



**MP465 Controller**  
for Cut-to-Length Machines

***Operator Manual***

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# Table of Contents

<b>TABLE OF CONTENTS</b> .....	<b>I</b>
<b>CHAPTER 1: INTRODUCTION</b> .....	<b>3</b>
<b>OVERVIEW</b> .....	<b>3</b>
<i>Features</i> .....	<i>3</i>
<b>CHAPTER 2: MANUAL OPERATIONS</b> .....	<b>4</b>
<b>JOGGING MATERIAL</b> .....	<b>4</b>
<b>MANUAL SHEAR</b> .....	<b>4</b>
<b>CHAPTER 3: PRODUCTION PROCEDURES</b> .....	<b>5</b>
<b>SCREEN NAVIGATION</b> .....	<b>5</b>
<i>Keypad</i> .....	<i>5</i>
<i>Push Button and Front Panel Selector Switches</i> .....	<i>5</i>
<b>PROGRAM A JOB</b> .....	<b>6</b>
<b>AUTOMATIC OPERATION</b> .....	<b>7</b>
<b>LENGTH CALIBRATION</b> .....	<b>8</b>
<b>CLEAR CONTROLLER MEMORY</b> .....	<b>9</b>
<b>CHAPTER 4: ADMINISTRATIVE SCREENS AND FUNCTIONS</b> .....	<b>10</b>
<b>UNITS OF MEASURE</b> .....	<b>10</b>
<b>ENCODER DIRECTION</b> .....	<b>10</b>
<b>RESET CALIBRATION</b> .....	<b>10</b>
<b>PRODUCTION TOTALIZER</b> .....	<b>11</b>
<b>REACTION TIME</b> .....	<b>11</b>
<b>INDEX</b> .....	<b>13</b>

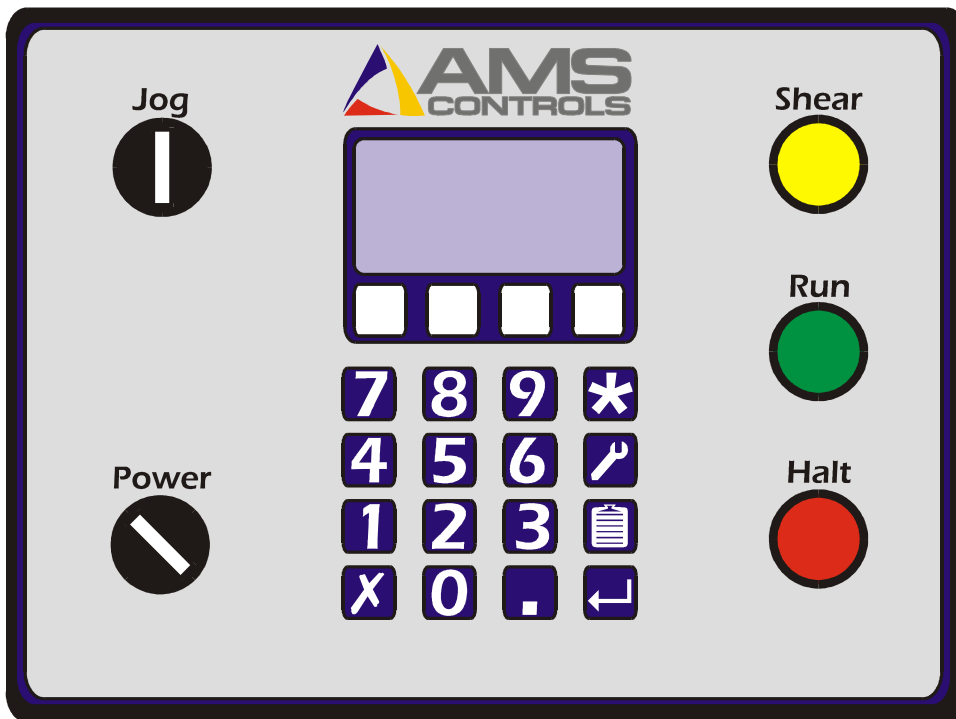


# Chapter 1: Introduction

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## Overview

The AMS Controls MP465 is an industrial controller used to control cut-to-length machinery. Figure 1 shows the front panel of MP465.



*Figure 1: The AMS Controls MP465 Controller*

## Features



The MP465 controller's features include:

- Accurate length control
- Simple programming
- Easy calibration


## Chapter 2: Manual Operations



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### Jogging Material

- To jog material forward using the MP465, turn the jog switch  on the controller to the left (counter-clockwise).
- To jog material in reverse using the MP465, turn the jog switch  on the controller to the right (clockwise).

### Manual Shear

To fire the shear manually, press the Yellow [Shear] Button .

-  **Note:** The controller must be in Manual mode (ie the Green  [Run] Button is not lit).

# Chapter 3: Production Procedures

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## Screen Navigation

### Keypad

The keypad uses hot keys to enable quick entry into certain screens.



**Program Key** Press **[Program]** Key to program a Job Number, Quantity, and Length; press it again to specify the next job to run.



**Status Key** Press **[Status]** Key to exit the current screen and return to the Status screen.



**Calibration Key** Press **[Calibration]** Key to calibrate the length management system; by pressing it again you can display other screens like the Production Totalizer and Stopping Reaction.



**Enter Key** Press **[Enter]** Key to enter or store the current value. [Enter] can also be used to move to the next value.




**Clear Key** Press **[Clear]** Key to clear or set an entry back to its original value.

### Push Button and Front Panel Selector Switches



**Shear**  
Button

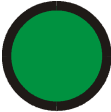


Press Yellow **[Shear]** Button to manually activate the shear.


 **Note:** The MP465 controller allows this switch to operate when the machine is stopped.



**Halt**  
Button


Press Red **[Halt]** Button to load a coil and to stop the machine




	Run Button	Press Green <b>[Run]</b> Button to start the machine after a job has been programmed and selected
	Jog (Forward and Reverse)	When the machine is in manual mode (i.e., the green <b>[Run]</b> button is not lit), turn and hold the <b>[Jog]</b> switch clockwise to jog the material forward, turn and hold the Jog switch counter-clockwise to jog the material in reverse.
	Power	<p>This switch turns the controller on and off.</p> <ul style="list-style-type: none"> <li>• Turn the switch to the right (clockwise) to apply power to the controller unit</li> <li>• Turn the switch to the left (counter-clockwise) to remove power</li> </ul>




 **Note:** If the controller unit has been wired to by-pass this switch, the position of the switch will have no affect on the controller.

## Program a Job


Jobs are composed of a quantity of a specified length. You can program up to 50 different quantities and lengths into the controller. To program a job,

1. Press **[Program]** Key . The current data entry field highlights; once new data has been entered, the data field starts blinking.



 **Note:** Pressing **[Clear]** Key  while the data field is blinking reloads the original value into the data field. Pressing **[Enter]** Key  saves new data and highlights the next field.


2. In the **Job Number** field, enter a number to assign to this job (a value between 1 and 50). Then press **[Enter]** Key. 
3. In the **Quantity** field, enter the number of parts you want to create (up to 999). Then press **[Enter]** Key. 
4. In the **Length** field, up to 999 feet and 11.999 inches. Then press **[Enter]** Key. 


5. The controller displays the message “*Pause After Job xx?*” (where xx is the job number assigned in step 1). Select:
  - **Yes** to have the machine halt automatically after the selected job number is finished.
  - **No** to have the machine change lengths “on-the-fly” and run the job following the selected job without first stopping.

 **Note:** To restart the machine after an automatic halt, press

Green **[Run]** Button .

 **Note:** Pressing any numbered key toggles between **Yes** and **No**. Pressing **[Enter]** Key  stores the value.


 **Note:** To increase productivity, additional jobs can be programmed while the machine is running previously programmed jobs.


6. The program screen will reappear and you can either continue to enter additional Jobs or Press **[Status]** Key  to exit the Program screen.



## Automatic Operation



The MP465 runs all programmed jobs automatically.

- Jog material through the machine until it is past the shear blade.


- Press Yellow **[Shear]** Button  to manually activate the shear and zero out the system.

 **Note:** The controller will display the negative shear kerf value.


- After all desired jobs have been programmed select which Job to run by first pressing the **[Program]** Key  twice. Then enter the desired Job number and press the **[Enter]** Key  to store the value.
- The Status screen should now display the desired Job number in the upper right corner.

- Press Green **[Run]**  Button to begin the automatic operation.
- To stop the machine at any time, press **[Halt]** .

The machine halts automatically when all programmed jobs are completed.


 **Note:** If the encoder is counting in the negative direction, change the encoder direction in the Setup Screen as described previously.

## Length Calibration



 **Note:** Calibration is typically required only during machine commissioning or when the machine no longer produces parts within tolerance. This can happen after changing coil stock.

Length calibration adjusts for errors in the size and tracking of the measuring wheel and is expressed as a percentage, with 100% being no correction. Increasing the correction factor causes the parts to become longer and decreasing the value shrinks the parts.


The MP465 controller's length calibration feature automatically computes a new correction factor by comparing the desired (Programmed) length to the actual (Measured) length. Length Calibration should be used any time part lengths are incorrect in a consistent manner (e.g., all parts 1mm too long, etc.). Length calibration will not fix a situation where parts are inconsistent (e.g., parts vary +10 to -10mm).

 **Note:** When calculating the correction factor, make several parts and use the average of these parts for the part length. The first part produced should not be used in this calculation since it may be inaccurate due to shear reaction or other variances.


To calibrate the MP465 controller,

1. The controller can be calibrated anytime the measured part length is not matching programmed part length.
2. With the controller powered on, press **[Calibration]**  until the screen title says "CALIBRATE-1". The display shows you the current correction factor. Press **[Clear]**  to begin the calibration process.

3. When the prompt “ENTER PROGRAM LENGTH” displays, enter the part length of the part you are attempting to produce.

 **Note:** The longer the part is that you attempt to calibrate on, the more accurate the calibration will be.

4. When the prompt “ENTER MEASURED LENGTH” displays, enter the part length of the part you actually measured. Using an average of several measured parts will provide the most accurate result.
5. The screen title will change to “CALIBRATE-4 and show the OLD and NEW correction factors. The controller is now calibrated.


 **Note:** If the computed correction factor is greater than 110% or less than 90%, the “Calibration Out of Range” error message displays and the calibrate cycle is ignored.

## Clear Controller Memory

A quick way to clear out all of the Jobs from the controller is to clear its memory. All of the controllers other internal settings like correction factor and stopping reaction time will be preserved.

To reset the memory on the controller,


1. Turn the device off, then back on.
2. Press **[5]** while the startup screen is showing.

 **Caution:** Clearing the controller memory clears out *all* jobs that are programmed into your controller!


# Chapter 4: Administrative Screens and Functions

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## Units of Measure

1. Hold the [9] Key down while turning the device off and then back on.
2. Release the [9] Key when the screen title displays “SETUP-1”.
3. Use the keys below the Up and Down arrows to navigate up or down to the “UNITS” setup parameter.
4. Press any number key to select between the available units.
5. Press the [Enter] Key  to store the value.


## Encoder Direction




1. Hold the [9] Key down while turning the device off and then back on.
2. Release the [9] Key when the screen title displays “SETUP-1”.
3. Use the keys below the Up and Down arrows to navigate up or down to the “ENCODER DIR” setup parameter.
4. Press any number key to select between **cw** (clockwise) and **ccw** (counter-clockwise).
5. Press the [Enter] Key  to store the value.

## Reset Calibration


Length calibration is accomplished using an internal parameter called correction factor. The correction factor is used compensate for wear and manufacturing tolerances in the encoder wheel and variations in material surfaces.




Calibration is covered in Length Calibration section of Chapter 3.

The calibration can be reset to its default value. Press and release the [Calibration]  key until the screen title displays “CALIBRATE-7”.

 **Note:** To reset the correction factor to 100% press [Clear] . When the prompt “ENTER CODE TO CLEAR TOTAL” displays; enter 1984 and press [Enter] .


## Production Totalizer




Total production of the machine is counted by the controller. You can view the production counter by pressing and releasing the [Calibration]  key until the screen title displays “PRODUCTION-1”.

 **Note:** To reset the totalizer to zero press [Clear] . When the prompt “ENTER CODE TO CLEAR TOTAL” displays; enter 1984 and press [Enter] .

## Reaction Time

Stopping Reaction is an internal parameter that the controller calculates over the span of several parts. It is used to compensate for the time it actually takes for the machine to stop after the controller tells it to.

The stopping reaction can be viewed by pressing and releasing the [Calibration]  key until the screen title displays “REACTION-1” will allow you to display the controllers stopping reaction time value.

 **Note:** To reset the reaction time to zero press [Clear] . When the prompt “ENTER CODE TO CLEAR REACTION” displays; enter 1984 and press [Enter] .



# Index

## A

Automatic Operation, 7

## C

Calibrate Trim, 8  
Calibration  
    procedure, 8  
Clear Controller Memory, 9  
Controller Memory  
    clear, 9  
Correction Factor, 8

## F

Front Panel Selector Switches, 5

## J

Job  
    programming, 6  
Jog, 4  
Jogging Material, 4

## K

Keypad, 5

## L

Length Calibration, 8

## M

Manual Shear, 4  
Material  
    jogging, 4  
MP450S Features, 3

## O

Overview, 3

## P

Production Procedures, 5  
Program a Job, 6  
Push Button and Front Panel Selector Switches,  
    5

## S

Screen Navigation, 5  
Selector Switches  
    Front Panel, 5  
Shear, 4  
Start the Machine, 7