



# **MTS 500**

# **OPERATIONS MANUAL**

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## **1. Introduction and Features of the MTS 500**

The MTS 500 has been designed to more fully automate the large long-term care pharmacy. This system can produce almost 1000 completed medication punch cards per hour. The MTS 500 automatically pulls a card and blister from a pre-loaded magazine, places the medication in the blister, folds and seals the card, all with a single operator.

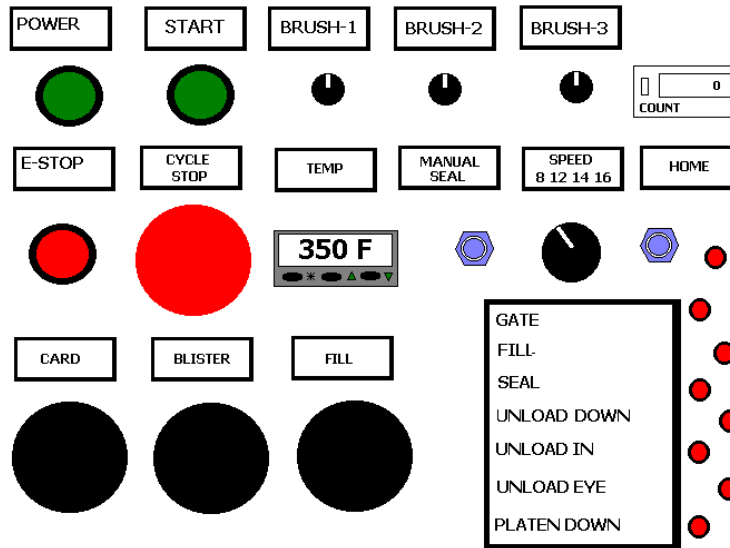
This can be coupled with out optional printing system. The output is then completely ready for storage in your pre-pack area. This system is ideal for pre-packing facilities serving 5000 beds or more.

## 2. Components of the MTS 500

The major components of the MTS 500 are as follows;

### 2.1 Control Panel

All MTS 500 functions are controlled from here.



The functions of the control panel follows

#### 2.1.1 Power

The power button activates all functions of the machine. When the button is pressed a green light will light up indicating power is activated.

#### 2.1.2 Start

Activates the turntable. For the cycle to start the “Cycle Stop” Knob must be pulled up. Once activated the turntable will start turning.

#### 2.1.3 Brush 1

Activates the first filling brushes. This is a speed control and can be set to different speeds as need requires. The function of this brush is to start filling the plate cavities with medication

#### 2.1.4 Brush 2

Activates the second filling brushes. This is also a speed control and can be set to different speeds as need requires. The function of this brush is to further fill the plate cavities with medication

### **2.1.5 Brush 3 (Roller)**

Activates the third brush also called a Roller Brush This brush removes any medication other than those to be filled and directs them back towards the first brush.

### **2.1.6 E-Stop**

Emergency Stop. Shuts the machine down.

### **2.1.7 Cycle Stop**

Stops the turntable. This knob needs to be in the up position to resume the cycle.

### **2.1.8 Temperature**

This controls and displays the current temperature of the sealing plate.

### **2.1.9 Count**

This is a card counter. Every time a card is unloaded onto the conveyor it will be counted. Press reset to “000” the counter.

### **2.1.10 Speed**

This is the machine speed indicated in CARDS PER MINUTE. Settings are for 8, 12, 14, and 16 cards per minute.

### **2.1.11 Card**

When pulled out, this knob activates the mechanism that will drop a Punch card.

### **2.1.12 Blister**

Pull to drop a blister into the previously dropped Punch card.

### **2.1.13 Fill**

Activates the filler mechanism. Even though the filling plate turns with the turntable, medication will not drop unless this knob is pulled up.

### **2.1.14 Manual Seal**

Activates the sealing station for a manual seal.

### **2.1.15 Home**

Sends the turntables to the start position. The indicator to the right of this button is illuminated when the turntables are in the ‘home’ position.

### **2.1.16 Indicator Lights**

Whilst in the home position all the indicators will be lit, showing the machine is ready to proceed.

- If any are not lit, then there is an obstruction, or the relevant component is not in position.

## **2.2 Turntable**

The turntable is the central component of the MTS-500. The intermittent rotation of the turntable enables all the other functions to be performed

## **2.3 Punch Card Station**

Punch Cards are picked from this station by vacuum cups and delivered onto the turntable. NOTE: Cards need to be pre-folded before placing into the station.

## **2.4 Blister Station**

This is a swiveling arm with vacuum cups removes Blisters loaded into this station. They are then placed into the previously loaded punch card.

## **2.5 Product Tray**

Medication is fed into the slots on the product tray by the brush attachments. The horseshoe mechanism holds the medication, while the rotating brushes push medication into the slots. The product tray moves in a clockwise direction and dispenses the medication into the card/blister at the center of the turntable.

## **2.6 Card Folder**

The turntable with the filled card/blister rotates to the card folder. This is a curved arm that will fold the card as the turntable moves on to the next station. This is also considered the inspection or check station. The operator needs to check the card for a complete fill.

## **2.7 Sealing Station**

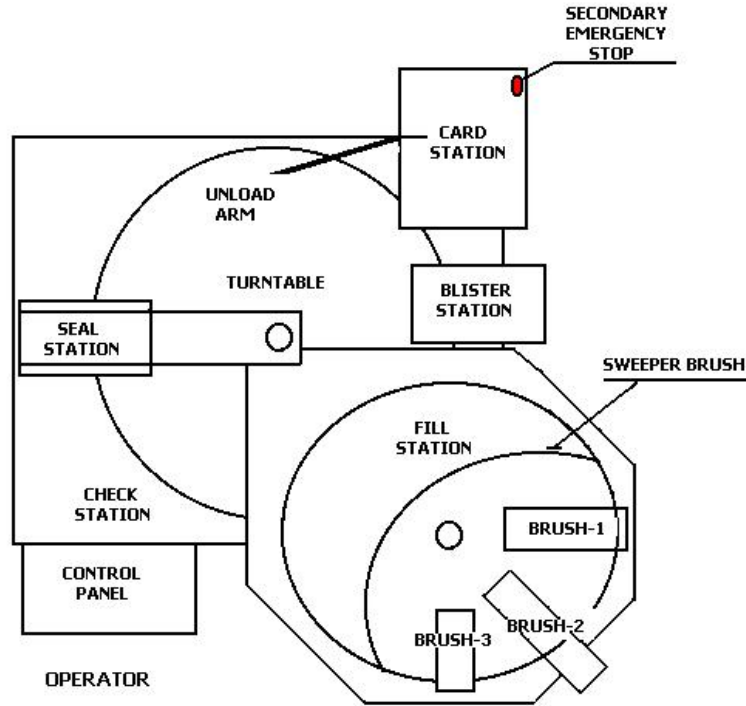
Once the card has been checked and folded, it is ready for sealing. (The upper platen applies pressure to seal the card). Once the platen has retracted, the card is rotated to the Unload Station.

## **2.8 Unload Station**

The sealed card is removed from the turntable at the Unload Station by a rotating arm equipped with vacuum cups. The arm picks up the card, rotates 60° and drops the card into the conveyor.

## 2.9 Conveyor/ Label Station (Where Applicable)

Unloaded card will be placed onto the conveyor arm, it will be turned over and dropped. Once it travels towards the end of the conveyor it will be automatically labeled.



MTS 500 OVERVIEW

### 3. Set-Up of the MTS 500

#### 3.1 Loading the Machine

The machine must be loaded with the MTS punch cards, blisters and medication prior to operation.

**PLEASE NOTE:** Cards must be Pre-folded.

MTS punch cards must be used with the MTS 500. While facing the turntable, place the card into the Card Station with the printing on the card facing outward and the foil on the left side of the card facing the turntable. Push gently on the cards to ensure that they are resting on the tabs.

**BLISTERS:** Blisters must be placed on the Blister Station flat side down, with the last two doses toward the middle of the machine.

**MEDICATION:** Medication should be placed into the Fill Station hopper.

##### 3.1.1 Bottom Plate Selection.

This plate funnels product into the card and blister below. Selection of this plate is based on the medication's ability to drop through without interference, without being oversized.

- Select and place 6 bottom plates on main station.

T - Tablet Shaped	For tablets
U - Universal	For all Capsules and smaller tablets

##### 3.1.2 Filler Plate Selection

The function of the filler plate is to deliver one medication only to the plate below. The plate should resemble the shape and size of the medication being filled. It must allow the medication to fall easily into position, without allowing a second medication access. If the hole is too big, then a second medication may also fall onto the hole.

Plate identity is towards the center of the plate.

C1 to C7	Capsule shaped	1(small) to 7(large)
T1 to T7	Tablet shaped	1(small) to 7(large)
OV1 to OV4	Oval Shaped	1(small) to 4(large)

<p><b>Note:</b> Plate kits are customized to requirements. Additional plates can be manufactured.</p>
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### 3.1.3 Brush Removal/Refitting

Green Brush's: Loosening the thumbscrews on each brush enables the brushes to be easily changed.

### 3.1.4 Plate Changing

- Lift all brush attachments out of the hopper. Ensure they are secured in the upright position.
- Remove any remaining medication from the hopper.
- Remove hopper ring from filling station.
- Unscrew Center cap. Remove center ring.
- Remove Filler plate.
- Remove Bottom plates.
- Clean to local procedures. (Including brushes etc.)
- Replace bottom plates for next medication.
- Filler plate is placed over center post, aligning the tabs and grooves on the center post and Filler plate. Ensure plate identification is face up.
- Replace center ring and screw down the White Center cap.
- Replace hopper ring over the filler plate.
- Return Brushes to the down position

## 4. Safety

Besides an operator the MTS 500 requires compressed air, a vacuum and electricity. When making your electrical connection use only a 240Volt, 30Amp electrical power source.

As with any piece of electrical and air driven equipment, the safe operation requires the operator to observe and follow safe operating practices. Please report all unsafe operating practices to your immediate supervisor for local resolution.

**Please ensure that you turn off and unplug the machine whilst carrying out any maintenance.**

<b>Note:</b> Some surfaces are hot during operation.
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## 5. Operating the MTS 500

### 5.1 Operating Instructions

**NOTE:** Please ensure your plates brushes and hopper system are clean.

Directly below the Fill Station, you will find a tray. This will catch any medication that falls through the fill station, i.e. if the fill is operated without a blister being in the platen to catch it.

**USE THE EMERGENCY STOP (LARGE RED) BUTTON AT ANY TIME YOU WISH TO STOP THE MACHINE IMMEDIATELY.**

- Select Plates as described in SET-UP.
- Set the speed at which you wish to fill cards, then set the appropriate temperature for the sealing station from the table in the section marked '**Calibration control setting**' See page 11. The plate can now heat up whilst you continue with the set up.
- Lower the Filler Head assembly's into the hopper. Ensure the brushes are in gentle contact with the top plate. Adjust height using the star nut on back of the Filler assembly.
- Assuming you have already connected the machine to appropriate power and air sources; ensure the '**Cycle Stop**' button is pulled out, push the green '**Power**' button in. This button will now be illuminated.
- If the machine is in its starting position, the red light to the right of the '**Home**' button will be on. If not, push the '**Home**' button and the tables will rotate 'home'.
- Set your Brush speeds. (using dials marked: '**Brush 1, Brush 2 and Brush 3**')

Try the following set up as a guide.

<b>Bush #</b>	<b>Speed</b>
<b>1</b>	<b>70 %</b>
<b>2</b>	<b>50 %</b>
<b>3</b>	<b>60 %</b>

- Add Medication to the Hopper.
- Observe how well Medication is being distributed around the top plate. If necessary, adjust brush speed.

- Check appropriate cards and blisters are loaded into the hoppers. And none are on the platens in the turntable.
- Reset the counter. Ensure the 'Card', 'Blister' and 'Fill' buttons are all pushed in.
- Use the '**Start**' button to start the machine cycling. All you will see is the turntables move, no cards or blisters will be pulled.
- To start filling. (Ensure appropriate temperature is reached).
  - Pull the '**Card**' button. At the next turn, the machine will pull a card.
  - Pull the '**Blister**' button as the first card is placed onto the turntable.
  - Pull the '**Fill**' button as the first blister is plucked and inserted into the first card.
  - The MTS 500 will now automatically fill and seal cards.
- As the first filled card moves in front of the control panel, check the contents of each blister to ensure it is correctly filled. Fold the card over.
- The first card will now be moved under the seal station, where it will be sealed.
- On the next move the first card will be plucked and removed from the machine.
- Check the first card for seal effectiveness.

## 5.2 Emergency Stop - Reset Procedure.

- Solve any problem for which the machine was stopped.
- Push in 'card', 'blister' and 'fill' buttons.
- Push the 'Home' button to return the machine to the start button.
- Remove cards and blisters from turntable. Return to hoppers.
- Return to number 11 above.

## 5.3 Calibration Control Setting.

The digital readout from this is the current temperature of the heat sealer.

The Set temperature, i.e. the temperature that the control is trying to maintain will be as per tables below. To view the current set temperature press and hold the left hand (LH) button on the calibration control.

To change the current setting;

Whilst holding down the LH button, use the  $\Delta$  and  $\nabla$  keys, this sets a new desired temperature.

If you try and set this too far away from the factory setting, then, when you release the LH key, 'AL' will be displayed in the readout. Use the emergency stop procedure to reset.

#### 5.4 Platen Temperature Chart

Speed (cards/minute)	Temperature
8	300°F - 325°F
12	325°F - 350°F
14	350°F - 375°F
16	375°F - 390°F

USE THE SPEED SETTING CHART TO DETERMINE APPROPRIATE SPEED/TEMP.

#### 5.5 Speed Setting Chart

Medication Type	Speed
Hard tablets	14 to 16
Chalky Tablets	12 to 14
Small to Medium Capsules	12 to 14
Large capsules	8 to 12
Hard Ovals	14 to 16
Large Chalky Ovals	8 to 12
Gel Caps	12 to 14

## 6. Routine Maintenance

As discussed earlier it is important to clean the plates prior to use to avoid product contamination. The machine also needs to be maintained and cleaned daily. Don't forget to also keep the catch tray and spare medication holder clean.

**We recommend, daily cleaning of the cabinet and components. Clean the machine using a soft cloth with a household detergent and water solution.**

### 6.1 Weekly Maintenance:

- Remove all water from Filter bowl located on the rear of the machine. Pull the pin to one side. Place a bowl underneath to collect the water.
- Drain the compressor tank.
- Check oil level. Follow the manufacturer guidelines
- Check Vacuum
  - As per manufacturer guidelines

### 6.2 Monthly Maintenance:

- Clean Vacuum using 'GAST AH255B' cleaner. Follow instructions on can.
- This can be purchased from MTS. Part Number A-3590.
- Grease card and blister picking arms. Use grease gun on nipples.

### 6.3 Six Month Maintenance:

- Grease the 8 bearings. Use grease gun on nipples.

## 7. Troubleshooting the Machine

The machine will run by itself, however, the operator must keep a watchful eye on all functions of the machine. Following are examples of possible miss-feeds and corrective measures the operator may take:

### 7.1 Example 1:

- A one-piece card fed onto the turntable is not situated in the pocket correctly.

#### 7.1.1 Corrective Measure:

- The operator should shut the machine off with the **CYCLE STOP** button and correctly place a card into the pocket.

#### 7.1.2 Resuming Operation:

- Depress the **START** button.

## 7.2 Example 2:

- Card is not folded correctly.

### 7.2.1 Corrective Measure:

- The operator should shut off the machine with the **CYCLE STOP** button. The operator will need to remove the unfolded card from the machine.

### 7.2.2 Resuming Operation:

- The operator should resume regular functions after removing the card.

## 7.3 Card or Blister Melted to Upper Platen

**NOTE:** This unit is hot. Please take the necessary precautions to avoid injury.

- Turn off the MTS-500 by depressing the **CYCLE STOP** button.
- Loosen and remove the Center Black star nut. That connects the sealing station to the turntable at the center of the machine.
- Raise the Upper Sealing Unit all the way back, until it rests on the back rod.
- Shield the lower seal station platen with a cover to avoid debris from falling into the platen.
- Use a putty knife to remove the melted plastic from the Upper Platen (This is best accomplished while the plastic is hot.)
- Use a scouring pad or wire brush to remove any residual plastic from the platen.
- Lower the unit and re-secure by tightening the center star knob.

**NOTE:** To stop the machine immediately, at any time during operation, depress the E-Stop knob.

**8. Contact Information**

Technical Service	(727) 571-1616 ext. 596
Technical Service e-mail	technicals@mts-mt.com
Customer Service	(800) 845-0053

**9. Technical Specifications**

Power Supply:	240V, 1 $\phi$ 30 Amp supply.
Air Supply:	15 CFM at 100 psi Vacuum
Overall Dimensions (approximate):	Width: 58" Length: 58" Height: 48"
Weight:	1200 lbs
Seal Plate Operating Temperature:	300 to 390° Fahrenheit