

## MOBIL MASTER ROTATING SIGN OPERATING INSTRUCTIONS

### Introduction:

The Mobil Master auto-indexing sign is designed to automatically scroll through a series of print advertisements that are stored on motorized tubes internal to the sign. These tubes contain internal electric motors which rotate the tubes simultaneously causing the advertisement being viewed in the window to change. The components making up the sign consist of a frame, a pair of motorized tubes, a sign controller, and, in some cases, a series of fluorescent lamps and their associated electrical components.

### Theory of Operation:

Printed signs are rolled on one, or both of the aluminum tubes located at the top and bottom of the signs. Applying power to the electric motors located within these tubes causes them to rotate which, in turn, changes the sign being viewed. Positioning of the signs is controlled by a pair of “electric eyes” which sense the presence of black marking strips located on the back of each advertisement. When these black marks pass the electric eye, a signal is sent to the sign controller to stop applying power to the electric motors. The length of time any one advertisement is in view depends on the programming or “dwell” time programmed into the controller. Similarly, the sequence of viewing is also handled by the controller. Signs may also be equipped with electric lamps. These lamps are fluorescent and may be run from either a 12 volt source or from a 120 volt source depending on the style of sign. This lighting is designed to enhance the visibility of the advertisement being displayed.

### Button Commands and Indicator Lamps:



The sign controller module is located on the side of the sign and can be recognized by a series of electric cables running to and from it. This module is equipped with a control panel which incorporates a series of 4 buttons, an off/on switch/circuit breaker and 3 LED lamps. The buttons can be used to manually control the motion of the sign advertisements, reprogram the controller, or allow the sign to go slack for servicing. The lamps display the status of the controller.

### Controls on Controller Module

(Note: Location of the controller module, the presence of the off / on switch and minor functionality may vary by model or model age)

Green LED lamp:

The green LED lamp glows when power is available to the sign.

Amber LED lamp:

The amber LED lamp is lit when the controller is in manual mode.

Red LED lamp:

The red LED lamp is a status indicator and will flash if the controller detects a problem. A quick flash indicates multiple misses (fail to scroll).

The control buttons are color coded as follows:

Gray: Up or Down

Red: Park

White: Automatic/Manual select

### **Sign Operation:**

#### **Automatic Operation:**

To operate the sign in the automatic mode, turn the power to the sign on. The green LED will glow. If the yellow LED is lit, push the white button. This will cause the yellow LED to extinguish and put the sign in the automatic mode.

At this point, the sign should run in its automatic preprogrammed mode.

#### **Manual Operation:**

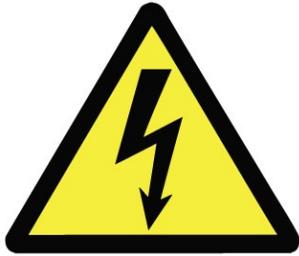
To operate the sign in the manual mode, turn the power to the sign on. The green LED will glow. If the yellow LED is not lit, press the white button. With the sign in the manual mode, pressing either of the gray buttons will cause the ads to scroll in the direction indicated by the button (up or down). To exit the manual mode, press the white button again. The yellow LED lamp will extinguish and the sign will return to the automatic mode. If the controller misses an ad count, the controller will auto correct upon being returned to automatic.

#### **Ad Changing:**



**CAUTION: WHEN THE SIGN IS ENERGIZED, IT CAN MOVE UNEXPECTEDLY. SUCH MOVEMENT CAN CAUSE PERSONAL INJURY OR DAMAGE TO THE SIGN. BEFORE ATTEMPTING SERVICE OR**

**INSPECTION INSIDE ANY SIGN, BE SURE YOU HAVE READ THIS MANUAL AND UNDERSTAND HOW THE SIGN OPERATES.**



**DANGER: SIGNS EQUIPPED WITH ELECTRIC (FLUORESCENT) LAMPS CONTAIN POTENTIALLY LETHAL VOLTAGES. COMING IN CONTACT WITH ELECTRICAL COMPONENTS CAN CAUSE INJURY OR DEATH. BEFORE ATTEMPTING SERVICE OR INSPECTION INSIDE ANY SIGN, BE SURE POWER TO THE SIGN LAMPS IS OFF AND DISCONNECTED.**

To change an ad, follow the steps below:

1. Turn the sign on
2. Select the manual mode by pressing the white button. (You are in the manual mode when the amber LED is illuminated).
3. Use the gray buttons to jog the scroll up or down to the point where the ad is to be inserted.
4. Press the red park button to release tension on the scroll. (The red LED will be illuminated.)
5. Pull the ad material from the sign and cut at the insertion point.
6. Attach the new ad panel. (See instructions below.)
7. Press the red park button. The red LED will extinguish.
8. Use the gray buttons to pull the ad material back into the cabinet.
9. Use the gray buttons to scroll the ads so that a valid ad panel is showing.
10. Press the white button to exit manual mode. (The amber LED will extinguish.)
11. Use the in cab control panel to signal the sign to “learn” the number of ads.

### **Installing an ad panel:**

These instructions assume that the ad to be added (or removed) has been scrolled into position following the instructions outlined above.



1) With the seam of the ad exposed, remove the retaining tape from the left and right sides.



2) Separate the ad from the scroll by gently pulling the ads apart.



3) Attach the new ad to the scroll. Make sure the ends of the scroll and the new ad line up. Apply a piece of tape to the ad panel over both ends of the splice making sure that it covers the front and back side of the splice for at least 2 inches.

4) Push the up button on the controller to pull the new ad into the scroll.

5) Pull the old ad out until the lower splice is revealed.

6) Repeat steps 1 through 3 for the lower seam.

7) Make sure the scroll is riding between the sensor plates located approximately mid way up the side of the sign.

This procedure can be performed from either the front or back of the sign. If it is done from the back of the sign, use the hinged access panels at the top and bottom of the sign to change the ad.

## Troubleshooting:

Problem: The sign runs, but not all of the ads are displayed.

Solution: 1) Turn the sign off for at least 10 seconds.  
2) Set the Auto/Man. Button to Auto., hold the park button down and turn the sign on.  
The sign will proceed through the learn sequence. Normal operation should be restored at the conclusion of the learn sequence.  
(Note: During the learn sequence, the sign will scroll through the ads a couple of times and pause before resuming normal operation.)

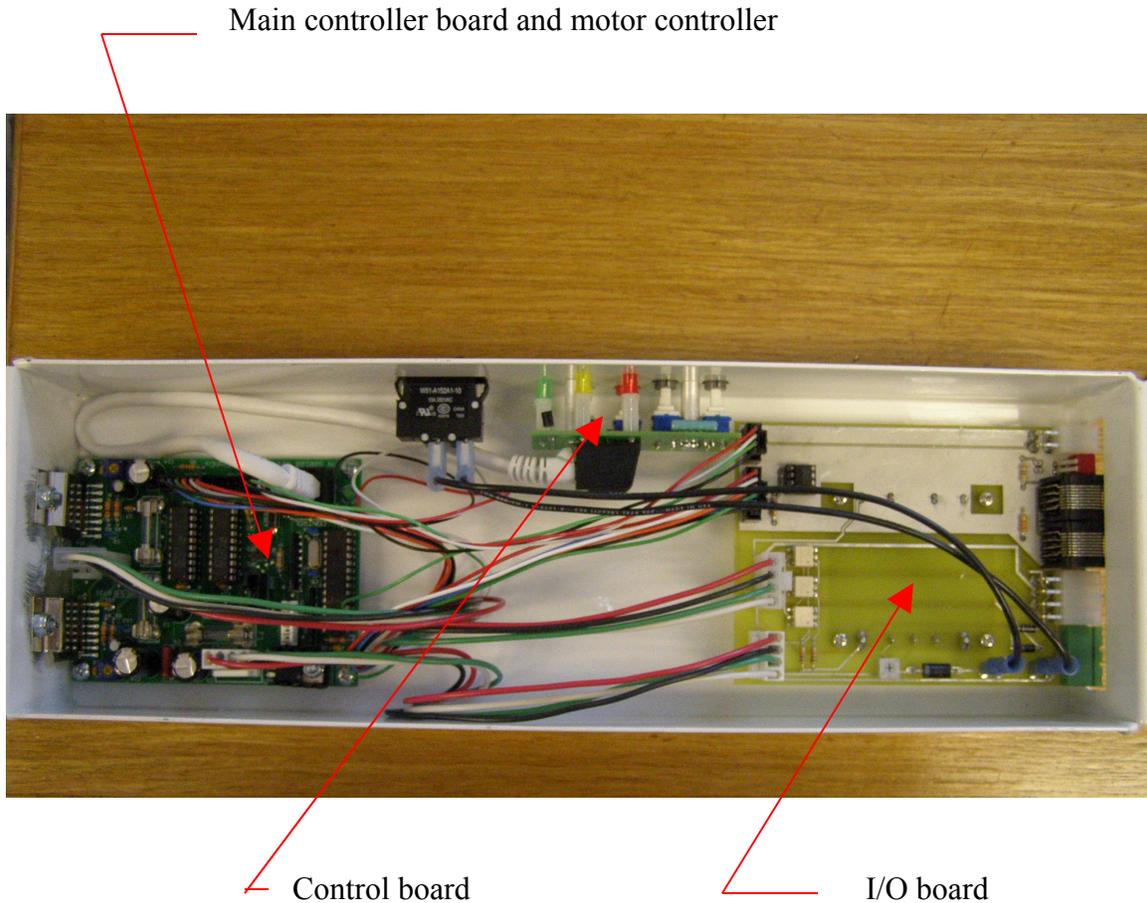
Problem: The sign runs, not all ads are displayed and trying the above fix didn't work.

Solution: Set the Auto. /Man. Button to manual. Try to jog the sign either up or down. If the sign won't move in one or both directions, please contact the manufacturer. If the sign moves in both directions, set the sign to a valid ad and return the Auto. /Man. Button to automatic. Watch to verify that normal operation has returned. If it hasn't, please contact the manufacturer.

Problem: The status indicator LED (red) flashes

Solution: Try resetting the sign as indicated in the first solution. If the problem persists, contact the manufacturer.

## Internal Controller Component Locations:



If at some point it becomes necessary to replace a printed wiring board inside the sign's controller, the location of the individual "cards" is shown in the picture above. Before replacing any component in this controller, be sure that the power is off and disconnected. Be sure to wear a grounding strap to prevent the possibility of static discharge into the controller. When replacing the main controller board, great care must be taken to insure that the new board is reattached exactly as the old board was attached. Note that the controller board uses the controller case as a heat sink. The application of thermal compound and use of the proper torque is essential to guarantee that the replacement board will not overheat or otherwise malfunction. Although less critical, replacement of either the Control board or the I/O board should be done with care to insure that components line up with their respective holes, that there is no interference between the enclosure and any component and that the push buttons do not bind on the edges of their respective holes. If you are unsure of any procedure related to repairing this controller, contact the factory.

## The In Cab Control Panel:



The In Cab Control Panel (shown above) can be used to monitor the status of the sign and to make programming changes.

When the sign is first energized, the controller will read the status of the sign. If the controller is set for auto-start, the display will indicate **AUTO MODE**. To exit this mode, press the “Clear” button (located on the bottom row, third from the right hand side).

Upon pressing “Clear”, the display will read:

**1-AUTO MODE      2-HOT MODE**  
**3-OPTIONS        4-LEARN**

These options represent the various functions that can be accessed with this controller and the associated number that must be pressed to access each option.

The operation of each of these functions is as follows:

### **1-AUTO MODE**

When Auto Mode (1) is pressed, the display will then read:

**ENTER TIME INTERVAL**  
**M: XX S: XX**

By filling in the number of minutes and seconds, the operator is setting the amount of time the ad remains visible. After completing the entry as shown above, the run screen will appear and looks like this:

**AUTOMATIC      CUR 01**  
**TIME XX: XX    NEXT 02**

“Cur” is the ad currently being displayed while “Next” represents the next ad in the programmed sequence of ads. Pressing the “Clear” button will cause the controller to exit this mode.

## **2-HOT MODE**

When Hot Mode (2) is pressed, the display will then read:

**HOT MODE                  NUM X**  
**PRESS AD NUMBER      CUR XX**

By entering an ad number at this point, the sign will display only the ad requested. To exit this mode, press “Clear”.

## **3-OPTIONS**

When the Options Mode (3) is pressed, the display will then read:

**1-MOVE TIME      2-AUTOSTART**  
**9- EXIT**

If Move Time (1) is pressed, the display will read:

**ENTER TIME INTERVAL**  
**M: XX S: XX**

By filling in the number of minutes and seconds, the operator is setting the amount of time the ad remains visible during automatic operation.

If Auto Start (2) is pressed, the display will read:

**SET AUTO START**  
**1- ON                          9-OFF**

Selecting (1) will cause the sign to start in the Auto mode when it is powered on. Selecting (9) will turn this feature off.

If Learn (4) is pressed, the display will read:

**ENTER SIGN NUMBER**

Entering this mode will cause the selected sign to count its ads. The signs are generally numbered as follows:      1. Driver’s side sign.

2, Passenger's side sign

3. Rear sign.

For example, selecting "3" would cause the rear sign to perform an ad count.

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