

ARTOS

ENGINEERING COMPANY

Machine Model	CS 338 Wire Processor	Owners Manual		
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Introduction

Your ARTOS Wire Processor accurately measures, cuts, strips and counts various wires. It is the perfect choice for your flexible wire processing needs and portable manufacturing requirements. The user friendly electronic controls allow anyone to program the ARTOS Wire Processor with no training. The system will prompt you through each step of the operating parameters. Frequently run operations can be quickly stored and accessed from its 99 program locations. This fully electronic machine processes wire from 32 AWG (0.05 mm²) to 8 AWG (8 mm²) diameters and with strip lengths from 0 to 2.0 (50 mm) inches, wire application dependent.

We hope that you are pleased with the purchase of your ARTOS Wire Processor. You will obtain the optimum performance from your ARTOS Wire Processor if you read, understand and follow the instructions within this manual. Thank you for purchasing the ARTOS Wire Processor.

Technical Data

Description

Dimensions Height: 12 inches (406 mm)

Width: 16 inches (305 mm)

Depth: 12.5 inches (317 mm)

Weight 61 lbs.

Noise Level 60 dB (A) at 1.0 meter from front face of machine.

Cut Length .06 inches (1.5 mm) mm Min

9,999.99 inches (99,999 mm) max

Piece Quantity 1 to 9,999

Program Storage, 99 PARTS (wires), with battery back-up

Warning and Safety Instructions

Please read, understand and follow the warnings and instructions in this manual and on the machine. Failure to do so can result in serious personal injury.

- **DO NOT** operate machine without the safety guard in place.
- **DO NOT** perform any maintenance on the machine unless the electrical supply to the machine is disconnected.
- **DO NOT** attempt to replace the blades or the feed belt unless the electric power is disconnected from the machine.
- **DO NOT** operate machine without wearing proper eye protection.
- **DO NOT** wear loose clothing or jewelry that might get caught in the operating parts of the machine.
- **DO NOT** operate machine in a damp or wet location.
- **DO NOT** operate if liquid is spilled on or in machine.
- **DO NOT** operate machine on an ungrounded electrical system.
- **DO NOT** alter, modify or misuse the machine.
- **DO NOT** operate machine unless all instructions are read and understood.
- **DO NOT** operate machine in a gaseous or hazardous environment.

Unpacking: The following parts should be included with the machine.



Feed tubes set
2-144434



Power Cord
916-445 110VAC
916-446 220VAC



Wrench set 691.020



Wire straightener IA-4379



Calibration tool K-8685



Scrap tray 143387



Guard 5-143390

OPTIONS

BLADES:

Spare blade Set LB-1253 (Pair) Std.

Spare blade Set LB-1725 (Pair) Coated for long life.

Gage specific radius blades blade sets; 8 Ga. LA-4047, 10 Ga. LA-4048, 12 Ga. LA-3707

14 Ga. LA-3708, 16 Ga. LA-3709, 18 Ga. LA-3710, 20 Ga. LA-3711.

BELTS:

Feed Belts 139454 (4 req.) Std.

Feed Belts 139455 (4 req.) softer surface for greater stripping power.

Pre Process

WM-6B Wire Marker (double type set)

KIP 20 Wire Marker (single head wheel type set)

Prefeeder

45-714A Prefeeder

Maximum spool size: Diameter 450 mm (14") Weight 27 kg (60 lbs.)

45-712 Premium De-reeler (non-motorized)

Barrel Cone Wire Feeding Device (87093-500)

Operator Control Features

On-Off Switch (Power Module) is located on the back of the case.

This contains machine fuses.
Fuses are also used to change voltage selection.
Be sure the fuses are installed properly for the voltage it is being connected to. **See page 19 “Voltage Selection”**

Turns main power on (I) and off (O).



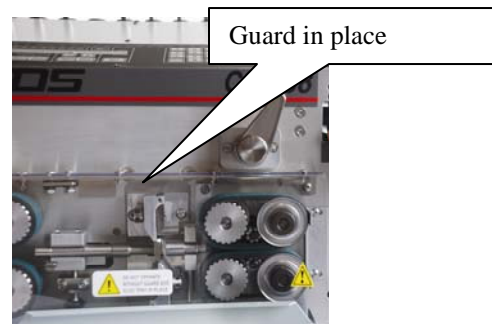
Emergency Stop

Push to latch and stop all motion, turn clockwise to release and operate the processor
This should only be used if there is a problem or to stop the machine and kill power to the control.
Press “Stop” to stop production.



Safety Cover

The safety guard must be installed to operate the Wire Processor.



Set Up

Wire Straightener Installation

Install Wire Straightener using two of the #8-32 screws provided.



Selecting and Changing Guide Tubes

The CS 338 comes with a set of 5 matched guides.

LA-4041 "A" Middle Guide .060(1.5mm) LA-3986 "A"
Rear Guide .060(1.5mm)

LA-4042 "B" Middle Guide .100(2.5mm) LA-3987 "B"
Rear Guide 100 (2.5mm)

LA-4043 "C" Middle Guide .150(3.8mm) LA-3988 "C"
Rear Guide 150 (3.8mm)

LA-4044 "D" Middle Guide .200(5.0mm) LA-3989 "D"
Rear Guide .200(5.0mm)

LA-4045 "E" Middle Guide .265 (6.7mm) LA-3990 "E"
Rear Guide .265 (6.7mm)

The middle guide controls the wire to the blades. The rear guide controls the wire after the blades to the out feed and then back to the blades for the tail strip. When selecting the proper guide, select the guide that fits the wire the closest. Allow about .020 (.5mm) for free flow of the wire and accommodate wire size changes.

At times it may be helpful to increase the rear guide size to help the transition to the out feed belts. Install the guides into the appropriate holders. The middle guide clips in over the spring pins in the pivot assembly. The rear guide snaps over the ball detent on the holder.

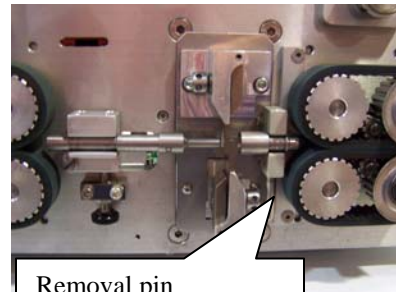
Press up on the removal pin to dismount the rear guide.

The infeed guide has a wire guide with an assortment of wire guide holes. Choose the appropriate hole size to match the selected guide set.

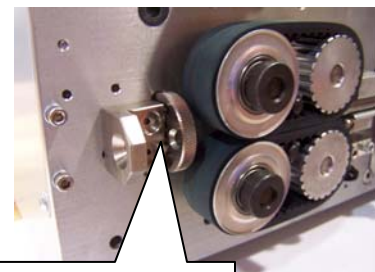


MIDDLE

REAR
GUIDE



Removal pin

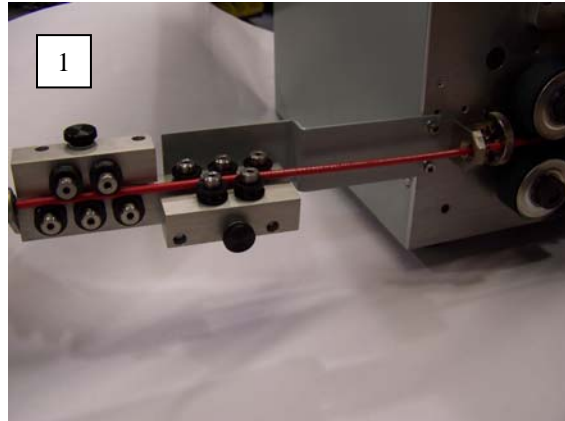


In Feed guide and wire
run out

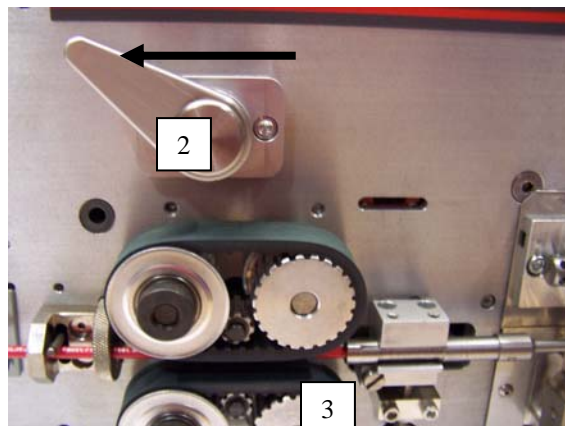
Loading Wire

To load the wire simply rotate the feed belt levers Counterclockwise. This will hold the belts open.

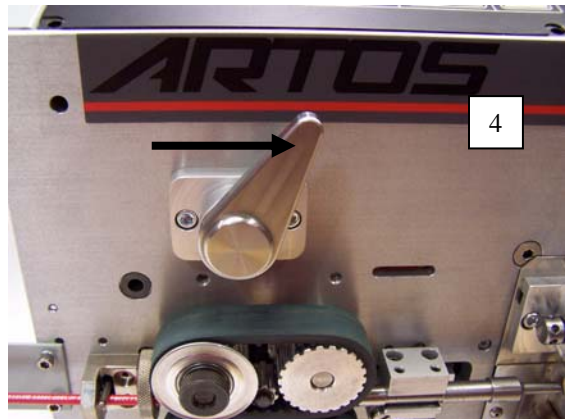
1. Insert the wire thru the wire Straightener



2. Then open the feed belts by turning the levers to the left. Feed the wire thru the wire run out assembly using the proper size hole between the infeed belts.



3. Extent the wire into the middle guide tube.

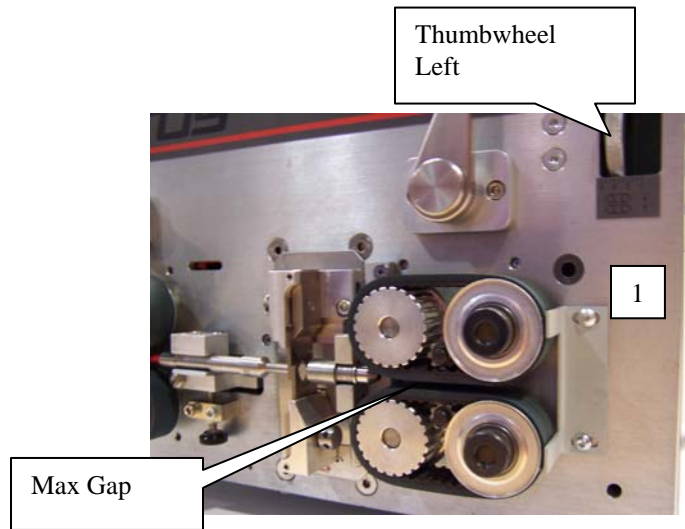


4. Rotate the in feed lever to the right to automatically tension the wire.

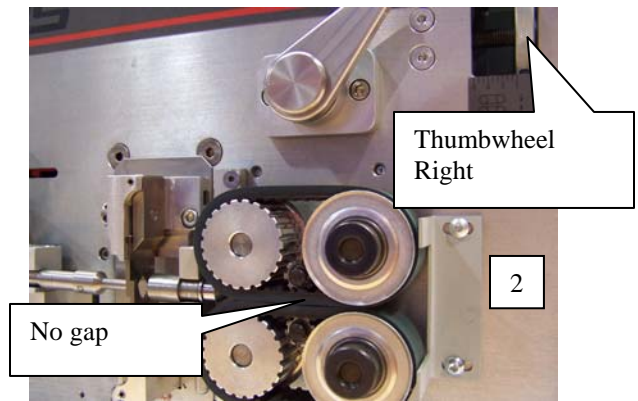
Loading wire continued

On the outfeed, adjust the outfeed stop Thumbwheel so the belts close to a gap equal to or slightly smaller than the conductor of the wire after stripping. This will allow the leading end of the wire to start between the belts without stubbing the end back.

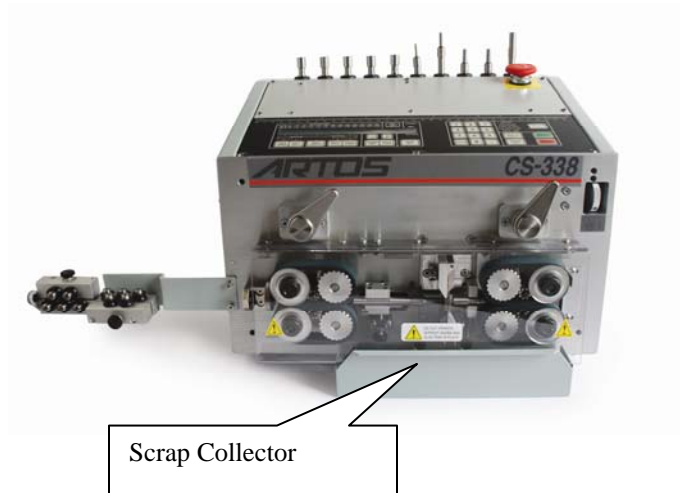
The thumbwheel turned all the way to the left will create the maximum gap #1



The thumbwheel turned all the way to the right will create no gap. #2



Install the guard and slide the scrap collector in place.



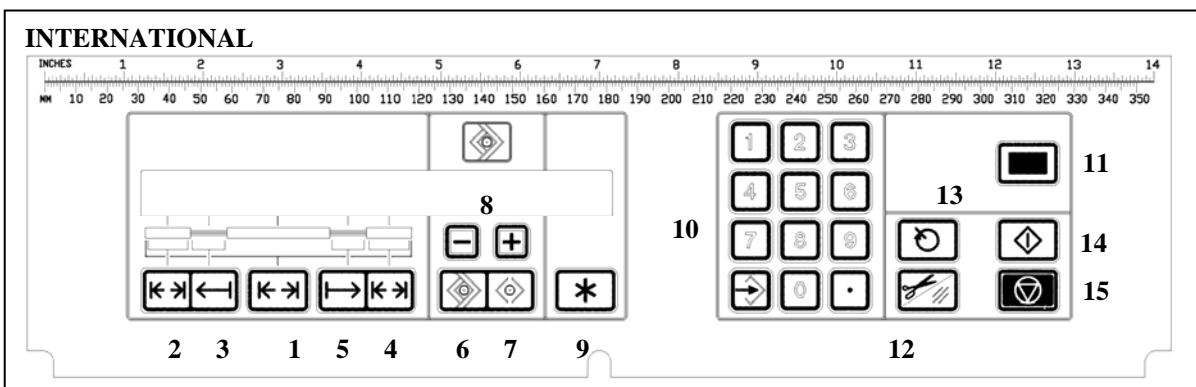
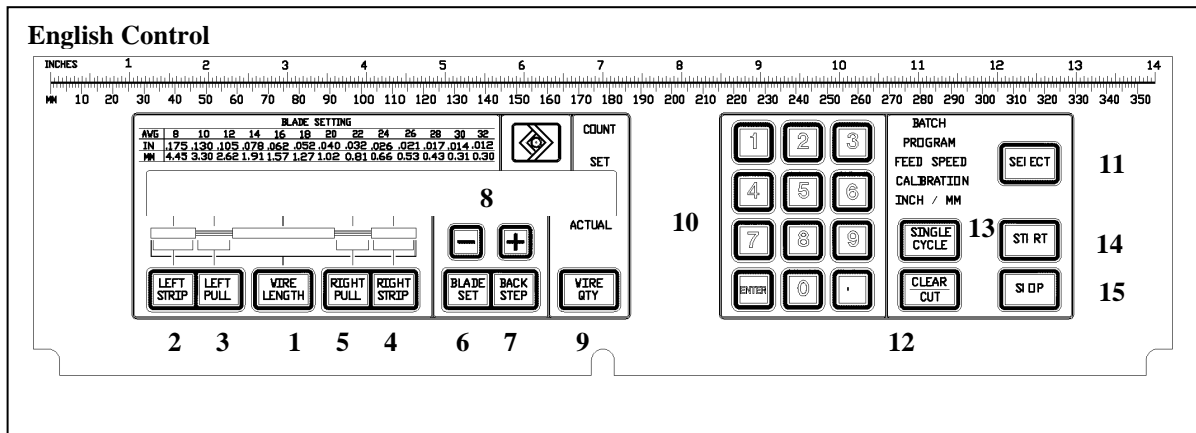
Controls

The CS 338 uses a membrane push button panel to set the perimeters for cutting your wire.

The functions by button are:

1. Wire length, set overall wire length
2. Left strip, set left or trailing strip length
3. Left strip pull, pull length of left strip
4. Right strip, set right or lading strip length
5. Right strip pull, pull length of right strip
6. Blade set, set blade closure according to conductor diameter for strip cut. Refer to chart above display.
7. Back step (blade retraction after strip cut and before strip pull)
Back step number times .001" (.025mm)= amount of back step.
8. Strip settings modifier. (+ to increase or – to decrease)
9. Wire Qty
10. Numeric Keypad w/ Enter key
11. Select (Mode selection)
12. Clear cut (clear cut end or clear programming error)
13. Single Cycle (one part). For single step operation press “Enter” then press “Single Cycle”. Machine will step thru the process.
14. Start (Start production)
15. Stop (Stop production)

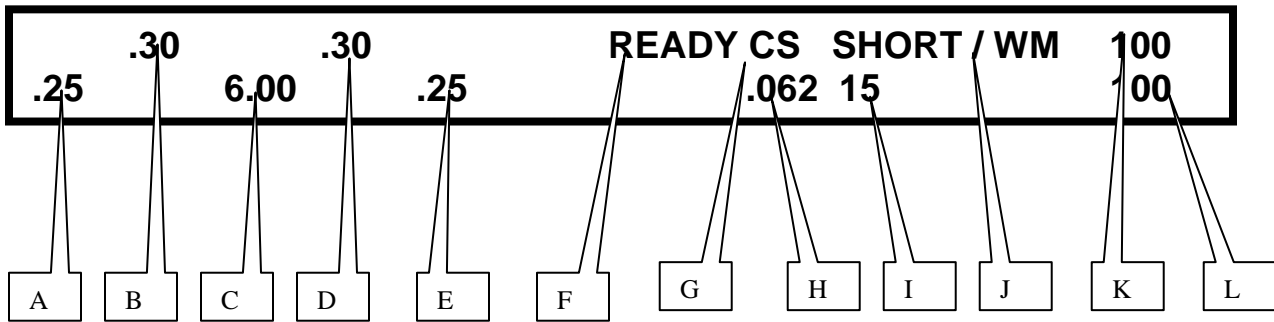
1



Display (Run Screen)

The CS 338 displays the cutting information on the LCD screen.
That information is as follows:

- A. Left strip
- B. Left pull
- C. Cut length
- D. Right pull
- E. Right strip
- F. Ready status
- G. Center strip active
- H. Blade set
- I. Back set
- J. Short wire mode and Wire marker indication
- K. Set Qty
- L. Run Qty (counts down to zero)



The above display is showing the inch display. When displaying metric values the decimal points will be replaced with a comma. I.E. 6.50 Inch or 6,50 mm

Typical programming sequence

Press Length Set (enter desired length end to end) Press Enter.

Press left Strip (enter desired strip length) Press Enter.

Press left pull (enter desired pull stroke **) Press Enter.

Press Right Strip (enter desired strip length) Press Enter.

Press Right pull (enter desired pull stroke **) Press Enter.

Press Qty (enter total pieces desired) Press Enter.

Press Blade step. (enter the basic value shown in the chart above the display***) Press Enter.

Press Back Set (enter a starting value of 5 to 10 or an already determined value.*) Press Enter.

*This value setting should be large enough to avoid scraping the conductor during the strip stroke.

** A value equal to or longer than the strip length will create a full strip. Less than strip length will create a partial strip.

***The chart values are for reference and may need to be modified to accommodate your wire.

Mode Selection

The CS 338 has several options that can be invoked. These are accessed by pressing the **Select Button**. The options and functions that are available are:

PART
PROGRAM MODE
SPEED
CALIBRATION
INCH /METRIC

PART

The **Part Program** function allows you to store up to 99 wire programs. This includes the length and strip values as well as marking options if selected.

PRESS ENTER FOR PART PROGRAM

Press the select button until the “PART PROGRAM” is displayed Press “ENTER”

ENTER PART NUMBER PART #=20

Enter the PART number Press “ENTER”

1 – RECALL 2 – STORE PART # 20

Press 1 to recall a PART or press 2 to store a new PART.

Note: A stored PART can not be deleted
To remove a PART simply re-use the number and it will be over written.

PROGRAM MODE

Press select until:

PRESS ENTER FOR PROGRAM MODE

Press the select button until the “PROGRAM MODE” is displayed Press “ENTER”

1 - LANGUAGE 2 - WIRE (LONG/SHORT)
3 - WIRE MARKING 4 - WIRE OUT SENSOR

In “PROGRAM MODE” you can choose to change a language, the short/long wire operation, wire marking, or wire run-out detection by selecting the appropriate number.

Select the mode you wish to modify Press “ENTER”
Make the desired selection from the subsequent screens.

1--ENGLISH 2--DEUTSCH 3--ITALIANO
4--FRANCAIS 5--ESPANOL

Selecting a different language will change the text on all screens to the selected language.

1 - LONG WIRES 2 - SHORT WIRES

Selecting “WIRE (long/short)” will change the cutting sequence to produce wires with a length too short to reach the out feed belts.

WIRE MARKING 1-ON (SETTINGS) 2 OFF
3-OFFSET SET UP

Selecting “WIRE MAKING” will allow you to turn the making feature on or off.

It will also allow you to set-up the wire making parameters.”

ENTER IN DWELL TIME .10

Select 1, and enter the dwell time (the marking time) press ENTER

1 – END MARKING 2 - CONTINUOUS

Select 1 for end marking (a mark on each end of the wire) press ENTER

You will be asked to select the type of marker used. One type-set or 2 type-set marker, select the correct one and press ENTER.

You will be asked to enter the marks distance from the end of the wire.
Input the desired distance and press ENTER.

Select 2 for continuous marking (repeat the mark along the wire) press ENTER.

You will be asked to enter the distance between the continuous marks.
Input the distance and press ENTER.

WIRE MARKING 1-ON (SETTINGS) 2 OFF
3-OFFSET SET UP

Select 3 To set the off set for the marker. This is the distance from the center of the marker type set or the center between the type sets I.E. WM-6.

ENTER THE DISTANCE FROM THE MARKER HEAD
TO THE WIRE PROCESSOR BLADES

MARKER DISTANCE 12.00 IN


Enter the measured distance, press ENTER

Note: This number may need to be changed slightly to get the mark position on the wire in the location you desire.

WIRE OUT SENSING 1 - ON 2 - OFF

Selecting “WIRE OUT SENSING” allows you turn the wire run out sensor on or off. With the “WIRE OUT SENSING” off the machine will continue to run when the wire runs out.

Programming Center Strip Function

Press the **SELECT** key or  until the 'PROGRAM MODE' window appears and

PRESS ENTER FOR PROGRAM MODE

In "PROGRAM MODE", you can choose to change a language, select the short/long wire operation, wire marking, or wire run-out detection by selecting the appropriate number.

Select the "2 WIRE". This will open another window allowing you several length and center strip options

1 - LANGUAGE 2 - WIRE (LONG/SHORT)
3 - WIRE MARKING 4 - WIRE OUT SENSOR

Selecting the wire length choice will give you four selections. "1" will select the standard **Long** wire mode "2" will select the standard **Short** wire mode. "3" will select the **Long** mode with the addition of the "Center Stripping" feature. "4" will select the **Short** mode with the addition of the "Center Stripping" feature.

1 - LONG WIRES 2 - SHORT WIRES
3 + CENTER STRIP 4 + CENTER STRIPS

If you select the Center Strip option, you will be asked to make further selections. Do you want the Center strip on the Left or Right end of the wire.

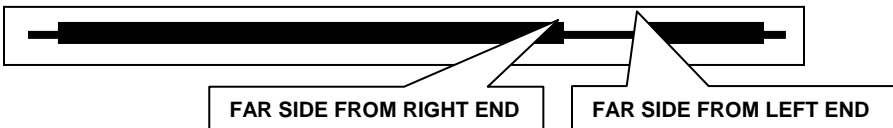
1 - LEFT END 2 - RIGHT END

ENTER THE OFFSET FROM WIRE END TO THE FAR SIDE OF THE STRIP

CENTER STRIP OFFSET

1.5 IN

MAX OFFSET 10' (25.4mm)



ENTER STRIP LENGTH

.25 IN

MAX CENTER STRIP 3 IN (76.2mm)

READY CS

1000

"CS" WILL APPEAR AFTER THE READY INDICATOR WHEN CENTER STRIP IS INVOKED

WIRE CALIBRATION AND PART PROGRAM RELATIONSHIP

WIRE CALIBRATION

Different wires require different wire calibrations. This is due to the differences in outside diameter, insulation smoothness and drag caused by the straightener or the de-reeler. The calibration is a multiplier to determine the wire length. If the wire is .1" long on 12" part then it will be .4" long on a 48" part.

The wire calibration is stored as part of the part program. This means that if you recall a part program and then calibrate the wire you must go back and store the program again, in order to save the new calibration value for this particular wire. Conversely if you have a wire calibrated and then recall a stored part program, this calibration replaced with the one in the part program. The same is true of the strip length calibration values.

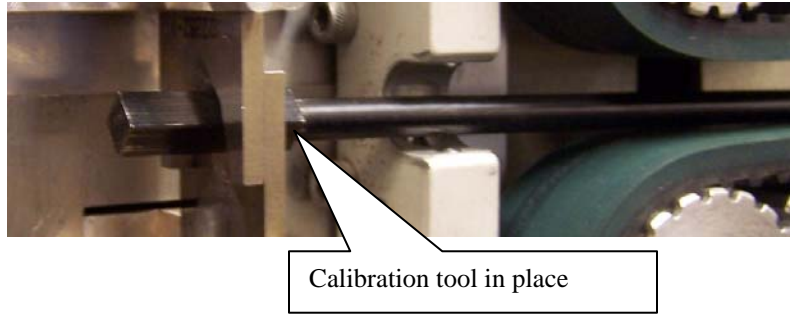
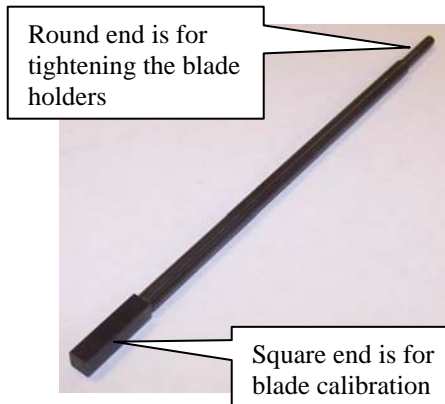
For users that do not wish to store part programs but rather enter the data on the screen as needed, this is the recommended procedure.

1. Create a generic part on the screen and calibrate the length and strip as necessary. Store this part in location 1 to 99.
2. Keep a chart to indicate which location is for this particular wire. Example :
 - a. 12gauge PVC is in location 1.
 - b. 18gauge TFFN is in location 2.
 - c. 22gauge rubber is in location 3.
3. When you change wires in the machine Recall the part location, then change the length and strip as needed.

Using this type of procedure provides a way to store an individual calibration for each different type of wire.

PRESS KEY FOR CALIBRATION SELECTION
1 - BLADE 2 - WIRE LENGTH 3 - STRIP

Select **1** to calibrate the blades. You will need the blade calibration tool shown below.



+ TO OPEN BLADES - TO CLOSE BLADES
CLEAR TO CANCEL ENTER TO UPDATE CAL

Press and hold the minus (-) key until the blade opening is less than the square end of the calibration tool. **DO NOT** close blades on the tool. Now press the plus (+) key until the square end of the tool just slides through the opening. Remove the tool and press ENTER to Update.

LOAD WIRE INTO PROCESSOR FOR CALIBRATION
PRESS ENTER WHEN READY

Select **2** to calibrate the wire length. Load wire in the machine before starting. Start back at the beginning of the calibration mode sequence. Select "2 - WIRE LENGTH". The above screen will be displayed. When you press ENTER the machine will produce a length of wire.

MEASURE WIRE LENGTH AND ENTER VALUE
LENGTH = 00.00 PRESS ENTER WHEN READY

When you press ENTER a new wire will be produced. Measure the new wire.

IS LENGTH 12 IN OR 305 MM? ENTER
1 -- IF YES OR 2 -- IF NO

Answer the question. If "Yes" the machine will recalculate its registers. If "No" the machine will repeat the process asking you the measured length of the second wire.

ADDITIONAL LEFT STRIP LENGTH
00 1=0.006 INCH OR 0,15 MM

ADDITIONAL RIGHT STRIP LENGTH
00 1=0.006 INCH OR 0,15 MM

Select 3 to calibrate the strip length.
Cut and strip a wire. Keep track of left, tail end and right, lead end of the wire.
Measure the strip length. If it is short go to calibration and select 3 select the value required to increase the strip to the length desired. The left end window will display first. When the value is entered and Enter is pressed it will go to the right end window.

PART PROGRAM STORE / RECALL PROCEDURE

The **Part Program** function allows you to store up to 99 wire programs. A wire program consists of the length, strip lengths, wire length calibration, strip length calibration, and wire marker values.

PRESS ENTER FOR PART PROGRAM

Press the select button until the "PART PROGRAM" is displayed Press "ENTER"

ENTER PART NUMBER PART # 20

Enter the PART number Press "ENTER"

1 – RECALL 2 – STORE PART # 20

Press 1 to recall a PART or press 2 to store a new PART.

Note: A stored PART can not be deleted
To remove a PART simply re-use the number and it will be over written.

INCH/METRIC

Press select until:

PRESS ENTER TO CHANGE LENGTHH MODE

Press ENTER

1 -- ENGLISH 2 -- METRIC

Select 1 display in INCH Select 2 to display in METRIC.

SERVICE AND TROUBLESHOOTING

BLADE REPLACEMENT

FIRST TURN OFF THE POWER TO THE MACHINE!!

Remove the guard and brush remaining strippings from around the blades and holders. This will prevent strippings from falling in to the blade holders and causing the blade to be out of position.

Using the round end of the calibration tool loosen the blade holding screws and remove them from the holders. See Fig. 1

When re-installing the new blades be sure to get the blades fully into the holders so the end of the blades rests on the bottom of the holders. See Fig.2 point A.

Insure that the edges of the blades align evenly so the cutting edges for a square. The smaller the wire the more important this point will be. See Fig.2 point B

Re-tighten the blade holding screws. Take caution to over tighten the screws. The length of the tool provides more leverage than is required. Calibrate the blades. See page 13

For maximum performance maintain a sharp cutting edge.



Figure 1

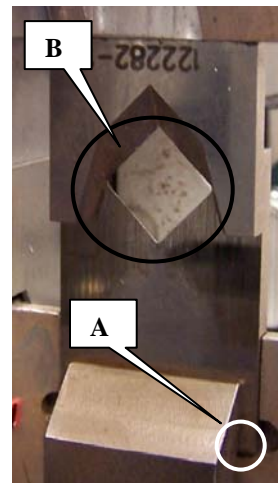


Figure 2

BELT REPLACEMENT

FIRST TURN OFF THE POWER TO THE MACHINE!!

Remove the guard and open the feed belts.

Remove the thumbnut from the removable pulley. See Fig. 3



Figure 3

Rotate the belt while pulling out on it and the removable pulley. After each turn pull out on the pulley.

Repeat until the belt and pulley comes off the shafts.

Inspect the pulleys for wear or damage. Insure the pulley edge guides are in good condition and the idler is turning freely. See Fig. 5



Figure 4

Wrap the belt around the removable pulley and start it on the shaft. At the same time start the belt around the drive pulley. Rotate the belt and pulley while pressing it in place.

Re-tighten the thumbnut firmly.



Figure 5

CUTTING AND STRIPPING PROBLEMS

SINGLE STEP MODE

The CS 338 operates at a high rate of speed. To assist in troubleshooting you can invoke a single step mode. Do this simply press the “Decimal Point” key before pressing the “Single Cycle” key. Each press of the single cycle key will execute one step of the complete process. This will allow you to observe what is happening during the cycle. This will work for one complete cycle. After that the Single Cycle key will complete one part each time it is pressed. Press the Decimal Point again for single step.

Fails To Cut Thru The Center Strands Or Leaves A Long Center Strand After Cutting.

The center of the blade has worn so that the top and bottom points of the blades no longer pass to complete the cut off.

Resolution: Replace blades.

Calibration is not accurate

Resolution: Re calibrate the blades

Both Ends of Wire Slugs Not Pulling Off

If insulation does not look to be cut deep enough,

Resolution: Decrease blade setting by pushing the — key.

If scraping or cutting of the conductor is seen,

Resolution: Increase the blade setting by pushing the + key.

Check condition of feed belts.

Scraped or Cut Conductors

If conductors are cut where insulation ends,

Resolution: Blade setting is too deep. Push + key to increase blade setting.

If conductors scraped along length of strip,

Resolution: Back Step is too small. Increase Back Step setting.

30awg Teflon Wire Not Stripping Correctly

Use different combinations of blade setting and back step. In other words, if the blade setting=16 and the back step=3, as a guide try:

blade setting=.016, back step=2

blade setting=.017, back step=2

blade setting=.018, back step=1

Note: If the blade setting is set too low, the strands of the wire will be nicked or cut at the location where the strip is taking place.

If the back step is set too low, the strands of the wire will be scraped when the insulation slug is pulled off.

If various wire sizes have been processed prior to processing 30 AWG, the blades may have slightly dulled. Examine blades for sharpness.

Right Strip, Slug Not Pulling Off

Check wire for scraped or cut conductors.

Resolution: Adjust Blade Setting. Adjust Back Step. Check belt condition belts for grooves. Increase pull length.
Pull length must be greater than strip length, and may be increased to pull off slug.

Left Strip, Slug Not Pulling Off

Check wire for scraped or cut conductors.

Resolution: Adjust Blade Setting. Adjust Back Step. Check belt condition belts fore grooves. Increase pull length.
Pull length must be greater than strip length, and may be increased to pull off slug.

The wire may have a natural curl from being wound on a small spool and misses the blades the wire is fed back into the blades for left strip.

Resolution: In this case, larger spools should be used to minimize the curl of the wire. Try more straightener pressure. Check belt gap setting, may be too large.

Wire Length Not Accurate

Check feed belts for grooves.

Resolution: Reverse or replace belts.

Check for too much restriction on wire feeding into machine.

Resolution: Hand feed wire to see if accuracy improves. If so reduce wire straightener drag or de-reeler drag.

Check wire feed speed.

Resolution: Slower speeds have greater torque which results in better accuracy.

Check for feeding restrictions.

Resolution: Make sure wire feeds freely through feed rollers, wire feed tube, and blades.

Voltage Selection

Unplug the power cord. The ARTOS Wire Processor operates on either 110-120V, single phase or 220-240V, single phase. Your ARTOS Wire Processor is factory set for the voltage used in your region. However it is a good Idea to check this setting before applying power.

To change selected voltage: remove the fuse cartridge using a small blade screwdriver or similar tool; select the desired voltage by matching the arrow on the fuse cartridge to the rectangle located on the lower right corner of the ON-OFF switch module.



110-120 VAC Setting



220-240 VAC Setting

Fuse Replacement

Remove the fuse cartridge using a small blade screwdriver or similar tool. Replace two 3.0 amp, 5X 20 mm Slo-Blow fuses, (PN 701.003) and insert the fuse cartridge back into the unit; making certain the **PROPER VOLTAGE SELECTION ARROW** aligns with the rectangle located below the fuse receptacle.