

MangoTech

Instruction Manual



MangoTech Single Axis Stop (SAS)

Version 1.1

OPERATION

To begin :

- Switch ON at the back of the machine.
- Emergency Stop, located at the front of the machine, must be OUT.

The following screen then appears :

1.CUT LEN:	02:06.00	CYCLE
3.STOCK LEN:	12:00:00	
5.NUMBER REQD	12	POSN
7.SETUP LEN:	01:06:05	
< - OR - > TO JOG		
02:06:04		F-CYCLE

The SAS must now be calibrated, so the STOP knows where it is.

To continue

- Using the left and right arrows (4 & 6 on your keypad), move the **STOP** to your chosen STOP position, and cut a short length of timber at this STOP position.
- Measure the piece of timber you have cut.
- ENTER this length into the SETUP LENGTH on the screen (above). To do this, push 7 on your keypad.
- The screen will look

The screenshot shows a control screen with the following text and buttons:

- 1.CUT LEN: 02:06.00 [CYCLE]
- 3.STOCK LEN: 12:00:00
- 5.NUMBER REQD 12 [POSN]
- 7.SETUP LEN: ► ← enter length posn
- < - OR - > TO JOG
- [02:06:04] [F-CYCLE]

- The length should be entered as follows :
 1. Feet
 2. . (decimal point)
 3. Inches
 4. . (decimal point)
 5. Sixteenths
 6. Press ENTER (e.g. 1.10.8 is 1 ft 10 & ½ in)

OR

1. Inches
2. . (decimal point)
3. Sixteenths
- 4.
5. Press ENTER (e.g. 56.5 is 4 ft 8 & 5/16 in)

The SAS is now calibrated and ready to operate.

Note

At all times from this point on, the box on the LEFT HAND SIDE of the screen shows the position of the SAS.

To cut a single piece :

- Push the key alongside the POSN menu item

```
1.CUT LEN:      02:06.00  [CYCLE]
3.STOCK LEN:    12:00:00
5.NUMBER REQD      12    [POSN]
7.SETUP LEN:     01:06:05

  < - OR - > TO JOG

[02:06:04]          [F-CYCLE]
```

Key Here

A new box will open asking you for the position of the length to be cut.:

```
1.CUT LEN:      02:06.00
3.STOCK LEN:    12:00:00
5.NUMBER REQD      12
7.SETUP LEN:     01:06:05

  < - OR - > TO JOG

[02:06:04]

[MOVE TO ? ▶]
```

← enter length here

- Key in the length in the format as shown above.

```
[MOVE TO ? > 5:10:8]
```

- Push ENTER.
- The SAS will move to the entered length.
- To STOP the move at any time, push any key, or the EMERGENCY STOP button.
- To return to the opening screen at any time, the EXIT button may be pushed.

To cut multiple lengths of the same Length :

- Key in the length to the cut by pushing "1" and entering the length required, (if the length you require is different from the length already shown on the screen) using the format described above.
- Key in the stock length of the material to be cut, (if the stock length you require is different from that already shown on the screen) by pushing "3" and entering the length required.
- Key in the number required by pushing "5" (if the number you require is different from that already shown on the screen) and entering the number required.
- Press the key alongside the :



- The stop will move to the Stock Length, plus 6 inches, to load the first piece to be cut.
- Press ENTER when the first piece is loaded.
- The SAS will move to the Stock Length, where a trimming cut may be done if required.
- When finished, press ENTER (OR Cycle the saw OR push the two buttons placed down stream of the saw blade)
- The SAS will advance the cut length required plus the blade width to cut the first member required.
- When finished, press ENTER. (OR Cycle the saw OR push the two buttons placed down stream of the saw blade)
- The SAS will cycle through cutting the correct length and will return to load new members as required, until the EXIT button is pressed.

To cut multiple lengths of the Different Lengths :

- Push the key alongside the F-CYCLE menu item

1.CUT LEN:	02:06.00	CYCLE
3.STOCK LEN:	12:00:00	
5.NUMBER REQD	12	POSN
7.SETUP LEN:	01:06:05	
< - OR - > TO JOG		
	02:06:04	F-CYCLE

Key Here

- The following screen will appear

1.JOB-NO:			CYCLE
2.STOCK LEN:			
	LENGTH	QTY	
3.			
4.			
5.			SAVE
6.			
7.			
8.			
9.			
	02:06:04		RECALL

To continue

- If the Job is to be saved for later use at a later date a jobe number should be added in the length to the cut by pushing "1" and entering the job number to save the imformation under.
- Key in the stock length of the material to be cut, (if the stock length you require is different from that already shown on the screen) by pushing "2" and entering the length required.
- Key in the the first length and Qty by pushing "3" (if the number you require is different from that already shown on the screen) and entering the length , pushing enter , then entering the QTY required.
- Continue entering other length and quantities until the member is used by pushing "4" then "5" etc.....

1. JOB-NO:	26104	
2. STOCK LEN:	12:00:00	CYCLE
	LENGTH	QTY
3. 02:02:00		3
4. 01:00:00		4
5. 00:09:00		1
6.		
7.		
8.		
9.		
	02:06:04	RECALL

- If you wish to save this job push the key alongside the :

SAVE

- If you wish to recall a previous job push the key alongside the :

RECALL

To continue

- Press the key alongside the :



- The stop will move to the Stock Length, plus 6 inches, to load the first piece to be cut.
- Press ENTER when the first piece is loaded.
- The SAS will move to the Stock Length, where a trimming cut may be done if required.
- When finished, press ENTER. (OR Cycle the saw OR push the two buttons placed down stream of the saw blade)
- The SAS will advance the cut length required plus the blade width to cut the first member required.
- When finished, press ENTER. (OR Cycle the saw OR push the two buttons placed down stream of the saw blade)

The SAS will cycle through cutting the correct length and will return to load new members as required, until the EXIT button is pressed.

INSTALLATION AND SETUP

Version 1.1

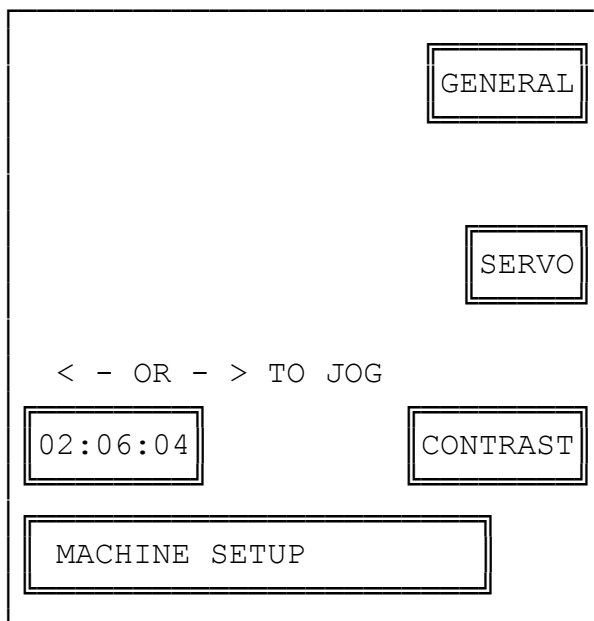
This Version only requires the following leads to be connected :

1. Power cable 110 volt, 3 amp standard computer lead, to be plugged into the back.
2. MangoTech standard encoder cable, to be plugged into the back.
3. Motor power from servo motor, to be plugged into flying lead that comes from the back of the SAS.
4. If wanted a blade clear proximity may be connected to INPUT 1 (the stop will use the cycling of the blade to indicate a cut instead of waiting for the enter key. The stop will wait the cut time set below.)
5. If wanted TWO-BUTTONS may be connected to INPUT 2 and 3 (the stop will use the two buttons that the saw uses to indicate a cut instead of waiting for the enter key. The stop will wait the cut time set below.)

The SAS should be attached firmly to the length stop rail using the brackets supplied.

After starting the SAS, the SETUP MENU should be entered. This is done by pressing the second function button and the button immediately above it at the same time.

The screen will then look like this:



- Press the key next to “General” to enter General Parameters Setup.
- Press the key next to “Servo” to enter Servo Parameters Setup.
- Press the key next to “Contrast” to adjust the Contrast.
- The Arrow keys will also move the stop as indicated in the Main Menu.

General Parameters

The general parameters are accessed from the keypad by pressing keys 0 – 9.

Lengths are entered as described in the Main Menu.

The parameters that have not previously been described, as shown below:

1.CUT LEN:	02:06.00
2.In/M (1=in)	1
3.STOCK LEN:	12:00:00
4.COUNT DIRN	1
5.NUMBER REQD	12
6.BLADE WIDTH	00:00:03
7.SETUP LEN:	01:06:05
8.Min Length	00:04:03
9.Cut Time (ms)	3000
0.Max Length	17:03:00

MACHINE PARAMETERS

Parameter Descriptions

2.In/M (1=in)

- Entering “0” causes the machine to work in meters and millimeters.
- Entering “1” causes the machine to work in feet, inches and sixteenths.

4.COUNT DIRN

- “0” or “1” are entered to swap the direction of the positive (+) direction of the machine, if the machine is placed on the left or right hand side of the saw.

6.BLADE WIDTH

- This is for entering the width of the blade, which is used when cycling.

8.Min Length

- This is the minimum length the machine will cut. Enter this after moving the machine to the minimum length position, cutting a piece, and measuring it.(note if the pusher pushes past the blade this should be entered as a negative no.)

9.Cut Time(ms)

- This is the pause time used by the machine in automatic operations. It is entered in milliseconds (i.e. 3,000 = 3 seconds)

0.Max Length

- This is the maximum length the machine will cut. Enter this after moving the machine to the maximum length position, cutting a piece, and measuring it.

Servo Parameters

The Servo parameters are accessed from the keypad by pressing keys 0 – 9.
The current reading of the encoder is also shown on this menu.
Lengths are entered as described in the Main Menu.
The parameters that have not previously been described, as shown below:

1. COUNTS/REV	1000
2. MICRONS/REV	17468
3. ACCELN	500
4. MAX VEL	500000
5. POSN ERROR	1000
6. PROP GAIN	200
7. DIFF GAIN	200
8. INTEG GAIN	50
9. INTEG LIMIT	150
02:06:04 Enc: 5649	
SERVO PARAMETERS	

Parameter Descriptions

1. COUNTS/REV

- This is the number of pulses per rev produced by the encoder. We will always use 1,000, as this will make calculations easier. Please set to 1,000

2. MICRONS/REV

- This is the number of microns that the machine moves when we move the number of counts per rev on the encoder, as set in "1" above (1,000).

3. ACCELN

- This is the acceleration and de-acceleration of the machine. Please lower it, if pushing the timber is too quick, using the default of 500.

4. MAX VEL

- This is the maximum velocity of the machine. Please lower it, if pushing the timber is too quick, using the default of 500.

Nos. 5,6,7,8,9

- These are all servo functions. The default values are listed above and these should only be changed after consultation with a person who is knowledgeable in servo motor parameters.

TROUBLE SHOOTING

1. Upon initial setup, if the machine only goes in one direction for a short distance when pressing the Arrow keys (4 & 6), then change the positive (+) and negative (-) of the servo motor.
2. If the screen lights up but the servo does not move, check fuse on the back cover of the machine.
3. A quick method to calculate Microns Per Rev.

Note

The default figure in the machine as shipped should be correct for a standard Mango Length Stop system. :

- (a) Move the machine to Minimum Length
- (b) Switch machine OFF and ON.
- (c) Cut a piece and measure it (e.g. 00:04:03)
- (d) Enter its length as "Minimum Length" in General Parameters menu.
- (e) Move as far towards Maximum as possible. Then return one inch (1").
- (f) Cut a piece and measure it. (e.g. 17:02:00)
- (g) Enter its length as "Maximum Length" in the General Parameters.
- (h) Read the Encoder Value in the Servo Parameters Menu.
- (i) Subtract the Minimum Length in sixteenths from the Maximum Length in sixteenths :
(e.g. 17:02:00 minus 00:04:03 that is: 3296 minus 67 = 3229 sixteenths)
- (j) Multiply by 25400 and divide by 16. Then divide the answer by the encoder reading taken at maximum length and multiply by 1,000.

