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# SYSTEM 600

## GENERAL MAINTENANCE OVERVIEW

System 600-FST & System 600-EF

Part #8M00341 - Supplement

# SYSTEM 600

## GENERAL MAINTENANCE AND ADJUSTMENT GUIDE

If you follow a routine maintenance schedule your system 600 will give you years of reliable service with a minimum of “down time”. This guide outlines the routine maintenance and adjustment techniques used to service this equipment.

### Cleaning the Note Acceptor Bill Track

Clean sensors are critical to good acceptance. The note acceptor bill path should be cleaned on a regular basis. A quick “cleaning” once every two months will keep your acceptor in proper form. To gain access to the bill path for cleaning or removal of a jammed bill, perform the following steps:

1. Release the upper track latch by pulling the latch handle towards the rear of the note acceptor. Note the position of the latch so that you can confirm when it is closed properly.
2. Continue pulling the latch towards the rear of the acceptor until the upper track lifts up enough to expose the bill path.
3. Spray a small amount of glass cleaner directly onto a clean cloth. Gently clean both the upper and lower sensor glass thoroughly. Inspect glass for cracks directly over any of the sensors on the track assemblies.
4. Using a soft brush or canned air, clean off the upper track being careful not to displace any of the four track cells. The track cells are the optical components that monitor the bill travel through the note acceptor.
5. To return the track to the closed position, push down on the front of the track. The latch is spring loaded and will automatically lock when the track is in the proper position.

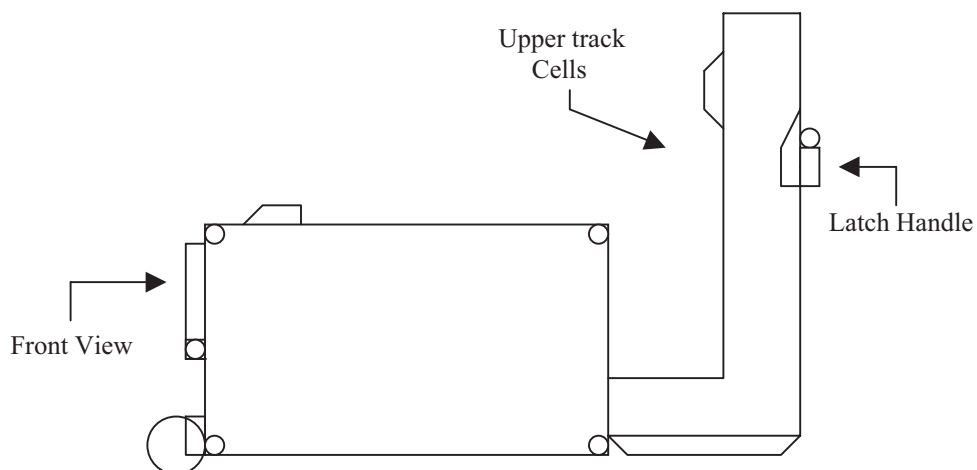


Figure 1.1

## Auto Calibration

The system 600 note acceptor has an auto calibration feature that is used to adjust the optic sensors used to identify currency. This feature allows the owner to quickly recalibrate the note acceptor to optimize the bill acceptance rate. Please note that the bill acceptor must be thoroughly cleaned before performing the auto calibration sequence.

### **Calibration Procedure (Using the Hand Held Data Terminal)**

1. To initiate the “auto calibration mode” begin by pressing “F2” (DIAGNOSTICS) on the Data Terminal. Then press “F2”(AUTO CAL). This will allow the balance card to be accepted. The card will be rejected if the calibration mode is not initiated.
2. Insert the balance card into the note acceptor in the direction indicated on the card. The auto calibration sequence will take approximately one second. When completed the card will automatically be rejected.
3. Remove the rejected card from the acceptor. At this point a message will appear on the keyboard indicating the result of the auto calibration.  
GOOD CAL - indicates a successful calibration. Perform step 4.  
BAD CAL - indicates a non-successful calibration. Perform step 4 then repeat auto calibration sequence beginning with step 1.
4. Exit the auto calibration mode by pressing the “F5”(RETURN) on the Data Terminal.

### Calibration Notes:

- Your note acceptor does not require frequent calibration. Testing has shown that a minimum of 40,000 bills (any denomination) can be processed before calibration is required. If your acceptor is not achieving this level of performance please contact your nearest service center.
- Never use a balance card more than once. Dispose of balance cards after one use.
- Store unused balance cards in a cool dry area out of direct sunlight.
- Never store unused balance cards for more than a one year.
- Once the balance card sequence has been started, do not press any keys on the keyboard until the calibration sequence is finished and the card is rejected.
- Always perform calibration at room temperature between 70<sup>0</sup>F and 80<sup>0</sup>F (20<sup>0</sup>C to 27<sup>0</sup>C). Failure to do so will result in improper calibration, which can cause poor security and acceptance.
- The auto calibration sequence will take no longer than 6 seconds.

## Creasing Roller Tension Adjustment

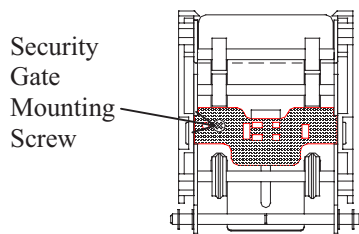
Creasing roller tension is important for the bill stacking function. Without proper tension, worn bills may not be transported into the stacker receiver, causing “bill jams”. The following steps illustrate how to make this adjustment.

1. Remove the rear panel on the back of the note acceptor (See figure 1)
2. Tighten the security gate adjustment screw until the tip of the screw is close to contacting the creasing roller axle. (See Fig. 3)
3. Insert a new condition bill between the screw and creasing roller axle. Tighten the screw until there is enough tension that the dollar bill is held, but may still be removed without tearing.
4. Reinstall the note acceptor and test by running several new condition bills. There should be a noticeable crease, but not enough tension to cut the bills

Fig. 1

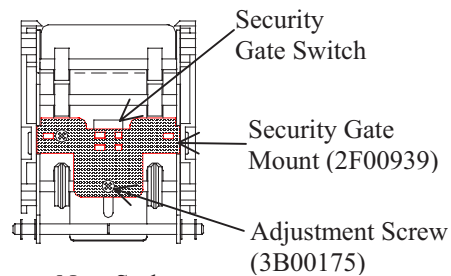


Fig. 2



Old Style

Fig. 3



New Style

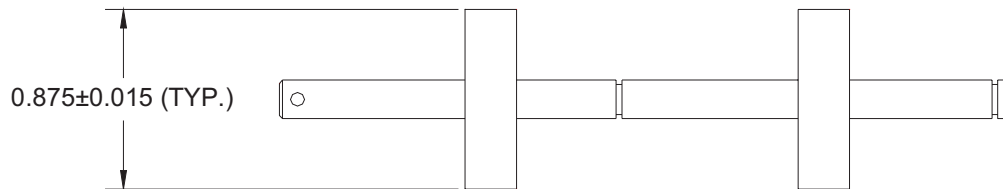
## Drive Roller Cleaning and Inspection

Dirty or worn drive rollers are a common source for bill jams and poor acceptance. These rollers should be cleaned and inspected once a year for optimum performance.

1. Measure the diameter of each drive roller using a caliper tool. If the roller is in proper specification, clean as necessary. If not replace with new.
2. To clean the roller, use a clean rag, slightly dampened with denatured alcohol. Press on the rollers and wipe until clean.

### Note:

1. A motor driver software chip is available which will run the motor when there is power to the acceptor. This software comes in both the Intel and Phillips version.
2. Shiny rollers may first be “ruffed-up” using a medium grade sand paper before wiping with a damp clean rag. Care should be taken as not to remove too much material. Always re-measure the diameter after this procedure.

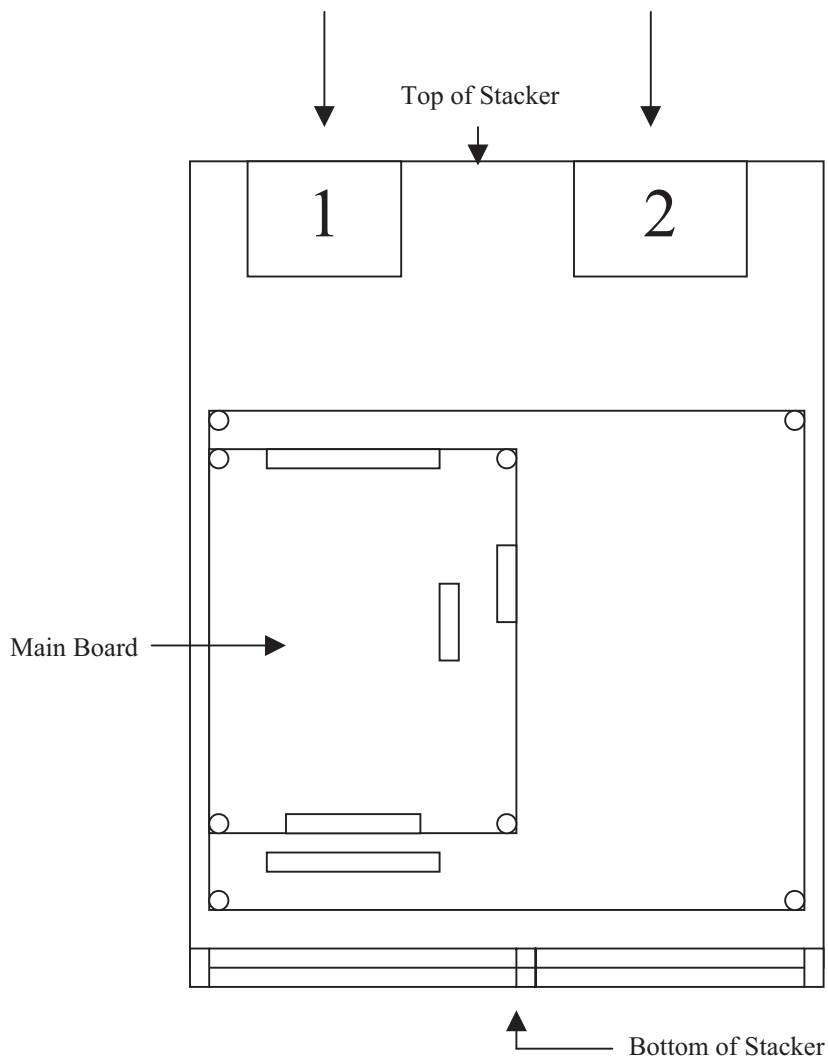


## Bill Stacker Maintenance

The bill stacker requires very little maintenance. Simply remove the stacker from the machine twice a year and clean thoroughly. Remove the six screws that holds the stacker cassette to the stacker housing. Use canned air to blow the dust and debris from the stacker cassette and housing. Use a clean damp rag to clean the Ram Slide. (The Ram Slide is the metal piece that “pushes” the bills into the stacker cassette).

On two and three box stackers, the Guide Bars should also be wiped clean. (The Guide Bars allows the receiver assembly to slide left or right to allow the money to be stacked in the other compartment (s)).

NOTE: No lubricants of any type should be used on any of the moving parts.



## Bill Stacker Alignment

Proper alignment of the bill stacker to the note acceptor is critical for the bill transport operation. A poorly aligned stacker is the number one cause of bill jams between the acceptor and stacker. The following instructions and diagrams will aid in the inspection and alignment between these two devices.

### **Inspection Procedure**

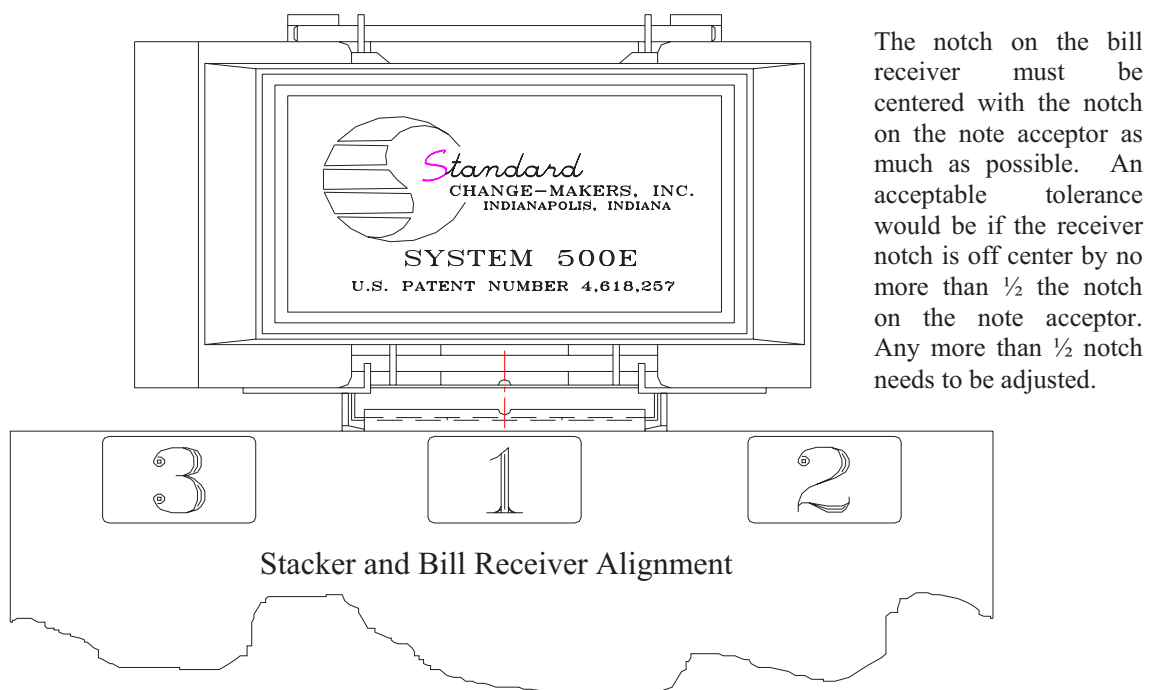
With the bill acceptor and stacker mounted in place, the stacker should be level and centered to the bottom of the acceptor as illustrated by Figure 1. The clearance between the bottom of the acceptor and the stacker should be less than 1/8 inch for maximum operation. Figure 2 illustrated the inspection point for this adjustment.

### **Adjustment Procedure**

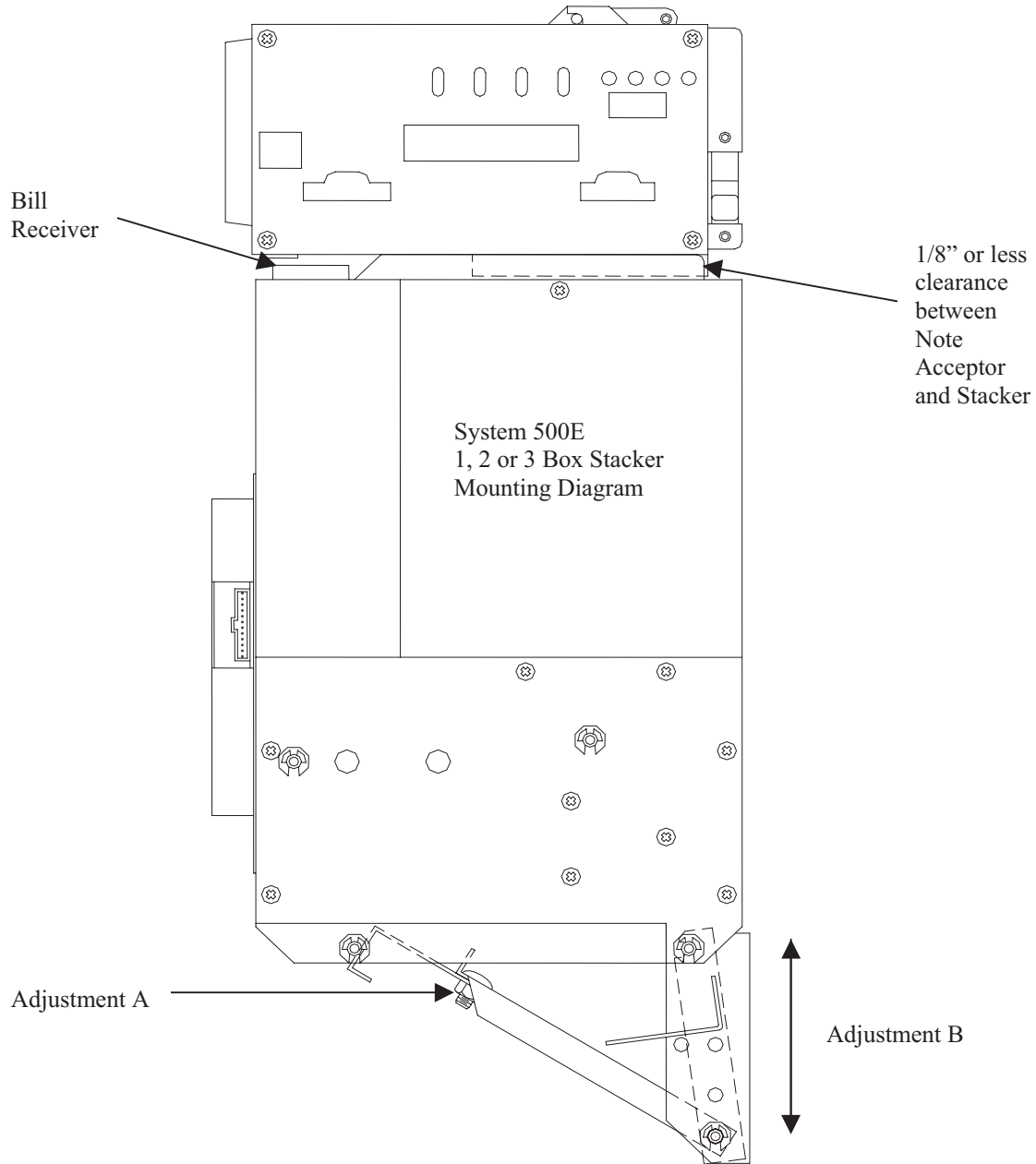
Figure 2 illustrates the two locations for adjusting the bill stacker alignment. The first adjustment (adjustment A) controls how level the bill stacker is compared to the note acceptor. The stacker bracket handle can be either shortened or extended until the bill stacker sits level. The second adjustment (adjustment B) is used to raise or lower the stacker bracket to set the clearance between the bill stacker and the note acceptor.

NOTE: When making these adjustments, a long extension with a 7/16" socket will fit through the elongated holes in the stacker bracket handle and will help to hold the stacker in place while loosening or tightening the mounting nuts. Be careful not to over tighten the mounting nuts or the mounting studs may break off.

**Figure 1**



**Figure 2**





## Stacker Adjustments

### **Stacker Receiver Alignment**

It is important that bills drop directly into the stacker receiver without rubbing the sides. This means not only rubbing on the left or right side of the receiver, but also front to back. The best test is to insert a bill into the bill acceptor and turn off the power as the bill is fed into the stacker. This allows you to view the receiver positioning.

#### **If the bill is rubbing on the left or right side of the receiver, you may adjust it as follows:**

First turn off the power and remove the cover over the stacker board.

Loosen the stand offs that hold the stacker board in place and move the board in the direction to which the bill is rubbing.

Tighten the stand offs, turn the power back on and repeat the bill insertion test.

Repeat adjustment as necessary.

After the adjustments are made, replace the cover over the stacker board and test for proper operation.

#### **If the bill is rubbing to the front or back of the receiver, you may adjust it as follows:**

This usually indicates a stacker mount adjustment is required. See the bill alignment section for this adjustment procedure.

### **Stacker Ram Encoder Adjustment**

The ram on a stacker is the part that moves the bill from the receiver to the storage bin (box 1, 2 or 3). The ram, in the idle position, rests completely back in the receiver assembly in the "home" position. The stacker knows this position by the "ram encoder" that breaks the light of an optic sensor. If this is not working correctly, the results are that the ram will continue to cycle back and forth. In 30 to 40 seconds, the change machine will go out of order with a "stacker" error.

To investigate this condition, remove the four outside screws on the cover that holds the stacker control board. On a 2 or 3 box stacker this will reveal the optic sensor. The optic sensor will have four wires, two on the top (red and black) and two on the bottom (green and white). The ram encoder located on the back of the stacker ram has to be adjusted so that the optic sensor will be "blocked" by the metal encoder when the ram is in the home position.

## **Belt Tension Adjustment / Belt Off**

This adjustment is only required for 2 or 3 box stackers. The stacker belt moves the carriage assembly to the different storage boxes. If it is not adjusted correctly your results may be:

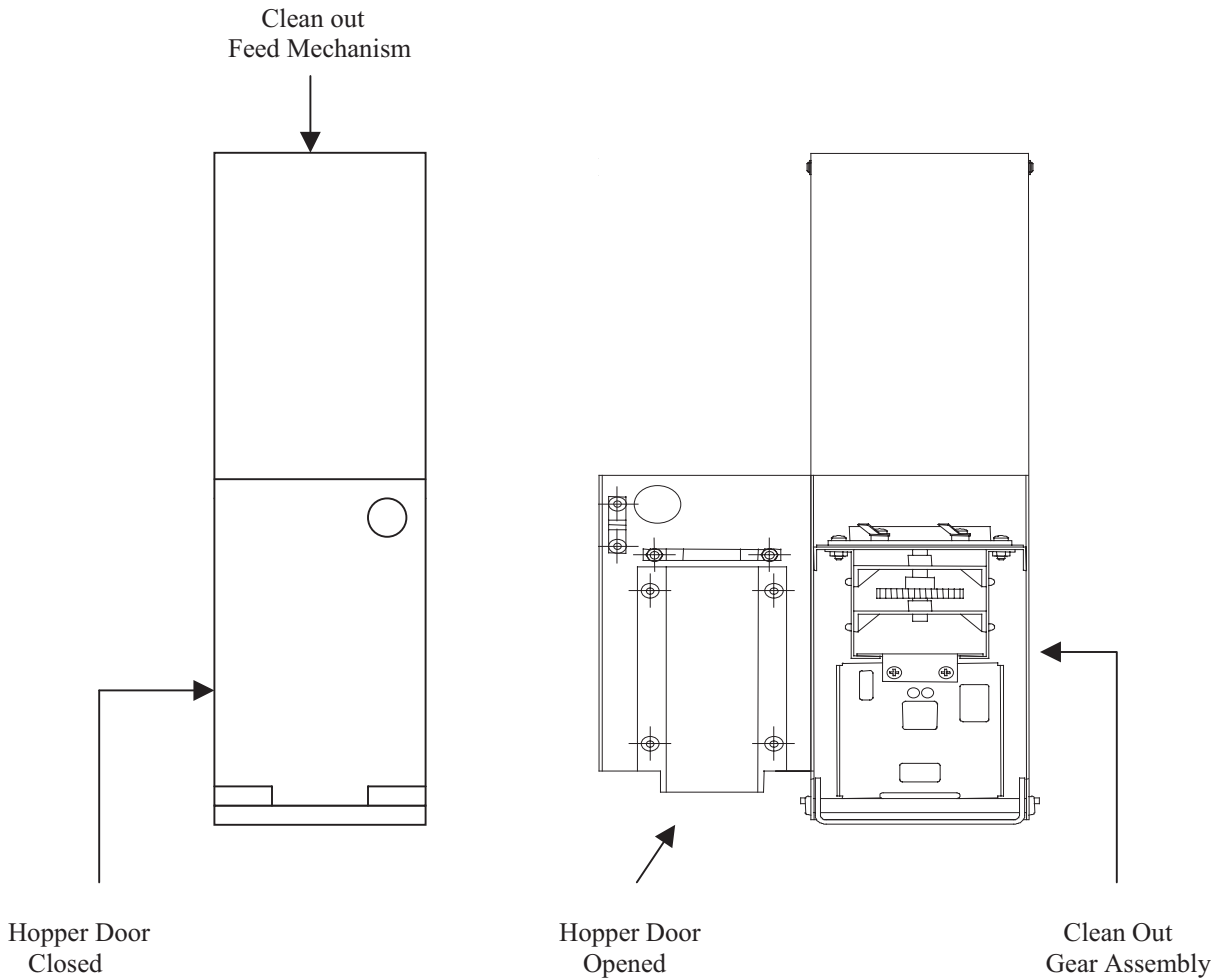
- 1) If too tight, this will cause the carriage not to move to the next storage box or move very slowly.
- 2) If too loose the stacker will make a “machine gun” type of sound.
- 3) If the belt is off, the carriage box will not move.

The belt is located in the bottom of the stacker. The belt may be viewed through the back plate by removing the side and bottom screws that hold this in place. At this time a test can be done to check the tension on the belt. The belt should not be drooping, but also not so tight that if you pinch the middle with your fore finger and thumb, it is difficult to get the top and bottom to meet.

This tension can be adjusted by moving the positioning motor of the stacker. The positioning motor is attached to the stacker by the four screws located under box two on the stacker bottom plate. Loosen these screws and move the motor where it needs to be, then tighten. On older stackers you may need to adjust the belt length, or bend the roller mount that holds the belt opposite of the positioning motor.

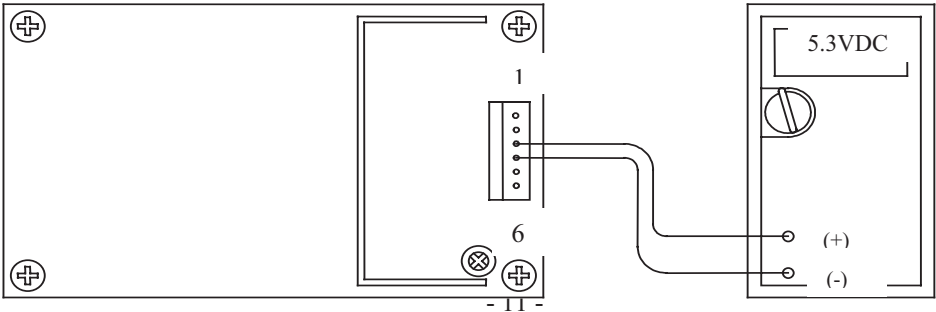
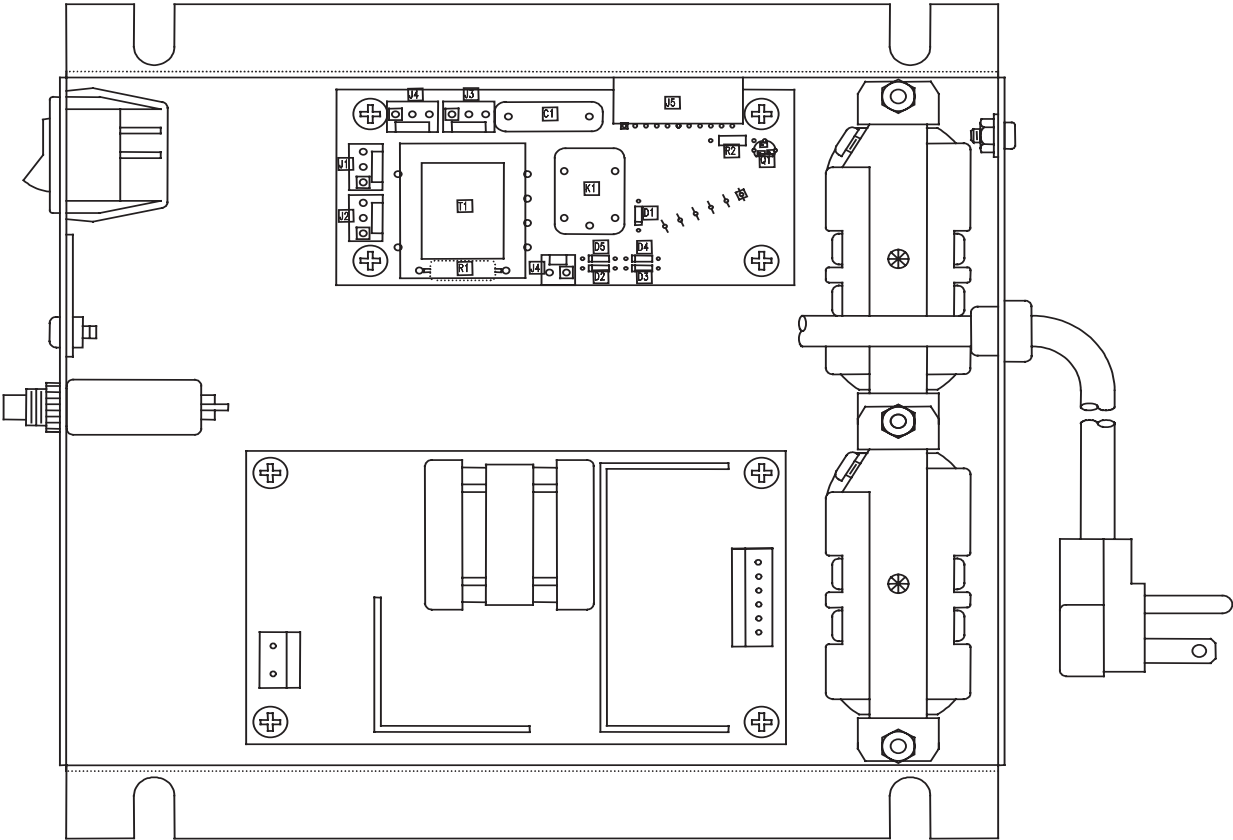
## Coin Hopper Maintenance

Once a year, you will want to check the inside of your hoppers(s) for pieces of string or other debris from moneybags or dirty coins. With your power OFF, simply empty the hopper and take a look inside. If you see any obvious dirt or strings, promptly remove it. With canned air, blow out the feed mechanism located in the bottom of the hopper beneath the plastic funnel. Next, open the hopper door and blow air into the gear assembly area as shown below. Finally, use a clean rag and wipe of the coin interrupter located above the chute on the inside of the hopper door.



# Power Supply- 40 Watt Board Adjustment

NOTE: The power supply is factory adjusted by a trained technician. However, if you have access to a volt meter, it's advisable to check the 5.35 DC voltage setting for accuracy. If required, use the adjusting pot to set the voltage between pin 3 and pin 4 to 5.35 volts. Improperly adjusted or "weak" supplies can cause "power fault" errors or poor bill acceptance.





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