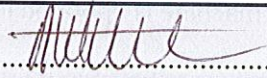
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DOCUMENT APPROVAL

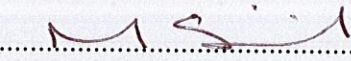
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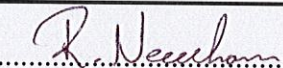
Your signature indicates that this document has been prepared in accordance with company standards or guidelines and adequately reflects the tasks and deliverables necessary.

Signature		Date 20 th Nov 2018
Print Name	Adrian Worthington	
Title	Senior Operations Training Coordinator	

Reviewer's Signature:

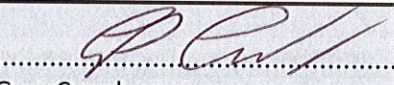
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Signature		Date 20 th Nov 2018
Print Name	Mark Sinfield	
Title	Head of Production	


Signature		Date 20 th Nov - 2018
Print Name	Rob Newham	
Title	Dual Site Operations Manager	

Quality Assurance/Compliance Approver's Signature:

Your signature indicates that this document complies with company standards or guidelines; and that the documentation and information contained herein complies with applicable regulatory, corporate, divisional/departmental requirements, and current Good Manufacturing Practices.

Signature		Date 20 Nov 2018
Print Name	Gary Crawley	
Title	Quality Assurance & Systems Manager	

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1.0 PURPOSE

- 1.1. The purpose of the document is to define the SOP (Standard Operating Procedures) to be followed by ADVANEX EUROPE Ltd, in order to ensure that the Finzer W48k machine is operated in a systematic and uniform manner.

2.0 SCOPE

- 1.1. This document applies to the start-up procedure for the Finzer W48K machine and decoiler.

3.0 TERMS, DEFINITIONS & ABBREVIATIONS

- 3.1. Machine Control Panel (MCP)
- 3.2. Decoiler Control Panel (DCP)

4.0 HEALTH, SAFETY & ENVIRONMENTAL

- 4.1. Within the factory area safety footwear is mandatory.
- 4.2. Within the factory area safety glasses must be worn.
- 4.3. Ear defenders must be worn in the designated areas of the factory.
- 4.4. Basket and bin weights must not exceed 12kg
- 4.5. Guards and interlocks need to be in place when the machine is in operation.

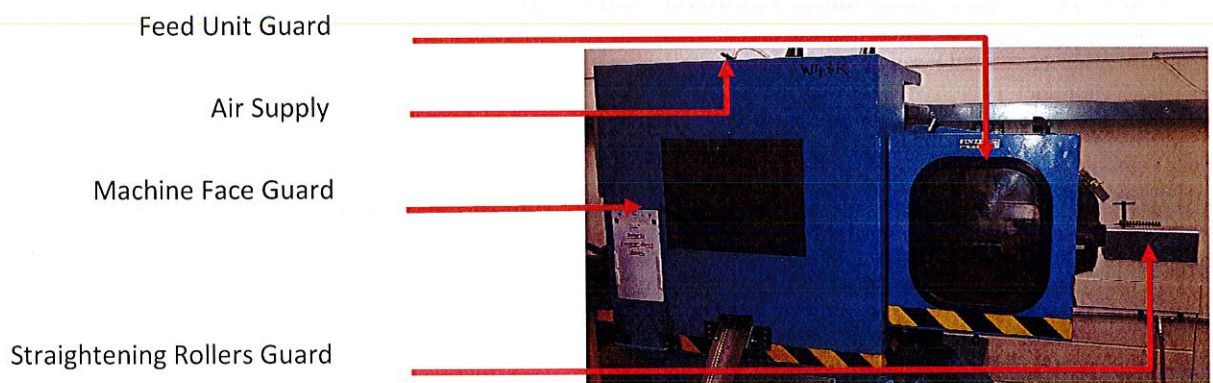



Figure 1: Machine Guarding

5.0 ASSOCIATED DOCUMENTS

- 5.1. Operator Booking Procedure (Document Number AEU00469).
- 5.2. Works Order Instructions: Allowing full traceability for the batch.

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6.0 PROCEDURE

6.1. Figure 2 shows the machine control panel (MCP) and a description of the commonly used controls.

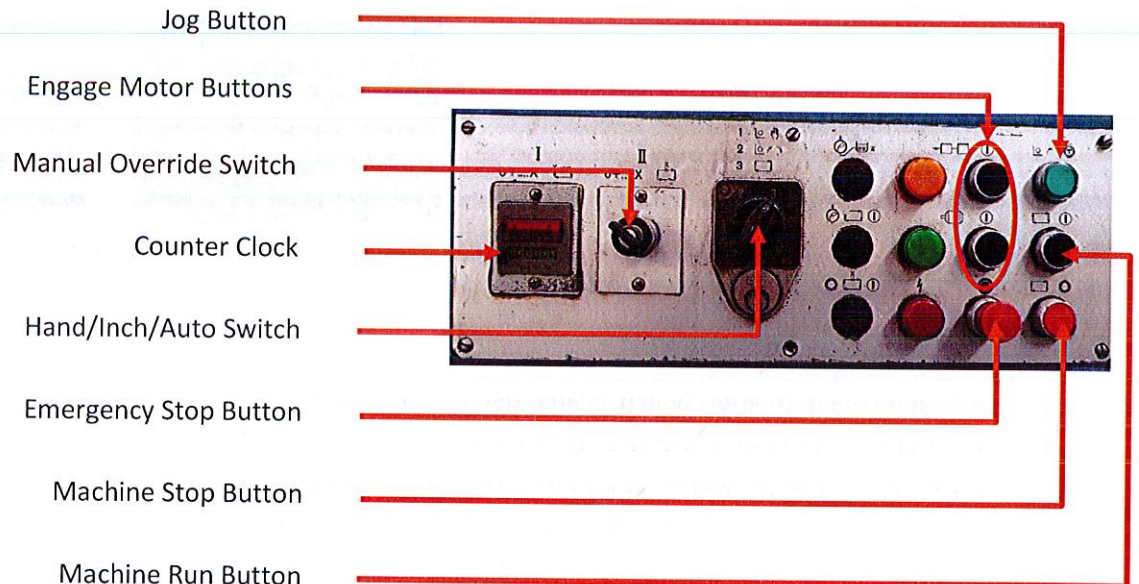


Figure 2: Machine Control Panel.

6.2. Figure 3 shows the horizontal Decoiler control panel (DCP) and a description of the commonly used controls.

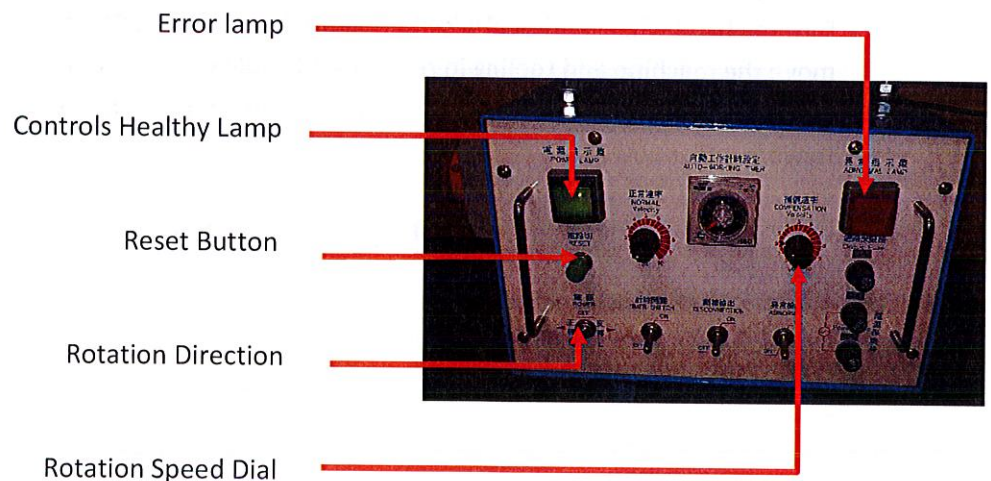



Figure 3: Horizontal Decoiler Control Panel

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6.3. Figure 4 shows the vertical Decoiler



Figure 4: Vertical Decoiler power controls

6.4. Machine start up procedure

- Turn on main isolation switch located behind the machine.
- Turn on isolation switch located on the right side of the machine.
- Turn Air Supply on, which is located on the top of the machine.
- Select Hand / Inch or Auto mode via the switch on the MCP.

6.5. Hand Mode Operation with Guards Open

- Turn Hand/ Inch and Auto switch to Number 1 (Hand Mode)
- Engage the hand wheel by pushing it into the machine.
- The hand wheel is located on the left side of the machine. (Figure 5)
- Turn and hold the Manual override switch to engage the clutch.
- **If the guard is closed the manual override switch does not have to be used.**
- Turn the hand wheel anti clockwise to operate the machine. **Beware turning the wheel clockwise will move the machine and tooling in reverse and could cause a breakage!!**
- When you have completed your tasks in hand mode, pull the hand wheel out to disengage allowing you to work under power.

Note: If you release the manual override switch, the clutch will disengage, and you won't be able to turn the machine over.

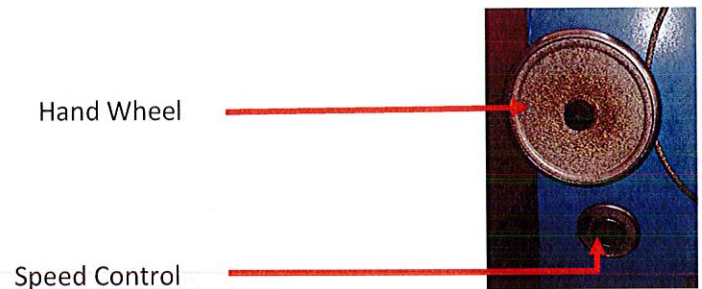



Figure 5: Hand Wheel on Machine Left Hand Side.

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6.6. Inch Mode Operation with Guards Open

- Turn Hand/ Inch and Auto switch to Number 2 (Inch Mode)
- Turn and hold the manual override switch
- Engage the motor by pressing both the buttons on the MCP. **Press the top button first.**
- Now press the jog button on the MCP to turn the machine over under power.
- The safety mechanism will only allow you to produce one part if you hold the jog button down. You will have to release the button and hold it again to produce another part.

6.7. Auto Mode with Guards Open

- **The machine will not operate in Auto mode with the guard open, even if the manual override switch is being held!!!!**

6.8. Auto Mode with the Guards Closed

- Turn Hand/ Inch and Auto switch to Number 3 (Auto Mode)
- Engage the motor by pressing both the buttons on the MCP. **Press the top button first. (see fig 1)**
- Press the Run Button to start the machine running continually.
- To stop the machine, press the machine stop button or the emergency stop button on the MCP.


6.9. How to load the material onto the horizontal decoiler.

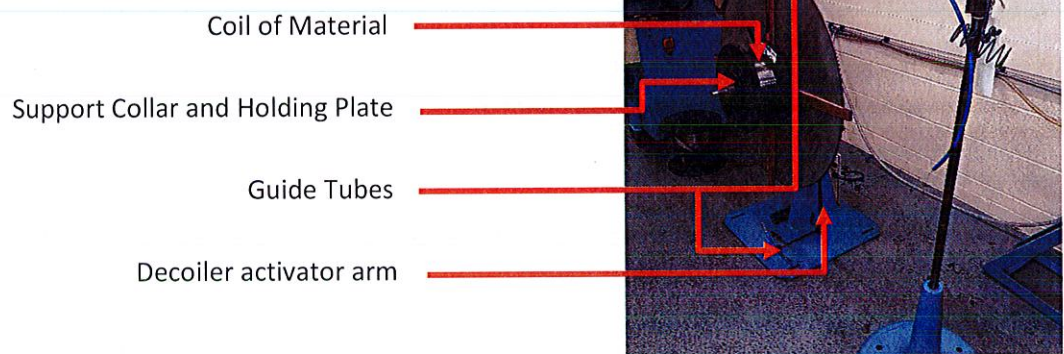
- Open guard doors
- Select the neutral position on rotation direction on the control panel, so that it doesn't spin round while loading material on.
- Remove bars from the top plate of the decoiler.
- Lift the coil onto the decoiler using the correct lifting equipment.
- Replace bars back into the top plate of the decoiler.
- Cut the banding off the coil and put in the correct waste bin.
- Switch the rotation direction to desired side and thread the wire through decanter arm and into the straightening rollers.
- Close guard doors.

6.10. How to load the material onto the vertical decoiler

- Open guard doors
- Undo the locking screw with an alan key
- Remove the holding plate and support collar
- Lift the coil on to the decoiler following correct manual handling guidelines
- Place the support collar and holding plate back on to the decoiler and lock in place
- Cut any banding off the coil and remove any tape holding the end of the coil down
- Thread the wire through the guide tubes and activator bar and feed into the machine
- Close guard doors

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6.11. Straighten wire.

- Push the wire through the centre of the rollers and apply pressure to change the direction it runs.
- One side of the rollers will control the X axis.
- One side will control the Y axis.

6.12. Feeding Material in and out of the machine.

- Wind the machine over by hand so the feed unit is at half way on its backward stroke.
- Take pressure off the feed gripper, undo the locking nut with a 36mm spanner and wind the adjustment screw off 3 times using the mark as a guide.
- Wind the machine over so that the feed unit is on its forward stroke, ideally half way.
- Remove or feed material into desired position.
- Wind the machine over until the feed unit is on its backwards stroke.
- Put the pressure back on the feed gripper, adjustment screw on 3 times and lock locking nut up.

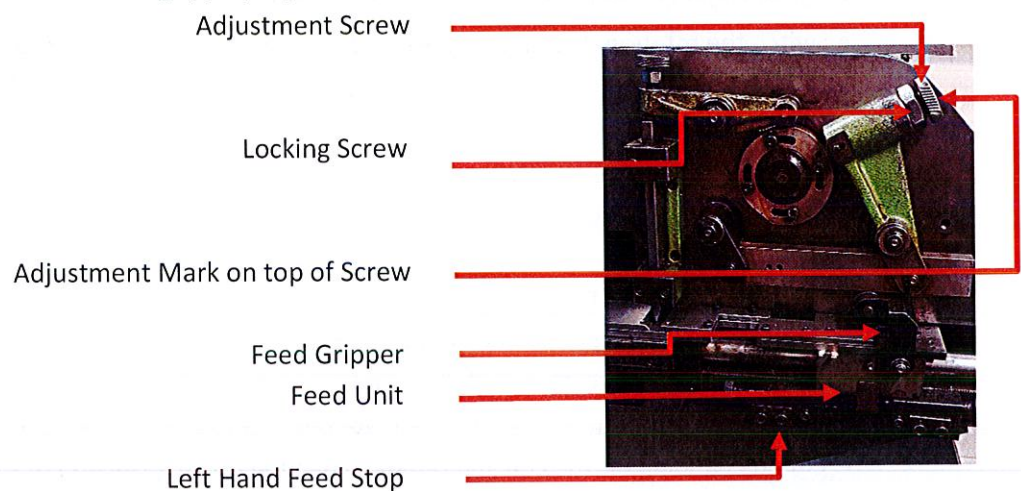



Figure 5: Details of the machine feed unit.

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6.13. Machine set up position.

- Wind the machine over by hand until the keyway in the back of the machine is in the position shown in figure 6.
- At this point refer to the setting procedure for the required job.

Key way highlighted in yellow

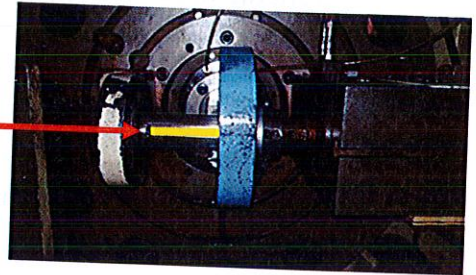


Figure 6: Key way position shown in the back of the machine

6.14. How to set the sensor, refer to figure 7 for sensor controls.

- Wind the machine over by hand so that the blank length stops just before the sensor pin.
- Press the set button once.
- Wind the machine over until it has fully fed i.e. Feed unit on the left-hand feed stop. (figure 5)
- Press the adjustment button until the orange light, lights up on the indicator.
- Wind the machine over to produce a part.
- Press the yellow reset button on the front of the sensor box.
- At this point the sensor will be set.



Yellow Reset Button

+ / - Sensor Adjustment Button

Sensor Set Button

Sensor Light Indicator

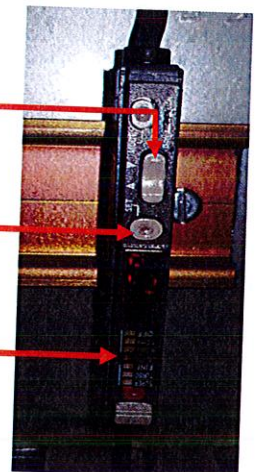



Figure 7: Sensor control buttons

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6.15. How to set the speed of the machine.

- The speed control is located on the left side of the machine, under the manual hand wheel. (Figure 4)
- You can alter the speed while the machine is running or stationary.
- Turn the wheel anti clockwise to speed the machine up.
- Turn the wheel clockwise to slow the machine down.
- Use a stopwatch and the counter on the MCP
- With the machine running, time it for a minute and refer to the counter to see how many parts it would have made.
- Times that amount by 60 and you will calculate the hourly rate the machine is set at.
- The hourly rate the machine should run is shown on the Works Order Instruction.

Works order : 18/0506		Due date : 13 June 2018	Latest start date : 04 May 2018
Part : W48K	Revision : A	Drawing number : W48K	199577
Description : W48K		Quantity : 125 000	
Customer : W48K		Page number : 1	

PRODUCTION-VISUAL INSPECTION TO BE INCLUDED ON INTERIM INSPECTION SHEET.
ATTRIBUTE CHART TO BE USED FOR VISUAL DEFECTS BY PRODUCTION.
WIRE SHAPES - USE DRG. NO; DRG.PACK REFERS FINISH: DELTATONE

Components			
Part RW-01600-012C	Revision 1	Quantity UOM 110.250 KG	Description 1.6.0.4 BS1429 070A72 ND ANN ST WIRE-COIL

Operation Work centre	Description	Latest start date	04 May 2018
10 W48K	FORM COMPLETE	Qty Scrap/Code	Date
Instructions		Name and Signature	
OPERATOR TO CHECK EACH TIN @ EVERY 10,000 TRACK C9 S.C.C. LEN-52.93mm EXTRA VISUAL INSPECTION FOR DAMAGED PARTS REQUIRED BEFORE MOVING ON TO NEXT OPERATION			
M/C Arm	100.00 %	Op Qty	125000.0@
Set time	8.00 hrs	Run time	20.83 hrs
		6,000.000 PPH per 125000.0	

Operation Work centre	Description	Latest start date	09 May 2018
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BEFORE MOVING ON TO NEXT OPERATION

n	100.00 %	Op Qty	125000.0@	6,000.000 PPH
e	8.00 hrs	Run time	20.83 hrs	per 125000.0

Hourly Run Rate

Figure 8: Example of a routing card with the hourly rate highlighted

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