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Model 1095E Air Saver, Waste Removal and Chopper

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Please Note (Output Venturi / Waste removal / Motor run)

To get a permanent output signal on output "WASE REMOVAL 2" while the motor is running, set the waste removal timer to zero (0) milliseconds (parameter 4.1.4.)

To get just the venturi function, set waste removal counter zero.

To operate the venturi at the end: Parameter 4.4.3. starts the venturi. The venturi is turned ON during stitch count of parameter 4.4.4.

Parameter 4.4.6 operates the chopper at the end

The total amount of venturi stitches has to be larger then stitches for the chopper !!

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There is a slightly difference between the 900er series and the new advanced M16 system.

Before using the new system, please read this carefully !!!

Power-On:

Due the motor does not use commutator lines, the system has to check the location of the index in the power-on procedure. The motor has to be connected completely to the box (power- and encoder cable) before the power is turned on! The motor will not work, if it is connected after the power is already turned on. (old system: The motor can be connected any time)

LCD- display box (Programmer)

To connect or disconnect the LCD- box, the power has to be turned off to initialize the system after power-on

Going to the “Hidden Parameters” or “MASTER RESET”:

The same procedure as with the old system: Turn the power on by pressing the desired buttons.

In some cases, when the power was completely off and is turned on, the LCD- display stays blank for as couple of seconds. The reason is a longer RESET- mode. In this case, turn on the power, wait until the display is initialized and reads “OPERATING MODE”. Now turn the power off.

The display reads: “.....saving data” and then “goodbye, see you”

Before the display gets blank again, turn on the power and follow the procedure to go to the “HIDDEN PARAMETER” or “MASTER RESET”

Set the Positions

This is similar to the old system using the mini motor. There is a ‘teach-in’ mode in the ‘hidden parameters’, group ‘ POSITIONS’.

Go to the desired parameter: ‘NEEDLE UP’, ‘NEEDLE DN’ or ‘TRIM”, then turn the hand wheel to the desired position and press the NU-ND button.

This will store the position. You can see the result in the display.

Caution:

You can not turn on the power and set the positions. The hand wheel has to turn at least one revolution to know about the location of the index.

MODES OF OPERATION:

The LCD display can be operated in three (3) different modes.

They are:

1. **OPERATING MODE:** To operate the machine
2. **PROGRAMMING MODE:** To change a parameter
3. **TEST MODE** An easy way to maintain and check the system.

Two different parameter levels are available:

OPERATORS LEVEL (Basic)
MECHANICS LEVEL (Advanced)

To use the **MECHANICS LEVEL**, please see the section 2.0.0 (Access to “**HIDDEN PARAMERTERS**”)

1.0.0. HOW TO CHANGE A PARAMETER:

Four parameter groups are available (OPERATORS LEVEL)

SPEEDS
TIMERS
COUNTERS
TOGGLE SWITCHES.

To change a parameter, please proceed the following sequence:

STEP 1

Push the ‘ARROW ROUND’ button repeatedly until the desired parameter group is displayed.

STEP 2

Push the ‘SET’ button repeatedly until the desired parameter is displayed

STEP 3

Change the parameter with the buttons:

 ‘ARROW-UP’ (increase the value)
 or ‘ARROW DOWN’ (decrease the value)

In the group ‘TOGGLE SWITCHES’ , either button, “ARROW UP” or “ARROW DOWN” will toggle the parameter.

PLEASE NOTE:

To optimize a certain parameter, it may be necessary to go repeatedly from the operation mode back to the same parameter.

It can be easy done by pressing the ‘SET’ button.

If the program is in the OPERATION MODE, the SET button takes you right back to the last displayed parameter.

Exemption:

If you are in the group “TOGGLE SWITCHES”, the “SET” button brings you to the first parameter of the group “TOGGLE SWITCHES”

If a parameter was changed by accident and the machine doesn’t work properly, it is possible to go back to the original factory setup by using the feature of the MASTER RESET (section 3.0.0).

2.0.0 ACCESS TO the 'HIDDEN PARAMETERS'

Step 1:

Turn power OFF

Step 2:

Press the NEEDLE UP / DOWN and ARROW RIGHT buttons at the same time.

Step 3:

Turn the power ON while both buttons are held down.
wait until a string of stars is displayed (*****), which are counting down.

Step 4:

Release both buttons and press the 'SBT' button before the stars disappear.

Go to the programming mode, the "HIDDEN PARAMETERS" follow after the regular parameters.
The hidden parameters display stars in front of the group name:

Normal parameter: SPEEDS
Hidden parameter: **** SPEEDS

The 'HIDDEN PARAMETER' groups are displayed after going through the OPERATOR level.

Note: Access to HIDDEN PARAMETERS is disabled after power was turned OFF.

HIDDEN PARAMETERS are enabled automatically after proceeding a MASTER RESET.

3.0.0 MASTER RESET: (Caution: Overwrites the program memory with the default settings)

Step 1:

Turn the power off

Step 2:

Press 'NEEDLE UP / NEEDLE DOWN', 'ARROW RIGHT' and 'ARROW UP' button at the same time.

Step 3:

Turn the power ON while all three push buttons are held down. The display alternates between:
' PUSH SET '
' FOR RESET '

Step 4:

Push the 'SET' button within 10 cycles. The display reads: ' PROGRAMMING '

Note:

If the 'SET' button is not pushed within 10 cycles, the program goes to the main menu without executing the MASTER RESET.

4.0.0 Operators Parameters:

SPEEDS: rpm (spm, stitches per minute)

- 4.0.1 Soft Strt.** **Soft start after End of Cycle**
Range: 150 to 1000
Steps: 10
Default: 700
- 4.0.2 End Spd.** **End speed (Stitch count after uncover the photo eye)**
Range: 500 to 3500
Steps: 100
Default: 1200

TIMERS ms (milliseconds)

- 4.1.1 Strt Del.** **Start Delay**
The delay from presser foot down to start.
If the foot is already down, this time will not affect.
Range: 30 to 1000
Steps: 10
Default: 60
- 4.1.2 Vent.del** **Venturi Delay: The time, after the cycle is finished, the venturi is still turned on**
Range: 10 to 2500
Steps: 10
Default: 350
- 4.1.3 Cutter** **Cutting (chopper) time**
Range: 10 to 2500
Steps: 10
Default: 80
- 4.1.4 Waste** **Waste removal off time**
If this timer is set to zero, waste removal output stays on all time
Range: 0 to 1000
Steps: 10
Default: 350

4.4.0 COUNTERS, (Numbers of Stitches)

- 4.4.1 Soft St Soft Start after End of Cycle**
Range: 1 to 30
Steps: 1
Default: 3
- 4.4.2 Vent.fnt Venturi Front count**
If this counter is set to zero, the function is turned off !
Range: 0 to 100
Steps: 1
Default 15
- 4.4.3 V-end ST Stitches to the start point for Venturi at the end**
The counter after the photo eye is uncovered to stop
Range: 0 to `100
Steps: 1
Default: 0
- 4.4.4 V-end ON Stitches Venturi at the end is turned ON**
The counter after the photo eye is uncovered to stop
Range: 0 to `100
Steps: 1
Default: 25
- 4.4.5 Waste rem Waste removal function**
If this counter is set to zero, the function is turned off !
Range: 0 to 100
Steps: 1
Default: 35
- 4.4.6 End Cut Cut after eye uncovered**
The counter after the photo eye is uncovered to stop
Range: 1 to `100
Steps: 1
Default: 25

4.6.0 TOGGLE SWITCHES

4.5.1	PF/EOC	Presser Foot End of Cycle Default: DOWN	UP / DOWN
4.5.2	PF/seam	Presser foot in the seam Default: DOWN	UP / DOWN
4.5.1	Slow End	ON / OFF Default: ON	
4.5.3	Pos in Cyc	Needle Position in Cycle Default: DOWN	UP / DOWN
4.5.4	Soft Start	ON / OFF Default: OFF	
4.5.5	START	EYE COVERED / ALWAYS Default: EYE COVERED	
4.5.6	Front Cut	ON / OFF Default: OFF	
4.5.6	End Cut	ON / OFF Default: OFF	

5.0.0 HIDDEN PARAMETER

5.1.0 *** SPEEDS (rpm)**

5.1.1 MINIM. Minimum Speed
Range: 30 to 600
Steps: 10
Default: 210

5.1.2 MAXIM. Maximum Speed
Range: 500 to 6500
Steps: 100
Default: 4200

5.2.0 *** TIMERS (milliseconds)**

5.2.1 RES.BRK Residual Brake, The time the residual brake is turned on after stop
Range: 10 to 2000
Steps: 10
Default: 40

a. *** POSITIONS**

Default settings are not important because the position depends on the location of the Index.

Using the “teach-in” mode, this parameter can be set the following way:

1. Go to the desired parameter (for example needle up)
The display reads the parameter and a number
2. Turn the hand wheel to the desired position (needle-up)
The display does not change
3. Press the NEEDLE-UP/NEEDLE-DOWN” button
The display changes the number, this is the new position
This number can be corrected by using the ARROW-UP Or ARROW-DOWN button

5.3.1 DN. POS

Needle Down Position

This parameter can be changed by:

- a) Arrow-Up / Arrow-down Buttons
- b) Teach-in mode

5.3.2 UP POS

Needle Down Position

This parameter can be changed by:

- a) Arrow-Up / Arrow-down Buttons
- b) Teach-in mode

5.4.0 *** MISCELEN (Miscellaneous)**

Presser foot duty cycle:

Due the voltage is too high to turn a solenoid permanent on all time, the current is turned on only permanently a short time, after that, the current has to be chopped.

For example: Duty cycle 40% means 40% on, 60% off

If the duty cycle is too low, the solenoid will not stay on.

If too low, the solenoid will turn too hot!

5.4.1 PF 100%

Presser foot on 100 %

Range 10 to 2000

Steps: 10

Default: 200

5.4.2 PF DUTY

Presser foot duty cycle

Range 10 to 100

Steps: 10

Default: 50 (50%)

**Acceleration / Deceleration Ramp:
The lower the number, the slower the Ramp!**

5.4.3 ACCEL **Acceleration ramp**
Range **15 to 50**
Steps: **1**
Default: **40**

5.4.3 DECEL **Deceleration ramp**
Range **15 to 50**
Steps: **1**
Default: **40**

5.5.0 **TOGG SW TOGGLE SWITCHES**

5.5.1 DIRECTN **Direction of Rotation (CCW / CW)**
Default: **CW (Clockwise)**

5.5.2 START **The next start after end of cycle**
the front eye (eye 2) must be covered or not covered
Default: **covered**

5.5.3 POSITION **fast or normal**
Default: **normal**

5.5.4 AUTO MODE **ON or OFF**
Default: **OFF**

5.5.5 SEE REGS **(See the processors internal registers) ON or OFF**
Default: **OFF**

5.5.6 LCD- progr. **(LCD- Programmer ***) YES or NO**
Default: **YES**

***** If the unit is used without the LCD- programmer, this parameter has to be on "OFF", otherwise the machine will not run properly.**

7.1.0 Using the Built-in Test Program

To enter: Press simultaneously the ARROW- RIGHT and the SBT button., release the ARROW-RIGHT button first! Otherwise you are back in the main program!

The display should read: **TEST MODE**

To go to the first group, press the “ARROW-ROUND” button

The display reads: **TEST TREADLE** for about 2 seconds

Then it reads the position of the threadle:

- This can be:
1. NEUTRAL
 2. FORWARD and a number
 - c) HEEL 1
 - d) HEEL 1 / HEEL 2

If the threadle is in forward position, the displayed number is the reading of the ADC- converter.

The lowest number should be below ten (10) and the highest number at least 245

To go to the next group, press the “ARROW-ROUND” button again

The next group is: **test inputs**

(this will be displayed for two seconds)

Then activated inputs are displayed

If no inputs are activated, the display reads “ ----- ”

To go to the next group, press the “ARROW-ROUND” button again

The next group is: **test outputs**

After two seconds, the display reads: **-1- PRESSERFOOT**

To activate the output, press the “NEEDLE-UP / NEEDLE-DOWN button.

To go to the next output, press the “ARROW-UP” button.

The next reading is; **- 2 – CUTTER**

To go to the next output, press the “ARROW-UP” button.

To go to the former output, press the “ARROW-DOWN” button

To go to the next group, press the “ARROW-ROUND” button again

The next group is: **test encoder**

The display reads: ENCODER “YYYY” ***

*** **“YYYY” is a number which represents the position of the encoder.**

Turn the hand wheel and the number should read between 0 and 2000.

Turn ‘CCW’ to count up and turn ‘CW’ to count down.

To go to the next group, press the “ARROW-ROUND” button again

The next group is:

Test Motor (Balance)

This test allows testing the “balance” of the motor. If this adjustment is not correct, the motor turns hot while operating.

To perform the test the motor has to be disconnected from the machine.

Push the NU/ND- button, the motor starts running with a low speed (100 rpm) for about three revolutions. The display reads: “**WAITING FOR INDEX**”

After the motor stops, the following message will be displayed:

“**CALCULATE OFFSET**”. When the offset is calculated, the result will be displayed: “**ADJUSTMENT: + xx** “ or “**ADJUSTMENT – xx**”

“+xx” or “- xx” represents a number. This number should not be higher than 15.

If the reading is not correct, please repeat the test (Press NU/ND again).

(5.6 encoder counts is one degree).

Description of:

Inputs:

Function	Location	Pin Number
Photo Eye	LCD- box,	Phone plug
Manual Cut	6- pin plug	2 & 4

Outputs:

Function	Location	Pin Number
Presser Foot	2-pin plug	1&2
Venturi / Waste/ Mot. Run	9-pin plug	1&4
Venturi	9-pin plug	2&5
Impact Cutter	9-pin plug	3&6

Display the PIN (Program Identification Number)

1. Turn the power OFF
2. Press the pedal forward
3. Turn the power ON while the pedal is held in the forward position
(Don't worry, the machine (Motor) will not move)
4. The LCD- display reads the PIN as long as the pedal is held down

Indicator LED's at the front panel:

Yellow: No encoder pulses detected at power-on

The program could not set the position of the hand wheel. Check the encoder pulses !

Red: Over current error (Motor)

Download a "HEX"- file to program a memory chip (E- prom) for the new M16 system:

The external program for the M16 system starts at address "F0000" HEX and ends at "FFFFFF"

The addresses from 00 to "FFFFFF" are reserved for the internal ROM (or flash memory) of the CPU.

Because the .ORG of the program is set to "F0000hex the program will be downloaded at a higher address (This depends on the size of the buffer of your programmer.

1. Fill the buffer of your programmer complete with "FF"hex (recommended)
 2. Download the hex file into the buffer of your programmer
 3. Check out where the program starts. This can be "70000" or "F0000"
This address depends on the size of the programmers memory.
- a) Move the complete hex file to address "00000" and program the e- prom.

Your programmer has no "MOVE" command?

In this case you change the starting address of the buffer from "0000" to the address where the program starts.

Keep the device address "0000"

TROUBLE SHOOTING

IN GENERAL:

All units have to pass strong test procedures.

They are tested from the

1. MANUFACTURER
2. CLINTON INDUSTRIES

The test at CLINTON INDUSTRIES includes:

- a) Cycling the unit under normal conditions for about 6 hours
- b) 1st Stress test
- c) Vibration test
- d) 2nd Stress test
- e) Full function test

Most failures happen because of :

1. Improper grounding.

Static voltage at different parts of the machine may cause serious problems.

Large Motor:

CLINTON INDUSTRIES provides a braided ground wire which has to be connected between sew head and control box.

Mini Taurus:

If the motor is attached to the sew head, the system is grounded thru the motor

- a) The power supply system has to be grounded properly.
 - b) Additional attachments like stackers etc. needs to be grounded too.
2. Improper connections
 - a) Connections between control box and motor
 - b) Connections between control box and attachments.
 - c) Connection to the power supply system.

Please note:

Certain tests require to disconnect the motor from the machine.

If you do so and mount the motor back, you will loose the positions of the machine. (Needle-up, Needle-down and Trim)

Trouble Shooting Guide:

Turn the power on and the display stays blank: No power at all !

1. *Is the display box plugged in properly?*
2. *Check the line voltage*
3. *Check the power plug for proper connection*
4. *Check the power switch*
5. *Turn the power off, Unplug all connections except the power plug and the LCD- display box and turn the power back on. Still blank? If yes, Try another LCD- display box.*
6. *If this fails, replace the control box.*

Turn power on and the display has 8 black bars at the left hand side:

The power supply seems O.K. but the program doesn't run.

1. *The LCD- box is not properly connected*
2. *The LCD box was plugged-in during "POWER ON" (not initialized)*
To connect a LCD- box, the power has to be turned off before the LCD- box gets plugged-in.
3. *Check logic board for LCD- box jumpers (see logic board drawing).*

The motor runs properly, but the solenoids don't work:

The power supply for the transformer is missing.

The transformer is only used to operate the solenoids

1. *Open the control box and check the plug which connects the transformer to the output board (3-pin plug, two yellow and one green wire)*
2. *Check the connection of the black ribbon cable between solenoid board (CN5) and logic board (CN1)*
3. *Check the fuse "F1" on the solenoid board.*
4. *Go to the "TEST MODE, TEST OUTPUTS and check all outputs for function*

The unit has a “strange” behavior:

An important parameter may have been changed by accident.

1. *Make notes about your parameter setups.*
2. *Proceed a “MASTER RESET” (see MASTER RESET instruction)*
3. *Test the machine for proper function.*
4. *Reprogram the machine step by step to your original setup.*
5. *Please remember to check the positions and the direction carefully before you start the machine.*

The motor gets too hot:

1. *Go to the SYSTEM TEST and check the balance of the motor see the manual for “ system test instruction”*
2. *Check the machine head. The machine head should turn freely.*

The position stop points are not matching correctly with the adjustment made with the “teach-in” mode:

Please return back to the parameter and make the final adjustments in small increments with the ARROW UP / DOWN button.

Don’t use the “TEACH-IN” mode to change small amounts.

The position is erratic and/or migrating:

3. *Go to the “SYSTEM TEST” routine and test the balance of the motor.*
4. *Make sure, the position point is slightly before the top center.*
5. *Check the LOVEJOY coupling at the motor and machine shaft for proper tightness.*

WATCHDOG ERROR:

IN GENERAL:

A watchdog error occurs, when the feedback from the motor to the processor is missing. That means, the processor does not receive the encoder pulses.

**In case of a watchdog error, please proceed the following:
Press the NEEDLE UP / DOWN button, the program will go back to the operation mode.**

Start again.

If the machine operates normal:

- 1. *Check the motor plugs for proper connection***
- 2. *Check the temperature of the motor.***
- 3. *If the motor turns too hot, check the mech. part of the machine***
- 4. *Run the test for the balance of the motor.***

**If the machine turns about one revolution with uncontrolled speed:
The encoder pulses are missing.**

- 1. *Check the encoder plug for proper connection.***
- 2. *Run the encoder test***

If the machine does not run at all:

- 1. *Check all motor plugs for proper connection***
- 2. *Check your line voltage (must have at least 180 volt).***
- 3. *Remove the motor and run the motor test.***
- 4. *Check the overload LED (red LED at the front of the control box).***

***If the LED is lit, turn the power off and wait at least one minute.
Turn the power back on.***

If the machine runs normal, a spike may have caused the problem.

CHECK FOR PROPER GROUNDING.

Check the ferrites on the following cables:

LCD box input, encoder input and pedal input.

The Photo Eye(s)

Clinton Industries supplies up to two photo eyes. They are connected to the LCD-box (phone plugs).

There are two different kind of LCD- boxes available:

- a) One eye version:
The input terminal for the second eye has a dummy plug. Removing this plug will not make the second eye work. It needs further changes inside the box**
- b) Two eye version:
The LCD- box has to be dedicated for two eyes. If so, the unit will not work with a single eye.**