



**MP450 Controller**  
for Cut-to-Length Machines

***Operator Manual***

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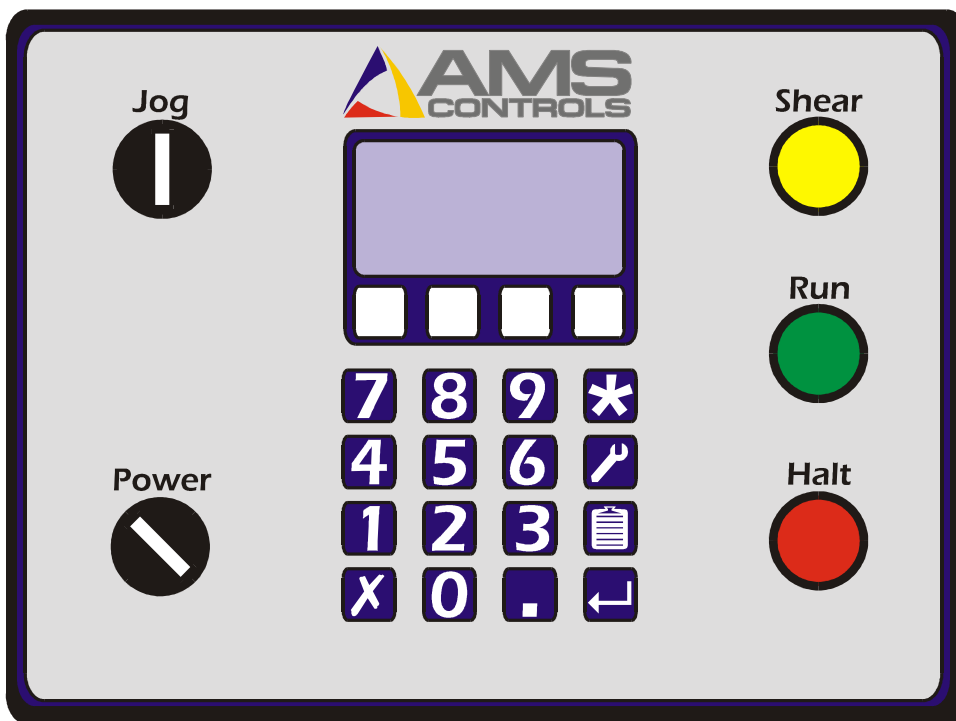


# Chapter 1: Introduction

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## Overview

The AMS Controls MP450 is an industrial controller used to control cut-to-length machinery. Figure 1 shows the front panel of MP450.



*Figure 1: The AMS Controls MP450 Controller*

## Features



The MP450 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 MP450, turn the jog switch  on the controller to the right (clockwise).
- To jog material in reverse using the MP450, turn the jog switch  on the controller to the left (counter-clockwise).

### Manual Shear

To fire the shear manually, press the shear button .

 **Note:** The controller must be in Manual mode.

# Chapter 3: Production Procedures

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## Screen Navigation

### Keypad

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



Program

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



Status

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



Calibration

Press [Calibration] to calibrate the length management system; press it again to display the Footage Totalizer.

- *To reset the totalizer to zero:* When the footage displays, press [Clear]. The prompt “Enter Code to Clear Total” displays; enter 1984 and press [Enter].



Enter

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



Clear


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

### Push Button and Front Panel Selector Switches



**Shear** Shear

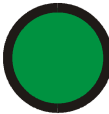


Press [Shear] to manually activate the shear.


 **Note:** The MP450 controller allows this switch to operate when the machine is stopped.



**Halt** Halt


Select [Halt] to load a coil and to stop the machine


	Run	Select [Run] to start the machine after a job has been programmed
	Jog (Forward and Reverse)	When the machine is in manual mode (i.e., the Run button is not lit), turn and hold the Jog switch clockwise to jog the material forward, turn and hold the Jog switch counter-clockwise to jog the material in reverse.  This switch is inactive when the Run switch is lit.
	Power	This switch turns the controller on and off. <ul style="list-style-type: none"> <li>• Turn the switch to the right to apply power to the controller unit</li> <li>• Turn the switch to the left 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. Select **[Program]** . The current data entry field highlights; once new data has been entered, the data field starts blinking.


 **Note:** Pressing **[Clear]** while the data field is blinking re-loads the original value into the data field. Pressing **[Enter]** 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).
3. In the **Quantity** field, enter the number of parts you want to create (up to 999).
4. In the **Length** field, up to 999 feet and 11.999 inches.



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 **[Run]**.


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

## Automatic Operation


The MP450 runs all programmed jobs automatically.

- To start the machine after all desired jobs have been programmed, press




- 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 startup, although changing coil stock may sometimes require a calibration as well.


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 MP450 controller’s length calibration feature automatically computes a new correction factor. Length Calibration should be used any time part lengths are incorrect in a consistent manner (e.g., all parts 1mm too long, etc.).

 **Note:** When calculating the correction factor, make several parts (6 to 10) 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 MP450 controller,

1. With the controller powered on, press [**Calibration**] . The display prompts you to enter a calibration length.
2. When the prompt “Enter Length for Calibration” displays, enter a part length.

 **Note:** The longer a part length you enter, the more accurate the calibration will be. The minimum length that can be programmed for calibration is 5 feet; the maximum length that can be programmed for calibration is 40 feet.

The message “Load Coil, Then Cycle Shear” displays.

3. While in Manual mode, load a coil using the Jog switch and, with the material slightly past the shear, press [**Shear**] . The message “Press Run to Start Calibration” displays.
4. Press [**Run**] . The machine starts, produces one part of the calibration length, and stops automatically.
5. Carefully measure the part produced
6. When the prompt “Enter Measured Length” displays, enter the measured part length. 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

Sometimes electrical disruptions, such as power surges, can alter the controller's memory, resulting in erratic controller operation. To remedy this, you must re-set (erase) the memory and then re-calibrate the controller.

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 and re-sets all setup parameters *except* encoder direction to their default values. *Be sure you have all this data recorded elsewhere before clearing memory!*



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