



# MTS-350T™

## OPERATIONS MANUAL



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## 1. Introduction and Features

The MTS-350T is a semi-automated fill and seal machine designed by MTS Medication Technologies, Inc. to prepackage medication punch cards. The MTS-350T features the latest developments from MTS, including a high-pressure sealing system to reduce cycle times and a versatile filling system capable of handling virtually all of the medications dispensed in today's pharmacy.

The machine consists of a filling system, located on the right side of the machine and a sealing unit on the left.

The MTS-350T produces 5 to 6 filled and sealed medication punch cards per minute. The unit is capable of filling various configurations, including 28, 30, 31, 60, 62 and custom dose cards.

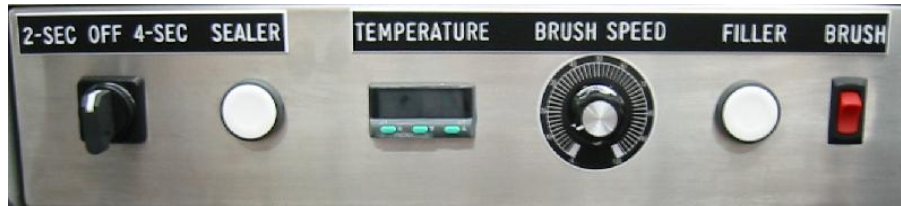


## 2. Components of the MTS-350T

The major components of the MTS-350T are the Electrical control box, fill station, seal station, platen slide, compressor, plates and platen.

### 2.1 Electrical Control Box

Mounted in the center of the unit, it houses the electronic components that power the machine. Temperature controls, off /seal time selector switch, etc., is all conveniently located.



### 2.2 Fill Station

The Fill station comprises the following components: Motor Control Box, Brush Assembly, Hopper, Top Plate, Center Plate, Bottom Plate, Platen, Platen Holder and Supporting Structure.

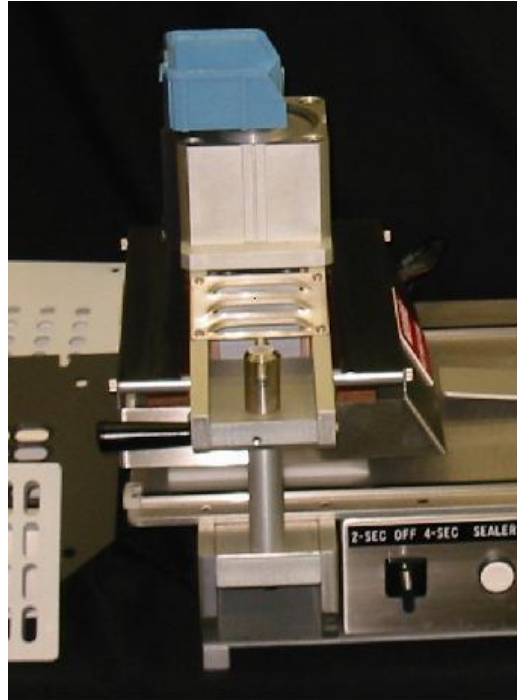


The MTS-350T uses a **three-plate** filling system. These consist of top, center, and bottom plates.

In the filling station, the **platen** (in which the card & blister sit) is seated directly under the 3 plates, allowing the blister to be filled. Using different plate configurations allows many sizes and shapes of medication to be filled effectively.

### 2.3 Seal Station

Comprised of Air Cylinder, heat guards, Heat Plate and Supporting Structure.



The structure is pivoted to enable the top to be unscrewed and lifted to enable cleaning access.

### 3. Safety

The MTS-350T should be on a level work surface in an area free from distractions, preferably against a wall near an electrical outlet. Close proximity to the bulk medications and the area in which they will be stored after prepackaging would also be an advantage.

**NOTE: This Product is to be used with a suitable surge protector.**

Besides an operator the MTS-350T requires air and electricity. When making your electrical connection use only a 110Volt, 20 Amp 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.

**NOTE: Some surfaces are hot during operation.**

#### 4. Set-Up of the MTS-350T

As previously mentioned, the MTS-350T uses a three-plate filling system. Different combinations of these plates allow for many different sized medications to be packaged.

##### Please Note:

1. Once you have found an effective plate combination for a particular medication, it is advisable to note it and build up a log of these combinations to enable swifter changeover times in the future. (See Appendix 1 for suggested Drop Chart.)
2. Before plate selection is used, please ensure plates are clean.
3. To reduce cross product contamination via plates and brushes, they should be clean and dry prior to use. Clean the plates and brushes with a household soap solution or an alcohol solution as recommended by your risk manager or infection control manager.

##### 4.1 Bottom Plate Selection (Designation on plate of “BP.....”)

This plate funnels product into the card and blister below. Bottom plates are numbered. Selection of this plate is based on the medications ability to drop through without interference, without being oversized. Place this plate in the main frame of the filler station with the identification marking positioned in the upper left corner.

##### 4.2 Center Plate Selection (Designation on plate of “CP.....”)

The function of the center plate is to transport the meds from the top plate to the bottom plate. There are three (3) types of center plates: (i) T (circular) plates for round medication; (ii) C (oblong) plates for capsule shaped or tablets dropped on edge; and (iii) V (elliptical) plates for football and caplet shapes. The selected plate should match the 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 into the hole, which will either mean some of the blisters will be double filled, or during the fill cycle, the second medication can be cut in half requiring the machine to be stopped and debris cleared.

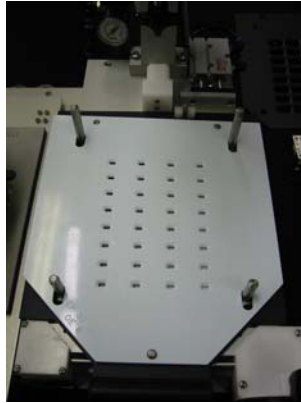
Once the Center Plate is selected, place it on top of the aluminum slide plate, aligning holes with the pins. Place one of the meds to be packed into a center plate aperture. Look/feel across the top of the center plate. Check if the medication is raised above or below the surface of the center plate. If so, then use the height adjustment on the front of the filler station, turning the handle in a counter-clockwise direction will raise the level of the center plate. Raise or lower the center plate until the medication lies just below the surface.

<p><b>Note: This adjustment is critical.</b> If set too high, then during the fill action, the top plate will chop the medication lying within the center plate in half. Similarly if set too low, then a second medication will enter the center plate and be chopped.</p>
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**Make a note of your selection in your logbook or MTS product inventory card.**



Bottom Plate in position.



Center Plate on.



Top plate in position

#### **4.3 Top Plate Selection** (Designation of “TP.....”)

The top plate’s function is to funnel product to the plates below and to cover the center plate while the medications drop through the bottom plate. The top plate selection also determines the number of blisters to be filled.

Once the top plate is identified, place it on top aligning the holes of plate with the pins. The chamfered side of the plate is to be face up.

#### **4.4 Hopper**

- Place the Hopper on the Fill Station, aligning the cylinder between the four pins.
- The filler head may then be lowered into the hopper.
- The height of the brushes may be adjusted using the black ‘star’ handle behind the filler head. As a general rule, the brushes should gently rest on the top plate.



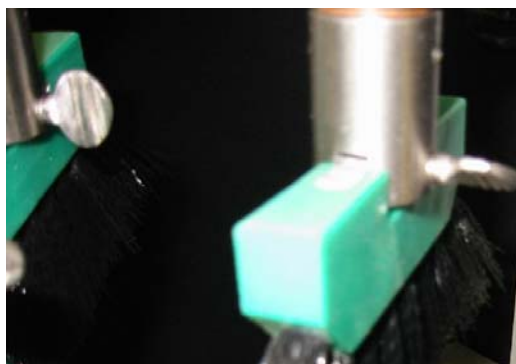
#### 4.5 Brush Selection

There are blue and white brushes. The white brushes are stiffer than the blue. The medication type, size and weight determine brush selection.

Brush selection is an objective task on the part of the operator. Proper brush selection will result in the meds being moved on the top plate without being kicked or brushed out of the plate apertures. Adjust the brush speed via the control panel.

For most applications, the blue brushes will be more than adequate. If you find that meds are not falling into the center plate cavity, then try adding one white brush at a time until the cavities are being filled.

Loosening the thumbscrews enables the brushes to be easily changed.



## 5. Operating the MTS-350T

### 5.1 Operation Instructions

Once you have made your plate selections and set the correct height as described in the previous section, you are now ready to pack medication on your MTS-350T.

<b>NOTE:</b> Please ensure your plates, brushes and hopper system is clean.
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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 button is pressed without a blister being in the platen to catch it.

1. Select Plates and Height selection, as described in SET-UP.
2. Fit Hopper and lower the Filler Head assembly 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.
3. Turn the '2 sec OFF 4 sec' selector switch to either '2' or '4' seconds on the Control Box, depending if you are sealing card and blister (4 sec) or Unit Dose, i.e., foil only and blister (2 sec). The machine will begin heating the seal plate (this can take up to 15 minutes).
4. To start the filler brushes rotating, turn the "Brush Speed", dial clockwise. The further you turn, the faster the brushes will rotate.
5. Add medication to the Hopper.
6. Observe how well medication is being distributed around the top plate. If necessary, adjust brush speed. If this is ineffective, consider changing brushes, as detailed in the SET UP section of this manual.
7. Move Platen to position between Fill and Seal stations.
8. Add card and blister to the Platen, aligning the holes of the platen with the blister through the card.
9. Using the handle provided, move the platen fully under the Fill Station (to right).
10. For the first 'fill' per set-up, it is advised that you do it by hand. Manually push the center plate using the handle. This will give you a 'feel' for the machine set up. If you feel anything other than spring resistance, there may be, for example, a tablet stuck between the top and center plates, suggesting your set-up requires modification.

Assuming your set up is correct, you can use the “FILL” button on the control panel to activate the fill cycle, or continue manually.

11. Now that the blister contains medication, pull the platen (using handle) towards the seal station. You will be required to do two tasks at his time.
  - a) Check the card to ensure all blisters contain correct amount of medication; and
  - b) If there is any missing, fill manually. There is a container on top of the seal Station that can hold spare medication for this purpose.

Fold the card closed.

12. Push the platen with closed card fully under the Seal Station (to left).
13. Use the ‘Seal’ button on the control box to start the sealing process. The seal process takes 4 or 2 seconds. This will only operate with the platen under Seal Station.

On first run, ensure the Calibration Control reads over 320F. The effective operating temperature for this machine is between 320F and 350 F.

14. Move the platen to the center position. Remove sealed and filled punch card.
15. Return to item 9.

## 5.2 Calibration Control Setting

- The digital readout from this is the current temperature of the heat sealer.
- The MTS-350T is designed to seal effectively at temperatures between 320F and 350F.
- The set temperature (i.e., the temperature which the control is trying to maintain) is fixed at the factory. It will be approximately 350F, but will vary slightly from machine to machine.
- To view the set temperature, press and hold the left hand (LH) button on the calibration control.
- If you are experiencing ineffective seals, you are able to change this setting slightly. While holding down the LH button, use the “Δ” and “∇” 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.



## **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. Do not forget to 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 Checklist - Compressor**

See manufacturer's guidelines

1. Drain air regulator bowl of any condensation/moisture.

To do this, place a container under the reservoir and press on the nipple at the bottom, releasing any water into the container.

2. Drain compressor of moisture.

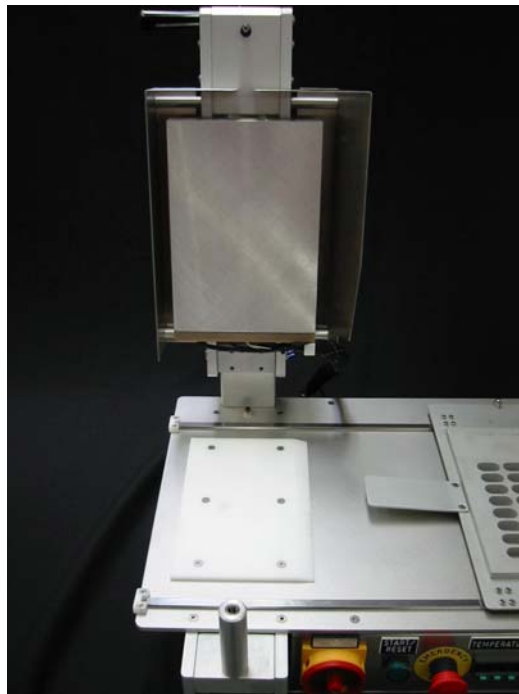
With a container at the spout of the tap on the air tank, open the valve. Any water will be forced into the container. Continue until only air comes out of the tap.

## 7. Troubleshooting

### 7.1 Blister or Medication Has Been Directly Sealed to Heater Plate.

The material will need to be removed as soon as possible from the heating plate.

1. Turn off and unplug the machine.
2. **Using protective gloves**, as the heating plate is still at operational temperature, unscrew the knob on the seal station support and lift the heat plate to a stop.
3. Place a protective covering over the cabinet top to catch the material about to be removed. Scrape off the material with a non-metallic spatula, and brush the remaining residue off with a brass or stainless steel wire brush.
4. Remove the debris and secure the heat station to its operational position.
5. Plug in and turn on.
6. Seal 3 - 4 empty cards to further remove any residue.



## **7.2 Cards Are Not Sealing Adequately**

Check the bottom of the heater plate for melted material. If the heater plate has been contaminated, follow previous procedure. If the plate is clean:

1. Check temperature, pressure and seal time.
2. The temperature should read at least 315F (wait at least 15 minutes).
3. The air pressure on regulator should read at least 80 PSI.
4. The timer should be sealing for at least 4 seconds for card and blister, 2 seconds Unit dose. Check selector switch on control panel.

If any of the above items are incorrect, **please contact MTS. See ‘Contacts’ page.**

## **7.3 Products That Are Being Pre-Packaged Are Getting Shaved/Broken**

1. Check machine set up for that medication.
2. Review logs and correct as necessary.
3. Turn the Fill button to the off position and fill manually to ensure correct set up.

## **7.4 Blister Cavities Are Not Filling Adequately With Product.**

1. Check machine set up for that medication.
2. Review logs and correct as necessary.
3. Check brush stiffness, brush height, brush speed and amount of product in hopper.

**IF YOU ARE EXPERIENCING ANY PROBLEMS,  
PLEASE DO NOT HESITATE TO CONTACT MTS.**

**See Contact Information - Page 13**

**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	110V 20 Amp supply
Air Supply	2 CFM at 100 PSI
Overall Dimensions (approximate)	Width: 550 mm Length: 1220 mm Height (Max): 1630 mm
Weight	164 kg. (360 lbs.)
Seal Plate operating Temperature	320 to 350 F
Seal Time	Selectable 2 or 4 seconds

