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AES

EMOIII New Classic Replacement Circuit Board Installation and Operating Instructions

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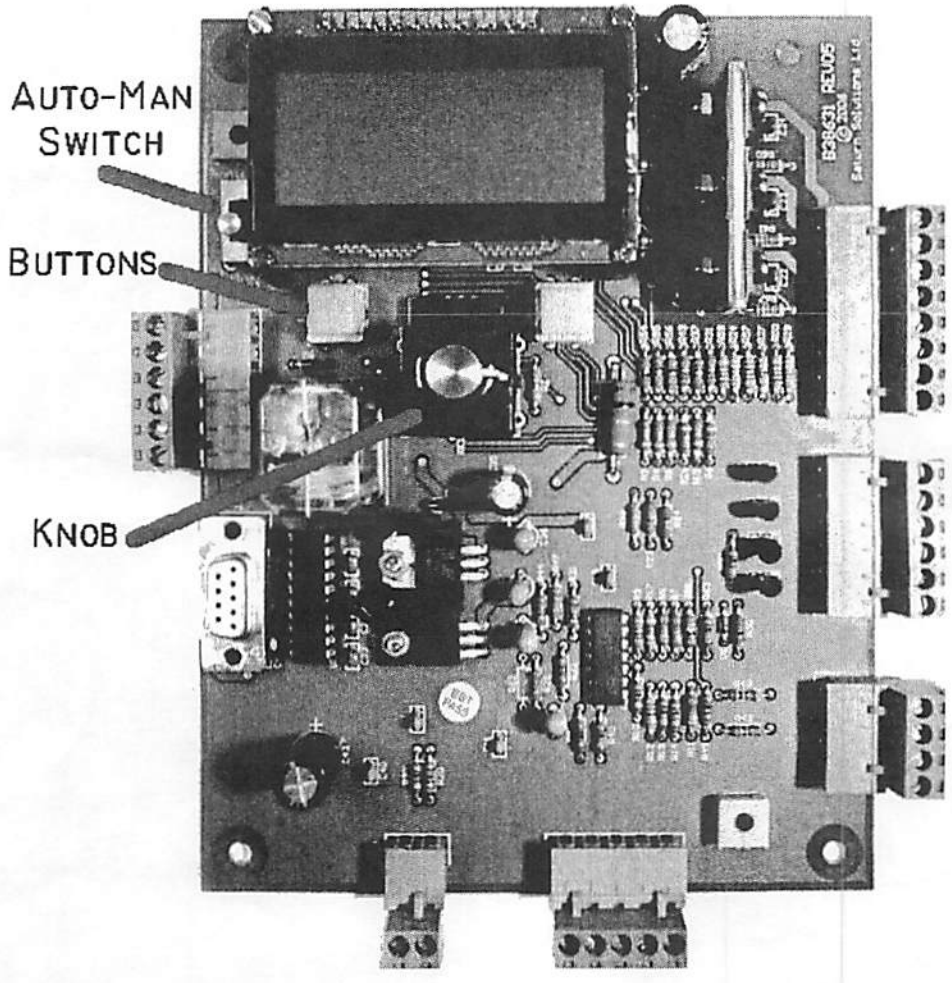
1. The EMO III Classic circuit board that you are replacing (A25584 or B34613) is no longer available due to electronic components being discontinued by their manufacturers. In its place, Kadant has provided this new, fully compatible circuit board (B38631) to control your oscillator(s).



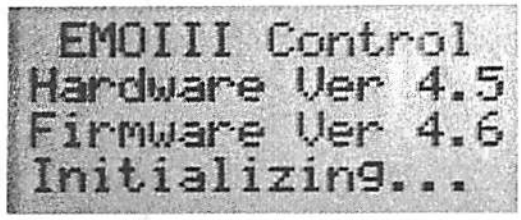
1.1. This new board mounts to the stand-offs already in the control panel, left behind by removal of the old board. The existing wiring plug connectors are 100% compatible. All you need to do to get started is install the board and make the connections. The stroke and speed configuration procedure is new, and will be explained here.

2. General

The new board has an alpha-numeric display. Two buttons below the display take on various functions, depending on the context of the operation. The functions are identified above the buttons, on the alpha-numeric display. A rotary knob is used to change data values and select options.

2.1. Initialization

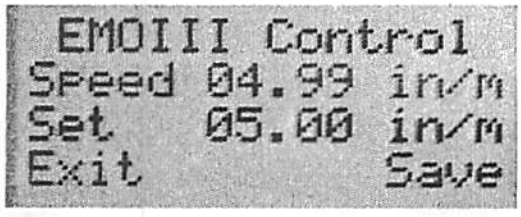
When the board is first powered, it will display an INITIALIZING message on the display while it attempts to retract the oscillator to the home position. No changes can be made until after the initialization is complete. If the motor is not connected, the board will display an alarm message, and no changes can be made in this state, either.



2.2. To power up the board in the setup mode, without running the motor and initializing to the home position, depress both buttons while turning on the power, and continue to hold them down until the setup menu is displayed. This allows you to set the stroke prior to operating the oscillator. See the SETUP MENU section below.

3. Changing the Speed

While the oscillator is running, you can change the speed simply by turning the adjustment knob. When you do, the board will display a speed adjustment screen showing the new selected speed in both inch and metric units. To save the new speed and continue running, press the button below SAVE. To cancel changes and return to the previously selected speed, press the EXIT button.



4. Setup Menu

The setup menu provides access to change the displayed units (inch or metric), set the stroke length, choose information to be shown on the main status display while running, and set the total travel maintenance reminder.

To enter the setup menu, depress both buttons simultaneously and hold until the setup menu appears. An asterisk (*) in the left-hand margin of the display indicates which menu choice is selected. Rotate the knob in either direction to advance the selection to the next menu choice. Depressing the SELECT button will display a new menu related to the currently selected menu choice. For example, to setup your display options, use the knob to position the asterisk next to SETUP DISPLAY, and depress the SELECT button. Depress the EXIT button to return to the previous menu level.

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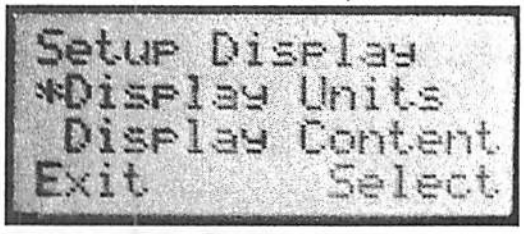
When making a configuration choice, or when entering configuration data, depress the SAVE button to use the selected value. Depress the EXIT button to return to the previous menu level without making any changes.

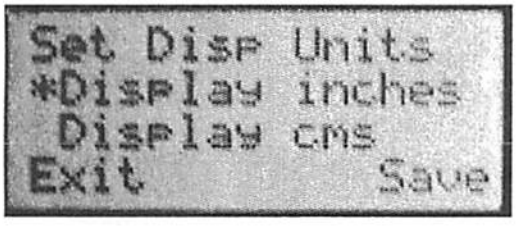
4.1. Setup Display

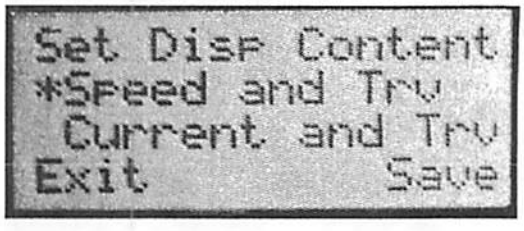
This menu has 2 sub-menus: display units, and display content.



4.1.1. Display Units

Choose between inch and millimeter units for display of operating status.





4.1.2. Display Content

The bottom line of the display will always show the total travel (this is the total distance that this circuit board has driven an oscillator). Like an odometer in a car, this value can be used to schedule normal maintenance activities.

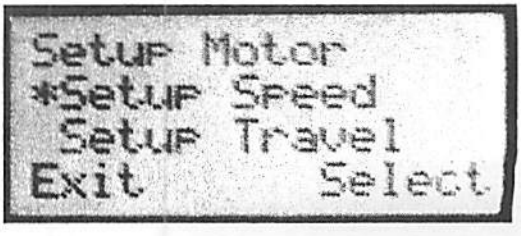
The top line of the display is user-configured. The choices are speed, current, or plunger. Selecting "speed" will display the current operating speed. Since you are installing this board in a panel with a speed (rate) meter, this information is redundant. Since the existing meter is an analog device, the two values may not match exactly.

Selecting "current" will display the motor load (amperes). Since you are installing this board in a panel with a load meter, this information is redundant.

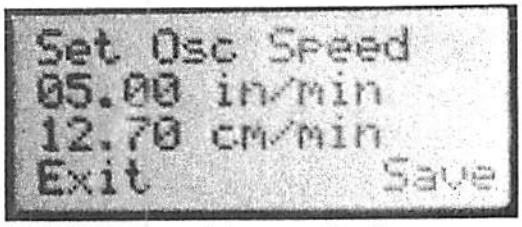
Selecting "plunger" will display a crude picture of the oscillator shaft, with a long bar indicating an extended shaft, and a short bar indicating a retracted shaft. You may find this useful, particularly if the actual oscillator shaft is hidden from view.

4.2. Setup Motor

This menu has 2 sub-menus: setup speed, and setup travel (stroke).



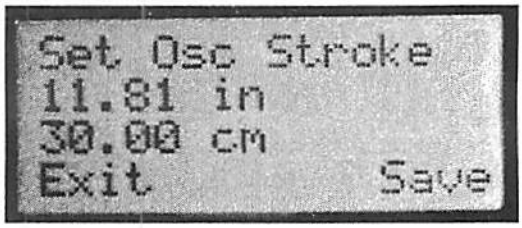
4.2.1. Setup Speed



This setting has two purposes. When the Auto-Man switch is in the Manual position, this setting determines the speed at which the oscillator will run. When the Auto-Man switch is in the Auto position, this setting determines the full scale speed at which the oscillator will run when the paper machine speed signal is 20 mA. At lower machine speeds, the oscillator speed will be scaled proportionately.

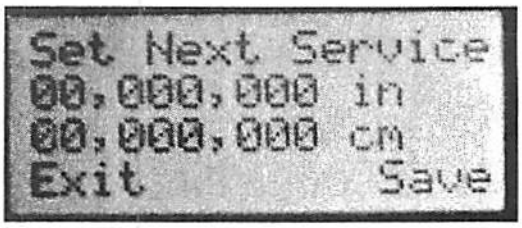
Setting the speed on this menu is no different than setting it while running as described at the beginning of this instruction, except that you cannot access the other screen unless the oscillator is running. This menu can be used to set the speed in the E&I department prior to installing the board in a panel with a connected oscillator.

4.2.2. Setup Travel (Stroke)



Each "click" of the adjustment knob changes the stroke by 0.1mm, or about 0.004 inch. A full revolution of the adjustment knob changes the stroke by 02.4mm, or about 0.10 inch. It therefore will take many turns of the adjustment knob to make a large change in stroke length. It is possible, however, to make very fine stroke adjustments.

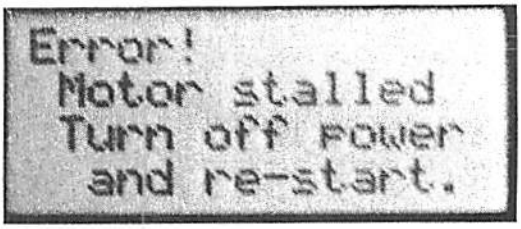
4.3. Next Service



When an oscillator is repaired or replaced, or when a new board is installed, set the "next service" trip point to light the amber service light after the oscillator travels the desired distance (similar to the "check engine" light on many automobiles). Kadant recommends doing scheduled maintenance every 800,000 inches (about 1 year at 1.5 inch/min). Individual mill experience may vary.

Since you are replacing a board, the attached oscillator has probably already run some of the desired distance. On the old board, compare the total travel display to the next service setting. The difference between these two values is the remaining travel distance before service should be scheduled (x 100,000 inches). Add this value to the total travel displayed on the new board (which will be zero if the board is factory new). This will be the initial setting for next service.

5. Error Messages



The new classic replacement board gives more detailed error messages, by virtue of the built-in display. Error conditions result in the water relay shutting off, and power to the motor shutting off (it is not necessary to also cut power to the oscillator panel – leaving power on permits reading of the error message and poses no danger to the equipment). The following errors may be reported.

5.1. Motor Stalled

This message indicates an inability to turn the motor for any reason. Possible reasons include external interference with the oscillator travel, oscillator wiring fault, oscillator in need of rebuild.

5.2. Motor Overrun

This message indicates a failure to detect the home switch. Possible reasons include failed switch and wiring faults.

5.3. Input Power Low

This message indicates that the DC power supplied to the control board is below specification. Possible causes include a failed power supply, and a short circuit drawing down the power supply.