the binding process. The clamp will pull in clamping the book in position. The coilbed (which holds the book former) will drop down and the spinner wheel will spin a coil into the book. After the coil has completely spun through the book, the coil sensing rod above the bullet will drop causing the coil to stop under the spinner wheel leaving a few of the coils still on the bullet. The cutting knives will then rise (if the safety sensor is not blocked), cut and crimp and drop down again. The clamp will then reopen to release the book. The spinner wheel will engage again to spin the waste off of the bullet. After the book is removed away from the book sensor, the coilbed will raise and the machine will be ready to bind another book. **During the setup procedure some steps will be repeated. This is normal and the manual will have you perform certain adjustments more than once!**

1. Important Safety Notice!

Make sure you read this section very carefully! Learn to recognize this **Safety Alert Symbol**. The CMjr has been designed to provide a very high level of protection to an operator. Follow the guidelines below while installing, operating and maintaining your machine.



Always replace fuses or circuit breakers with the correct amperage and type.



If the machine cycles erratically, call dealer immediately for service.



Never bypass Safety devices.



Turn power switch off before performing maintenance.

2. Placing the CMjr in the Proper Location



Locate a clear work area for a work table 48" wide x 31" deep with a duplex outlet within 5 feet of the machine that provides a 115vac / 15-amp service (230vac / 16-amp European) which is protected by the customer's circuit breaker box. The work table must be solid and firm with a flat level surface able to support a minimum of 200lbs. **Always use two people when lifting the CMjr onto the work table!**

3. Preparing the CMjr for Use

Some items may be packed inside the coil waste bin!

Remove the machine from the crate by lifting it off the skid. The machine weighs 130 pounds so two people are required.

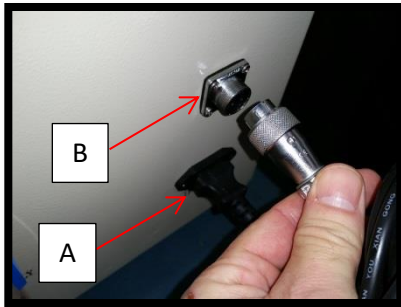


Figure 1

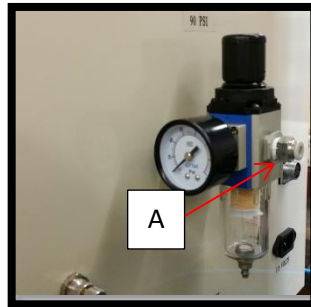


Figure 2

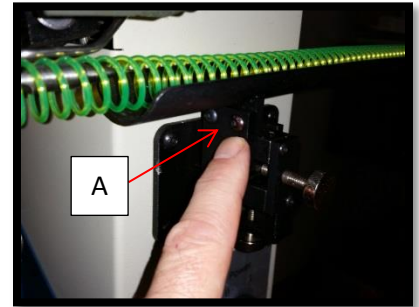


Figure 3

- Plug one end of power cord "A" into the machine socket located on the lower right side of machine. The other end can be plugged into a suitable wall outlet. Also plug in the foot pedal "B" which is also located in the same location. Figure 1
- Plug an air hose into the regulator assembly. If you do not have the correct hose to fit the factory installed air fitting, any suitable fitting will work. You will need 90 PSI at 3 CFM to run the CMjr. Figure 2
- Cut the tie wraps from the coilbed (not shown). These were put in place for shipping purposes only. The coil chute will also have to be installed using two screws. These screws are screwed into the holes of the coil chute bracket for shipping purposes. Short end of coil chute should be placed to the left. Figure 3

4. Explanation of Switches

- a. **Main Power Switch:** Turn this switch to the “I” position to power on machine. Switch will illuminate green when power is on. Figure 4
- b. **Emergency Stop Switch:** When pressed, machine will stop and air to machine will be turned off. Twist to reset switch. Figure 4
- c. **Touch Screen:** Explained below in more detail. Figure 5
- d. **Coil Speed Dial:** Controls the coil spinner roller speed. Use in conjunction with the coil size (located in “Setup screen 2”) to allow the right end of the coil to stop with 2 coils under the spinner wheel. Figure 4
- e. **Coil Direction Switch:** Spinner motor control. Arrow indicates coil direction. Use reverse when jam occurs to remove coil from book. Center position turns off motor for setup purposes. Figure 4
- f. **Air Blow:** Blows air through the side of the book. This can be turned on and off from the “Run” screen. Figure 6



Figure 4

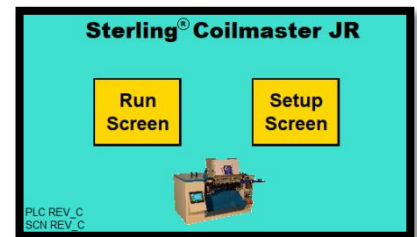


Figure 5

5. Explanation of Screens

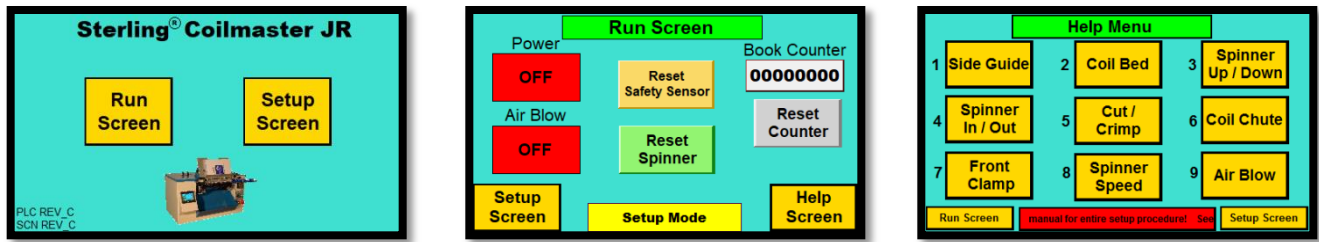


Figure 6

When the Coilmaster Jr is first turned on, the first screen to appear will ask whether you want to go to the Run Screen or directly to the Setup Screen. ***It will be necessary to first go into the Run Screen to press the power button before using the Setup Screen!***

a. Run Screen:

- **Power Button:** When pressed, the machine will be ready to bind books. Figure 6
- **Air Blow button:** This is used to help the operator jog the book in position by blowing air into the book as it is placed on the coilbed. Figure 6
- **Book Counter:** This is a daily count and can be reset at any time. Figure 6
- **Setup Screen Button:** After pressing this button, the machine will be in the setup mode. Figure 6
- **Help Screen Button:** Will display a step by step help menu including images. **This will vary slightly from the procedures in this manual!** Figure 6
- **Reset Spinner Button:** Will let an operator restart the spinner wheel if the coil did not go all the way through the book during the first attempt. Figure 6
- **Reset Safety Sensor:** If the knife safety sensor was triggered, press this button to reset and finish cycle. Figure 6
- **Message Center:** This will inform the operator if there is a coil jam, power off, E-stop pressed, safety sensor triggered or if the machine is in the setup mode. Figure 6
- **Screen Saver:** Touch the logo to wake up the screen. Not shown

b. Setup Screens 1 & 2:

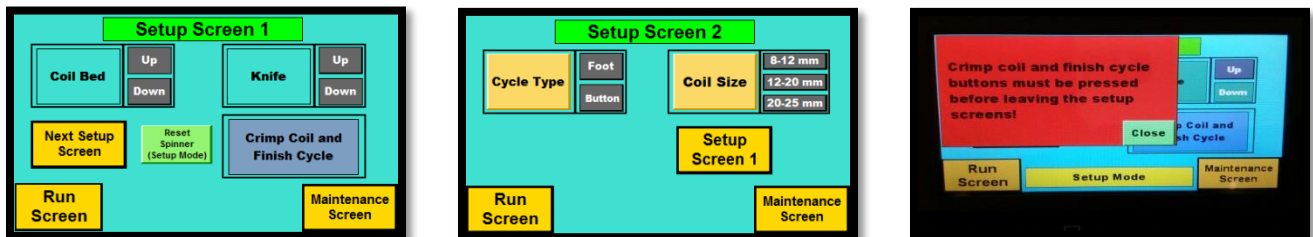


Figure 7

- **Coil Bed Button:** This is the first button to be pressed during initial setup. Pressing it will lower the bed as well as clamp the book in position. Figure 7
- **Knife Button:** After the spinner assembly is set and the coil is entering the book, the knives need to be in the up position for the mechanical adjustments. Press this button to bring the knives up. Figure 7

- **Crimp Coil and Finish Cycle:** After the knives are adjusted, press this button to cut and crimp the coil. It also completes the cycle of the machine and will drop the book down from the clamp. Figure 7
- **Cycle Type:** Change between foot pedal operation or push button operation to start cycle. Figure 7
- **Coil Size:** Toggle this button for various size coils. This is actually a time delay to allow the coil to travel further for a larger diameter or stop immediately for a small diameter coil. Even though the sizes are listed, you can use this button to control how far a coil will travel in the book before stopping. This is used in conjunction with the spinner speed control. Figure 7
- **Maintenance Screen:** There are various default settings in this screen which can be changed. This screen cannot be accessed without a password. Figure 7
- **Pop up Warning:** If you are in the middle of a setup and try to leave the setup screen, a message will appear to let you know you have to complete the setup before returning to the run screen. Figure 7
- **Reset Spinner (Setup Mode) :** If the spinner times out, press this button to restart.

6. Getting Started

- To setup the machine for binding books you must first measure the thickness of the book to decide the correct diameter coil to be used. Use the chart located in the back of this manual as a guide. Digital calipers are the best way to measure the thickness of a book but a tape measure will also work. Figure 8

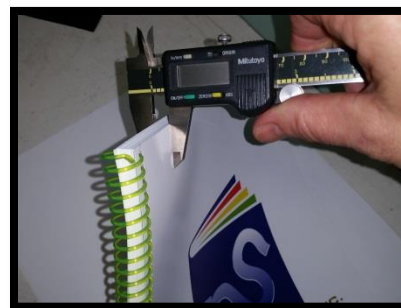


Figure 8

- Make sure every sheet including the covers are punched accurately with the same margins. The holes must align with each other perfectly when the books are jogged. If not, you will not be able to spin a coil through the book. Figure 9



Figure 9

- Also check the condition of your coils. Roll them across a flat surface. Coils should have a smooth spiral shape and not be bowed, compressed or stretched. Figure 10

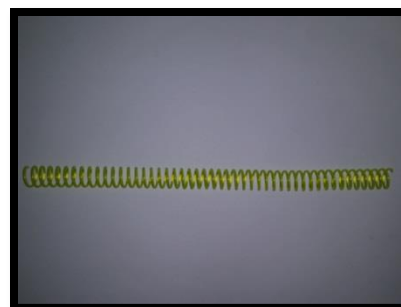


Figure 10

- d. They also must have a sharp tapered point. Blunt tips will not spin all the way through a book. Figure 11



Figure 11

7. Coil Bed Setup

Loosen the coilbed locking handle, Figure 12 A and then turn the dial, figure 12 B counter clockwise to lower the coilbed until you have sufficient room to remove the book former, Figure 13 A. Remove the book former using the two knobs (Figure B) located directly under the book former coil bed. There are 3 sizes of book formers. Use the smallest for sizes 8mm - 14mm. The medium size is for 15mm - 20mm and the large size is used for 21mm - 25mm. Use the two knobs to tighten the book former in place. You will need to adjust the book former left or right so the slots of the book former fall between the teeth of both combs. The book former will set the correct curvature of the book for easy coil insertion. Reinstall the correct size book former for the size book being bound.

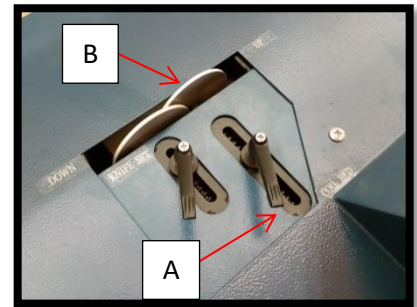


Figure 12

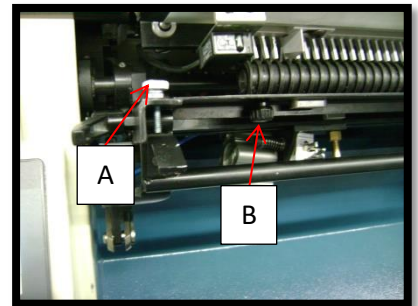


Figure 13

Turn the coilbed dial, Figure 12 B clockwise to raise the bed until the top of the book former is near the rear comb. Slide the book former a small amount to the left or right so each slot lines up between each yellow tooth. Retighten the two knobs for the book former. Figure 13 A shows the adjustment knob on how to rotate the coil bed to achieve the correct curvature of the book. Also see Figure 14 A and B for the correct shape.

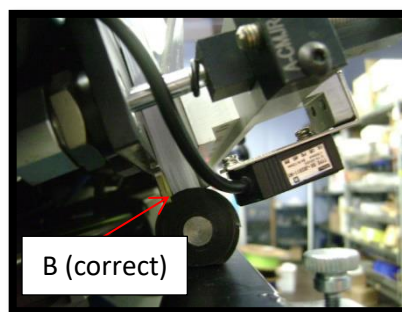
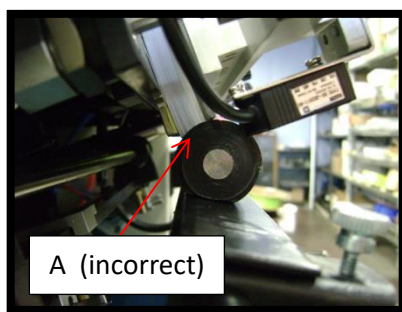


Figure 14

8. Side Guide and Front Clamp Setup



Figure 15

Turn the coil direction switch to the OFF position, Figure 15. Jog the book against the table to make sure the punching is accurate. Place a cover from your book into the clamp, Figure 23 resting on the coilbed. Loosen the coilbed locking handle, Figure 16 B and turn the coilbed dial clockwise, Figure 16 A to raise the coilbed high enough so the sheets don't fall down between the book former on the coilbed and the yellow teeth of the rear comb. This was also explained in the previous section.

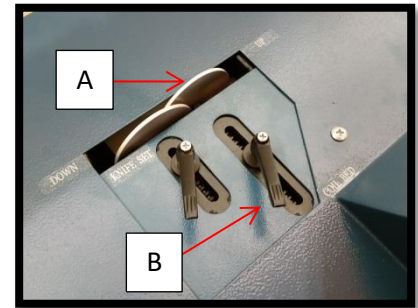


Figure 16

Loosen the side guide locking handle, Figure 17 A. Turn the side guide adjustment knob, Figure 18 A to move the side guide, Figure 25 D left or right while gently pushing the cover against the side guide. You should focus on the bottom right corner of the cover.

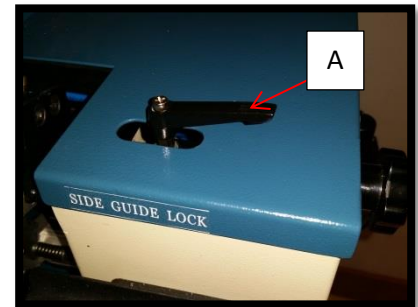


Figure 17

The side guide must be positioned so that the 1st tooth of the rear comb (The first tooth is shorter) aligns between the 1st hole and the right edge of the sheet. Adjust the side guide until you do not see the yellow teeth inside any of the holes. While tightening the side guide locking handle, make sure the holes remain clear of the yellow teeth. Disregard the front comb in the pictures below. Figure 19 A is incorrect. Figure 19 B is correct.

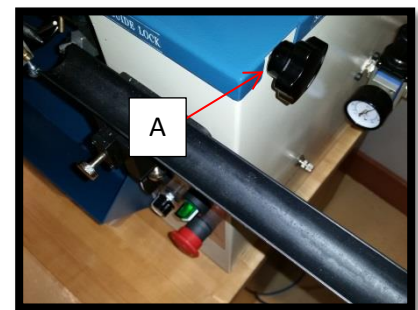


Figure 18

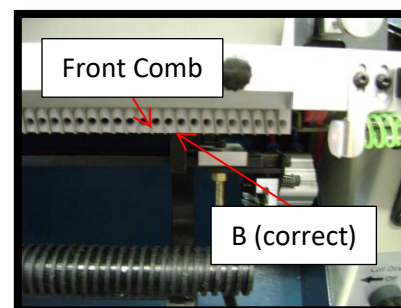
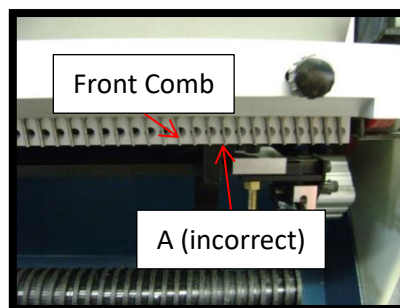


Figure 19

Place the cover back on the book and then jog it into the clamp and onto the coilbed. You can adjust the black knobs, Figure 21 A to allow the clamp to open more or less for different thickness books. The clamp should be opened enough so the books can slide down into the clamp without resistance but not be too loose to allow the sheets from falling around the book former on the coilbed.

Loosen both locking handles, Figure 22 A. Tilt the coilbed forward or back using the thumbscrew, Figure 13 C so the spine of the book is distributed evenly around the book former located on the coil bed, Figure 14 A and B.

The crown (highest part) of the coil must be in the center of the book. Jog or tap the book to make sure every sheet is fully resting on the book former. Figure 14 B shows the correct position of the coilbed. Check this on both the left and right side of the book.

Raise the coilbed by loosening the coilbed locking handle, Figure 16 B, and turn the coilbed dial clockwise, Figure 16 A until you can see the tips of the yellow teeth just below the rear cover of the book.

Tighten the locking handle making sure you do not change the coilbed's height. If necessary, readjust the height of the coilbed to expose the tips of the yellow teeth beneath the book between $\frac{1}{16}$ " for thin books, up to $\frac{1}{8}$ " for thick books. Tighten the coilbed locking handle.

Jog the book all the way to the right against the side guide, Figure 25 D. For thicker books, you may need to bring the side guide forward so the whole book will be able to jog against it. For thinner books you may need to bring the side guide back so the front comb can fully clamp thin books. To make this adjustment, loosen the locking handle, Figure 25 A and turn the knob, Figure 25 C to bring the side guide forward or back. Tighten the locking handle. Make sure every sheet is resting fully on the coilbed and jogged fully to the right against the side guide. Normally this adjustment will be correct after spinner setup is correct.

Loosen the three knobs located on the front comb of the clamp. Figure 23 A. While holding the book toward the right against the side guide, slide the front comb sideways until the teeth completely clear the holes on the front of the book. You want more clearance on the right side of each hole than you do on the left but ideally you do not want to block the holes at all. Once this is set, tighten the three knobs. **Do not over tighten!** Figure 26

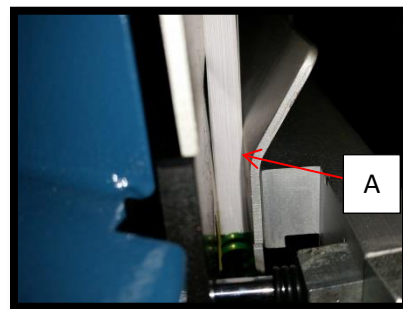


Figure 20

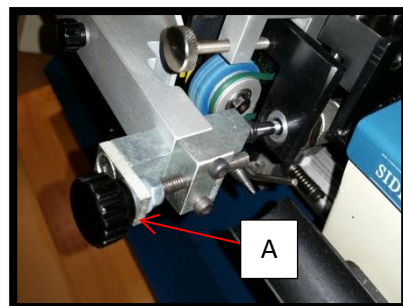


Figure 21

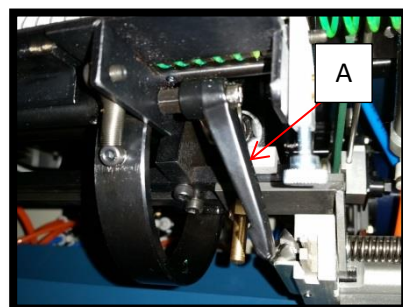


Figure 22

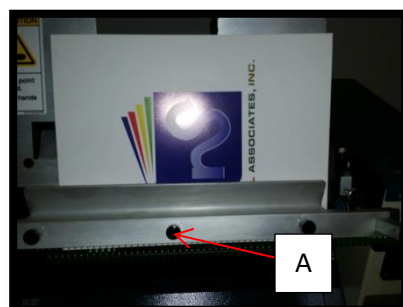


Figure 23

9. Spinner Wheel Setup

Check to make sure the book is jogged against the side guide and on the coilbed. Every sheet from cover to cover must be resting on the coilbed as shown in Figure 26 A and 14 B. Again, check that $1/16^{\text{th}}$ – $1/8^{\text{th}}$ of the yellow teeth are visible below the back of the book.

Place a piece of coil around the bullet, Figure 24 B under the coil trip lever, Figure 24 A and fully to the left as far as it can go so it is under the blue wheel. Also, place the coil direction switch to the off position and set the spinner speed to 5. Go to Setup Screen 1 and press the coil bed down button. Step on the foot switch or press the start cycle button. The front comb will clamp the book, the coilbed will drop away and the spinner wheel will drop down onto the coil.

Reach below, behind the bullet and grab the spinner wheel's belt (not shown). Turn the belt to spin the coil into the book. Slightly loosen the spinner assembly locking handle, Figure 25 A. Adjust the knob, Figure 25 C to bring the coil forward or back. Adjust the vertical knob, Figure 25 B to raise or lower the coil until the coil looks relatively close to entering the book. You may grab the coil at this point and force it through the first few holes, Figures 26 and 27. Spin the coil into the book approximately two inches then fine turn the knobs until the coil sits perfectly straight from the leading tip all the way to the spinner wheel. Once you have the coil perfectly straight from the lead edge to the portion under the spinner wheel, lock the spinner assembly locking handle. Using the adjustment knobs, adjust the coil chute, Figure 33 to guide the coil onto the bullet for the next cycle. For .250" pitched holes you may need to use the supplied right and left spreaders, Figure 28 to deflect the coil into the first and last holes. This is not usually necessary for .248" or .2475" pitch holes.

Turn the coil direction switch to the left facing arrow position to spin the coil all the way through the book. If the right end of the coil goes too far and passes the spinner wheel, use the touch screen in setup screen 2 and set the coil Size to 8 – 12mm which will stop the coil sooner. The spinner speed can also be reduced to stop the coil sooner. If the left end of the coil did not make it past the left end of the book then change the setting in the setup screen to a larger diameter coil or increase the spinner speed.

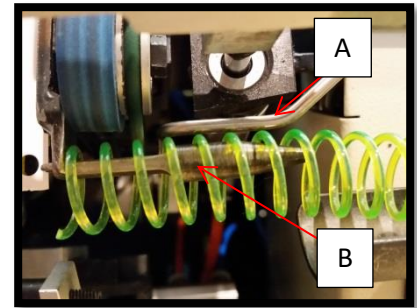


Figure 24

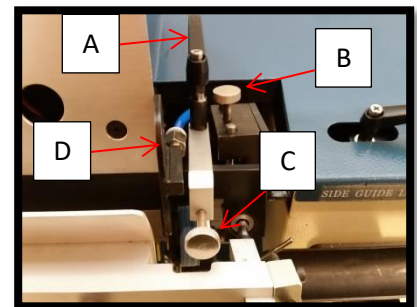


Figure 25

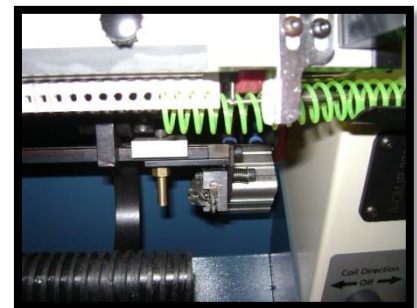


Figure 26

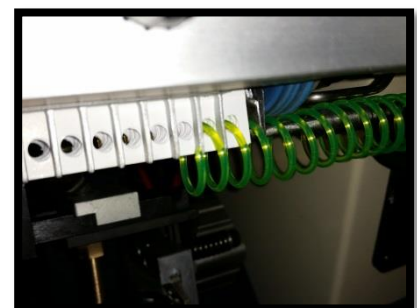


Figure 27

The right “A” and left “B” spreader shown here. Figure 28

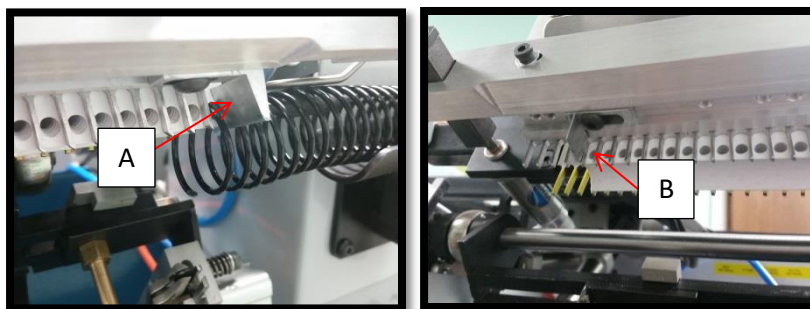


Figure 28

10. Knife Setup

Keep hands clear of the knife area! Go to Setup Screen 1 and press the coil bed down button and then knife up button. Loosen the knife locking handle, Figure 29 A and turn the knife dial, Figure 29 B clockwise to raise the knives or counterclockwise to lower the knives. **NOTE:** You can only adjust the knife dial when the knives are in the up position.

Bring the knives up until it is near the coil but not entering it. Using a 3/8” box wrench, loosen the brass studs, Figure 30 A which secures each knife. Slide the knives left or right until the knife opening lines up with the coil where it will be cut and crimped, Figure 30 B. The coil should not touch the inside surface of the knives. Figure 30 shows the the knife is in the center and not too high. Tighten the brass studs. Figure 30 A

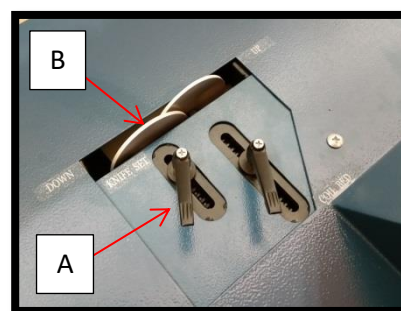


Figure 29

Move the spring loaded knives so they cut the center of the diameter of the coil, Figure 31 A. Note that the left knife cuts on the front and crimps at the back. The right knife cuts on the back and crimps at the front. The anvil, Figure 30 B between the knife and crimper should be more or less centered with the coil’s diameter. This adjustment will affect how much the coil is crimped.

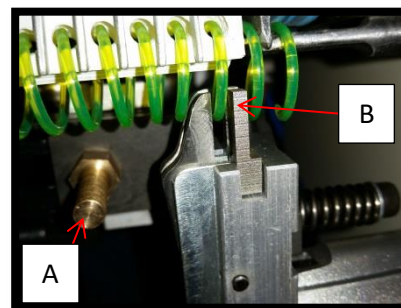


Figure 30

Adjust the height of the knives using the knife dial until the coil is fully inside the knives but not too high. You do not want the knives to push the coil up. Tighten the knife locking handle and recheck the knife height.

Press the crimp coil and finish cycle button to complete the cycle. The knives will then drop away and the clamp will release, dropping the book. Be prepared to catch the book as it falls. **The knives will not come up if your hand is blocking the safety sensor!** After the knives are up, then it is ok to make the adjustments while the sensor is blocked.

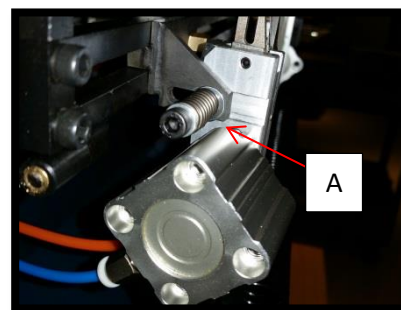


Figure 31

Inspect the crimp. They should be close to a 90 degree angle. If not, place another book into the clamp, place a coil around the bullet and repeat the above steps to bring the knives up. You can fine tune the knife position (up/down, left/right, and forward/back) for a better crimp.

Use the white nylon block when book thicknesses are much smaller than the diameter of the coil being used. The block will stabilize the coil near the left knife and help guide the coil into the opening of the knife for a better crimp. The nylon block is usually used on smaller diameter coils. It pushes onto the brass rod / knife adjusting nut. Use the setscrew to secure it in place, Figure 32.

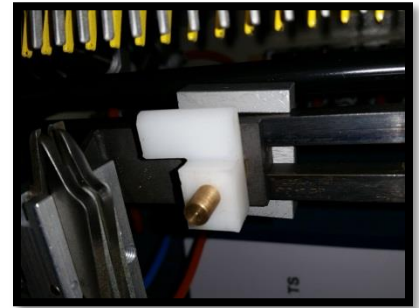


Figure 32

Note: *The left knife is purposely made on an angle to match the helix of the coil. This is not required for the right knife because of the support the bullet provides!*

11. Coil Chute Setup

After the spinner wheel is set inserting coils correctly and the knives are cutting properly, you can make final adjustments with the coil chute. There are two adjustment knobs to move the coil chute up or down and in or out. Set the position so the coil pushes freely onto the bullet, Figure 33 A and B.

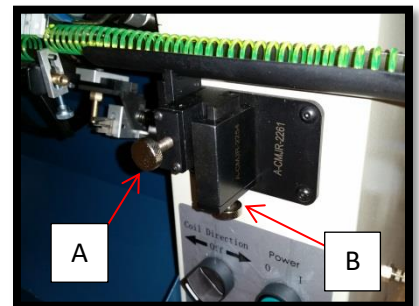


Figure 33

12. Operating Tips

The following coil sizes can be inserted with the CMjr:

Coil Size:	8mm – 25mm coil	(25mm when using 4-1 .248 or .2475), (21mm 4-1 .250 on coil size)
Book Size:	4" x 4" / 12" x 12"	
Book Thickness:	1mm – 21mm	(21mm when using 4-1 .248 or .2475, (18mm 4-1 .250 pitch book)

When setting up to bind a larger size than your previous job, go to setup screen 1 and place the coil bed down, and the knives up. Keep hands clear. Step on the foot switch or press the cycle start button. Loosen the knife locking handle and turn the knife dial counter clockwise to bring the knives down a small amount. This will prevent the knives from coming up too high and crushing the larger diameter coil on your next job. Push the crimp coil / finish cycle button to complete cycle.

NOTE: Only adjust the knife dial when the knives are in the up position. Figure 29 A and B

*The CMjr comes with the following tools: 3/8" open end wrench and diagonal cutter.

13. Message Help Screens

The below messages will be displayed in several screens alerting the operator of a certain condition. Figure 34

"Machine Ready"	(Machine is ready to insert coil)
"E-Stop Pressed"	(Twist the red emergency stop knob to reset)
"Setup Mode"	(Choose Run to insert coil)
"Coil Jam"	(Coil did not go through the book, press reset spinner)
"Power Off"	(Press the Power button on the run screen)
"Spinner Time out / Setup Mode"	(Spinner wheel timed out during setup, press reset spinner)
"Safety Sensor Triggered"	(Your hand was blocking the sensor as the knives were going up)

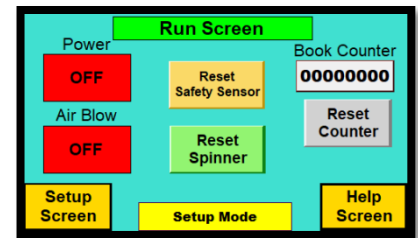


Figure 34

14. Machine Maintenance



Unplug the machine before going forward with maintenance!

- Lubricate the following items with white lithium grease or equivalent: Book guide slide assembly. Coilbed and knife acme screws.
- Lubricate the following items with lightweight machine oil: Clean and oil all pivot points on the air cylinders, coilbed and knife support rod end bearings monthly.
- Open the electrical cabinet and vacuum any paper dust in the electrical cabinet, the tops of the electrical components as well as inside the machine. ***Make sure the power is removed from machine before proceeding!***
- Clean off paper dust from the book sensor and safety sensor.
- Make note of total cycle count located in maintenance screen. It is useful to know your service intervals. User and Password are required to enter maintenance screen. (Call dealer for password)
- The air/ water separator should be drained weekly at the base of the air valve bottle (located on the right side of the CMjr). Your air compressor should be drained each week.
- The spinner roller should be cleaned periodically. Alcohol is recommended.

15. Troubleshooting

Problem	Cause	Solution
Machine will not turn on. (Touch screen not illuminated or power on switch indicator light)	1) Power cord not plugged in or no power at outlet. 2) Circuit breaker tripped.	1) Check power cord and voltage at outlet. 2) Open electrical cabinet and check circuit breaker.
Machine will not cycle. (Touch screen illuminated and power on switch indicator light)	1) Power button not "On". 2) Emergency switch pressed. 3) Air pressure low. 4) Coil jam.	1) Press power button located on run screen. 2) Twist emergency stop switch to reset. 3) Check to make sure air pressure is at 90 PSI. 4) Press reset spinner on run screen.
Machine will not complete cycle.	1) Machine in setup mode. 2) Coil jam.	1) Finish setup and go back to run screen. 2) Clear jam, start new book.
Coil travels too far or not far enough.	1) Spinner speed. 2) Wrong coil size selected.	1) Use the spinner speed dial to achieve correct location of coil. 2) Go to setup screen 2 and select correct size coil.
Spinner doesn't cycle or doesn't stop cycling.	1) Coil trip lever. 2) Spinner timed out.	1) Make sure the trip lever microswitch is working when a coil is under the lever. 2) Press reset spinner or exit setup mode and retry.
Coil does not enter the first hole of the book.	1) Spinner setup not correct. 2) Spinner timed out. 3) Paper margin too great.	1) Readjust spinner location. 2) Press reset spinner or exit setup mode and retry. Make sure the die locking lever is not sticking on side frame. 3) Spreader may be necessary. See manual.
Coil doesn't spin all the way through the book.	1) Spinner setup not correct. 2) Spinner timed out. 3) Book not loaded properly.	1) Readjust spinner location per manual. 2) Press reset spinner or exit setup mode and retry. 3) Make sure book is loaded as per manual.
Coil breaks at the crimp.	1) Knife height adjustment.	1) Knives are set too low.
Coil isn't crimping enough.	1) Knife height adjustment.	1) Knives are set too high.
Knives cut but doesn't crimp.	1) Knife in/out adjustment.	1) Left knife - move forward. Right knife - move back.
Knives crimp but doesn't cut off the excess coil.	1) Knife in/out adjustment.	1) Left knife - move back. Right knife - move forward.
Knives won't release the coil.	1) Knife adjustment.	1) Check setup.
The row of holes is going uphill or downhill when changing over to a new size.	1) Book forming coil not seated correctly.	1) Make sure coil used as a book guide is mounted correctly on the coil bed.
Knives do not come up.	1. Safety sensor blocked. 2. Safety sensor not aligned to reflector.	1. Remove hand or object blocking sensor. 2. Check to make sure safety sensor is aligned with reflector located on the right side of front clamp.

16. Machine Specifications

- Electrical: 115 volt AC / 2 amp (230 volt AC / 1.5 amp)
- Uncrated Weight: 130 lbs. / 59 Kg
- Floor Space: 48" wide x 31" deep / 1219 cm x 787 cm
- Crate size: 40" x 42" x 32" / 1016 cm x 1066 cm x 813 cm
- Shipping Weight: 210 lbs. / 96 Kg

17. Coil Chart

CMJr Binding System coil diameter/gauge recommendations.

Book Block Thickness	Coil Diameter	Coil Gauge
1/8" / 3 mm	8 mm	.070"
5/32" / 4 mm	8 mm	.070"
13/64" / 5 mm	8 mm	.070"
15/64" / 6 mm	9 mm	.070"
1/4" / 6.4 mm	9mm or 10 mm	.070" or .075"
9/32" / 7 mm	10 mm or 11 mm	.075"
5/16" / 8 mm	11 mm or 12 mm	.075"
11/32" / 9mm	12mm	.075"
3/8" / 9.5mm	13 or 14mm	.075"
25/64" / 10mm	14mm	.075"
7/16" / 11mm	15 or 16mm	.075"
15/32" / 12mm	16mm	.075"
1/2" / 12.5mm	16mm	.075"
17/32" / 13mm	17 or 18mm	.075"
9/16" / 14mm	18mm	.080"
19/32" / 15mm	19 or 20mm	.080"
5/8" / 16mm	20mm	.080"
21/32" / 17mm	21 or 22mm	.080"
23/32" / 18mm	22mm	.080"
20mm	25mm	.085"

Hole size: Minimum 11/64" / 4.5 mm round or 11/64" X 9/64" / 4.5 mm X 3.5 mm