AMS CONTROLS

MP450S Controller
(for Slitting and Cut-to-Length Machines)

Operator Manual

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Chapter 1: Introduction

Overview

The AMS Controls MP450S is an industrial controller used to control cut-to-length machinery equipped with slitting knives. Figure 1 shows the front panel of MP450S.
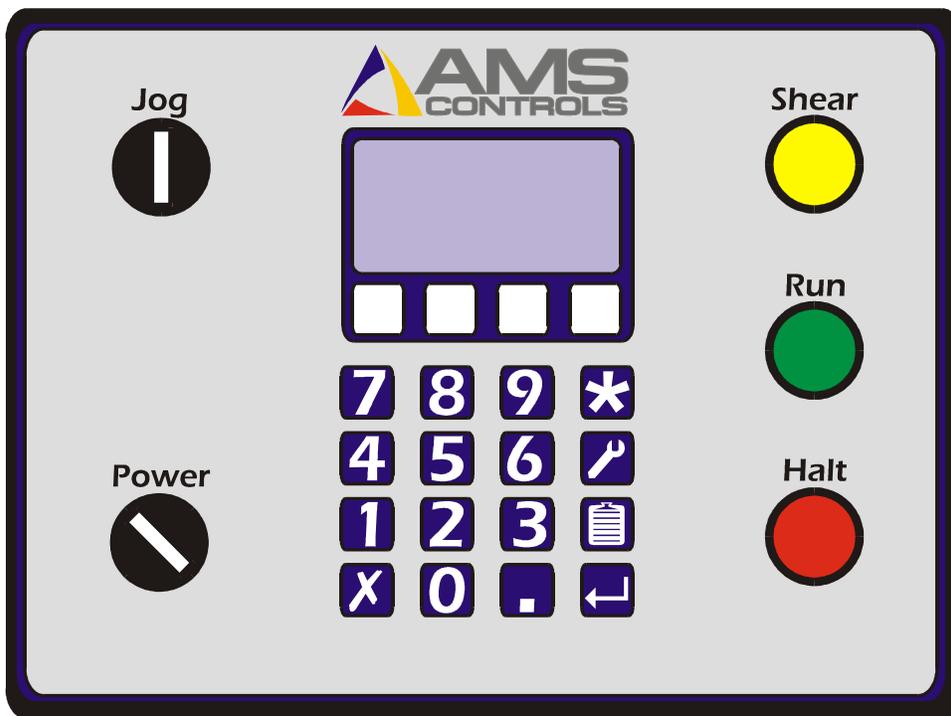
Figure 1: The AMS Controls MP450S Controller

Features

The MP450S controller's features include:

- Accurate length control
- Simple programming
- Automatic stops for knife changes
- Easy calibration

Chapter 2: Manual Operations

Jogging Material

- *To jog material forward* using the MP450S, turn the jog switch on the controller to the right (clockwise).

- *To jog material in reverse* using the MP450S, 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.

Load a Coil (Autoload Feature)

To load a new coil,

1. Press **[Halt]** to ensure the machine is in the manual mode.

2. Turn the **[Jog]** switch to forward and hold it in place. The material feeds through the machine and stops automatically when the leading edge is just past the shear blade.

3. Press the **[Shear]** button and trim cut the leading edge of the coil. The material is cut and the controller's length display re-sets to zero.

The machine is now ready to produce parts.

Chapter 3: Production Procedures

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].

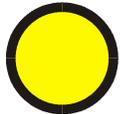|		
	Enter	Press [Enter] to enter or store the current value. [Enter] can also be used to move to the next value.
	Clear	Press [Clear] (*clear entry*) to clear or set an entry back to its original value.

Push Button and Front Panel Selector Switches

Shear — Shear — Press [Shear] to manually activate the shear.

> 📄 **Note:** The MP450S 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   Run   Select [Run] to start the machine after a job has been programmed

Jog   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   Power   This switch turns the controller on and off.

- Turn the switch to the right to apply power to the controller unit

- Turn the switch to the left to remove power

 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 (300 meters).

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]**.

6. The controller displays the message "Raise Knives after Job xx?" " (where xx is the job number assigned in step 1). Select:

    -   **Yes** to require the operator to raise the knife blades prior to completing the last part. On the last part, the line stops at a position equal to the part length minus the knife distance. The operator is then required to raise the knife blades and press [Run] to complete the final parts. This option is used to prevent scrap waste.

        📄 **Note:** When making parts shorter than the knife distance, it is possible that the knife blades are required to be in the up position in order to complete multiple parts.

        For example, assume the knife distance is set to 24 inches, the part length is 6 inches and the quantity to produce is 5. After the first part is produced, the operator is required to raise the knife blades. Since 24 inches of material is already slit, the remaining four parts are produced with the knife blades in the up position.

    -   **No** to allow the user to proceed to the next job with the knife blades in the down position.

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

Automatic Operation

The MP450S runs all programmed jobs automatically.

- To start the machine after all desired jobs have been programmed, press
  [Run] .

- 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 MP450S 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, boosts motion, or other variances.

To calibrate the MP450S 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]** (○ *Shear*). The message "Press Run to Start Calibration" displays.

4. Press **[Run]** (● *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!***