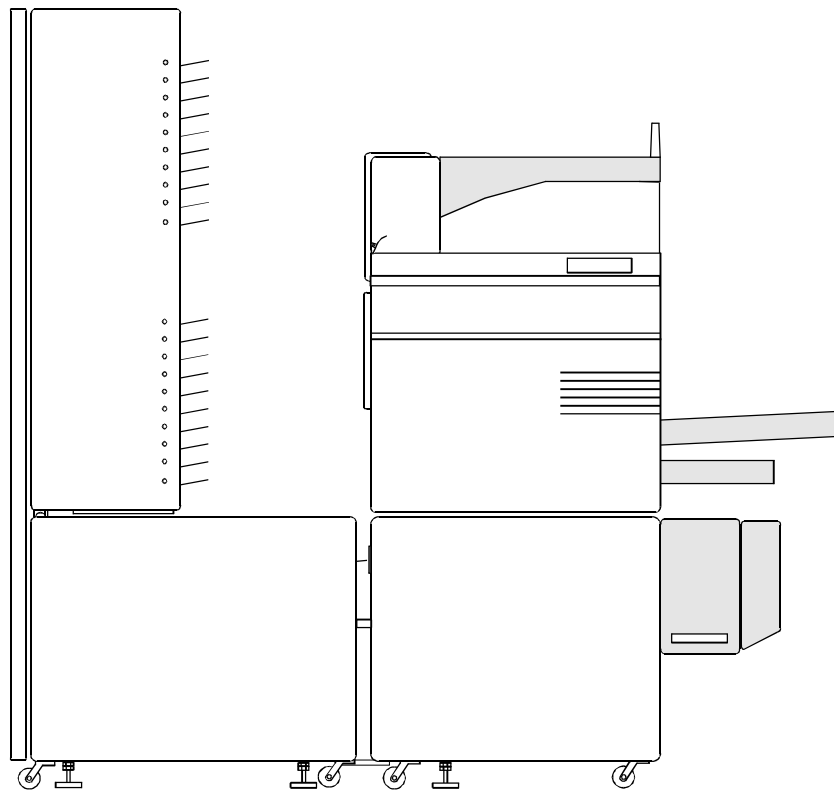


# PrintServer 32

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## MailBox Service Guide

EK-PRT32-SG. A01



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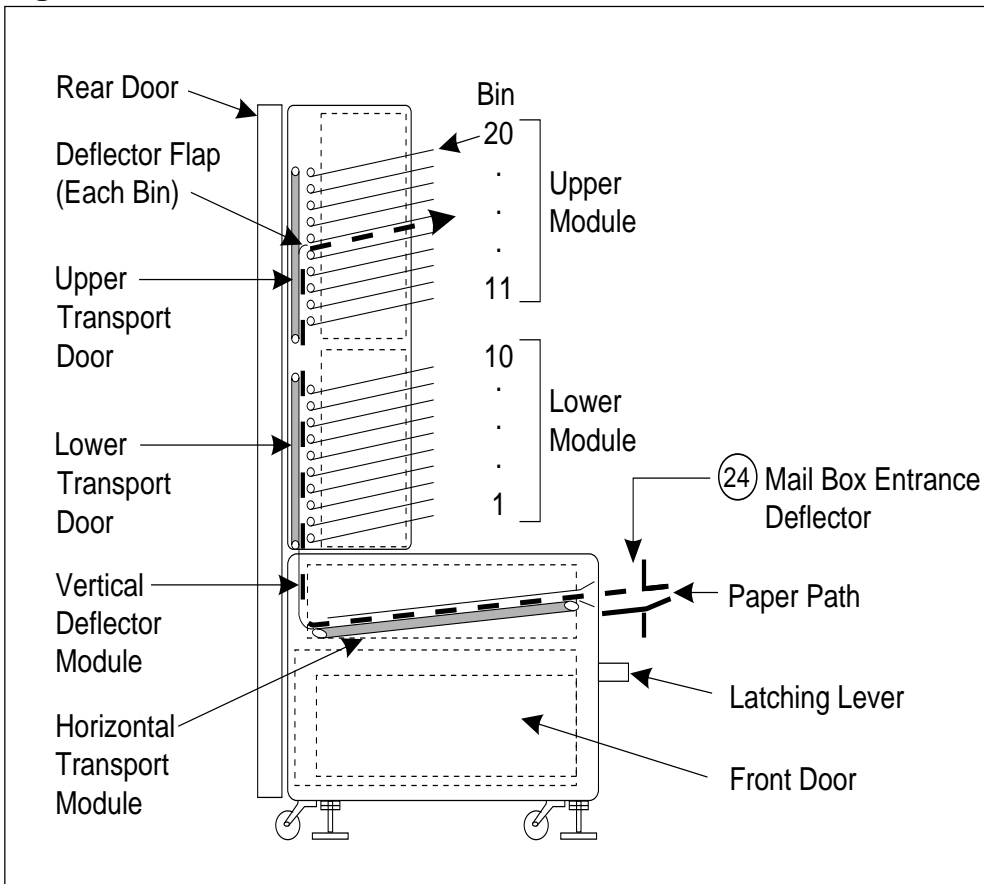
## General Description

The MailBox is a 20-bin output device provided for the PrintServer 32. It accepts A4, B5, letter, and legal size paper in portrait mode (short edge first). Print speed is approximately 24 ppm. The MailBox comes with two lockable bins. Figure 1 shows the main parts of the MailBox.

The bins are actuated by solenoids that move a deflector flap directing the paper into the selected bin. The bins are numbered sequentially with the lowest bin being #1.

Signal communication between the MailBox and the printer is achieved by a 9-pin serial port for receiving commands from the printer and sending reply codes back to the printer.

**Figure 1: MailBox Main Parts**



### **THEORY OF OPERATION** (see illustration on page 17)

Printed paper is fed from the PrintServer external paper output slot to the MailBox through the MailBox entrance deflector. At the entrance, the lead edge of the paper is detected by the Horizontal Transport Start Sensor. This detection signals the Controller 1 (bottom) which starts all the timing that determines when to enable the following:

- the Horizontal Transport Belt Drive Motor
- the lower Vertical Belt Drive Motor
- the lower Bin Eject Motor
- the actuation of the lower Bin Select Solenoids (bins 1 - 10)

The Controller 2 (top) enables the following:

- upper Vertical Belt Drive Motor
- upper Eject Motor

and then actuates the following:

upper Bin Select Solenoids (bins 11 - 20)

The paper is then driven along the Horizontal Transport, through the Vertical Deflector to the lower Vertical Transport by rollers forcing the paper against the Horizontal Drive Belt. The Horizontal Belt is at an angle on the Transport to position the paper for proper stacking in the bins.

The lower Vertical Transport then carries the paper to the selected bin (1 to 10) or passes it on to the Upper Vertical Transport to the selected bin (11 to 20) by means of pressure rollers and drive belts.

The Bin Select Solenoid, when enabled, operates the Bin Deflector Baffle and engages the drive to the Eject Roller. The Bin Deflector Baffle directs the paper to the selected bin and the Eject Roller drives the paper into the bin. Each bin has a sensor that monitors the paper stack height to determine when the bin is full, (Bin Full Sensor). Other sensors, the Bin Entry, and the Start Sensor 1, and the Start Sensor 2, monitor the paper path to insure the proper timing of the paper transportation through the MailBox for jam detection.

As each sheet enters the bin, it is tamped down by a plastic arm. This arm is also operated by the Bin Select Solenoid. The arm is raised up to allow the paper to enter the bin when the solenoid is enabled and allowed to fall when the solenoid is disabled after the paper is delivered into the bin. The free falling arm tamps the sheet onto the stack. This tamping is designed to allow the maximum number of sheets to be stacked into each bin.

## Printing to the MailBox

From DCPS, use the following command:

```
PRINT/QUE=queuename/NOTIFY/PARAM=OUTPUT_TRAY=nn filename
```

where:  
*nn* is the bin number (1 to 20)

From BSD UNIX (includes SunOS and DEC OSF/1):

```
% lpspr -ombn filename | lpr -Pqueuename
```

where:  
*n* (in *mbn*) is the number of the MailBox bin (1 to 20) you want to select.

From System V UNIX (includes AIX, HP-UX, SCO UNIX, Solaris):

```
% lp -dqueuename -o"outtray=mbn" filename
```

where:  
*n* (in *mbn*) is the number of the MailBox bin (1 to 20) you want to select.

From Novell NetWare systems, have the system administrator create a print job configuration that includes the appropriate function for selecting the MailBox bins.

For more detailed information and for other operating systems, refer to each product's Software Product Description (SPD).

## Clearing MailBox Error Conditions

This section discusses how to fix the following MailBox error conditions:

- Paper jams
- Door open
- Bin full

### Clearing Paper Jams

The following operator panel message displays when there is a paper jam in the MailBox:

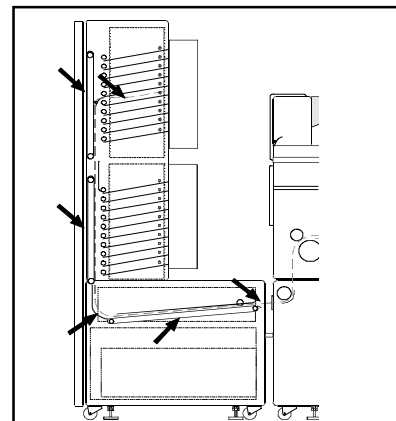
Clear Jam at optional output device

On the MailBox, a jam is indicated by flashing LEDs.

The possible jam locations of the MailBox are indicated in Figure 2.

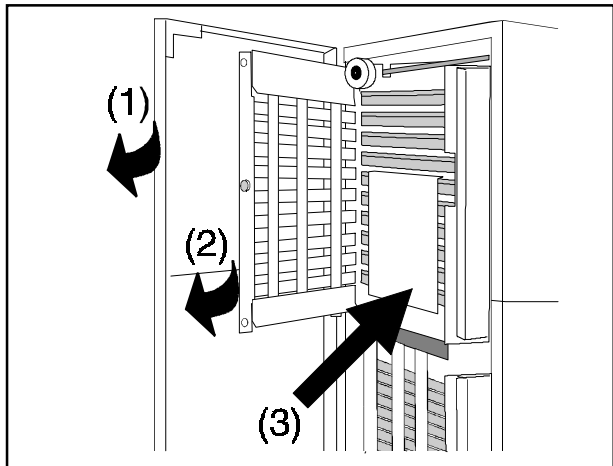
Clear all undelivered sheets from the MailBox and the printer. ALL PAPER MUST BE REMOVED.

**Figure 2: Jam Locations**

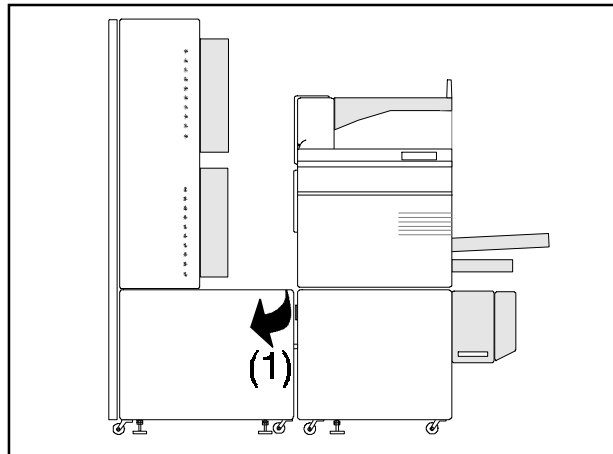


**Paper Jam Clearing Procedure (continued)**

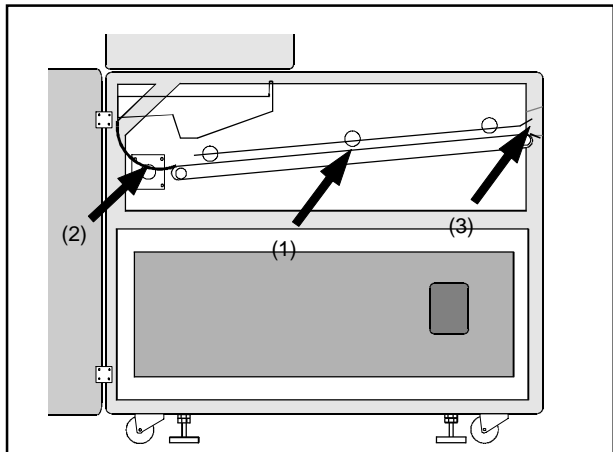
1. Open the rear door (1).
2. Open the upper and the lower transport doors (2) and remove any paper.
3. Check for paper not completely fed into the bins. If there is any, gently remove it by pulling it from the outer bin side (3).
4. Close the transport doors. Close the rear door.



5. Open the front door (1).



6. Remove any paper in the horizontal transport path (1).
7. Check for paper in the horizontal transport input (3) and paper being fed into the deflector for the vertical transport (2). Remove any paper.
8. Close the front door.



### Possible Causes for Paper Jam

The following are possible causes for paper jamming in the MailBox:

- Paper quality used does not match PrintServer 32 media specifications
- MailBox belts need cleaning
- Misalignment of the input deflector
- Unsupported paper size selected
- User error

#### *Caution*

- *If a paper jam occurs while a number of sheets are in the printer and in the MailBox, all sheets must be removed in the associated paper paths before the printer can continue.*
- *Never remove the jammed paper by force. Always pull it carefully, so as to remove it in one piece.*

If paper continuously jams at the MailBox entrance, make sure the paper size is a supported paper size.

Make sure the default input tray and the selected tray are always set to a MailBox supported paper size when printing to the MailBox. Results such as jobs not being printed or paper jams may occur.

If your print job was not printed, you will receive the following messages, either on a job error page or in a mail message, depending on your operating system:

configurationerror: mediumcantoutput - offending command is showpage

Rest of job (to EOJ) will be ignored

### Door Open

The following message displays on the printer operator panel when a MailBox door is open.

Close optional output device cover or door

To clear this error message, do the following:

Open and close securely the upper and the lower transport doors as well as the front door. All three doors MUST be checked.

### **Bin Full**

The following operator panel message displays when there is a full bin in the MailBox:

#### Optional output tray full

If the currently selected bin is full (160 sheets), *printing stops until the selected bin is emptied.*

The printer will not default to another bin or tray (and cannot be switched to another bin or tray) when the designated bin or tray is full. The bin or tray must be emptied before the printer can complete the job or change to another bin or tray.

### **Removing Paper From a Bin**

Once the paper is removed from a bin, paper **MUST NOT** be put back in the bin. Misplaced paper in the bin will cause paper jams. It is also possible the bin mechanism may be damaged.



## Troubleshooting

This section describes the most common troubleshooting areas/problems with the MailBox.

### ONLINE MAILBOX EXERCISE FILE

The MailBox exerciser PostScript file (below) can be used as a test to ensure all the MailBox bin's solenoids, gate hardware, and vertical tamper assemblies function correctly. This file can be created/saved in the Field Service account or in LPS\$support: directory.

#### MailBox Exerciser PostScript File

```

%! This PostScript file will exercise the MailBox mechanical devices.
% Observe the LEDs, paper path, solenoids, vertical tamper assy movement, jam, dog ears, etc.
% When you copy this file, give it the following name: MB_EXERCISER.PS
% To use the exerciser file, do the following:
%
% From DCPS, type: PRINT/QUE=queueName/NOTIFY/PARAM=(DATA=POST) MB_EXERCISER.PS
%
% Each exercise pass will deliver 1 sheet to each of the lower 10 bins,
% 2 sheets to the standard upper LCOT, then 1 sheet to each of the upper 10 bins.
%
% Replace the 3 in 3 { with the number of print-exercise passes you want to sequence through.
% The default is "3" passes.

statusdict begin
3 {
    /bin 4 def
    10 {bin setoutputtray cypage /bin bin 1 add def} repeat
    3 setoutputtray cypage cypage
    /bin 14 def
    10 {bin setoutputtray cypage /bin bin 1 add def} repeat
} repeat
end

```

To run the MB\_EXERCISER.PS file from DCPS, type the following command:

```
PRINT/QUE=queueName/NOTIFY/PARAM=(DATA=POST) MB_EXERCISER.PS
```

## Field Service Mode MailBox Functions

In addition to the PrintServer 32 Service Guide, Chapter 4 and Table 4-2, use the following MailBox-specific FTM (Field Test Mode) sequence.

The following two key sequences will display 1109.0062 if the MailBox is not recognized by the PrintServer 32 system.

### **5,4,6 -To select a specific MailBox bin as an output tray**

To select a MailBox bin as output, do the following:

- Press keys "5,4,6" on the PrintServer 32 control panel.  
The prompt "#01" appears.
- Press key "3" to step from bin 1 thru bin 20.
- Press key "6" to select a output bin.  
The MailBox bin LED does not change until a print page shows up at the MailBox entrance.  
This sequence automatically selects the LCIT as the default input tray.

To avoid paper jams, only set/load the supported paper sizes.

### **3,1,2,6 -To exercise all the MailBox hardware and to verify if all the MailBox bins function OK from Field Test Mode**

To exercise the MailBox from FTM, do the following:

- Press key "3,1,2,6" from the PrintServer 32 control panel.  
The prompt "#02" appears.
- Press key "3" to step from 2 thru 10.  
This number indicates the number of print pages delivered to each bin during each loop.
- Press key "6" to start the MailBox exercise.  
It will print engine simplex pattern at engine speed looping thru all 20 bins.  
This sequence automatically selects the LCIT as default input tray.

To avoid paper jams, only set/load the supported paper sizes.

- Press the PAUSE key to stop the MailBox exerciser.

## Field Service Mode MailBox Error Codes

In addition to Table 6-2 in the PrintServer 32 Service Guide, use the following table to cover MailBox operations:

FTM Error	Operational Message	Query Bit	Descriptions
1109.0060	<b>Hardware error 60 Call Customer Services</b>	N6-0	MailBox CPU error
1109.0062	<b>Hardware error 62 Call Customer Services</b>	N6-2	MailBox comm. error See error 62 FIP
1109.80A5 (07)	<b>Clear jam at the optional output device</b>		See MailBox Jam FIP. If not "07", then the jam is an PrintServer 32 engine jam
1109.0073	<b>Close optional output device cover or door</b>	N7-3	MailBox door interlocks
1109.8089	<b>NA</b>	N6-x	MailBox fatal error Event received
1109.8095	<b>NA</b>	N7-3	MailBox door open Event received

In addition to Table 6-5 in the PrintServer 32 Service Guide, use the following table:

FTM Error	Operational Message	Query Bit	Descriptions
1109.0092	<b>Add Paper</b>	N9-2	Upper cassette empty
1109.0093	<b>Add Paper</b>	N9-3	Lower cassette empty
1109.0094	<b>Add Paper</b>	N9-4	LCIT empty or not raised
1109.0090	<b>Insert paper cassette</b>	N9-0	Upper cass. missing
1109.0091	<b>Insert paper cassette</b>	N9-1	Lower cass. missing
1109.00A0	<b>Open side tray</b>	NA-0	Side tray is closed
1109.00A1		NA-1	Lower LCOT is full
1109.00A2		NA-2	Upper LCOT is full
1109.00A3		NA-3	Side tray is full
1109.00BD (xx-yy)	<b>Optional output device is full xx=Bin number, yy=02</b>	-	Selected bin is full

## Diagnostic Service Hints

This section describes diagnostic service hints related to the MailBox.

### Checking the Bin Full Sensors

Manually activate the sensors by either lifting up the vertical-tamper-loop-wire (inside the bin slot) or raising the sensor flag. The associated bin LED should start blinking.

**Failure symptom:**

A- MailBox does not trigger bin full and will jam when the selected bin is full and the bin LED does not flash.

**Correction:**

Remove the upper cover and the sorter's sensors cover

A- While printing to the suspected bin, check to see if the sensor flag moves up and down. If it stays at the lower position inspect the linkage from the vertical tamper assembly to the flag and replace the broken component. If the sensor flag moves up/down properly, it might be a bad sensor. Use a DVM to check if the sensor signal toggles.

**Failure symptom:**

B- An individual MailBox bin LED keeps flashing when no paper is in the bin slot.

**Correction:**

Remove the front panel and the sorter's sensors cover

B- Check if the vertical-tamper-assembly is stuck at the upper position. (This causes the flag to permanently activate the sensor). Fix the binding. Check to see if the sensor cable is connected properly. Replace the bad sensor.

## Checking Front MailBox LEDs and Sorter Entrance Sensors

Open the front door and manually insert a piece of paper to activate the entrance sensor (mounted at the bottom of the door). All 10 LEDs of the sorter should start to flash.

- If any individual LED is not flashing, that LED is bad
- If none of the LEDs of the sorter are flashing, the sorter entrance sensor is bad. It does not see the paper and will also cause paper jams during printing.

## Minimal Functional Test MailBox Alone

To self-test the MailBox without a PrintServer 32 attached, do the following:

1. Power up the MailBox.
  - The bin 1 LED (default) should be ON.
2. Manually feed paper thru the MailBox entrance window.
  - The MailBox motors automatically turn on and deliver the paper to the default bin #1.

## Jam FIP

Check if the FTM indicates 1109.80A5 (07) during printing or if any of the sorter 9 (or 10) LEDs flash. The paper jam occurs either within the MailBox or paper fails to show up at the MailBox entrance sensor on time. Using the MailBox exerciser file (either online or FTM), monitor the MailBox paper path. Observe all the moving parts. Examine the blockage or paper damage and determine the cause of the paper jam.

### Possibilities check list:

- Unsupported paper sizes being fed
- Timing jam because the user randomly selected a bin within a job
- User reinserted paper on top of the tamper loop-wire of the bin slot
- If no jammed paper can be found in the MailBox, paper jam occurred within the PrintServer 32 engine between the fuser exit sensor of the forkgate to the mating section of the engine and the MailBox, check the MailBox alignment to the PrintServer 32
- Bad paper
- Excessively skewed paper delivered to the MailBox
- Bad solenoid does not operate correctly or bad solenoid position does not switch/open the bin's gate properly
- Bad motor; does not run
- Bad paper path sensor does not see the paper or always sees the paper
- Bad/dirty rollers/belts causing slippage
- Bent/damaged paper guides (baffles) causing blockage or interference
- Contaminated material deposit on the paper path, i.e., gum, etc.

## Hardware Error 62 FIP

### Explanation:

The MailBox failed to respond to the PrintServer 32 print engine through the serial communication line.

### Possibilities check list:

- The data cable was disconnected during power on
- Data cable harness, 9 pin connector mating is loose
- MailBox power problems while the engine power is OK:
  - AC supply
  - DC supply
- MailBox controller CPU (check green LED)
- FTM tries to access 5,4,6 or 3,1,2,6 operations without a MailBox attached to the system
- PrintServer 32 LCIT/Duplex controller (low probability)

## Bin Controller LEDs

Each sorter controller board has 3 power LEDs labeled 36V, 12V, and 5V. If any of these power LEDs are OFF, it indicates no DC power supply at the board.

### Correction:

- Check the AC power
- Check or replace the following, if necessary:
  - the MailBox power supply or
  - the sorter controller board

Each sorter controller board has 1 green LED label "Busy". It should always blink. If it is not blinking (either solid ON or OFF) while the 3 power LEDs are lit, the CPU is dead.

### Correction:

- Recycle the power switch

If it is still not flashing:

- Replace the sorter controller board

## Cleaning and Maintenance

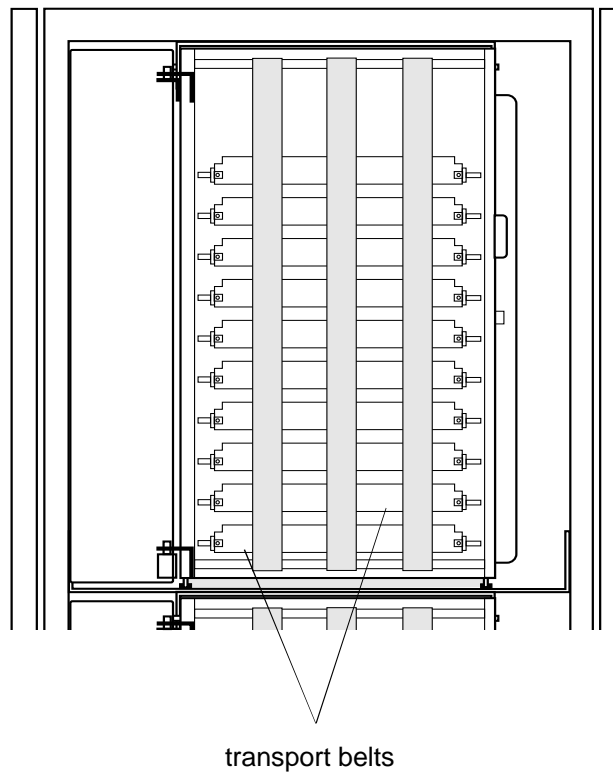
The MailBox is designed to operate reliably over long periods with minimal attention. However, periodically cleaning and regeneration of the transport belts is recommended to keep the unit operating at its best and to avoid paper transport problems.

**Be sure the unit is turned OFF. Remove the power plug from the wall outlet.**

- Open the front door to gain access to the horizontal transport belts.
- Open the rear door to gain access to the vertical transport belts.

Paper dust should be removed regularly. Clean the entire surface of all the belts using a lint-free cloth dampened with water. Turn the rollers while cleaning.

Never use solvents or chemicals on any components or housing parts.



## Cleaning the MailBox

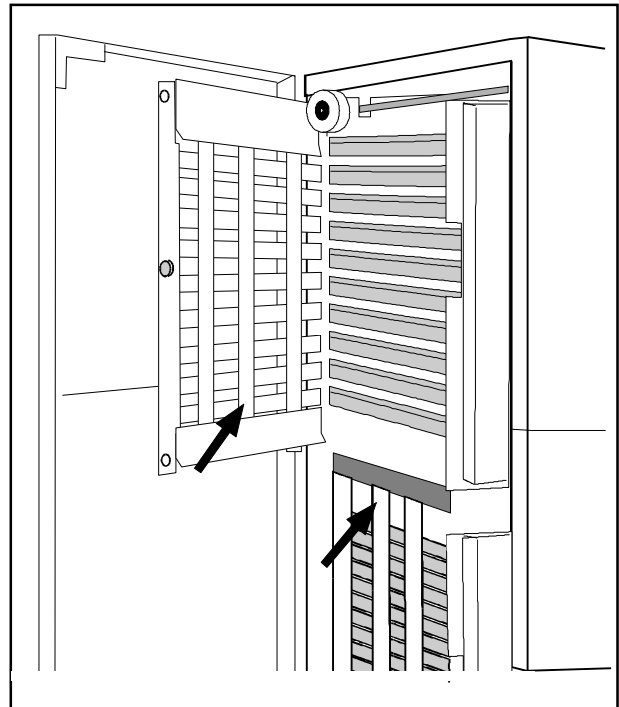
Regular cleaning of the MailBox prevents paper jams and service calls. Belts should be cleaned if:

- The frequency of paper jams increases substantially
- The belt surface appears smooth and/or glazed

### Cleaning the Vertical Transport Belts

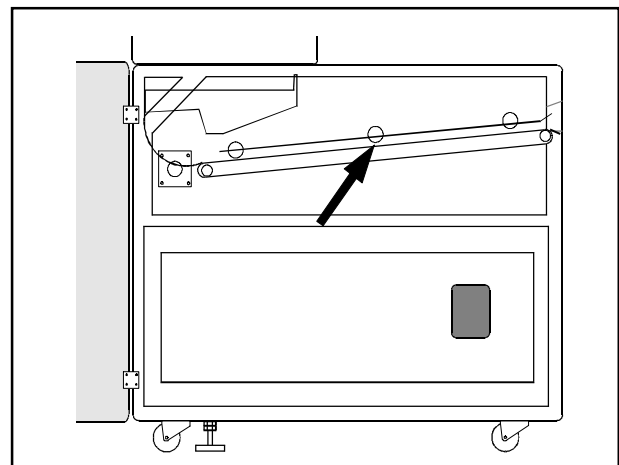
1. Open the rear door of the MailBox.
2. Open the upper and the lower transport doors.
3. Clean the transport belts of the upper and the lower vertical conveyer by means of a lint-free cloth, dampened with water.
4. Close the transport doors and clean the outer part of the belts.
5. Move the belt with one hand as the other hand cleans the belt with the cloth.

It is only necessary to clean the outside of the belt that touches the paper.



### Cleaning the Horizontal Transport Belts

1. Open the front door of the MailBox.
2. Clean the rubber bands and the metal rollers of the horizontal conveyer band by means of a lint-free cloth, dampened with water. This is only possible from the bottom side of the horizontal transport unit.
3. Move the belt with one hand as the other hand cleans the belt with the cloth.





# Paper Path, Opto Sensors, Interlock Switches

## Interlocks

Each door has a "door open" interlock switch. There is one interlock switch at the following locations:

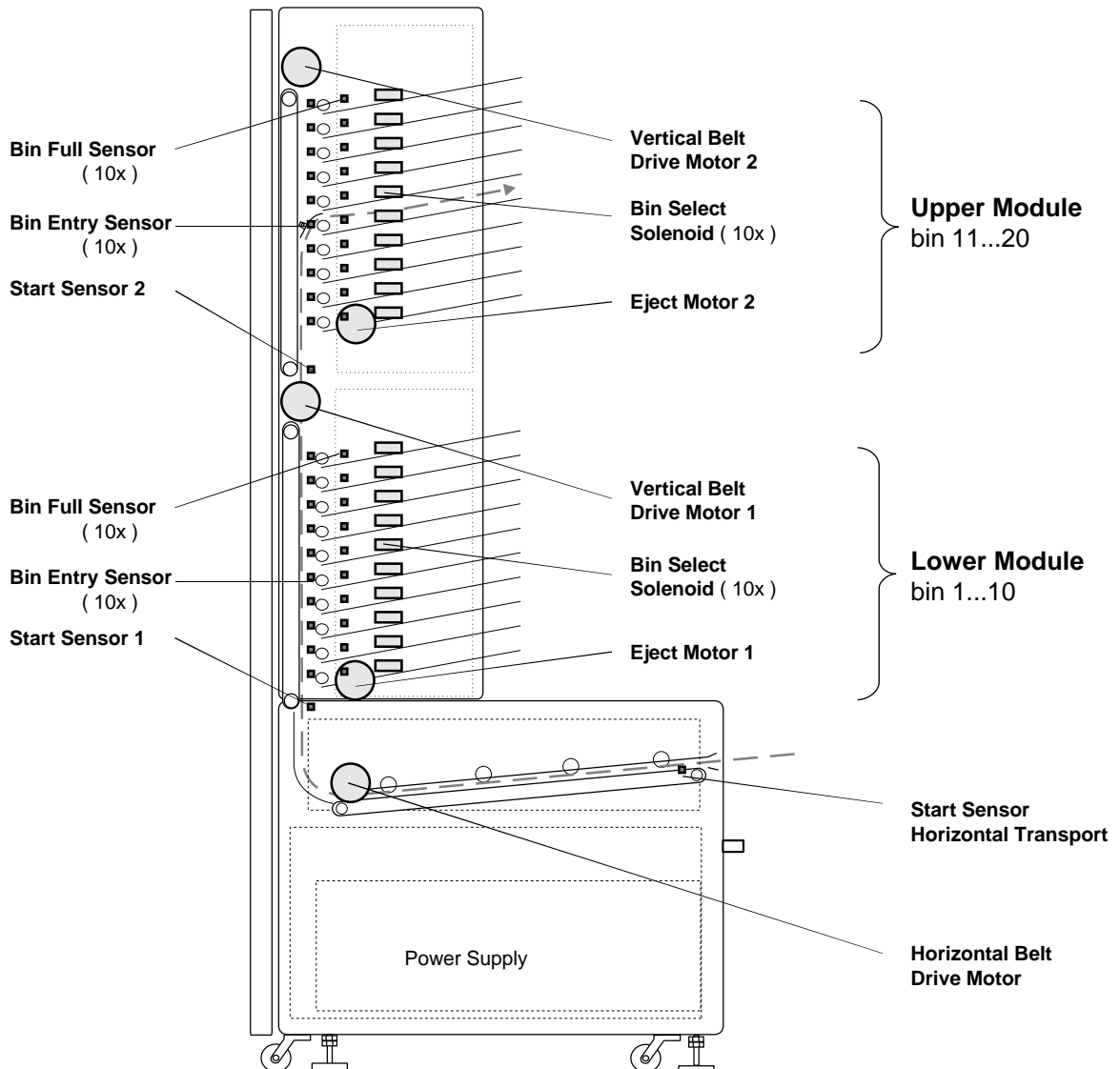
- front door
- upper vertical transport door
- lower vertical transport door

The rear door, that covers the vertical transport units, does not have an interlock switch.

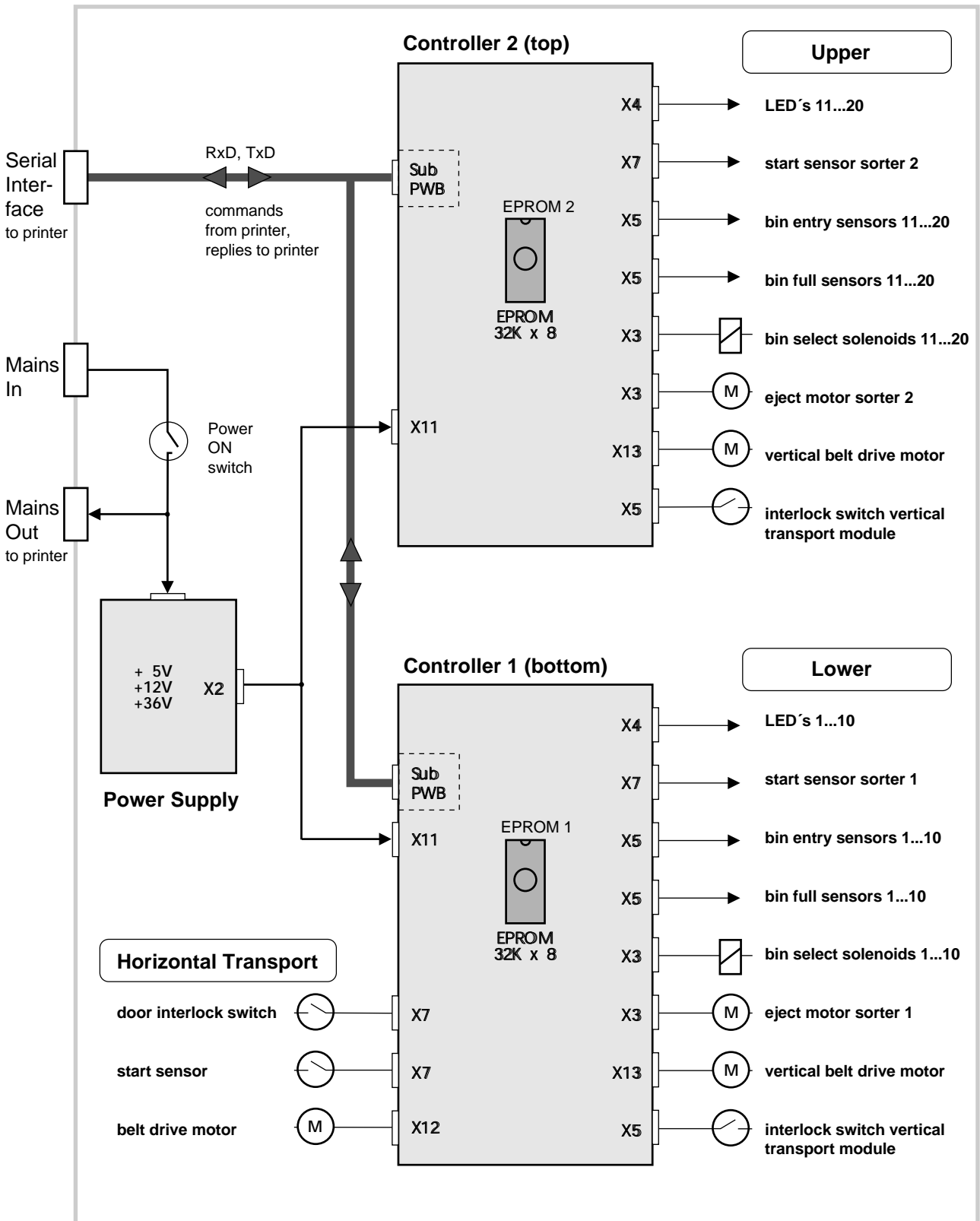
## Sensors

There are sensors in the paper path to control movement in the paper transport area. All sensors are opto sensors. They are activated by a shutter that is mechanically triggered by the leading edge of the paper. There is a sensor at the following places:

- Paper entry of the horizontal transport unit
  - Paper entry of the vertical transport unit 1
  - Paper entry of the vertical transport unit 2
  - Paper entry of each exit bin
- In addition, there is one "bin full" sensor at each bin.



# MailBox Block Diagram



## LED Indications

The following messages may display from the output bin LEDs:

### a) after POWER ON

---

#### Normal indication:

All 20 LEDs are lit for a short time:  
This is the normal indication after turning the unit on. Upon termination of the internal selftest, only the default bin #1 LED should be on.

#### Warning indications:

All 10 LEDs of one module are blinking:  
Indicates the internal selftest has failed because of a RAM error. Power off and on again. If the failure persists, exchange the relevant controller PWB.

The 5 upper LEDs are blinking alternately with the 5 lower LEDs of one module:  
Indicates the internal selftest has failed because of a ROM error. Power off and on again. If the failure persists, exchange the relevant controller PWB.

The even numbered LEDs are blinking alternately with the odd numbered LEDs of one module:

Indicates the internal selftest has failed because of a CTC error. Power off and on again. If the failure persists, exchange the relevant controller PWB.

### b) while OPERATING

---

#### Normal indication:

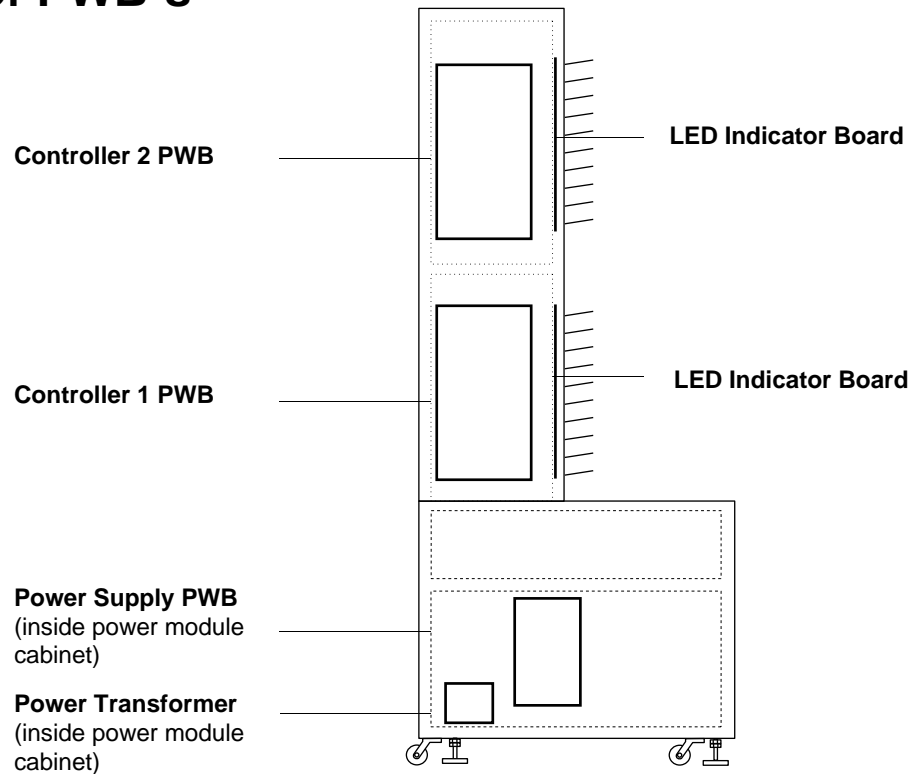
One LED is on temporarily:  
Normal indication for the currently selected bin. If no bin is specified, the default bin #1 is indicated.

#### Warning indications:

Single LED is blinking:  
The indicated bin is full. After the MailBox bin full LED begins blinking (warning), the MailBox allows 10 more sheets to be delivered to the selected bin before declaring the bin full and signaling the printer to stop printing. The printer clears all the sheets in its paper path and stops.

All 10 LEDs of one module are blinking:  
Indicates a paper jam in the module.

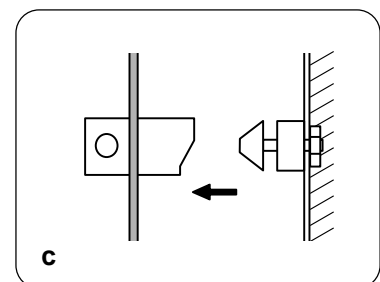
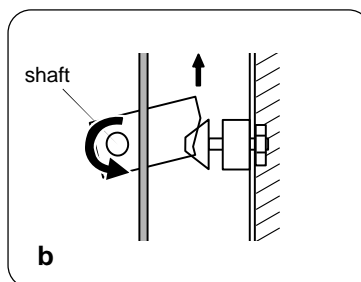
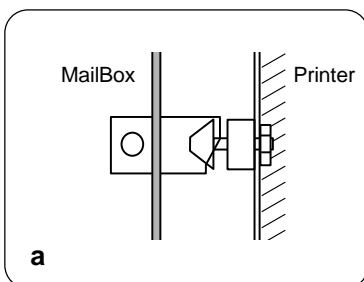
## Location of PWB's



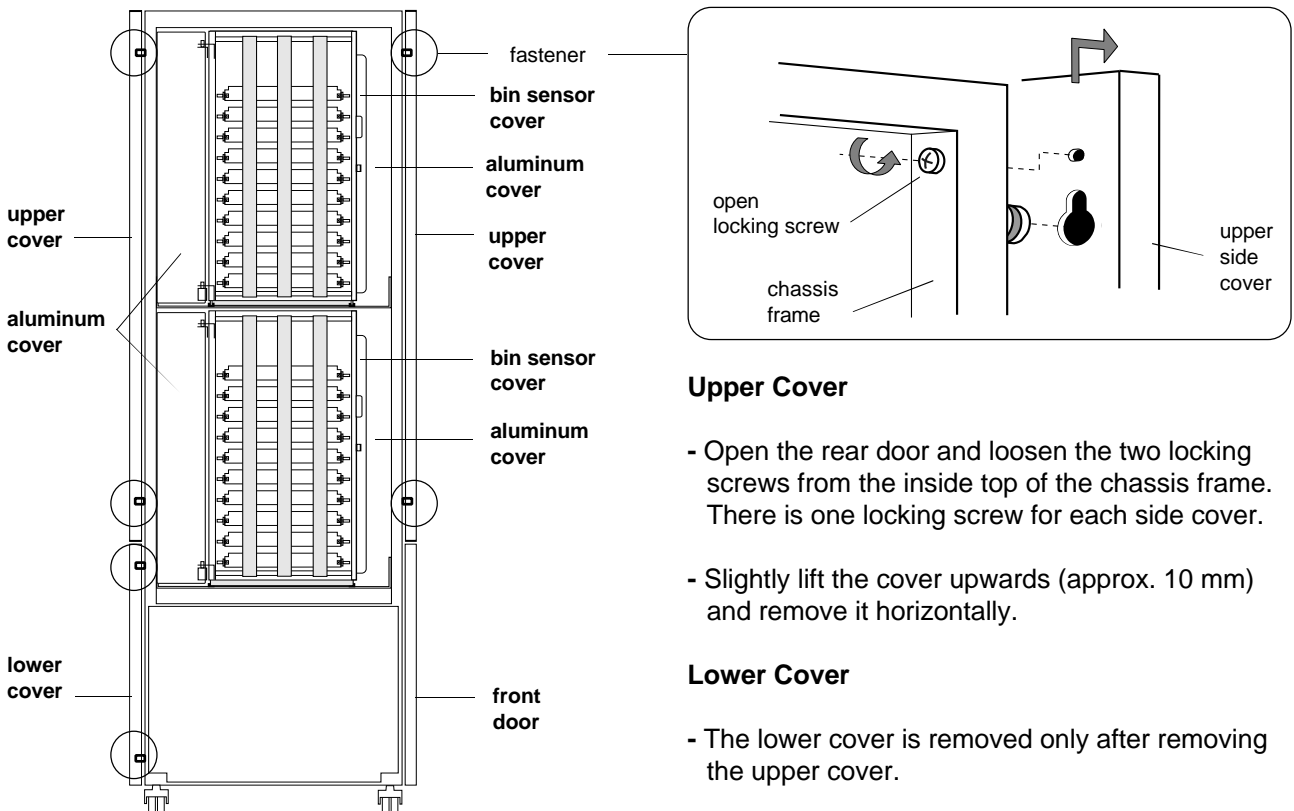
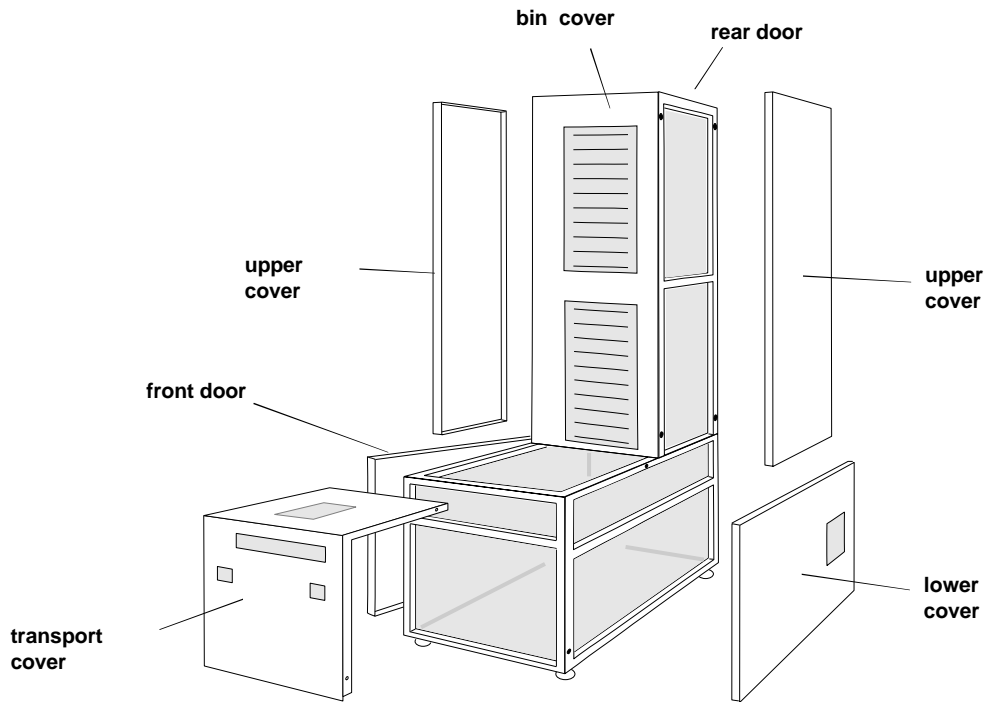
## Disengaging the MailBox From the Printer

**Power down and disconnect the power plug from the wall outlet. Remove power and signal connection cables between the MailBox and the printer.**

1. Before moving the MailBox, raise the levelling feet to release them from the floor.
2. Open the front door.
3. Wiggle the MailBox and slightly turn the latch lever shaft in order to lift off both clamps from the printer's pin fasteners. The MailBox can be wheeled away from the printer.



## Removing the Housing Covers



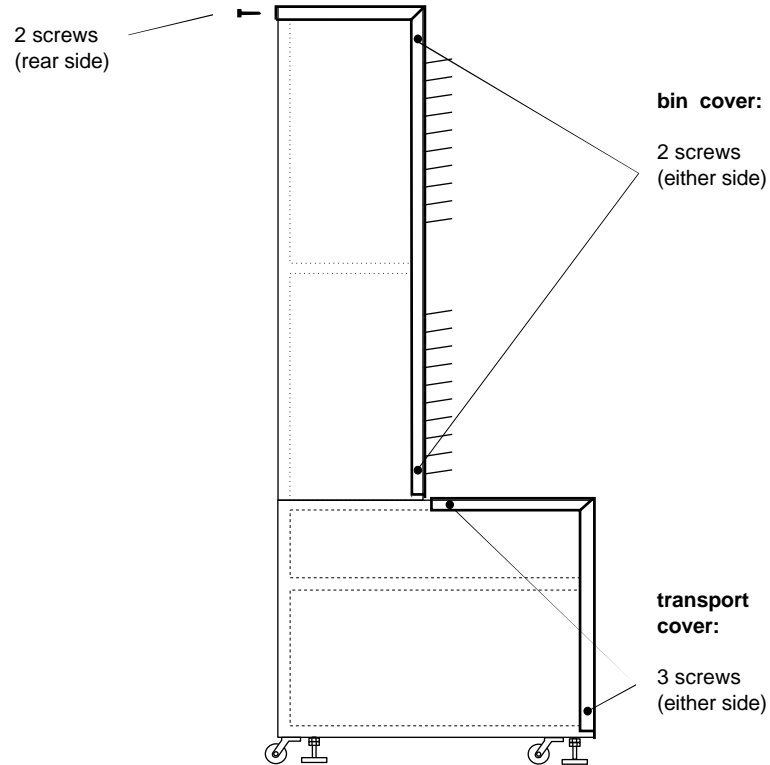
### Upper Cover

- Open the rear door and loosen the two locking screws from the inside top of the chassis frame. There is one locking screw for each side cover.
- Slightly lift the cover upwards (approx. 10 mm) and remove it horizontally.

### Lower Cover

- The lower cover is removed only after removing the upper cover.

## Removing the Housing Covers (continued)



### Bin Cover

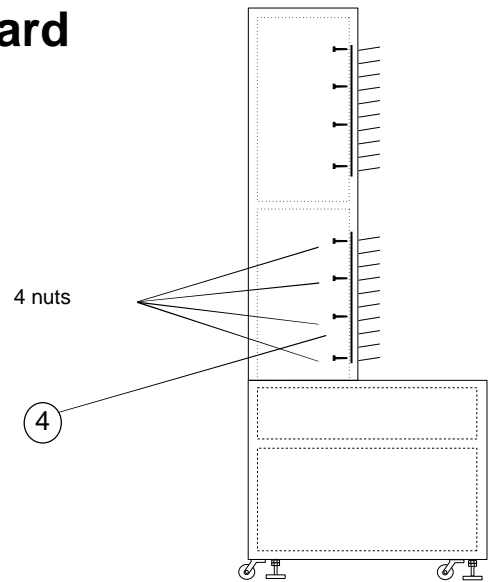
- Remove both top side covers
- Open the rear door
- Remove the two screws on the top rear side
- Remove the two screws on either side
- Lift the cover off

### Transport Cover

- Open the horizontal transport door
- Remove the upper and the lower side covers on the opposite side
- Remove the three screws on either side
- Lift the cover off

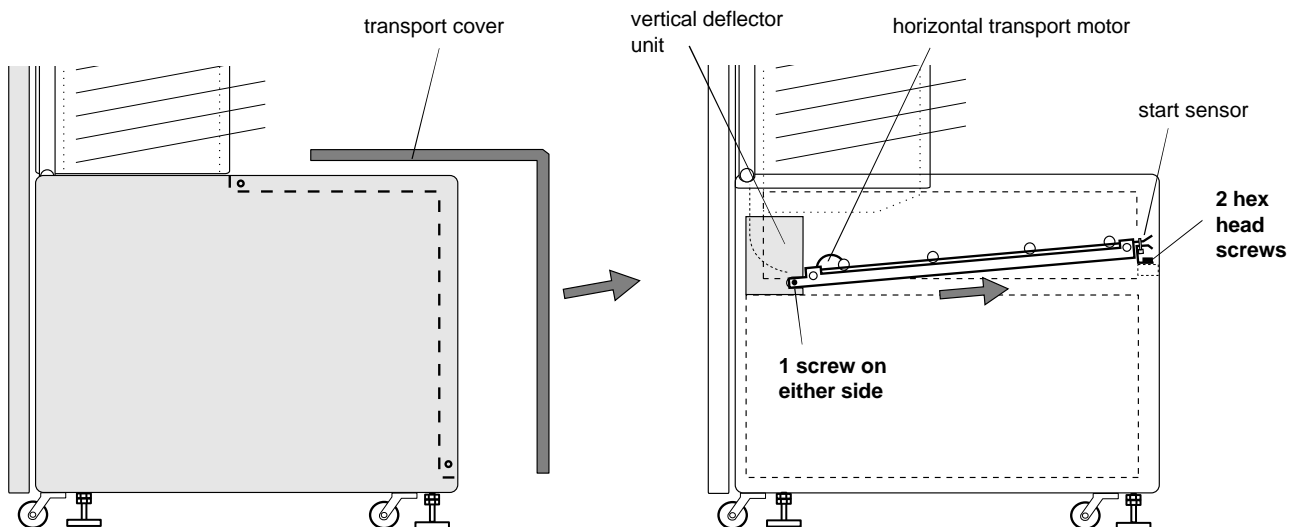
## Removing the LED Indicator Board

1. Open the rear door. Remove the upper side cover on the right hand top as seen from the rear door.
2. Disconnect the harness connector from the indicator PWB.
3. Remove 4 nuts.



## Removing the Horizontal Transport Module

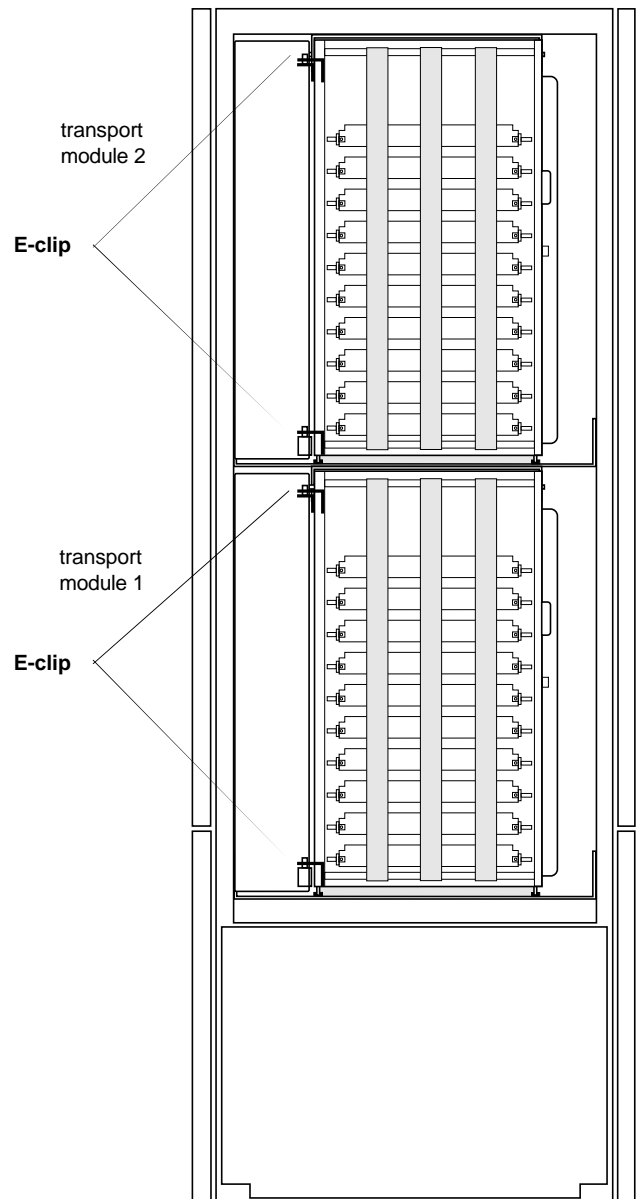
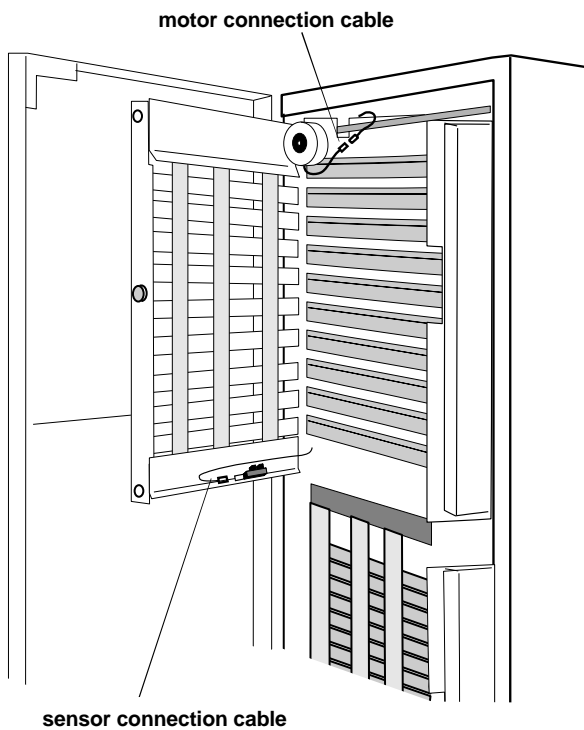
1. Open the front door.
2. Take off the transport cover and the lower cover.
3. Disconnect:
  - the motor connection cable
  - the start sensor connection cable
4. Using a wrench, remove the two retaining screws (hexagon head) located at the paper input mouth. Loosen the two screws at the paper deflector unit. Gently pull the complete transport module out.



## Removing the Vertical Transport Modules

In order to remove the transport module:

1. Open the rear door.
2. Open the transport module door, and
  - disconnect the belt drive motor connection cable (located on the top of the module door)
  - disconnect the connection cable from the start sensor (located on the bottom of the module door).
3. Close the transport module door and remove the E-clip from the hinge bolts.
4. Open the transport module door and gently lift off the complete transport module in an upward direction.





## Removing the 10-Bin MailBox Module

**Be sure the unit is turned OFF.  
Disconnect the power plug from the wall outlet.**

The two 10-bin MailBox modules are identical.

Remove the vertical transport modules (refer to "Removing the Vertical Transport Modules") and then perform the following steps to remove the bin module:

1. Remove all paper from the bins.
2. Disconnect the cables that are routed from the module to the controller board: For this remove the top side covers (refer to "Removing the Housing Covers"). Disconnect the following harness connectors:
  - X5 (bin full sensors, bin entry sensors, interlock switch)
  - X3 (solenoids and sorter eject motor)

**Properly clear all cables so they cannot be caught when removing the module.**

3. Press together both levers of the fixing bar that is located on the top of each module.
 

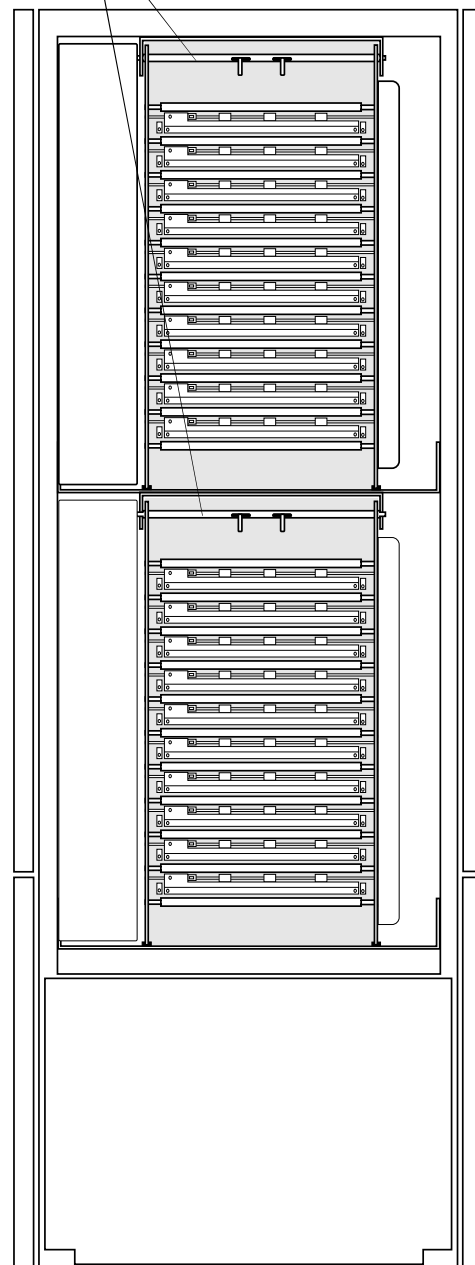
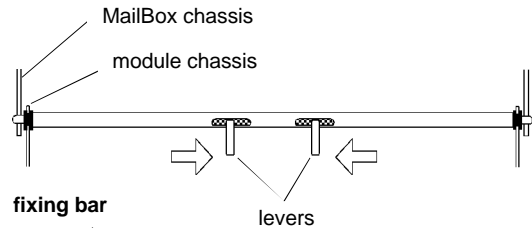
**Note:** Pay attention to not loose the plastic rings on either side of the fixing bar in case you shift it out of the chassis.

The module is now unlatched.

**Warning: Two people should lift the 10-bin module. It weighs 42 lbs (19 kg).**

4. With a person on each side, slightly lift the module in order to release it from the stand plate recesses and then move it out.

**Warning: Do not use the fixing bar as a handle. Never try to hold or lift the module by means of the fixing bar, since it is not firmly mounted to the module !**



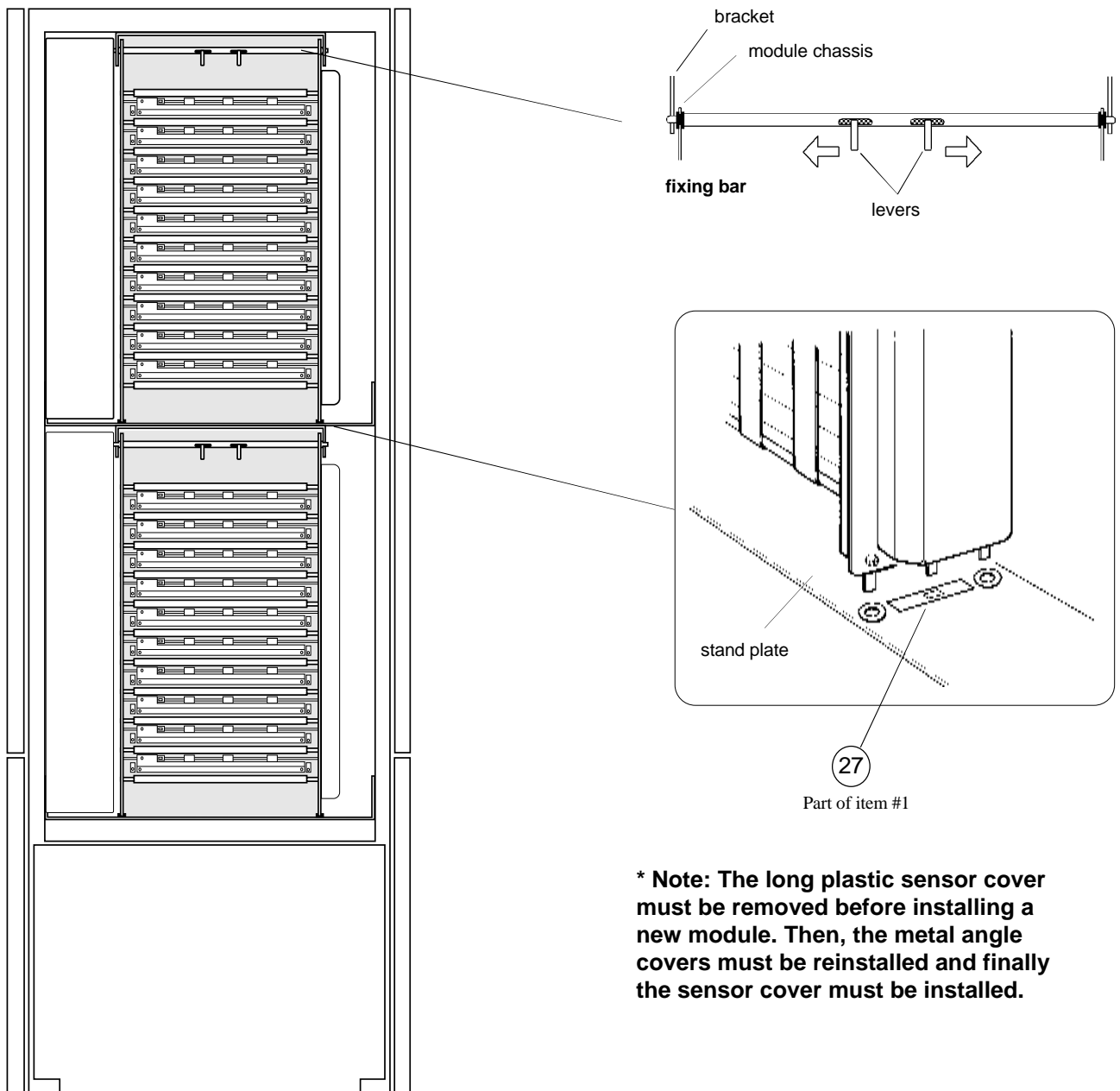
## Mounting the 10-Bin MailBox Module

### Reassembly:

With a person on either side, position the MailBox module so that it locks into the rubber-bordered recesses of the stand plate.

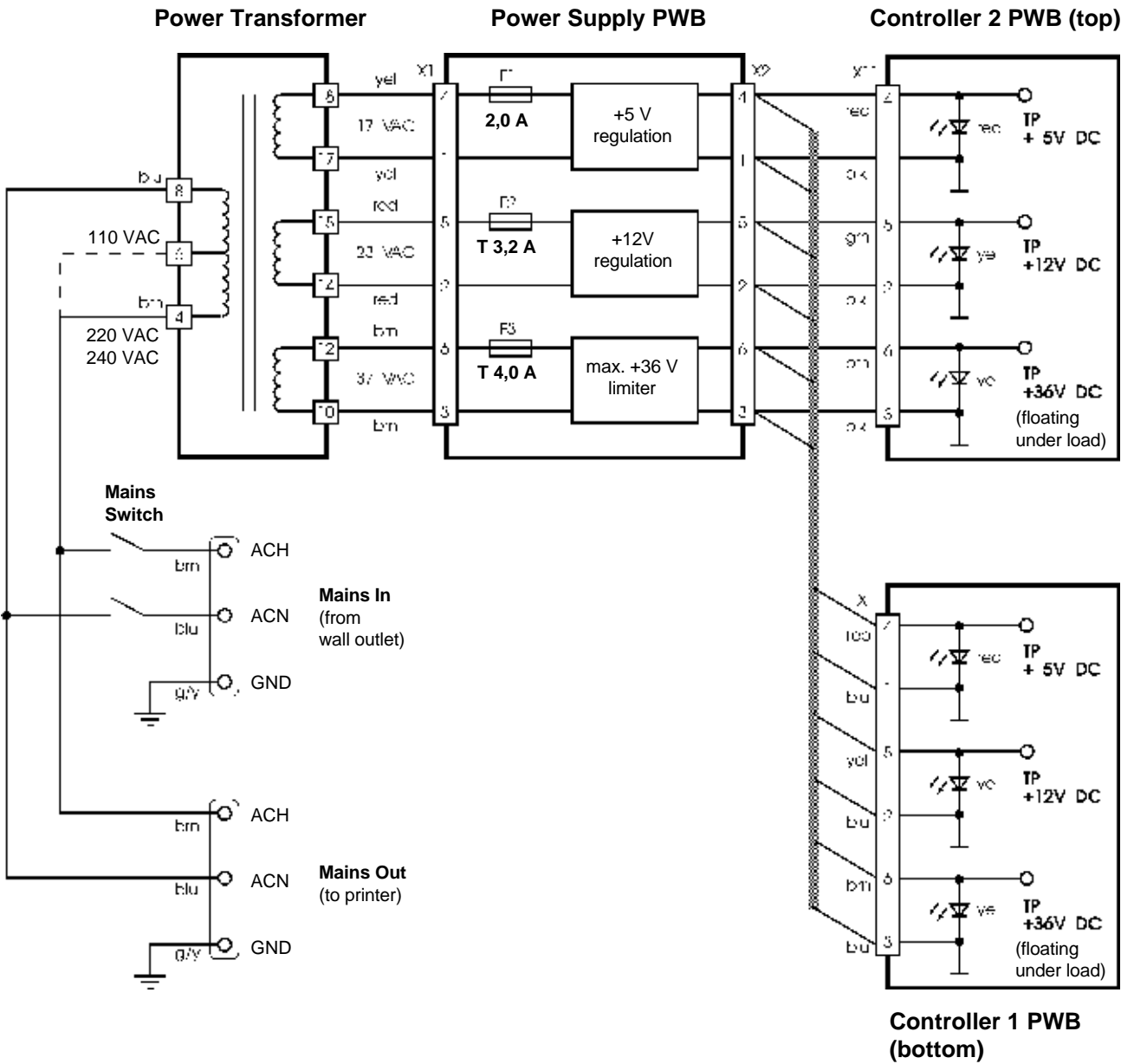
Push apart the levers of the fixing bar to assist in engaging it into the recesses of the bracket.\*

Now, the module cannot be withdrawn when it is properly installed.

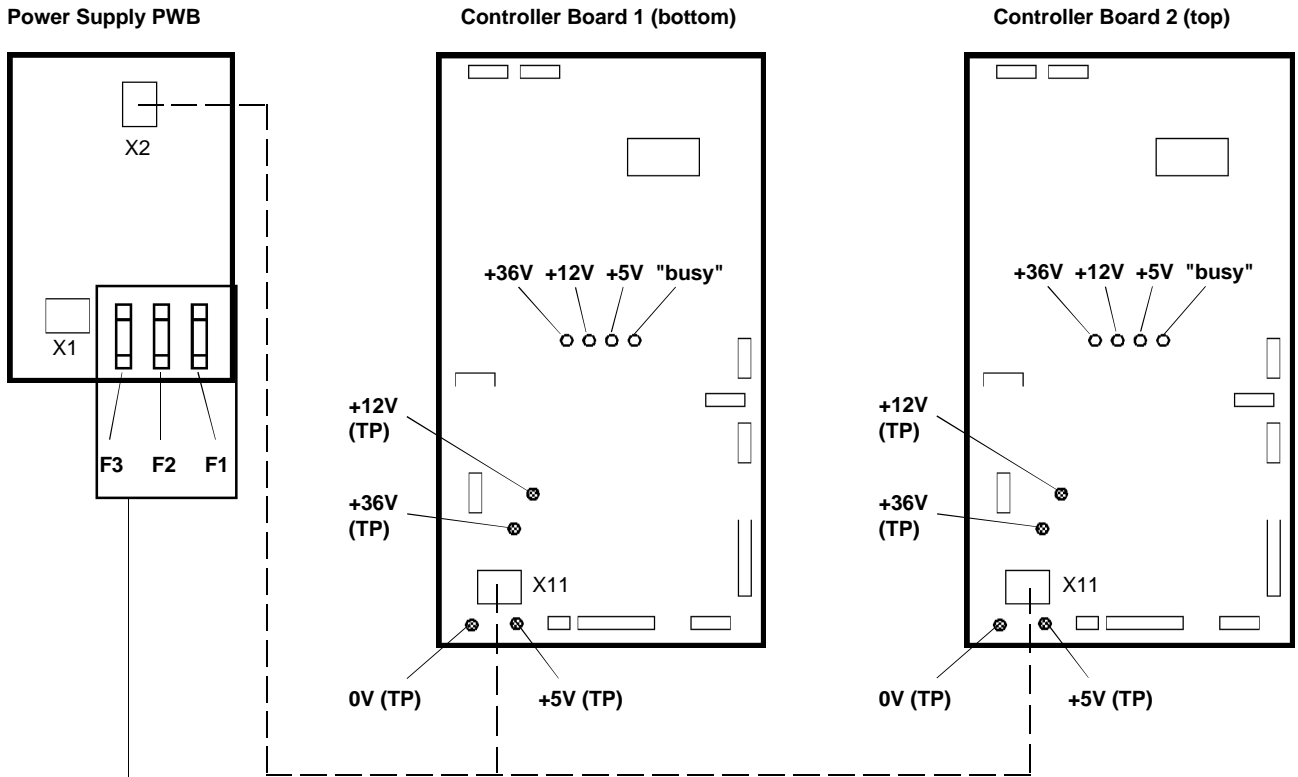


**\* Note: The long plastic sensor cover must be removed before installing a new module. Then, the metal angle covers must be reinstalled and finally the sensor cover must be installed.**

# Power Supply Block Diagram



## Fuses, Voltage Test Points



### Fuses 29

- F1 = 2,0 A
- F2 = 3,2 A slow blowing type
- F3 = 4,0 A slow blowing type

### LED Indicators

- yellow LED: indicates that the 15 VDC and 36 VDC supplies are available.
- red LED: indicates that the 5 VDC supply is available.
- green LED: at power on the green LED flashes. This indicates that the program is running.

## Power On / Initialization

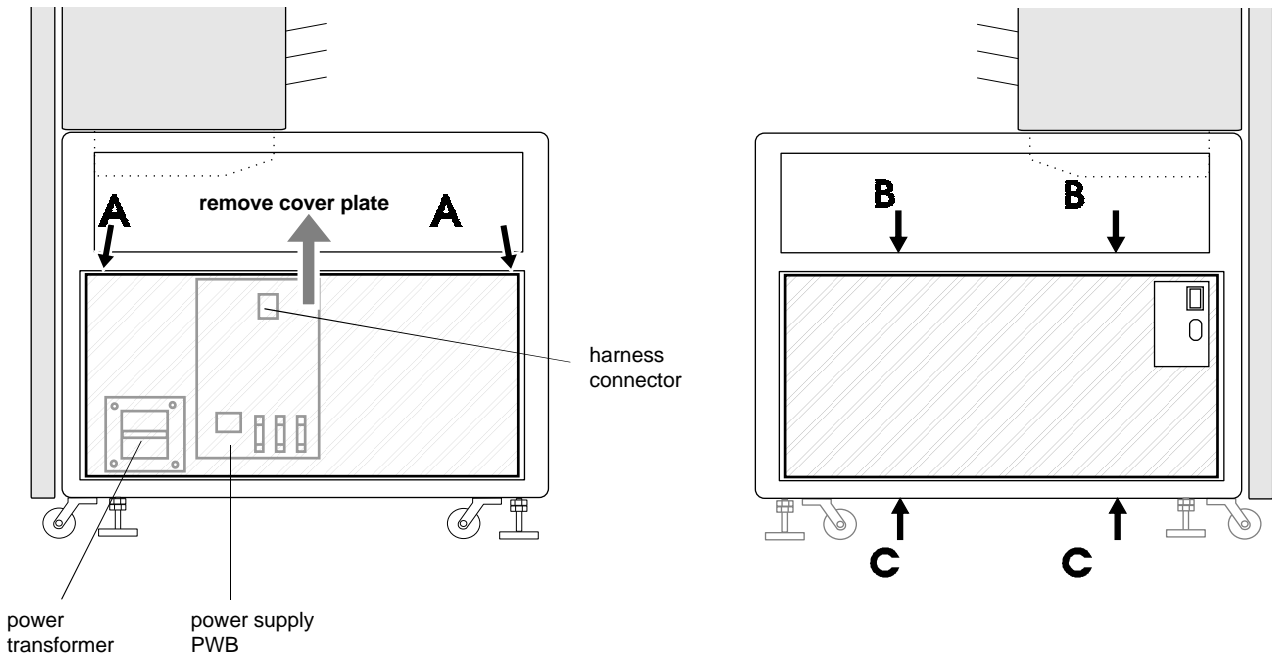
After Power ON or when commanded by the print engine, an initialization is performed and an internal self test starts.

As a visual indication, all LEDs should light during this procedure and turn off upon completion of the self test. The one exception is the bin 1 LED which remains ON since this is the default LED position.

## Removing the Power Supply Unit

**Turn the unit OFF. Warning: Be sure the power cord is disconnected from the wall outlet!**

1. Open the front door. Remove the lower cover on the opposite side.
2. Remove one screw each on the left and right hand side of the metal case to release the cover plate. See **A** in illustration below. Disengage the cover plate by pulling it upwards.
3. Disconnect the harness connectors and release them from the metal case.
4. To release the complete power supply unit with its housing case, do the following:
  - Remove the 2 screws on the bottom of the chassis frame (see **B** in illustration below)
  - Remove the 2 screws on the top of the chassis frame (see **C** in illustration below)
5. See page 37 for installation/replacement information.

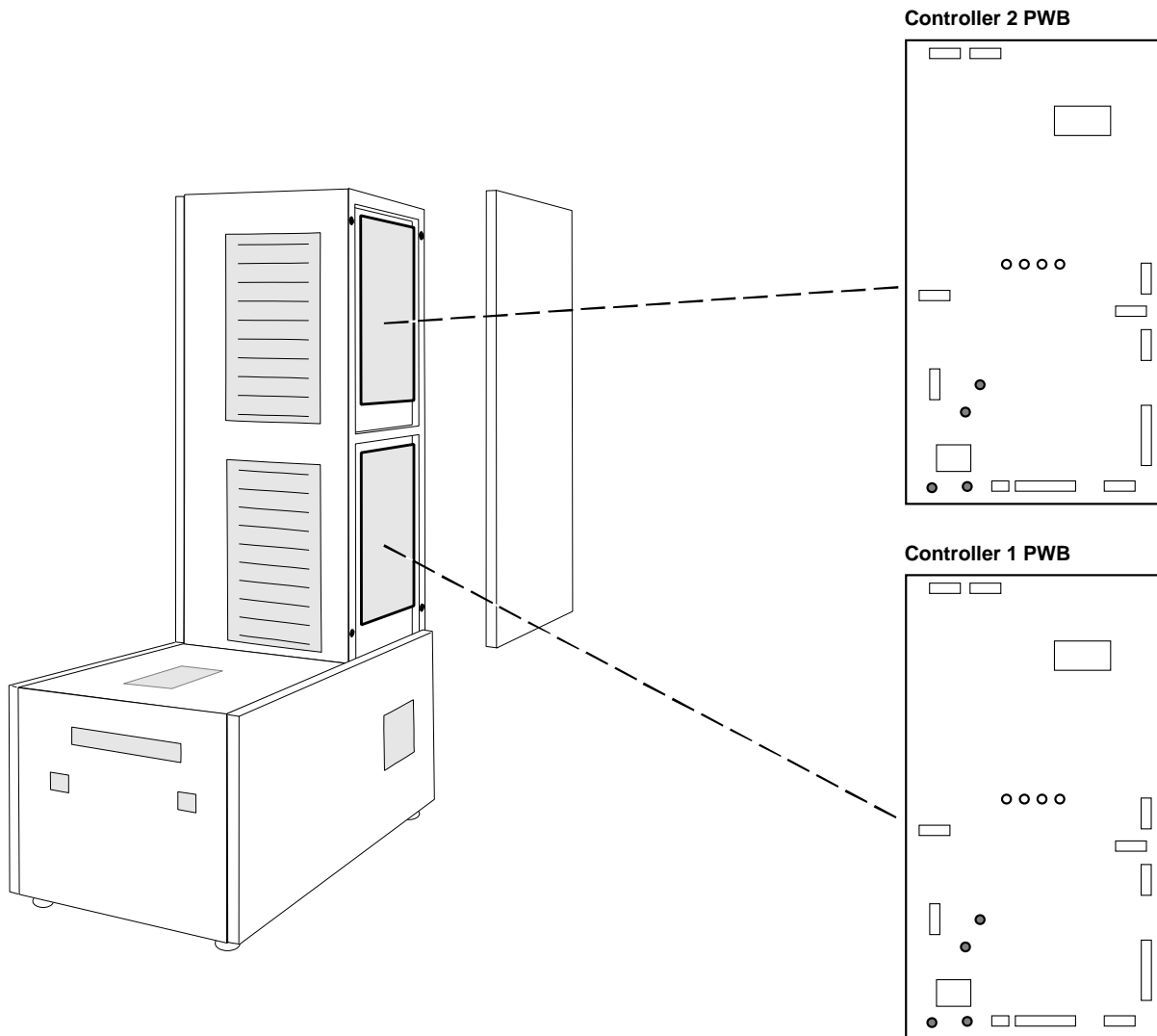


**Warning: When replacing the transformer, be sure to configure it for the correct voltage.**

## Removing the Controller Board

**Warning:** Verify that the system power is OFF before continuing. Disconnect the power cable from the wall outlet.

1. Remove the top cover located on the left hand side, as seen from the rear door (refer to "Removing the Housing Covers").
2. Disconnect the harness connectors.
3. Remove the eight retaining screws from the controller board and the two screws from the heat sink.

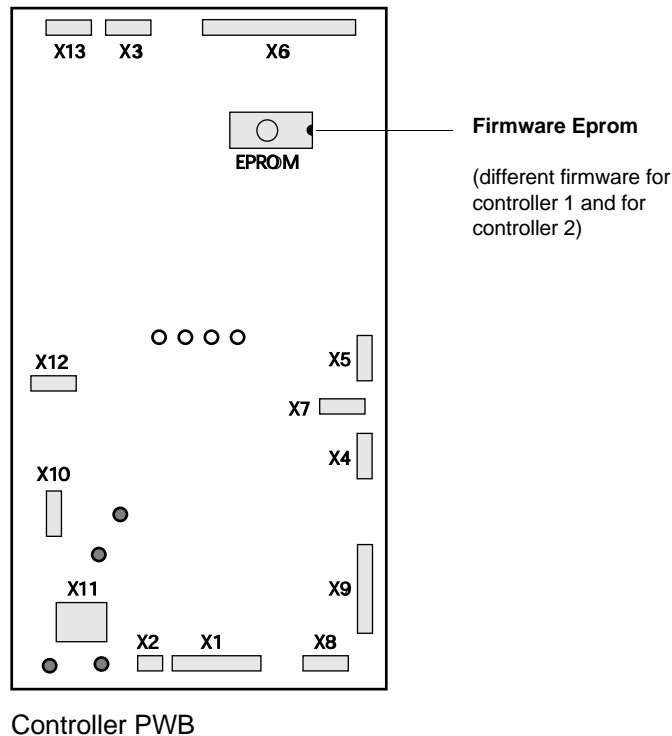


## Exchanging the Firmware

**Warning: Before removing any covers, turn the unit OFF and disconnect the power cable from the wall outlet.**

1. Remove the top side cover located on the left hand side, as seen from the rear door (refer to "Removing the Housing Covers").
2. Replace the EPROM. Make sure the polarity is correct, i.e. note the notch on the IC package. EPROM type: 27C256 (32K x 8).

Note that the firmware EPROMs for controller 1 (bottom) and controller 2 (top) are different!  
**Both EPROMs must have the same date code.** See page 35.

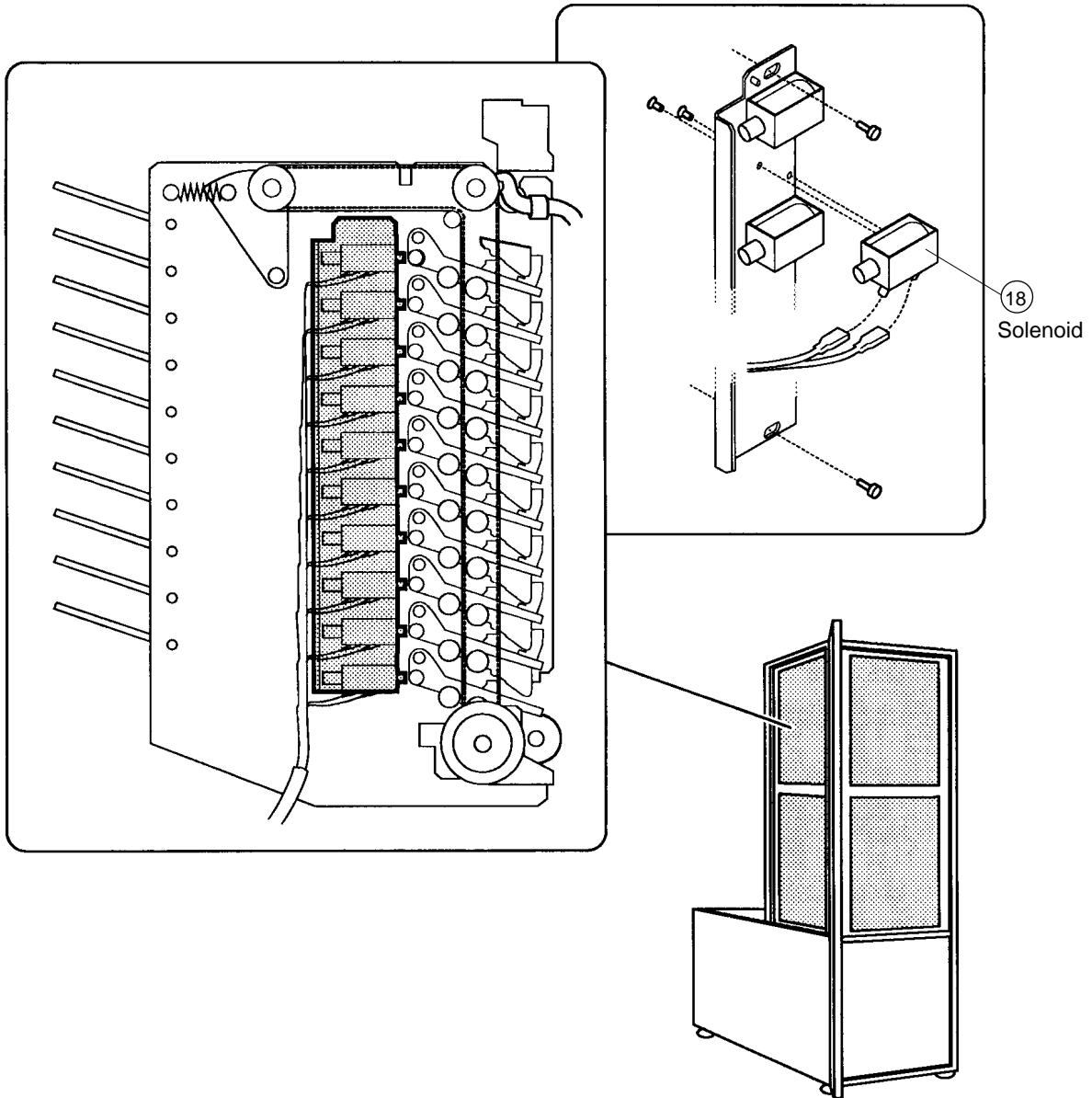


### Observe Static Discharge Precautions:

EPROMs are ESD (electrostatic discharge) -sensitive parts. To prevent damage when handling ESD-sensitive parts, observe all the usual precautions such as keeping the part in its static shielded bag ("ESD bag") until you are ready to install the part and not to touch its pins.

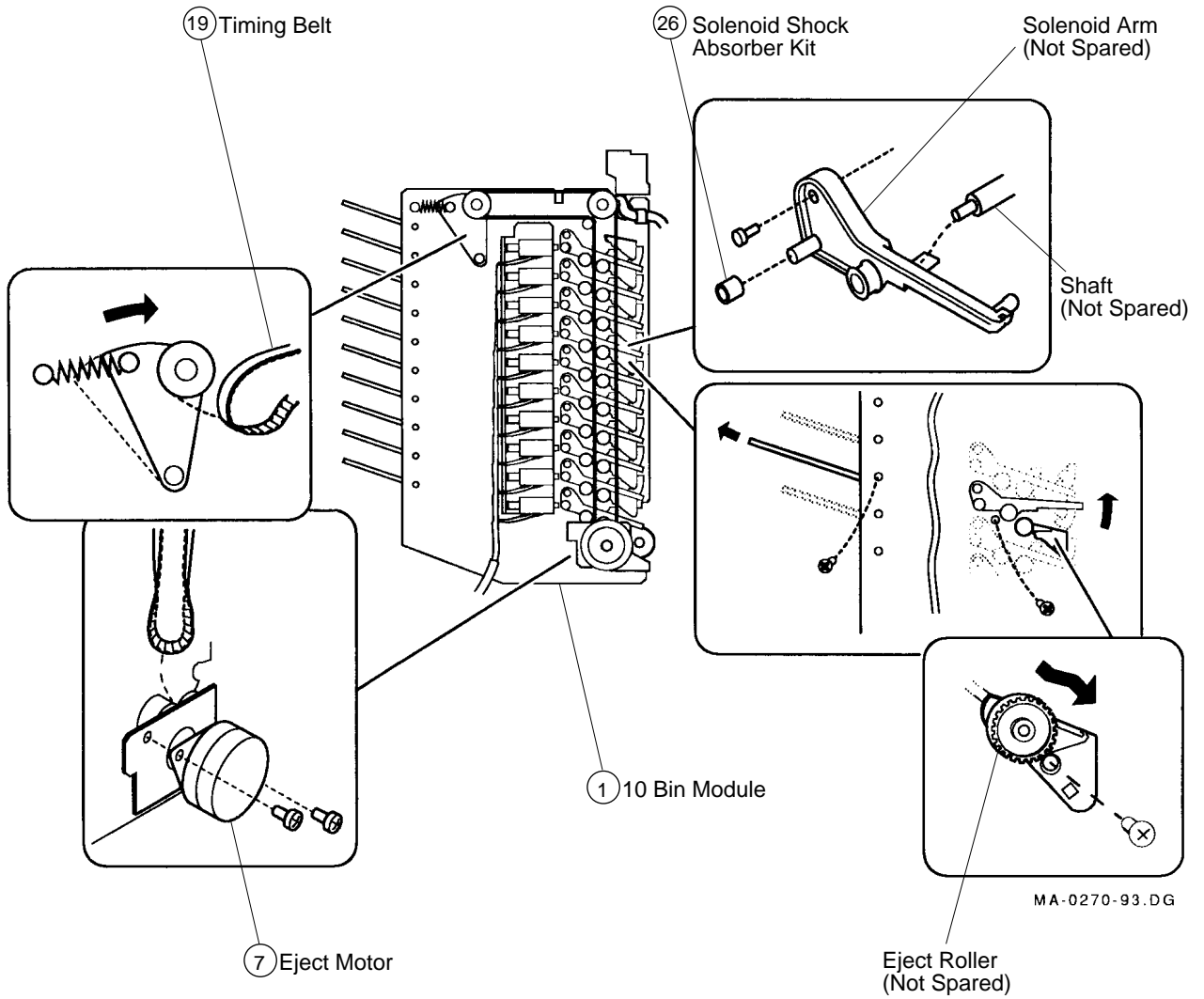
Use a grounded wrist strap when handling any components. If not available, ground yourself frequently by touching the metal chassis of the unit.

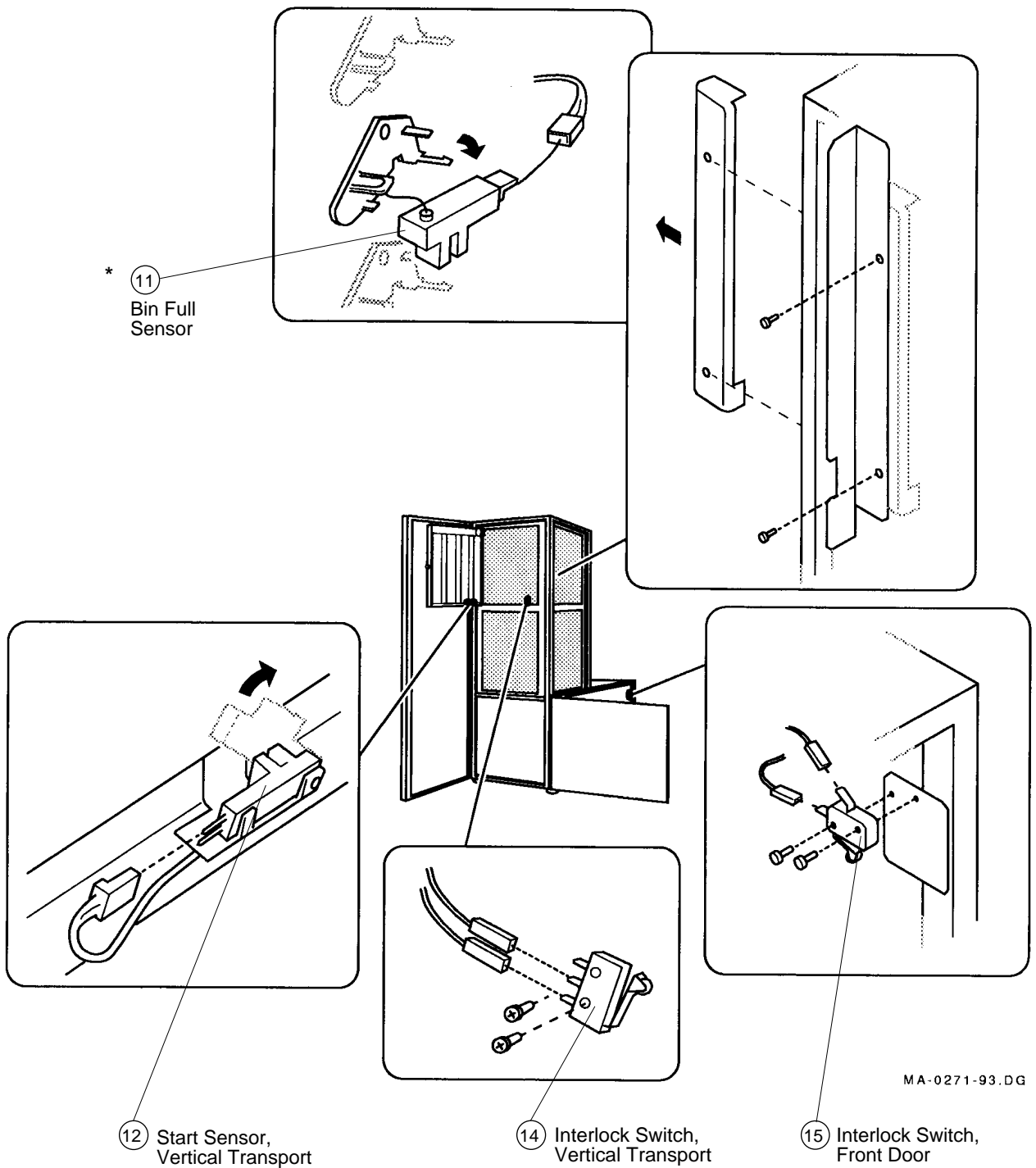
# Mechanical Components Diagrams For Parts Replacement



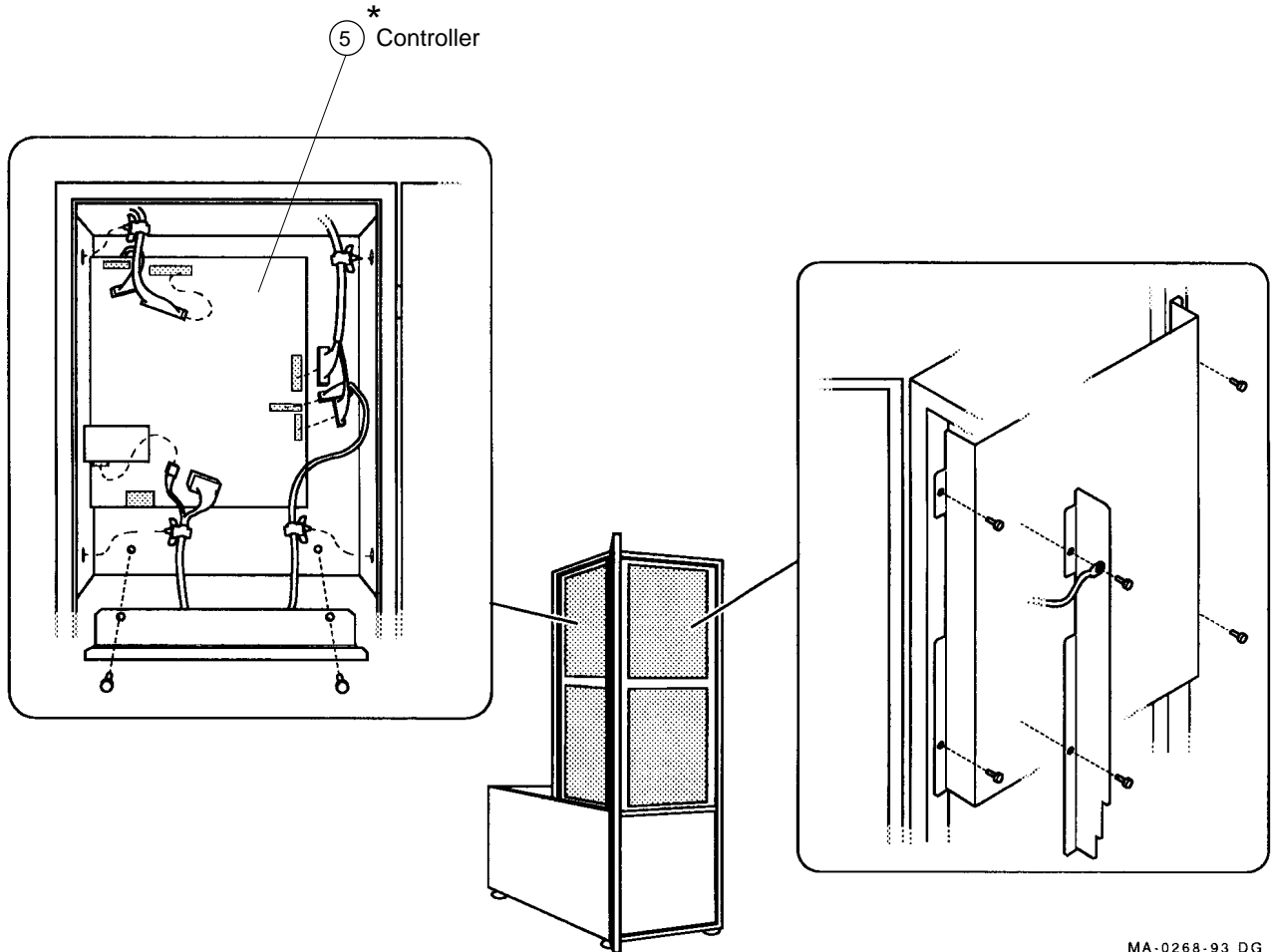
MA-0269-93.DG







**\*Note: To access the bin full sensor, do the following:**  
**1. Remove the aluminum cover.**  
**2. Remove the long plastic cover.**  
**To reassemble, reverse these two steps.**



MA-0268-93.DG

\* The upper and the lower controllers are identical. However, they use different EPROMs. Verify that the correct EPROM is inserted into the controller socket. Controllers are shipped with 2 EPROMs; one for the upper controller and one for the lower controller.

**Both EPROMs (in the upper and the lower controllers) MUST have the same date code (revision level).**

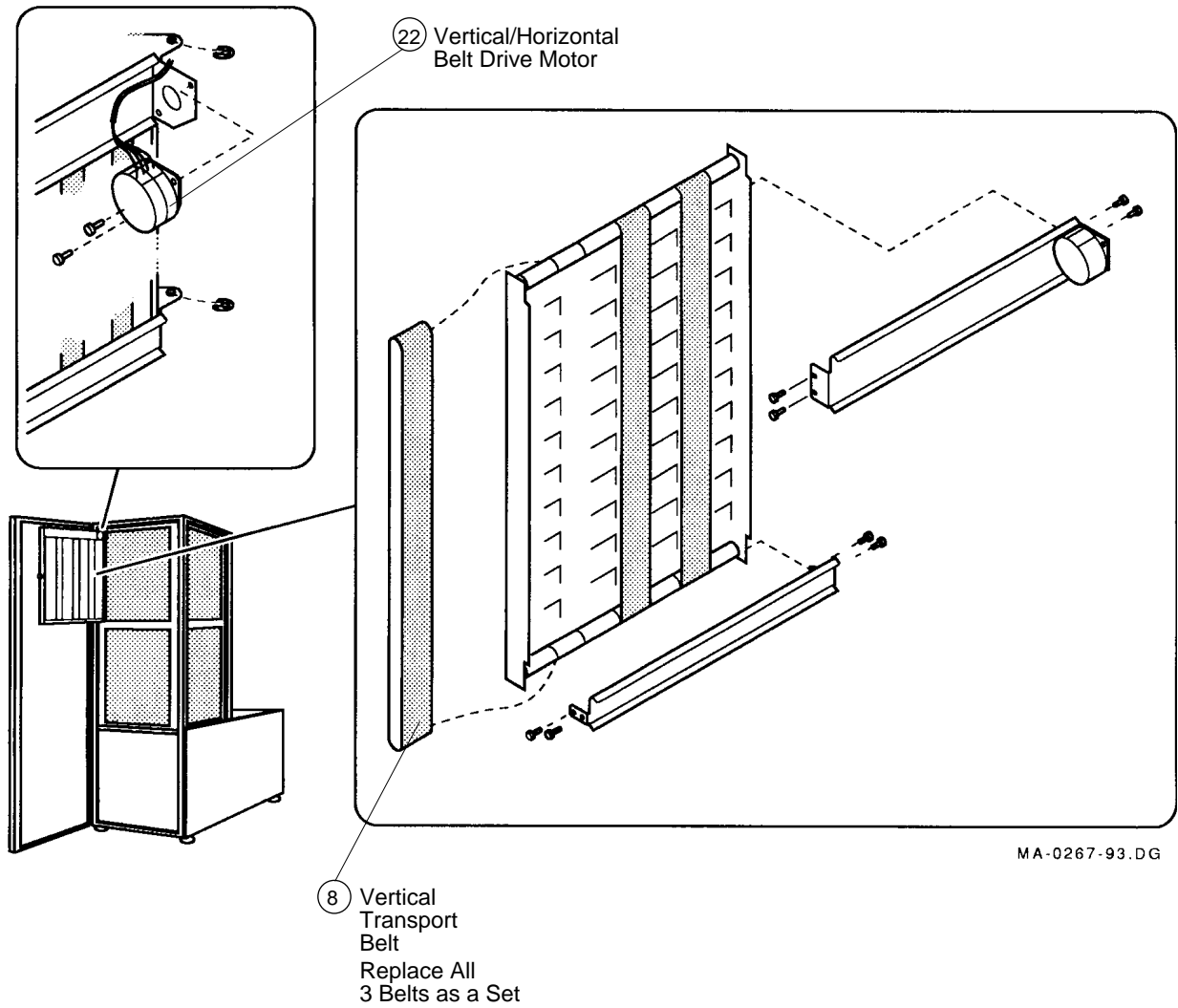
EPROM label:

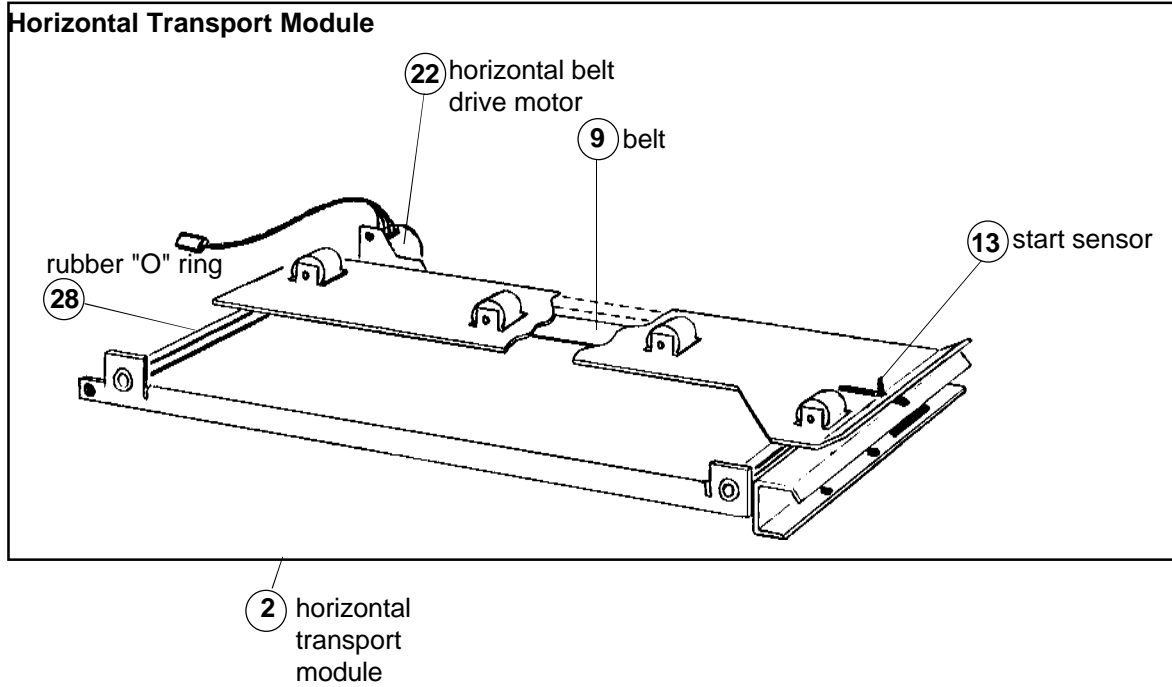
Example:

Sorter #
Date code

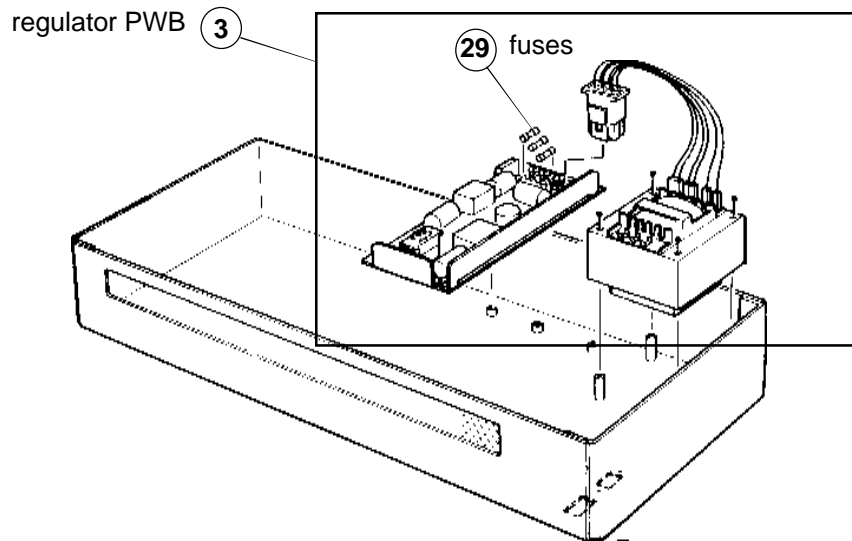
Date code  
"9.6.93" (June 9, 1993)

Discard the EPROM not used.



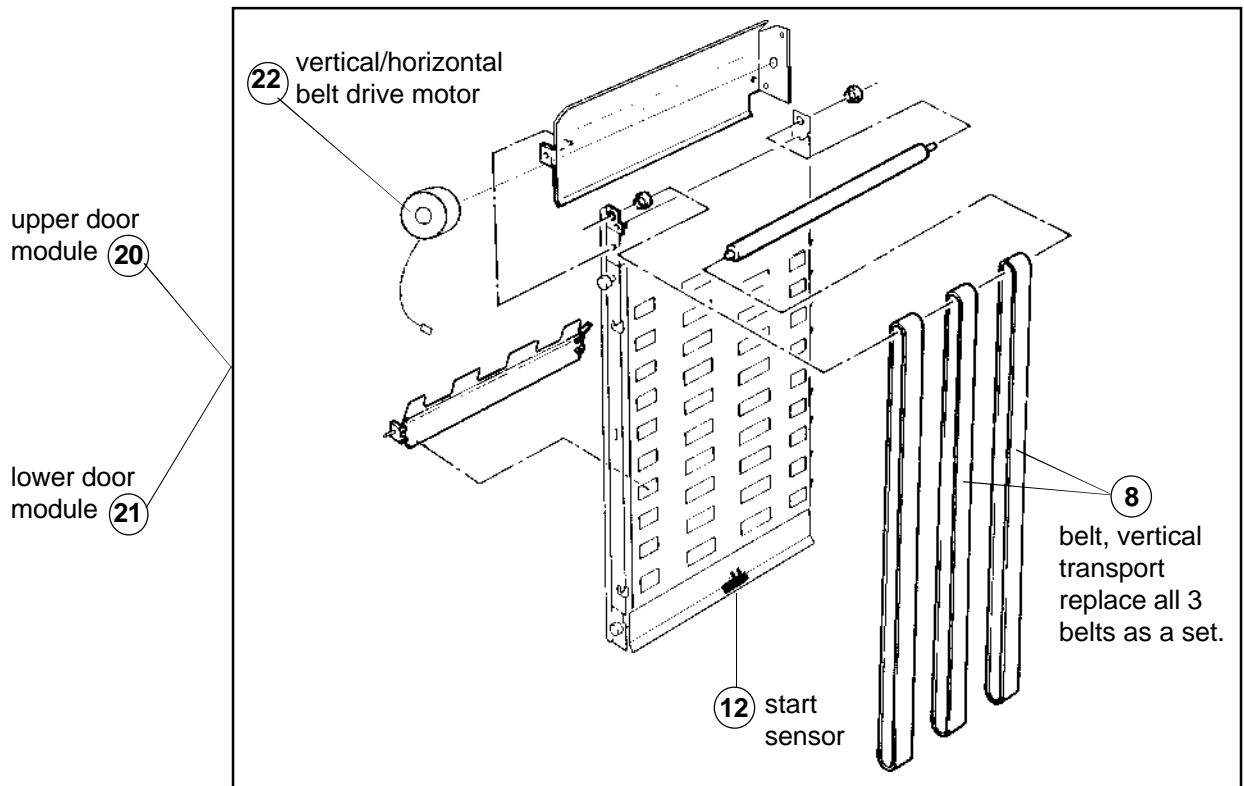
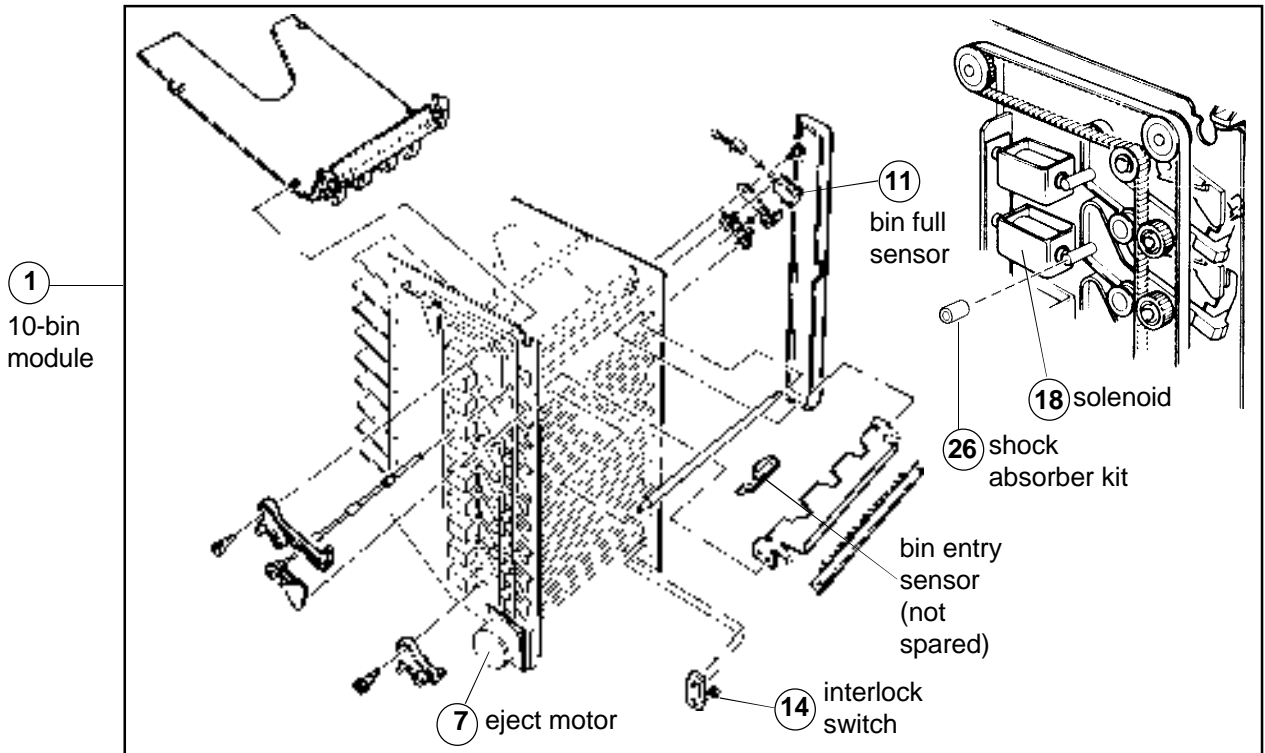


**Power Supply Regulator PWB (includes transformer)**



**Warning: When replacing the transformer, be sure to configure it for the correct voltage.**

10-Bin MailBox Module (excludes vertical transport door module)



## Spare Parts List

Item	Spare Modules (complete assembly)	BDT Part Number	Digital Part Number
1	10-bin MailBox module (includes mounting kit item 27) (excludes door module items 20 or 21)	354 912 304 -00	29--31374--01
2	Horizontal transport module	354 914 304 -00	29--31388--01
3	110/220V power supply regulator PWB (includes transformer)	354 915 304 -00	29--31393--01
4	LED indicator PWB	354 916 304 -00	29--31396--01
5	Controller PWB (comes with EPROMS for both upper and lower modules)	354 917 304 -00	29--31392--01

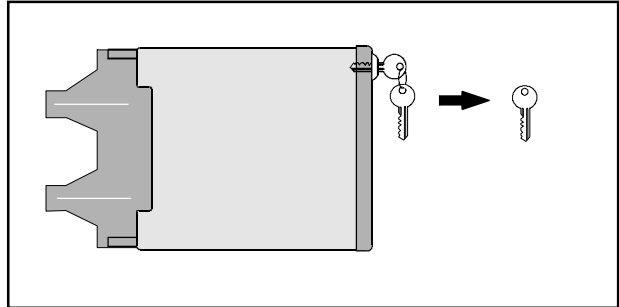
Spare Parts			
6			
7	Motor, eject	354 919 304 -00	29--31380--01
8	Belt, vertical transport (includes 3 belts)	354 920 304 -00	29--31387--01
9	Belt, horizontal transport	354 921 304 -00	29--31391--01
10			
11	Sensor, bin full	354 923 304 -00	29--31377--01
12	Start sensor, vertical transport module	354 924 304 -00	29--31385--01
13	Start sensor, horizontal transport module	354 925 304 -00	29--31389--01
14	Interlock switch, vertical transport module	354 926 304 -00	29--31381--01
15	Interlock switch, front door (not shown)	354 927 304 -00	29--TBD
16			
17			
18	Solenoid	354 931 304 -00	29--31375--01
19	Timing belt	200 720 301 -00	29--31379--01
20	Upper door module	354 952 304 -00	29--31383--01
21	Lower door module	354 951 304 -00	29--31384--01
22	Vertical/horizontal belt drive motor	354 918 304 -00	29--31386--01
23	Main power switch (without illustration)	315 406 304 -00	29--31395--01
24	Entrance deflector guide (see figure 1, page 3)	315 TBD	29--TBD

Kits			
25			
26	Solenoid shock absorber kit (20 absorbers)	354 930 304 -00	29--31378--01
27	10-bin mounting kit used with 10-bin module (See page 26)	354 928 304 -00	29--31382--01
28	"O" ring kit for transport shaft	354 937 304 -00	29--31390--01
29	Fuse kit (3 fuses for power supply PWB) (page 28)	355 436 304 -00	29--31394--01
30	Service kit (standard) contains the following: 6 of each screw 6 of each "C" ring 1 "O" ring kit 1 solenoid 5 of each fuse (2, 3.2, and 4 amp)	354 950 304 -00	29--31397--01

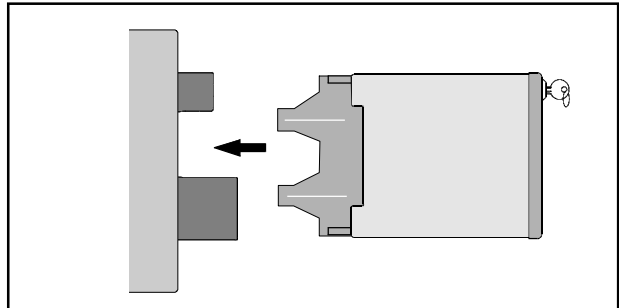
## Lockable Bin Option Installation

This procedure shows how to install the bin that provides user confidentiality for printouts.

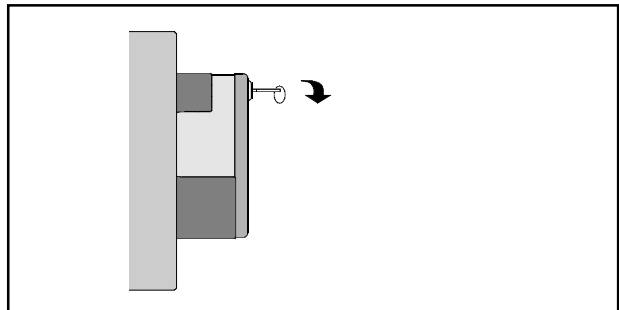
1. Remove the spare key from the lockable bin and put it in a safe place.



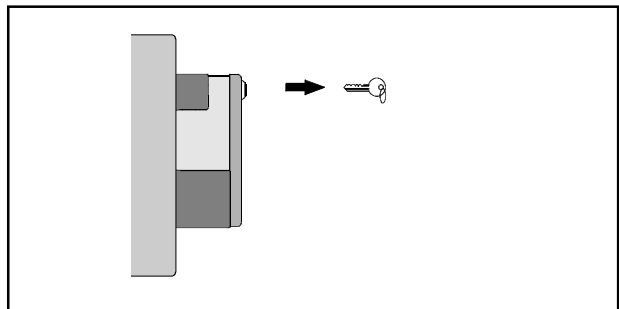
2. Insert the bin into the desired output tray slot of the MailBox.



3. To lock the bin, turn the key to the left. The lock should turn easily. If not, adjust the bin and lock it.



4. Remove the key. Using the lockable bin option diminishes the holding capacity of the output tray.



5. To retrieve printouts: unlock the bin and pull it out, remove all the sheets, insert and lock the bin.

### Caution

Only insert an empty lockable bin. Paper jams will occur if the lockable bin is not empty.



## Technical Data

### Paper Size Supported (portrait mode only)

Paper Size Code	Paper Selector Reading	Paper Size (inches)	Paper Size (mm)
Letter	8.5x11R	8.5 x 11	216 x 280
U.S. Legal	8.5x14	8.5 x 14	216 x 356
A4	A4R	8.3 x 11.7	210 x 297
B5	B5R	7.2 x 10.1	182 x 257

### Operating Environment

- Temperature: 10° to 32°C
- Humidity: 20% to 80% RH, non-condensing

### Print Material Supported

- Paper 18 to 24 lb (68 to 90 g/m<sup>2</sup>)

### Power Outlet Requirements

- 230 V~, 50Hz; 10 A
- 115 V~, 60Hz; 20 A

### Paper Bin Capacity

- 160 sheets (80 g/m<sup>2</sup>) approximately
- 130 sheets (80 g/m<sup>2</sup>) approximately with the lockable bin