

Quick Reference

Version 1.00.00

December 2018



ABM International

CNC Quilter
USER QUICK REFERENCE

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Overview

This quick reference and best practices manual was created by ABM International Inc. to properly explain the standard operating procedures for the CNC Quilter. The information in this manual contains practices learned from over 80 years of quilting experience. Proper operation and preventative maintenance will be described in the contents below. This manual is simply a guide and should be used for reference when operating the CNC Quilter.

ABM International would like to thank you for the purchase of a CNC Quilter. ABM is confident that this machine will meet or exceed your expectations for cost, speed, and durability.

If at any time you experience problems with any of your ABM machines, we ask that you contact us - 24 hours a day by calling our service department at (936) 441-4401. We can help you solve the problem quickly, and correctly. Your calls, questions, and comments will in turn help us to perfect the quality of our products and services in the future.

Once again, we thank you for your purchase.

ABM International, Inc.

Engineering Department

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1. Safety

1.1 Introduction

As with the operation of all machinery, safe operation of the CNC Quilter is a major concern of ABM International, Inc. The purpose of this section is to inform personnel of the safe and prudent operation of a CNC Quilter.

We have attempted to recommend the most effective methods and calculations to warn against actions that could result in personal injury or make equipment unsafe. It is important to understand that ABM cannot anticipate or list all conceivable safety methods and warn of all the possible hazards. In the interest of promoting safety, ABM advises that the operating personnel should always make sure that personal safety and the safe operation of the machine will not be adversely affected by their actions.

It is imperative that the operating personnel of the CNC Quilter read and understand the information in this manual before operating the machine.

1.2 Safety Policy Statement

The conservation of the assets of any company, which include the buildings, equipment, supplies and inventories as well as personnel, must be and is the responsibility of all levels of management. The purpose of a personnel and property conservation program is to ensure that all phases of management recognize that personnel and property conservation are both inseparable parts of a company's objective, to produce quality products at the lowest possible cost.

Safety of personnel in every aspect must be of first consideration. The implementation of a conservation program will eliminate human suffering and effectively lower the direct and indirect costs resulting from employee injury. It will substantially reduce the exposure and probability of damage and / or loss of company's physical assets.

1.3 Safety Practices

The safety factors must be observed to ensure safe operation of the CNC Quilter.

1. Read and understand the operating instructions of the CNC Quilter before operating.
2. Use extreme caution when working around the CNC Quilter electrical controls.
3. Keep hands or other body parts away from the moving parts of the CNC Quilter.
4. Wear appropriate personal safety protection.
5. Stop the CNC Quilter immediately at any sign of malfunction or danger.

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6. Do not crawl under or into the CNC Quilter for any reason during the operation of the machine.
7. Do not reach into the CNC Quilter at any time during the operation of the machine.
8. Do not climb, walk, or stand on the CNC Quilter at any time.
9. Do not tamper with factory installed guards and or safety devices.
10. Never operate machinery without all ABM installed guards and safety devices intact, and in working order.
11. Before starting the CNC Quilter, ensure that no loose tools, bars or parts are lying in or on any part of the machine.
12. Proper firefighting equipment should be kept in good operating condition and kept near in the event of fire.
13. Never attempt to service any of the pneumatic components until the unit is relieved of all air pressure.
14. Do not wear loose clothing or jewelry when operating the CNC Quilter.
15. Always keep hair from coming in contact with moving parts.

1.4 Machine Setup

The CNC Quilter ships fully tested ready to operate. As a result, this manual provides a section on machine setup so that you can install the machine. Please read this manual in its' entirety and follow all ABM instructions, especially the inspections. Total setup time, less power and air hook-up, should take approximately 1 hour.

SETUP INSTRUCTIONS:

INSPECTION #1: Upon receipt of the machine, check to ensure that there is no visible damage.

Note: that some components may be in different locations depending on the version of the machine.

Run a 220VAC single phase line (20AMPS) to the machine location. ABM does not recommend the use of any type of extension cord to power the machine. As with any machine, power should be run through approved conduit and ducting with proper termination. ABM does not supply a main power disconnect with the machine and recommends that the customer install one. You may connect the power to the machine at this time.

Plumb the machine with an airline capable of at least 100psi. ABM recommends that an airline of no less than .5 inches diameter be used for supply air. **NOTE: DO NOT CONNECT AIR TO MACHINE YET. UNTIL PROPER ELECTRICAL FUNCTION IS CONFIRMED. CONNECTING POWER AT THIS TIME CAN POSSIBLY RESULT IN INJURY.**

INSPECTION #2: Will confirm that the electronics of the CNC Quilter machine are functioning properly.

WARNING: ELECTRICAL SHOCK HAZARD. THIS INSPECTION WILL REQUIRE POWER TO BE ON WHILE THE ELECTRONICS CABINET IS OPEN. IF A PROBLEM IS FOUND, YOU SHOULD NOT ATTEMPT TO REPAIR IT WITH THE POWER ON. DISCONNECT THE MACHINE PRIOR TO ADJUSTING ANY COMPONENTS WITHIN THE ELECTRICAL CABINET.

Step one; open the electronics cabinet located on the machine. The internals of the cabinet will look like Figure 1.0.



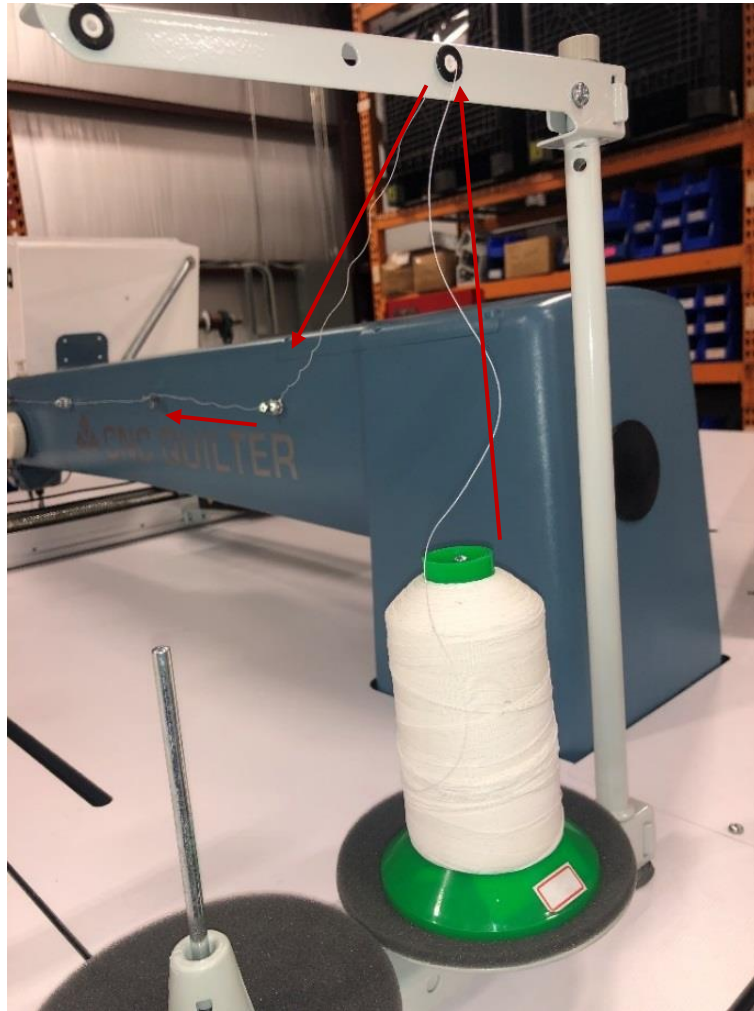
Figure 1.0

WARNING – WHEN CONNECTING AIR TO THE MACHINE, YOU MUST ENSURE THAT THERE ARE NO LOOSE ITEMS SUCH AS TOOLS FOOD DRINKS ETC. ON THE MACHINE AND THAT ALL PERSONNEL ARE CLEAR OF THE MACHINE.

The machine is now ready for the air connection. Adjust the pressure regulator so that a pressure reading of 85 psi is visible on the gauge.

2. Threading the Machine

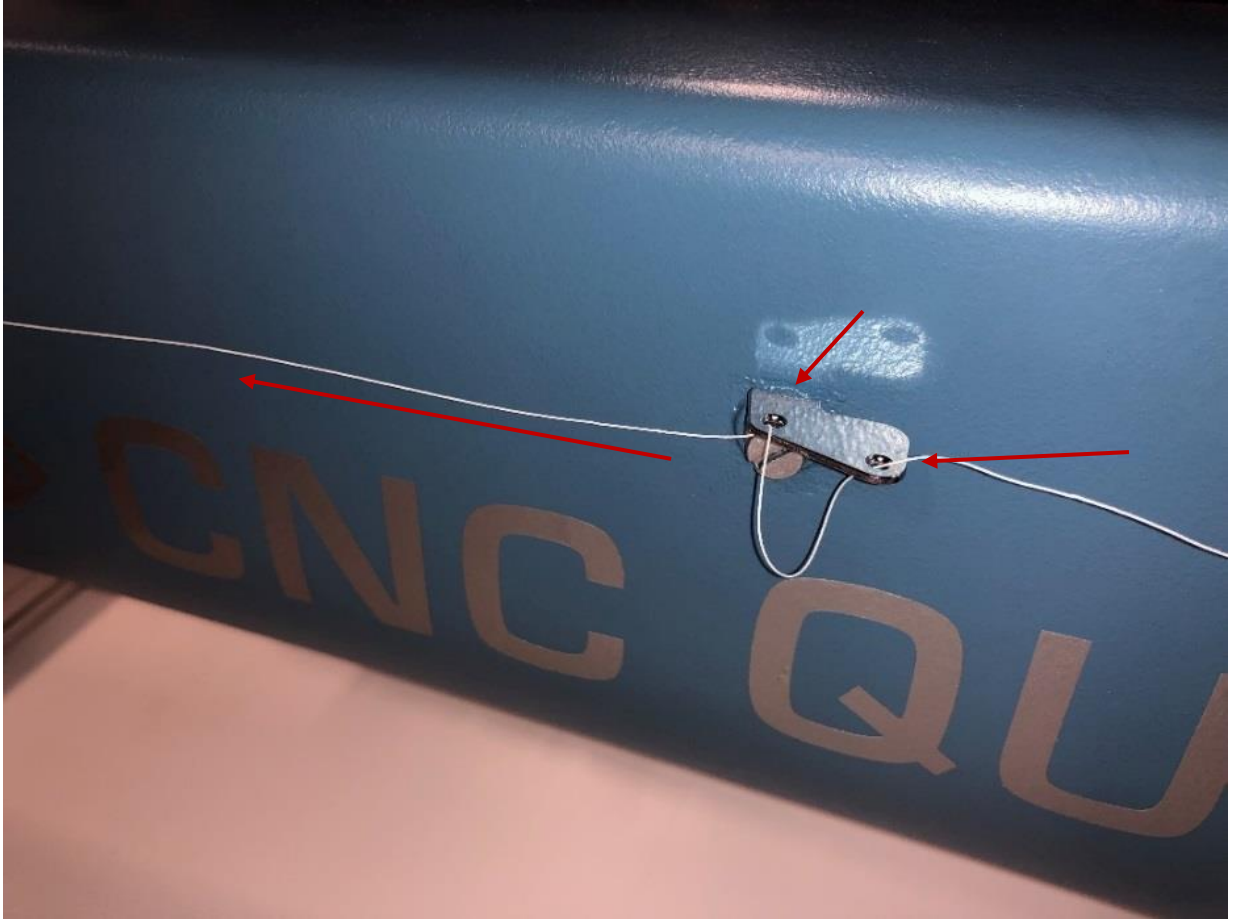
2.1 How to Thread the Machine



(ref. 2.1) Stand at the back of the machine. Place the spool of thread on the thread stand. Make sure the cone is firmly seated.

Pass the thread through the thread eyelet directly above the spool of thread. Make sure the arm of the thread guide is directly above the center of the cone.

Take the thread and pass it through the first eyelet on the arm of the quilting machine.



(ref. 2.2) Go through the top of the next eyelet. Next, take the thread around back through the top of the third eyelet.



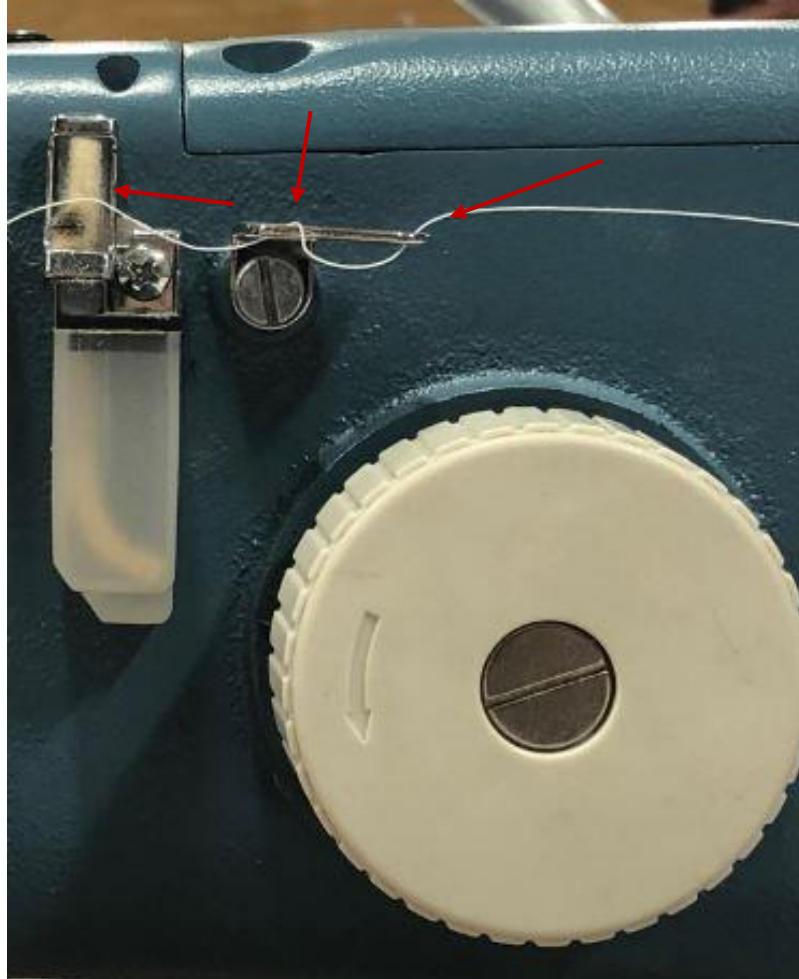
(ref. 2.3) Pass the thread through the next thread guide and over to the front thread guide.



(ref. 2.4) You will now walk to the front of the machine to complete the threading process. Lower the front table section by releasing the two red levers located under the table top.



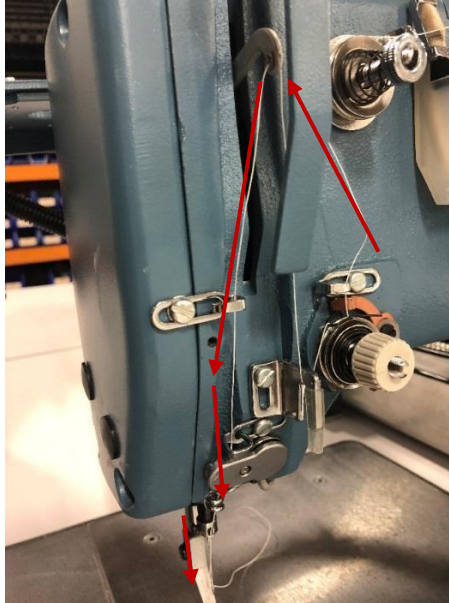
(ref. 2.5) Table in lower position.



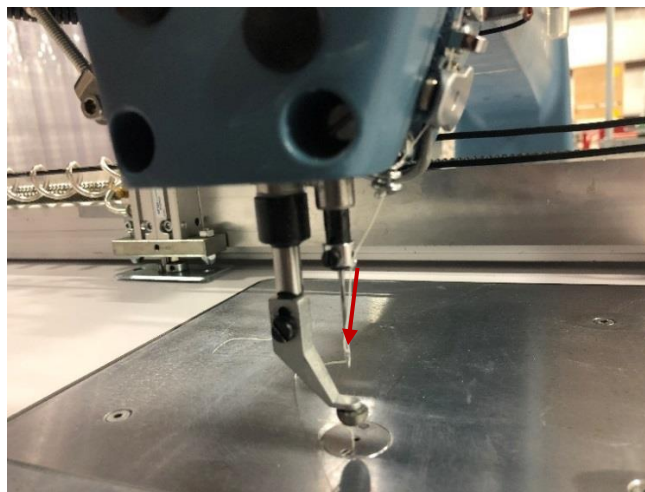
(ref. 2.6) Pass the thread through the fourth thread guide by passing the thread through the first eyelet then up and around the guide and back down through the second eyelet then across the thread lubricator.



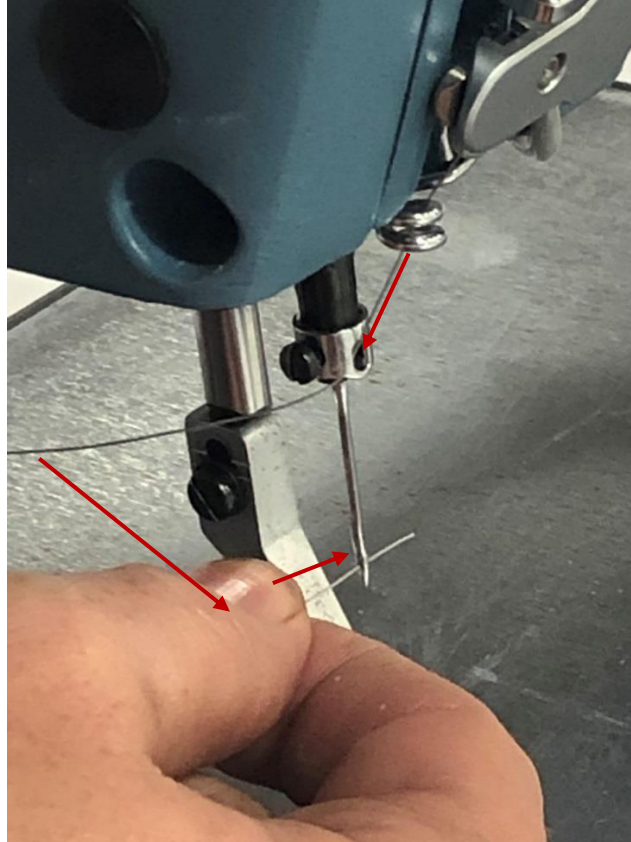
(ref. 2.7) Go through the eyelet of the pretension by going from the top towards the left in a counter clockwise direction, placing the thread in the discs. Pass the thread into the thread guide just above the main tension assembly. Bring the thread clockwise around main tension assembly pulling it into the discs. Place the thread into the check spring. After the check spring bring the thread down and around the slack thread regulator and up towards the take-up assembly.



(ref. 2.8) Go underneath the slack thread regulator and back up to pass it through the take up lever eyelet. Pass the thread down to through the next thread guide. Open the thread lock and place the thread through it and down through the next thread guide at the bottom of the sewing head.



(ref. 2.9) Place the thread into the thread guide after the thread lock and then on the needle bar thread guide.



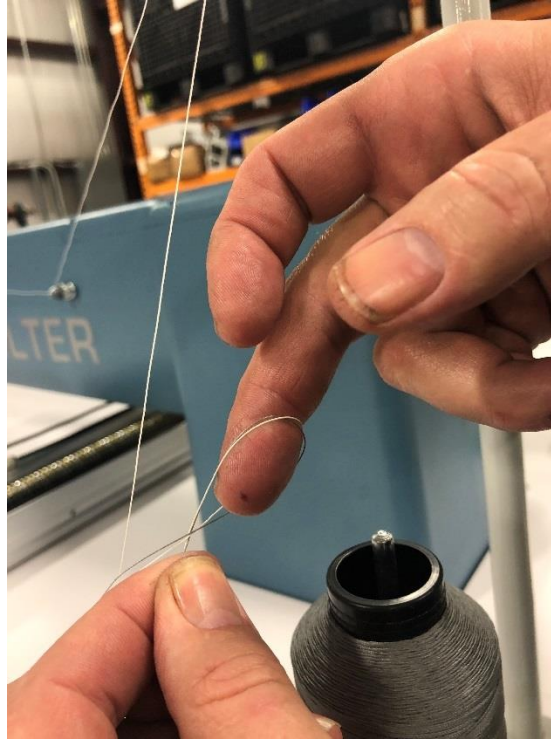
(ref. 2.10) Place the thread through the needle eye from the side of the operator.

2.2 Changing Thread Cones

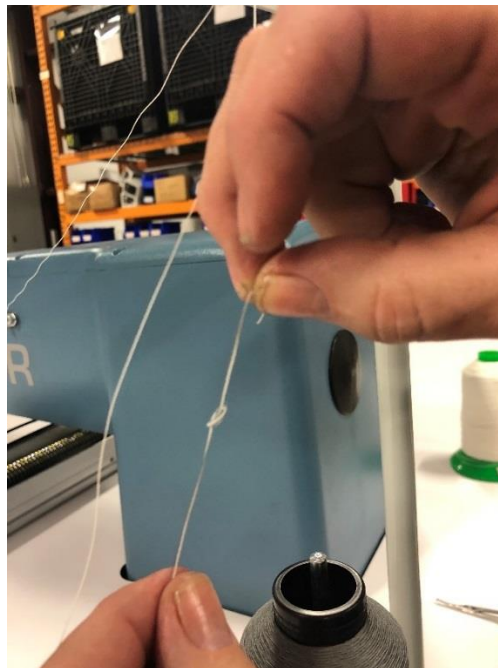
To most efficiently change a cone of thread, follow these steps:



(ref. 2.11) Go to the rear of the machine and cut the thread from the cone, while leaving the thread through all the guides. You can now place a new cone on to the thread stand.



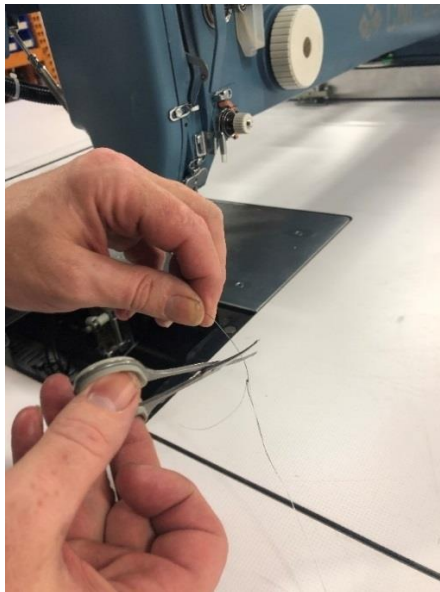
(ref. 2.12) Make a loop of thread to tie the threads together.



(ref. 2.13) Tie the new cone of thread to the thread left in the guides.



(ref. 2.14) Walk back to the front of the machine and pull the thread through until the new thread has cleared the thread guide before the thread lock.



(ref. 2.15) Remove old thread and finish threading the machine.

3. Changing a Bobbin

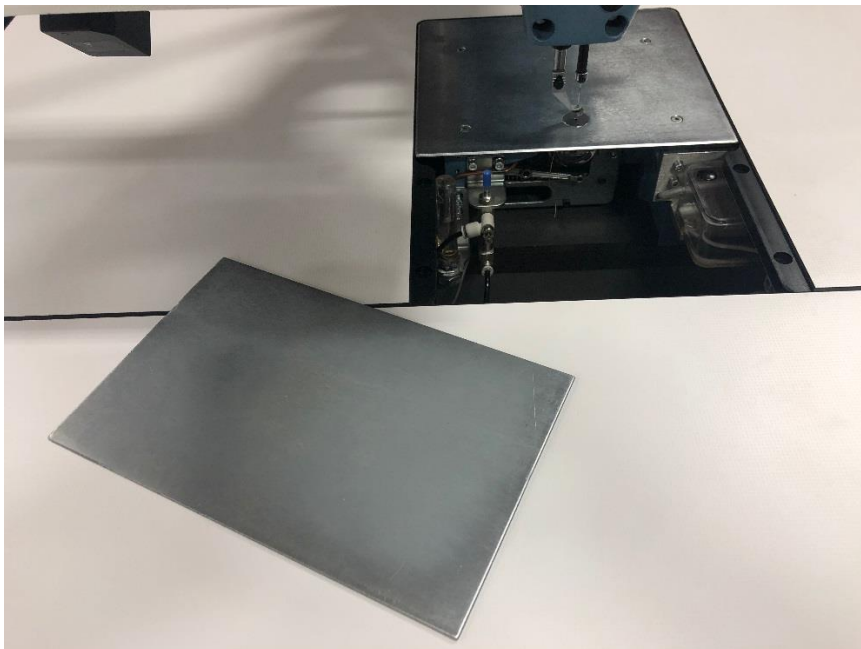
3.1 How to Change a bobbin



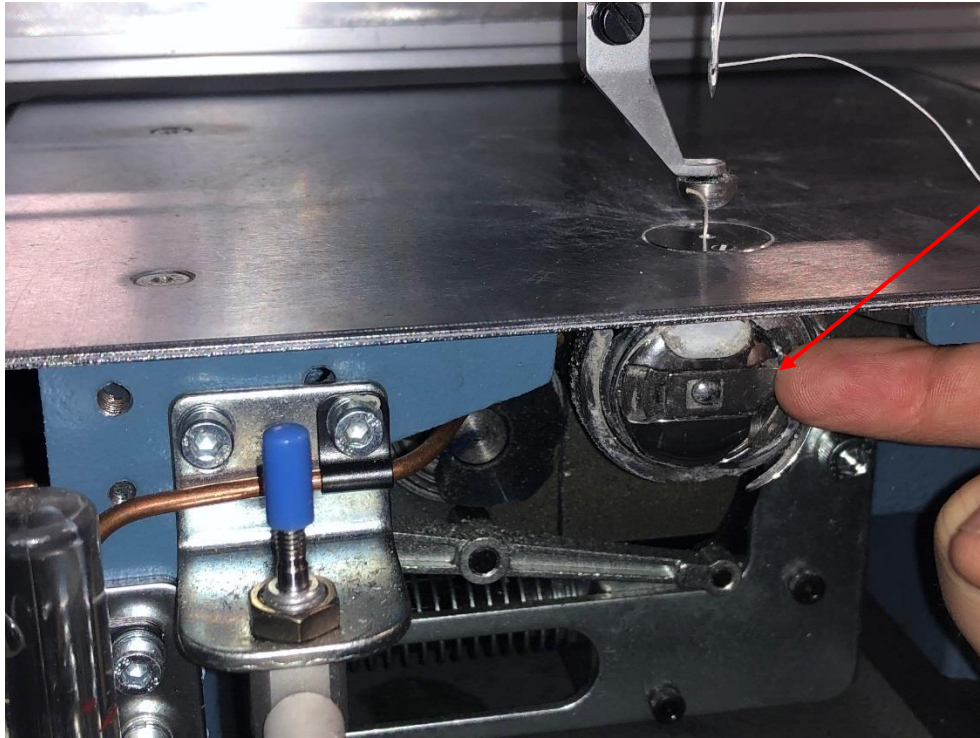
(ref. 3.1) Lower the front table section by releasing the two red levers underneath the table.



(ref 3.2) Raise the access plate cover of the bobbin area by pressing the blue button on the machine, labeled bobbin.



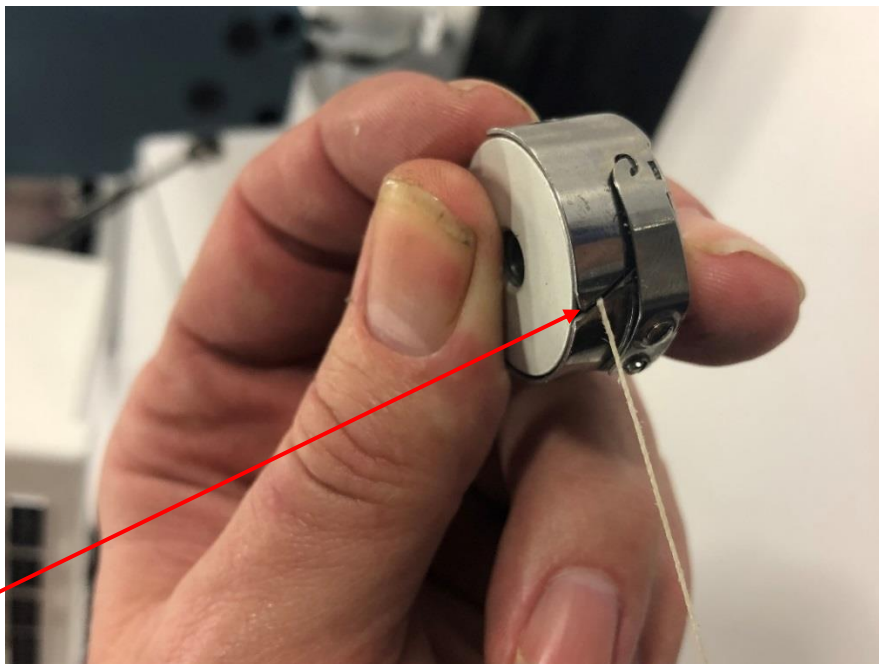
(ref. 3.3) Take the bobbin case access plate and lift it off.



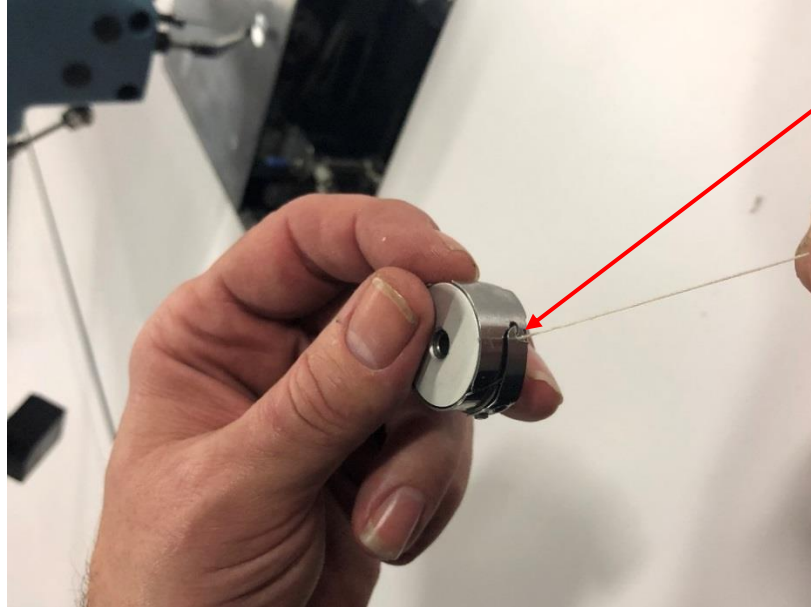
(ref. 3.4) Release the latch on the bobbin case to remove it from the hook.



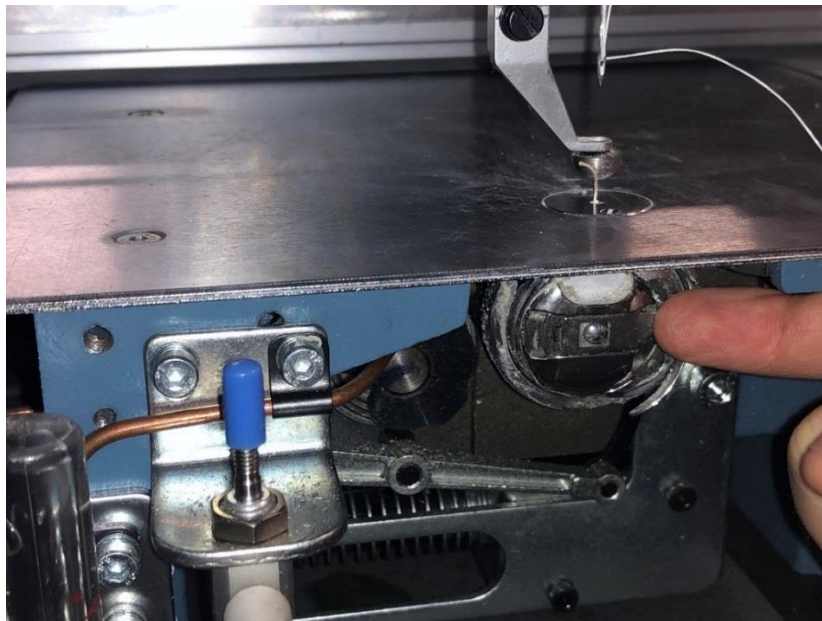
(ref. 3.5) Take out the old bobbin and replace it with a new bobbin so that it rotates clockwise.



(ref. 3.6) Place the thread through the slanted groove.



(ref. 3.7) Wrap the thread along the raised edge for the bobbin tail to hang.



(ref. 3.8) Place the bobbin back in. You will hear a click when the bobbin has been placed back in properly. Press the blue bobbin button again to release the cylinder and place the steel cover back into position making sure that the beveled edges are up. This completes your bobbin change.

3.2 When to Change a bobbin

You will want to change your bobbin before it runs out. You can manually set the length of your bobbin on the computer screen. The computer will alert the operator when there is insufficient bobbin to start a new row of quilting. To avoid bobbin changes in the middle of a sewing line, it is best to create pattern files that are broken into multiple sections of quilting associated with bobbin capacity.

3.3 Winding Bobbins

It is recommended to pre-wind bobbins prior to beginning the quilting process. To increase production speed, have multiple bobbins wound and ready for replacement of empty bobbins.

4. Creating a Pattern

4.1 Proper file format

The CNC quilters proprietary software uses generic pattern files. When creating quilting patterns save the file as a .dxf. The pattern designer may use any software that has the capability to save files as .dxf. The machine will stitch out the pattern in the same order it was drawn in the CAD software. Keep this in mind when drawing your custom quilting patterns.

4.2 Nesting of Patterns

ABM International recommends using a nesting program when creating .dxf patterns that require multiple parts in a single frame. Nesting software is not provided or required to use the CNC Quilter.

5. Loading a Fixture

To operate the machine most efficiently, the operator should load a second fixture while the machine is running one fixture. This will greatly increase efficiency and throughput by immediately loading the new fixture once the current run has completed.

5.1 How to Assign a Barcode to a Frame

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Make sure you have a barcode fixed to the frame. From the main screen, unlock the machine by entering your password and hit the OK button. You are now in the technician's menu. Touch the tab labeled setup. Highlight the frame you would like to assign the barcode to. Press the settings button. Press the scan barcode button, turning on the barcode reader. Scan the barcode. You have now assigned the barcode to the fixture.

Note: If the barcode has been used on another frame, you can accept to use on this frame, or cancel and make a new barcode.

5.2 How to load a new frame into the CNC Quilter



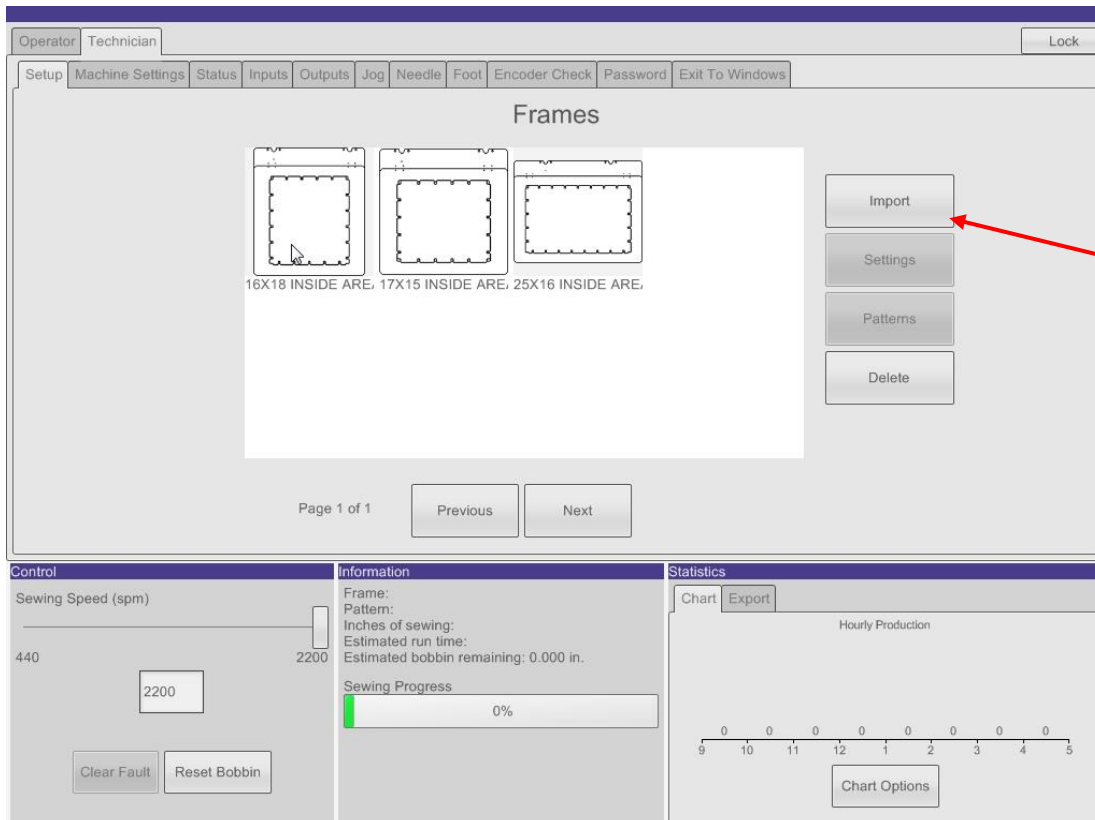
(ref. 5.1) Make sure the appropriate barcode is affixed to the frame.

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(ref. 5.2) Insert your thumb drive into the port on the right side of the computer.

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(ref. 5.2) On the operator screen, press the button in the top right corner that says lock. Touch the lock button to enter your passcode, then press OK. On the upper right-hand side press the button that says import. Select drive D. Select the file name of the fixture. Highlight that fixture and hit import on the bottom right of the screen. Press Ok to return. You have now loaded a new fixture/frame to the machine.

6. Shut Down Procedure

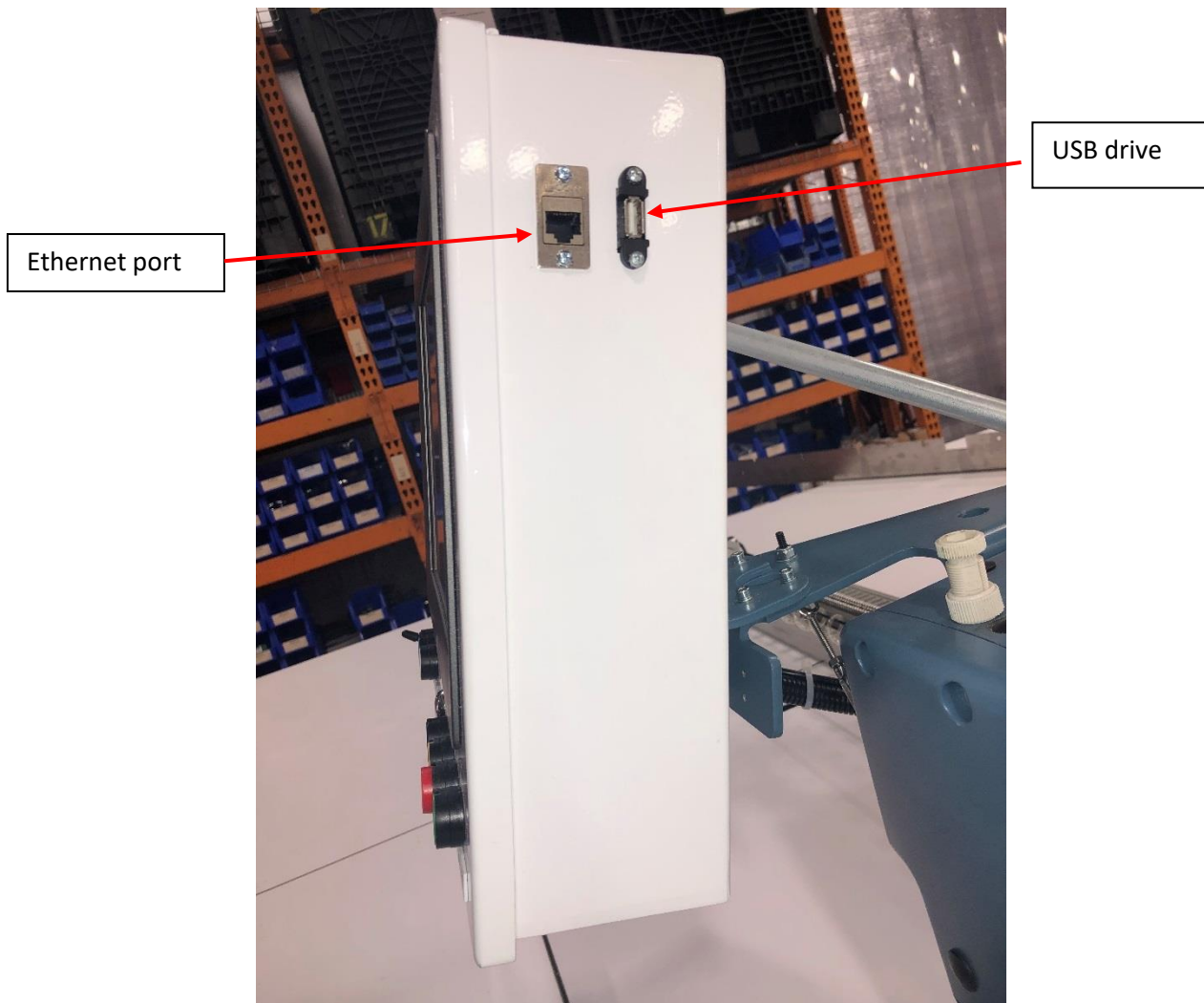
To properly shut down the machine, ABM suggests finishing any running of a pattern. This can be accomplished by letting the pattern quilt to completion, or by pressing the red stop button. Once the machine has stopped running, the operator can now turn the red power switch counterclockwise and into the off position.



(ref. 6.1)

7. How to Export .csv Production Data

The CNC Quilter records the production data of the machine for every pattern it runs. In order to record the data, it is recommended that you export the data onto your company's local drive by exporting a .csv file from the CNC Quilter. In order to export the data, place a Flash Drive into the USB port of the machine.



(ref. 7.1)

8. Preventative Maintenance

The CNC Quilter is a very low maintenance machine. It is recommended that when changing the bobbin, remove any lint build up in the bobbin area. It is important not to leave loose threads laying on the tables to prevent the thread from falling into the tracks of X/Y system. This will prevent any wear and tear on the ball screw and bearings.

8.1 Maintenance Routines

Air Gauge: Drain air gauge reservoir daily.

Dusting: use the air gun daily on all areas of the machine.

Greasing: Use white lithium grease every 600 machine hours.

Needle change: Daily

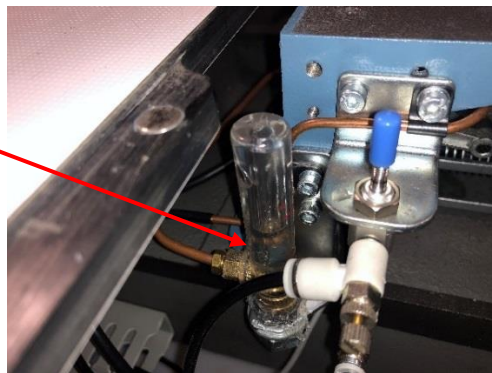
Oil Reservoirs: Use light weight sewing machine oil with Teflon every 100 Hours. For threads with little lubrication, use silicone-based lube in thread oil reservoir.

Thread Guides: Replace when worn. To look for worn thread guides, watch for shredding thread. Follow the thread along the guides until you notice where the shredding begins.

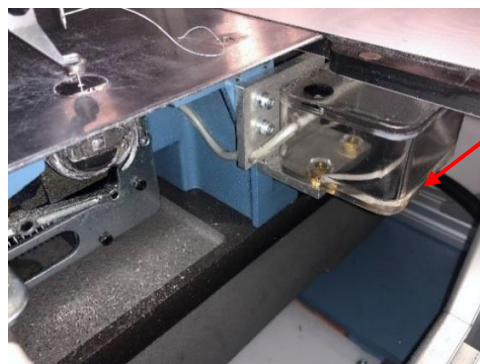
Thread sensor: Make sure copper slide is touching the check spring after each stitch is formed.

8.2 Oil & Lubrication

The CNC Quilter has oil reservoirs. It is important to keep the oil levels at least 50% full.



(ref. 8.1) Hook gear drive sight glass



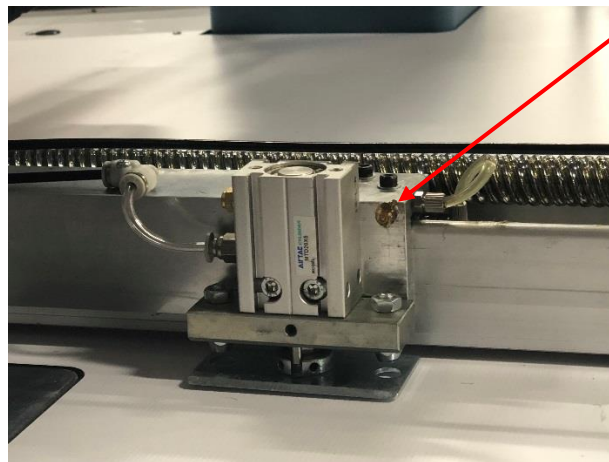
(ref. 8.2) Bobbin lubricator reservoir



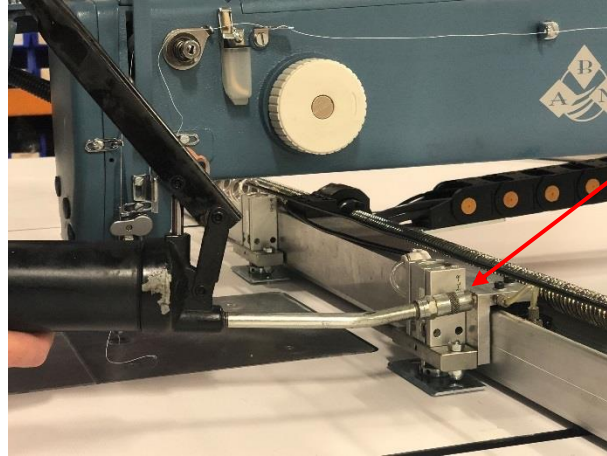
(ref. 8.3) Silicone thread lubricator

8.3 Greasing

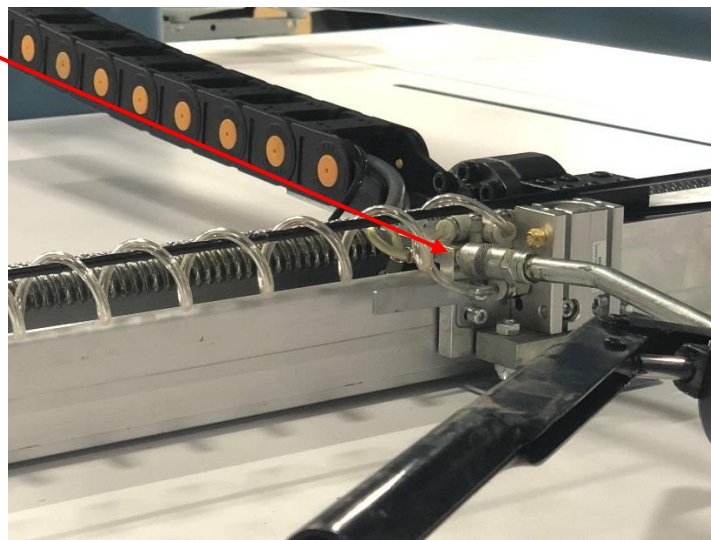
The machine has grease fittings for the X and Y ball screw. These need to be checked and greased every 600 hours.



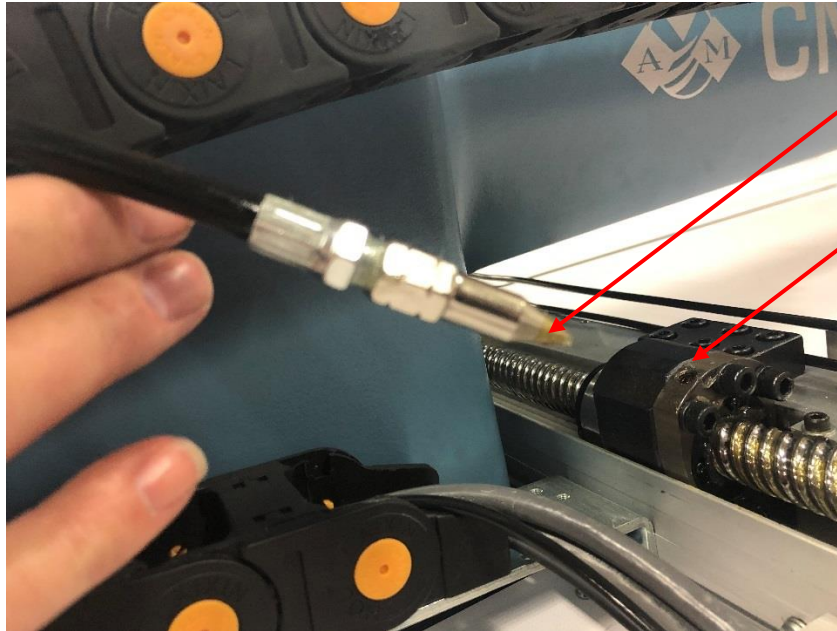
(ref. 8.4) Grease fitting



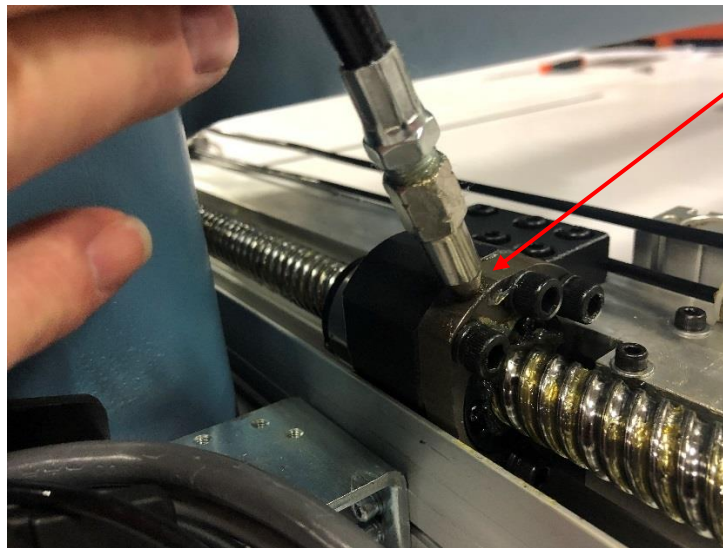
(ref. 8.5) Grease fitting



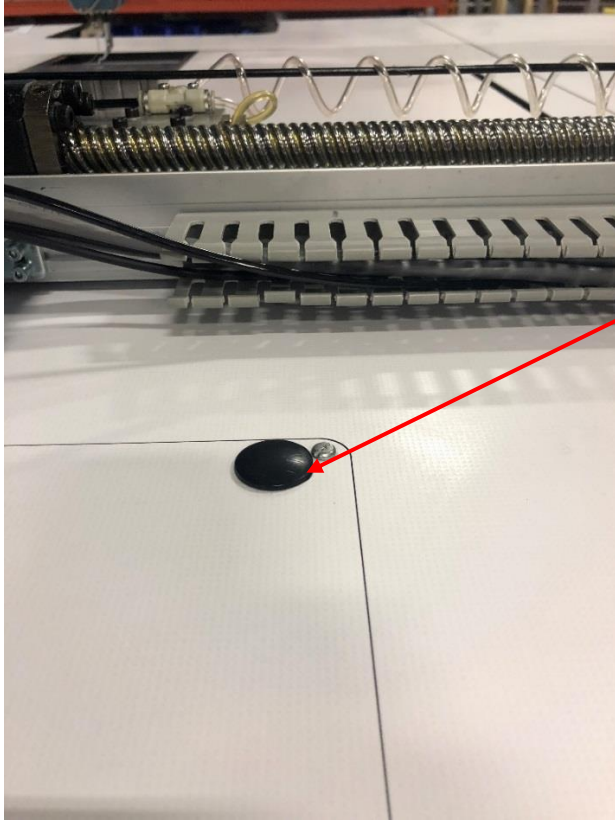
(ref. 8.6) Using the supplied grease gun to insert grease.



(ref. 8.7) Ball nut grease port.

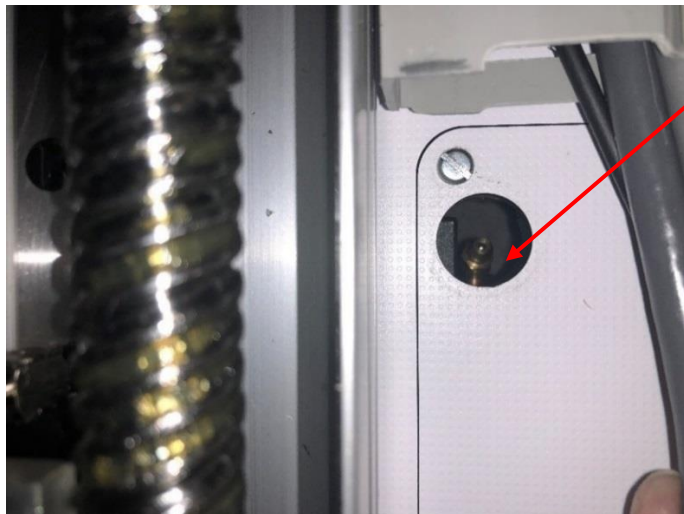


(ref. 8.8) Using the supplied grease gun on the ball nut port.



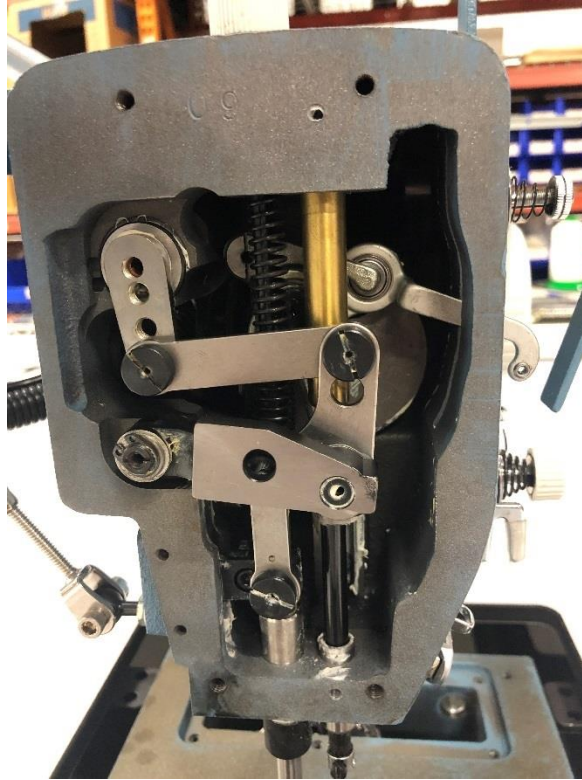
Remove cap for grease fitting.

(ref. 8.9)



Grease Fitting.

(ref. 8.10)



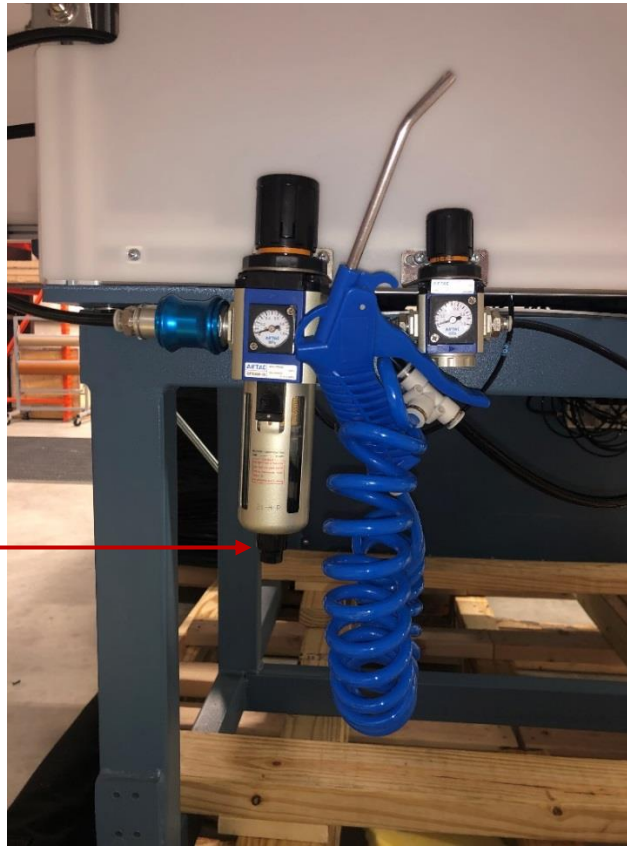
(ref. 8.11) Grease reciprocating arm joints and pivot points every 600 hours of operation.

Grease fitting for lower slides.



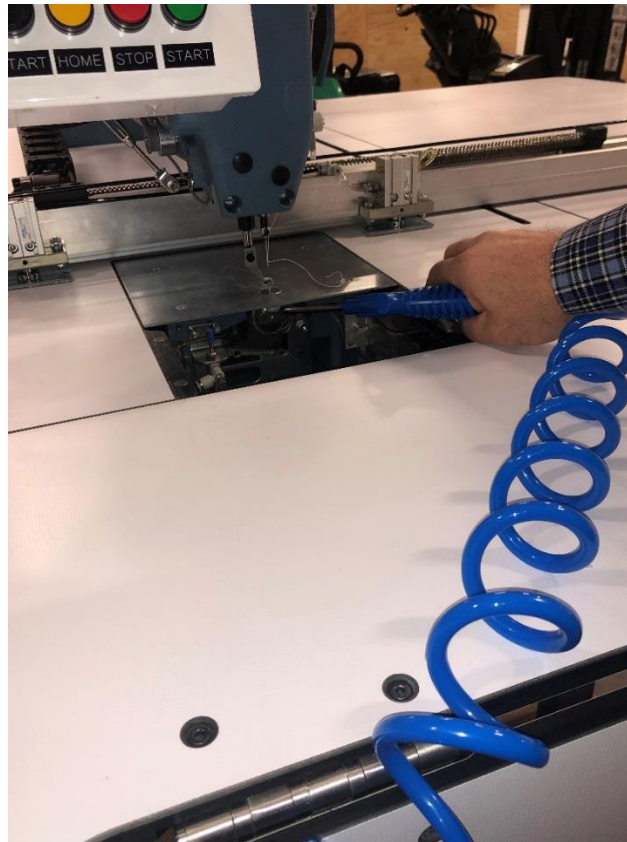
(ref. 8.12)

8.4 Cleaning



(ref. 8.13) Drain water from separator daily.

Filter/regulator combo unit: The combo unit is the machine's last line of defense against foreign materials (water, steel particles, etc.) found in a facility's pneumatic lines. The machine can be run without a combo unit, but serious damage can occur to the valve block and cylinders. The combo unit also performs the task of regulating the incoming air pressure. Pressures should be set according to machine demand. Lower pressures may cause the machine to function improperly.



(ref. 8.14) Blow dust and lint from bobbin area daily.

9 Disclaimer

Notice

For Technical assistance call ABM at 936-441-4401.

ABM standard warranty terms and conditions apply to the ABM control system and hardware and can be found on our website at www.abminternational.com.

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Software Disclaimer

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10. Notes:

A few blank pages are provided so that you and your personnel can keep records and notes. By using this section and keeping it attached to the manual, you will always have your own personalized quick reference section.

CNC Quilter Quick Reference

NOTES:

Date	Problem	Solution

CNC Quilter Quick Reference

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