

SLICE®

by



OPERATING INSTRUCTIONS MODEL 141 READ CAREFULLY BEFORE OPERATING YOUR MACHINE

A Safety Note:

Your good manufacturing practices should insure that a written safety program is in place, which includes the assessment of all processes that take place in house, for potential risks.

The employer response to this assessment is to establish specific instructions for the safe use of all machines, safe use of certain chemicals, etc. in your work place.

For instance, any user of electrical machinery, SLICE® included, must be instructed that **never, under any circumstances**, should a machine be left on while attempting to clear a jam , if it should occur.

This written rule, along with other directives, should be translated into either a training document that is signed or work instruction that is also signed and dated by all operators and that ideally remains with the equipment as a reminder of safe operation.

Published by: AMTI

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AMTI reserves the right to make technical changes in the system depicted and indicated in these instructions if such changes are necessary to improve the machine.

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1.0 Product Description

The SLICE® 141 is an automatic cutting machine intended to cut various materials to length within the scope of the technical data. It is for industrial use.

1.1 System Description:

1. Opening aperture size 3" wide, adjustable up to 1.5" high
2. Adjustable guides to optimize the squareness of cut
3. "Stock Jam or Not Feeding" indicator
4. Standard SLICE® Keyboard
5. SLICE® software modified to sense cutter return stroke
6. Air filters and regulators, blade and die
7. Three drive wheels and tracking wheel to enhance pulling action

1.2 FUNCTION AND OPERATION

1. Operates as other models in the SLICE® series
2. Cutting blade force supplied by air cylinder, yielding a 360 pound cutting force

1.3 PERFORMANCE SPECIFICATIONS

1. Cuts up to 10 gauge standard wire and varieties of hollow tubing including convoluted tubing split/non-split that fits within its input aperture of 3" wide by 1.5" high.
2. Adjustable feed rate from 1" per second to 30" per second
3. 5,200 4" cuts per hour, 3,400 10" cuts per hour
4. Machine Discrimination 0.5mm repeatability and accuracy is greatly dependent upon material and material feeding conditions. Best accuracy to be expected is ± 1 mm.

1.4 POWER AND AIR REQUIREMENTS

1. Electrical 115/230 volts at 50/60 hertz adequate
2. Air pressure to maintain 80 psi machine pressure

1.5 OPERATING CONDITIONS

Temperature 10° to 35° C

1.6 SYSTEM SIZE

Length: 15" Width: 16" Overall Height: 19" Housing Height: 13"

1.7 UNIT WEIGHT

55 pounds

Stainless steel, aluminum & hardened tool steel construction

1.8 MAX SOUND LEVELS

70DB

1.9 MATERIALS

The SLICE® 141 will cut most materials that will fit within the opening aperture 3" wide by 1.5" high. Examples of material it will process:

1. Standard wire up to 10 GA.
2. Flat heat shrink, tubing, hose up to 3" wide max 1.5" high
3. Copper or plastic braided material up to 3" wide
4. Many other materials, please consult with sales representative or engineering

2.0 Safety

Always observe the following safety rules:

1. These sets of documentation are integral parts of the machines and devices they were written for and must be heeded.
2. Always turn off power and disconnect the air lines before investigating jams or internal issues.
3. Never place fingers, hands, or tools into the machine while it is plugged in or air connected.
4. Prior to starting the machine, check to see that all safety features are attached and properly operating. The safety requirements are met only if the safety features are operating properly.
5. Machine safety is only achieved when the materials being processed (wire, tubing, etc.) are those specified in the technical data. Make sure the improper use of materials is prevented!
6. Do not cut flammable, explosive, wet, etc. materials.
7. Do not operate outside standard environment requirements and use power and air supply as recommended.
8. Only duly authorized and trained persons familiar with the safety features of the machine are allowed to maintain and repair the machine. The machine can be dangerous if operated improperly by untrained persons.
9. Machine safety is achieved only for operators. Persons working on the machine must always take care that no other persons are endangered by the input of a command.
10. If you have reason to believe the machine can no longer be operated safely, you must take the system out of operation and safeguard it against being unintentionally switched back on.
11. Observe the notes in these instructions as well as locally valid rules of safety and accident prevention.

3.0 The Operating Instructions

These operating instructions are valid for the SLICE® 141, and are available in English and Spanish. Other languages are available upon request.

These instructions contain complete information on the controls, handling, maintenance, and setting procedures as well as all technical data. They also include a list of accessories. These sets of documentation for the accessories are delivered along with each accessory. Be careful not to mislay these sets of documentation when unpacking and setting up accessories.

The operating instructions are an integral part of the SLICE® 141. Keep them within reach so you have access to the information you need at all times.

Pay very close attention to the safety notes and directions. If you need additional sets of documentation, please contact AMTI for more details.

Standard Uses

Cutting wire to length

Cutting hose to length

Cutting convoluted tubing split/non-split

Cutting flat cable to length

End-of-wire detection (SS wheels only)

Pay very close attention to the safety notes and directions.

If you need additional sets of documentation, please contact AMTI for more details.

3.1 Machine Identification

On the back of the machine you will find a nameplate with the following information:

Company Contact
Machine Type
Machine Serial Number
Voltage Version
Power Input

AMTI
PRODUCTS

MODEL: SLICE 141

S/N 20182003

115V

50-60HZ

2A 200W



MADE IN USA

WWW.AMTIPRODUCTS.COM

3.2 Personal Qualifications And Training

3.2.1 Personnel Qualifications

Machine Operator

The machine operator must be sufficiently familiar with the machine to be able to operate it and its accessories and peripheral devices in production on his/her own without difficulty. This requires that the operator be well educated in the technology involved and be knowledgeable of the software for operating the machine.

Service Technician

The service technician should have an extensive knowledge of the machine. Apart from machine operations, he/she must be able to locate errors and take suitable steps to remedy them. A service technician must be able to maintain the machine correctly so as to increase its service life and availability. His/her mastery of the software should enable the machine to be used to the maximum effect in production.

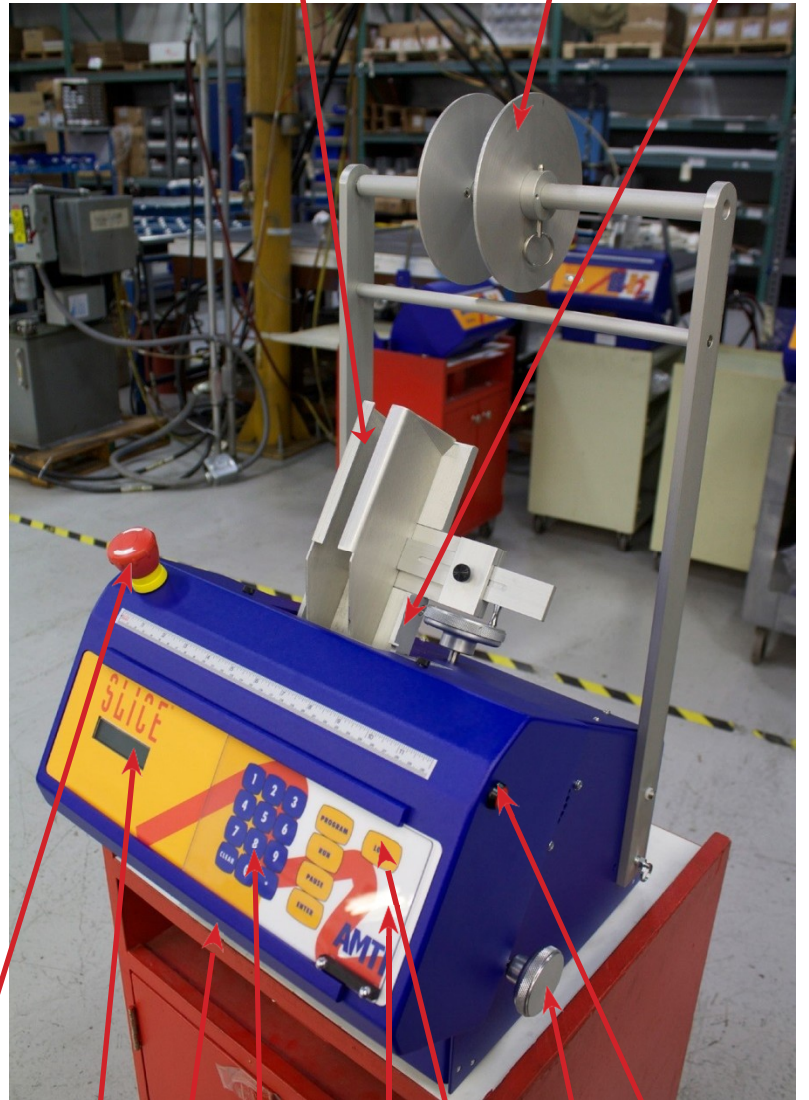
For this work, the service technician must have wire processing experience. He/she must also have completed training in mechanics or electronics and have a sound knowledge of the machine.

3.2.2 Training

All personnel that are using the SLICE® equipment should be trained on its proper use and safety needed when operating this equipment.

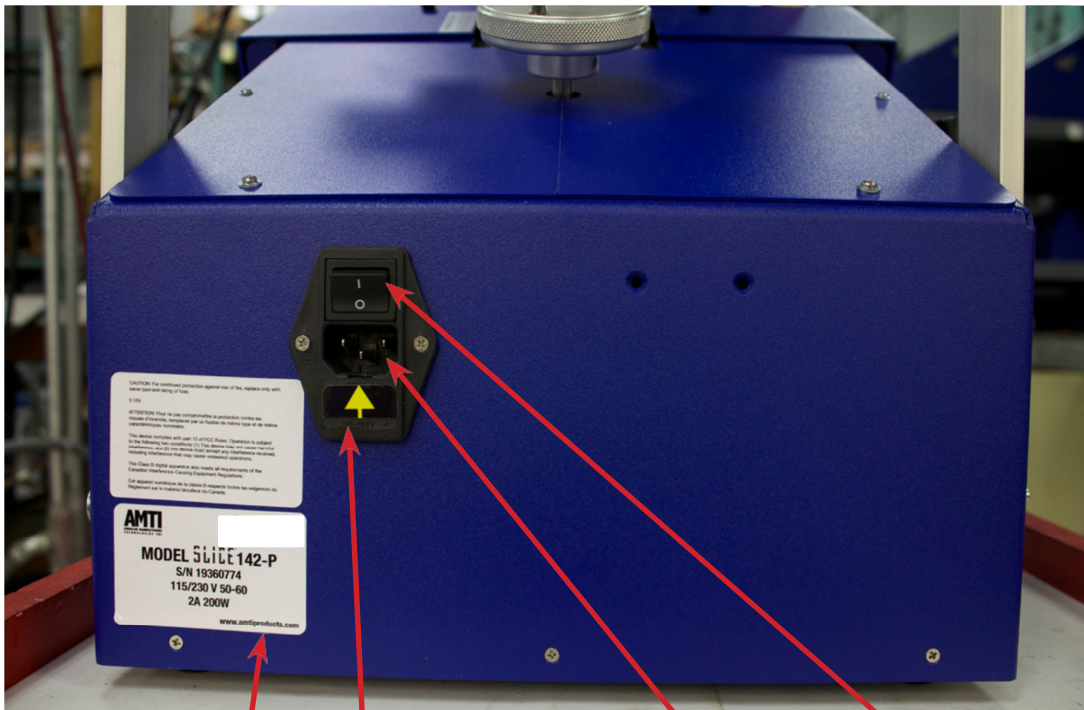
4.0 Machine Overview (front)

1. Adjustable Material Guide
2. Roller Guide
3. Function Buttons
4. Keypad
5. LCD Readout
6. Activation Push Buttons (both sides)
7. Keypad Safety Shield
8. Adjustable Top Input Guide
9. Bottom Output Guide
10. Bottom Guide Adjustment Wheel
11. Emergency Stop Button



4. 1 Machine Overview (back)

1. Fuses
2. Power Cord Plug
3. On/Off Switch
4. Nameplate



4.

1.

2.

3.

4.2 Operations

Control Unit

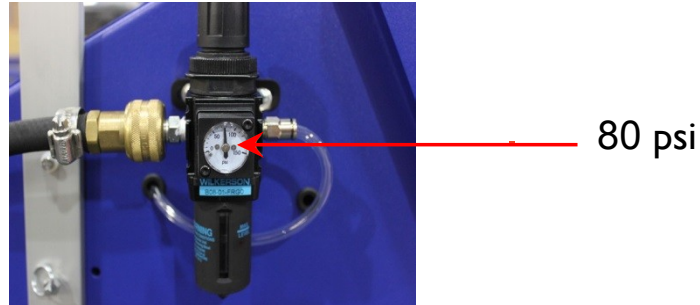
1. “PROGRAM” - This button is used when wanting to pull up an existing program or create a new program. Press this button twice then press “ENTER” to reveal machine menu on LED readout.
2. “LOAD” - This button is used to load/index new material.
3. “RUN” - This button is used to run desired path input (quantity/length) or program.
4. “PAUSE” - This button is used to pause machine during cutting cycle.
5. “ENTER” - This button is used when entering data.
6. “CLEAR” - This button is used when wanting to clear data entry.



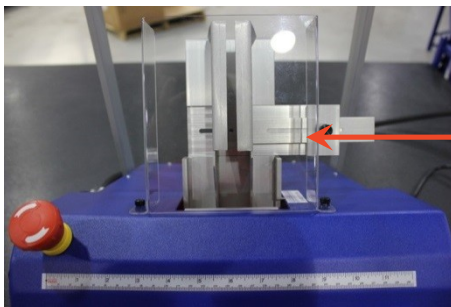
5.0 Set Up

Place your SLICE® machine on a clean, flat, sturdy work surface.

Plug machine into a standard 110V outlet, unless your machine is designed for 220V; then act accordingly. Position the machine's front edge even with the edge of the worktable on which it's placed. All air-operated models require 80 psi. Plug in air.



Install clear safety guards on both entry and exit openings.



Top Entry



Bottom Exit

Safety
Guards

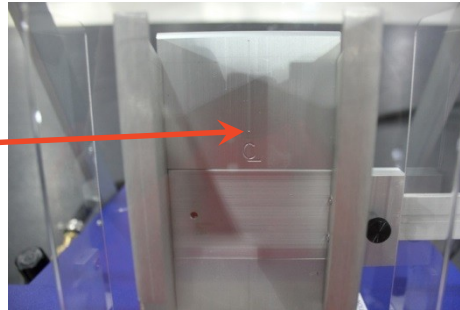
Turn on the switch at the back of the unit. Look at the display under the name SLICE®. It will read "ready."



5.1 Load The Product

Load the product you're cutting by centering the material in conjunction with the center line as shown on the adjustable guide.

Adjustable Guide
Center Line

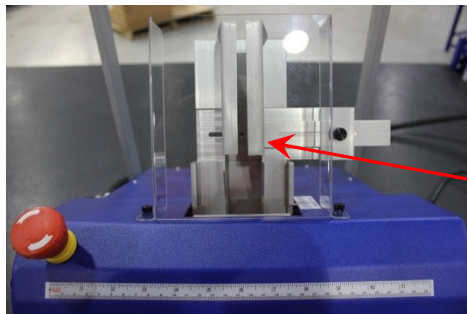


5.2 Loading Instructions: Load The Product

The Model 141 machine requires a more complex loading procedure. The principal reason for this is that this machine, with its greatly increased vertical opening, has 3 separate adjustments required. They are:

5.3 Top Input Guide

The top input guide should be centered in the opening with the aperture and set so that the material slides through easily.



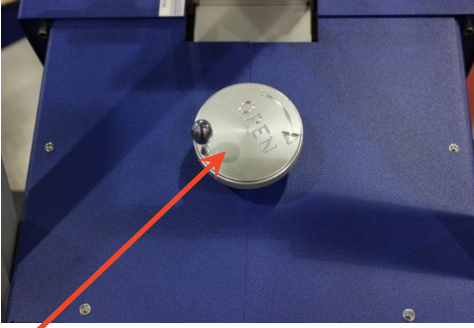
Top Input Guide

Adjust the locking knob on the right side slide on the upper guide to the width of the product. Allow just enough extra space so that the product moves through the guides freely. Tighten knob securely before starting your run.

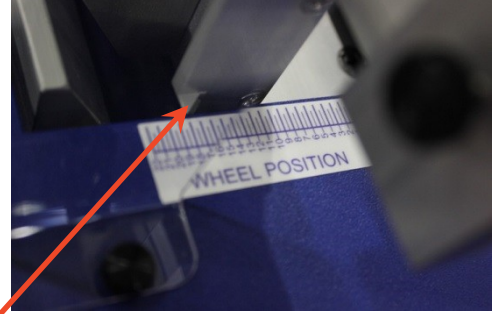
5.4 Idler Roller

The idler roller should be adjusted so that there is just enough force on the material and on the drive wheel to move the material through the machine. This is accomplished by turning the wheel adjustment hand crank located at the top rear of the machine. (Fig. Adjustable Wheel Hand Crank) Additional pressure on this roller may overly compress the material and increase the torque required to draw the material through the machine. In short: too little pressure and the material won't move; too much pressure and the material won't move either. The wheel position indicator will assist in this.

5.5 Idler Roller Adjustment



Adjustable Wheel
Hand Crank



Wheel Position
Indicator

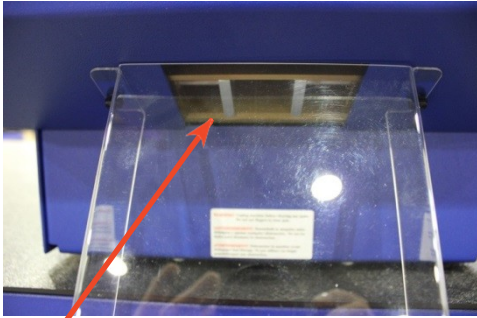
This is the knob that, when rotated, moves the idler wheels in and out to apply pressure to the material running through the SLICE® 141. The pressure required for proper operations is very dependent on the type of material being processed. If there is not enough pressure erratic lengths will result due to slippage. Over tightening of the wheels will cause errors in length measurements due to compression of the material.

Materials that are not compressible will run with the best accuracy and repeatability. Materials that are compressible or that will easily stretch will require some experimentation to produce satisfactory results. Even the most difficult materials will produce reasonably consistent results provided the material is fed smoothly to the machine.

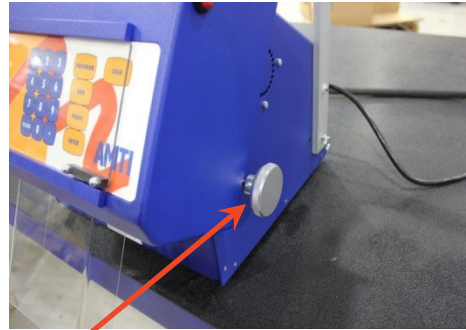
With compressible materials the pressure applied to the product may change the resultant length. If you already have your length set and you decide to crank down on the pressure do not be surprised if the overall length changes somewhat.

5.6 Bottom Guides

The bottom guides should be set slightly wider than the material. The purpose of the bottom guides is to insure that the material runs straight through the cutting die so that the cut will be square to the movement of the material. The Bottom guide adjustment wheel is located on the lower right hand side. (See picture below)



Adjustable
Bottom Guide



Bottom Guide
Adjustment Wheel

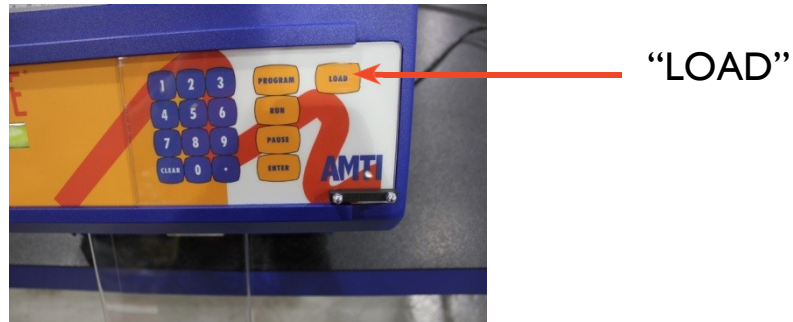
5.7 Loading Sequence

1. Open the idler roller to drive wheel spacing to maximum by adjusting the top wheel.
2. Open both the top input guide and the inner guide sufficiently to allow the material to enter the machine so that it is in, past the blade.
3. Adjust the inner guide.
4. Adjust the top input guide.
5. Slide keypad safety shield to left for access to keypad



Keypad Safety Shield
(Open Position)

6. Press “LOAD”. Slide the keypad safety shield back to the right and press both the right hand and left hand activation buttons simultaneously. The material should index through the machine smoothly.



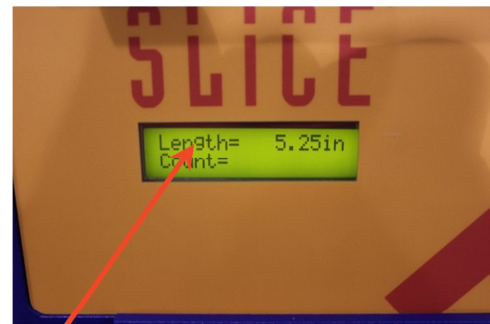
With larger diameter wires and tubing it may be necessary to press down firmly on the material. Make an angle cut at the end of these materials to facilitate easy loading.

6.0 Cut Material To Length Without Using A Program

1. Press “RUN”. The unit will ask for Length (Length=). Enter the desired length. The machine has arrived factory preset for length in inches. Enter inches with 2 decimal places. If you want to use the metric system, see Number 11.0 - Reprogramming The Unit.



Run Key

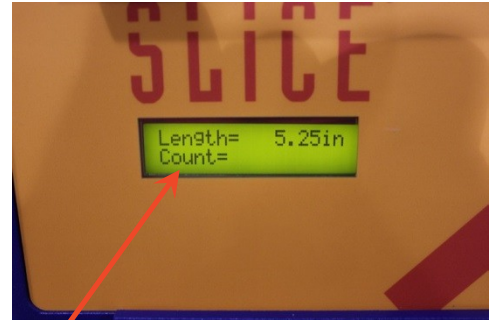


Length Prompt

2. After entering the length desired, press “ENTER”. The unit will request the number of pieces to be cut (Count=). Enter the number of pieces required and press “ENTER”. Verify that what you have entered is correct. The material exits from the bottom portion of the front of the machine, so make certain that the machine sits on the edge of the table to avoid jams.



“ENTER”



Count Prompt

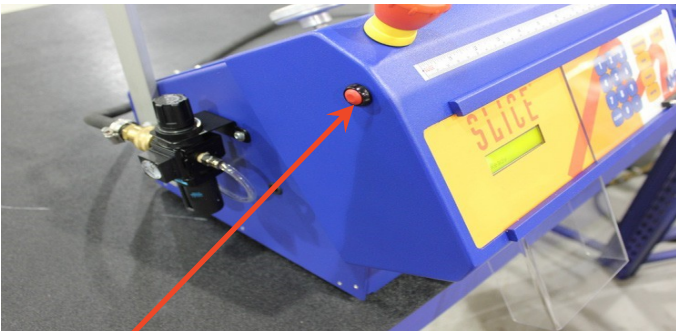
Note: Follow each complete numerical entry with “ENTER”.

3. Place a container under the unit's chute.
4. To begin the cut sequence press “RUN”.



“RUN”

5. Slide the Keypad Safety Shield back to its original position to the right.
6. Press both Activation buttons simultaneously located on each side of the unit. (Both buttons only need to be pressed once and not be held down to activate cut cycle of machine.)



Left-hand
Activation Key



Right-hand
Activation Key

7.0 Cut Product To Length Using A Program (A Preprogrammed Batch):

Enter a program by pressing “PROGRAM”. Enter the desired program number (1-99). Press “ENTER”.



Program Key



Enter Key



Run Key

Note: when a program is on the LCD screen, it may be run repeatedly by simply pushing “RUN”. To remove this program and enter a new one, push “CLEAR”.

Enter the length and count as requested by the unit.

Example: Length 12.56 “ENTER” Count 25 “ENTER”

Then press “RUN”

8.0 How To Run An Existing Batch Program

Press “PROGRAM”. Enter the program number (1-99) followed by “ENTER”. The data stored in that program will be displayed. If this is the correct program, accept it by pressing “ENTER” once more.

Place A Container Under The Chute And Press “RUN”.

If you choose a number that has already been programmed: the existing program’s length and count will be displayed. If you would like to reuse this program number for new data, just press “CLEAR”.

Note: Keeping a written log next to the machine that indicates your program numbers and a description of the lengths and counts for each program is recommended.

9.0 How To Set Up And Run A Batch Sequence File

Program numbers 100 to 139 are set up as “batch sequence file” programs. A batch sequence file program contains up to ten standard programs (numbers 1-99). To enter a batch sequence file program, press “PROGRAM”. Enter the desired batch sequence file number (100 to 139). Press “ENTER”. **If that number has already been programmed, the program numbers will appear on the LCD screen.**

If you would like to run this batch sequence file, press “ENTER” to accept it then press “RUN”. If that number has not been used before the machine will prompt you for the batch program numbers. Enter each batch program number to be run followed by “ENTER”. Pressing “ENTER” without entering a program number ends the entry mode. Pressing “RUN” will now run the batch sequence file.

If there is already a batch sequence program entered and you wish to reuse the number press “CLEAR”. The screen will be cleared and you may now enter the series of individual batch program numbers for your batch sequence file.

Example of appearance:

01,05,10,15,21
03,56,67,12,17

If one of the batch programs has not been previously entered, the machine will shut down the batch sequence.

10.0 Batch Sequence Pause Feature

Since a batch sequence program may contain as many as ten (10) different batches, the machine will stop in between each batch.

If the feature is not selected, the machine will run out all batches into the same container. This may be useful when all the tubing or wire required to build one machine is bagged or boxed for a workstation or is shipped in “kit” format.

11.0 Reprogramming The Unit

Press “PROGRAM” twice. Press “ENTER”.



Press
“PROGRAM” Twice



“ENTER”

Select from the rotating menu shown on the display:

1. Calibrate (Unit comes calibrated from the factory)
2. Inches/Metric (Change from English to Metric or vice-versa)
3. Set Feed Rate (Adjustable material feed rate from 5”- 30” per second)
4. Display total (Displays total pieces cut by the unit)
5. No Wire Stop
6. Batch Pause (Sets Batch Pause Feature)
7. Set Sticks (Activates Stick Program)
8. Step Adjust
9. Exit

*****Note:** SLICE® machines and other models that have been fitted with Polyurethane wheels do not feature the “no wire shut off.” Due to the use of special, non-conductive material for the drive and idler wheels, the unit is unable to detect if material is being fed through the machine. Therefore, please disregard this choice if you have poly wheels.

Press the appropriate numerical key to transfer to the desired programming. Or if you do not wish to make a change, once you have pressed one of these numbers, simply press the “CLEAR” button.

11.1 Calibration (displays as no. 1)

The unit comes calibrated from the factory. However, certain types and sizes of wire may interface with the driving and measuring wheels in a different manner. The unit will cut all types of wire consistently. However, the length setting may vary with different types of wire. This may be corrected when the length is set up by adjusting the input length of that wire. If the wire you are using is all the same and is consistently less or more than the settings of length you have entered, it may be corrected here in the calibration setting. When the “1” key is pressed to enter the calibration mode, the calibration number will be displayed:

9950 represents a decrease of the length by 0.5%

9900 represents a decrease of the length by 1.0%

1005 represents an increase of the length by 0.5%

1010 represents an increase of the length by 1.0%

SLICE® calibration works from 9000 (0.900) to 1100 (1.100). Unusual materials may require greater than 10% correction factors. It is suggested that the length setting be used to obtain the correct length for these materials.

Enter the correction factor you have calculated and press “ENTER”.

Note: the machine calibration will not be accurate for different types of tubing.
Calibration should be done only using wire or flat ribbon cable.

11.1 Calibration Continued

The issue of calibration is a complex one. Different insulating materials may have different slip rates. As such, a machine calibrated to run one type of wire and insulation may be slightly off calibration for a different type of wire and insulation. Heat shrink tubing, and various types of flexible tubing are susceptible to stretching. It is best to calibrate the machine to the product that you use the most. When other products are run, run a few samples and adjust the length setting until the desired length is achieved. On wire the repeatability will be the same. On flexible tubing repeatability will depend on the payout system employed for the tubing so as not to cause stretching while feeding into the unit.

11.2 The Effect of Machine Discrimination on Calibration:

Each step of the drive motor represents a move in length of 0.5 mm or .019". In order for a calibration correction to have an effect, the change must be at least .02". For example: a correction of 1% at 12" represents 0.12" or approximately six (6) steps of the drive motor. This same calibration at 1" represents only 0.01" and may not affect the length of the material.

11.3 Inches/Metric (displays as no. 2)

The display will ask you to select the "1" key for inches and the "2" key for metric. You may return to either setting, depending on your measuring needs. When entering a batch program, the program will save in the units of measurement currently specified. It will run in these units even if the units have been changed.

11.4 Set Feed Rate (displays as no. 3)

(Adjustable material feed rate from 5"-30" per second)

To change motor speed on adjustable models, press new speed desired. Example: 10 followed by "ENTER" will adjust the motor speed to 10" per second. Speed may be adjusted between 1" and 30" per second on standard models.

11.5 Display Total (displays as no. 4)

(Display Total Pieces) Simply displays the total pieces of product that have been cut by the machine since it's manufacture.

11.6 No Wire Stop (displays as no. 5)

The machine uses conduction between the stainless steel drive wheel and the stainless steel idler wheel to establish that there is no longer any material to cut. If the wheels are in contact with each other, the machine rightly assumes that there is nothing to cut and shuts down. **When cutting bare copper wire, braiding or anything conductive, you will need to deactivate this feature or else the machine will not run.**

****Note: Machines that have been fitted with Polyurethane wheels do not feature the “no wire stop.” Due to the use of special, nonconductive material for the drive and idler wheels, the unit is unable to detect if material is being fed through the machine. Therefore, please disregard this choice if you have poly wheels.*

11.7 Batch Pause (displays as no. 6)

Allows the batch sequence pause feature to be turned on or off.

11.8 Step Adjust (displays as no. 8)

The smaller the length of the pieces being cut from the stick, the more pieces will result. If each piece is slightly over length, the cumulative effect may result in less than the optimal number of pieces. The “Step Adjust” will allow for a fine tuning of the cut length. An adjustment of up to +/- 2 motor steps is allowed. Each step is approximately 0.02”.

Press “1” for plus length. Press “2” for minus length.

11.9 Exit (displays as no.9)

Exit the programming mode without changes by pressing this.

11.10 About The Emergency Stop Button

This is a kill-all switch, also known as an emergency stop or panic button. Should something become jammed in the machine, such as material, hair or clothing, press the Emergency Stop Button. To re-start, rotate the button clockwise.



Emergency Stop Button

11.11 Notes Of Interest

The machine has also been calibrated for length using standard flat ribbon cable. Some wear will occur overtime with the standard polywheels and you may find it advisable to recalibrate the machine from time to time depending on its use. When calibrating the machine please run at least 25 pieces of your material at a determined length and run several lengths from 4” to 12” and calculate the standard deviation for each length. Make calibration corrections based on this data.

Do not run one piece at a length and recalibrate the machine based on a sample of one.

The machine is set to run at full speed. Unless you are running material less than 2” there is no advantage in slowing down. Two things determine the accuracy of material length: First, the system is microprocessor controlled, stepper motor driven and movement of the material is monitored optically using the idler wheel. Second is the spring loading of the take-up reel system. The system is designed to function best when there is just enough tension on the material reel so that it cannot “free wheel”. When the system is functioning correctly, the material reel will be moving relatively smoothly without any jerking. **Excessive tension will cause inconsistencies in the wire cutting lengths.** On a lot of 25 pieces the standard deviation should not exceed .05”. (Over a length range of 4” to 36 “)

If for some reason you must remove the material, reload it again as above. If, by removing the material you cause the drive wheels to move, the first piece will not be accurately cut to length. You can reestablish “start position” by pressing “LOAD” again.

12.0 Contact Info

SLICE® was specifically designed for easy set-up and use. However, if you experience any difficulties with your machine that you cannot resolve using the information we have provided you, please contact us for assistance.

If you have any suggestions for improvement or ease of operation, please contact our Service Department with your comments/suggestions.

How To Reach Our Service Department:

E-mail: info@amtproducts.com

Telephone: 847.588.7080

Identify yourself as a SLICE® customer who needs to talk about a problem and you will be placed in contact with either an applications engineer or a service technician.

Important Information: Save the original packaging materials

13.0 Routine Maintenance Notes For The Slice Machines.

Important! Be Sure To Turn Off And Unplug Machine Along With Disconnecting The Air Line From The Slice Unit Before Performing Any Maintenance or Inspections!

Note: The Preventive Maintenance Program is based solely on the extent of use of the SLICE® machine. Typically, item 2 should be done on a weekly basis, however, if the SLICE® machine is being used extensively then you may want to initiate a Daily Maintenance Program.

1. Make certain that the venting holes located on the side of the machine are not blocked when the machine is in use.
2. Periodically you may need to remove material fragments from the inside of the machine. First and always, unplug machine and disconnect airline from the SLICE® unit. Remove the front panel and use an air gun or a soft, clean brush to gently brush any fragments that may have accumulated over time. Reassemble the front panel and only then plug the SLICE® unit back in and connect the air line.
3. Additional Maintenance Procedures would include the following and should be done periodically depending on the extent of use.

Weekly:

- Check to make sure no material is stuck in Blade/Die
- Check Blade/Die for corrosion, sharpness.
- Check Optic Sensor making sure it is free from debris.
- Check to make sure all connections are intact.

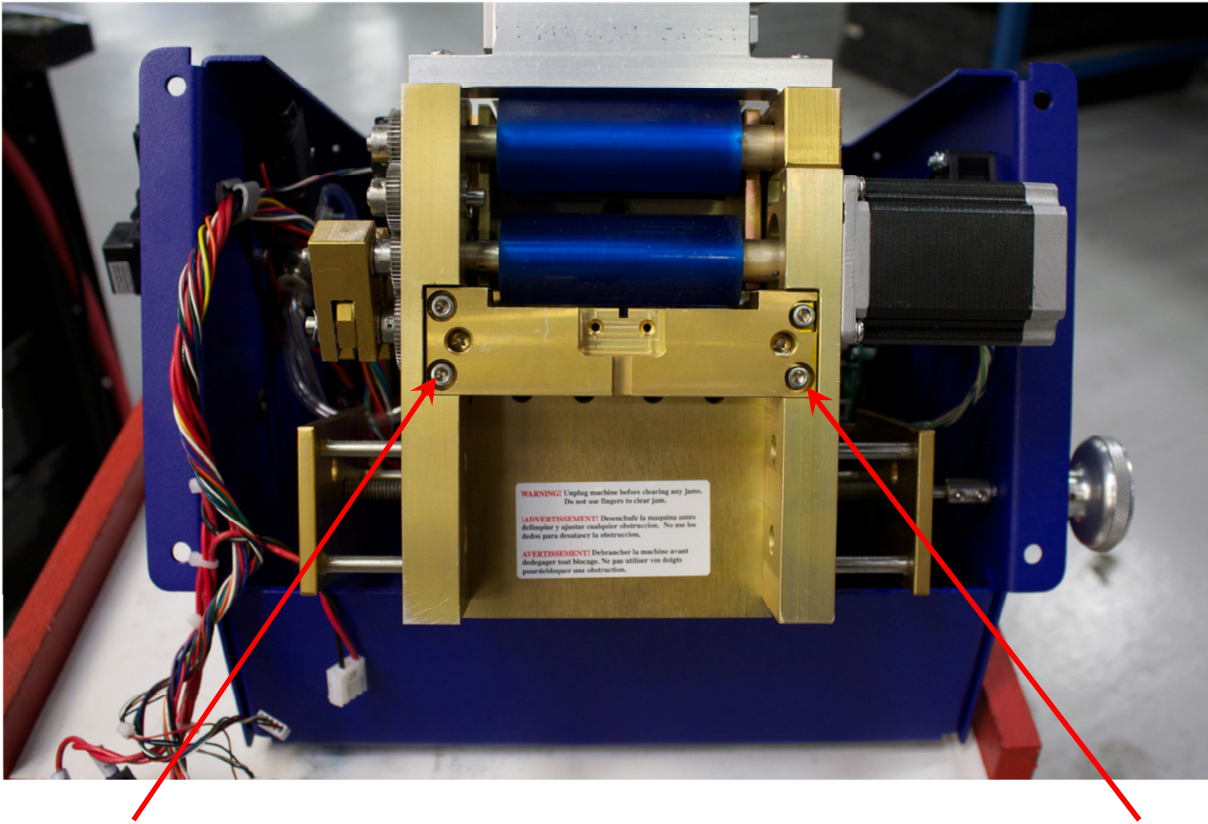
Monthly:

- Check Flag and Sensor alignment, adjust accordingly if needed.
- Check Drive and Idler wheels for damage, clean or replace as needed.

As Needed:

- Sharpening Blade or Die
- Replacing Blade or Die
- Check Fuses on Power Board and replace if necessary with exactly the same type of fuse.

13.0 Maintenance Section Continued



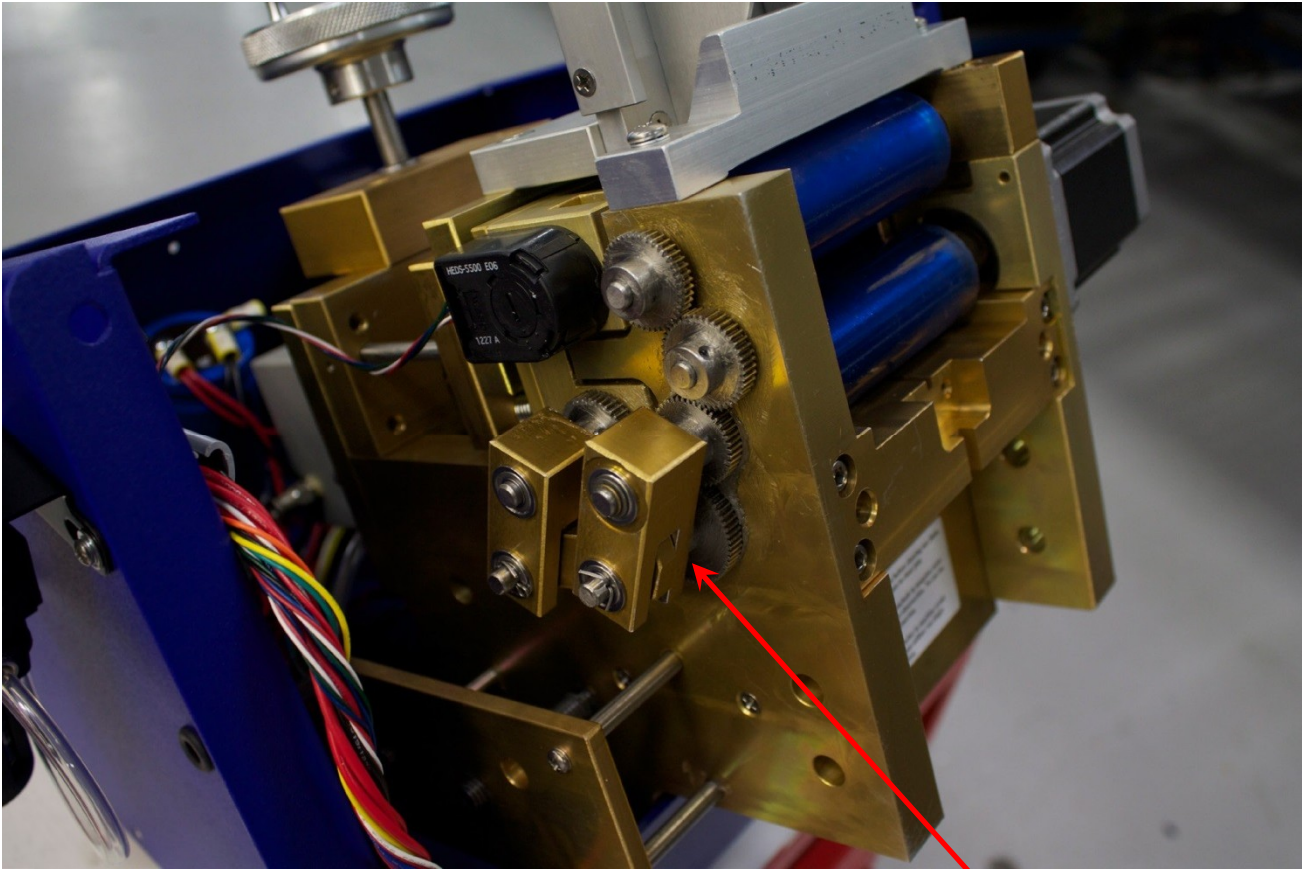
4. Periodically it is wise to remove the cutting die and blade to be cleaned and oiled. Use only light weight high speed oil (such as 3 in 1 oil). Remove the front cover by removing the four screws that attach it to the frame.

13.1 Instructions for replacing or cleaning Blade Assembly or Die

Note: Use 141 exploded view drawings for reference.

1. Unplug power, disconnect air.
2. Using a 3/16" allen key, remove 4 screws holding front cover on unit. [Pictured in Figure 1, Part # 10 in the exploded view].
3. Unplug all connectors going to the circuit board in the front housing and remove housing.
4. Using a 3/32 allen key, remove the tension handle [pictured in Figure 4, Part # 1]. Using a Phillips head screwdriver remove the top cover, this is under the tension handle.
5. Look at the cutter from the top, and find the place where the blade connects to the air cylinder. There is a quick release pin in the center [as shown in Figure 5, Part # 3]. The blade will have to be pulled forward to remove the pin. Remove the pin by pulling it straight up.
6. Looking at the cutter from the front you will see 4 socket head screws [as shown in Figure 2, Part # 1]. Using a 5/32 allen key, remove the 4 screws.
7. Pull the die assembly and the blade assembly out of the cutter, slide the blade assembly out of the die assembly. The die can now be flipped or replaced by removing the 2 screws securing it [as shown in Figure 7, Part # 1].
8. The blade and die can now be cleaned or replaced.
9. Lubricate the new or cleaned blade assembly using 3 in 1 oil. Reinsert the blade into the die assembly.
10. Slide the die assembly and the blade assembly into the unit making sure the blade slides into the clevis.
11. Replace the 4 screws for securing the die assembly. Replace the quick release pin connecting the blade to the air cylinder.
12. Replace top cover.
13. Replace tension handle. When tightening set screw be sure screw is turned into drill point on its mounting rod.
14. Plug all connectors into respective places on circuit boards. Double check to be sure they are all plugged in correctly.
15. Replace top cover with 4 screws.

13.2 Gear Box Maintenance



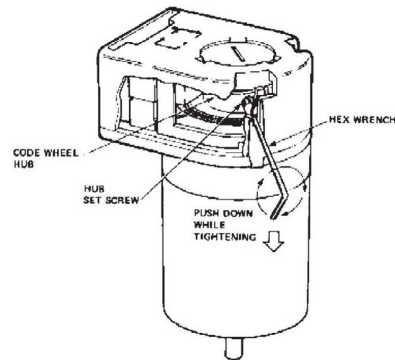
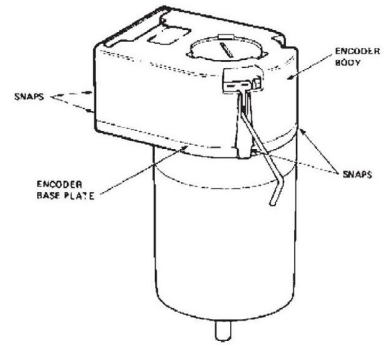
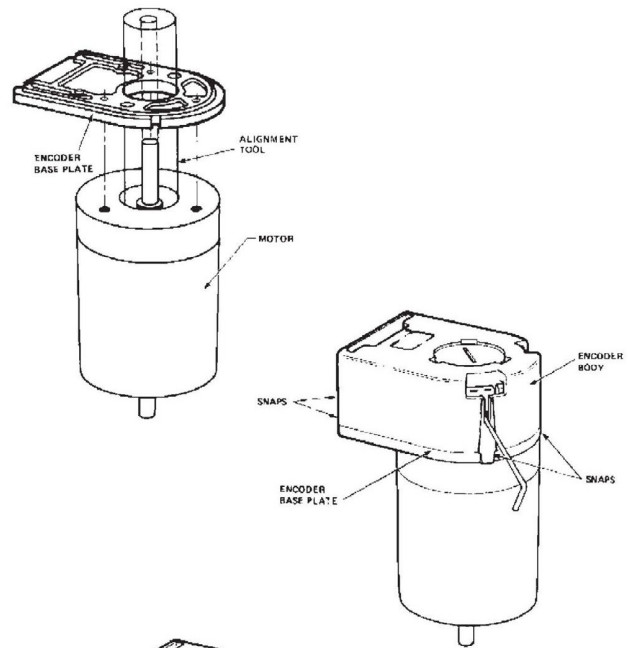
This gear train assembly drives the lower idler wheel. It automatically adjusts to the separation between the drive wheels and the pressure wheels. Should it become necessary to remove this for some reason, the entire assembly is held in place by a single “E” ring as indicated by the arrow. Carefully remove the ring. Then pull the assembly straight out.

13.3 Encoder Mounting and Assembly Maintenance

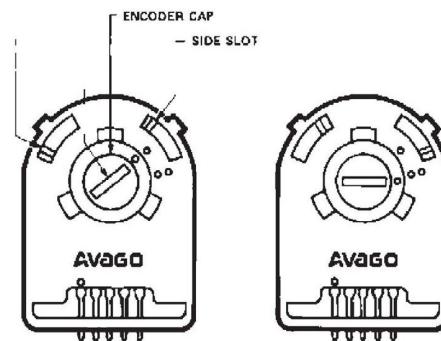
Encoder Mounting and Assembly

- 1a. For HEDS-5500 and 5600: Mount encoder base plate onto motor. Tighten screws. Go on to step 2.
- 1b. For HEDS-5540, 5640 and HEDM-5500, 5600, 5540 : Slip alignment tool onto motor shaft. With alignment tool in place, mount encoder baseplate onto motor as shown above. Tighten screws. Remove alignment tool.
- 1c. It is recommended that adhesive* is applied to the screw-baseplate interface to prevent screw loosening due to effect of high temperature on plastic
2. Snap encoder body onto base plate locking all 4 snaps.
- 3a. Push the hex wrench into the body of the encoder to ensure that it is properly seated into the code wheel hub set screws. Then apply a downward force on the end of the hex wrench. This sets the code wheel gap by levering the code wheel hub to its upper position.
- 3b. While continuing to apply a downward force, rotate the hex wrench in the clockwise direction until the hub set screw is tight against the motor shaft (The recommended torque to tighten the setscrew is 15-18 ozf.inch). The hub set screw attaches the code wheel to the motor's shaft.
- 3c. Remove the hex wrench by pulling it straight out of the encoder body.
4. Use the center screwdriver slot, or either of the two side slots, to rotate the encoder cap dot clockwise from the one dot position to the two dot position. Do not rotate the encoder cap counterclockwise beyond the one dot position.

The encoder is ready for use!

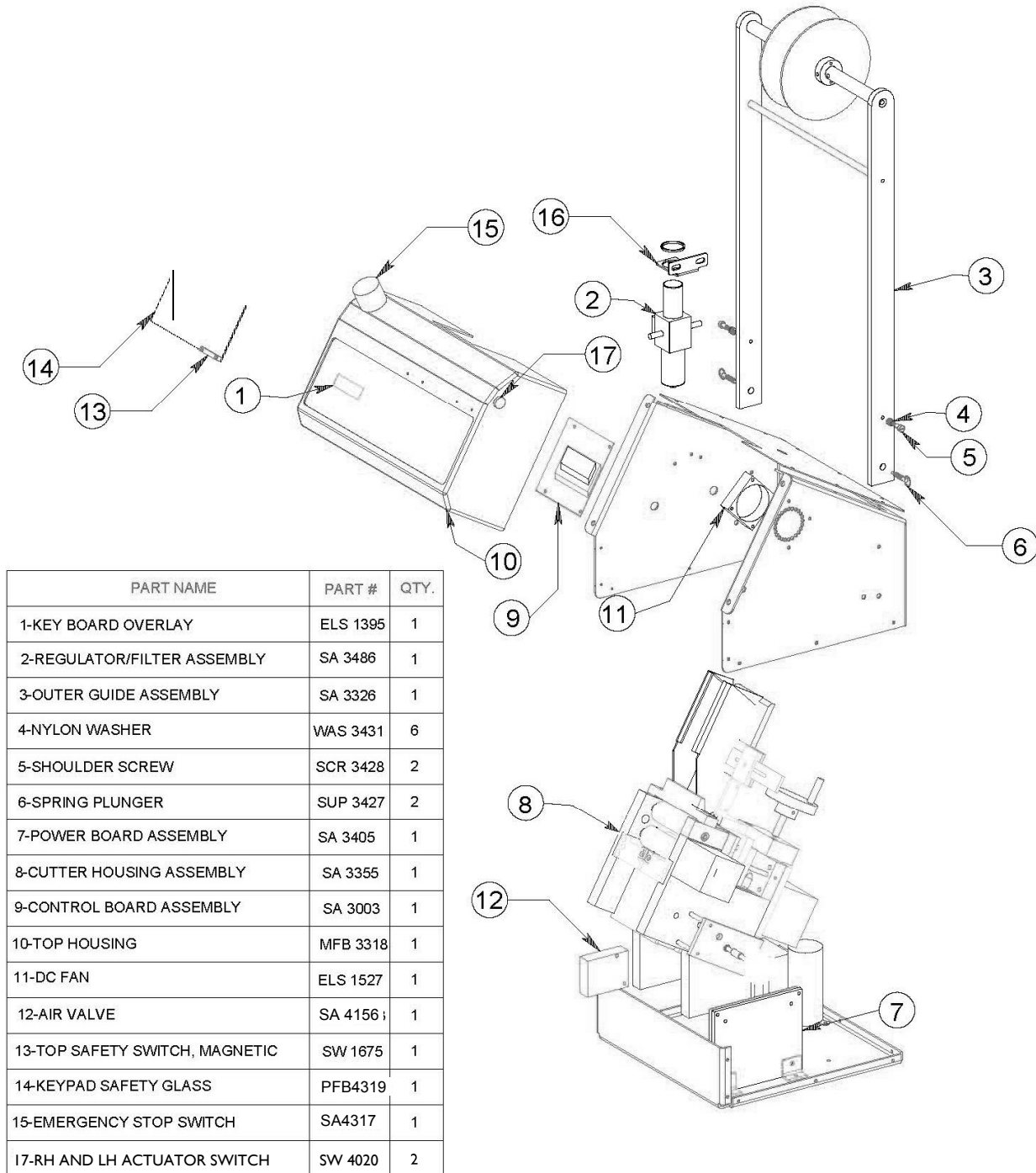


- SIDE SLOT
- CENTER SCREWDRIVER SLOT



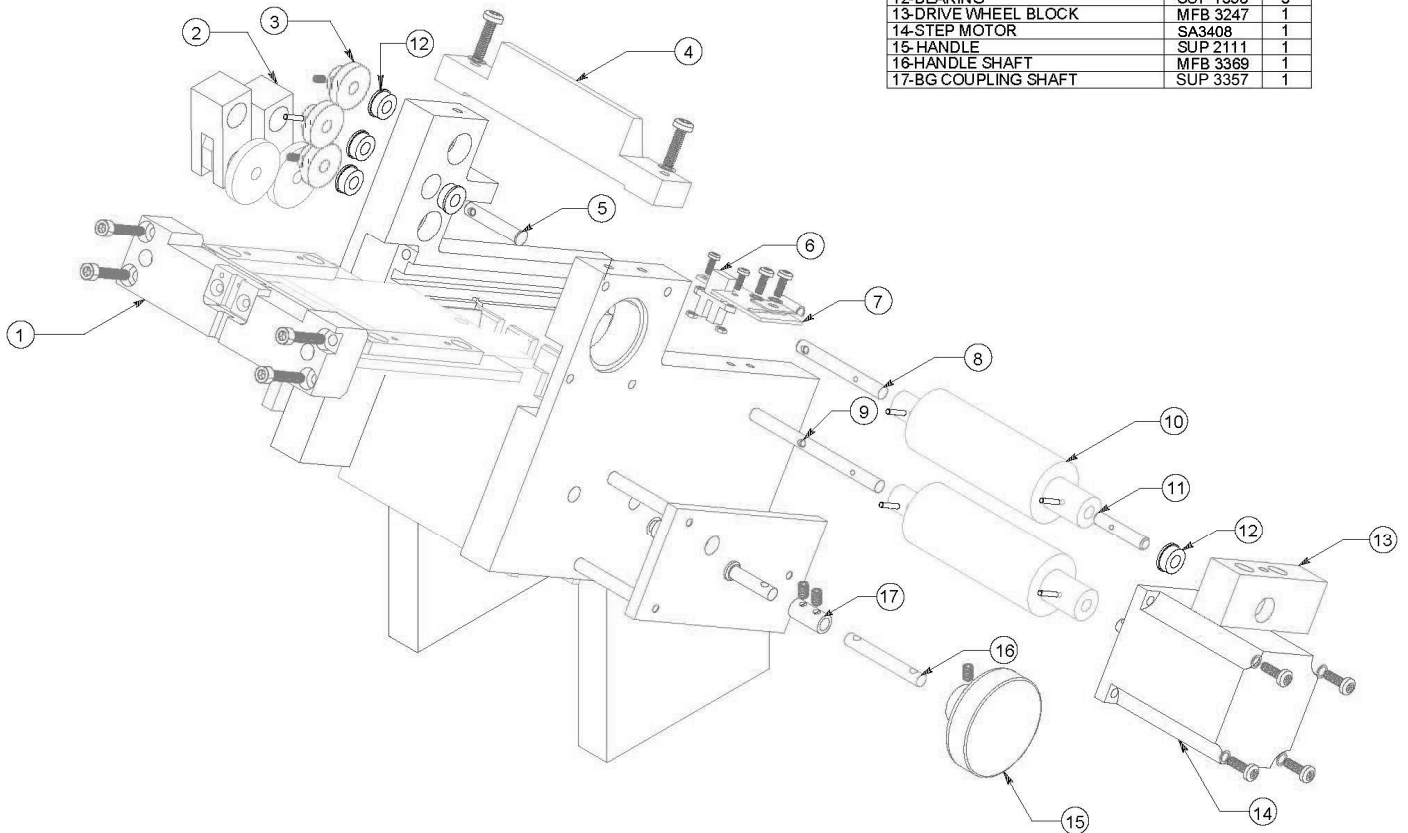
14.0 Slice 141

Figure 1: FA3359 Slice 141 Final Assembly Exploded



14.1 Slice 141

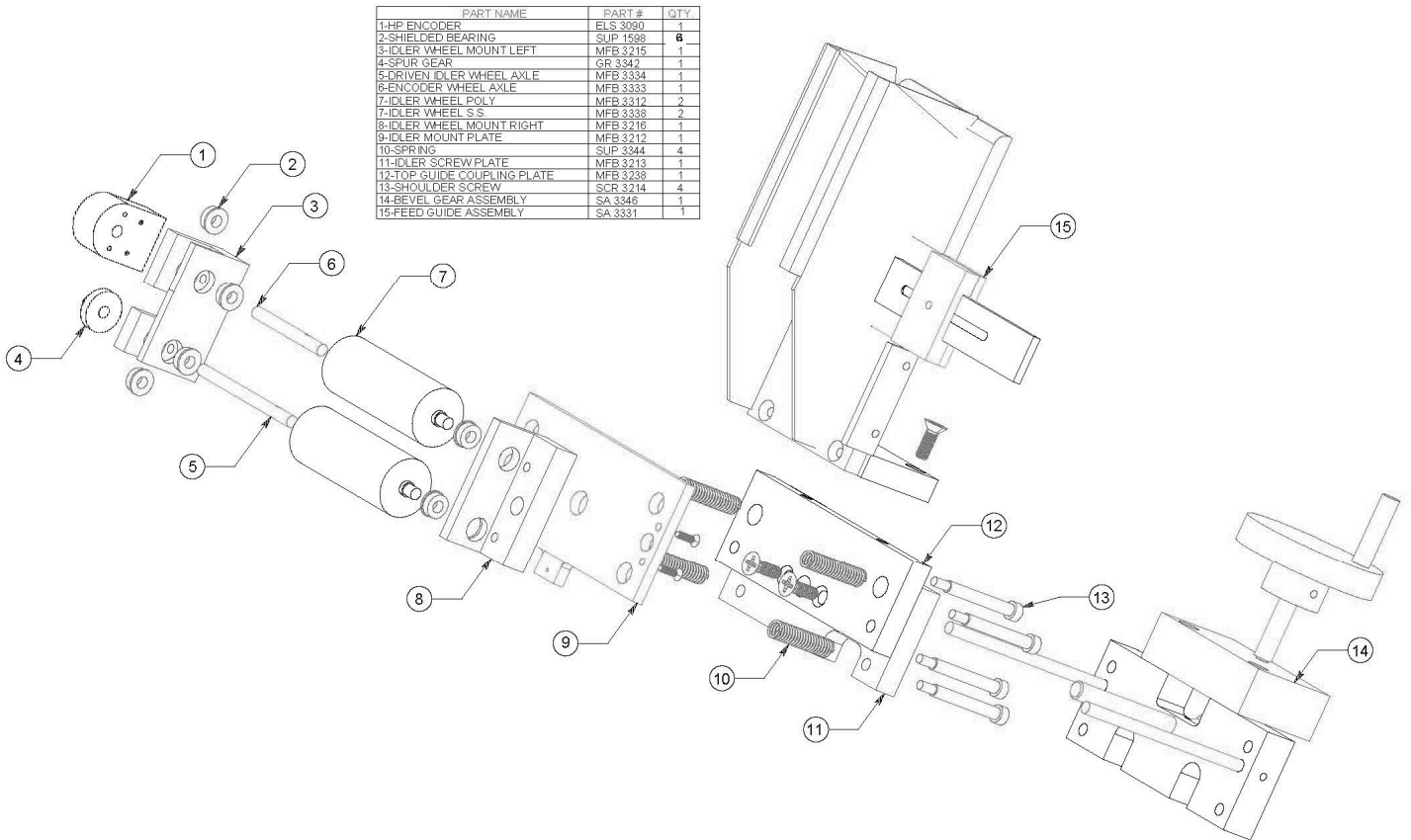
Figure 2: SA3355 Cutter Housing Assembly Exploded



PART NAME	PART #	QTY.
1-DIE ASSEMBLY	SA 3335	1
2-AUXILIARY GEAR ASSEMBLY	SA 3345	1
3-SPUR GEAR	GR 3342	4
4-FRONT GUIDE	MFB 3249	1
5-GEAR AXLE	MFB3309	1
6-OPTIC SENSOR ASSEMBLY	SA 3376	1
7-SENSOR MOUNT	MFB 3254	1
8-DRIVE 2 AXLE LEFT	MFB 3332	1
9-DRIVE WHEEL AXLE	MFB 3248	1
10-DRIVE WHEEL POLY	MFB 3245	2
10-DRIVE WHEEL S.S.	MFB 3244	2
11-DRIVE 2 AXLE RIGHT	MFB 3339	1
12-BEARING	SUP 1598	5
13-DRIVE WHEEL BLOCK	MFB 3247	1
14-STEP MOTOR	SA3408	1
15-HANDLE	SUP 2111	1
16-HANDLE SHAFT	MFB 3369	1
17-BG COUPLING SHAFT	SUP 3357	1

14.2 Slice 141

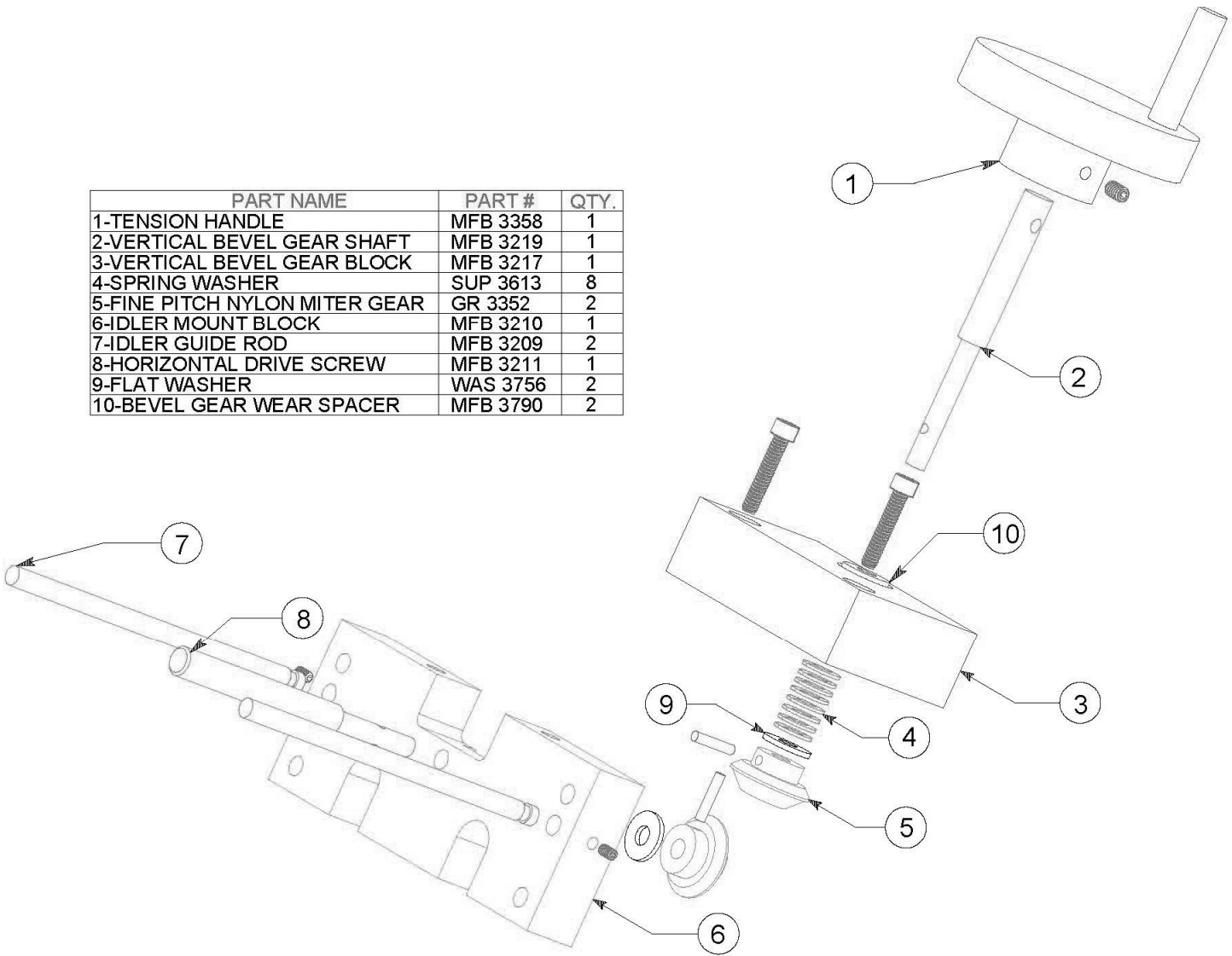
Figure 3: SA3340 Idler Wheel Pressure Assembly Exploded



14.3 Slice 141

Figure 4: SA3346 BevelGear Assembly Exploded

PART NAME	PART #	QTY.
1-TENSION HANDLE	MFB 3358	1
2-VERTICAL BEVEL GEAR SHAFT	MFB 3219	1
3-VERTICAL BEVEL GEAR BLOCK	MFB 3217	1
4-SPRING WASHER	SUP 3613	8
5-FINE PITCH NYLON MITER GEAR	GR 3352	2
6-IDLER MOUNT BLOCK	MFB 3210	1
7-IDLER GUIDE ROD	MFB 3209	2
8-HORIZONTAL DRIVE SCREW	MFB 3211	1
9-FLAT WASHER	WAS 3756	2
10-BEVEL GEAR WEAR SPACER	MFB 3790	2

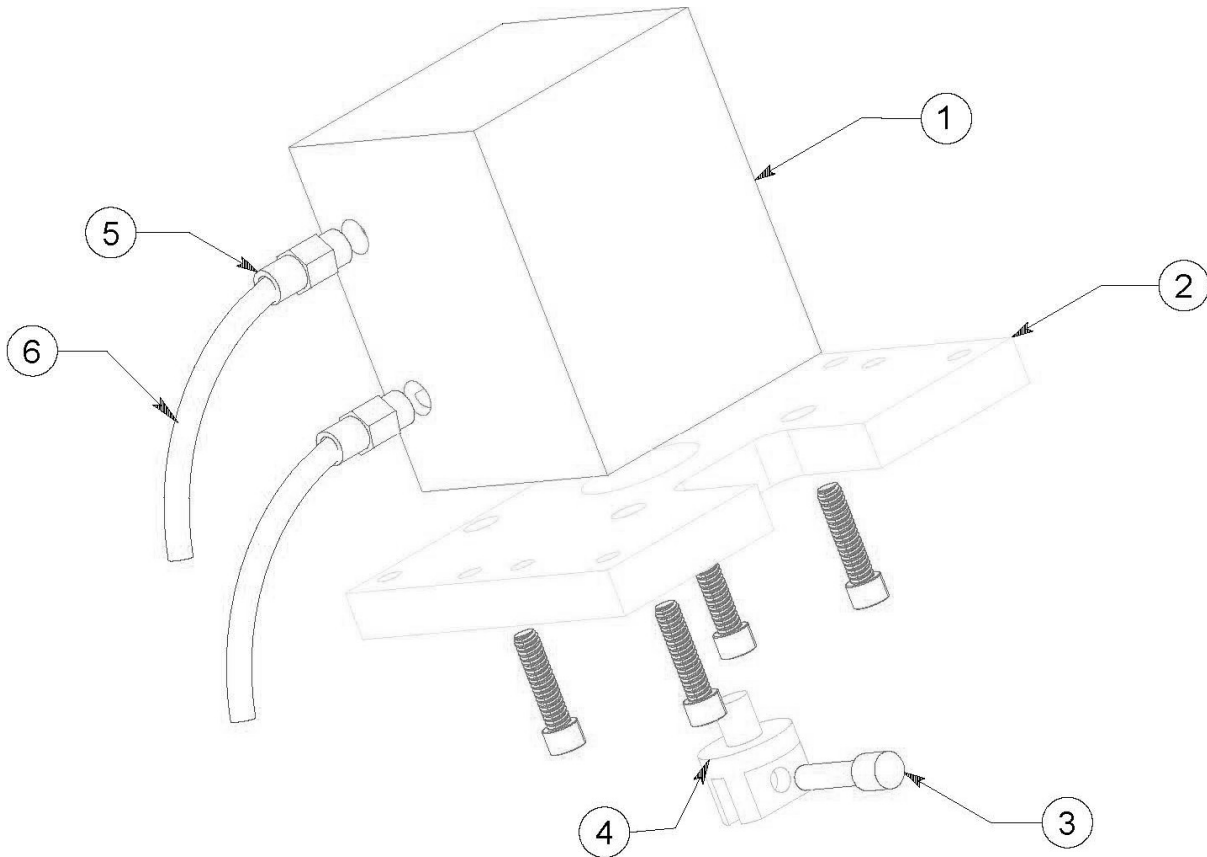


14.4 Slice 141

Figure 5: SA3348 Air Cylinder Mounting Plate Assembly Exploded

PART NAME	PART #	QTY.
1-AIR CYLINDER	SUP 2062	1
2-MOUNTING PLATE	MFB 3252	1
3-QUICK RELEASE PIN	SUP 3985	1
4-CLEVIS	MFB 3250	1
5-MALE CONECTOR	SUP2065	2
6-.25 OD POLY TUBING	SUP 2188	2

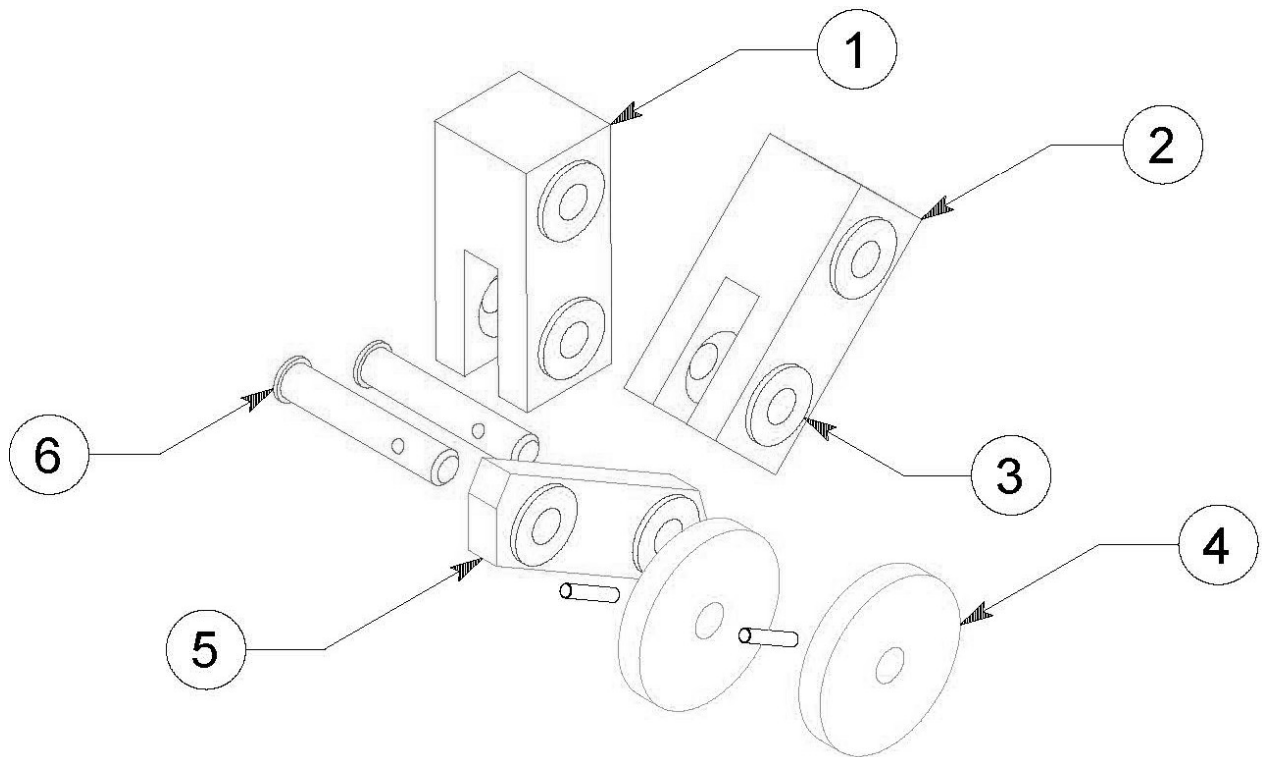
*See Air Schematic



14.5 Slice 141

Figure 6: SA3345 Auxillary Gear Assembly Exploded

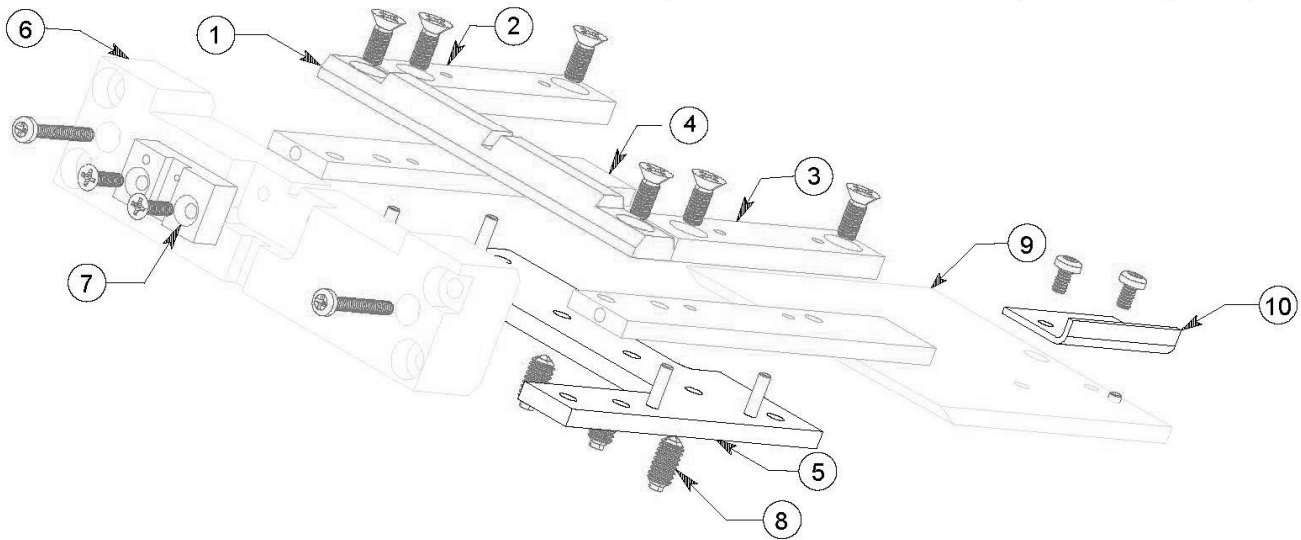
PART NAME	PART #	QTY.
1-GEAR HOLDER LEFT	MFB 3307	1
2-GEAR HOLDER RIGHT	MFB 3308	1
3-SHIELDED BEARING	SUP 1598	10
4-SPUR GEAR	GR 3341	2
5-GEAR SWIVEL BAR	MFB 3310	1
6-GEAR AXLE	MFB 3309	2



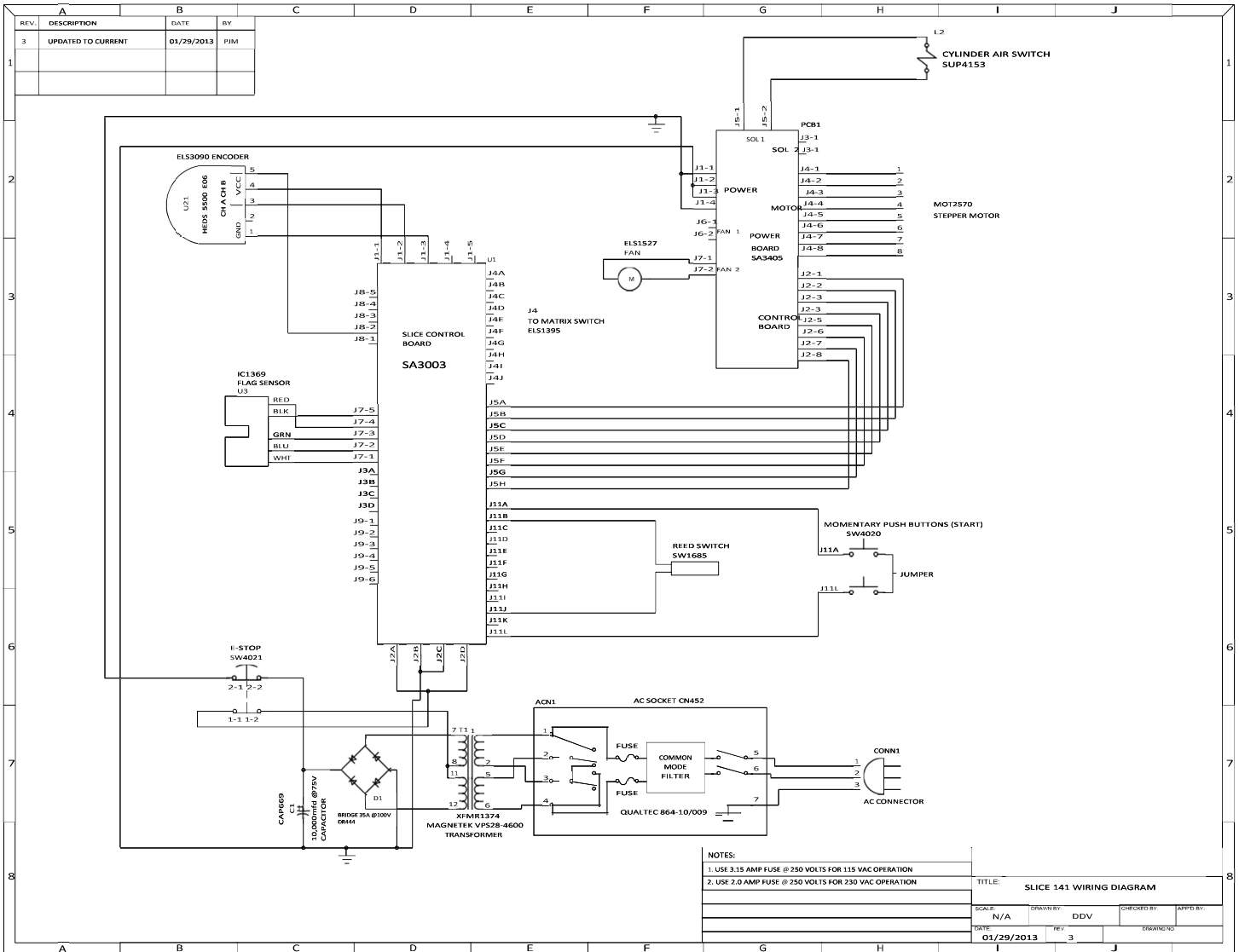
14.6 Slice 141

Figure 7: SA3335 Die Assembly & Blade Assembly Exploded

PART NAME	PART #	QTY.
1-DIE BOTTOM	MFB 3230	1
2-DIE SIDE LEFT	MFB 3237	1
3-DIE SIDE RIGHT	MFB 3236	1
4-DIE GUIDE	MFB 3232	2
5-DIE SUPPORT	MFB 3234	1
6-DIE MOUNT	MFB 3235	1
7-SENSOR MOUNT BLOCK	MFB 3589	1
8-BALL PLUNGER	SUP 3648	4
9-BLADE	MFB 3228	1
10-FLAG	MFB 3229	1

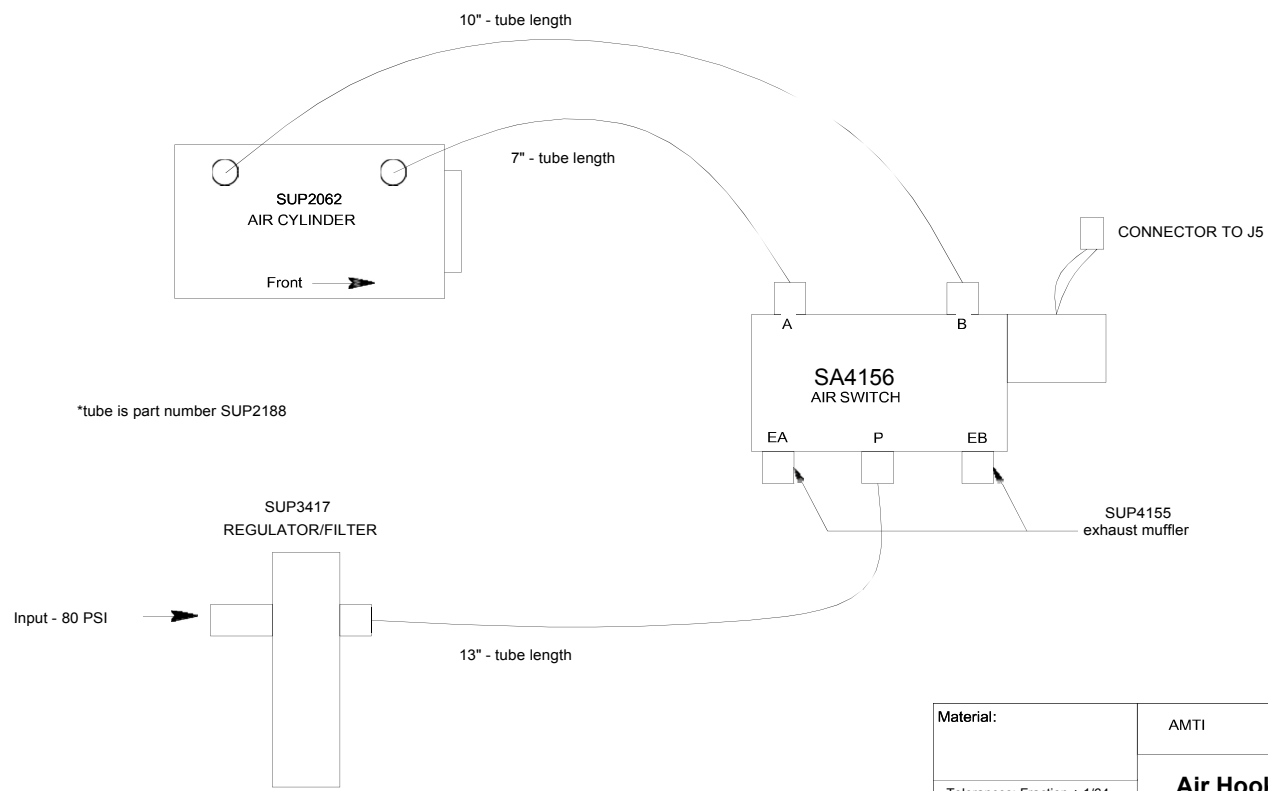


14.7 SLICE® 141 Wire Diagram



14.8 SLICE® 141 Air Schematic

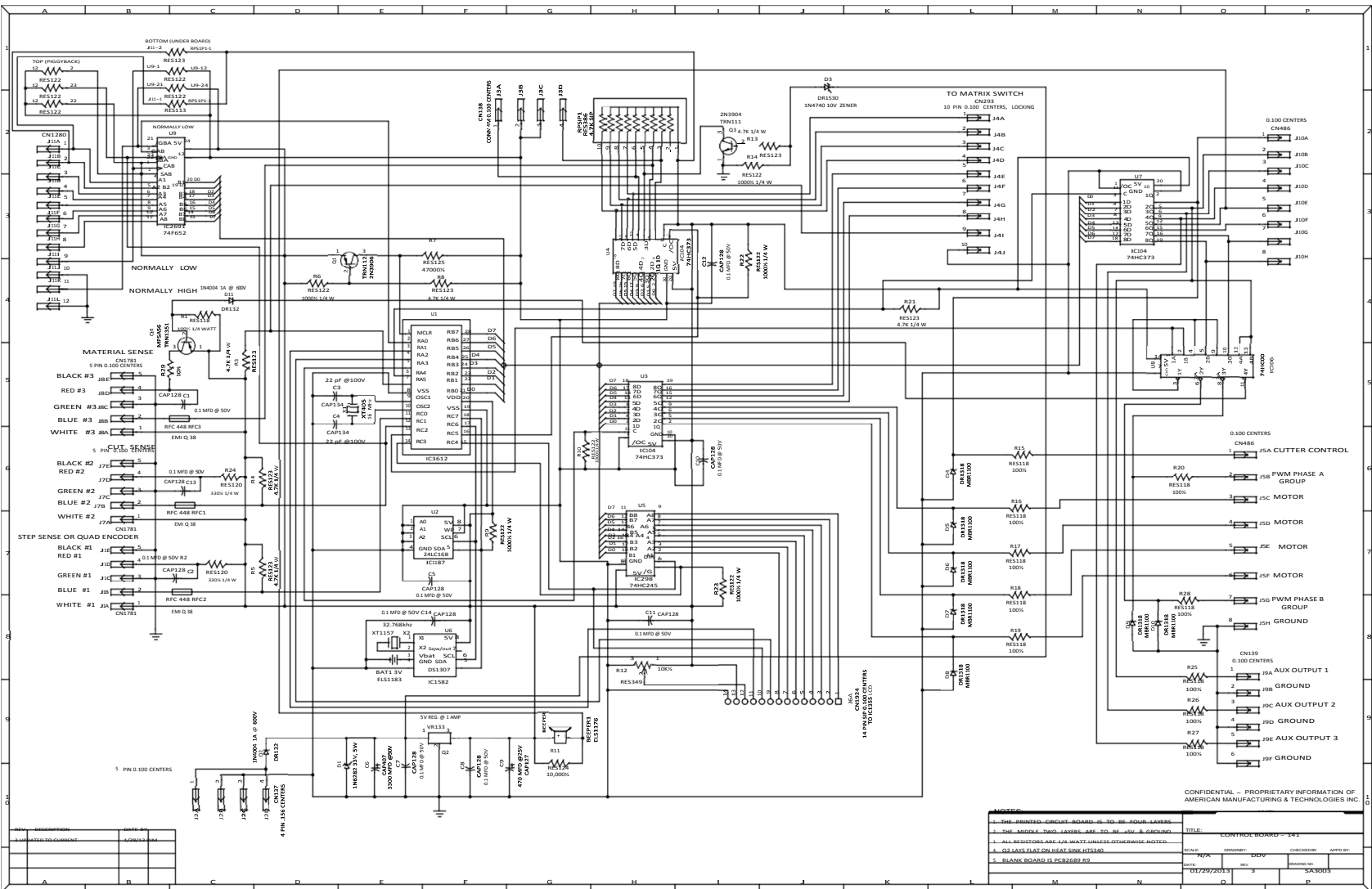
REVISION HISTORY			
REV	DESCRIPTION	DATE	BY



*tube is part number SUP2188

Material:	AMTI		
Tolerances: Fraction ± 1/64 .xx ± 0.010 .xxx ± 0.005 .xxxx ± 0.0005 Angular ± 0; 30' [unless otherwise noted]	Air Hookup Diagram - 141/142		
	Scale: 1:1		
Drawn by: PJM	Approved by:		Date: 12/11/02

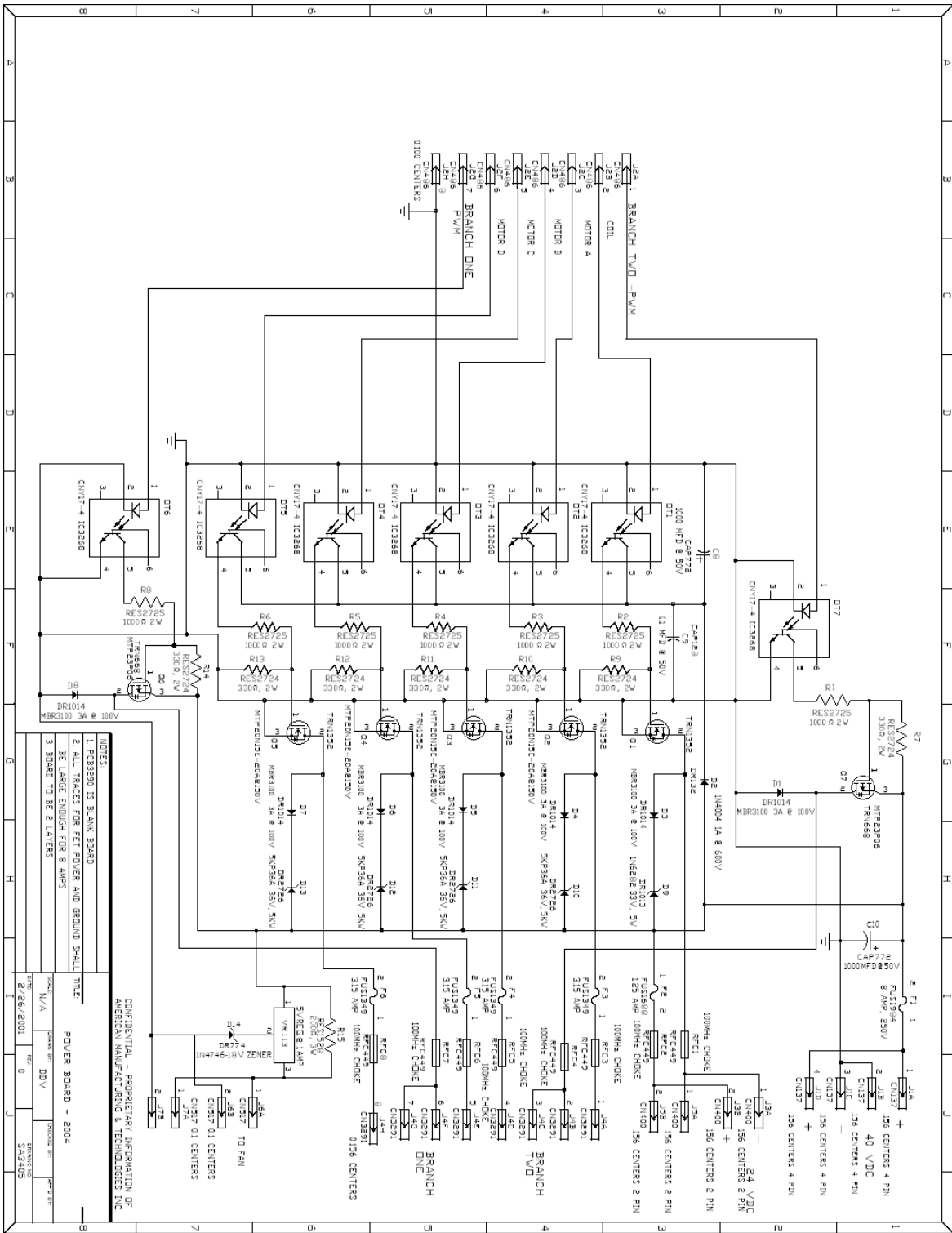
14.9 SLICE® 141 Control Board - SA3003



1. THE PRINTED CIRCUIT BOARD IS TO BE FOUR LAYERS.	TITLE: CONTROL BOARD - 141
2. THE APPROX. DIM. LAYERS ARE TO BE SW & GROUND.	SCALE: 1/4" = 1"
3. ALL DIMENSIONS ARE TO BE UNLESS OTHERWISE NOTED.	DATE: 01/25/2013
4. G2 LAYS FLAT ON DEAT SINK HTS180.	DESIGNED BY: SA3003
5. BLANK BOARD IS PER 682 R9.	APPROVED BY:

CONFIDENTIAL - PROPRIETARY INFORMATION OF AMERICAN MANUFACTURING & TECHNOLOGIES INC.

14.10 SLICE Power Board – SA3405



<u>SLICE 141 REPLACEMENT PARTS</u>		
QTY.	ITEM DESCRIPTION	AMTI PART NUMBER
4	SPRINGS	SUP3344
20	ROLLER BEARING	SUP1598
1	BLADE	MFB3228
1	DIE BOTTOM	MFB3230
4	BALL PLUNGER	*SUP1986 OR SUP 3648
	* 1986 for unit serial #<19360363 and 3648 for unit serial #> 19360363	
2	STEEL IDLER WHEEL	MFB3338
2	POLYURETHANE IDLER WHEEL	MFB3312
2	STEEL DRIVE WHEEL	MFB3244
2	POLYURETHANE DRIVE WHEEL	MFB3245
1	AIR CYLINDER	SUP2062
1	AIR VALVE	SA 4156
1	*AIR FILTER W/ BOSCH GAUGE	SUP3417 - REV 1
	*Replaces SUP2064, 3195 Air Regulator with filter and Pressure gauge	
1	CONTROL BOARD (PCB)	SA3003
1	MOTOR ASSEMBLY	SA 3408
1	OPTIC SENSOR ASSEMBY	SA3376
1	ELECTRONIC ENCODER	ELS3090
1	POWER BOARD (PCB)	SA3405
1	KEYPAD SAFETY SHIELD	SA 4318
5	3.15A FUSE	FUS1349
1	.8A FUSE	FUS1984
1	KEYBOARD OVERLAY	ELS1395

15.0 SLICE® Trouble-Shooting Guide

IMPORTANT

Before opening up the SLICE® machine for inspection or for repairs/component replacement, be sure to turn the machine off, unplug the power cord from the machine completely!

15.1 Product Feeds But Does Not Cut

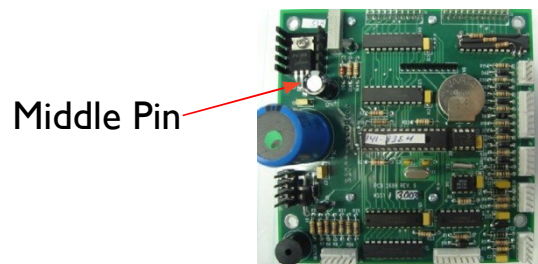
- A. Check fuses on Power Board.
- B. Check to make sure no material is stuck in Blade/Die.
- C. Check that Blade/Die are sharp.

15.2 LCD Displays “Clear Input Jam”

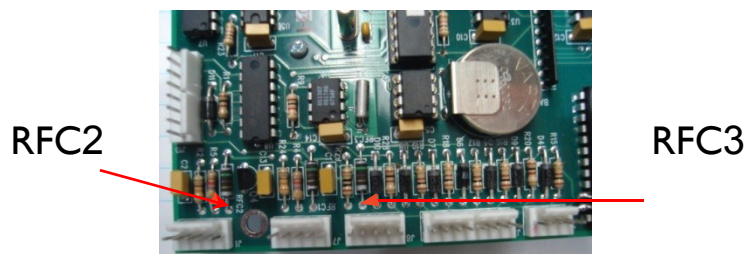
- A. Check fuses on Power Board.
- B. Check connections for Encoder.
- C. Check for damaged Encoder (see 15.3).
- D. Check to see if anything is jammed by wheels.
- E. Check to make sure no material is stuck in Blade or Die.
- F. Press load button.
- G. Check functionality of Encoder.

15.3 TEST ENCODER INSTRUCTIONS For ELS3090

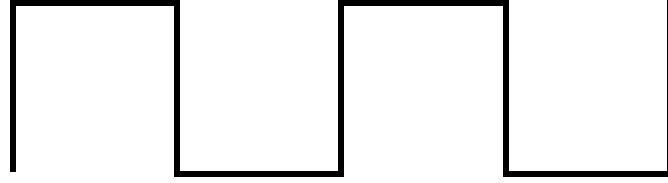
1. Use scope – set volts/div to .5 and sec/div to 2 ms.
2. Connect probe #1 to RFC2 and the clip lead coming off that probe to ground (middle pin).



3. Connect probe to #2 to RFC#3.



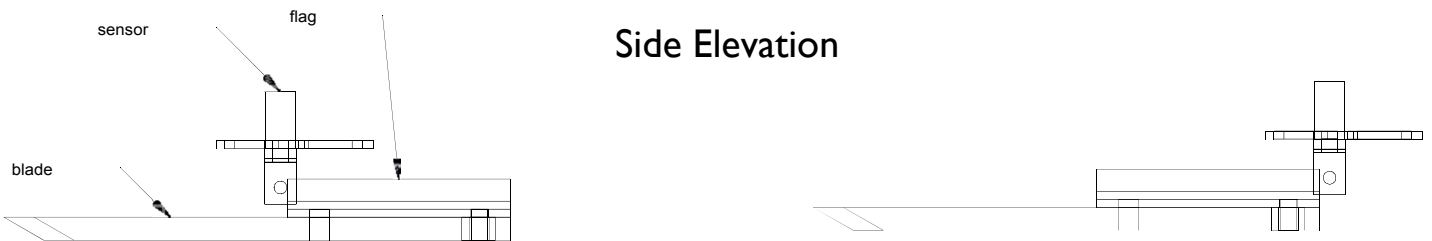
4. Spin the wheels on the unit and on the scope the 2 lines should resemble the following:



5. If the lines do not resemble this the encoder is bad.

15.4 LCD Displays “Flag Not Set”

A. Check Flag and Sensor alignment (see below).



B. Check connection between sensor and board are intact.

C. Check Optic Sensor making sure that component is free from debris.

D. Check functionality of optic sensor.

Following is how you can check your blade flag sensors - SA2187, SA3376.

-Use a voltmeter set on DC voltage.

-Shut off power on machine and remove cover but keep all cables connected.

-Follow the black sensor cables from the machine to the control board in front cover.

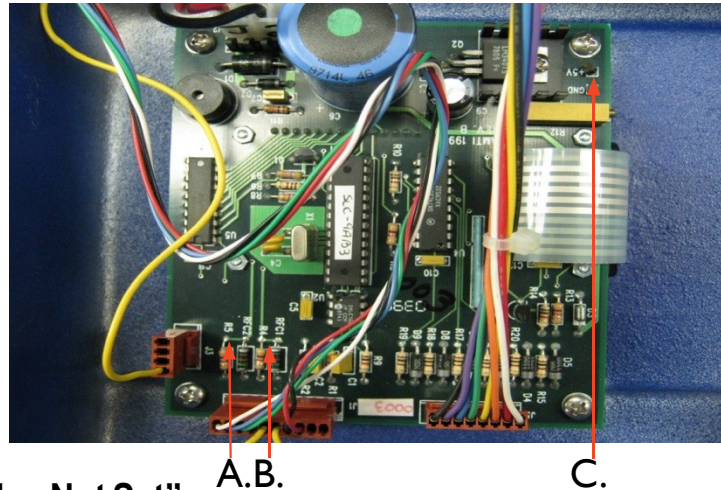
-To test flag sensor connect red end of meter to “B” –RFC1 and black end to “C”-GND.

Turn power on. Move flag in and out by hand passing it through sensor. It should read 5V when flag is clear and 0 when blocked by flag.

-Turn power off.

-To test encoder sensor connect red end of meter to “A” –RFC2 and black end to “C”-GND. Turn power on. Turn encoder wheel slowly. As it turns it should alternate reading 5V when clear and 0 when blocked.

If you do not get 5V the sensor is bad.



15.5 LCD Displays “Flag Not Set”

- A. Check Flag and Sensor alignment.
- B. Check connection between sensor and board are intact.
- C. Check Optic Sensor making sure that component is free from debris.
- D. Check functionality of optic sensor.

15.6 LCD Displays “Blade Not Moving”

- A. Check fuses.
- B. Check air pressure. (Should be 80 psi) and air line connections.
- C. Check connections.
- D. Check for debris in both Blade and Die.

15.7 LCD displays “Black Squares”, No Text

- A. Check that Control Board IC is not loose or removed.
- B. Control Board IC corrupted and needs to be replaced.
- C. Control Board needs to be replaced.

15.8 Machine Not Cutting Accurate Lengths

- A. Check the calibration factory setting. Check if there is a 4-digit number listed under calibration program. (4-digit required)
- B. Insure material feed is smooth and free of kinks or hang ups.
- C. Recalibration may be required (See Operating Manual Section 12)
- D. Check bearings on wheels as they may have been worn down.
- E. Check encoder wheel as it may be damaged.
- F. Check both the Power and Control Boards.

15.9 Machine Not Able To Pull Material Through Cutter

- A. Check for jam or material obstructions in opening.
- B. Is the material feeding freely? Undue amount of tension on material? Check set up.
- C. Are you using a material appropriate for this model machine?

15.10 Machine Freezes Up During Load Cycle And is Sluggish

- A. Is an adhesive material being used?
- B. Are Blade and Die being routinely cleaned?
- C. Check air pressure and air line connections

15.11 LCD Displays Words Not Related To Correct Functions Being Performed

- A. Contact ServiceTech.

15.12 Motor Making Grinding Noise

- A. Check fuses/transistors on Power Board. The majority of the time, when the motor is grinding, it is due to a blown resistor.
- B. Check Motor.
- C. Check bearings on wheels to see if they are free spinning. Bearings may be worn out.

15.13 Machine On “LOAD” Cycle Cuts Ok But Fails On “RUN” Cycle

- A. Check that wheels are closed enough.
- B. Check encoder connections.
- C. Set screw on encoder may be loose, refer to encoder in manual.

Note: Encoder not engaged when machine on “LOAD” cycle, only engaged during the “RUN” cycle, So Encoder may need to be replaced.

15.14 Losing “Batch” Sequence Programs

- A. Check to make sure programs were set properly.
- B. Check fuses.
- C. Possible software corruption.

15.15 Blade Jams

- A. Is adhesive product being cut?
- B. Are Blade and Die routinely cleaned?
- C. Check for material stuck in die.
- D. Check if Ball Plunger(s) are too tight or damaged.
- E. Check Air Cylinder.

15.16 Solenoids Not Firing

- A. Check connections.
- B. Check fuses on power board.

15.17 Solenoids Stuck In Closed Position

- A. Check fuses on Power Board.

15.18 Machine Has No Power

- A. Check fuses in power input receptacle.

15.19 Material Not Cutting Clean

- A. Blade or Die is dull.
- B. Ball plungers are damaged.
- C. Material stuck in Die.
- D. Check Air Pressure.

15.20 FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rule. These limits are designed to provide reasonable protection against harmful interference in a residential radio installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Industrial Control Equipment 21 EM

AMTI

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