October 4, 2022

OPEX®

Mail Matrix
Operator Manual

Document Revision 22-01

Document History

Doc Rev	Date	Changes
14-01	Jan. 2014	The Mail Matrix Operator Manual was completely restructured for better viewing on a tablet-style reader.
16-01	Apr. 13, 2016	Page 2 - Added new Document History table, and document revision number on title page.
18-01	Oct. 4, 2018	• Updated to newest manual template • Page 19 - Added Japanese electrical requirements. • Page 20 - Added current transceiver board and iBOT control board numbers to FCC statement. • Page 21 - Updated host PC operating system (was Windows XP, now 7). • Page 41 - Clarified hazard of “canned air” sprays. • Page 52 - Noted that newer UPS units ask for confirmation on shutdown. • Page 65, 68 - Clarified proper mail orientation. • Page 89 - Reworded how to free iBOT from track. • Page 95 - Noted that OPEX Tech Support must be contacted before sending a damaged iBOT back to OPEX. • Page 97 - Noted that newer iBOTs have separate ultracapacitor boards that can be disposed of instead of the whole iBOT. • Page 120 - Fixed reference to diagram. **(Continues on next page)**

Doc Rev	Date	Changes
18-01 (cont.)	Oct. 4, 2018	**(Continued from previous page)** • Page 156 - Added loose or damaged tracks as a possible cause for iBOT problems. • Page 171 - Added instruction to wait 10 seconds between exiting and restarting the host program. Also corrected reference to the printer's LINE button (was "ONLINE")
21-01	Apr 1, 2021	• Fixed footers throughout document • Fixed copyright dates • Updated OPEX logo on cover page • Page 11, 26 - Corrected maximum number of iBOTs to 26 (was listed as 36) • Page 12, 13, 24 - Clarified maximum throughput (3000 pcs/hr sustained, 3600 burst) • Page 21 - Updated host PC operating system (was Windows 7, now Windows 10). • Added back cover
22-01	Oct 4, 2022	• Page 44 - Added machine labels section

If you find errors, inaccuracies, or any other issues or concerns with this document, please contact the OPEX Technical Writers via email at: GroupDMATechwriters@opex.com

OPEX part no. 5062500 (US)

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1 Introduction

Mail Matrix

Operator Manual

WARNING: Read Chapter 2: “Safety” before attempting to operate this equipment.

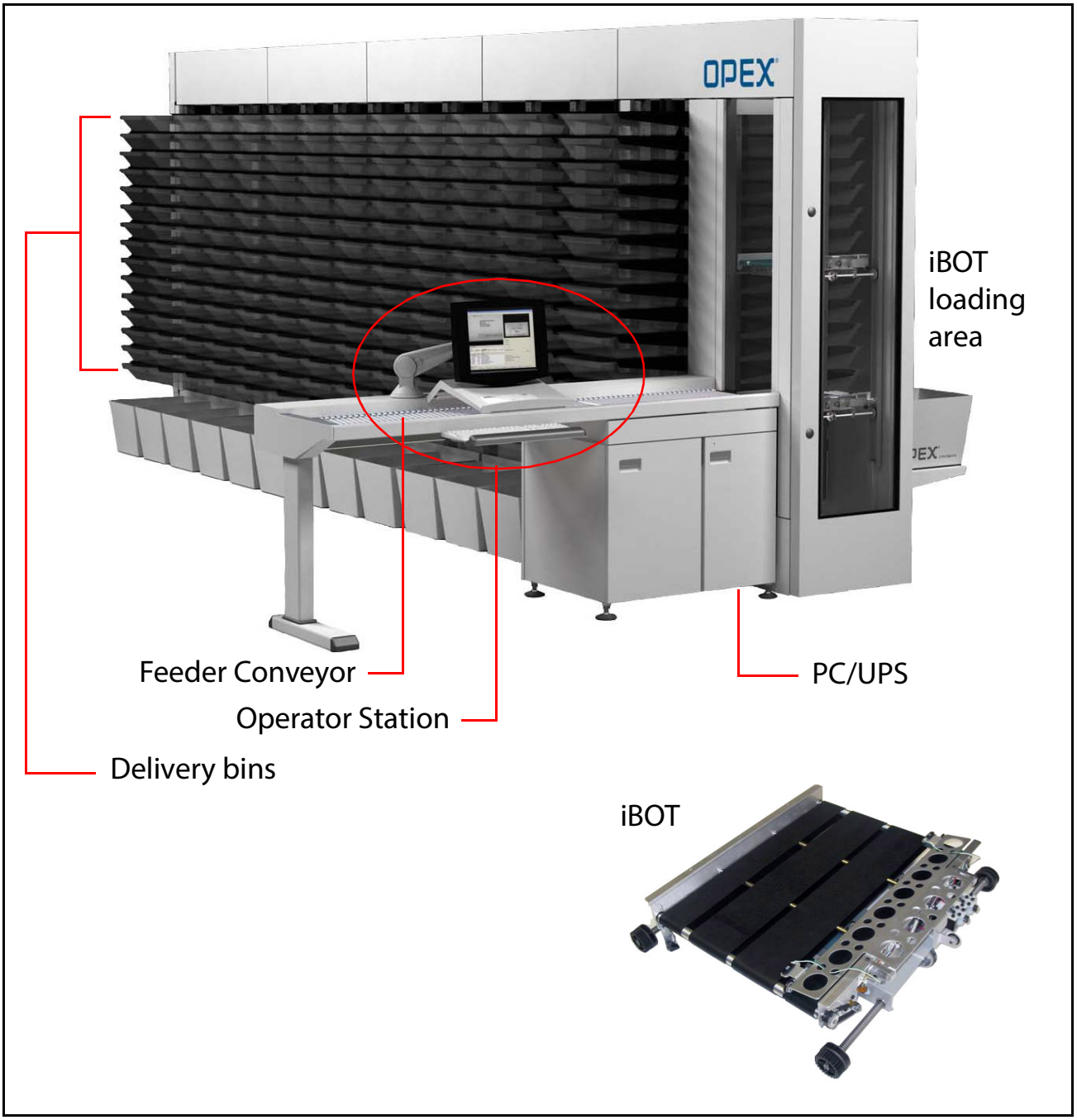

Figure 1: Key areas of the Mail Matrix

The OPEX Mail Matrix® is a mixed-mail sorting system that streamlines the sorting process. The Mail Matrix system can process up to 25,000 pieces per shift, into as many as 1,020 destinations, and can easily sort the widest range of media and address formats ever - from letters, flats, magazines and newspapers to small parcels and interoffice mail - all in a single pass.

Unlike traditional inline machines which use pulleys, belts, and conveyors for transporting the mail piece to its destination, Mail Matrix uses iBOTs® (intelligent robotic wireless vehicles). Delivery bins are installed on both sides of the stacker section, reducing the amount of space required.

Mail Matrix can be configured for three different modes depending on the desired throughput and options purchased. These modes are manual feed without image - Key from Paper (KFP), manual feed with Key from Image (KFI), and fully automated with Key from Image (KFI). Fully automated mode incorporates an optional auto-feeder and imaging. An optional printer-labeler unit is also available. Depending on the desired throughput, up to 26 iBOTs can be installed on a machine.

Mail Matrix features include:

- Scalable feed rate: 600–3000 pieces/hour (1 piece/second) maintained, and up to 3600 burst rate.
- Expandable delivery bins (30–1020) and iBOT configurations for growth
- Capable of sorting mail into compact front and rear delivery bins
- Unmatched mixed media handling and single pass sorting
- User-friendly Microsoft Windows interface that allows the operator to independently set up sorting jobs as well as modify, update, and maintain a database
- Wide range of options for sorting by name, department, P.O. Box, building, division, mail stop, and more
- Ability to import organizational databases in various formats into the job setup and execute sorting rules
- Easily sorts mail into delivery bins that simplify removal by mailroom sweepers
- Low maintenance
- Operable in such working environments as warehouses and lockbox operations

Specifications

Performance specifications

Maximum throughput	3000 pieces/hour maintained, 3600 burst rate (1 piece/second)

Physical specifications

Length	60 inches (add 44.5 inches for each 90-bin expansion module)
Width	143 inches
Height	88 inches
Weight	• Fully assembled 2-stacker system: approx. 3770 pounds • Fully assembled 4-stacker system: approx. 4720 pounds
Footprint	Up to 130 square feet of floor space. See "Equipment Layout and Required Floor Space" on page 15.
Electrical	See "Electrical Requirements" on page 17.

Envelope/Document size

Mixed media	Letters, flats, magazines, newspapers
Length	5.0–15 inches
Width	3–12 inches
Maximum weight per piece	32 ounces
Thickness	0.007–1.0 inch

Environmental specifications

Agency approvals	UL, CE
Sound level	77 dB Maximum
Temperature	50° to 90° F
Humidity	5% to 95% RH
Air Conditioning Requirements	22,000 BTUs/hour (less than two tons) of air conditioning for cooling purposes.

Equipment Layout and Required Floor Space

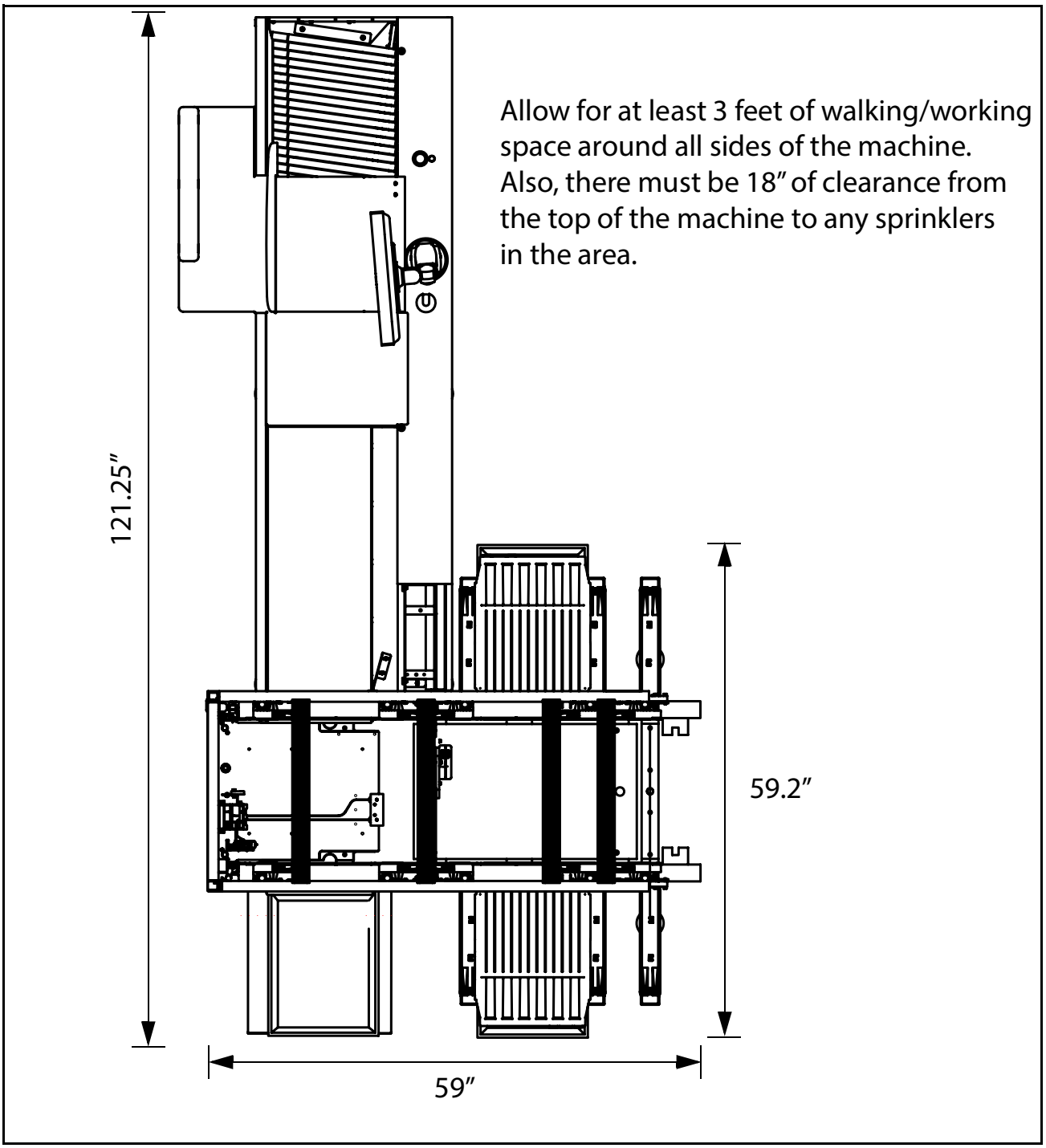

Figure 2: Base system footprint

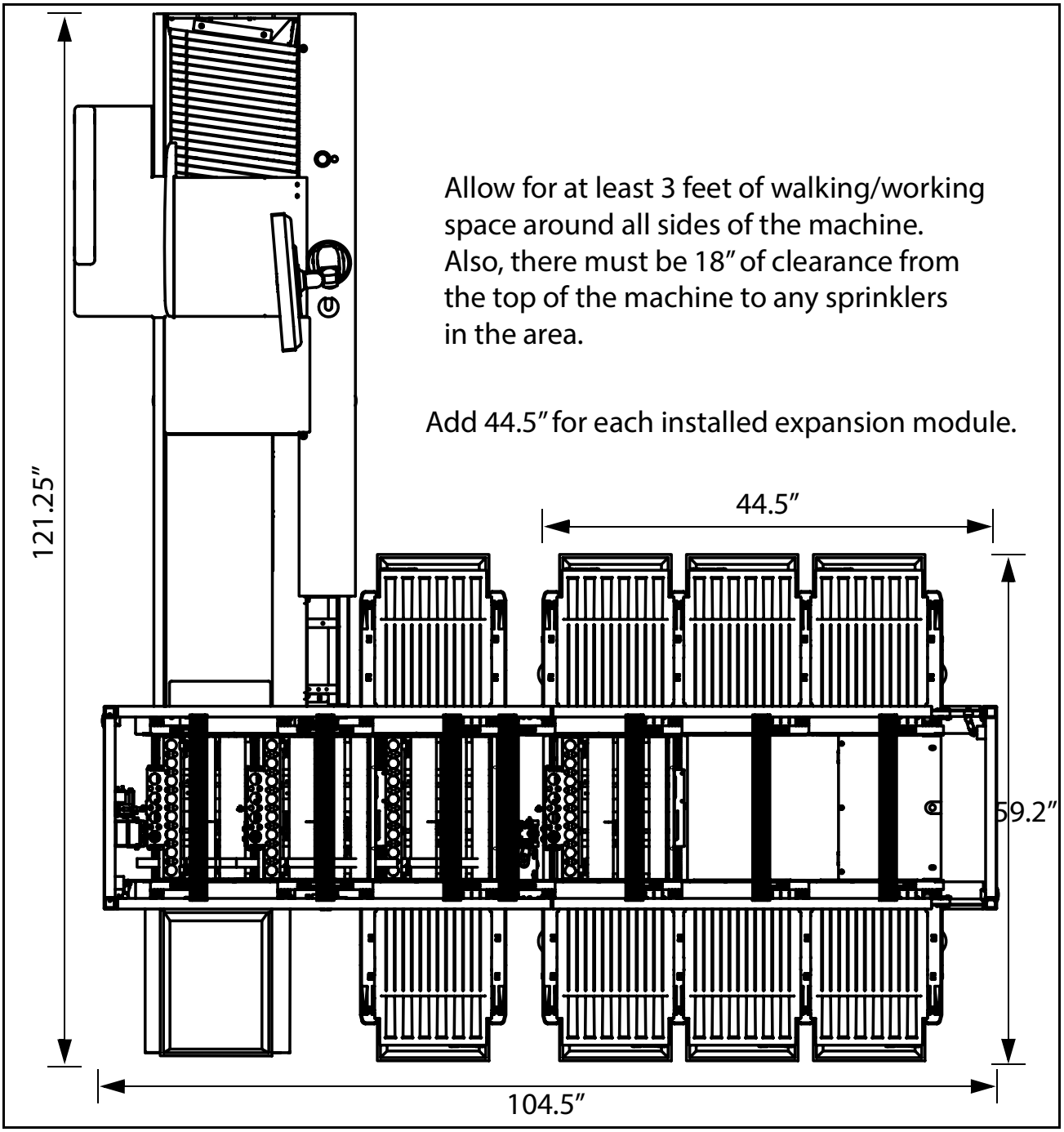

Figure 3: Expansion module installed

Electrical Requirements

North America

North American Mail Matrix units require an AC line voltage of 120/208 VAC, 24 Amp, 60Hz (2 Lines + Neutral + Ground to Earth) using a NEMA rated L14-30 locking receptacle (Hubbell HBL2713 or equivalent).

Line to Line voltage = 208VAC +6%/-10%
Line to Neutral voltage = 120VAC +6%/-10%

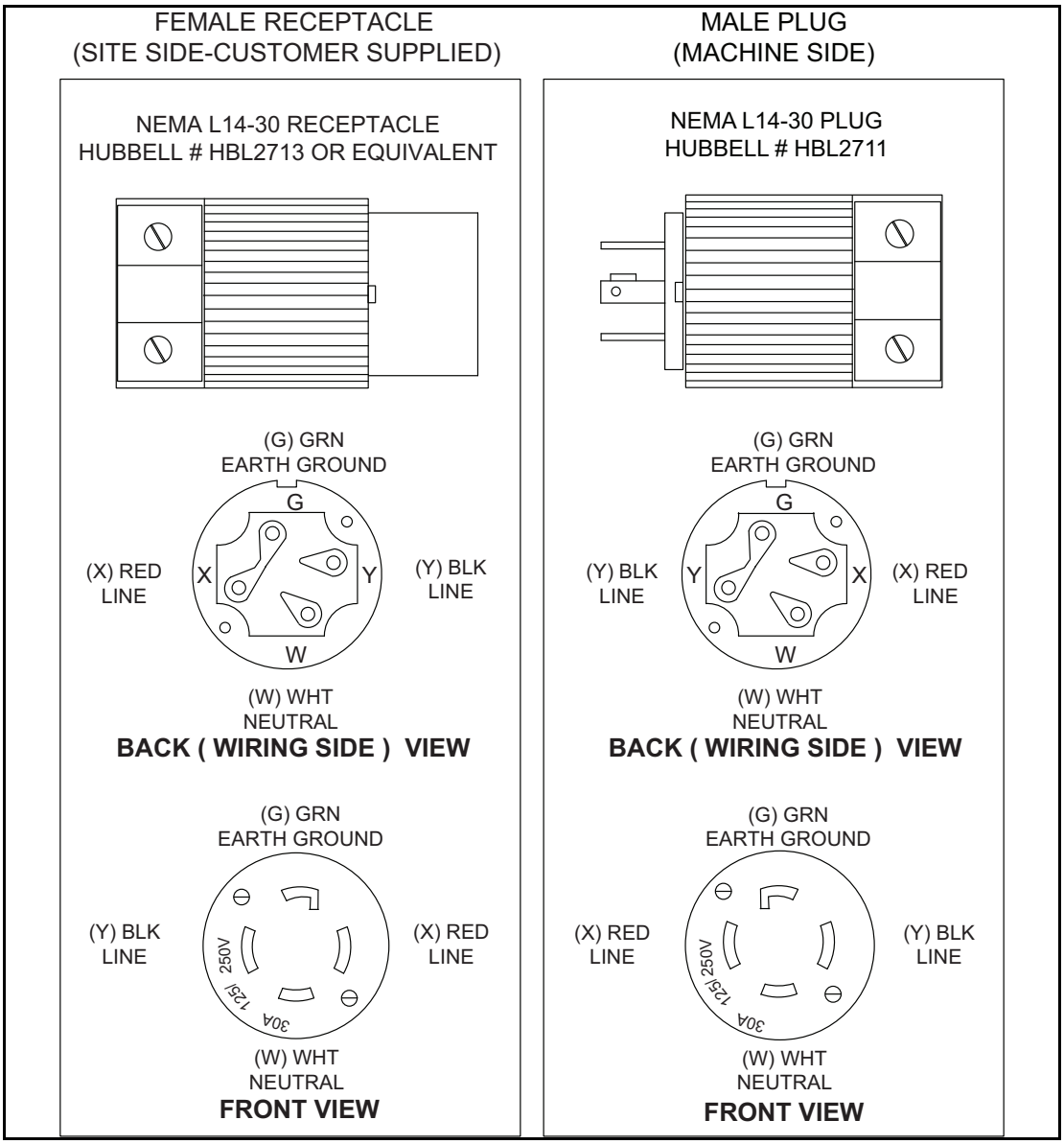

Figure 4: North American AC connection

Europe

European Mail Matrix units require an AC line voltage of 230 VAC, 1-phase, 25 Amp, 50 Hz (Line + Neutral + Earth Ground).

Line to Neutral voltage = 230VAC +10%/-10%

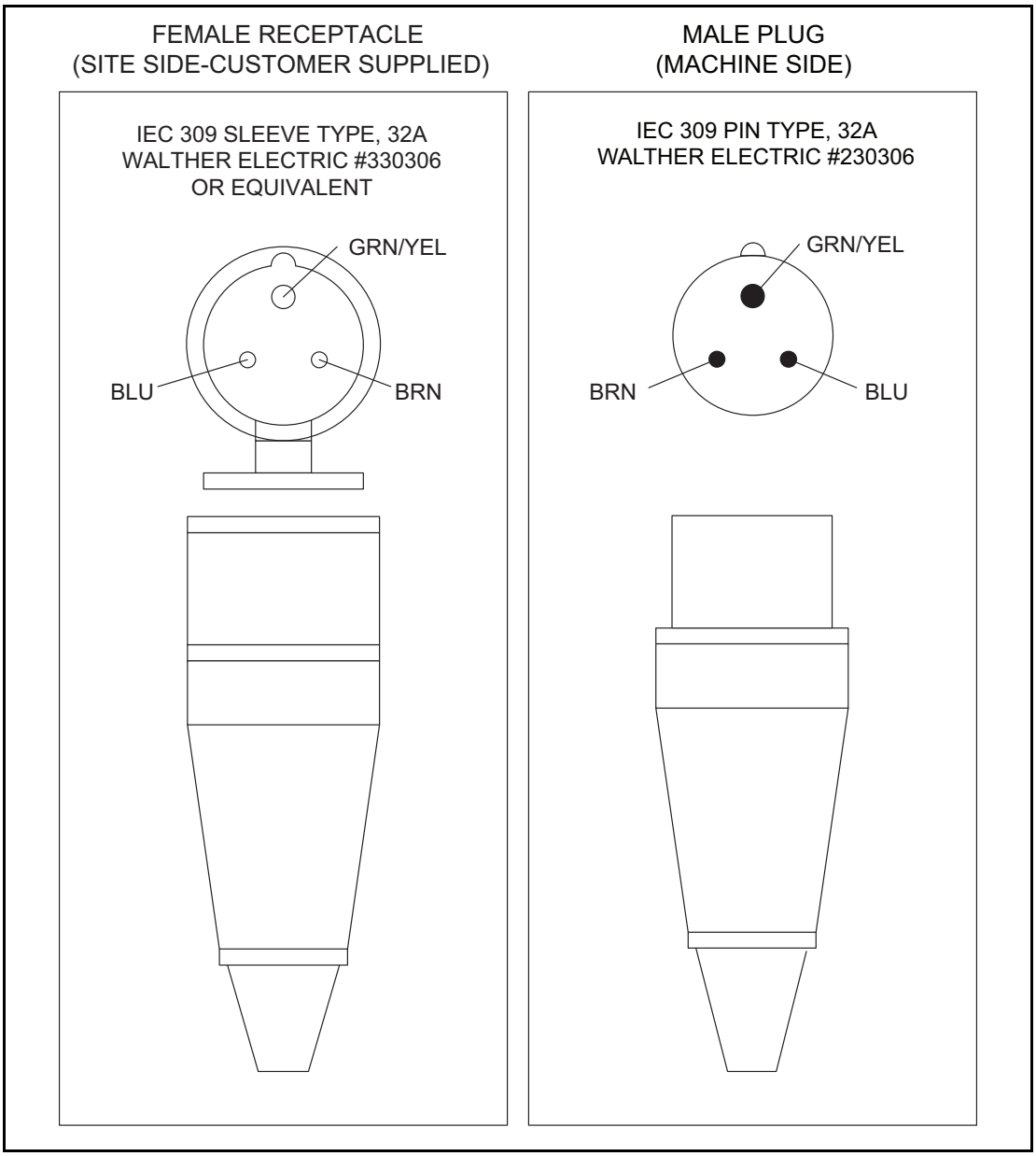

Figure 5: European AC connection

Japan

Japanese Mail Matrix units require an AC line voltage of 230 VAC, 12 Amp, 50Hz (2 Lines + Ground to Earth) using a NEMA rated L6-30P locking receptacle Hubbell HBL2621 or equivalent.

Line to Line voltage = 230VAC +10%/-10%

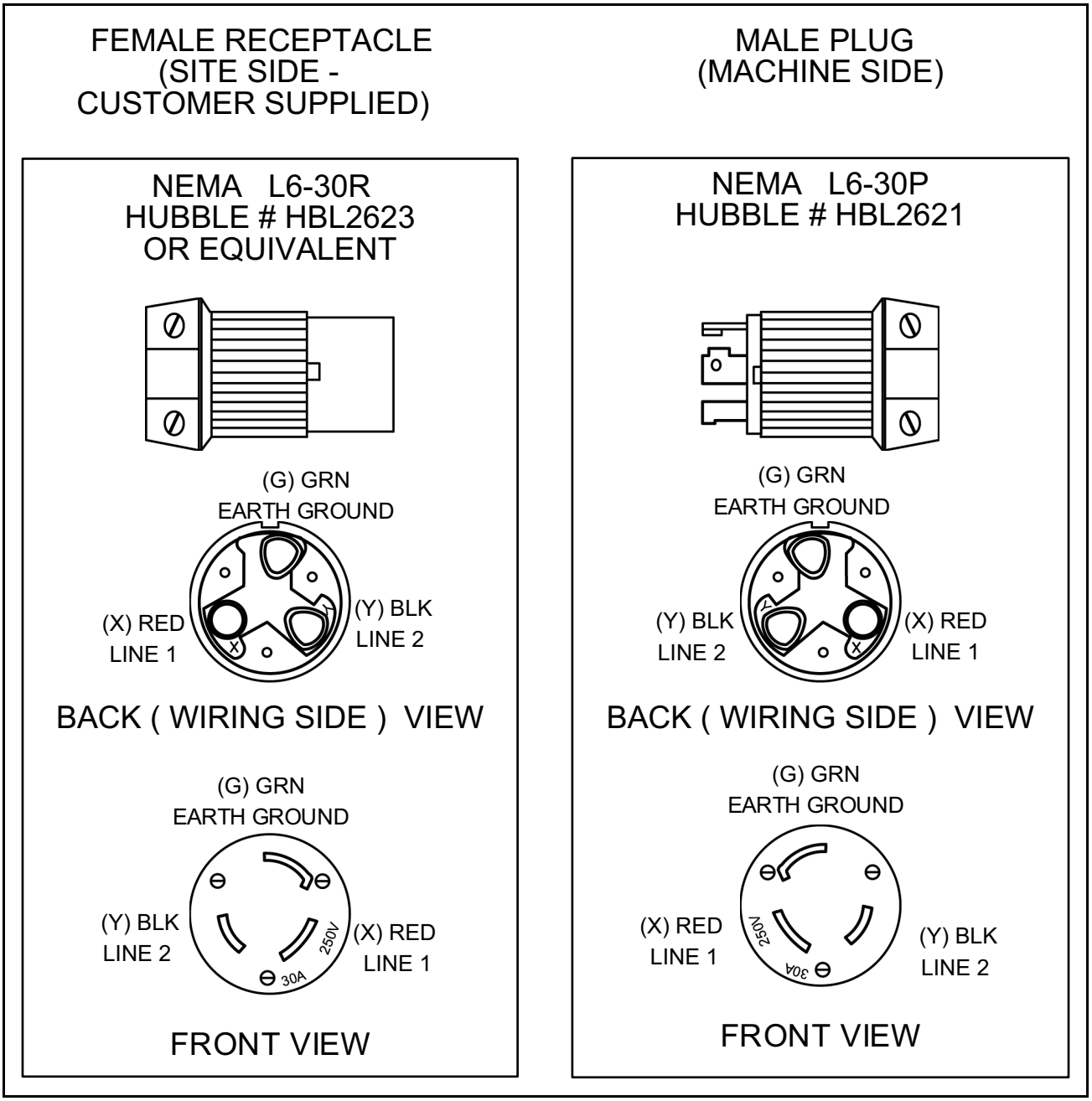

Figure 6: Japanese AC Connection

FCC / Industry Canada Statement

The Mail Matrix system incorporates wireless devices:

Transceiver, 2054710 & 2033210

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

iBOT, 2032610 & 2043210

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Any changes/modifications to the wireless devices not approved by OPEX Corporation could void the user's authority to operate the system.

Options and Configurations

The Mail Matrix base system includes:

- Key from Paper (KFP) Module with one integrated key-and-drop station
- OPEX DRS (Directory Retrieval System)
- 30 delivery bins
- 3 iBOTs
- 2 large mail tubs
- Host PC with Microsoft Windows® 10

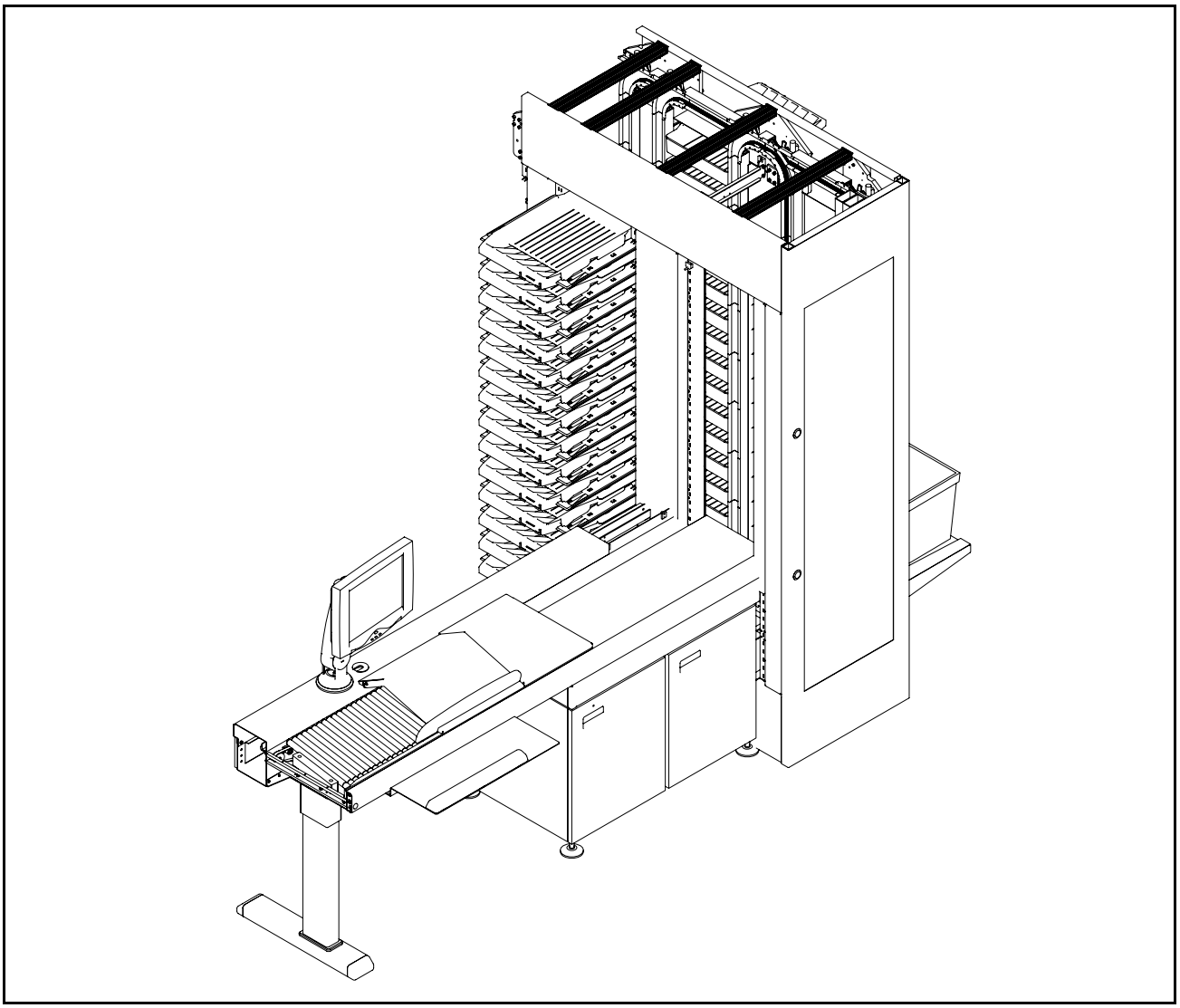

Figure 7: Mail Matrix base system

Optional enhancements include:

Delivery-bin expansion modules Up to 11 additional expansion modules (90 bins each) can be installed to increase the bin capacity to 1020 bins.

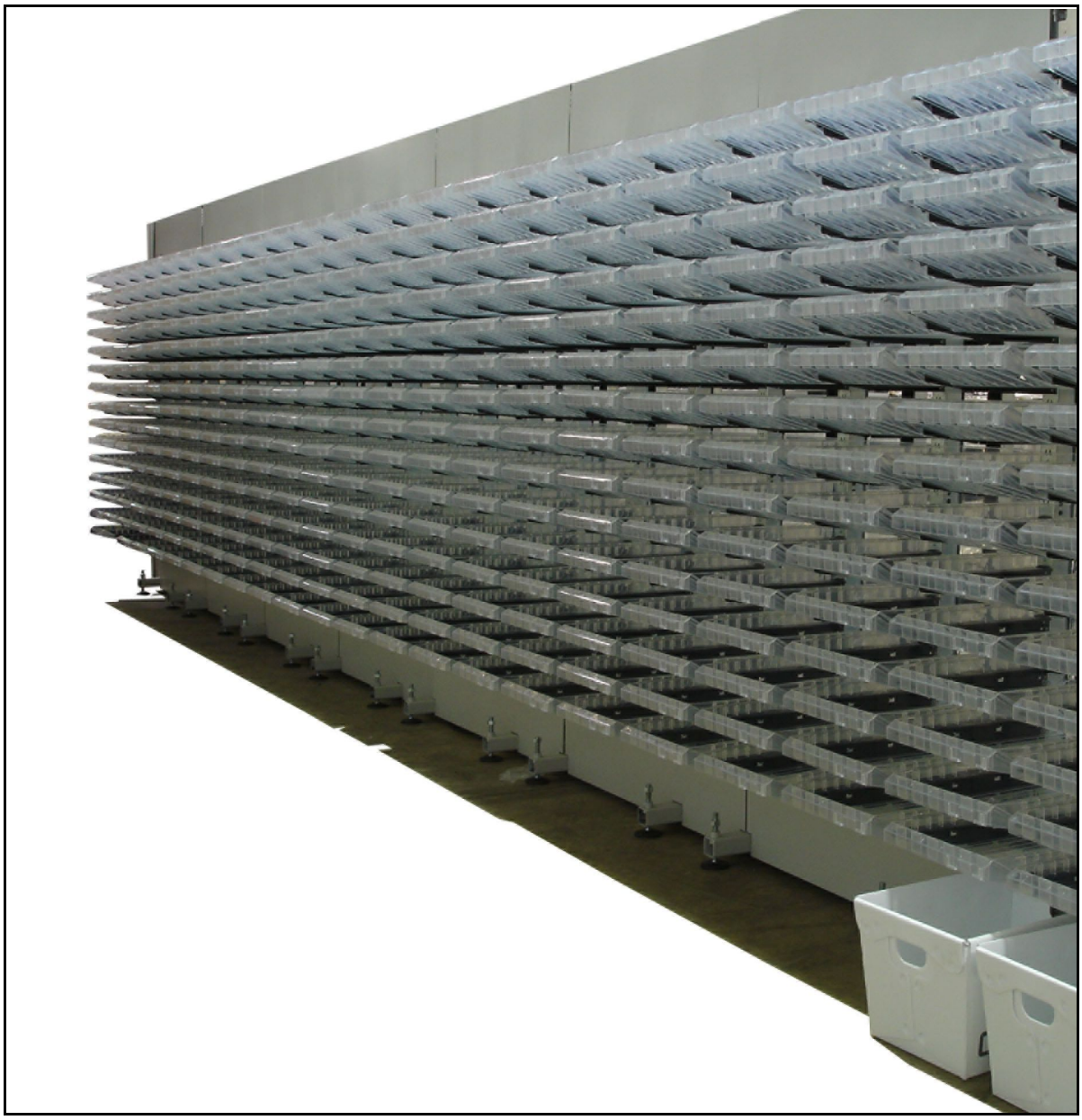

Figure 8: Expansion modules

Image capture/MLOCR (Multi-Line Optical Character Recognition) The image capture/MLOCR option captures images of individual mail pieces and automatically determines bin destination.

This enhancement is made up of a camera and light arrangement to capture the image of the piece, as well as the MLOCR software, which can interpret the images from the camera and send the necessary addressee information along to the DRS for bin assignment. The image capture/MLOCR option eliminates the need for the operator to identify the recipient and enter the information for each piece manually.

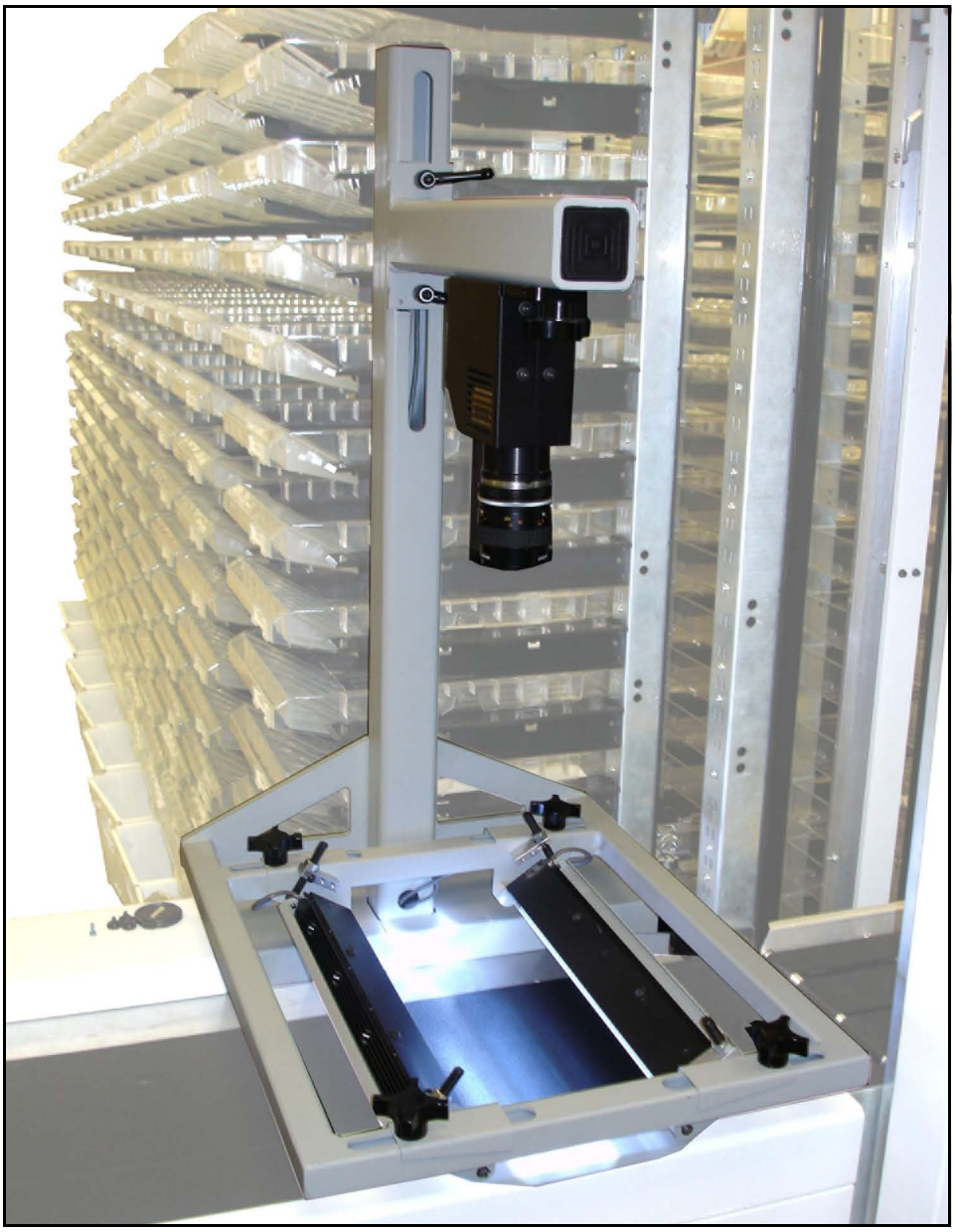

Figure 9: Image Capture / MLOCR option

Auto-Feeder An installed auto-feeder provides automated mail feed to the conveyor. The auto-feeder, along with additional iBOTs and image capture/ MLOCR, can increase the throughput to as much as 3000 pieces per hour. (MLOCR required).

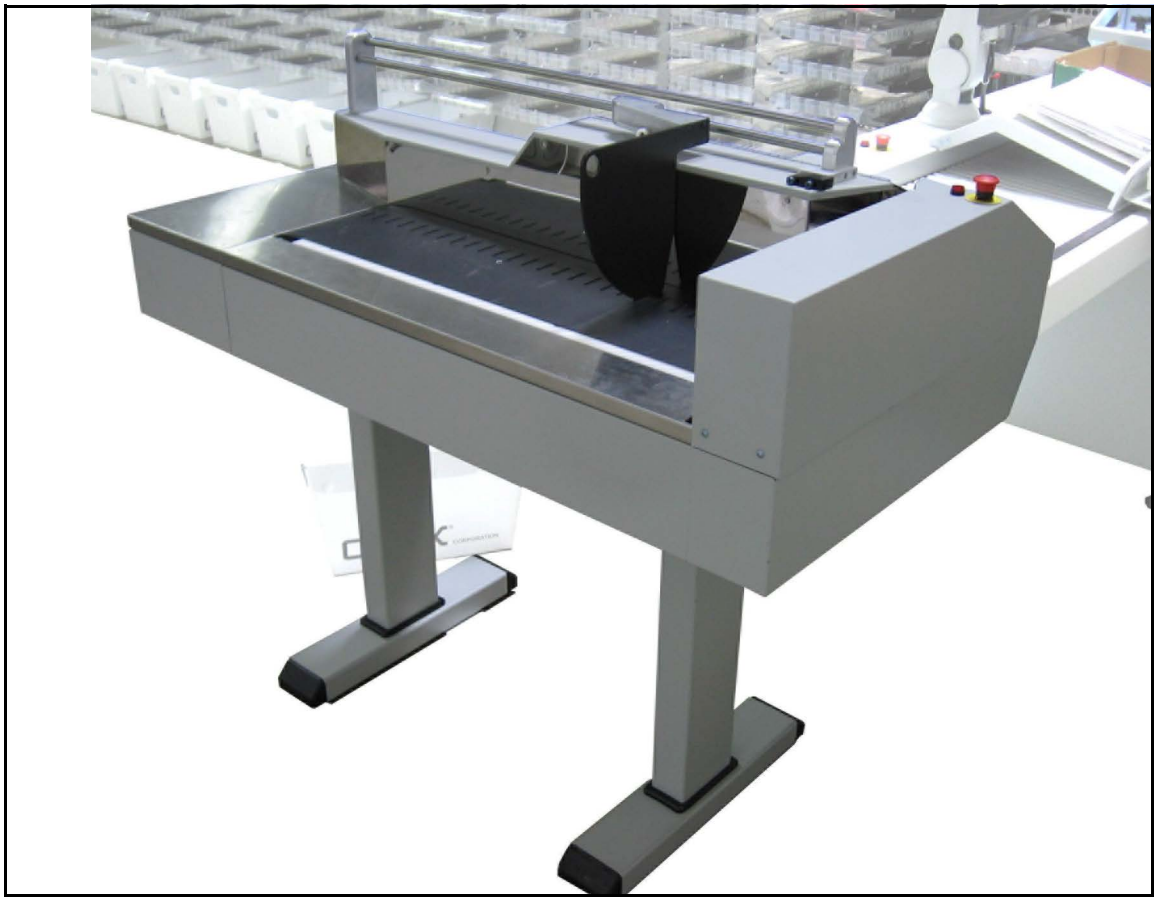

Figure 10: Auto-Feeder

Key From Image (KFI) Module In addition to the primary keying station, additional keying stations can be used in conjunction with the image capture/MLOCR option. These KFI (Key from Image) modules allow additional operators to identify pieces that could not be identified by the MLOCR and DRS.

Figure 11: Key From Image (KFI) Module

Additional iBOTs The Mail Matrix can support a total of 26 iBOTs.

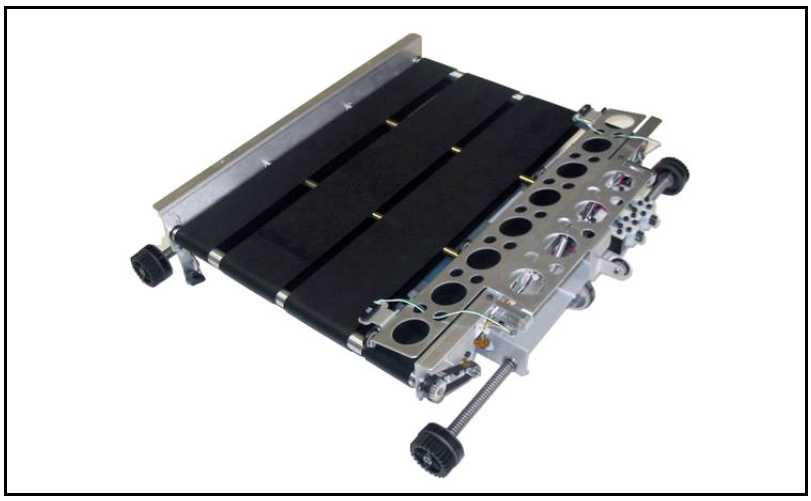

Figure 12: An iBOT

Printer-Labeler A printer-labeler can print adhesive-backed labels and apply them to passing mail pieces. (For more information, see Chapter 5: "Optional Printer-Labeler.)

Figure 13: Printer-Labeler

Mail Cart(s) Mail carts are available to aid in the process of sweeping the bins.

The Mail Matrix system uses three software applications to control and run the system: the Host software, the OPEX Directory Retrieval System (DRS), and the Keying Station application. The Host software and DRS are always on the Host PC; the Keying Station software is found on the Host PC and on any installed KFI modules.

Mail is entered into the system by either the operator or an installed auto-feeder, which can automatically place mail onto the conveyor. The operator can either look at each piece and use a Keying Station DRS to identify the intended recipient, or an installed camera can take an image of each piece and the Mail Matrix can use software to sort it.

Host software

The Mail Matrix Host software provides the operator's main interface with the system's controls. Use the Host software to select and run jobs, remove/insert iBots, and view statistical reports on the machine.

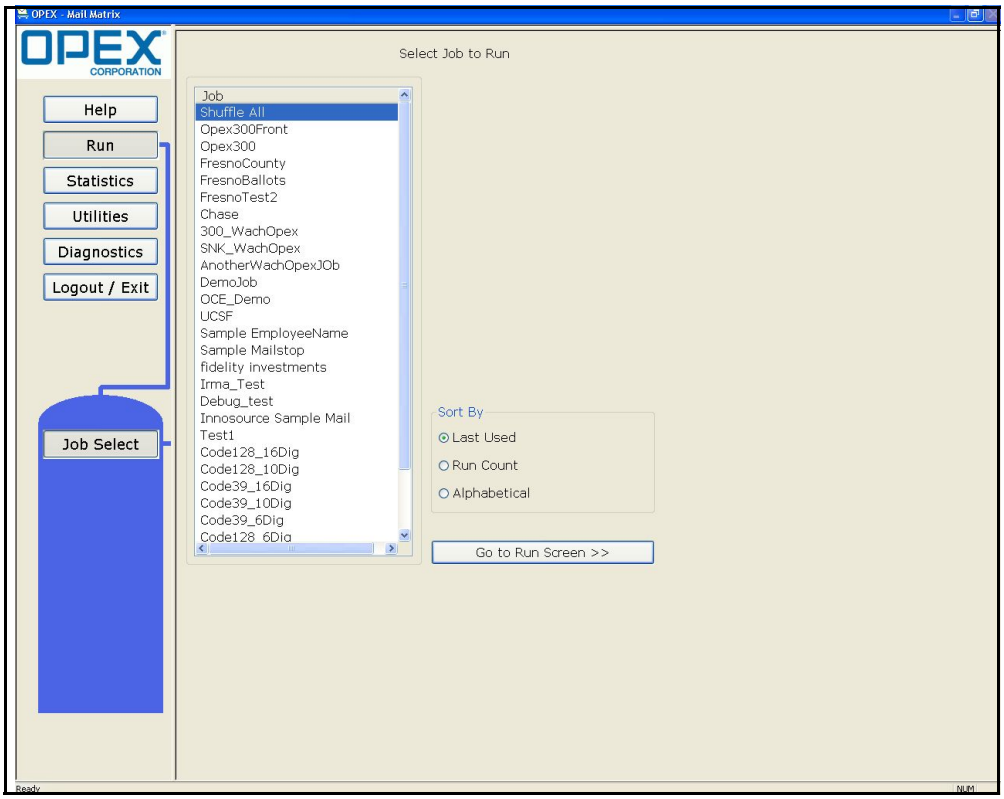

Figure 14: Host Software

Directory Retrieval System (DRS)

The OPEX Directory Retrieval System (DRS) references a database containing recipient names and bin assignments. The DRS attempts to find a matching recipient for each piece identified by an installed image capture/ MLOCR system (or keyed in by the operator), then assigns the mail to the bin specified for that recipient.

Keying Station

Use the Keying Station application to enter the names of mail recipients. After the recipient has been identified by the Keying Station, drop the piece onto the conveyor which will carry the piece to an available iBOT. This is referred to as the Key From Paper (KFP) procedure.

The Keying Station software is found on the Host PC (at the operator station), as well as any installed KFI (Key From Image) modules, where remote operators can identify recipients for pieces that the MLOCR software was not able to identify.

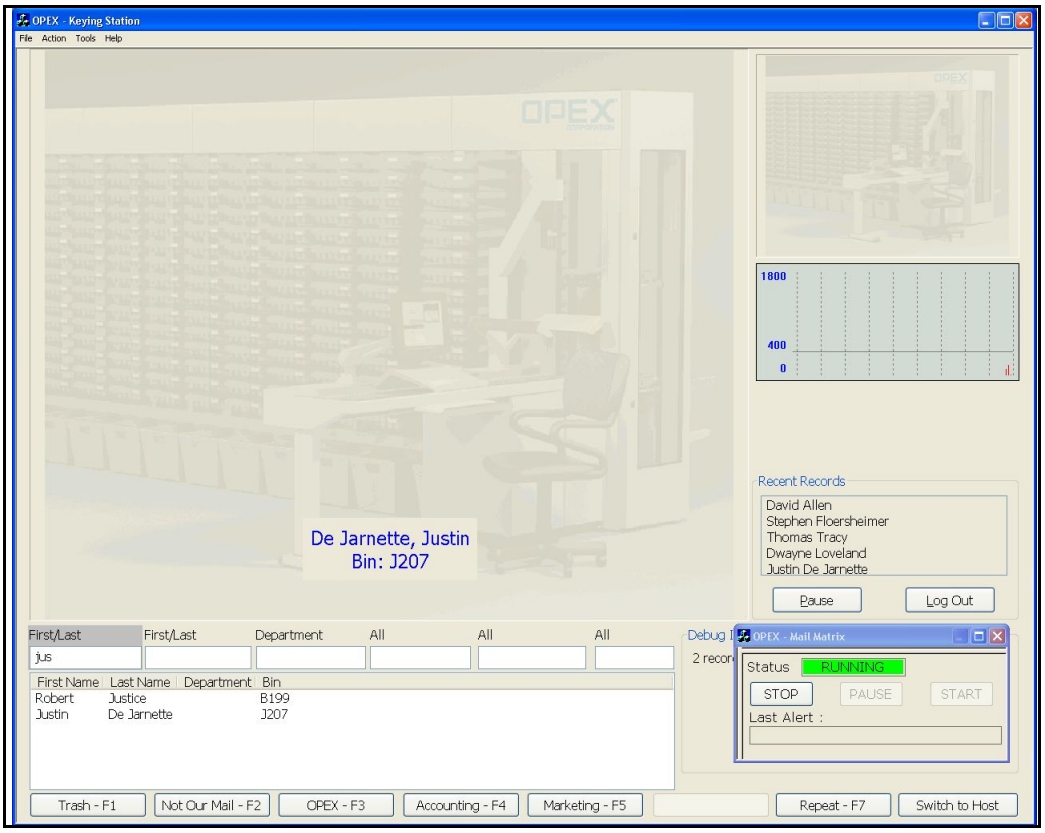

Figure 15: Keying Station Software

Workflow

The Mail Matrix workflow depends greatly on the options you have installed on your machine. The following pages describe the step-by-step methods the Mail Matrix system uses to properly sort your mail.

The first section below provides an overview of what takes place in the basic, “barebones” configuration of the Mail Matrix system, and is followed by the workflows of a fully-configured Mail Matrix.

Note: *These workflows are intended to give you a better understanding of how the machine works. The operator’s role is described in more detail in* Chapter 3: “Operation.

Basic configuration

The basic Mail Matrix system functions as shown in Figure 16 and described in the following pages:

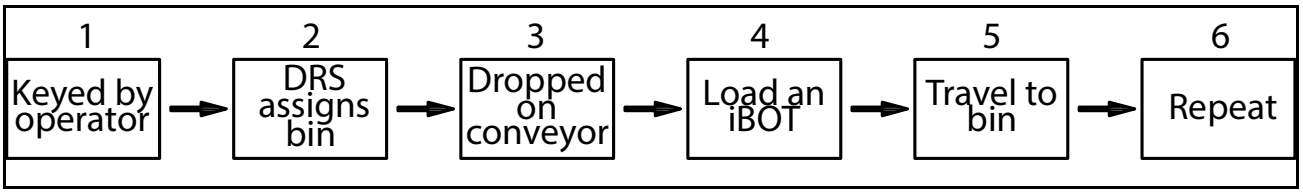

Figure 16: Mail Matrix workflow (basic configuration)

1. At the operator station, the operator uses the Keying Station application to identify the recipient of a piece.

Figure 17: Operator at keying station

2. The OPEX Directory Retrieval System (DRS) determines a bin assignment for the piece, and the software notifies the iBOT of the delivery bin.
3. The operator drops the piece onto the conveyor

4. The conveyor carries the piece to the awaiting iBOT.

Figure 18: Mail loaded onto iBOT

5. The iBOT carries the piece to its destination, releases the piece to the bin, and heads back to the loading column.

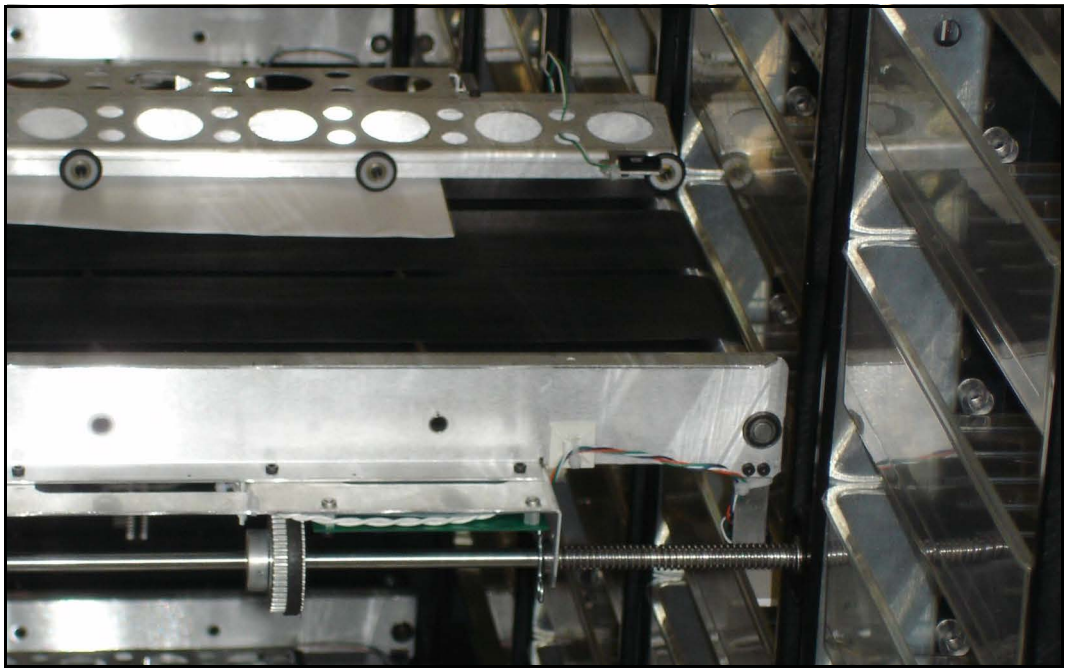

Figure 19: iBOT delivering to a bin

6. The operator keys in the name of the next recipient, and the process repeats.

   Note: *Keep in mind that the operator does not have to wait until the iBOT returns to drop the next piece. The operator can continue to drop documents as fast as he/she can key them, assuming there are enough iBOTs to deliver the mail.*

Fully-configured machine

The Mail Matrix workflow changes according to the options installed. Figure 20 shows the possible workflows of a machine with an auto-feeder and image capture/MLOCR options installed.

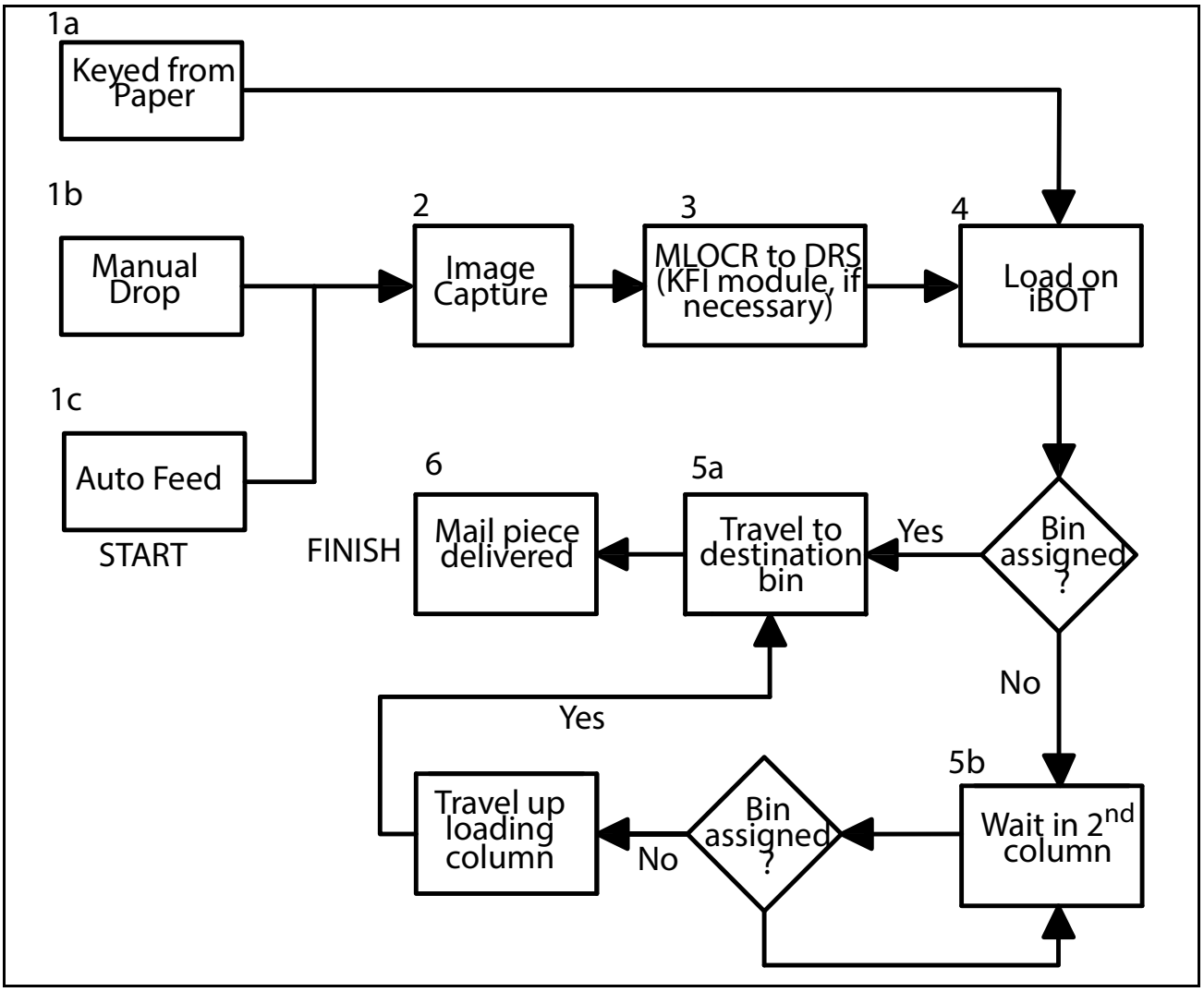

Figure 20: Mail Matrix workflow (auto-feeder and image capture/MLOCR installed)

1. At a fully-configured machine, a piece of mail can enter the system in one of three ways:
   a. The operator can look at the piece and enter its recipient into the Keying Station software at the operator station. This is the simplest way to input the piece. After keying the recipient, the operator will manually place the

piece on the conveyor. The DRS will assign the bin, and the piece will travel to an awaiting iBOT (skip to step 4).

b. The operator can simply drop the piece on the conveyor and let the MLOCR and DRS software determine the recipient and the bin assignment. This method can only be used on machines that have the image capture/MLOCR option installed.

c. An installed auto-feeder can automatically feed stacks of mail onto the conveyor.

2. Pieces that entered the system without being identified by the operator will have their picture taken by the camera.

3. The image of the piece captured in step 2 is analyzed by the MLOCR software, which reports the characters it found to the DRS software. If the MLOCR and DRS cannot determine a match, the image is sent to an available Keying Station for operator identification.

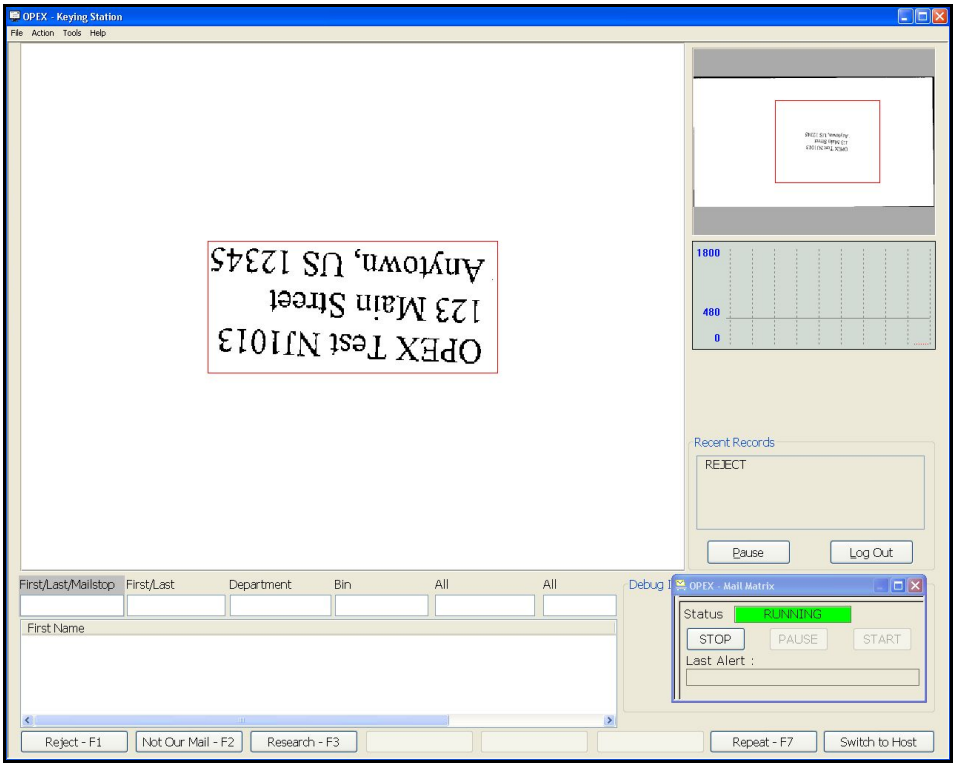

Figure 21: Keying Station Software

4. The conveyor carries the piece to the awaiting iBOT.

5. The next step depends on whether or not the DRS has assigned a bin for the piece on the iBOT:

a. If a bin has been assigned for the mail piece, the iBOT will exit the loading column and deliver the piece to the assigned bin.

b. If a bin has not been assigned, the iBOT will wait in the first delivery column for its bin assignment. Once the destination has been assigned, the iBOT will deliver the piece.

- When an iBOT is at the top of the loading column waiting to be keyed and two iBOTs accumulate below with destinations, the iBOT will exit the loading column then re-enter from below (recirculate).
- When two iBOTs are at the top of the loading column waiting to be keyed and three iBOTs accumulate below with destinations, the iBOTs will recirculate.

Note: *If the iBOT does not receive a bin assignment, the piece will be sent to the reject bin/tub when the job is stopped.*

6. The iBOT carries the piece to the delivery bin, releases the piece to the bin, and heads back to the loading column.

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2 Safety

Introduction

The information provided in this chapter is intended to educate the user on various safety issues regarding the installation, operation, service, and maintenance of the OPEX equipment described in this manual.

The following sections provide an explanation of the safety conventions used throughout this manual, as well as safety guidelines to be observed when working with this equipment.

WARNING: Read this chapter thoroughly before working with this equipment.

Safety conventions used in this manual

Specific safety information is listed throughout this manual in the form of “DANGER,” “WARNING,” and “CAUTION” statements. Pay close attention to these statements, as they contain important information on avoiding potential hazards to yourself or to the equipment. An explanation of these statements is provided below.

Danger

Danger statements:

- are used to indicate immediate hazards that WILL result in severe personal injury or death
- appear in **bold** type
- have a triangular symbol with an exclamation point to the immediate left
- are preceded by the word “DANGER”
- are always found before the step or piece of information to which they refer

See Figure 22 for an example of how “DANGER” statements are displayed in this manual.

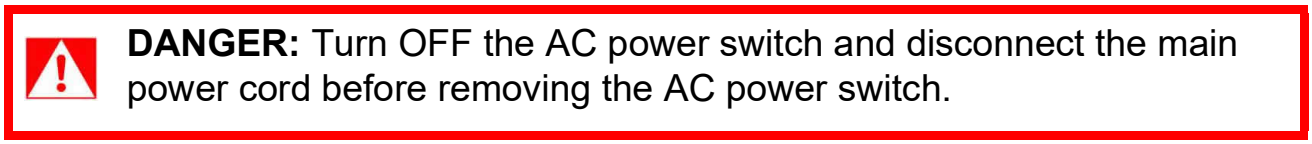

Figure 22: “Danger” example

Warning

Warning statements:

- are used to indicate hazards or unsafe practices that COULD result in severe personal injury or death

- appear in **bold** type
- have a triangular symbol with an exclamation point to the immediate left
- are preceded by the word “WARNING”
- are always found before the step or piece of information to which they refer

See Figure 23 for an example of a Warning statement.

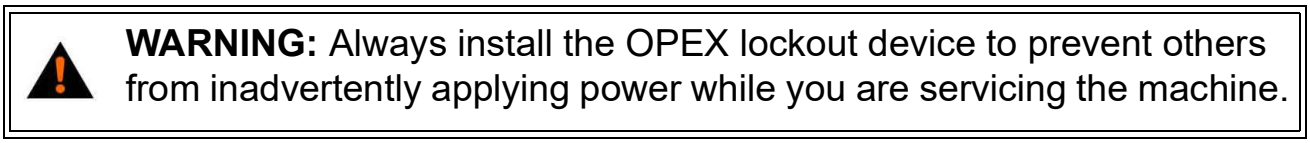

Figure 23: “Warning” example

Caution

Caution statements:

- are used to indicate hazards or unsafe practices that COULD result in minor personal injury or damage to equipment or property
- appear in **bold** type
- have a triangular symbol with an exclamation point to the immediate left
- are preceded by the word “CAUTION”
- are always found before the step or piece of information to which they refer

See Figure 24 for an example of a Caution statement.

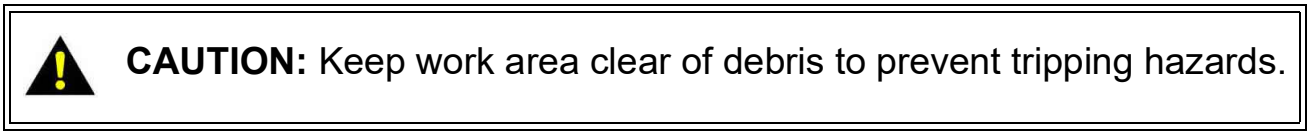

Figure 24: “Caution” example

Equipment safety precautions

CAUTION: Follow these safety precautions whenever installing, operating, servicing, or maintaining the equipment described in this manual.

Charging rail. Hands should be kept clear of the charging rails when the doors are closed. Shorting of the charging rails with either a watch or ring may result in electrical shock.

Be careful when removing/replacing iBOTs. In order to increase the iBOTs payload capacity, the iBOT was designed to be as light as possible. As a consequence the iBOTs are not indestructible. Care should be taken when removing or installing the iBOTs.

Do not remove the plastic, protective covers from the bottom of the iBOTs. These covers protect the iBOTs ultracapacitors and circuitry from damage. The covers also protect the operator from harm if the ultracapacitors should leak. For information on ultracapacitor safety, refer to "Ultracapacitor product information" on page 43.

Keep loose objects away from any exposed, moving parts of the machine. The moving parts of the Mail Matrix, such as the conveyor, can become jammed and/or damaged by foreign objects. Keep hands, hair, loose clothing and jewelry away from the moving parts.

Do not attempt to clean the machine while it is running. A cloth (or similar material) should never be used to clean moving parts such as belts or rollers. The use of such material on moving mechanisms can result in damage to the machine or severe personal injury. If a belt, roller, gate or similar part needs to be cleaned, hand-crank the part during cleaning or clean it while stationary.

Do not use flammable, high pressure, "canned air" to clean paper scraps and dust from the machine. Air duster spray cans contain flammable chemicals, making them unsafe to use around powered equipment and other sources of ignition.

Familiarize yourself with the location of machine Emergency Stop switches. The E-stop is installed on the input conveyor. An E-stop is also installed on the optional auto feeder. E-Stop switches enable a quick stop of all motors in the machine in the event of an emergency involving potential personnel injury. Refer to "Emergency stop buttons (E-stops)" on page 45.

Ultracapacitor product information

Product Information Sheet

An MSDS is not required. This information sheet is provided as a service to our customers. An MSDS for the active chemical inside the listed products is available upon request. **For US Customers:** The products referenced herein are exempt articles and are not subject to the OSHA Hazard Communications Standard Requirement 29 CFR 1910.1200. **For EU Customers:** The products referenced herein are not submitted to 91-155 EEC, as they are considered as components and not as a chemical substance. **Notice**: The information and recommendations herein contained are made in good faith and are believed to be accurate at the date of preparation. Maxwell Technologies Inc. makes no warranty expressed or implied.

Product Information

Manufacturer
Maxwell Technologies Inc.
9244 Balboa Avenue San Diego, CA 92123
Phone: 858-503-3300
Fax: 858-503-3333

Product: Ultracapacitors

Models: All configurations and versions of PC5, PC10, PC5-5, BCAP0005 and BCAP0010

Date: June 19, 2009

EMERGENCY PHONE:
North America
Chemtrec Hazmat Communication Center 1 800 424 9300
+ 1 703 527 3887
Europe
Swiss Toxicological Information Centre +41 (0)44 251 5151

Asia
Chemtrec Hazmat Communication Center 1 800 424 9300
+ 1 703 527 3887

Product Components

Important Safety Note: Ultracapacitors should not be opened, disassembled, crushed, burned, or exposed to high temperatures (>85°C, 185°F), and should be operated only within their defined operating specifications. Failure to adhere to operating specifications could result in poor device performance or unsafe operating conditions. Exposure to the components contained within the ultracapacitor could be harmful under certain circumstances. In case of exposure to ultracapacitor contents, wash affected area for at least 15 minutes with generous amounts of water and seek medical attention. Fires involving these types of ultracapacitors should be extinguished with CO2, dry chemical, alcohol foam, or all purpose AFFF extinguishing media. Water may be ineffective but should be used to cool fire-exposed containers, structures and to protect personnel.

BOOSTCAP® ultracapacitors are composed of the following major components:

Electrodes:	Activated Carbon
Separator:	Polypropylene or Cellulose
Electrolyte:	Quaternary salt (tetraethylammonium tetraflouroborate)
	Organic solvent (acetonitrile)
Other:	Aluminum, steel

Disposal

BOOSTCAP ultracapacitors are neither specifically listed nor exempted from government hazardous waste regulations. The only material of possible concern is the organic solvent, which when discarded or disposed of, is a hazardous waste according to Federal regulations (40 CFR 261). It is listed as Hazardous Waste Number U003, so listed due to its toxicity and ignitability. Disposal can occur only in properly permitted facilities. Check state and local regulations for any additional requirements, as these may be more restrictive than federal laws and regulations.

Transportation

Ultracapacitors as articles are not specifically listed nor exempted from hazardous materials regulations (HMR). The U.S. Department of Transportation has provided Maxwell Technologies a written determination regarding Maxwell s PC5 and PC10 BOOSTCAP ultracapacitor products that the materials comprising the ultracapacitors are in a quantity and form that does not pose a hazard in transportation. Therefore, the ultracapacitors are not subject to the HMR.

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Document #1004596.4

Machine Labels

Labels are used in specific locations on the Mail Matrix to alert you to certain safety hazards and provide important information about the machine.

> **WARNING:** Follow safety precautions on all labels when operating the Mail Matrix. Failure to follow these precautions may result in severe bodily injury or death, as well as damage to the machine.

Pinch Point Label

Location: On top of the optional auto feeder, near the E-stop (Figure 25).

Purpose: Warns about pinch hazards where mail is fed into the machine.

Figure 25: Pinch Point Label

Emergency stops and interlock switches

For operator safety, the Mail Matrix incorporates Emergency-stop buttons and door interlocks to stop the machine in the event of an emergency.

Emergency stop buttons (E-stops)

> **WARNING:** Emergency stop switches do not remove power from all electrical devices within the Mail Matrix. Power to the computer and other AC devices remains energized after the E-stop switch is pushed.

The big, red, mushroom-shaped Emergency-stop (E-stop) buttons can be used to stop the machine in an emergency. An E-stop is located at the operator station of the Mail Matrix. Another E-stop is located on the optional auto feeder. If necessary, push one of the E-stops and the machine will stop immediately. To restart the machine, twist the knob clockwise, clear the machine, and restart the machine from the Run screen.

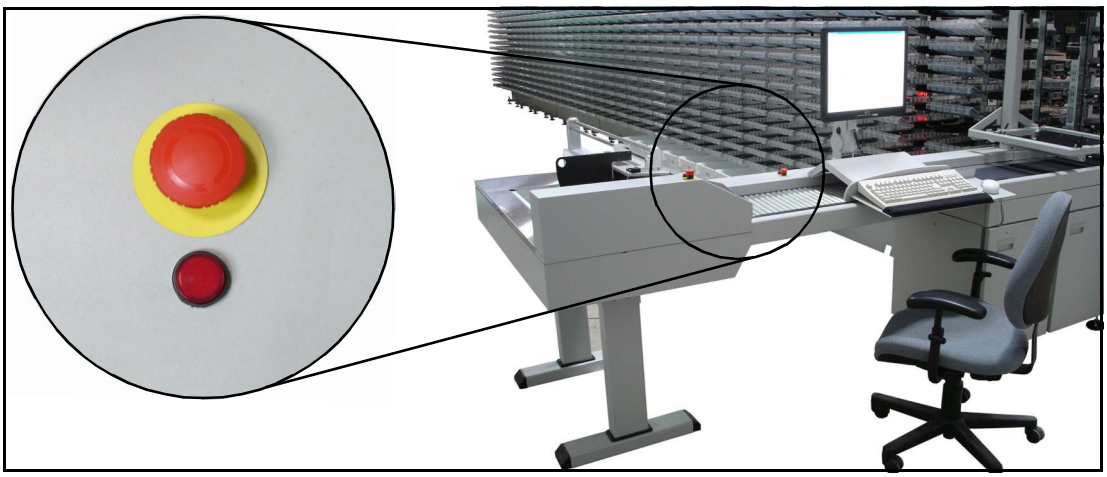

Figure 26: Emergency Stop (E-stop) button

Interlock system

WARNING: Door interlock switches do not remove power from all electrical devices within the Mail Matrix. Power to the computer and other AC devices remains energized after an interlock has been opened.

When the machine is running, the rapidly-moving iBOTs can pose a safety hazard for the operator. For your safety, interlocks have been installed on the front and rear doors of the Mail Matrix machine. The optional printer-labeler unit is also equipped with an interlock. The interlock system will stop the machine whenever a door or the printer-labeler unit is opened.

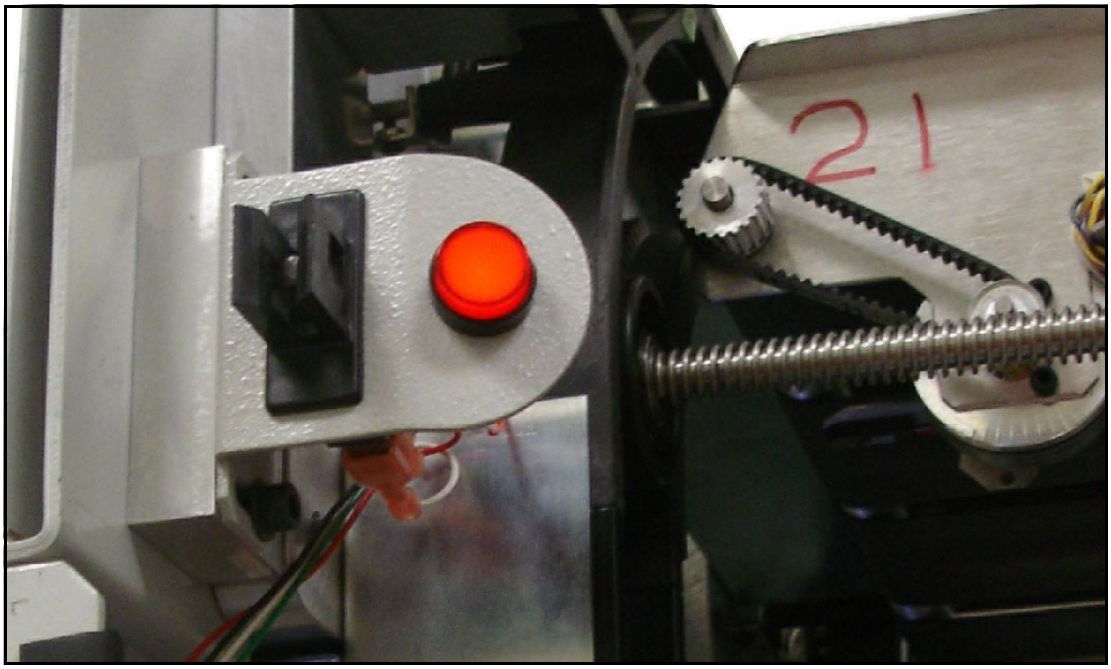

Figure 27: Door Interlock

Ergonomics

As in any occupation that requires you to perform the same motion repeatedly during the course of your work, it is important to consider how you perform your task. Listed below are some guidelines to help you minimize the risk of physical discomfort and injury while operating the equipment.

> **CAUTION:** Always observe the following guidelines when operating the Mail Matrix.

When seated at the main operator station or keying station:

- Maintain an upright body posture. Avoid the tendency to slump in your chair. The angle between your torso and thighs should always be 90 degrees.
- Adjust the seat position on your chair so that your elbow, when held at a 90-degree angle at your side, is approximately 1½ inches below the top of the work surface. For your comfort, we recommend use of a specially-designed OPEX ergonomic desk chair to ensure proper posture and seat position.
- Occasionally change the angle of your posture for greater comfort.
- If possible, avoid operating the machine for longer than a single 8-hour shift.

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3 Operation

Mail Matrix

Operator Manual

Most functions of the Mail Matrix system are accessible from the operator station, where the operator is within easy reach of the conveyor and the Host PC's keyboard and mouse. The Host PC provides the operator's main interface with the Mail Matrix system.

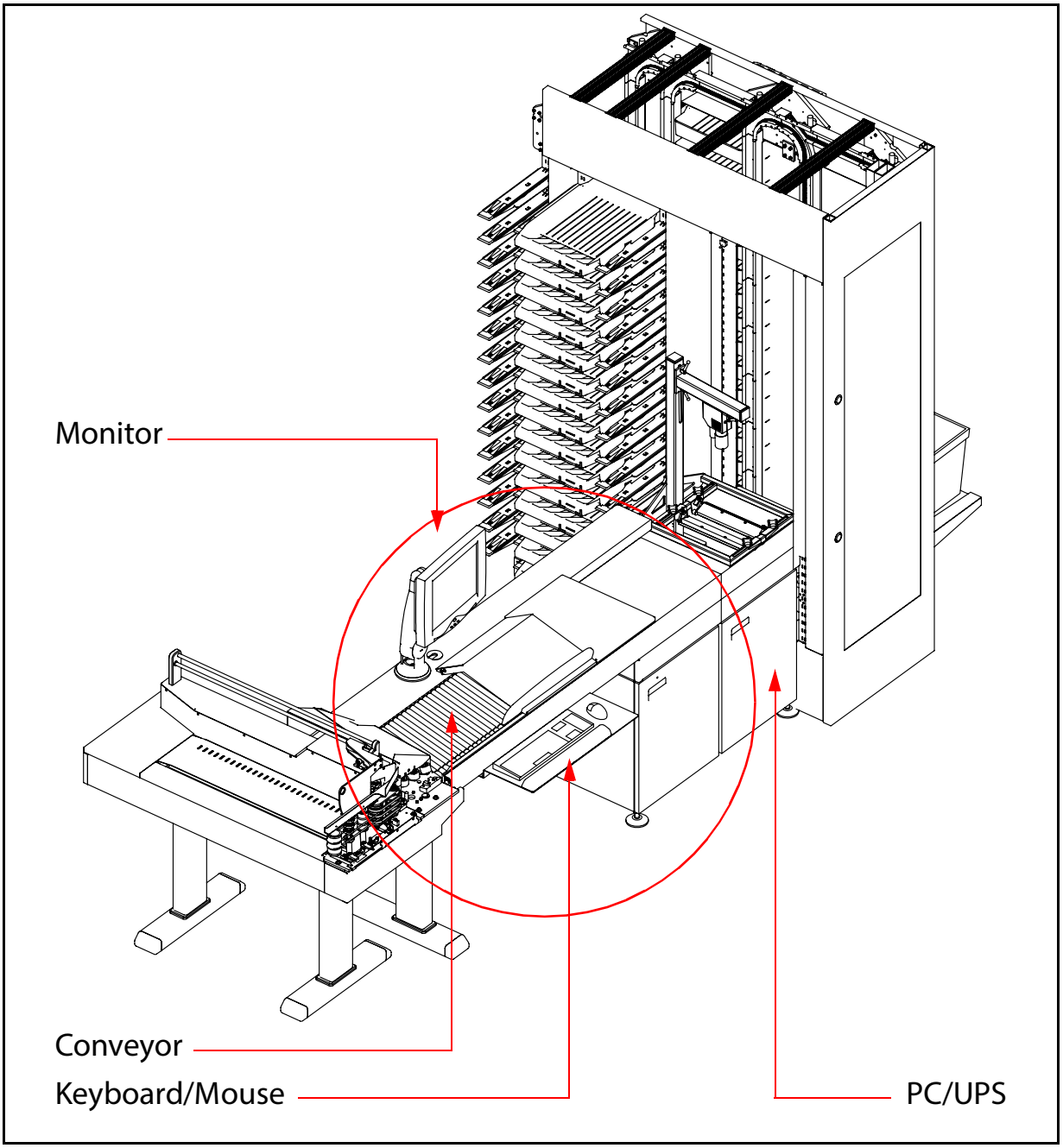

Figure 28: Operator station (auto feeder and imaging upgrades installed)

Turning the power on/off

Power up the machine

1. Turn the main power switch to the On (up) position.

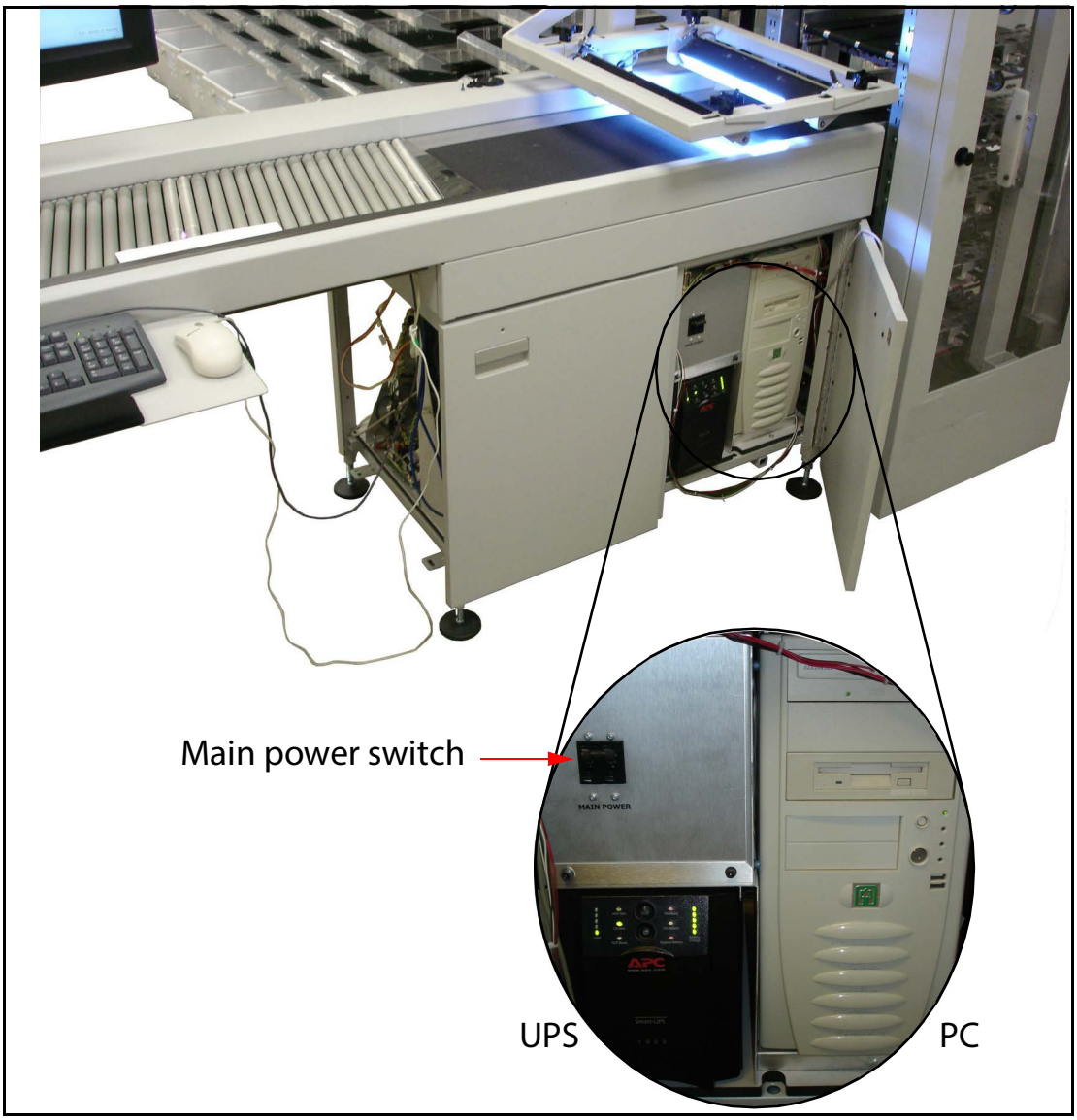

Figure 29: PC/UPS/Main power switch locations

2. Press the Power button on the front of the UPS. The PC should start with the UPS. If not, press the power button on the front of the PC.
3. Log in to Windows with the keyboard and mouse at the operator station.

Turn the machine off

1. Shut down the PC.
2. Press the Power button on the UPS. Newer UPS units will ask you to confirm that you wish to turn the UPS off.
3. Turn the main power switch to the Off position.

Logging in to the Host software

The Mail Matrix Host PC will launch the Host software as part of the system's start-up routine. If you mistakenly close the Host software or, for some reason, the Host software does not start with the machine, you can start it manually.

1. If the Host software is not already running, double-click on the Mail Matrix icon on the desktop OR click **`Start > Programs > OPEX > Mail Matrix`** to open it. The Login screen will appear.

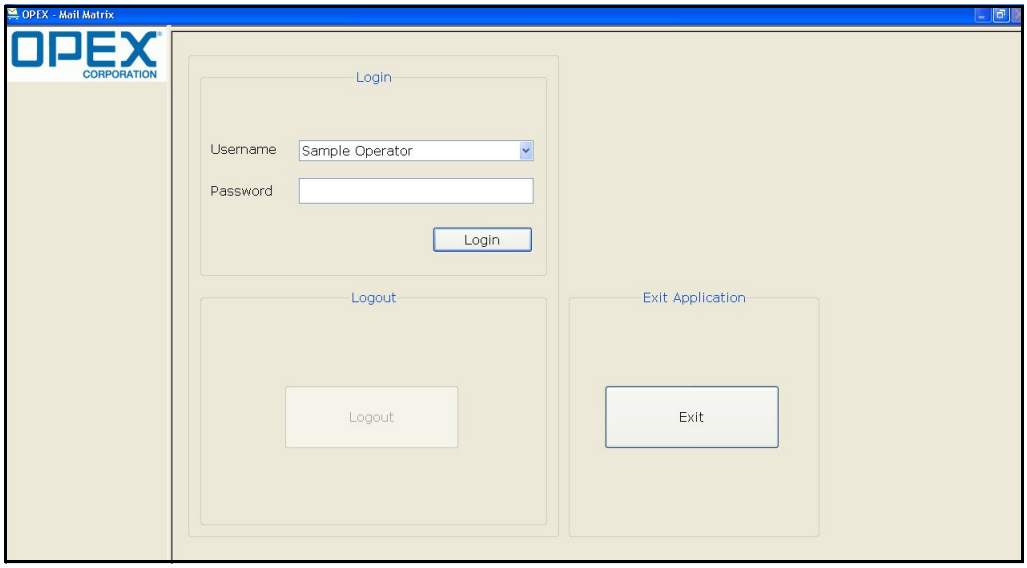

Figure 30: Login screen

2. Select your username from the drop-down list.
3. Enter your password in the appropriate field.
4. Click **`Login`**. The Host software displays the Job Select screen.

Navigating the Host software

The Mail Matrix Host software provides the operator's main interface with the system's controls. Use the Host software to select and run jobs and view statistical reports on the machine.

The Host software interface consists of:

Menu bar The vertical menu bar provides access to the main system functions. Select a category from the menu bar and make selections from the main window or the menu options bar.

Menu options The menu options provide sub-categories for the selections in the menu bar. The menu options bar will change based on the current menu bar selection.

Tab bar Some screens will have tabs, which break the screen down into different categories. Click on the different tabs to access the various settings.

Main window View and adjust settings and make selections in the main window.

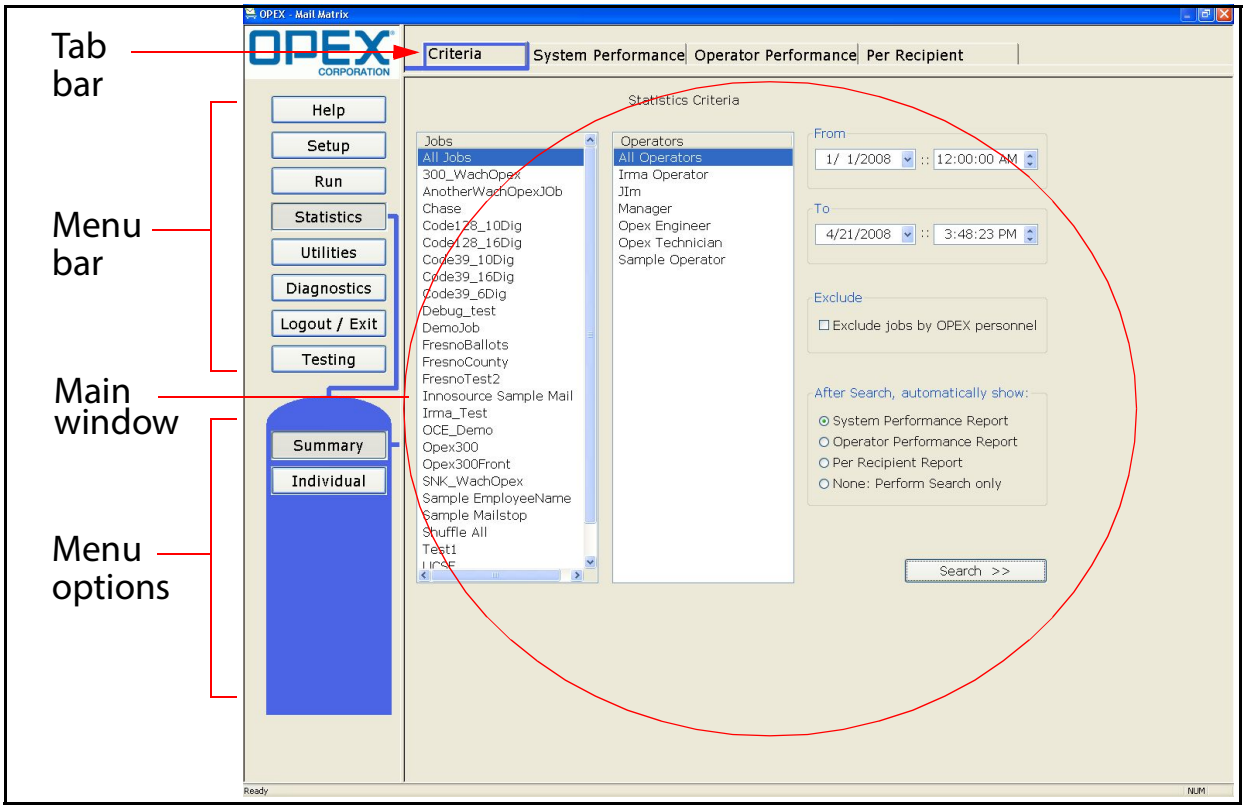

Figure 31: Host software interface

Running Jobs

The main components involved in running jobs on the Mail Matrix are the Run screen and the Keying Station application.

Selecting a job

The first step to sorting your mail on the Mail Matrix is to choose the “job” you want to run. A job is a collection of the settings and methods the system will use to process your mail in a similar fashion from run to run. The jobs on your machine should be set up ahead of time, either by an OPEX technician or your site supervisor or IT department.

Highlight the job you want to run from the Job Select screen and click the **`Go to Run Screen`** button. This will take you to the Run screen, where you can manage your run (described on page 55).

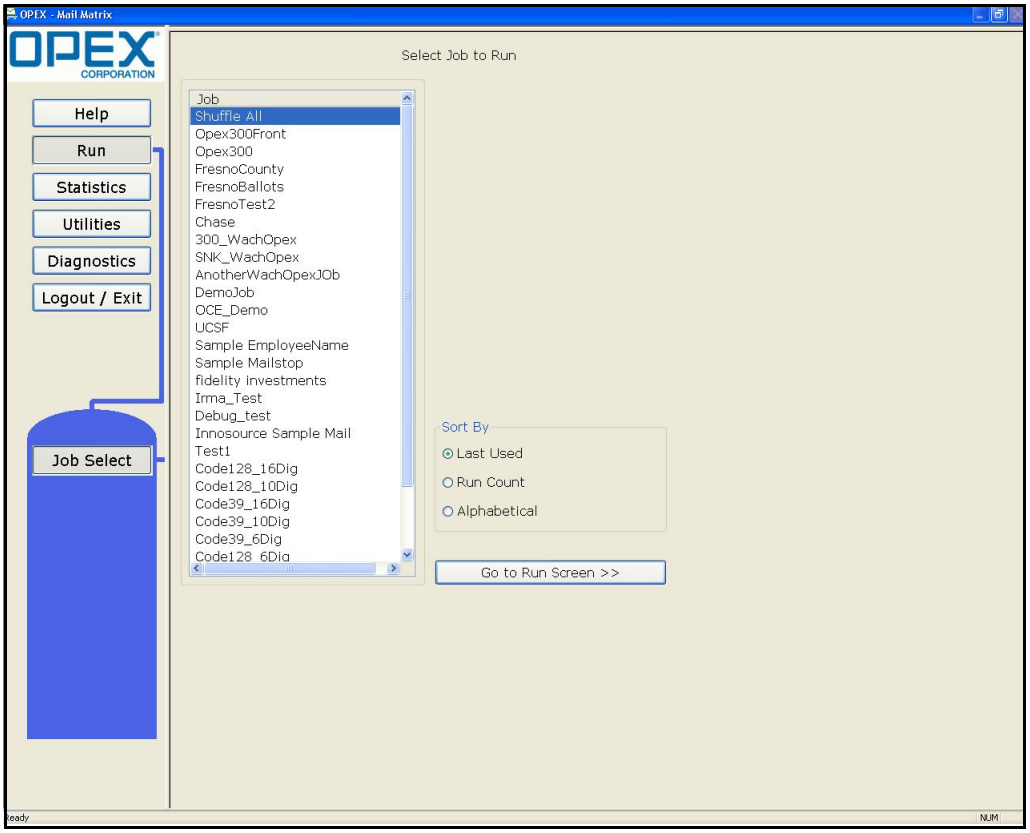

Figure 32: Job Select screen

Setting up your run

Once you have selected a job, the Run screen appears. Use the Run screen to:

- Select the input mode (No Keyer, Key From Paper, Key From Image)
- Start and stop the job
- View vital system information about the current job as the machine is running
- View information about jams
- Access the Event Log
- Access the Keying Station application

There are 3 main components to the **Run** screen: the main controls, the main status area, and the information tabs.

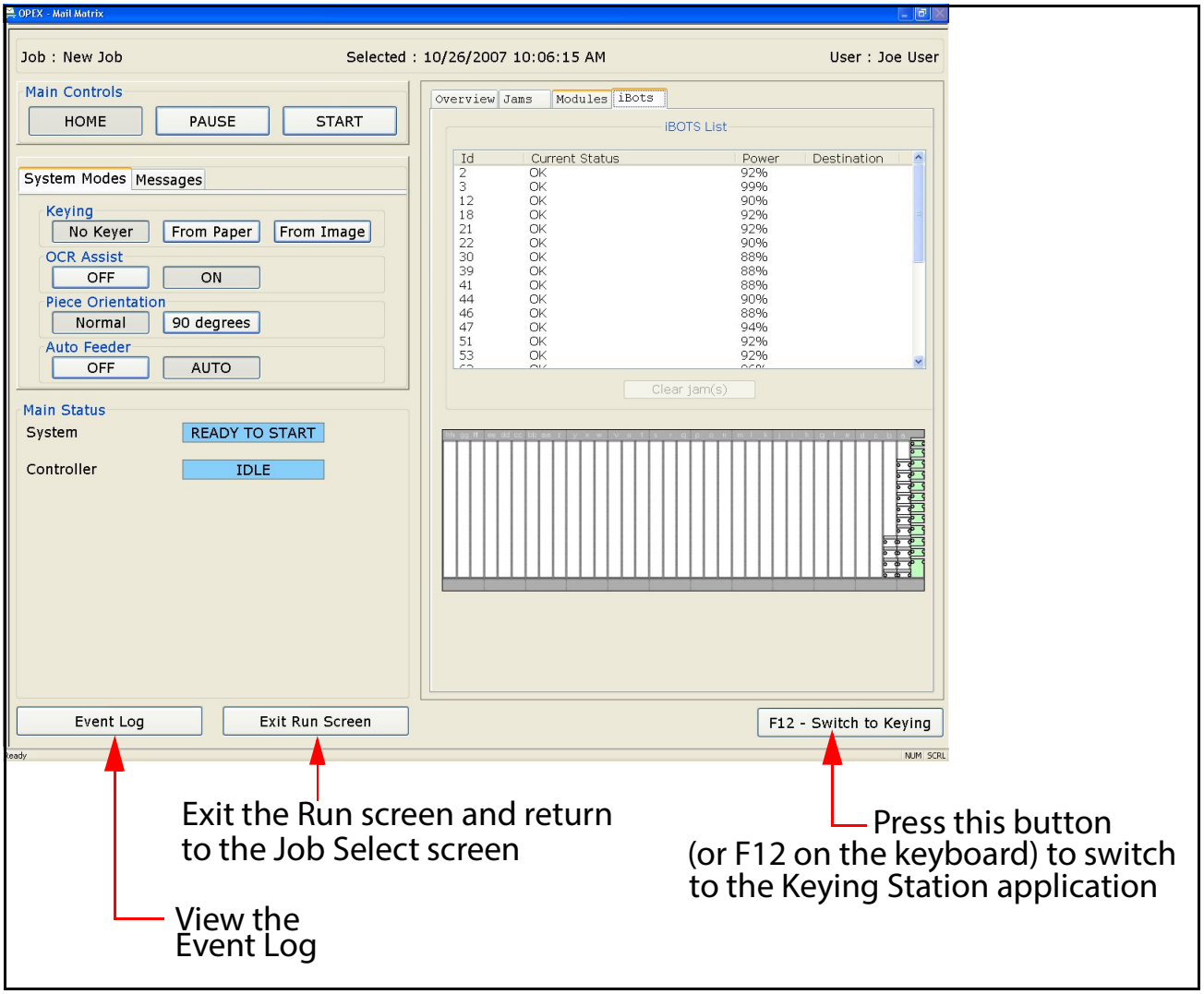

Figure 33: Run screen (iBOT status tab)

The next step in running your job is to select the options you want to use for the run. The Run screen's System Modes tab establish how you plan to run the job.

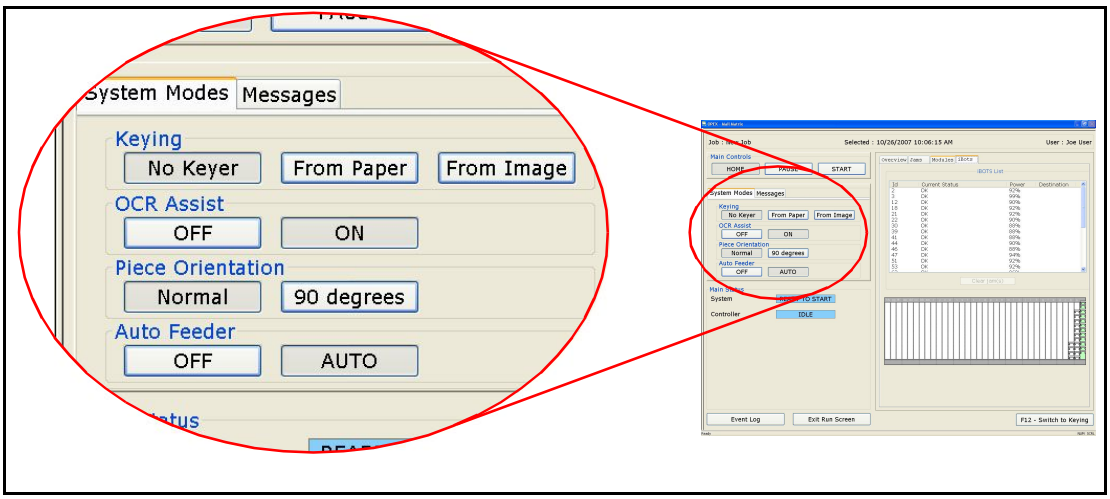

Figure 34: System Modes

1. Select the desired Auto Feeder mode, if you have an auto feeder installed:
   - Select **AUTO** to have the feeder send pieces onto the conveyor automatically.
   - Select **OFF** to turn the auto feeder off and drop pieces manually.

   Note: *The Feeder can be restarted through the Host by toggling the AUTO and OFF buttons.*
2. Select a Keying mode. The keying mode establishes whether or not the operator will key in the recipients or if the installed image capture/MLOCR system will determine the recipient. The options available depend on whether or not you have the image capture/MLOCR option installed and whether or not you chose to use the auto feeder in step 1. Select:
   - **No Keyer** if you have image capture/MLOCR installed and do not wish to have an operator identify recipients.
   - **From Paper** to key in the recipients at the operator station before dropping the piece.
   - **From Image** to identify recipients based on the image provided by the installed camera setup.
3. Turn the OCR Assist **ON** or **OFF**. This activates the MLOCR function for analyzing the piece for the recipient information. OCR Assist must be turned **ON** if the Keying Mode is set to **No Keyer**.

Processing mail

Once you have decided *how* you want to run your job, it's time to start processing mail. Below you will find two procedures: the first is for operators with the basic Mail Matrix configuration, who will key in the recipient and manually drop mail, the second is for machines with auto-feeder and image capture/MLOCR options installed.

Basic, Key From Paper mode

The basic, Key From Paper procedure involves the operator identifying the recipient of each piece and dropping the mail onto the conveyor. This procedure can be used on any Mail Matrix machine.

1. After selecting the job and choosing the **`From Paper`** keying option, press **`F12`** on the keyboard to switch to the Keying Station application on the Host PC (or click on the **`F12 - Switch to Keying`** button on the bottom of the Run screen).

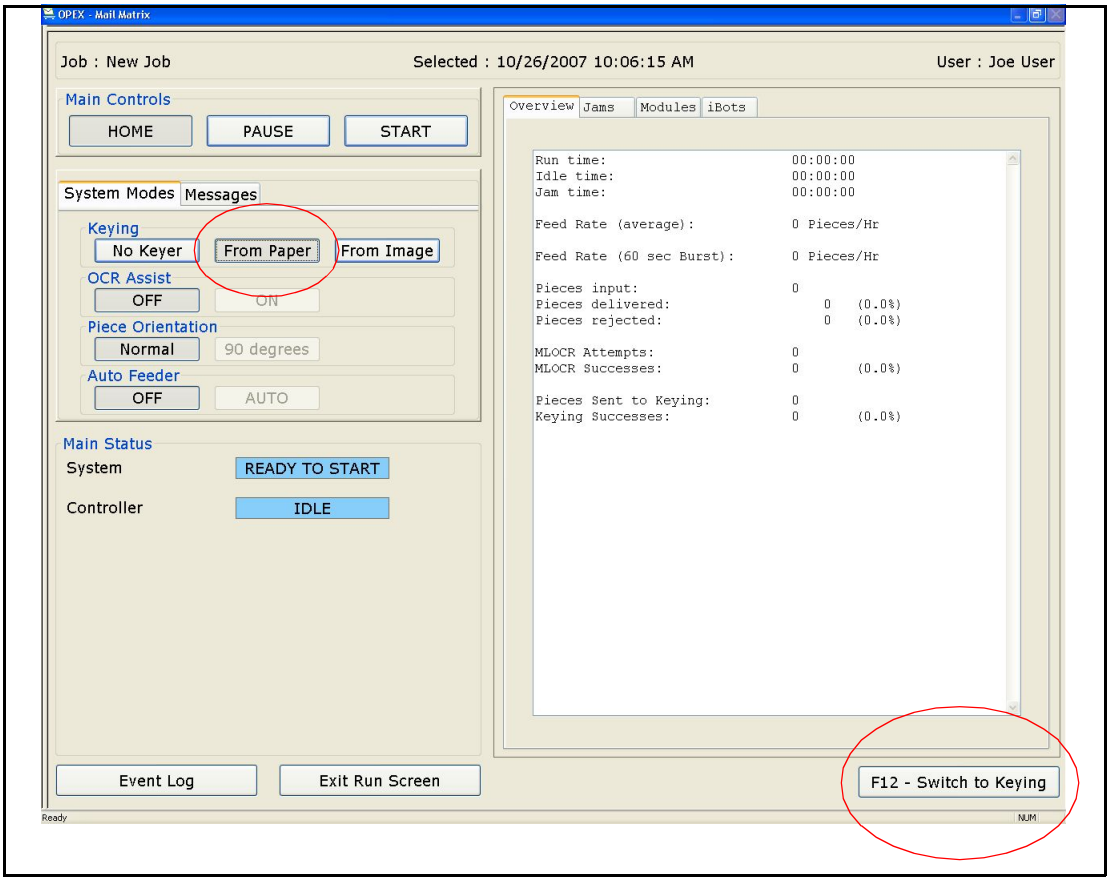

Figure 35: Run screen

The Keying Station software will appear, and a miniature version of the Run screen will appear in the lower right corner of the screen.

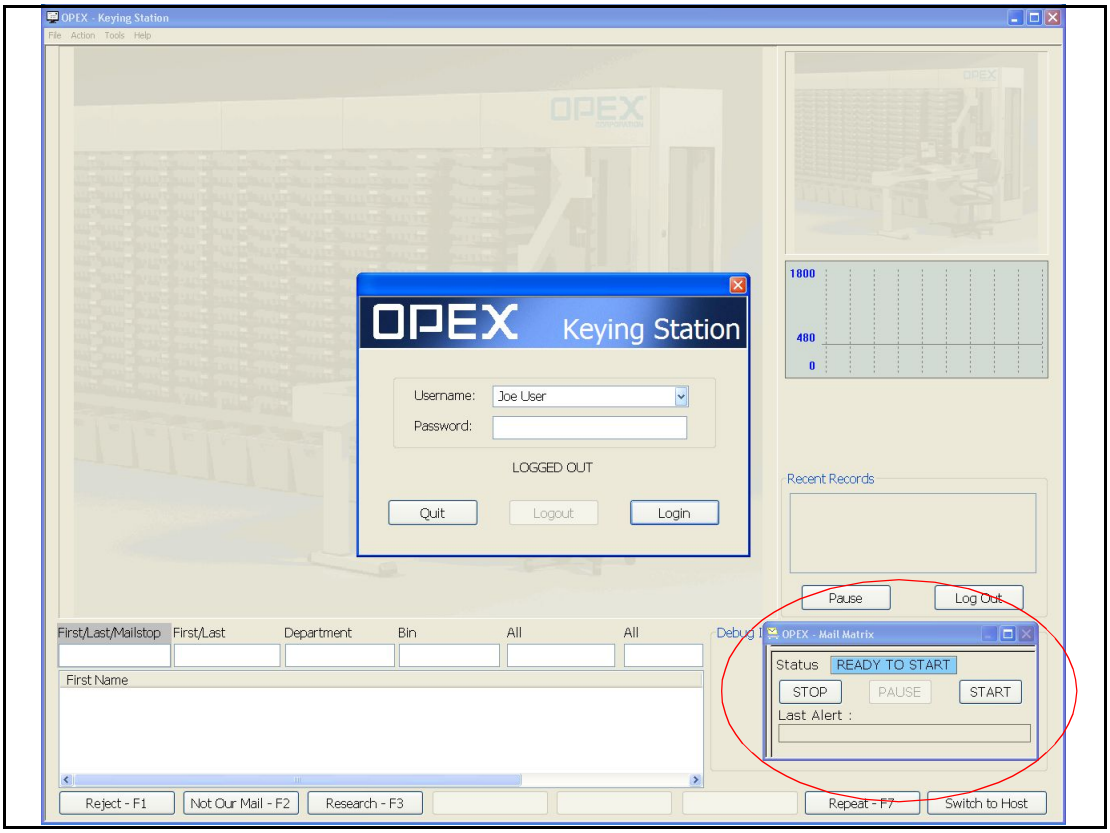

Figure 36: Keying Station software (with mini Run screen)

2. Enter your username and password into the fields on the Keying Station login dialog. Click the **`Login`** button to log in to the Keying Station application.

> **CAUTION:** The moving parts of the Mail Matrix can become jammed and/or damaged by foreign objects. Make sure the conveyor and iBOT loading areas are clear before you press **`START`**.

3. Press **START** on the miniature Run screen to start the machine. The machine will begin its startup routine, which includes positioning the iBOTs in the loading column and starting the conveyor.

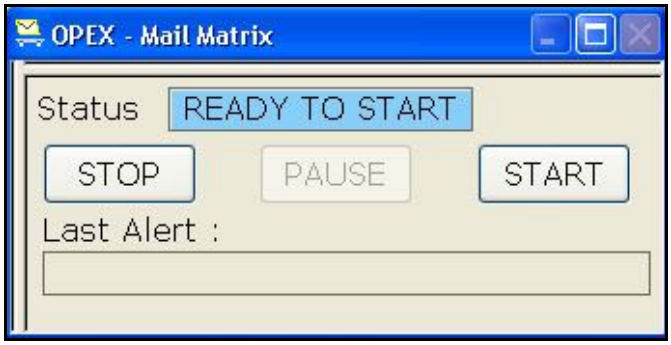

Figure 37: Miniature Run screen

Note: *The Pause feature is used to stop the input conveyor and auto-feeder if used. After clicking the* **Pause** *button, it changes to* **Resume**. *Click* **Resume** *to restart the input conveyor.*

4. Enter the intended recipient of your first piece of mail into the Keying Station application.

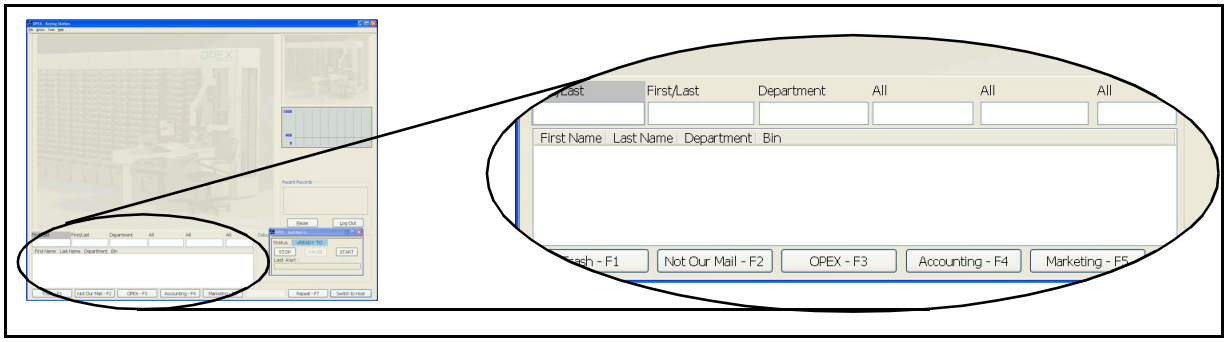

Figure 38: Entering data

Enter the first or last name of the recipient in the first of the **First/Last** fields. As you type, the database entries that match your input will appear in the window. In this example, we have a piece of mail for James Smith. As we

begin to type “sm” for “Smith,” all the database entries that have either a first or last name that have “sm” in them appear as a possible match.

Note: *If you see the intended recipient in the window at any point, you can use the down arrow and press* **`Enter`** *to select that recipient.*

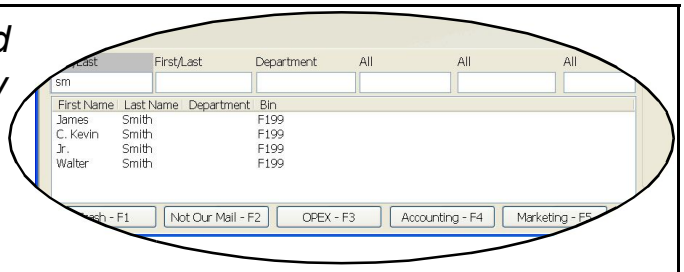

Figure 39: Possible matches listed

Press **`Tab`** (or **`Spacebar`**) on the keyboard to move to the next **First/Last** field (or move the cursor with the mouse). For this example, we type “ja” for the first name of our recipient, James. Our intended recipient is the only one that matches, and in this case, press **`Enter`** on the keyboard to make the match.

Note: *You can press* **`F9`** *to undo the previous entry. This is helpful if you mistakenly identify a recipient and catch it before entering the next one.*

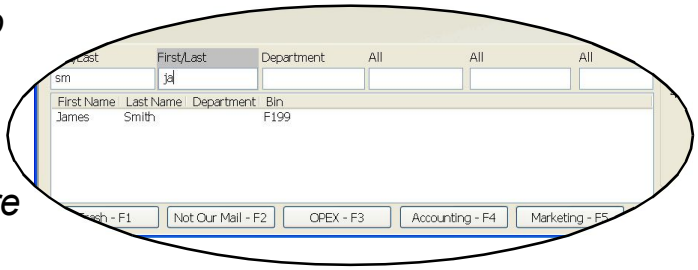

Figure 40: Press Enter to confirm match

You can also use the Quick buttons at the bottom of the Keying Station to identify the recipient instantly. These buttons are best used for mail that was addressed improperly or mail that is going to a specific department for which you have a Quick Button assigned.

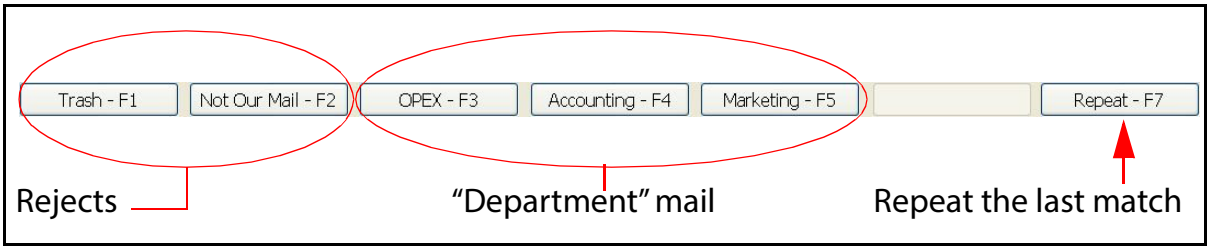

Figure 41: Quick Buttons

WARNING: Keep loose clothing, hair, and jewelry away from the conveyor when dropping pieces.

5. Drop the piece onto the conveyor. The conveyor will carry the piece to the iBOT, which will then deliver the piece to the appropriate bin.

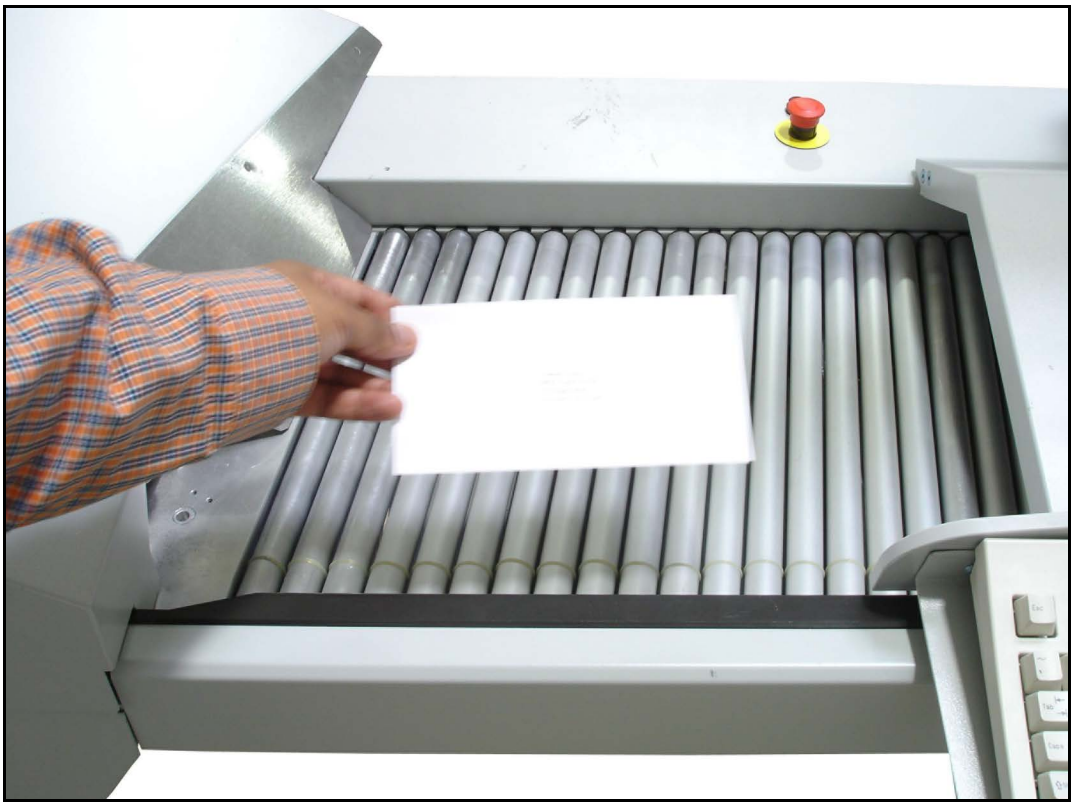

Figure 42: Dropping mail on the conveyor

6. Repeat steps 1-5 for all the mail you want to process.

Key From Image mode

Fully-configured machines can run in different modes which use installed options to minimize the role of the operator in the process. These modes are only available if the image capture/MLOCR and/or auto-feeder options are installed.

Key From Image mode sends images for mail pieces that could not be identified by the image capture/MLOCR setup to an available keying station. Key From Image mode can be used with or without the auto-feeder.

1. After selecting the job and choosing the **`From Image`** keying option, choose from the other options as desired:
   - Select the OCR Assist mode. Turn OCR Assist **`ON`** if you have the image capture/MLOCR option installed and you want the software to attempt to determine the recipient.
   - Select **`AUTO`** for the Auto Feeder mode if you want to use the installed auto feeder to feed your mail. Select **`OFF`** to feed the mail manually.
   - Select a Piece Orientation. Usually, you will want to set this to **`Normal`**.

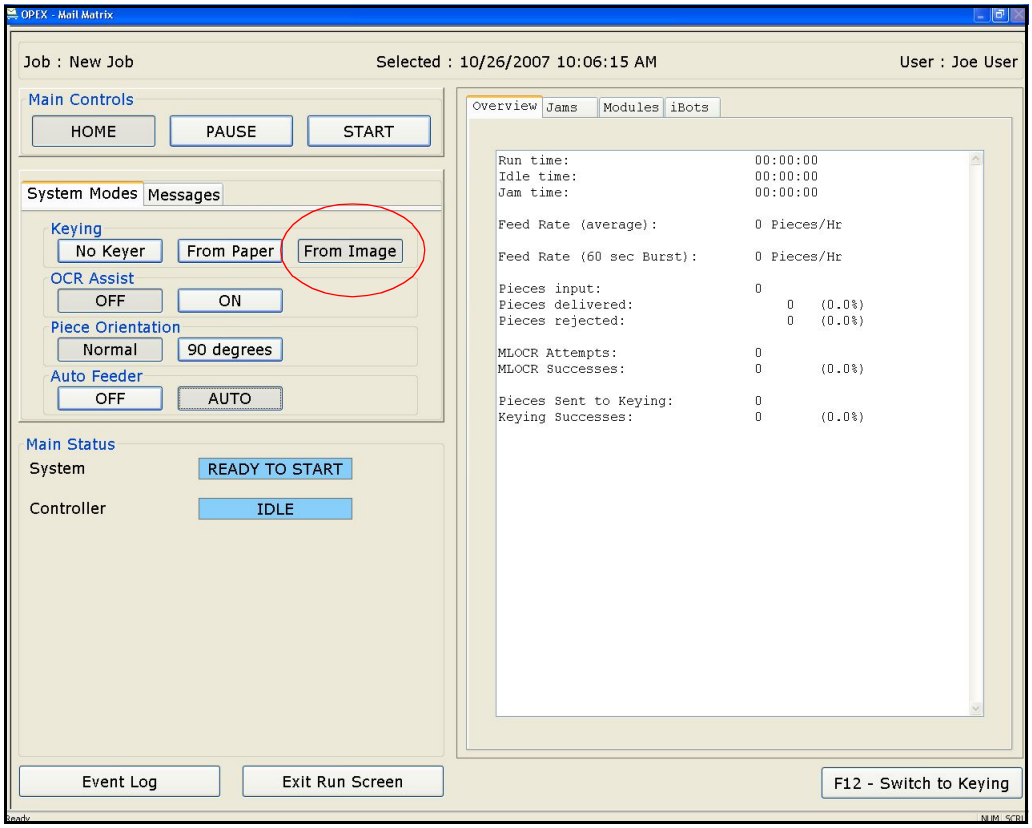

Figure 43: "From Image" keying option

2. Once you have your run set up the way you want, decide whether or not to use the Host PC as a Keying Station. If you have other KFI modules installed and active, you can have the images of unrecognized mail sent to those stations and just control the run from the Host PC. If you do choose to use the Host PC as a Keying Station:

   a. Press **F12** on the keyboard to switch to the Keying Station application on the Host PC. A miniature version of the Run screen will appear in the lower right corner of the screen.

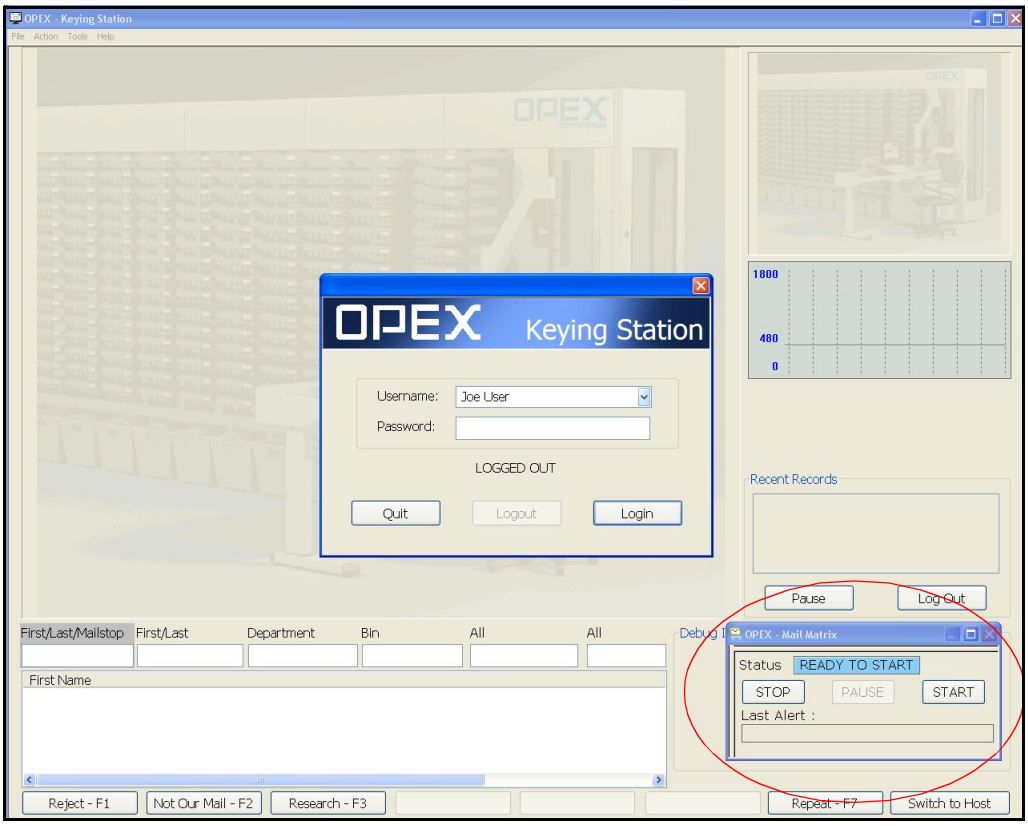

Figure 44: Miniature Run screen

   b. Enter your username and password into the appropriate fields and click the **Login** button to log in to the Keying Station application.

3. If you are using the auto-feeder, load it with mail as described here. If not, proceed to step 4:

a. Stack mail in the auto-feeder right-side up, with the address facing away from the cleaver.

> **CAUTION:** When loading the auto-feeder, be careful not to get fingers caught in the feed mechanism or under the cleaver. Keep loose clothing, hair, and jewelry away from moving parts.

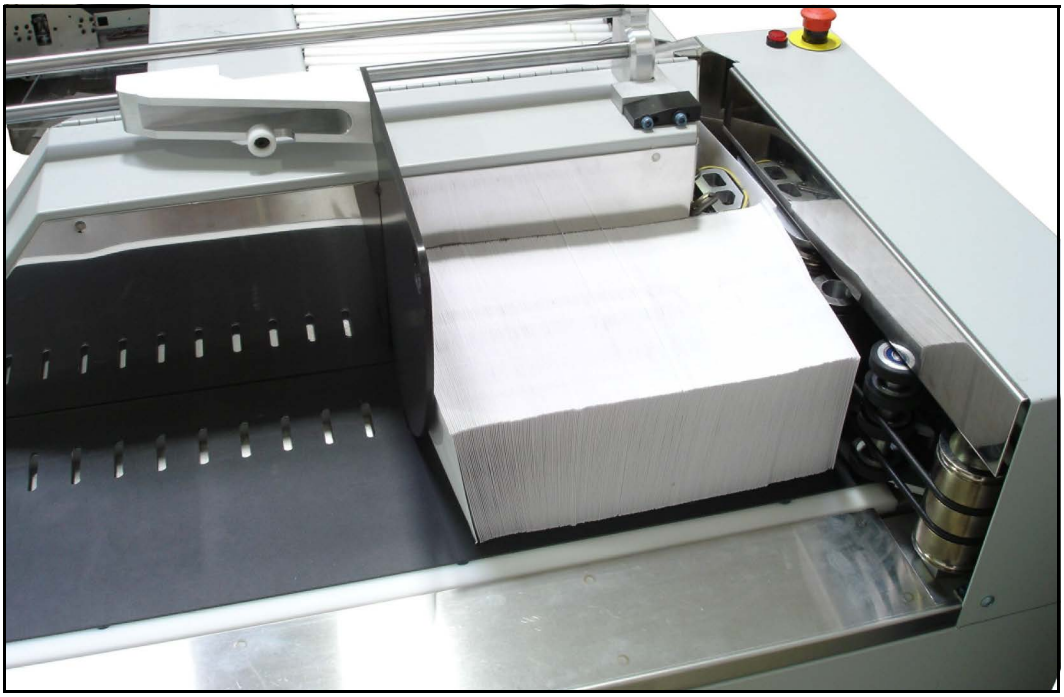

Figure 45: Mail in the auto-feeder

b. Hold the mail stack in place with the cleaver, which fits into the grooves on the feeder belt.

> CAUTION: The moving parts of the Mail Matrix can become jammed and/or damaged by foreign objects. Make sure the conveyor and iBOT loading areas are clear before you press **START**.

4. Press **START** on the Run screen.

- The machine will begin its startup routine, which includes positioning the iBOTs in the loading column and starting the conveyor. If you activated the auto-feeder, it will begin feeding mail onto the conveyor. If you did not activate the auto-feeder (or do not have one installed), drop the mail onto the conveyor yourself.

Note: *The Pause feature is used to stop the input conveyor and auto-feeder if used. After clicking the* `Pause` *button, it changes to* **Resume**. *Click* `Resume` *to restart the input conveyor.*

5. The conveyor will carry your mail past the camera and to an awaiting iBOT. The camera will capture the image, the MLOCR software will interpret the text, and the DRS will attempt to assign a bin.
   - If the software cannot determine the recipient, the image will be sent to an available Keying Station, either at the operator station or at an installed, active KFI module.
   - If the piece is not identified in a specified period of time, the piece will be sent to the reject bin.
6. The iBOT delivers the mail piece to the appropriate bin.
   - When an iBOT is at the top of the loading column waiting to be keyed and two iBOTs accumulate below with destinations, the iBOT will exit the loading column then re-enter from below (recirculate).
   - When two iBOTs are at the top of the loading column waiting to be keyed and three iBOTs accumulate below with destinations, the iBOTs will recirculate.

No Keyer mode

The **No Keyer** mode uses the auto-feeder to place mail onto the conveyor. Any pieces that are not identified by the image capture/MLOCR system are rejected.

1. Select a job and choose the **No Keyer** keying option.

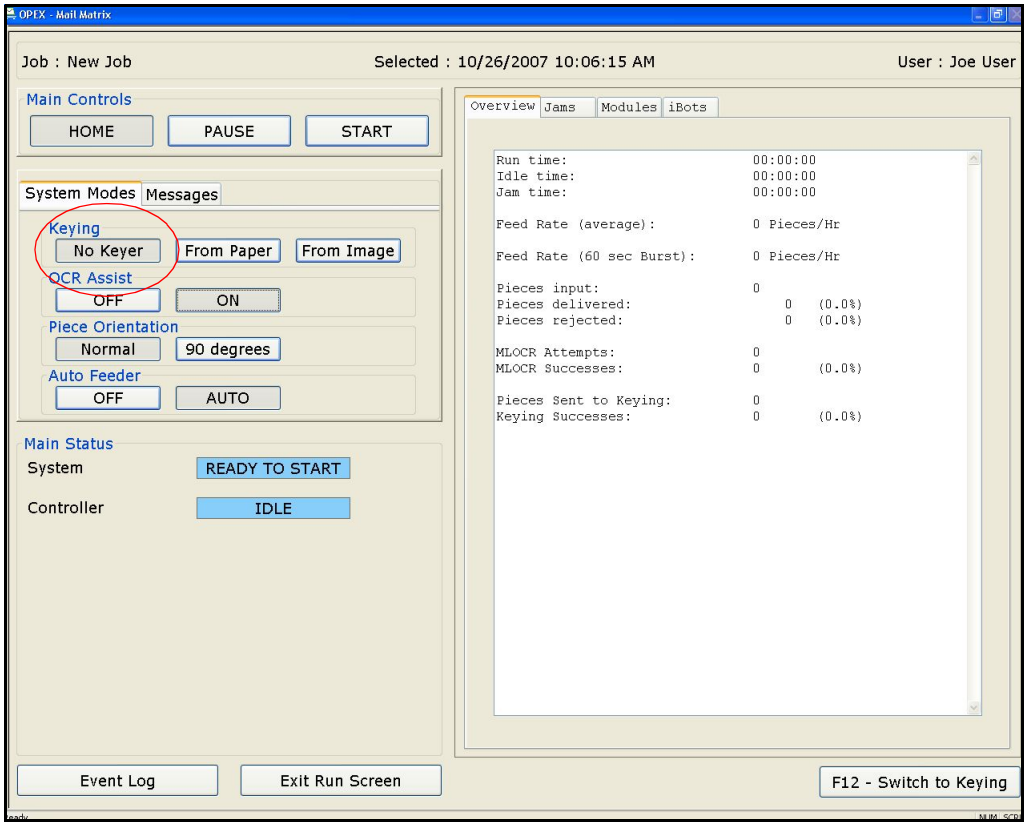

Figure 46: "No Keyer" keying option

2. Stack mail in the auto-feeder right-side up, with the address facing away from the cleaver.

> **CAUTION:** When loading the auto-feeder, be careful not to get fingers caught in the feed mechanism or under the cleaver. Keep loose clothing, hair, and jewelry away from moving parts.

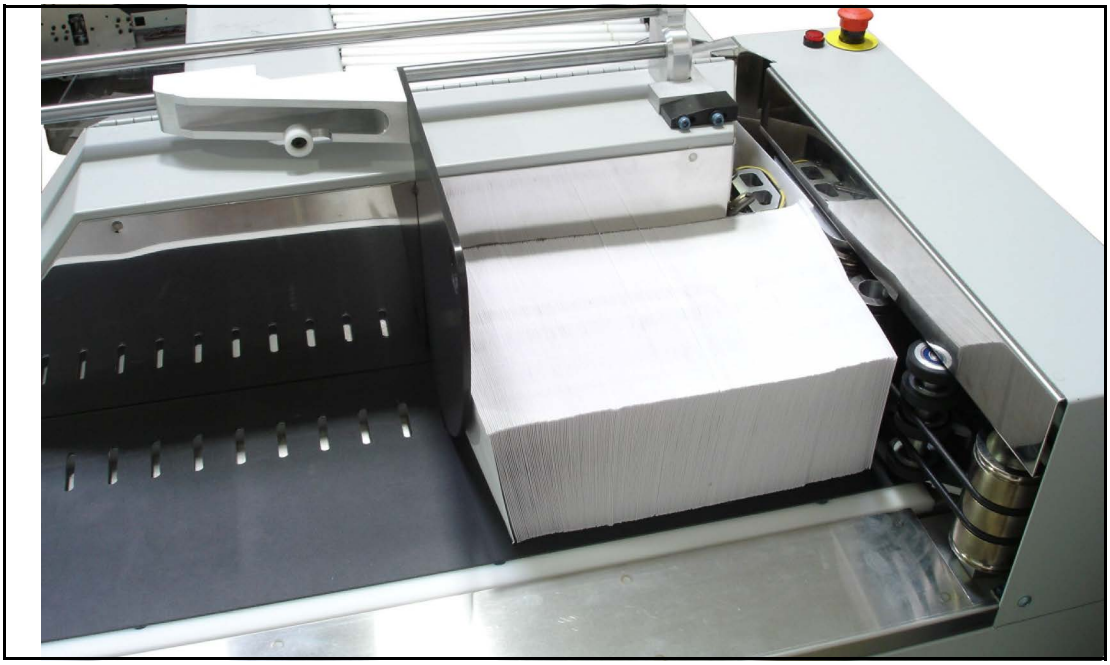

Figure 47: Mail in the auto-feeder

3. Hold the mail stack in place with the cleaver, which fits into the grooves on the feeder belt.

> **CAUTION:** The moving parts of the Mail Matrix can become jammed and/or damaged by foreign objects. Make sure the conveyor and iBOT loading areas are clear before you press START.

4. Press `START` on the Run screen.
   - The machine will begin its startup routine, which includes positioning the iBOTs in the loading column and starting the conveyor.The auto-feeder will begin feeding mail onto the conveyor. If you did not activate the auto-feeder (or do not have one installed), drop the mail onto the conveyor yourself.

Note: *The Pause feature is used to stop the input conveyor and auto-feeder if used. After clicking the* `Pause` *button, it changes to* **Resume**. *Click* `Resume` *to restart the input conveyor.*

5. The conveyor will carry your mail past the camera and to an awaiting iBOT. The camera will capture the image, the MLOCR software will interpret the text, and the DRS will attempt to assign a bin. If the software cannot determine a match, the piece will be rejected.
6. The iBOT delivers the mail piece to the appropriate bin.

Information tabs

The information tabs on the right side of the Run screen provide information about the machine and its performance during the run.

Overview tab

The Overview tab provides information about the current run.

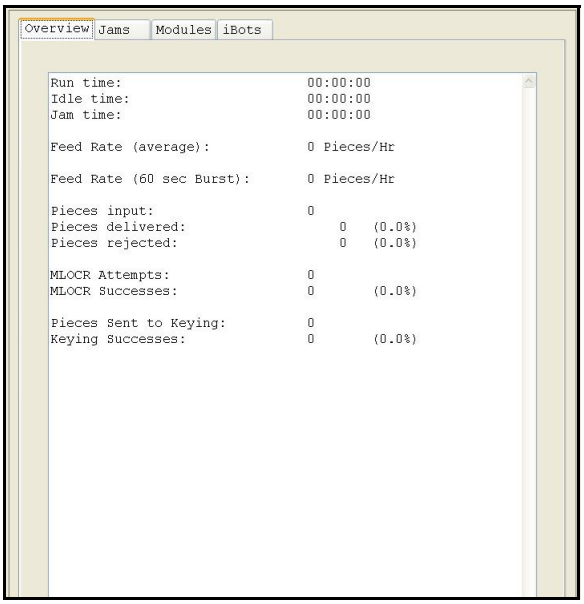

Figure 48: Overview tab

Run time	Total time spent processing mail.
Idle time	Time the operator spent with the Run screen open without a job running.
Jam time	Total time the system was halted for a jam.
Jam count	Reports occasions when run was halted due to a paper jam or a processing problem that was machine related.
iBOT jammed	Jams due to failed delivery by an iBOT.
Pieces input	Total number of pieces fed into the system.
Pieces delivered	Number of pieces that were successfully delivered to a bin.

Pieces rejected	Number of pieces rejected.
Feed rate	Total number of pieces fed into the system, per hour.
Burst feed rate	Feed rate during the last 60 seconds.
MLOCR attempts	Number of pieces the MLOCR attempted to read.
MLOCR successes	Number of pieces the MLOCR positively identified.
Pieces sent to keying	Number of pieces sent to a keying station for identification.
Keying successes	Number of pieces positively identified by an active keying station.

Modules tab

The Modules tab provides information about installed keying stations.

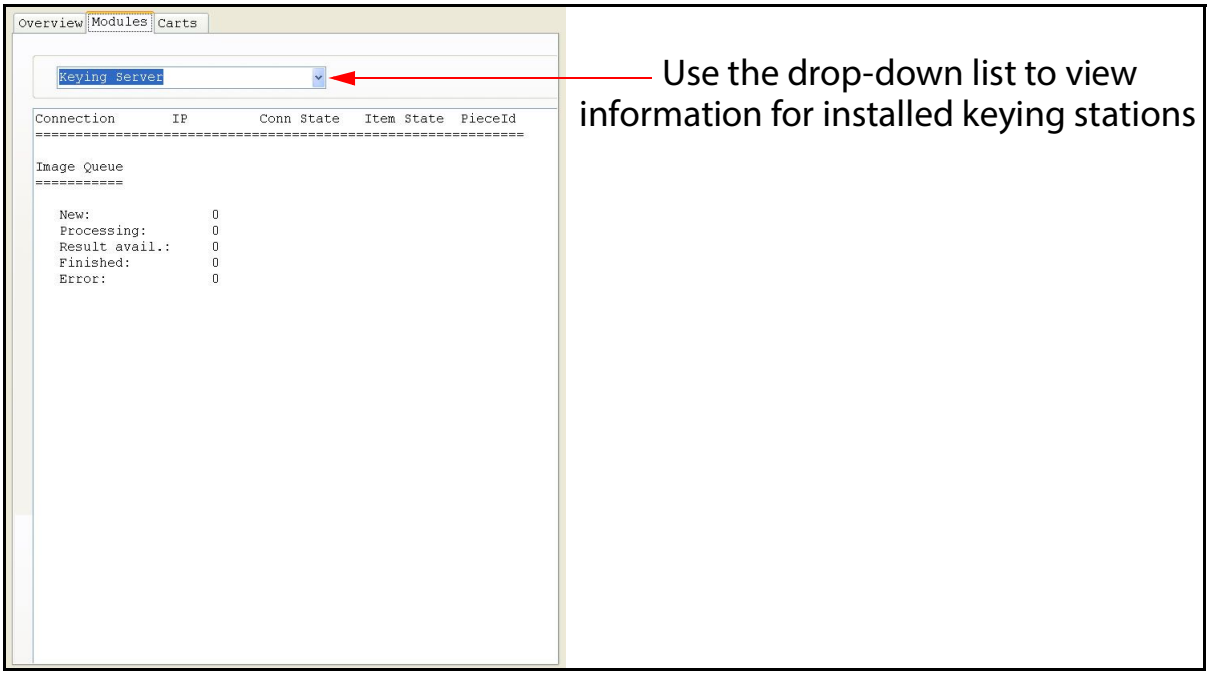

Figure 49: Modules tab

iBOTs tab

The iBOTs tab provides information about each active iBOT. The tab includes a status report for each iBOT, including its power level and destination bin, as well as a graphical display.

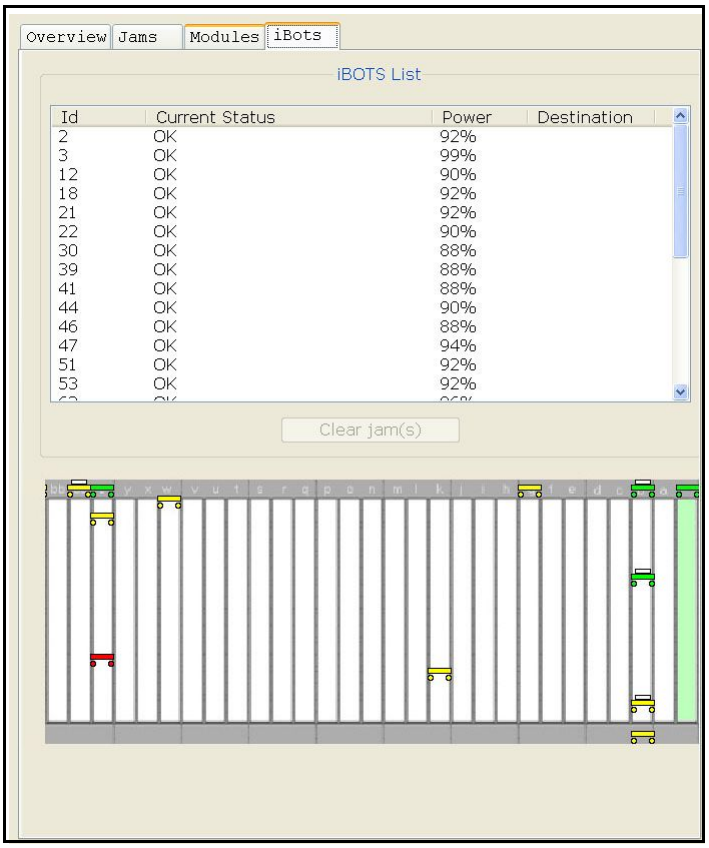

Figure 50: iBOTs tab

About the display

The graphical display at the bottom of the iBOTs tab shows exactly where in the system each active iBOT is at any time during the run. The green column on the far right represents the loading column.

The color of each iBOT indicates its current status:

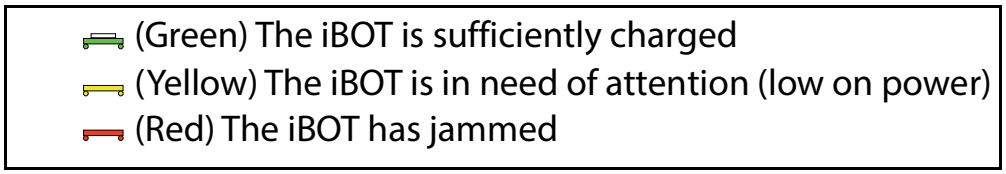

Figure 51: iBOT color code

A white rectangle on top of an iBOT indicates that the iBOT is carrying a piece of mail. Click on an iBOT in the display to see its status information in the top window.

Clearing jams

From time-to-time, you will experience the inevitable mail "jam." In this case, a "jam" refers to any occurrence that causes the machine to stop, not necessarily because a piece of mail is physically jammed in the machine. A jam can also refer to a lost iBOT or a break in the sequencing of mail coming from the auto feeder.

Note: *This section refers to many of the common, easily-fixed jams that may occur from time-to-time when running the machine. In the event that you should have to remove an iBOT that has become stuck in the machine (or is otherwise unusable), see* *"iBOT Maintenance" on page 82*.

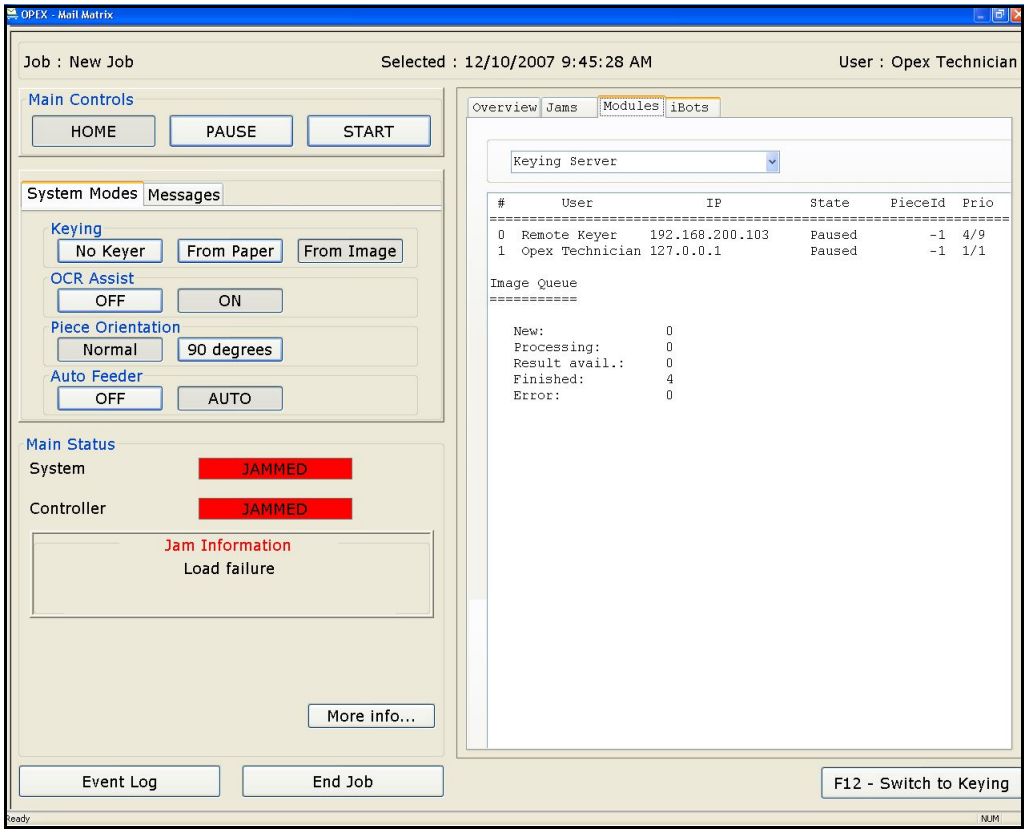

Figure 52: Run screen jam notification

When a jam occurs, the Run screen will alert you as to where the jam has taken place. From this point, you can:

- Clear the jam and press **START** on the Run screen, or
- Press the **More info...** button to get detailed information on where the jam is and how to clear it.

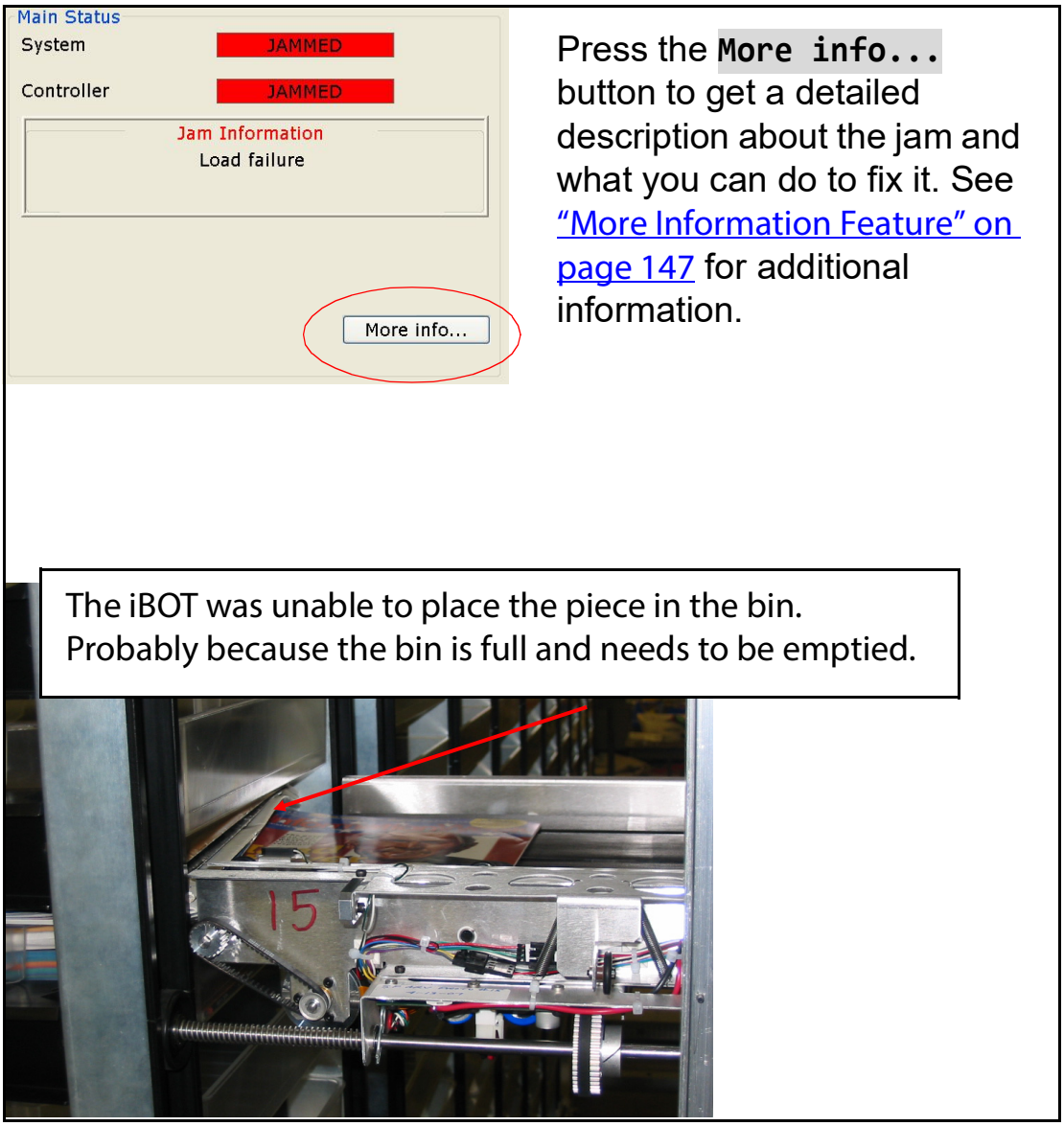

Figure 53: Using the More Info button

Auto feeder jams

Jams can sometimes occur at the auto feeder, where envelopes can get stuck on the way out of the feeder. When a jam occurs here, pull the stuck envelopes out of the feeder and press **START** on the Run screen to continue processing mail.

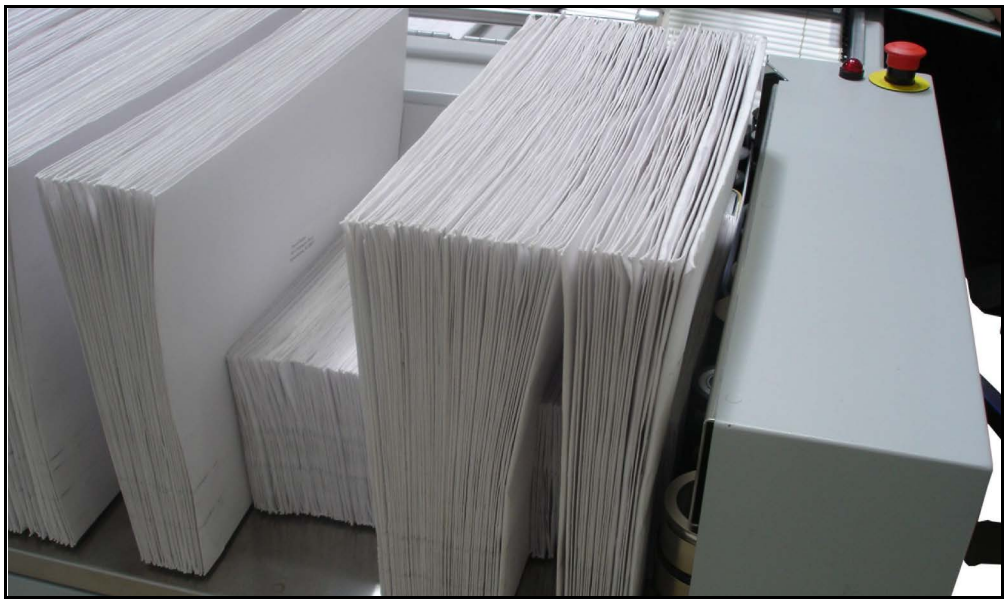

Figure 54: Envelope feeder jam

Load failure jams

The system will call a load failure jam when a piece does not arrive on the iBOT in the specified amount of time. This jam can occur when a piece is late or, for some reason, does not make it to the awaiting iBOT at all.

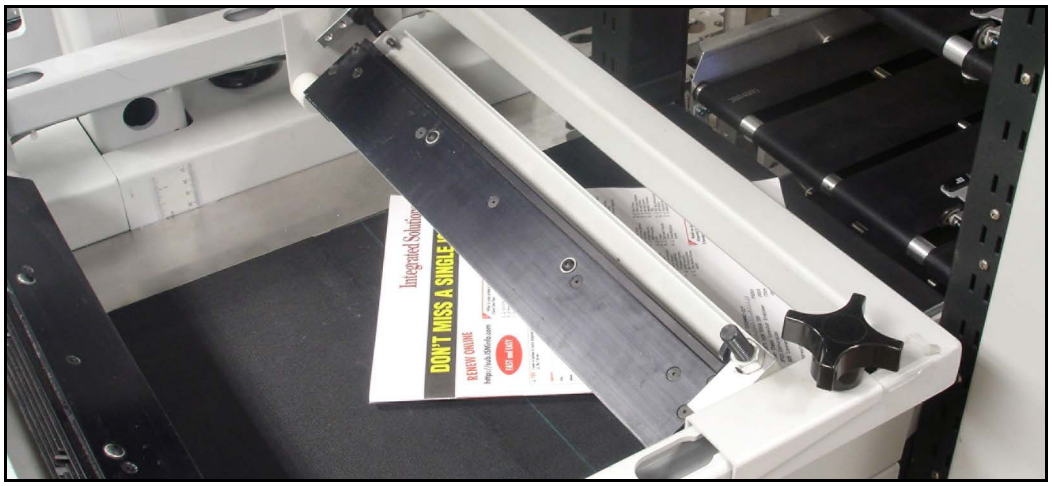

Figure 55: Load failure

Missed/blocked sensor jams

The system will also halt for a jam if a piece does not arrive at a specific place at a specific time. For example, pieces coming from the auto feeder should reach the imager conveyor within a certain range of time. If not, the system assumes that the chain of mail has been broken and the machine will stop.

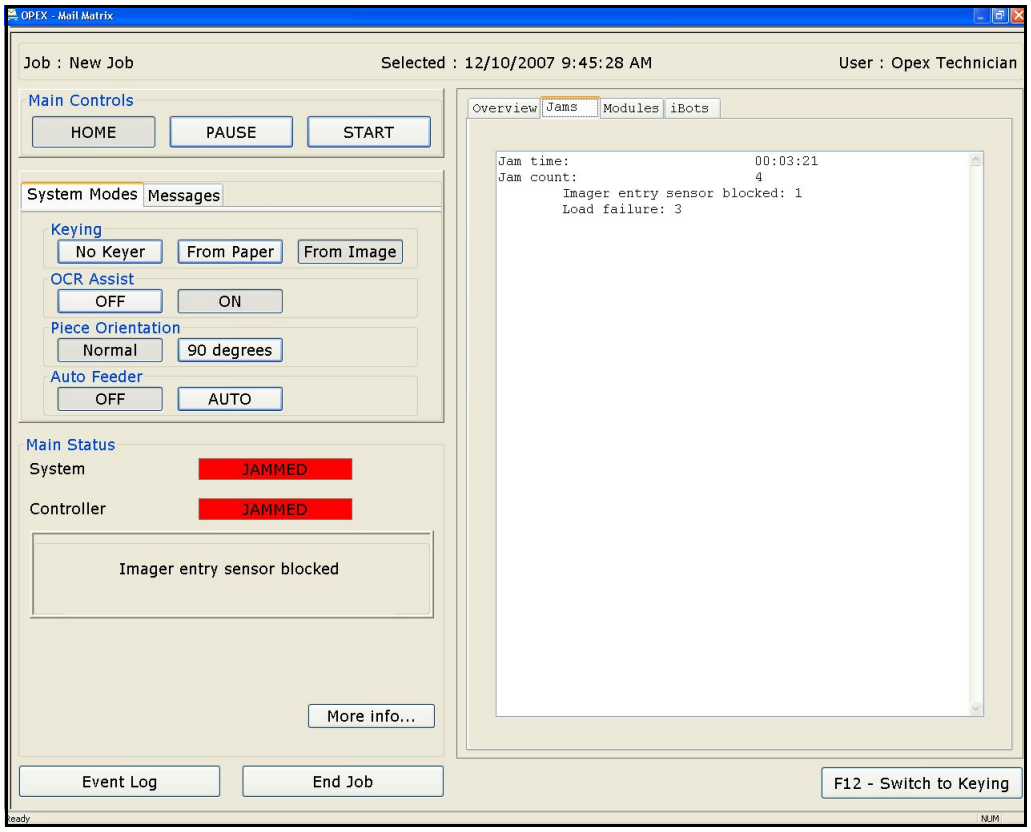

Figure 56: Sensor blocked jam

Another common example of a missed sensor jam occurs when an iBOT delivers a piece to a bin and the piece misses the iBOT's exit sensor on its way out.

iBOT cannot deliver jams

Sometimes an iBOT cannot deliver a piece to a bin. For example, an iBOT may attempt to deliver a piece to a bin that, for some reason, is not in place. A sensor on the iBOT detects the presence of the bin before unloading the piece, and if the bin is not in place the iBOT will return a message to the operator and will wait for action to be taken. The machine will continue to run and the other iBOTs will deliver mail.

Figure 57: iBOT cannot deliver jam

The Run screen will alert you which bin is in need of attention so you can replace or reposition the bin. The iBOT will detect that the bin has been replaced and will deliver the piece. You can also click **`Cancel Delivery`** and the iBOT will return to the loading column and reject the piece.

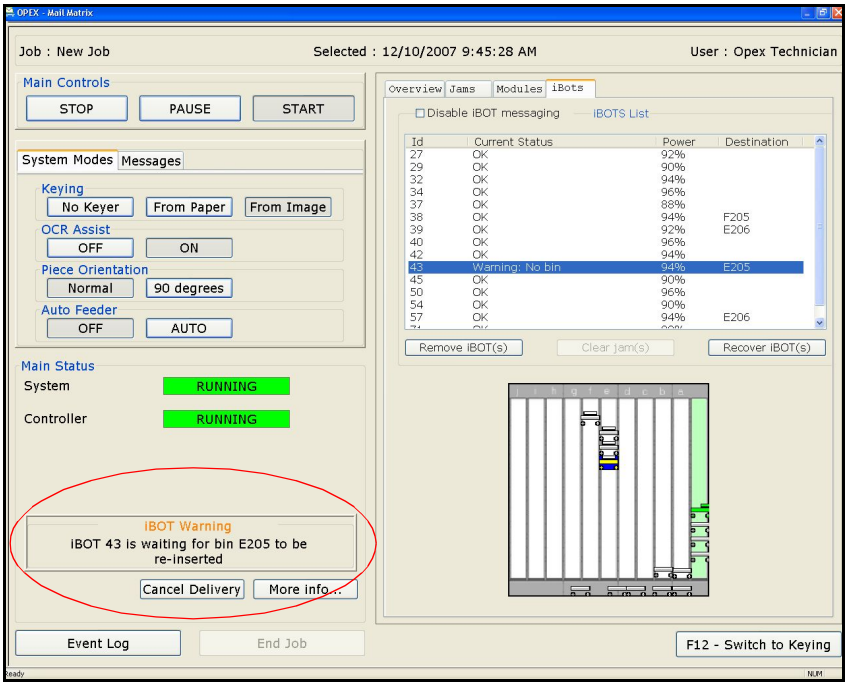

Figure 58: iBOT cannot deliver jams

iBOT failed to unload jam

Sometimes an iBOT cannot unload a piece of mail. For example, an iBOT may attempt to deliver a piece to a bin that already has mail in it. While the piece is being unloaded, it hits a piece of mail in the bin. This causes the piece to get stuck. At this point an iBOT warning box will pop up on the run screen. The machine will stop running until the issue is resolved.

Figure 59: iBOT failed to unload jam

The Run screen will alert you to which bin is in need of attention (see Figure 60 on page 79). At this point, remove the piece from the iBOT and place it into the bin. The **`Acknowledge Delivery`** button will pop up with the iBOT warning. On this occasion you don't have to click on the button in order for the iBOT to return to the loading column. In other situations, the **`Acknowledge Delivery`** button will need to be clicked in order for the iBOT to return to the loading column.

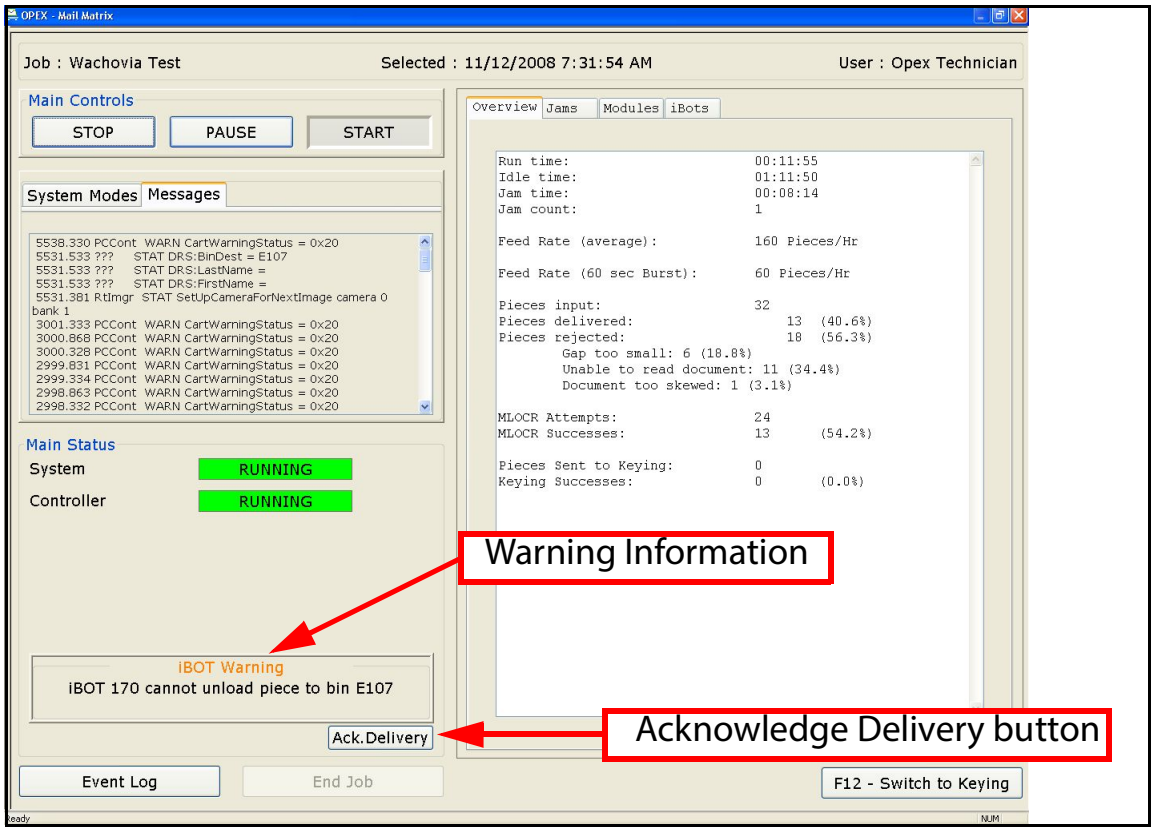

Figure 60: iBOT failed to unload jam

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4 Operational Maintenance

Each iBOT has a control panel, which houses the on/off switch, a brake button, and red and green status lights. The flashing green light indicates that the iBOT is powered on, and the flashing red light indicates that the iBOT is in need of attention.

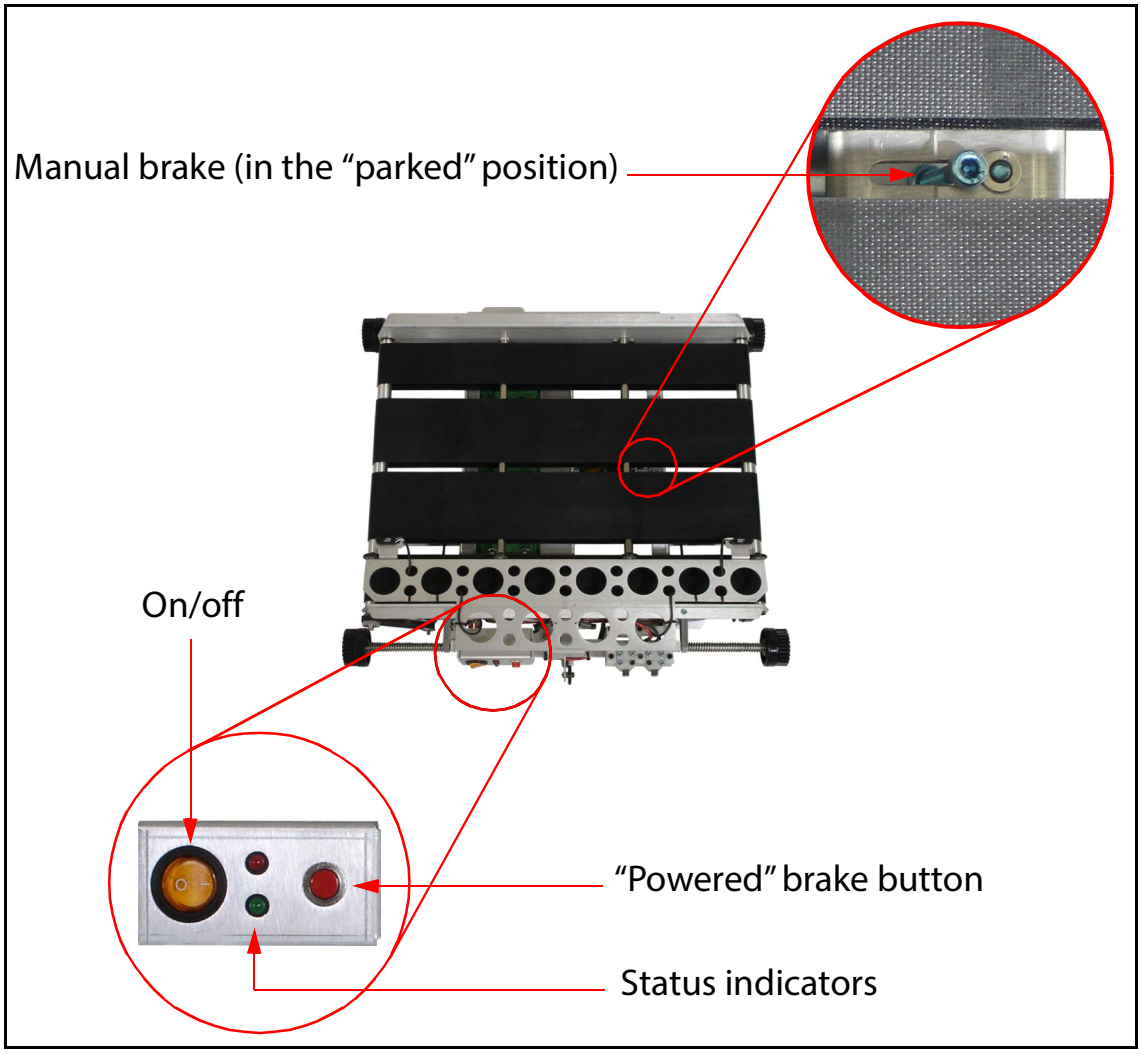


Figure 61: iBOT components

The iBOT brake

The iBOT manual brake is always engaged (in the parked position as shown in Figure 61) during normal operation. This prevents the iBOT from dropping in the column whenever the iBOT is idle.

> **CAUTION:** Releasing the manual brake causes the iBOT to drop immediately. Make sure to support the iBOT whenever releasing the manual brake.

The “powered” brake button on the iBOT control panel electronically disengages the iBOT brake for as long as it is pushed and held in. Releasing the “powered” brake button will engage the brake again, to prevent the iBOT from falling onto the operator or another iBOT. This button will only release the brake, however, when the iBOT has sufficient power. In the event that the iBOT requires assistance but does not have sufficient power for the brake button to work, you can release the iBOT brake by pushing the manual brake to the left.

Run screen iBOTs tab

The iBOTs tab on the Run screen will display the status of all the iBOTs in the system as well. Use the iBOTs tab to monitor and maintain your iBOTs. The tab includes a status report for each iBOT, including its power level and destination bin, as well as a graphical display. See page 72 for more information about the graphical display.

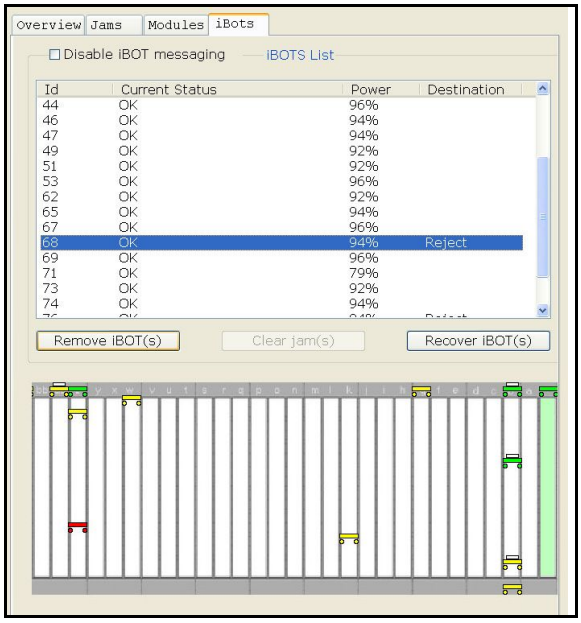


Figure 62: Run screen iBOT status tab

iBOT safety

The circuit board and ultracapacitors that power the iBOT are shielded by a plastic cover to prevent exposure to the operator and to protect the electronics from damage.

> **WARNING:** Do not remove the plastic protective covers from the bottom of the iBOTs. Read Chapter 2: "Safety before attempting to remove and handle iBOTs.

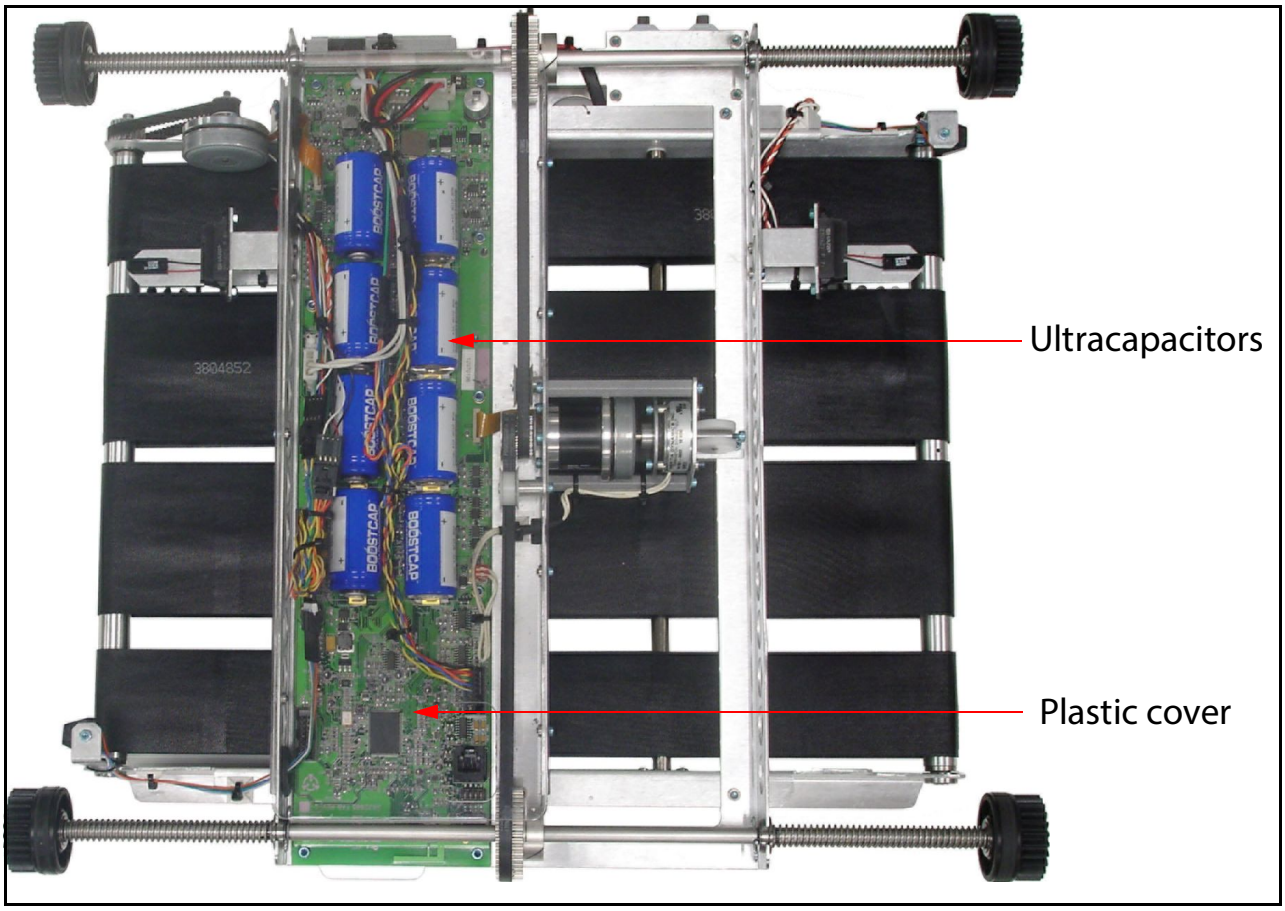


Figure 63: iBOT, seen from below

Removing iBOTs from delivery columns

In the event that an iBOT requires maintenance, it can be quickly and easily removed from the system. An iBOT in need of repair can be swapped for another and returned to OPEX for service.

To remove an iBOT from a delivery column:

Sometimes an iBOT will get stuck in a delivery column, too far away to remove it from the loading assembly. In this case, you must either remove all the bins in the area or the go inside the machine to remove the iBOT.

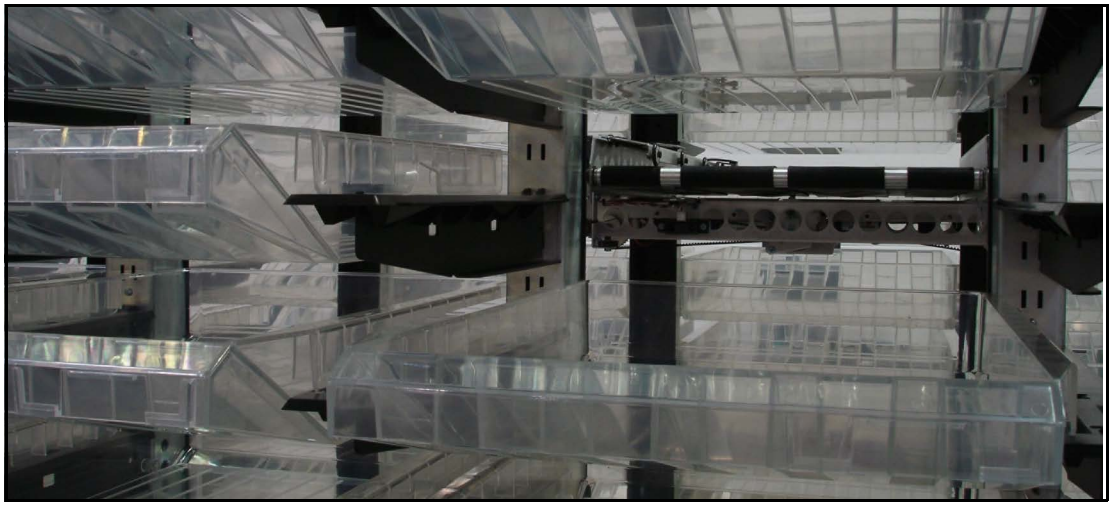


Figure 64: iBOT stuck in a delivery column

1. Open the door to the loading column or the door at the end of the last delivery column. This will release the machine's interlocks and make it easier to manipulate the gates inside the delivery columns.
2. Find a way to access the iBOT in need of attention. You may have to remove several bins and/or move some of the other iBOTs up or down to do

so. You can also enter the delivery columns through the door at the far end of the machine.

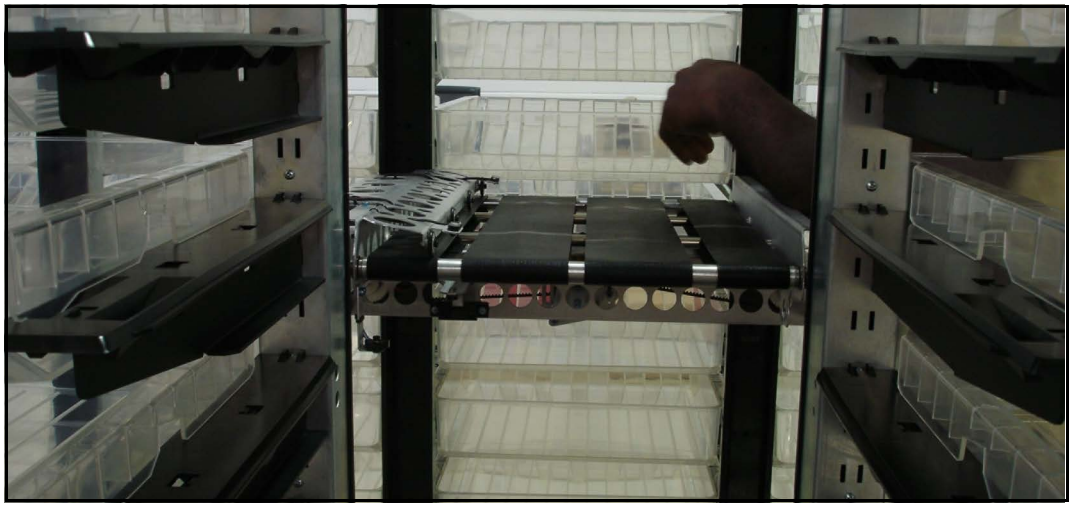


Figure 65: Accessible iBOT

The iBOT in question may not always be directly in a column. If the iBOT is already in the delivery column, proceed to step 3 on page 89. If the iBOT in need of attention is stuck in the horizontal track above or below a delivery column, move the iBOT into a column.

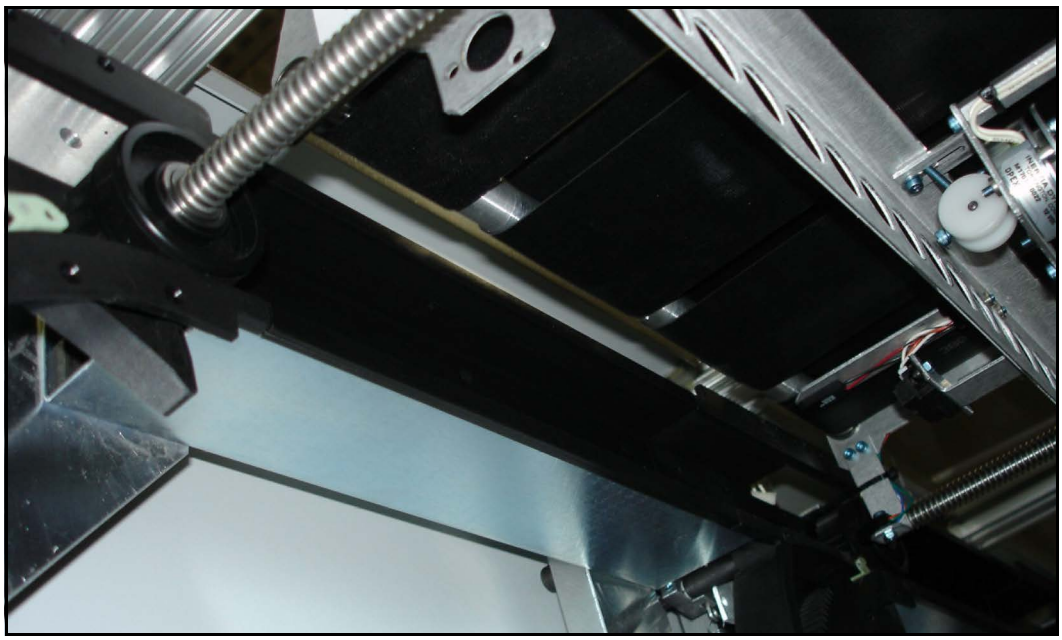


Figure 66: iBOT stuck in horizontal row

a. Press and hold the brake button to release the brake. This will allow the iBOT to move freely from side to side.

b. Open the gates (Figure 67) to move the iBOT down (or up) into the column. Proceed to step 3 on page 89 when you have the iBOT in the loading column.

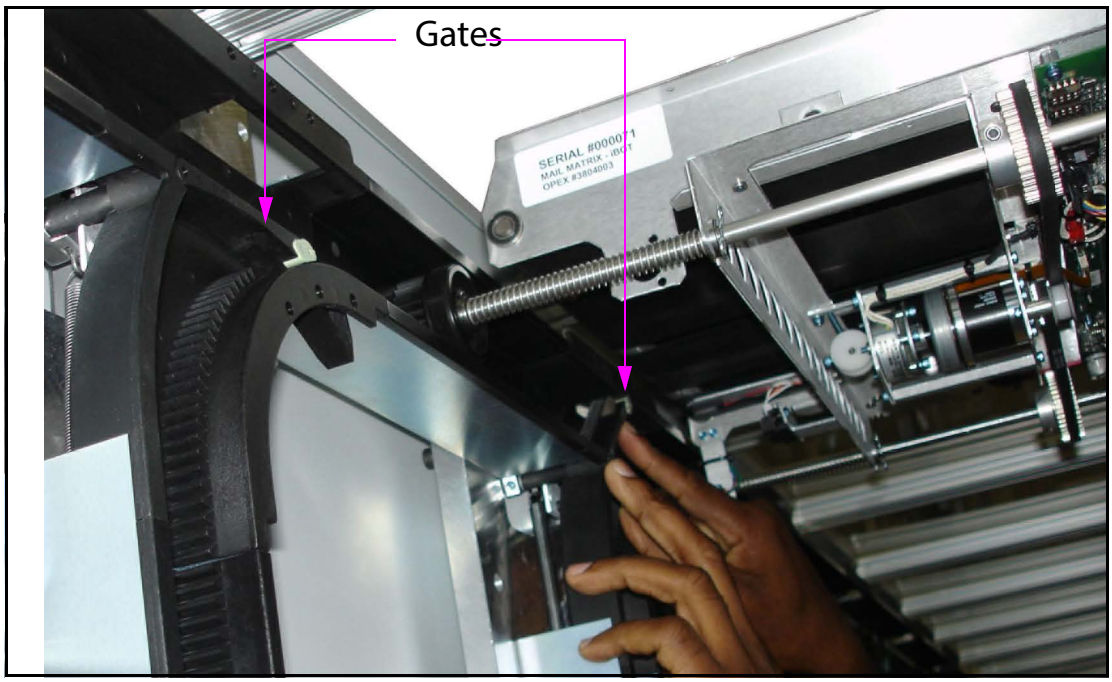


Figure 67: Maneuvering the iBOT into the delivery column

3. Make sure you have access to the underside of the iBOT in the delivery column. Maneuver the iBOT into a position where this is possible.

Figure 68: iBOT accessible in delivery column

4. When the iBOT is accessible in the delivery column, pull the tires and gear wheels from one side of the iBOT away from the tracks and toward the

center of the iBOT, as shown in Figure 69 and Figure 70. The iBOT will fall out of the tracks.

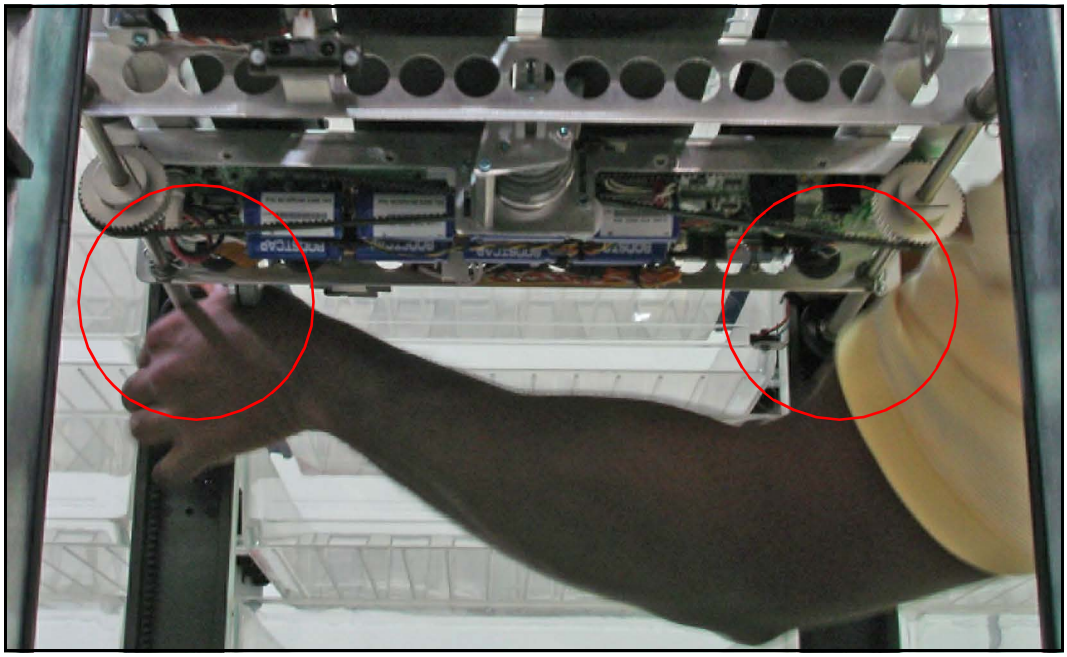


Figure 69: Remove the iBOT

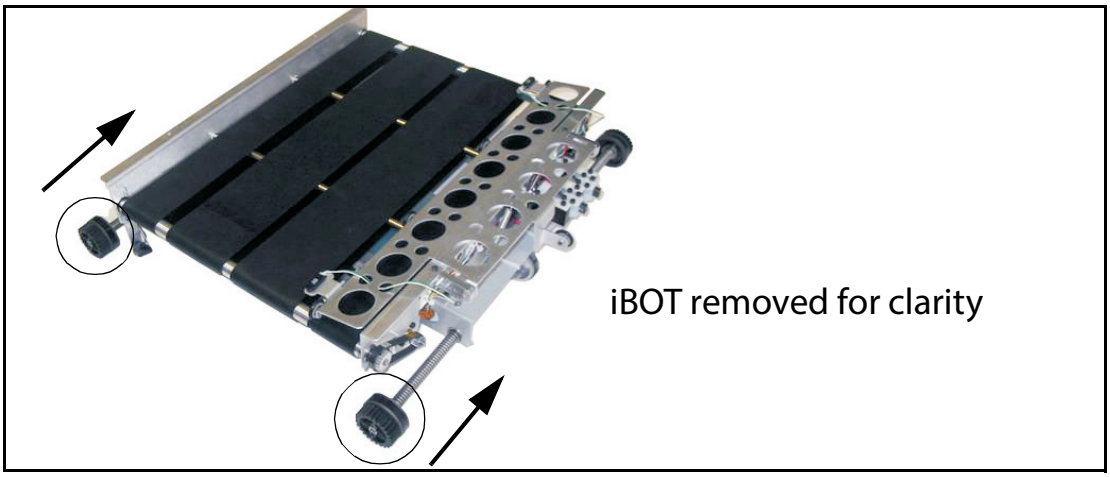


Figure 70: Pull the tire/gear wheel back to remove the iBOT

5. At the Host PC, tell the system which iBOT(s) you removed:

a. Access the Run screen and select the iBOTs information tab.

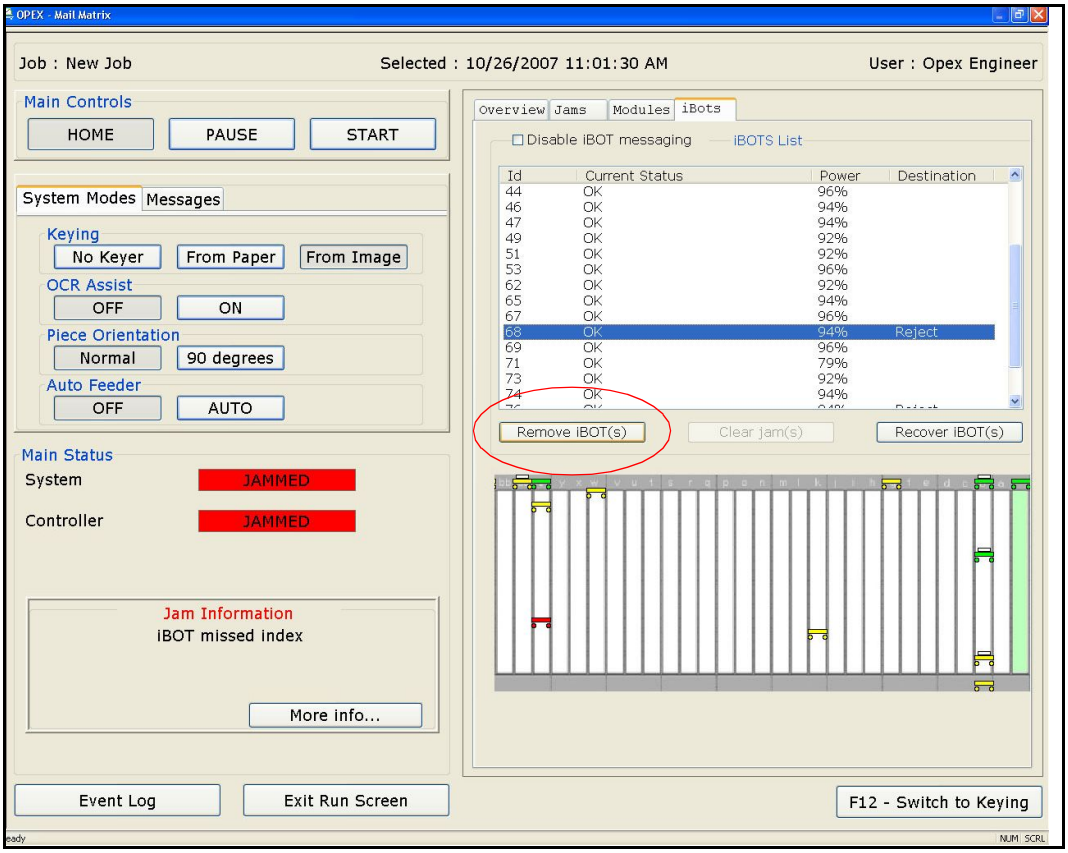


Figure 71: Run screen iBOT information tab

b. Select the iBOT you just removed from the list and click the **`Remove iBOT(s)`** button (Figure 71).

c. Click **`OK`** when asked if you are sure you want to remove the iBOT, then click **`OK`** to verify that you removed the iBOT.

Inserting iBOTs into the machine

The loading assembly drawer in the bottom of the loading column must be used to insert iBOTs into the system so that the gears align properly for tracking purposes. Also, the iBOT Diagnostics screen must always be open whenever an iBOT is inserted into the machine. This is needed so that the iBOT can communicate and perform properly within the system.

To insert an iBOT at the loading assembly:

1. In the host software, go to the **iBOT Diagnostics** screen.

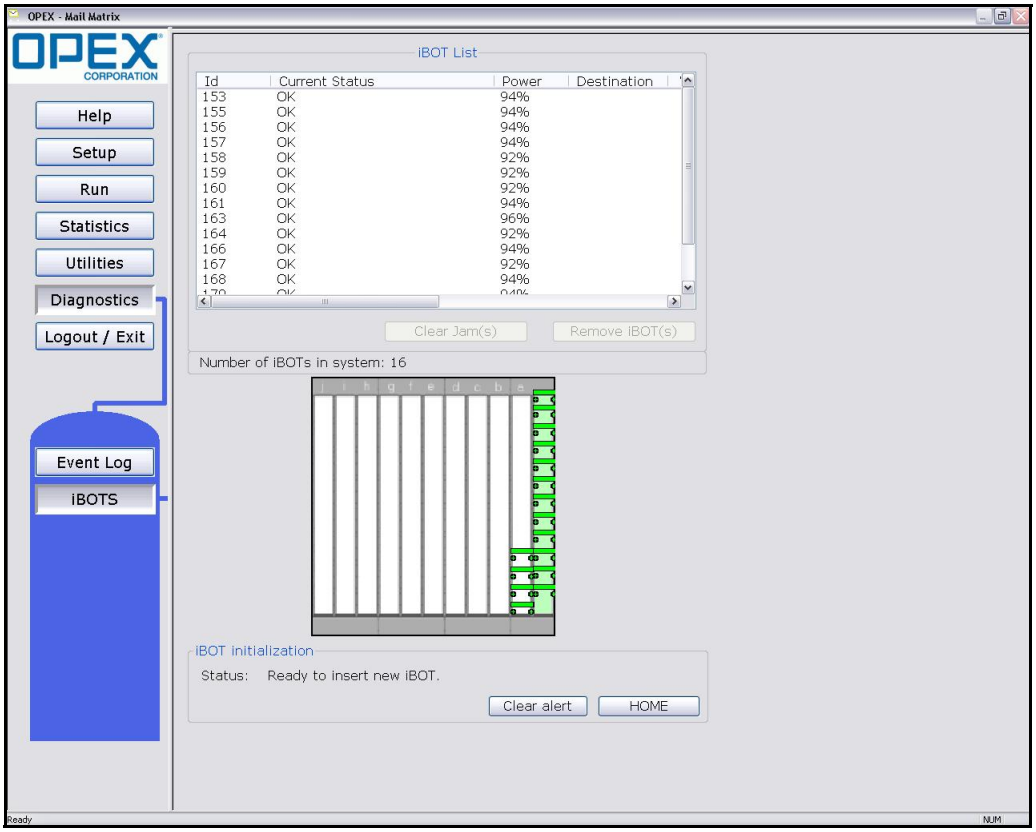


Figure 72: iBOT Diagnostics screen

2. Open the front access door and slide the loading assembly out.

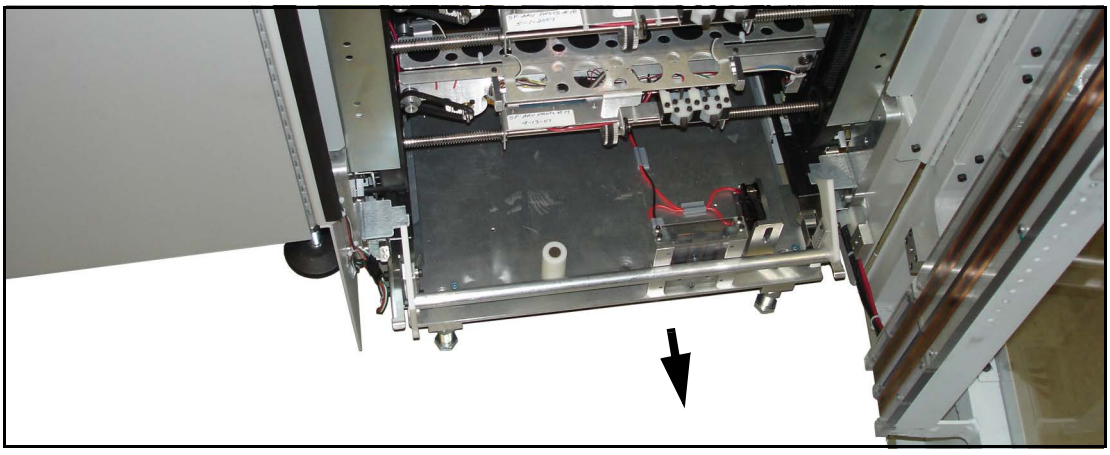


Figure 73: Loading assembly

3. Put the iBOT into place and align it so that the back wheels are beneath the left and right wheel clamps (Figure 74, detail “A”).

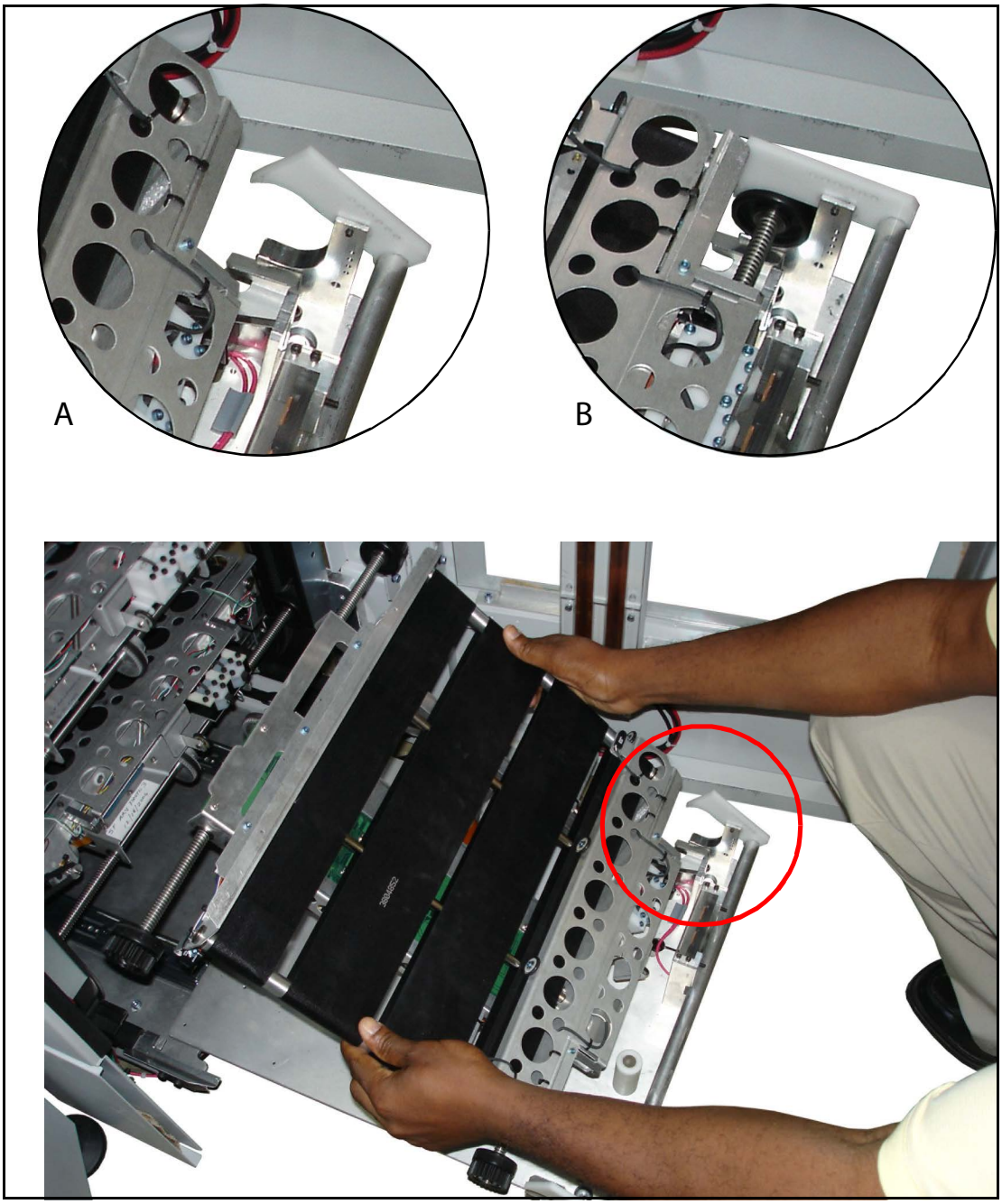


Figure 74: Car loader assembly with iBOT

4. Lift the handle so that the clamps fit down over the iBOT’s rear wheels (Figure 74, detail “B”).

5. Turn the iBOT on and let it sit in this position until the green light on the control panel comes on. A solid green light will indicate that the iBOT is fully charged and ready to be inserted into the machine.

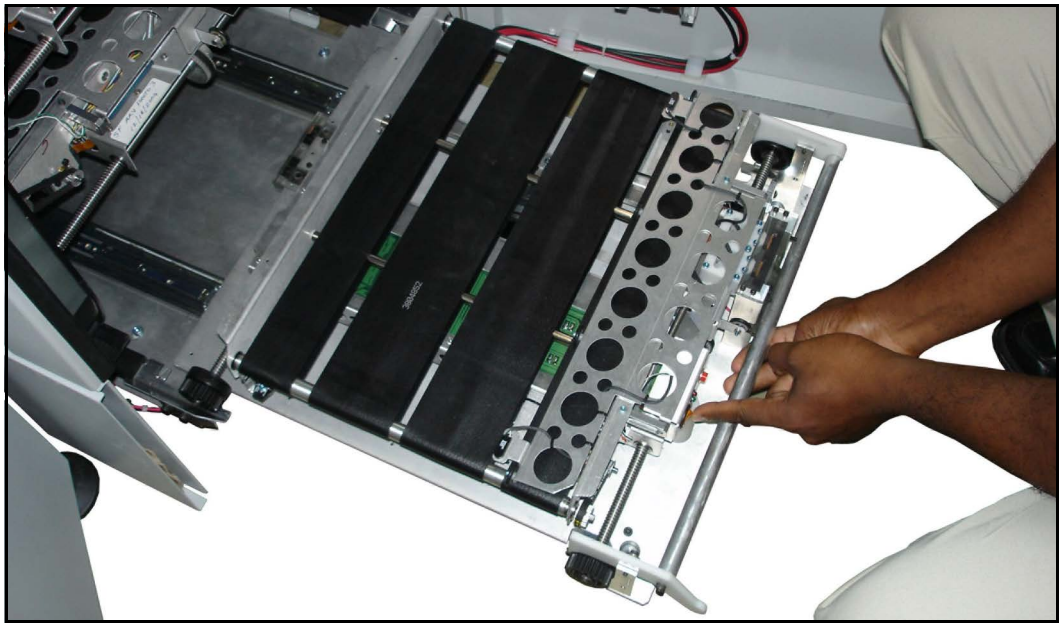


Figure 75: iBOT charging for insertion

6. Slide the loading assembly back into the machine.

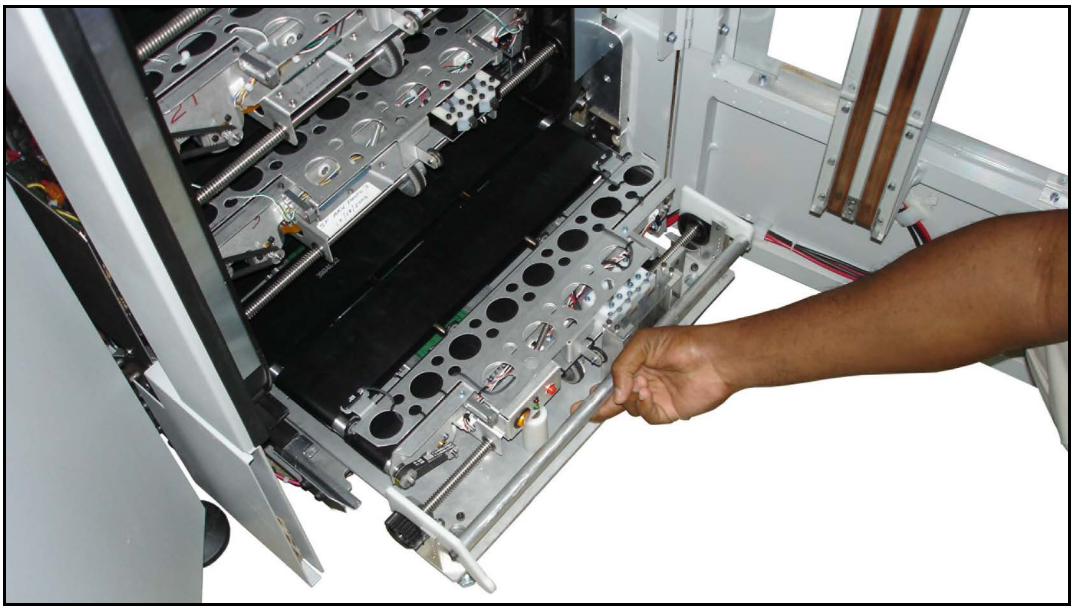


Figure 76: Slide the loading assembly back into the machine

7. Close the access door. The system will automatically recognize the new iBOT.

Sending defective iBOTs back to OPEX

When an iBOT becomes damaged or unusable, contact OPEX Tech Support with the iBOT part number and serial number. They will place an order for a replacement iBOT, and you can then used one of the supplied iBOT shipping boxes to package and ship the defective iBOT back to OPEX.

> **WARNING:** iBOTs with punctured or leaking ultracapacitors cannot be shipped safely and require proper disposal. Refer to "Ultracapacitor product information" on page 43 for information on handling and disposal.

1. Open the iBOT shipping box, then remove and unfold the inner container.

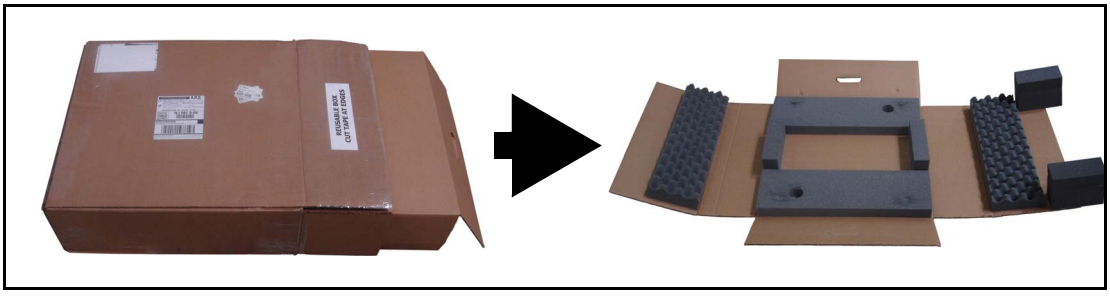


Figure 77: Remove the inner container

2. Place the defective iBOT into position in the middle of the inner container as shown in Figure 78.

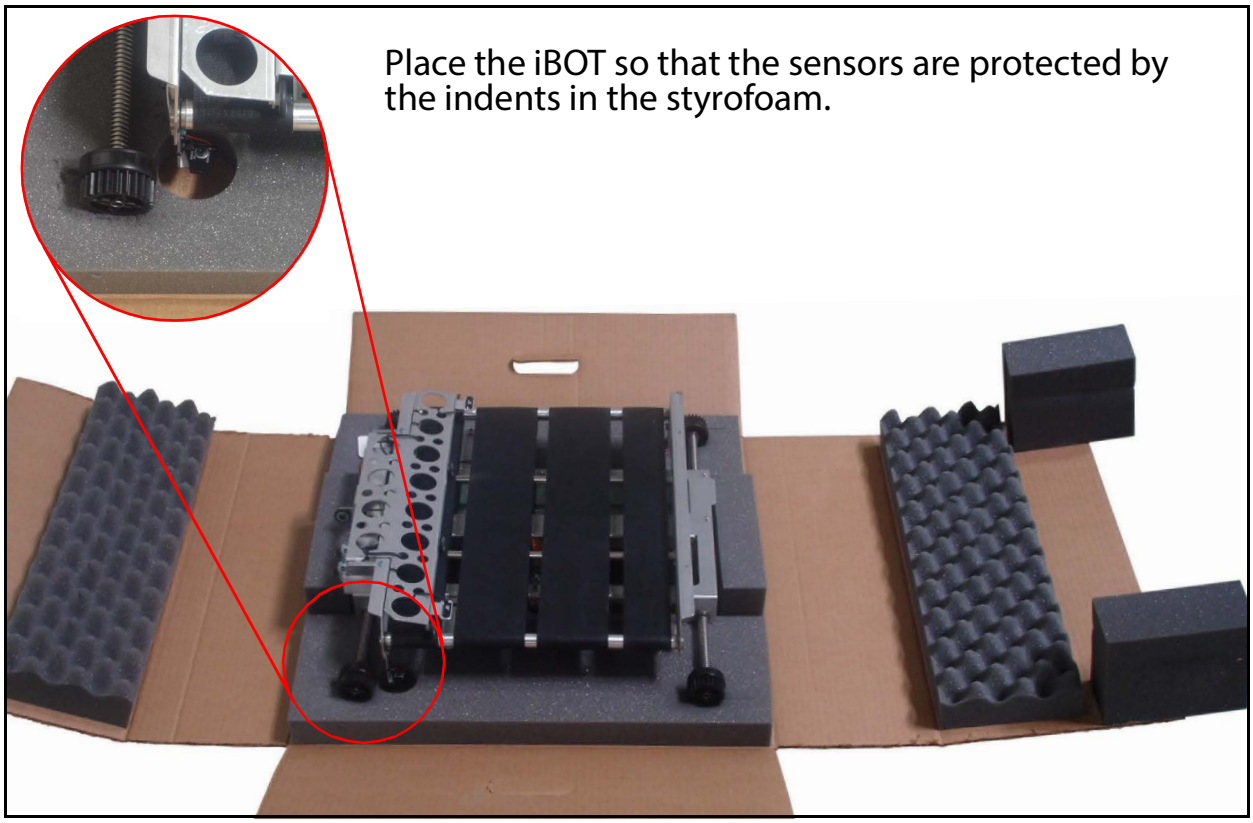


Figure 78: Place the iBOT into the container

3. Close up the inner container, then tape the top where the folds meet.

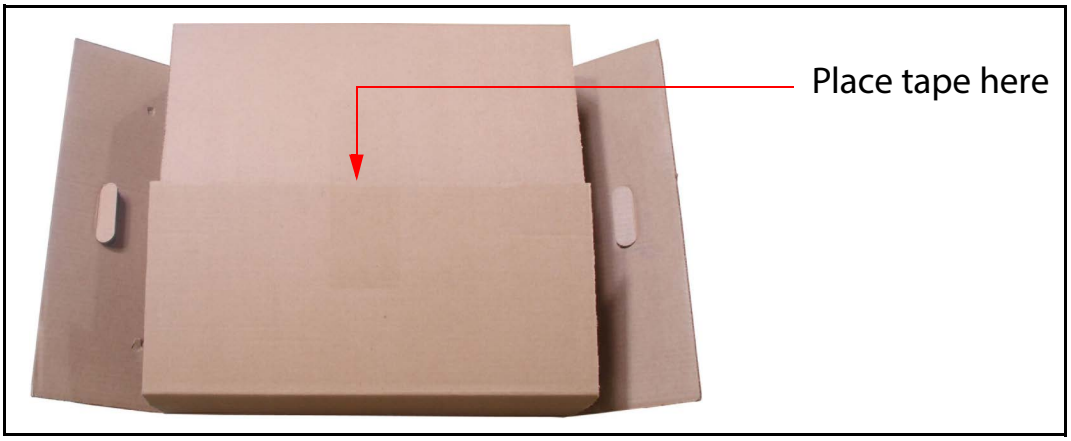


Figure 79: Close the inner container

4. Place the inner container back in the shipping box, and send the box back to OPEX via UPS. The shipping information is already on the box.

iBOT disposal

iBOTs that have failed due to leaking or ruptured ultracapacitors must be handled as follows:

New 3804007 iBOTs: The ultracapacitors on these iBOTs are on their own board. Remove and dispose of this board in accordance with your local regulations, as municipalities differ in their disposal requirements.

All other iBOTs: The ultracapacitors cannot be safely removed from the iBOT. The iBOT must be disposed of in accordance with your local regulations, as municipalities differ in their disposal requirements.

WARNING: Refer to "Ultracapacitor product information" on page 43 for more information on handling and disposal.

Shift operators should perform the following duties:

- Vacuum all areas of the paper path. Pay special attention to:
  - Conveyor area

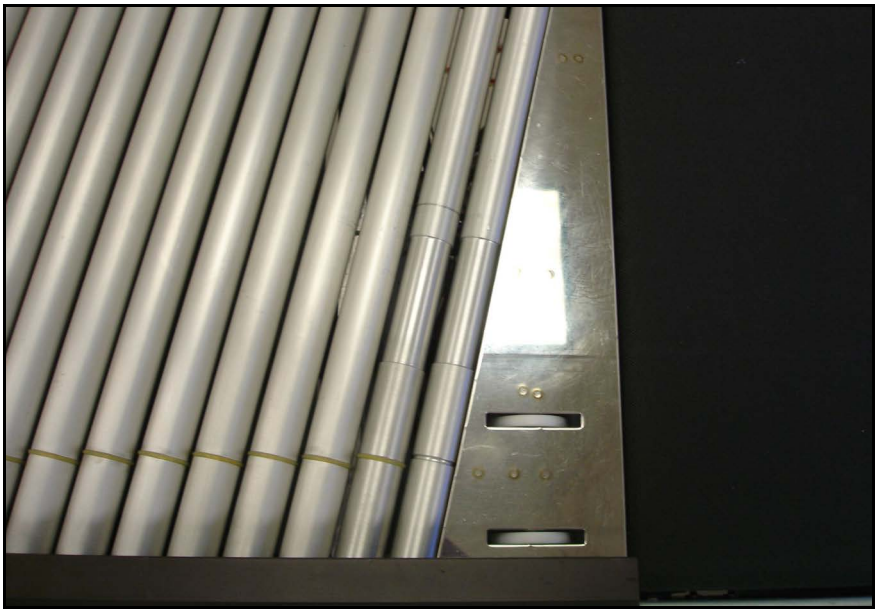


Figure 80: Conveyor area

  - iBOT loading area

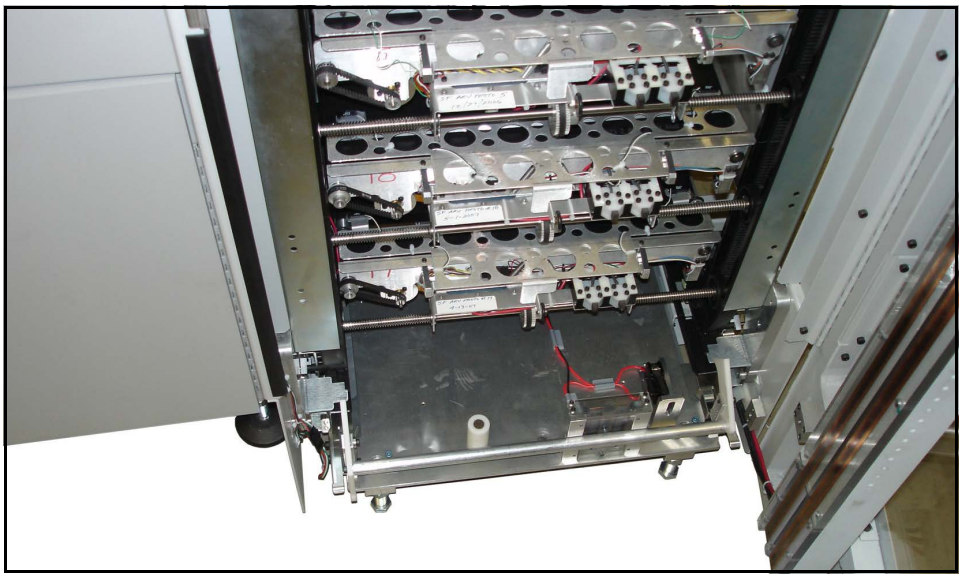


Figure 81: iBOT loading area

5 Optional Printer-Labeler

The optional printer-labeler system enables automated printing and application of adhesive-backed labels onto passing pieces. The print job can be configured using a variety of pre-selected print formats containing a barcode and/or several lines of text. The system is available with or without a barcode verifier scanner. Some label examples are shown below:

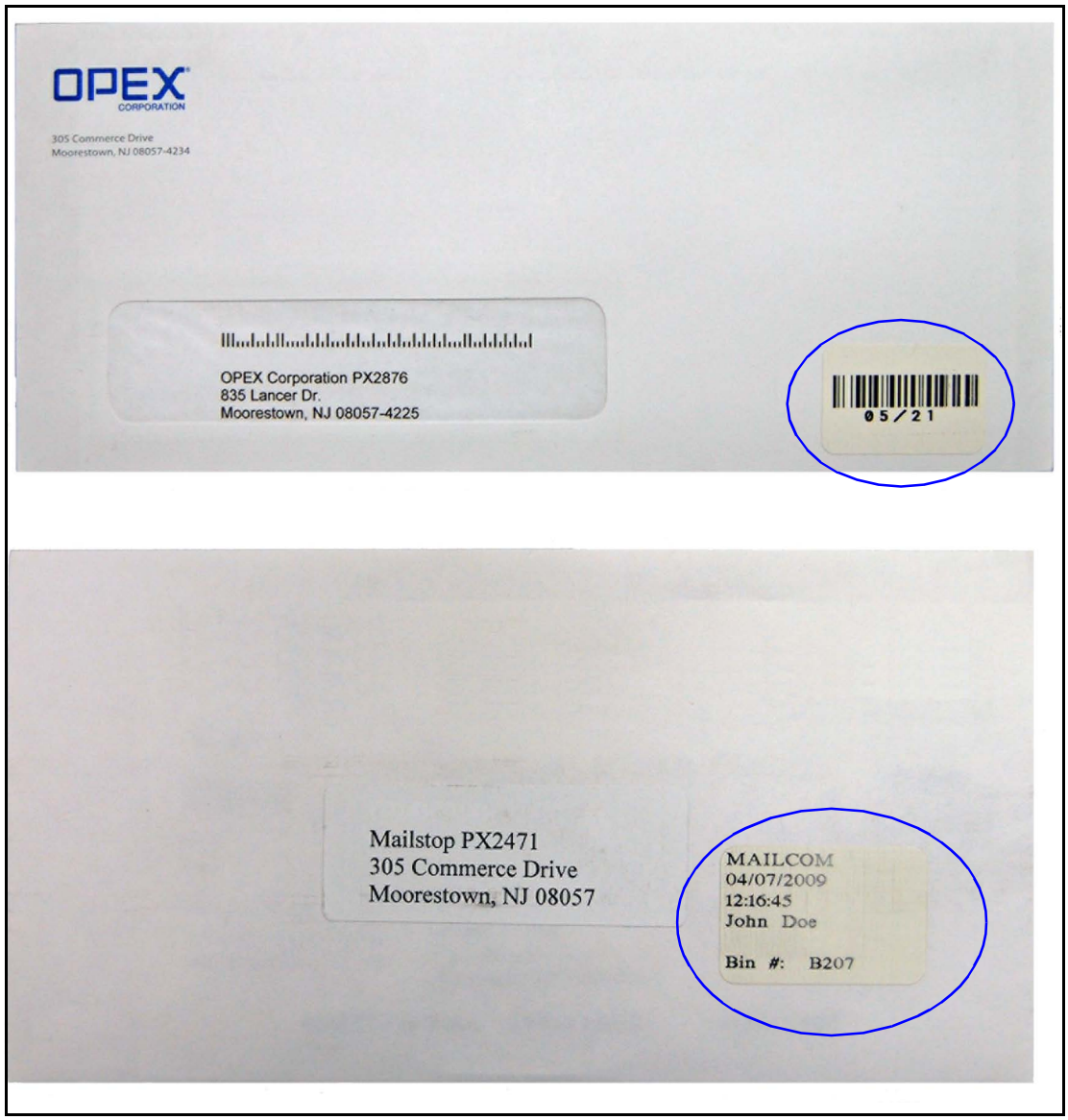


Figure 82: Labels

Major components

The printer-labeler is housed in an enclosure attached to the base module. The enclosure can be rotated open to allow access to the label roll, printer, and labeler arm. Two separate safety interlocks prevent inadvertent machine operation while the printer-labeler is open. See Table 1 on page 102 for component descriptions.

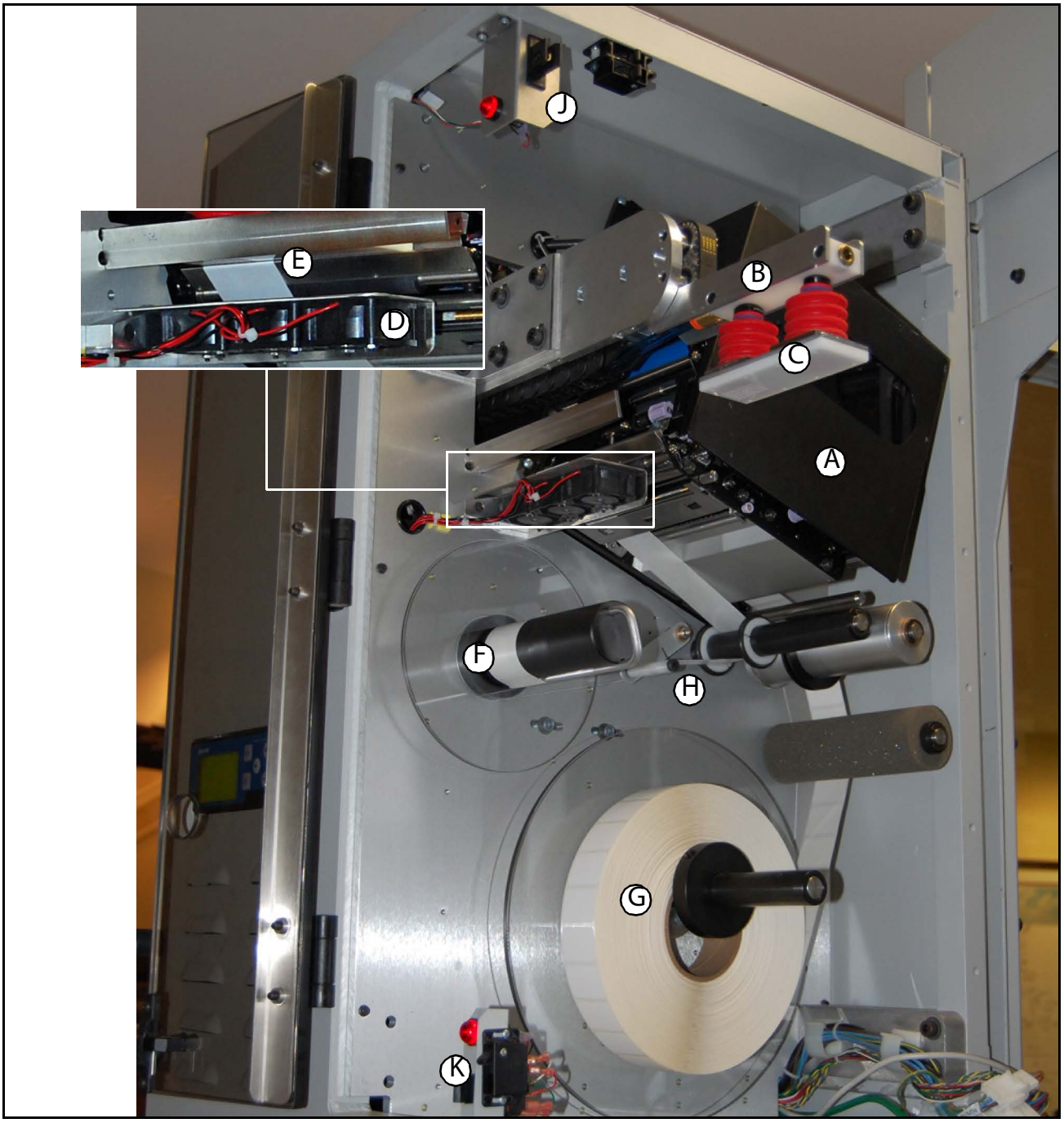


Figure 83: Printer-Labeler overview

Table 1: Component Descriptions

Item	Description
A	**Printer** - prints labels. (Replacement printer ribbon: Part number 7282620)
B	**Labeler arm** - transports printed label to the mail piece. (Shown extended.)
C	**Label pad** - holds the label while it is transported to the mail piece.
D	**Label assist fans** - (See inset) 3 fans located under peel plate to aid in label transfer to pad.
E	**Peel plate** - (See inset) Point where printed label is separated from the web and transferred to the label pad.
F	**Label winder** - Take-up reel for empty label web.
G	**Label stock** - 12” roll of 1” x 1.5” labels, 10,000 per roll. (Part number 7329501)
H	**Dancer arm & roller** - Removes excess slack from label web.
J	**Safety interlock 1** - Stops the Mail Matrix whenever the printer enclosure is open.
K	**Safety interlock 2** - Stops the Mail Matrix whenever the small printer access door is open.

Printer control panel

The printer can be switched online and offline via the **LINE** button on the control panel of the enclosure. A blank label can be dispensed from the printer using the **FEED** button.

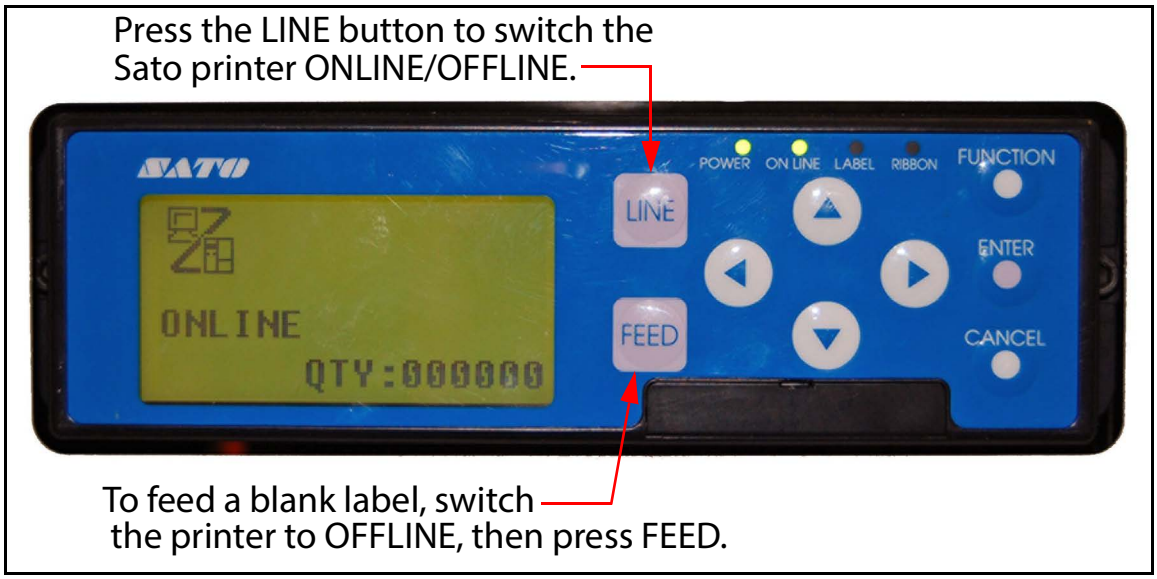


Figure 84: Printer control panel

Note: *Additional functions of the control panel are not used for normal operation. For assistance with the control panel, contact OPEX Technical Support.*

Mail piece detection sensor

To prepare a mail piece for labeling, the iBOT briefly pauses next to a sensor panel in the loading column. The iBOT conveyor moves the piece against the panel, where it is detected by an infra-red sensor. The sensor ensures that the piece is properly positioned on the iBOT to receive a label.

If the mail piece is missing or too skewed to be detected by the sensor, no label will be printed. A piece that is too skewed will be delivered to the reject bin. Once the mail piece is detected, the iBOT conveyor withdraws it from the panel and the iBOT transports it upward to receive a label.

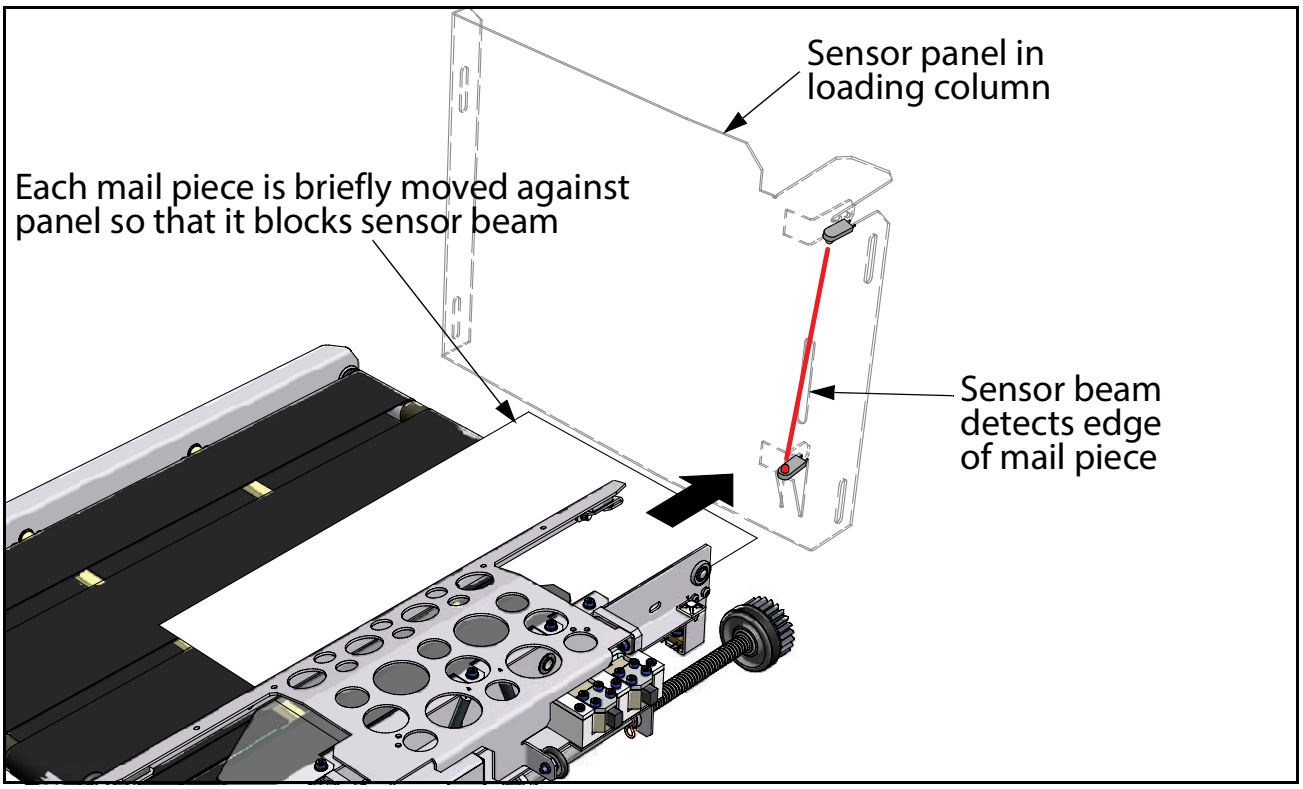


Figure 85: Mail piece detection sensor

Modified base module

To accommodate the printer-labeler, the front of the base module has been extended by about 13 inches. The main charging rail has been relocated to a pivoting tubular frame. A lever connects the frame to the front door, so that the frame swings out of the way when the door is opened.

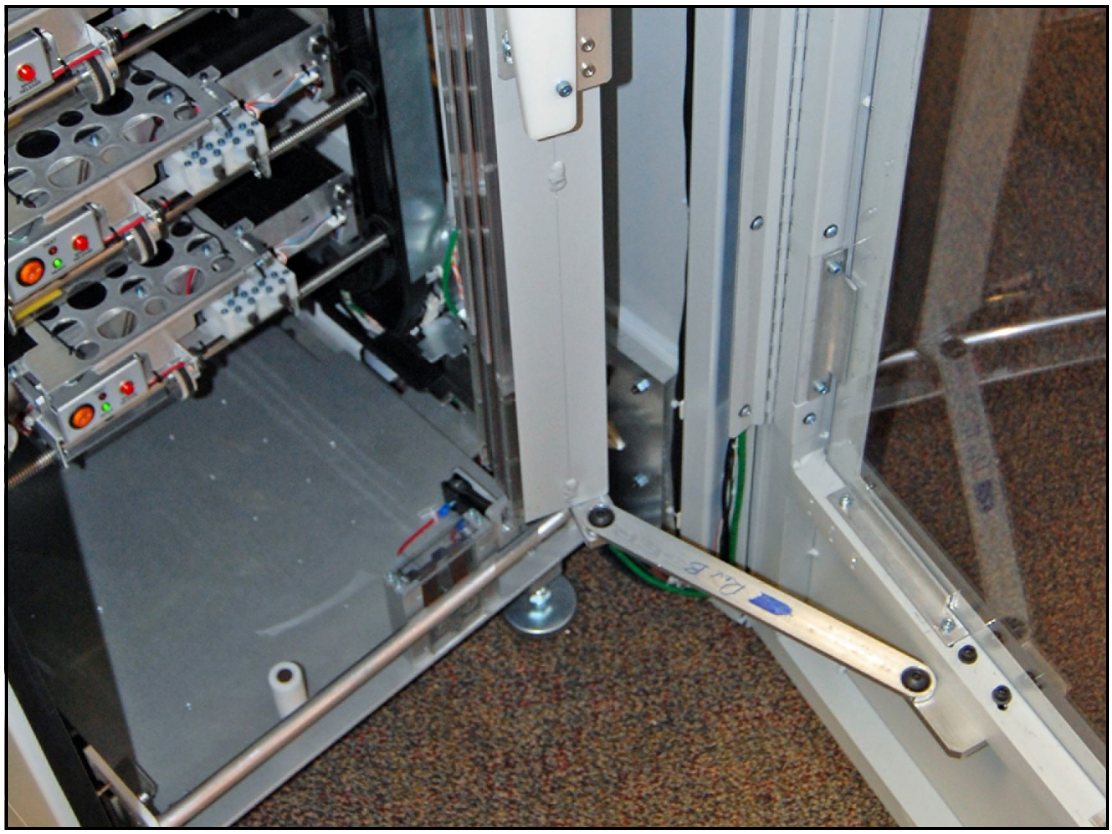


Figure 86: Modified main charge rail mounting

Optional verifier

A barcode verifier scanner is available as an option. The verifier scanner is mounted to a bracket on the main charging rail. It is used to confirm that a label was successfully applied to the mail piece.

Figure 87: Barcode verifier scanner

Printer-labeler workflow

The workflow of the printer-labeler and general order of operation is described below:

1. Mail piece moves past the imager and onto the iBOT and the host begins OCR/DRS bin assignment process.
2. While the DRS bin assignment is in process, the iBOT moves up to the mail piece detect position, where the iBOT conveyor moves the mail piece forward to the sensor panel. This causes piece to overhang the iBOT by approximately ½ inch.
3. When the mail piece reaches the panel, its lower right corner must be detected by the mail piece sensor. If the sensor does not detect the piece, no labeling will occur and the iBOT will move the piece to the reject bin.
4. When both the DRS bin assignment and piece detection are confirmed, the printer begins printing a label for the mail piece.
5. The iBOT moves up toward the label application point.
6. The label is loaded onto the applicator pad.
7. The labeler arm extends.

8. When the iBOT reaches the label application point, the label applicator pad is forced down against the envelope, applying the label.
9. After applying the label, the labeler arm retracts, so that it is ready to pick up the next label.
10. The verifier scanner then captures an image of the label to confirm that the label is present. If no label is present, the iBOT will move the piece to the reject bin.
11. If the label is present, the iBOT moves the mail piece to the assigned bin.

A flow diagram of the printing-labeling process is shown below.

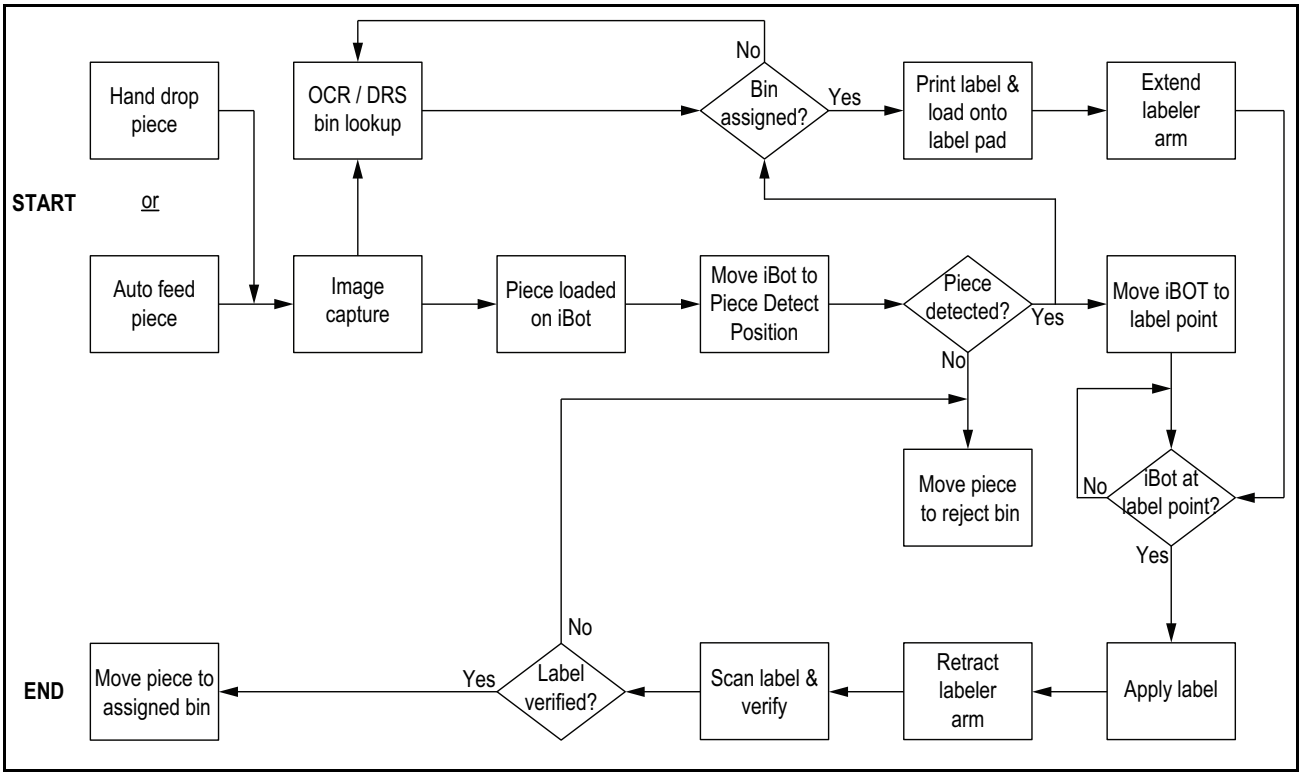


Figure 88: Printing-labeling process

Enabling the printer-labeler

The printer-labeler must be enabled in the job in order to print labels. Supervisor-level and Manager-level operators can enable the printer-labeler using the host software as follows:

1. Go to **Setup > Parameters**.
2. Under the Job tab, select the desired sort job, and then select **Printer-Labeler General Setup**.

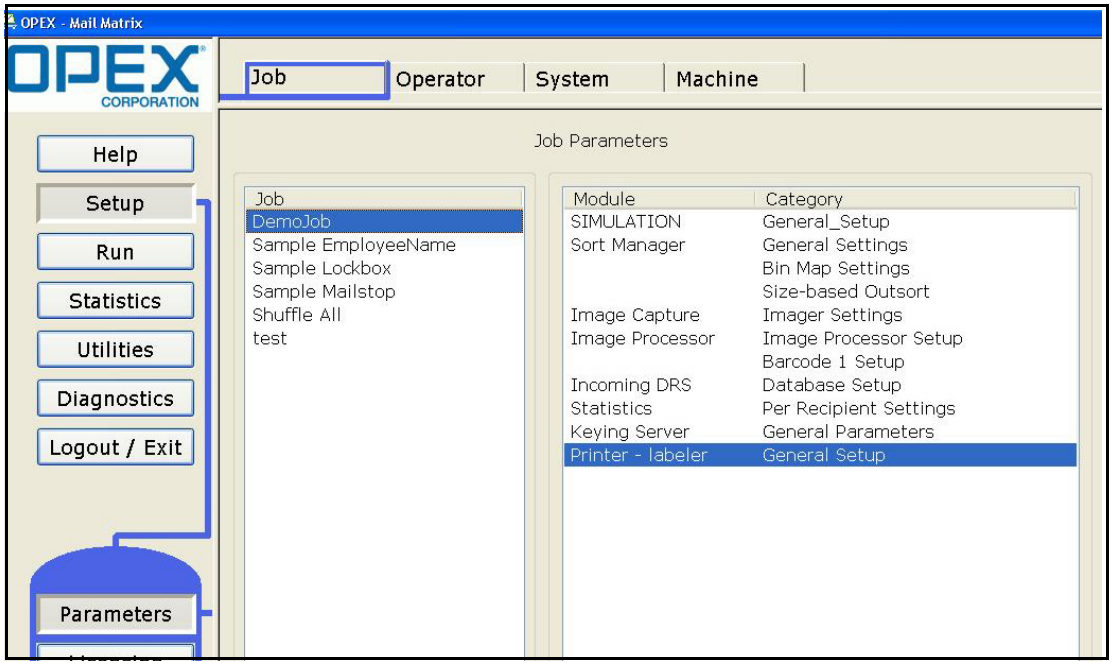


Figure 89:

3. In the Label printing setup box, select the **Enable** button. If you are running the printer-labeler for the first time and/or need to create a new label, click

on **Label setup** to go to the Label setup screen. Otherwise, click **OK** and proceed to the Run screen to begin the sort job.

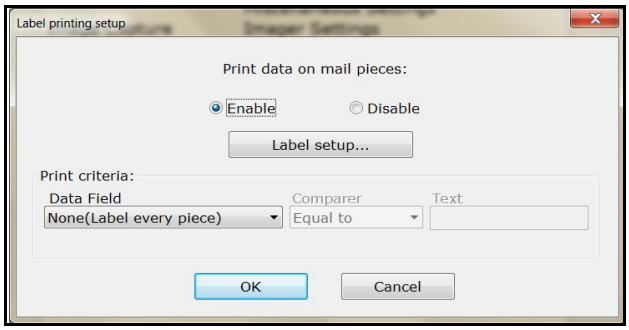


Figure 90:

Configuring a label

In the Label setup screen, you can choose print layouts containing a barcode and/or several lines of text, set the time and date format, and enable barcode verification.

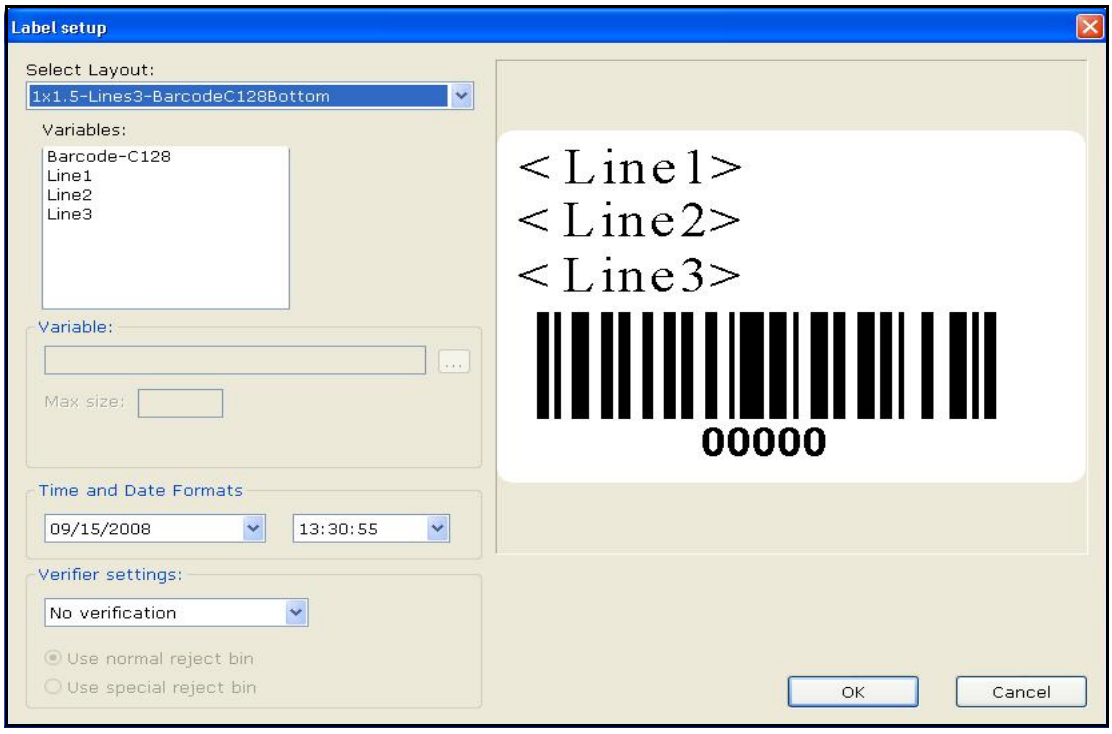


Figure 91:

To configure a label:

1. Select a print layout for the label. You may choose one of five possible layouts:

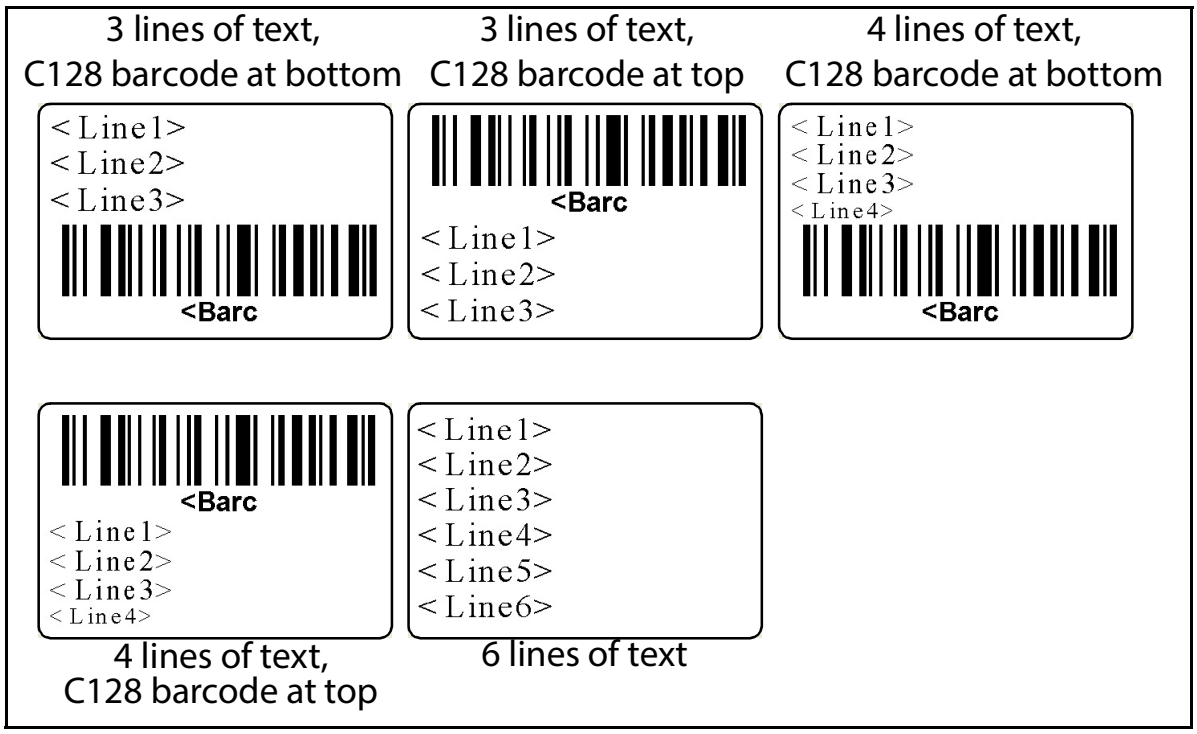


Figure 92: Label layouts

2. Once you have selected a print layout, you can then specify the content of the barcode and text lines you want to print:
   a. Highlight the line in the **Variables:** window, then press the continue "..." button below to open the Variable field configuration screen.

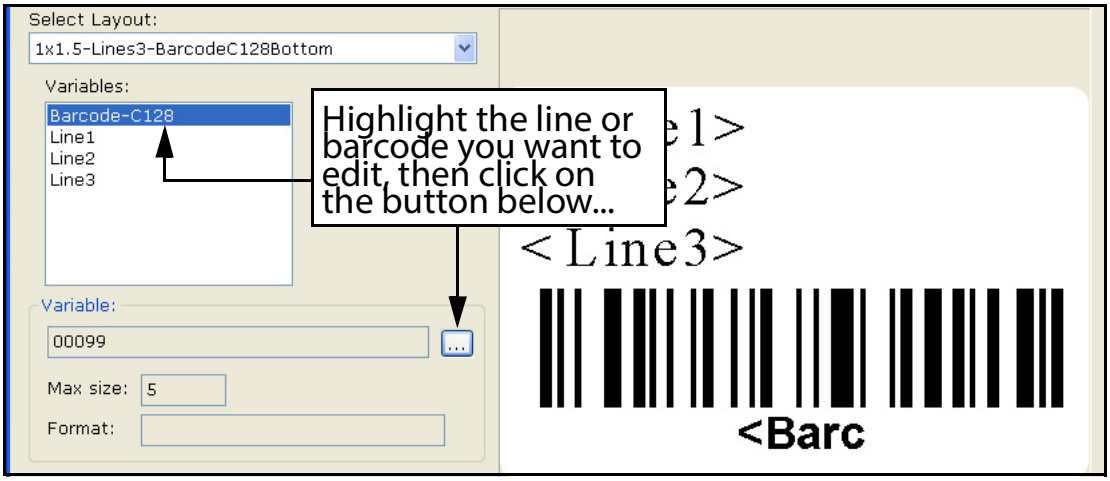


Figure 93:

3. The Variable field configuration screen allows you to do the following:

   a. You can insert any variable content from the field on the left by highlighting it and then adding it to the line by clicking the **Add** button.

   Note: *If space permits, you may add more than one variable to a line or barcode. Make sure the line length does not extend past the edge of the label.*

   b. You can insert any "Fixed" text of your choice into a line or barcode.

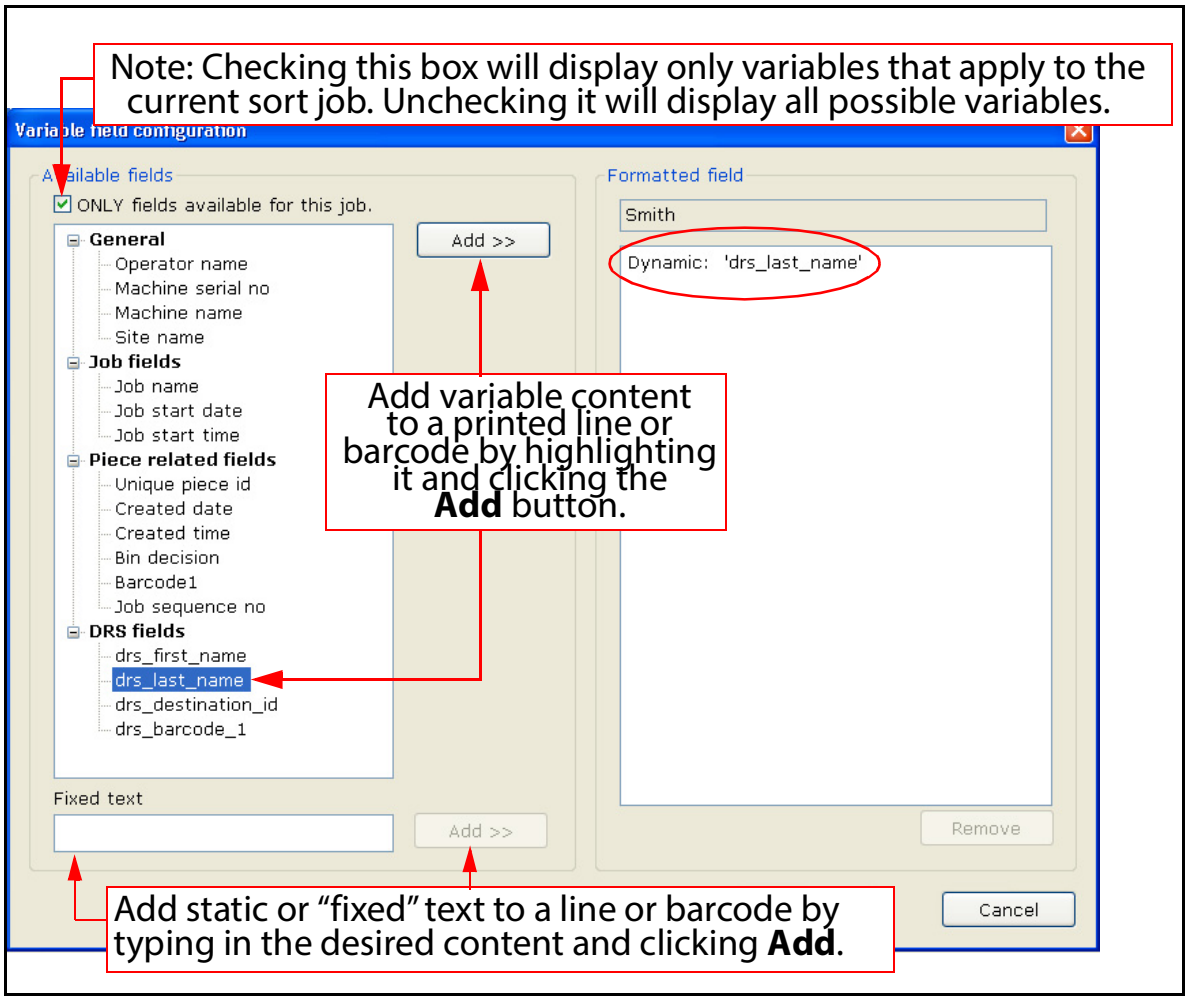


Figure 94:

4. Once your entry is complete, click **OK** to return to the label setup screen. The line will now be displayed in the preview pane with the variable(s) you just entered.

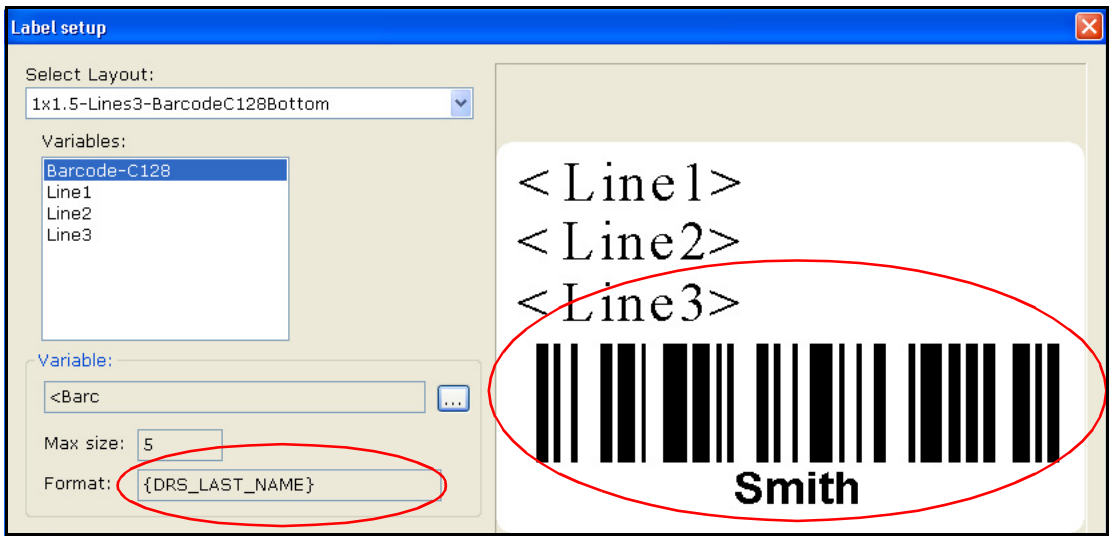


Figure 95: Preview

5. Repeat steps 2, 3 and 4 for the remaining text lines as desired.
6. If your print job includes the date and time, choose an appropriate format for date and time from the drop-down lists.

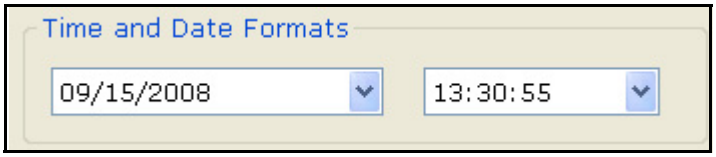


Figure 96: Time and Date Formats

7. If a verifier scanner is installed, you can enable it by selecting an appropriate barcode setting from the drop-down list.

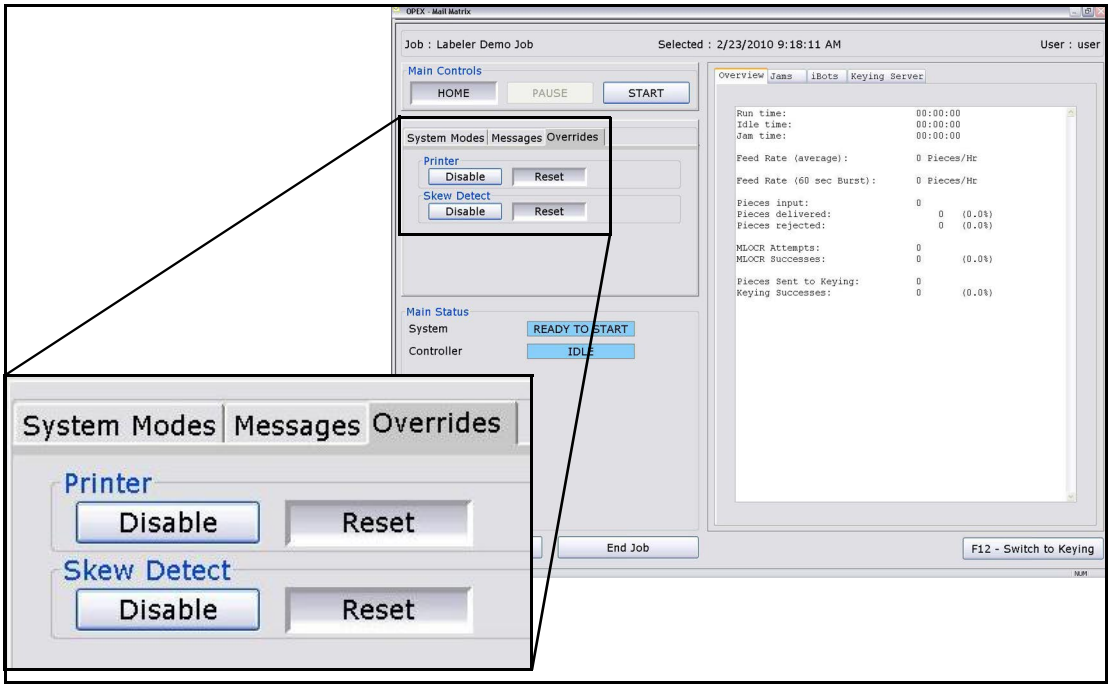
Figure 97: Verifier settings

8. When you are finished, click **OK** and proceed to the Run screen to begin the sort job.

Printer-labeler job overrides

In the Run screen, the Overrides tab allows you to enable or disable the printer and skew detect functions from within the job. The functions will remain toggled in their disabled state after logging out; they will not reset until an operator clicks on the **Reset** buttons. To run a labelling job, make sure these functions are enabled.

Enabling or resetting an override cannot be done when the machine is running; only when the machine is stopped or jammed.



> **CAUTION:** Print head is hot during and immediately after operation. Allow printer to cool thoroughly before servicing.

Replacing label stock

For replacement label stock, order OPEX part no. 7329501.

1. Open the printer lid.

Figure 98: Printer lid

2. Locate the print head release lever (A), pressure roller plate release button (B), and label sensor release latch (C).

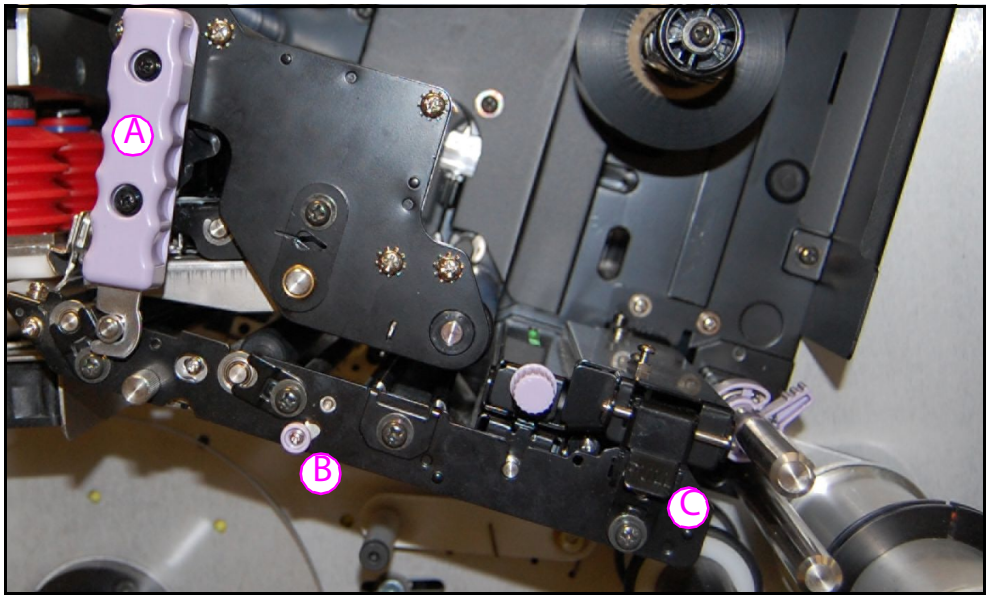


Figure 99: Component locations

3. Move A and B in the directions shown to release the print head and pressure roller plate. Pull up on C to release the label sensor.

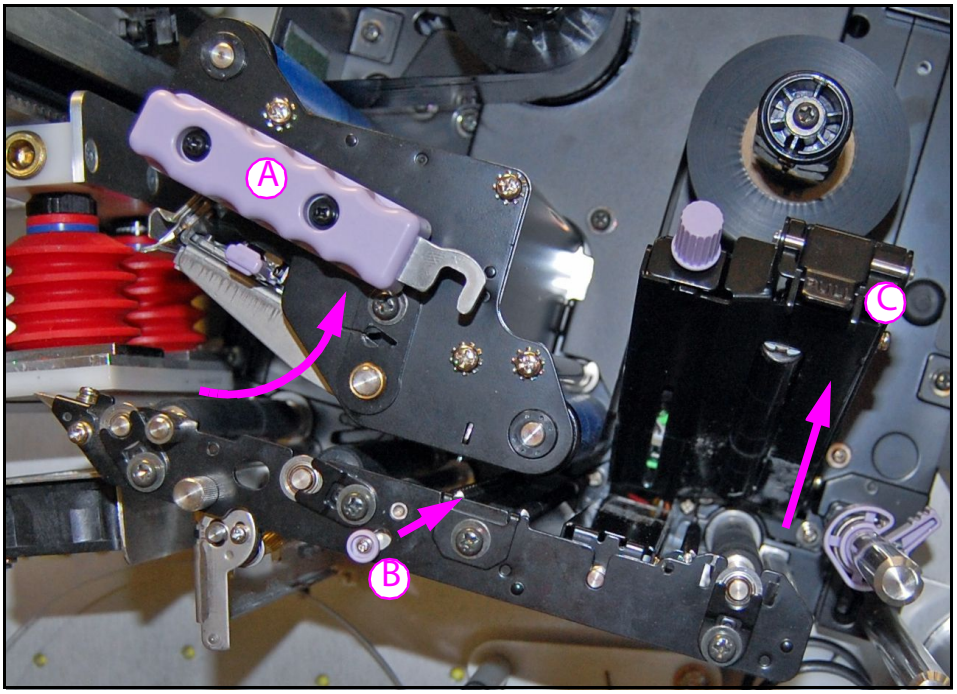


Figure 100: Releasing the print head, pressure roller plate, and label sensor

4. Gently clean the sensor window of any dirt or adhesive residue.

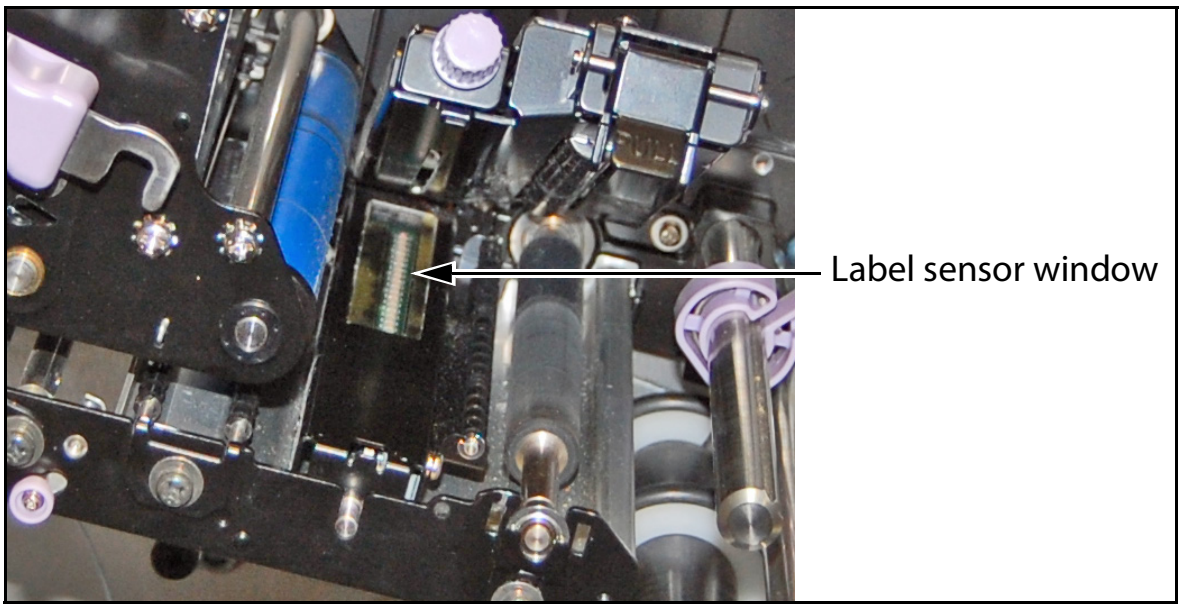


Figure 101: Sensor window

5. Peel off all labels from the first three feet (1 meter) of the new label roll, then load the new label roll onto the supply reel in the orientation shown below.

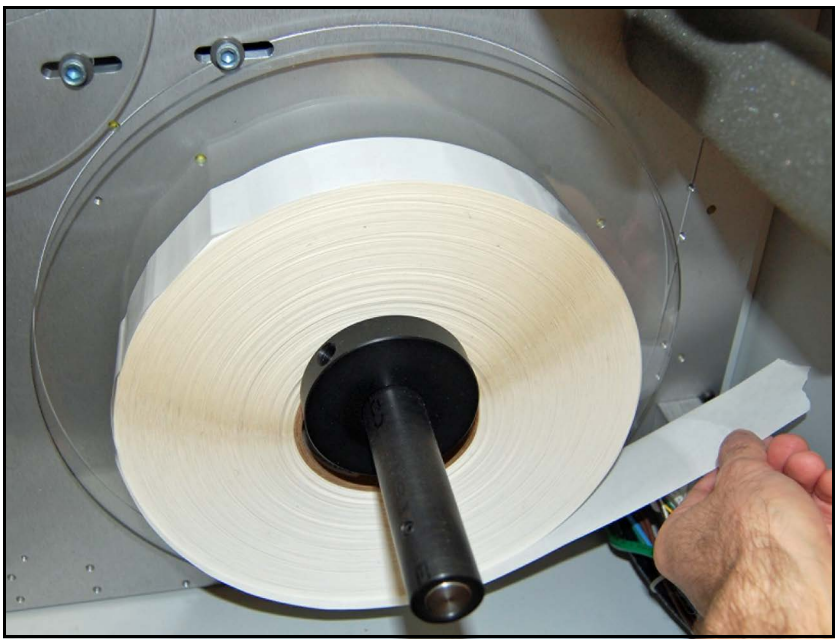


Figure 102: Labels feed under and to the right

6. Guide the label backing up around the outside of the large rollers.

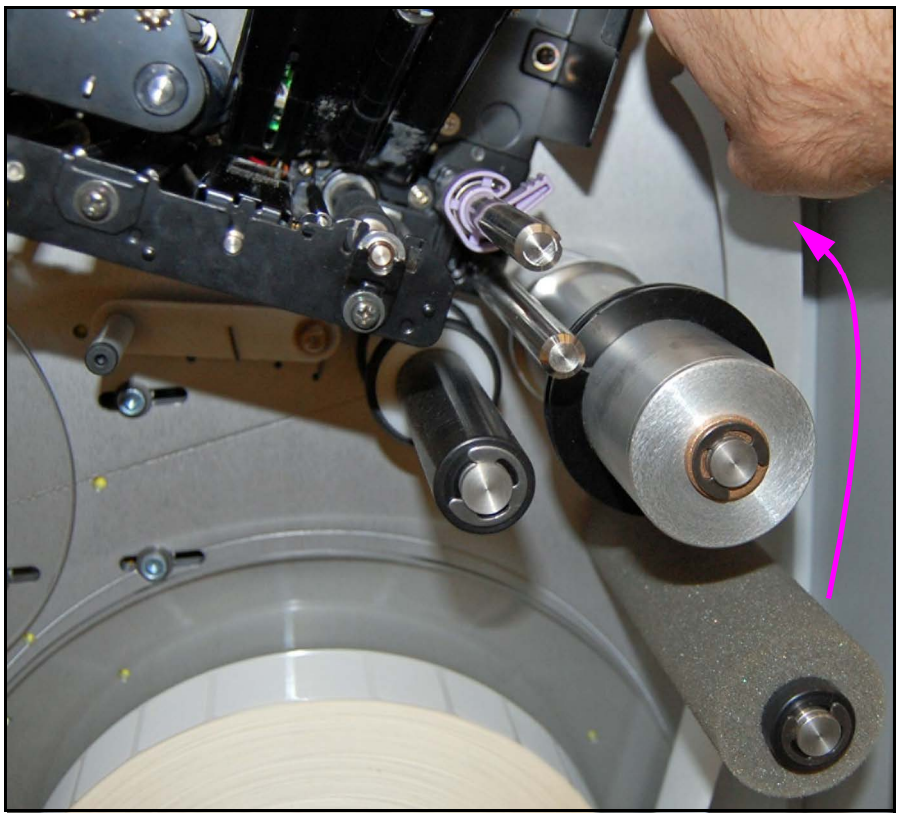


Figure 103: Around the outside

7. Feed in between the two metal guides, in between the label sensor halves, then underneath the print head.

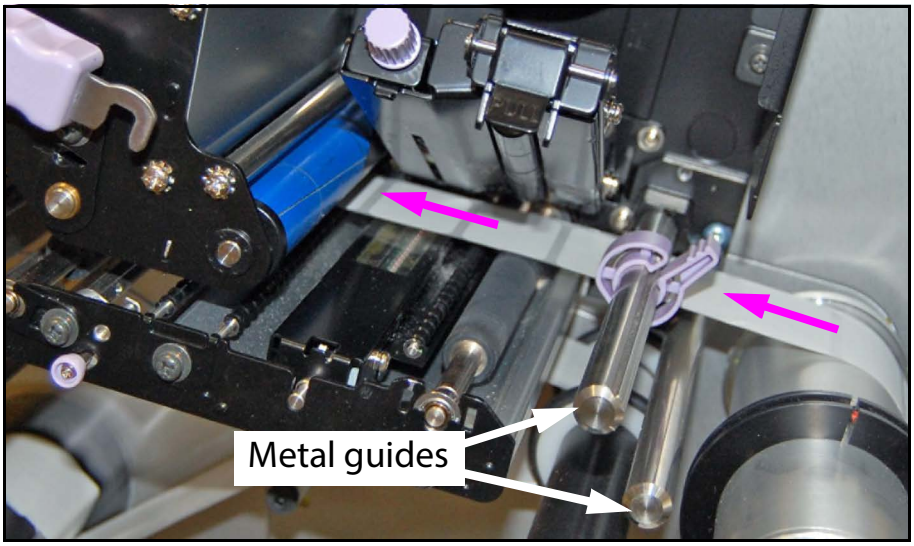


Figure 104: Between the guide posts

8. Feed the backing over the edge of the peel plate, then through the slot in the pressure roller plate.

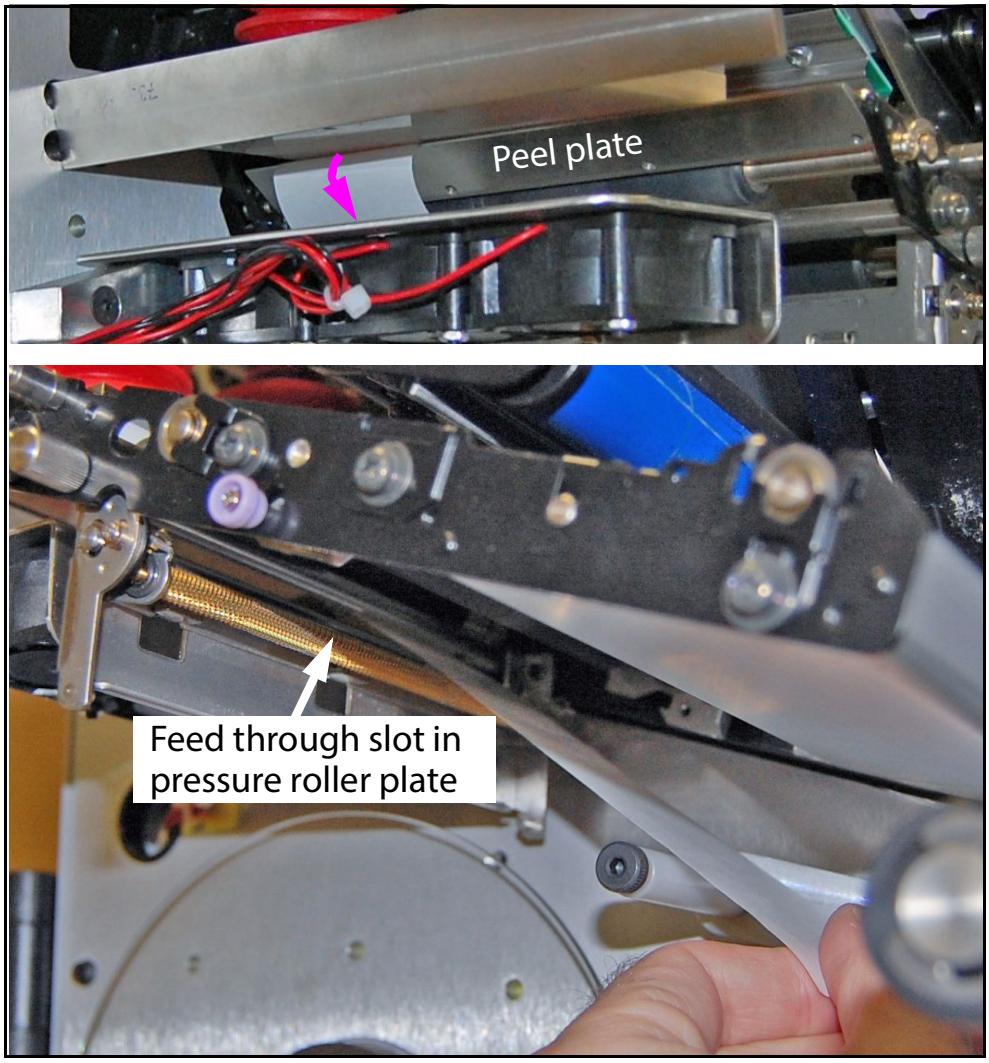


Figure 105: Over the peel plate and through the PR plate

9. Route around the small black roller, then over the dancer arm.

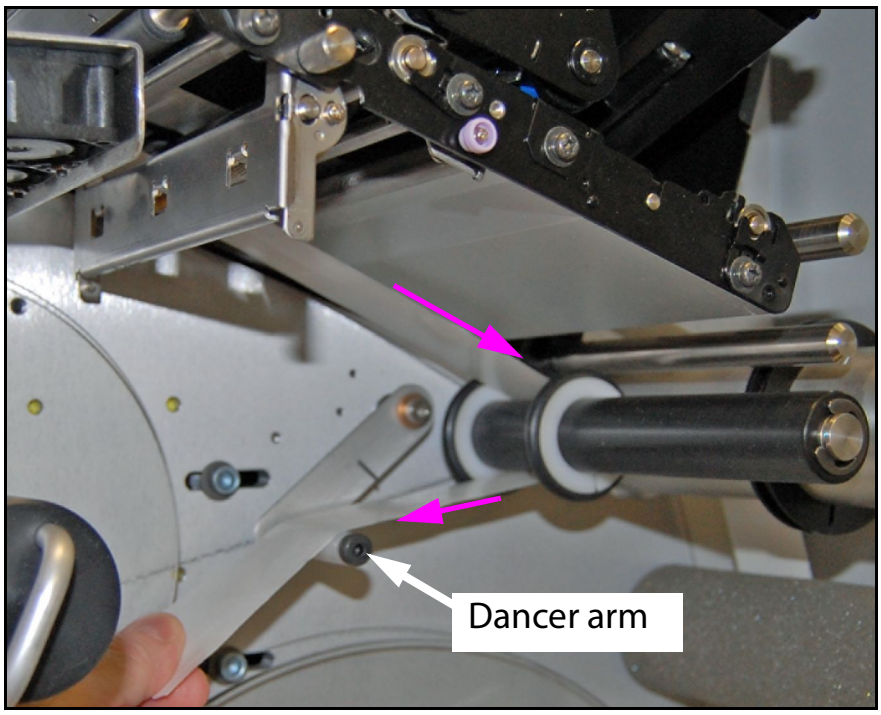


Figure 106: Around and over

10. Pull out the U-shaped clamp on the take-up reel, attach the backing to the reel in the orientation shown, and tape in place with a blank label.

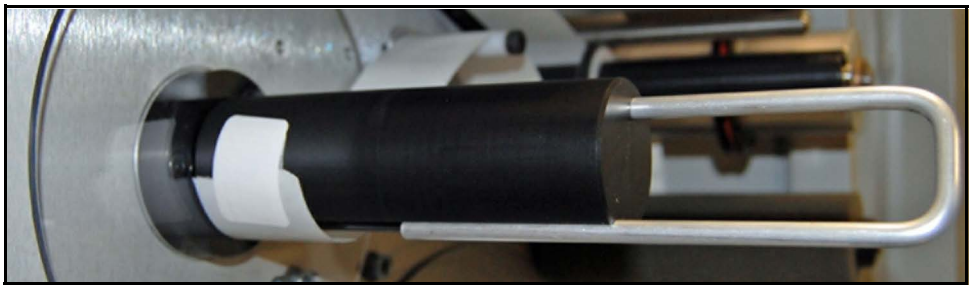


Figure 107: Take-up reel

11. Slide the clamp over the backing, and then turn the reel clockwise until the leading edge of the first label is centered over the rubber roller near the print head, as shown below.

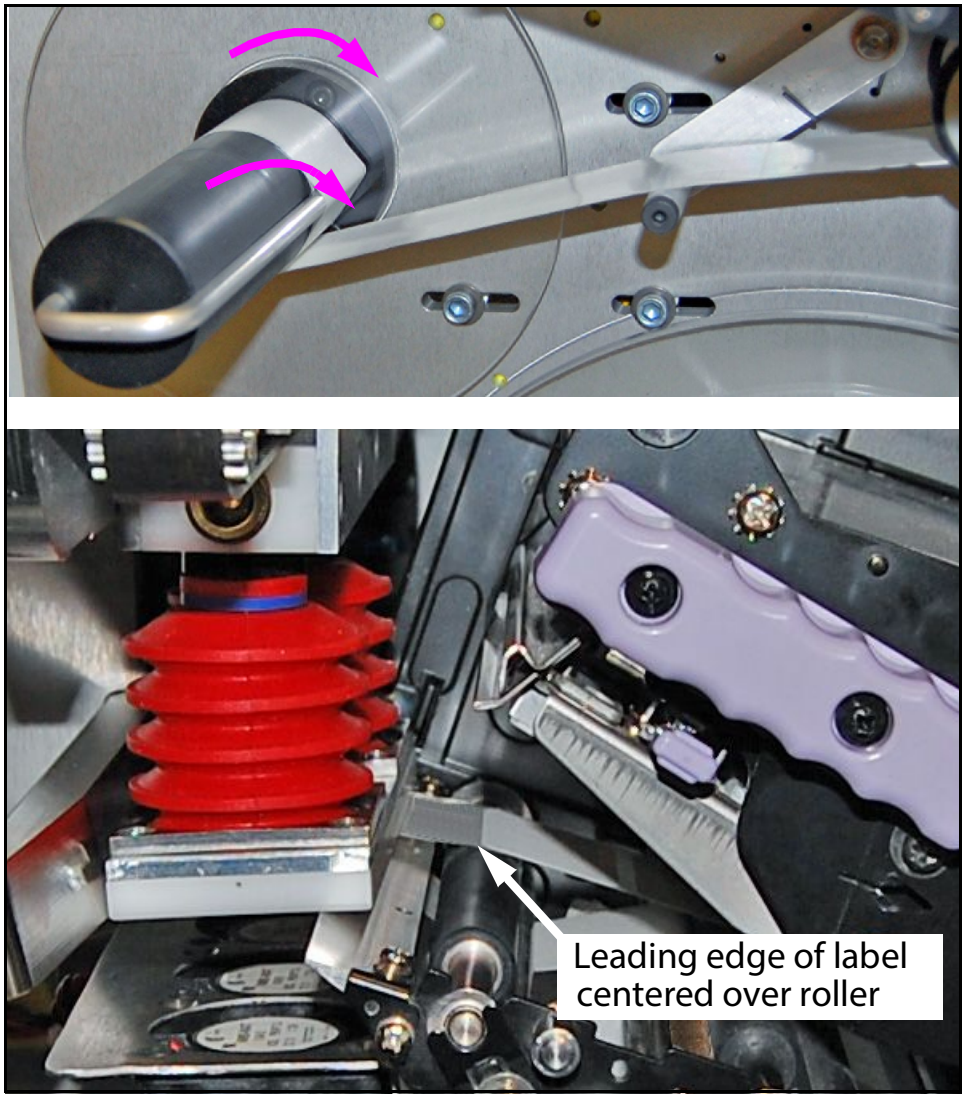


Figure 108: Turn the reel to position the label

12. Looking from the side, make sure the path of the label backing is properly aligned to an imaginary center line, as shown below. It should not be angled or binding anywhere along its length. Adjust the guide rings shown to about 1/16” (1-2 mm) distance from the side of the backing.

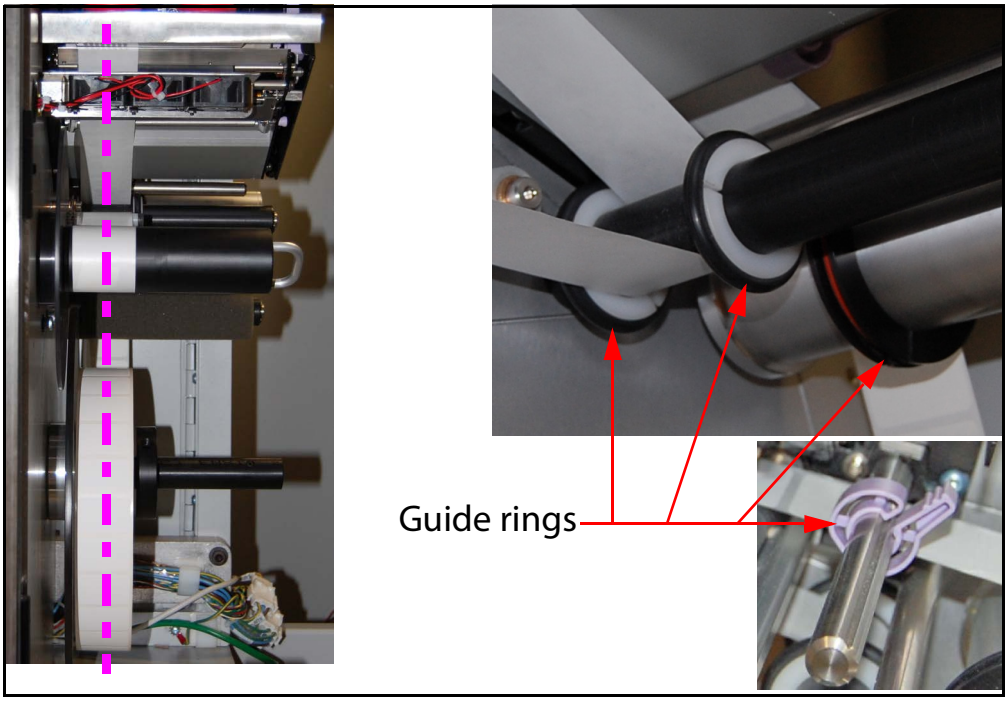


Figure 109: Center the label path, and adjust guide rings

13. Re-engage the print head, pressure roller plate, and label sensor.

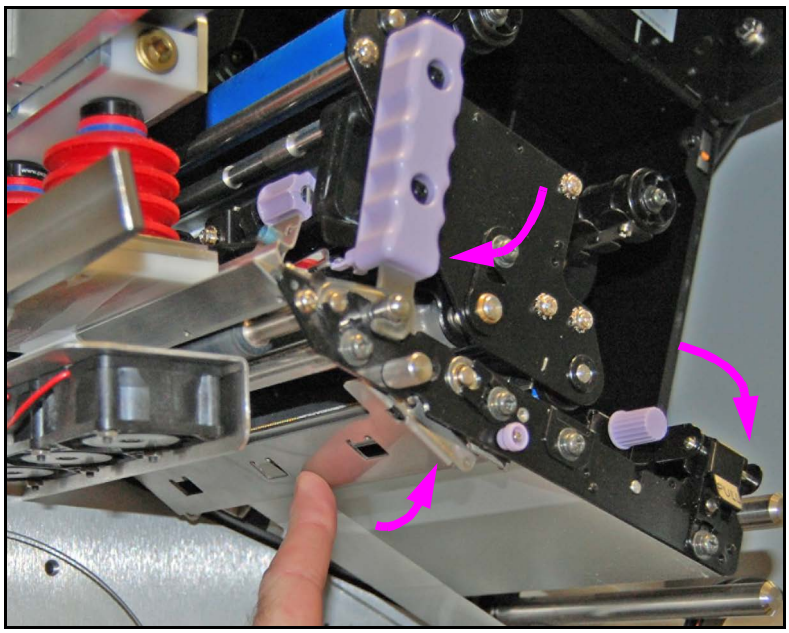


Figure 110: Re-engage components

14. Check the position of the label sensor. The label sensor detects gap between labels and must be adjusted according to the label width in use. Currently, the printer-labeler uses 1.5-inch-wide labels. Thus, the sensor position indicator must be at the mark shown in the figure below. If necessary, move the sensor indicator to the correct position by turning the sensor adjustment knob left or right.

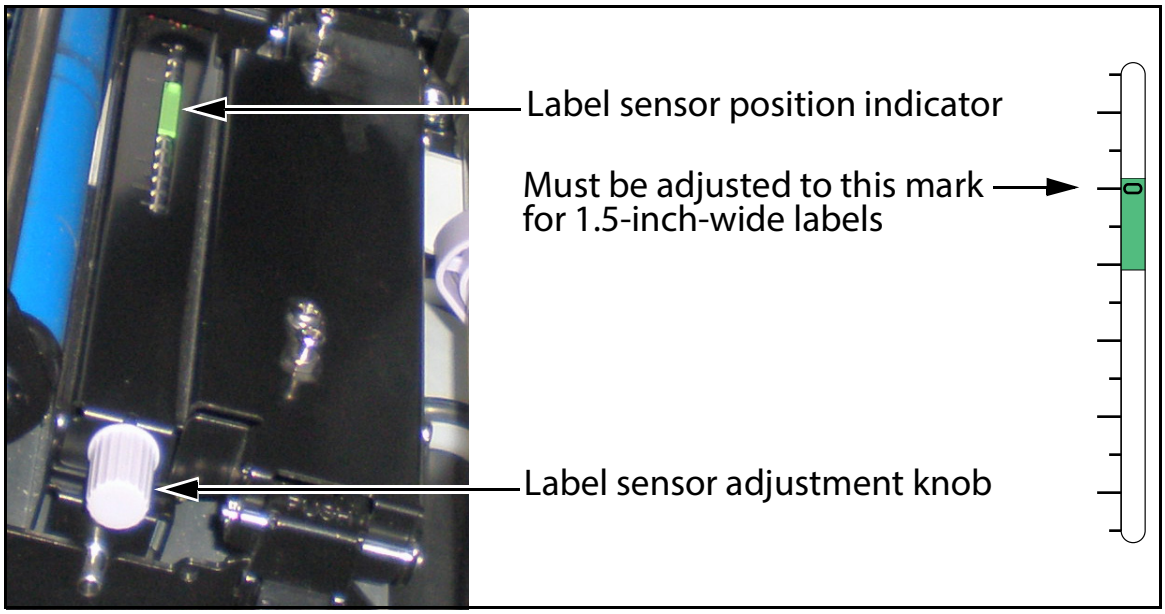


Figure 111: Label sensor positioning

15. Close the printer lid.

16. On the printer control panel, press the **LINE** button to set the printer ONLINE.

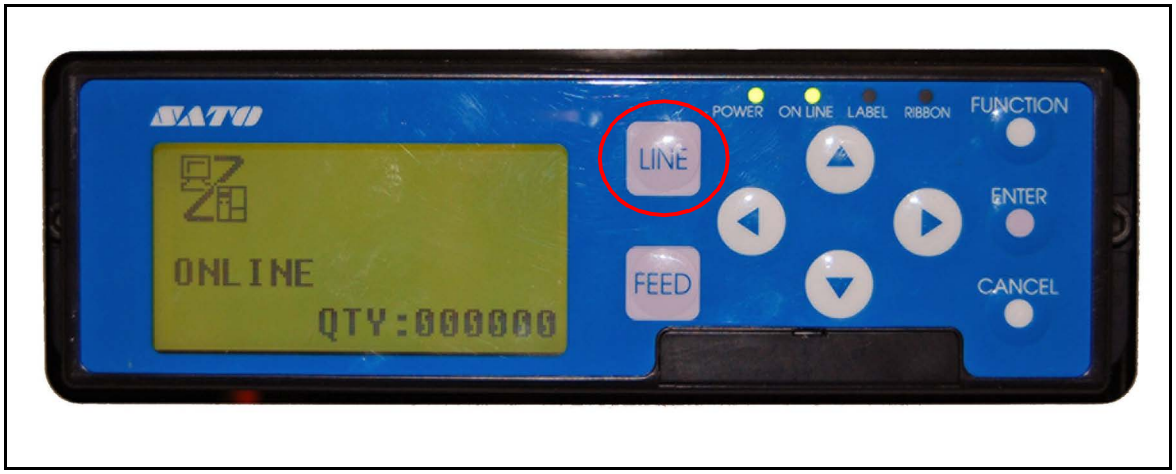


Figure 112: Printer control panel

Replacing the print head

Replace the print head if it becomes damaged or worn.

For a replacement print head, order OPEX part no. 2833800.

1. Open the printer lid.
2. Disengage the print head by turning the release lever.

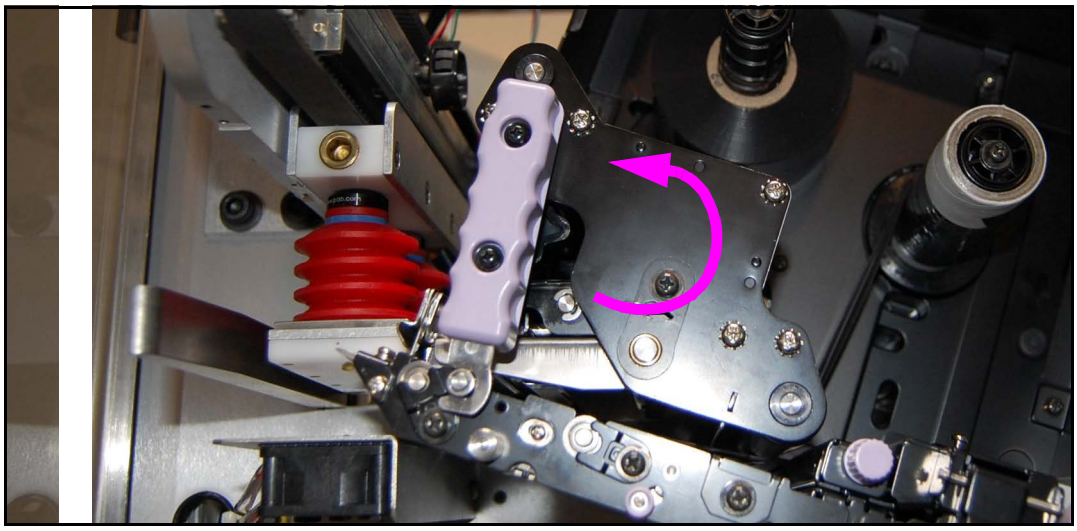


Figure 113: Turn the release lever

3. Pull outward on the print head release tab to release the print head from the printer.

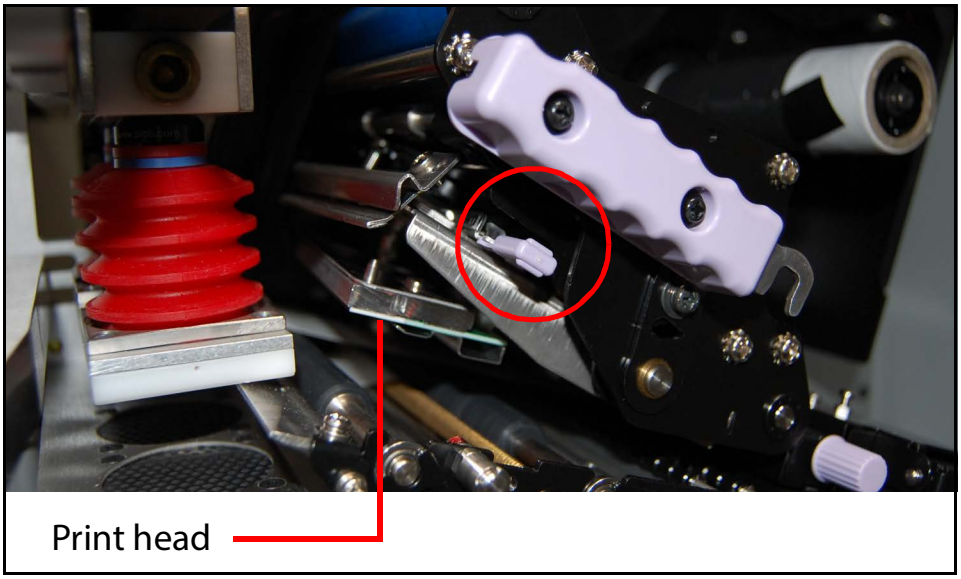


Figure 114: Pull the tab to release the print head

4. Install the new print head. When positioned properly, the print head will snap into place.

   Note: *It is possible to install the new print head without removing the ribbon, but it may be easier to position the print head properly without the ribbon in the way.*

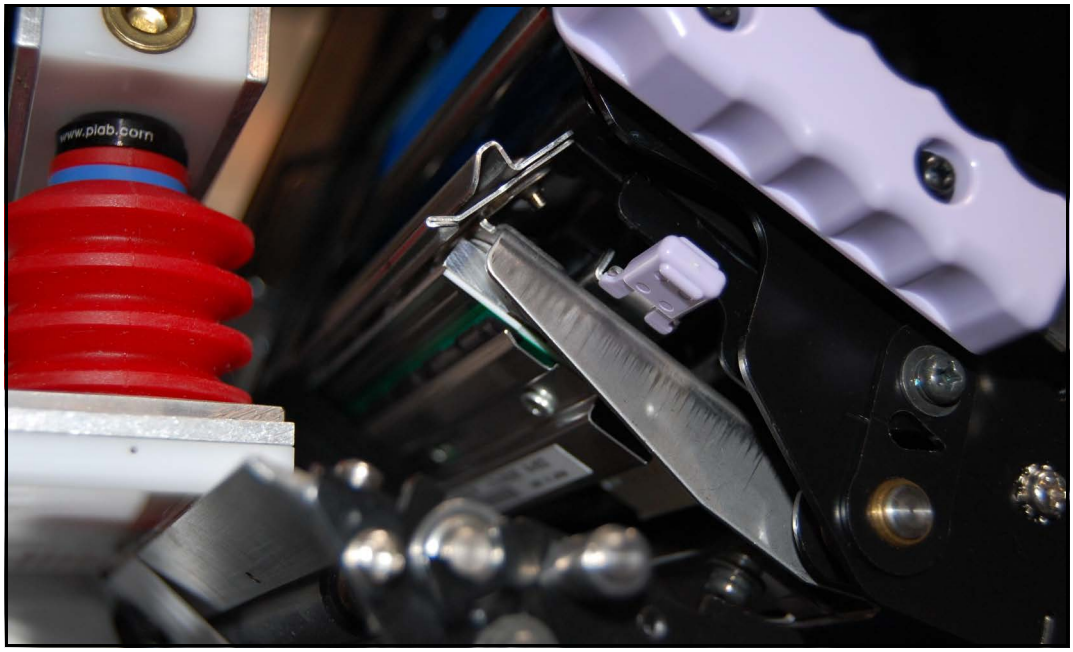


Figure 115: New print head in place

5. Re-engage the print head and close the printer lid.

Replacing printer ribbon

For replacement printer ribbon, order OPEX part no. 7282620.

1. Open the printer lid. Disengage the print head by turning the release lever.
2. Remove the old ribbon from the take-up reel.
3. Install new ribbon roll, with paper core, onto the supply reel (right) and an empty paper core onto the take-up reel (left).

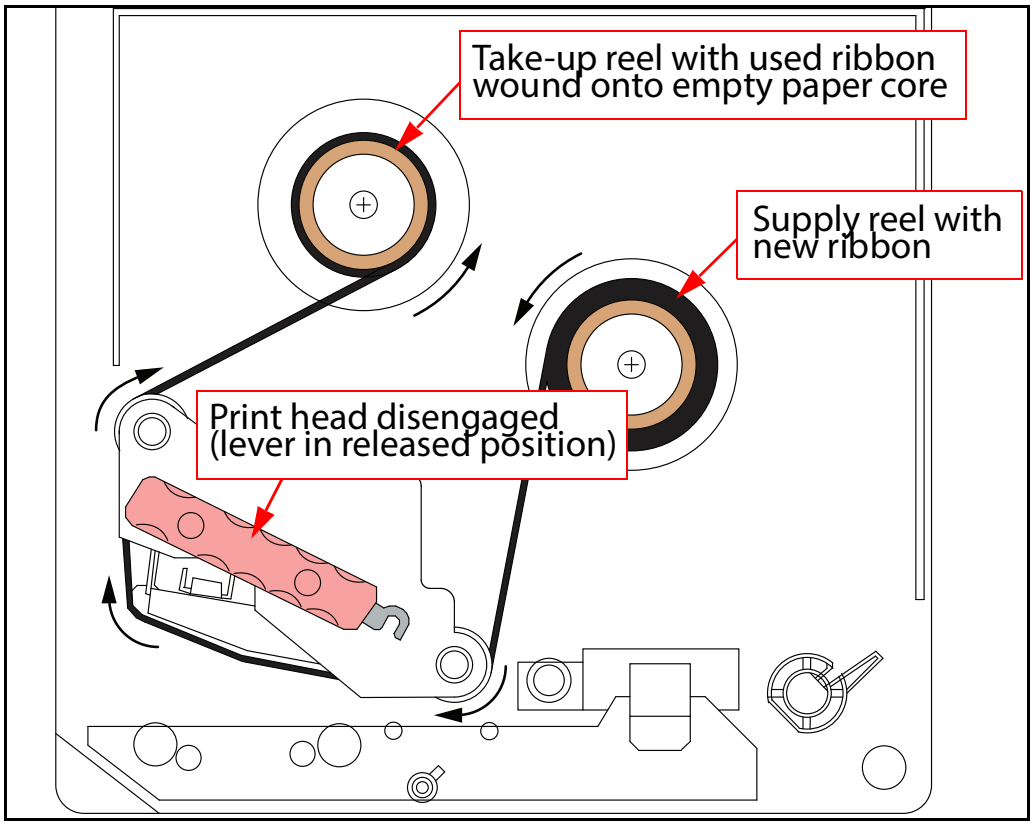


Figure 116: Ribbon installation

4. Route the loose end of the ribbon around the print head assembly and tape it to the empty paper core on the take-up reel.
5. Rotate the paper core a couple of times while holding the reel stationary to take up slack.
6. Re-engage the print head.
7. Close the printer lid.
8. On the printer control panel, press the **LINE** button to set the printer **ONLINE**.

Cleaning the printer

WARNING: Shut down the Mail Matrix and allow printer to cool to room temperature before servicing.

Open the hinged printer shroud and inspect the components for loose debris and residue.

1. Remove any loose debris with a soft cloth and/or compressed air.

CAUTION: If using compressed air to remove debris from the printer, be careful to prevent component damage. Do not use flammable, high pressure, “canned air” to clean the printer.

2. Remove any residue build-up from the print head and rollers.

   To gain access to the printer’s chassis (Figure 117), push purple release button (1) to drop pressure roller plate (2) downward. If the plate must be removed, take out the thumbscrew (3).

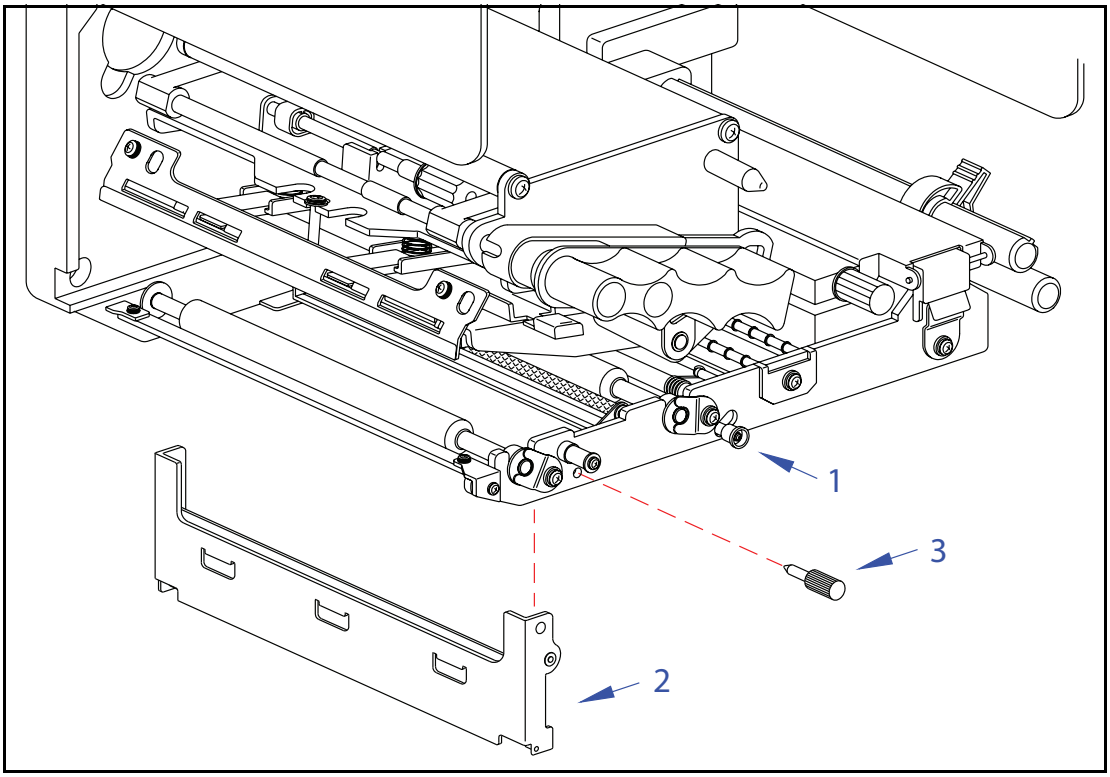


Figure 117: Accessing the printer’s chassis

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6 Statistics

Overview

The Mail Matrix statistics provide information on the jobs run on the system. Statistics are gathered according to system performance, operator performance and by recipient.

Create statistics reports on a per-run basis (**Individual Report**), or as a summary of several runs over a designated period of time (**Summary Report**).

Summary reports

A Summary report is based on the criteria you set up. The report criteria establishes which jobs, operators and dates will make up the Summary report.

Creating a summary report:

1. Select **`Statistics > Summary > Criteria`**. These are the items that will be included in your reports.

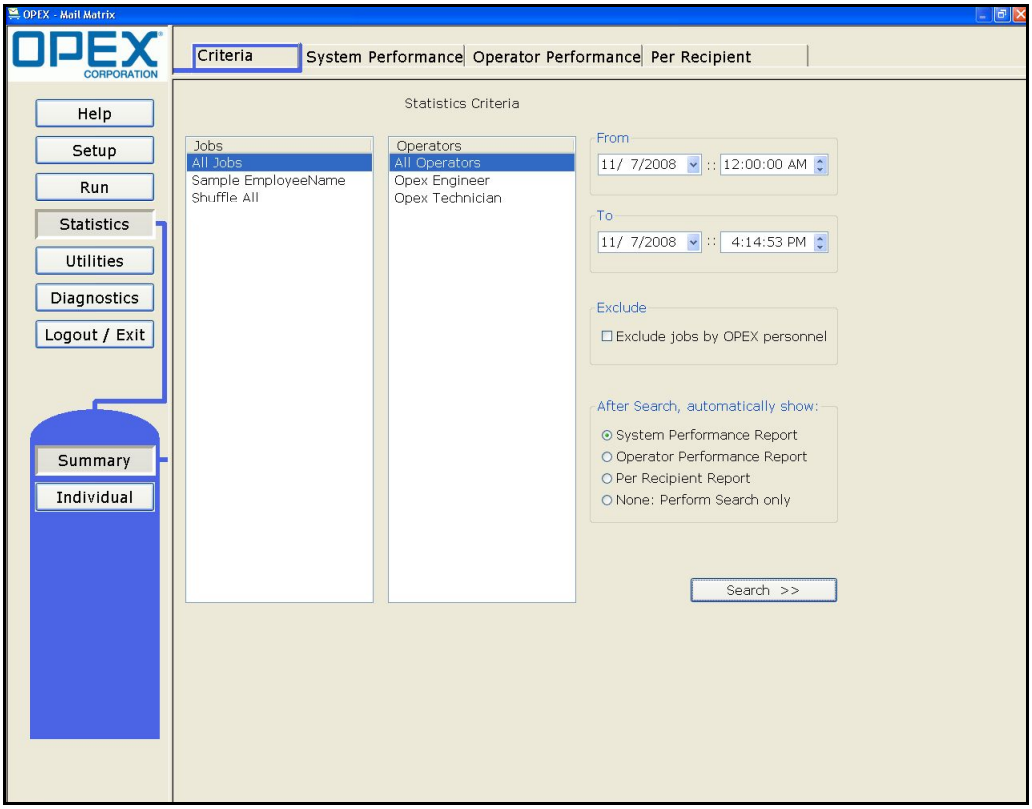

Figure 118: Summary report criteria screen

2. Enter the date and time range for the report in the Date section.

Figure 119: Date range settings

3. Select the job name or all jobs and select the operator name or all operators.

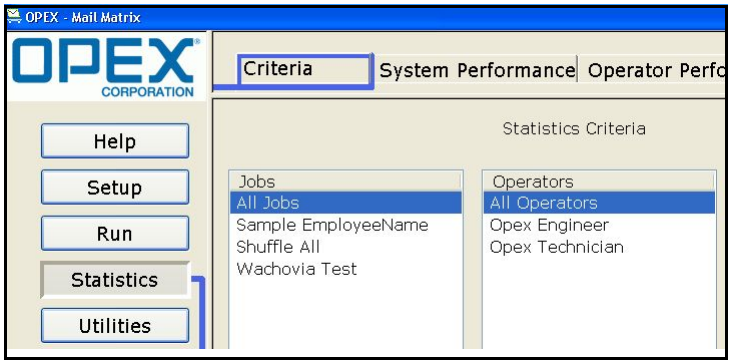

Figure 120: Search criteria fields

4. Select which report, or none at all, to show when the search is complete.

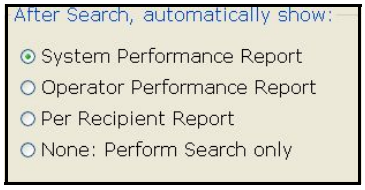

Figure 121: Search radio buttons

5. Select **Exclude jobs by OPEX personnel** if necessary.

Figure 122: Exclude jobs checkbox

6. Click **Search** to generate reports based on the selected criteria.

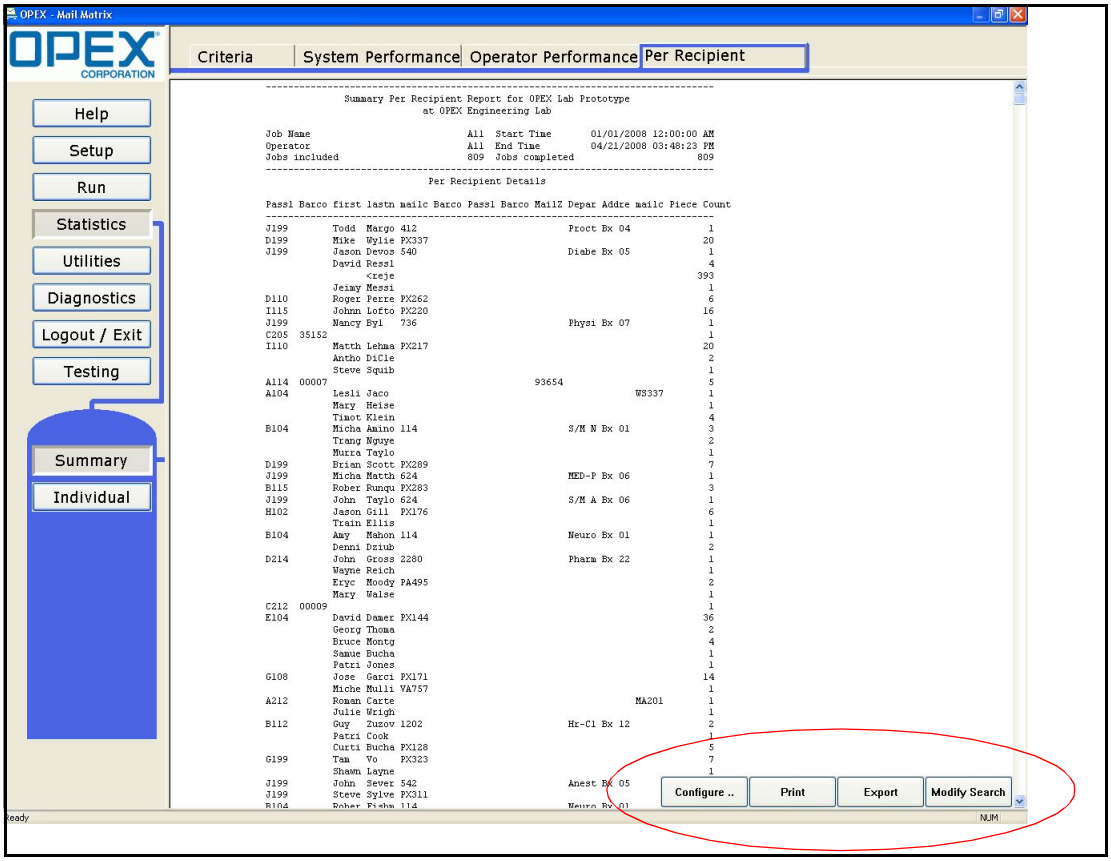

Figure 123: Search

Summary report buttons

Configure ..	Open the report configuration dialog, which allows you to choose the columns/data that will appear in a Per Recipient report.
Print	Print the selected report.
Export	Export the current report to the hard drive. The *.txt file will be saved to the default directory: **C:/OPEX/MailMatrix/Data/Stats**
Modify Search	Return to the criteria screen, where you can adjust your search elements.

Individual reports

Individual reports are generated for each *run*. Here, you will find system performance, operator performance and per recipient reports for each run made on the machine.

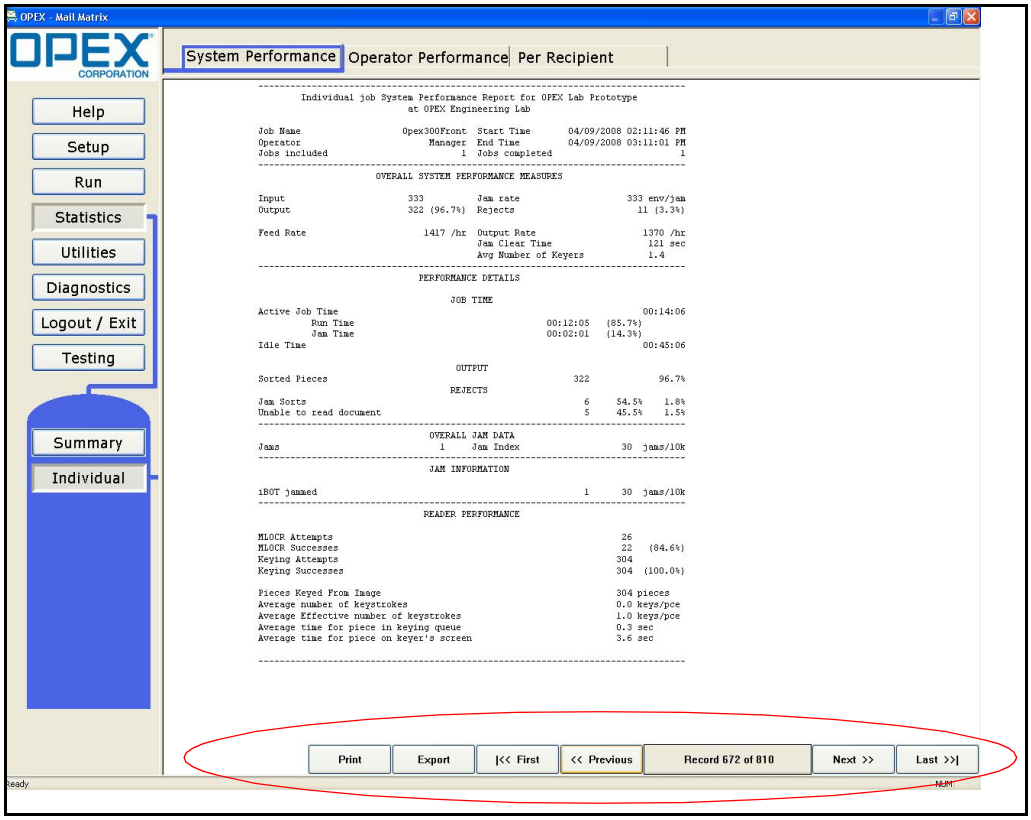

Figure 124: Individual reports

Individual report buttons

Print	Print the selected report.
Export	Export the current report to the hard drive. The *.txt file will be saved to the default directory: **C:/OPEX/MailMatrix/Data/Stats**.
|<< First	View the first saved run report.
<< Previous	Open the report for the run previous to the one you are viewing.
Next >>	View the report for the next run.
Last >>|	View the most recent run report.

System Performance Statistics

The **System Performance** report provides information relative to the machine's performance (such as run time, throughput, MLOCR rates, etc.).

System performance reports are available as individual or summary reports. Select **`Statistics > Summary (or Individual) > System Performance`** to access the system performance report.

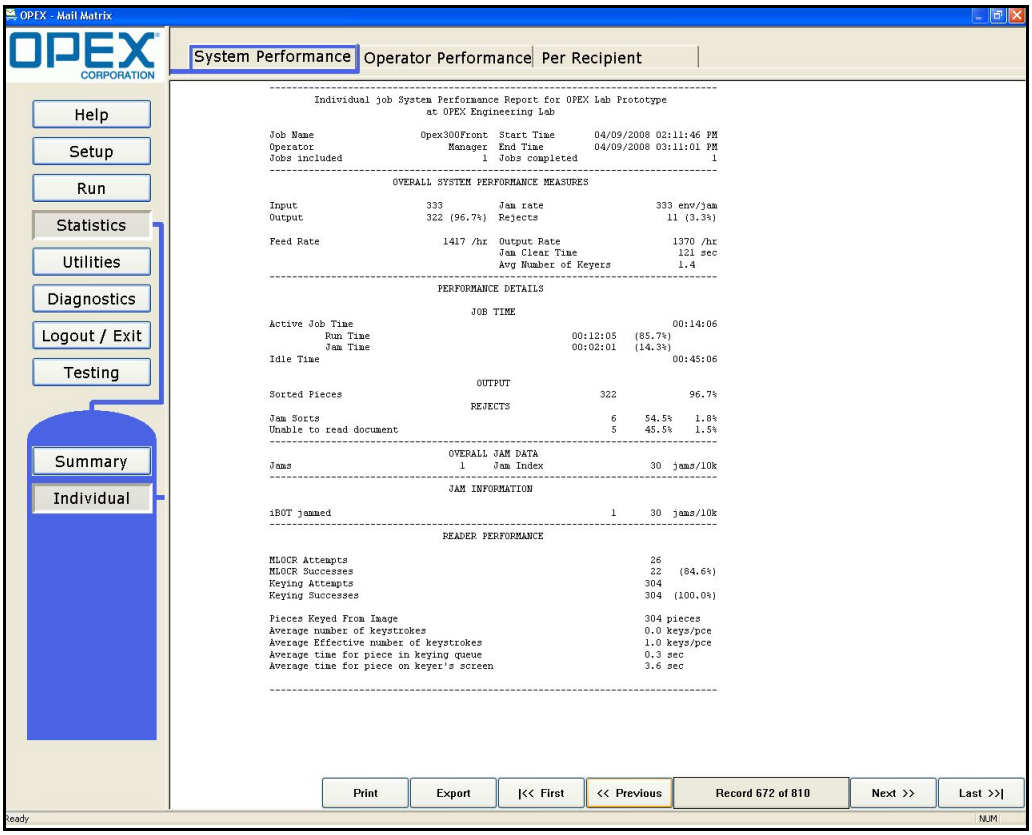

Figure 125: System Performance

Rejects

Rejects are pieces that have been rejected during the current run. There are various reasons for rejects. The amount and reason for the reject can be viewed either from the run screen or system performance reports.

Overall System Performance Measures

Input	Number of pieces to enter the paper path.
Output	The number of pieces that were successfully sorted to bins, not including pieces that were rejected.
Jam Rate	The average number of pieces that were processed between jams. The formula for the Jam Rate is: **Jam Rate = (Input/Jams)**
Rejects	Number of pieces deemed unsuitable for processing and sent to the Reject bin.
Feed Rate	Number of envelopes per hour the Mail Matrix is currently feeding. The formula for the Feed Rate is: $\text{Feed Rate} = \frac{\text{Input} * 3600 \text{ (seconds per hour)}}{\text{Active Job Time}}$
Output Rate	Number of envelopes per hour the Mail Matrix is processing. The formula for the Output Rate is: $\text{Output Rate} = \frac{\text{Output} * 3600 \text{ (seconds per hour)}}{\text{Active Job Time}}$
Jam Clear Time	Average time the Mail Matrix was halted while the operator was clearing a jam. The formula for the Jam Clear Time is: $\text{Jam Clear Time} = \frac{\text{Jam Time}}{\text{Jams}}$

Performance Details

Active Job Time	Amount of time the Mail Matrix was either actively running or halted due to a jam. Active Job Time is further broken down into: **Run Time:** time spent processing mail **Jam Time**: the total time the system was halted for a jam
Idle Time	Time the operator spent with the Run screen open without a job running.
Sorted Pieces	The Sorted Pieces section lists the number of pieces that were sorted by the machine.
Rejects	The Reject section describes the pieces that were sent to the reject bin.

Overall Jam Data

Jams	Reports occasions when run was halted due to a paper jam or a processing problem that was machine related.
Jam Index	The number of jams per 10,000 pieces. It is calculated using Input and the number of Jams. Jam Index = (Jams / Input) * 10,000

Reader Performance

MLOCR Attempts	Number of times the installed image capture/ MLOCR system attempted to match a piece with a recipient.
MLOCR Successes	Number of times the image capture/MLOCR system found a match.
Keying Attempts	Number of times an operator attempted to identify a recipient via keying station.
Keying Successes	Number of times an operator at a keying station found a match.
Pieces Keyed from Image	Number of pieces sent to keying stations.
Average number of keystrokes	Average number of keyboard strokes for every piece sent to a keying station.
Average effective number of keystrokes	Average number of keyboard strokes that led to a match in the database.
Average time for piece in keying queue	Amount of time it took, on average, for an image for a piece to sent to an available keying station.
Average time for piece on keyer's screen	Amount of time it took, on average, for an operator to identify the recipient.

Operator Performance Statistics

The **Operator Performance** statistics compile data about each how each operator uses the machine.

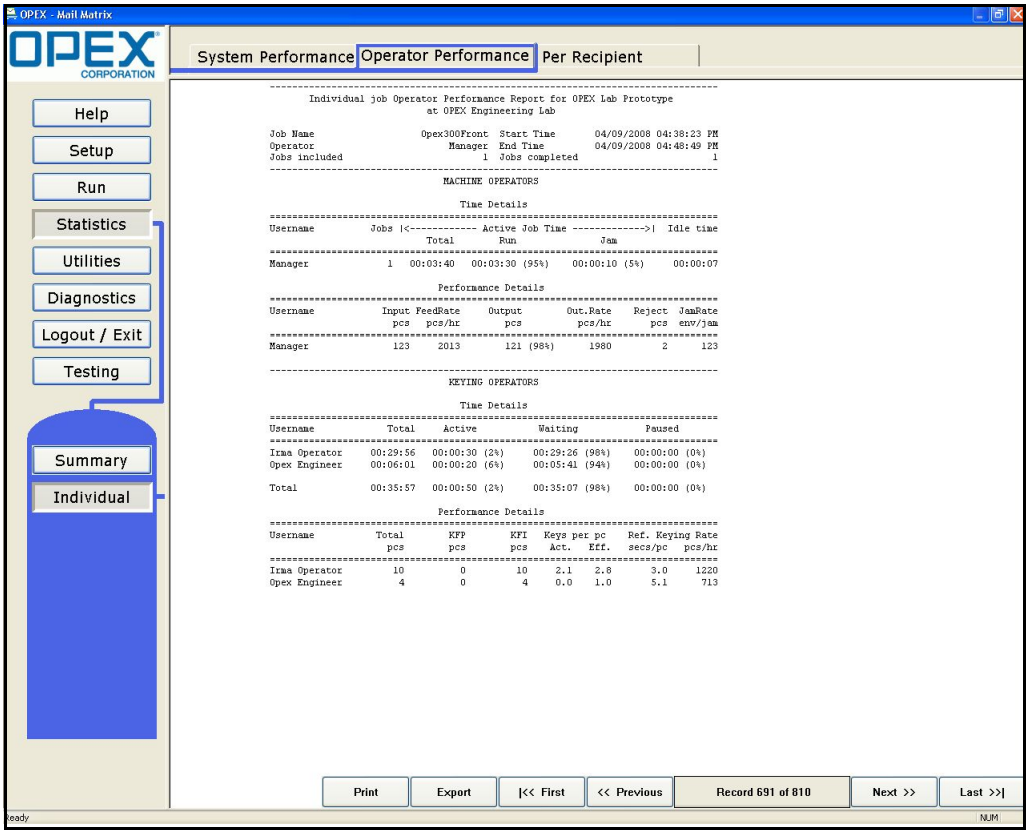

Figure 126: Operator Performance

Per Recipient Statistics

The **Per Recipient** report details how many pieces of mail were delivered to each recipient. The report lists the first name, last name, bin and piece count for each person who received mail during the job or period of time specified.

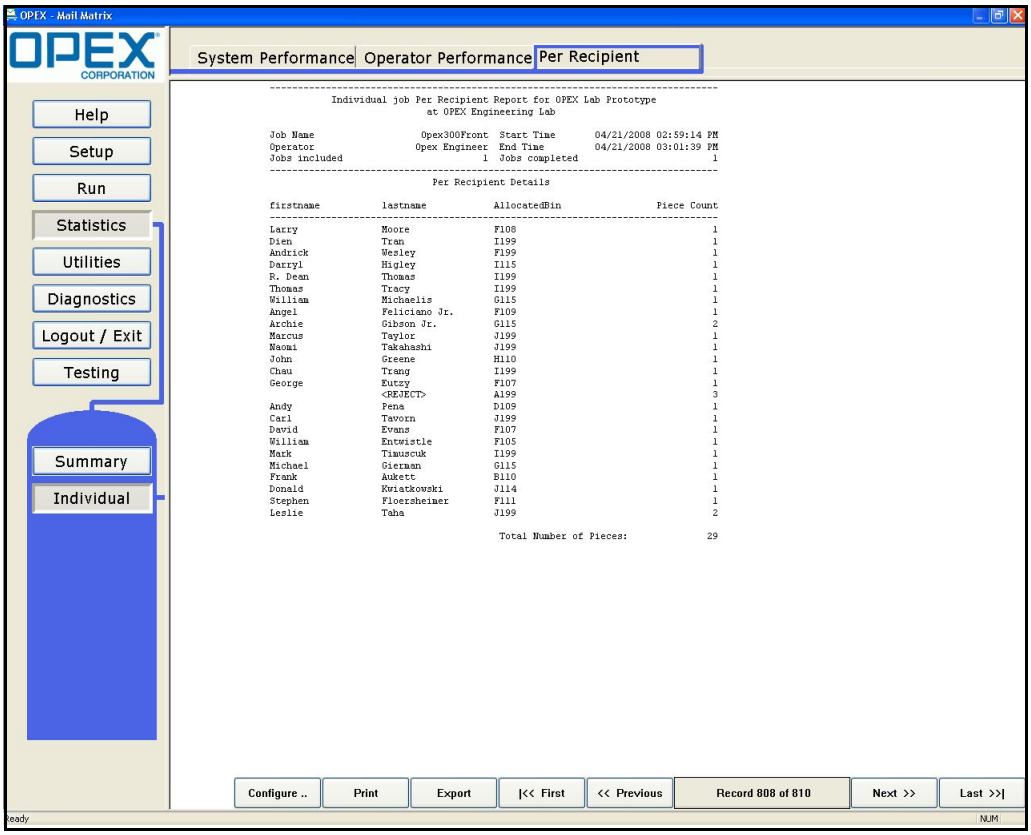

Figure 127: Per Recipient

Reject and Jam Definitions

Rejects

Jamsorts	All input pieces immediately following a jam.
Length Too Long	Results when the piece is longer than the distance between the imager entry and pacing sensors.
Gap Too Small	Results when the gap between pieces is shorter than the minimum_conveyor_gap when measured at the imager entry sensor.
Could Not Capture Image	Indicates that the host was unable to capture the image.
Image Processing Timeout	Image processing was unable to finish in time.(ie. Binarize, MLOCR, DRS etc.)
Image Processing Failure	Image processing failed. (ie. Binarize, MLOCR, DRS etc.)
Keyer Timeout	There is a max time that the controller will hold on to a piece that doesn't get resolved. This is the reject reason for pieces that triggers that timeout.
No Keyer Available	When the host tries send a piece to keying and no keyers are logged on (also if they are paused) the piece will be rejected. This reject code may also be used for a other keying related failure.
No iBOTs Available	Results when the controller was unable to provide an iBOT for a piece as it was traveling down the conveyor. This can be caused by a communication dropout or just a failure of the control logic to get an iBOT at the loading position in time.
Could Not Deliver To Bin	Results when an iBOT detects that a bin is not present and the operator has canceled the delivery.
Host to Controller Response Missing	Results when the controller is expecting piece information from the host and does not receive it within the expected time window.

Unknown Bin Location	The DestinationId field value in the database does not exist in the current bin configuration.
Unknown Reject Reason	Results when the host has decided to send a piece to the reject bin but has not assigned a reject reason.
Unable to Read Document	MLOCR/DRS failed to resolve the piece when running in 'No Keyer' mode.
Keyer Rejected Piece	The keyer used the Undo button to reject a piece before it was delivered.
Too Skewed to Label	Results when the skew sensor has detected a piece to be too skewed to label.
Failed to Label	Results when a jam interrupts the labeling process preventing labeling from completing.
Label Verification Failed	Results when the verifier is unable to match the verification string expected to be found within a barcode on the label.
Document Too Skewed	Results when skew detection has determined that the piece is skewed outside the boundaries specified in the system setup.
Document Size Incorrect	Results when the length and/or height measurement does not match the expected length and/or height.
Sort Information Not Available	Results when the host has no knowledge about a certain piece, and cannot make a sort decision.
Printer Data Error	A piece needs to be labeled, but error(s) in generating printer data or sending it to the printer cause this reject.
Abandoned at End of Job	The operator decided to quit a job when the machine was jammed, and pieces were left undelivered inside the machine. When the system starts up again, these pieces are delivered to the Reject bin and counted as Abandoned at End of Job rejects.
ELC Requested Reject	An External Link Component (ELC) requested that the piece be rejected.

ELC Timeout	An ELC is configured in the system to provide data that Mail Matrix will use to determine the sort destination of a piece, but the ELC did not send this data within the configured time.
ELC Insufficient Return Data	An ELC is configured in the system to provide data that Mail Matrix will use to determine the sort destination of a piece, but the ELC did not provide sufficient data for this piece.

Jams

Imager Entry Sensor Blocked	Results when the imager entry sensor has been blocked for the length of the imager_entry_to_-cart_distance when running at conveyor_speed.
Load Failure	Results when the controller has not received a load confirmation from the iBOT at the loading position at the point that load_failure_timeout has passed since the trail edge should have been on the iBOT.
Wireless Com Failure	Results on run start when there has been max_consecutive _timeouts to a particular iBOT. Results while running when the controller has been unable to get a message to the iBOT at the loading position when a piece is approaching. This failure can be caused by the iBOT at the loading position or the one just prior to it.
Software Problem Detected	Results when an assert condition is reached within the code.
iBOT Jammed	Results when an iBOT has returned a jammed status.
No iBOTs Detected	Results when the controller detects no iBOTs in the system at the point when the start button is hit.
Stacker Door Open	Results when the controller detects that one of the stacker door interlocks has been tripped.
iBOT Missed Index	Results when the iBOT at the loading position has failed to see the index marker. The iBOT at the loading position must be removed when this happens.
Pacing Sensor Blocked	Results when the pacing sensor has been blocked for feeder_jammed_time.
Feeder Exit Sensor Blocked	Results when the feeder exit sensor is blocked on run start.
Feeder Jammed	Results when the feed exit sensor has been blocked for feeder_jammed_time.
Input Section E-Stop	Results when the input section E-Stop has been pressed.

Incompatible iBOTs Detected	Results when the controller detects incompatible iBOTs within the machine. Can happen if the controller is upgraded and the iBOTs are not when an iBOT upgrade is necessary.
Feeder Section E-Stop	Results when the feeder section E-Stop has been pressed.
Second Charging Rail Extended Sensor Blocked	Results when the second charging rail extended sensor is blocked on startup.
Third Charging Rail Extended Sensor Blocked	Results when the third charging rail extended sensor is blocked on startup.
Second Charging Rail Retracted Sensor Blocked	Results when the second charging rail retracted sensor remains blocked on startup.
Third Charging Rail Retracted Sensor Blocked	Results when the third charging rail retracted sensor remains blocked on startup.
Critical iBOT Power Detected	Results when the controller detects that an iBOT's power level has reached critical.
Labeler Skew Sensor Blocked	Results when the labeler skew sensor remains blocked on startup.
Labeler Response Missing	Results when there is no response from the labeler following a command within the timeout period.
Labeler Fault Detected	Results when a fault is detected by the labeler. The various kinds of faults include: Unable to Home, Unable to Extend, Label Missing, Trigger Detected While Not in Home Position, Home Sensor Not Blocked, Home and Extend Sensors Blocked, Extend Sensor Blocked, Arm Movement Not Detected and Label Presence Detected.
Verifier Response Missing	Results when there is no response from the verifier following a command within the timeout period.

Printer Response Missing	Results when there is no response from the host following a print request within the timeout period.
Too Many Verifier Rejects	Results when the controller detects that there have been too many consecutive verifier rejects.
Host Communication Lost	Results when the host communication status timeout has expired. All iBOTs return home when this jam occurs.

iBOT jams

iBOT Reverse on Jam

The iBOT Reverse on Jam feature is useful when a jammed iBOT is surrounded by other iBOTs. When this happens, the Operator can click **Home** from the Run Screen. This will return all unjammed iBOTs to the loading column. The benefits of this feature are as follows:

1. With all unjammed iBOTs out of the way, there is room to get to and remove the jammed iBOT.
2. Since all iBOTs require charging after a certain amount of time, returning them to the loading column ensures they will not get stuck in the stacker columns because of a low charge.

Note: *Issues preventing all iBOTs from returning to the loading column include: loss of power or jammed iBOTs in the way of iBOTs returning.*

Collision Detected	Results when an iBOT has detected a sudden unexpected speed drop that appears to be a collision.
Stall Detected	Results when an iBOT has failed to detect any movement on the motor despite attempting to commutate the motor.
Out of Control Detected	Results when an iBOT has reached the out of control speed limit despite attempting to control it. (The parking brake is engaged to slow the iBOT when this happens.)

Failed to Load	Results when an iBOT has brought the conveyor to a stop during a load without seeing the appropriate conveyor sensor transitions.
Failed to Unload	Results when an iBOT has brought the conveyor to a stop during an unload without seeing the appropriate conveyor sensor transitions.
Conveyor Stall Detected	Results when an iBOT has failed to detect any movement on the conveyor motor despite attempting to commutate the motor.
Overvolt Detected	Results when an iBOT has detected the charging circuit allowing the super capacitors to charge past their maximum capacity.

7 More Information Feature

Using the More Information feature

The More Information feature is a user-friendly troubleshooting tool to help you resolve various machine issues. Topics covered in this feature include iBOT jams, Feeder issues, and Software issues. This feature is available through the host application when a jam/issue occurs.

When a jam occurs, a box in the Main Status field will pop up, displaying a brief description of the jam, as well as the **`More info...`** feature button underneath (see Figure 128).

Clicking **`More info...`** will display expanded information about the topic that will help solve the issue you are having (see Figure 129 and Figure 130 on page 150).

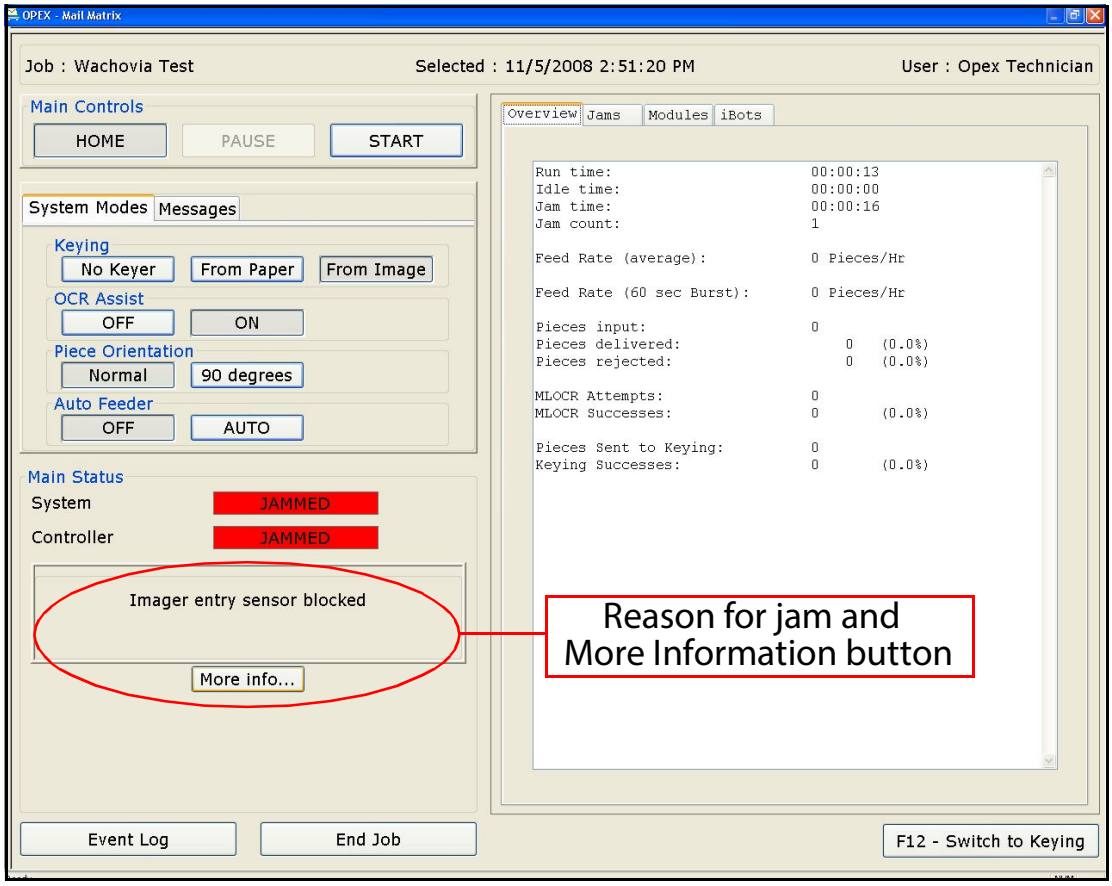

Figure 128: Reason for jam

Examples of More Information screens

Each topic contains an expanded description of the issue and its recommended resolution. Some topics contain pictures as appropriate to help direct you to the location(s) of a particular issue.

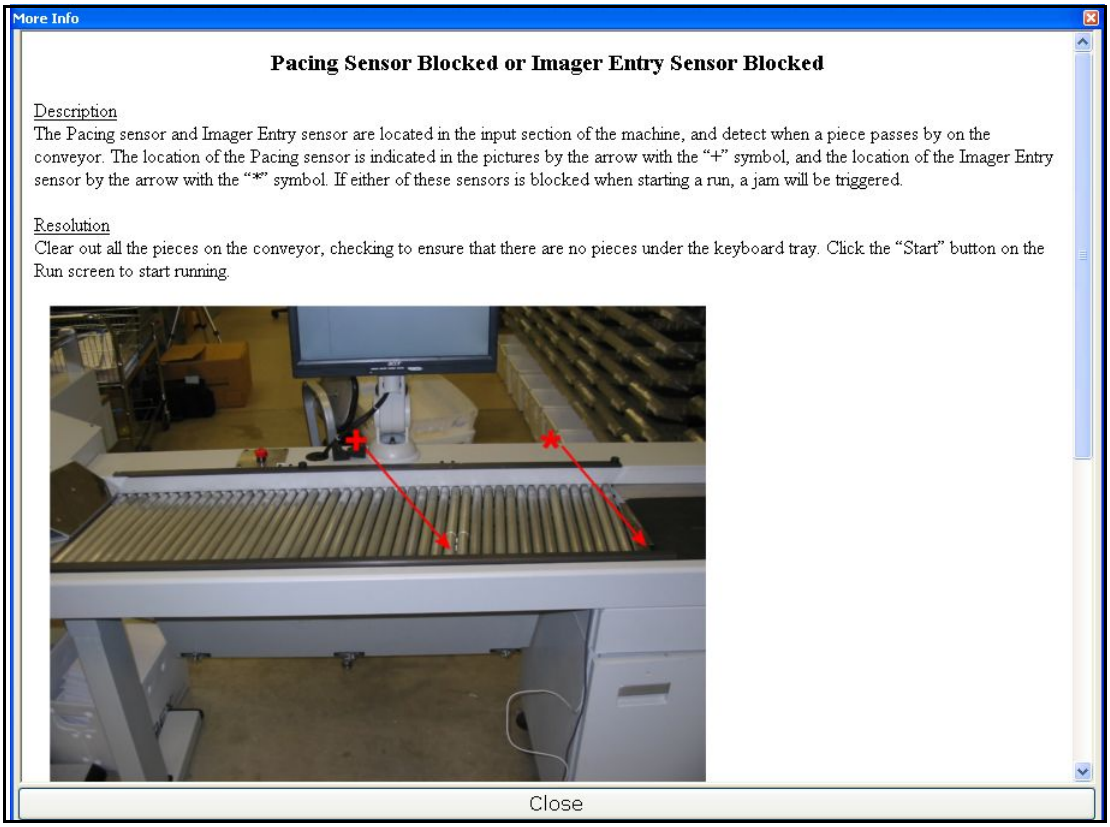

Figure 129: Pacing sensor or Imager entry sensor blocked

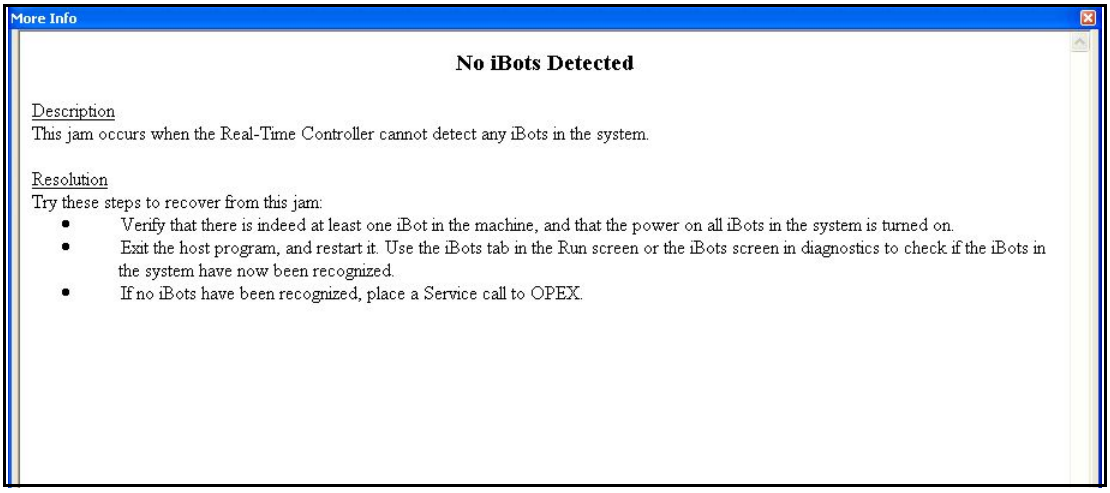

Figure 130: No iBOTs Detected

More Information feature topics

Charging Rail Sensor(s) Blocked

Description Each charging rail in the Mail Matrix (except the one on the main door) has sensors to detect if the rail is extended or retracted. The Real-Time Controller calls a jam if the Extended sensor or Retracted sensor is blocked when it should not be.

Resolution Place a Service call to OPEX if this happens.

Critically Low iBOT Power

Description This jam occurs when the Real-Time Controller detects that the power level of an iBOT is critically low.

Resolution The Controller will attempt to handle this situation by bringing all the iBOTs home, so that they can sit at a charging rail and get charged. Once the iBOTs are all charged up properly, the system can run again.

If the Controller fails to bring the iBOTs home, try clicking the **Home** button to get the iBOTs home. If any iBOT is left stranded inside the machine, it will need to be removed. It can be reintroduced into the machine at a suitable time.

Pacing Sensor Blocked or Imager Entry Sensor Blocked

Description The Pacing sensor and Image Entry sensor are located in the input section of the machine. These sensors detect when a piece is present on the conveyor. If either of these sensors is blocked when starting a run, a jam will be triggered.

Resolution Clear out all the pieces on the conveyor, checking to ensure that there are no pieces under the keyboard tray. Click the **Start** button on the Run screen to start running.

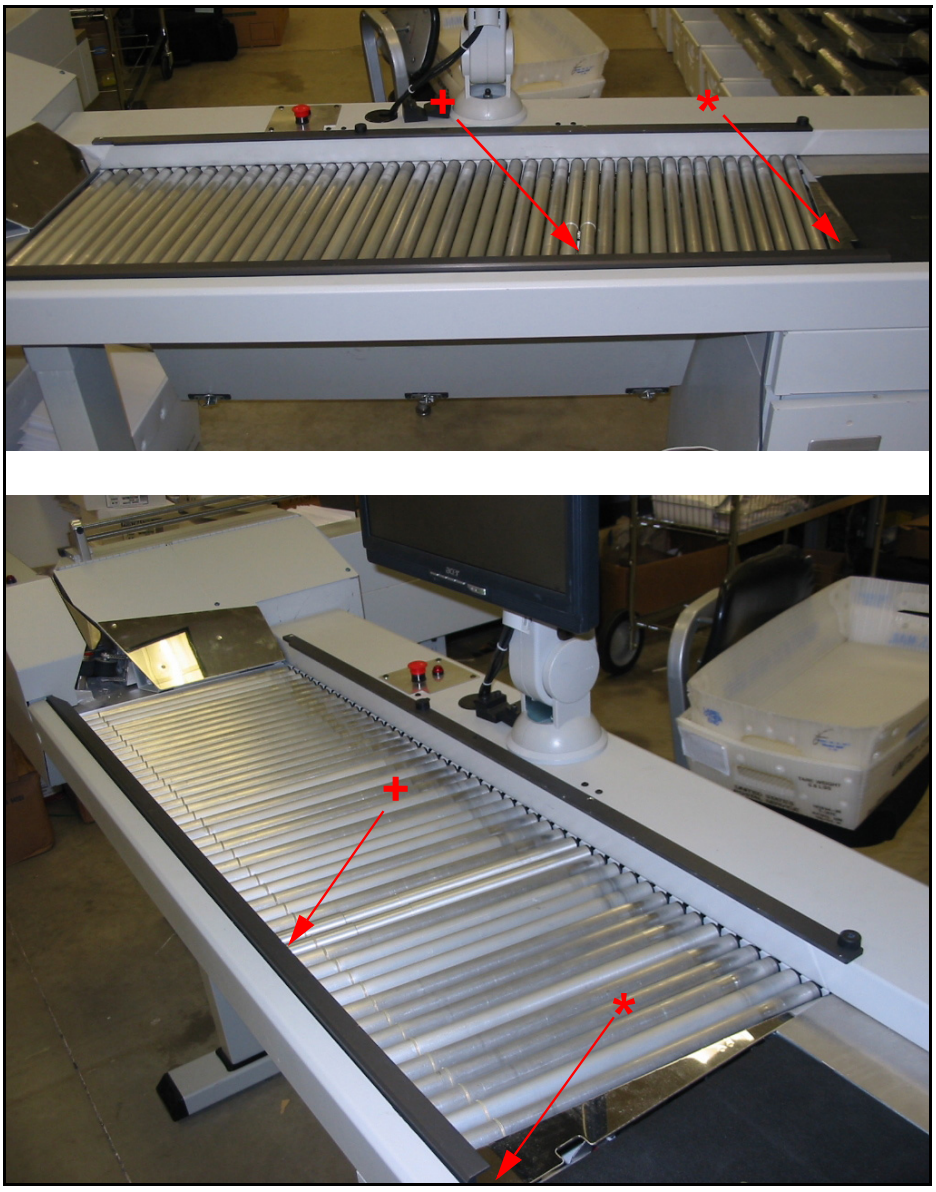

Figure 131: Pacing and Image Entry Sensor locations

Feeder Exit Sensor Blocked

Description This jam occurs if the sensor at the exit end of the Auto-Feeder is found blocked at the start of a run.

Resolution Check the Auto-Feeder to ensure that there isn't any piece in the feeding mechanism. If there is a piece, perhaps wedged in there as shown in the picture, remove it.

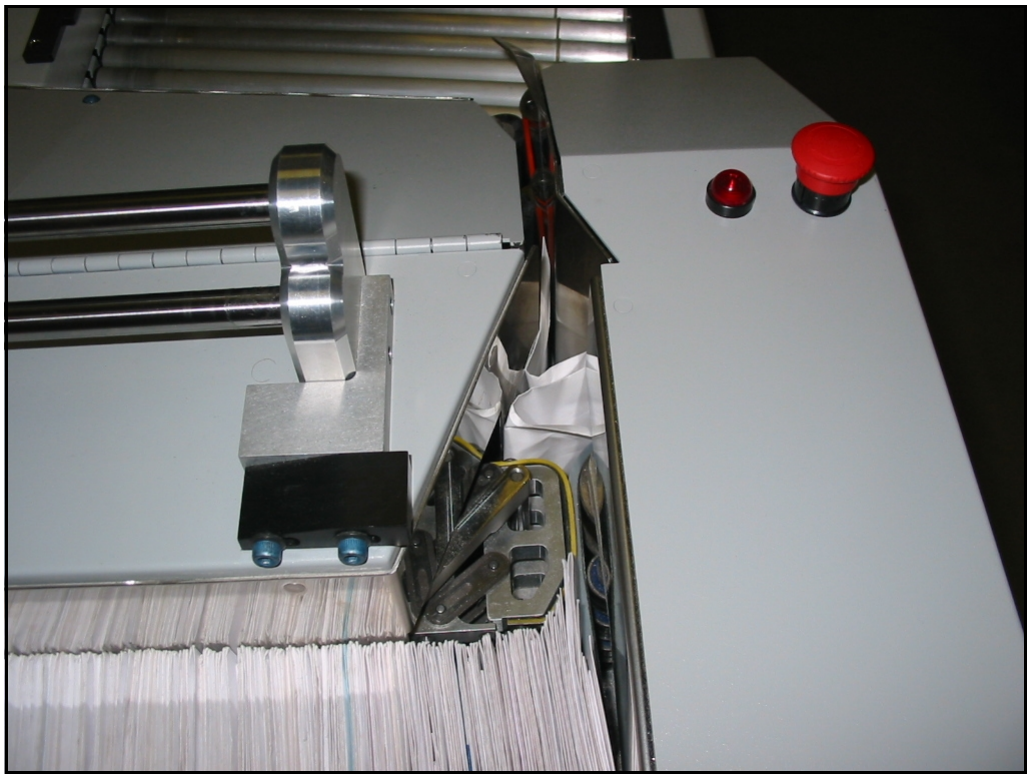

Figure 132: Mail jamming the feeding mechanism

Feeder Jammed

Description This jam occurs if the sensor at the exit end of the Auto-Feeder is blocked for an extended length of time.

Resolution Check the Auto-Feeder to ensure that there isn't any piece in the feeding mechanism. If there is a piece, perhaps wedged in there as shown in the picture above, remove it.

Feeder Section E-Stop Pressed

Description This jam occurs if the E-Stop switch in the Auto-Feeder section (indicated below) has been pressed.

Resolution E-Stop switches enable a quick stop of all motors in the machine in the event of an emergency involving potential personnel injury. Check to ensure that it is safe to run the machine. To reset the E-Stop, twist the E-Stop knob clockwise. The machine can be restarted now by clicking the **`Start`** button on the Run screen.

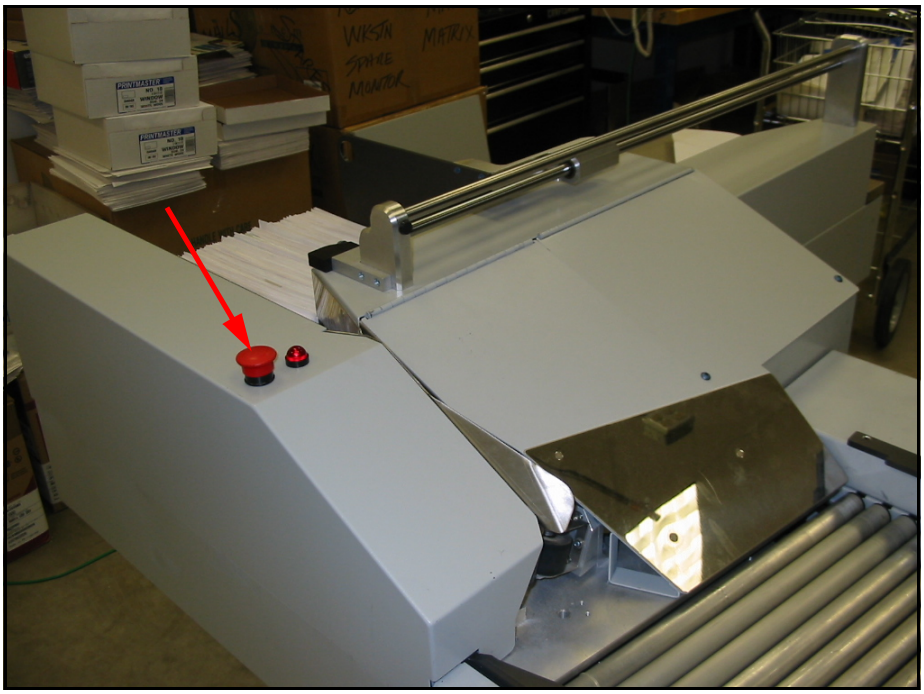

Figure 133: E-Stop location

Host-Controller Communication Failure

Description This error occurs when the communications between the PC and the Real-Time Controller have stopped.

Resolution Exit out of the Mail Matrix software, wait for about 15 seconds, and then restart the Mail Matrix application. Attempt to start the job as normal. If communication with the Controller is still not working, the job will not start, and a message indicating communication failure will be displayed. Call OPEX service in that case.

iBOT Jammed or iBOT Collision jam or iBOT Stalled jam

Description These jams are signaled when something is obstructing an iBOT's path.

Resolution Use the iBOTs status display (in the iBOTs tab in the Run screen) to identify the location of the jammed iBOT, and find it in the machine. There are several possible situations in which an iBOT may sense a collision. Some of them are shown below.

- An iBOT may have collided with another iBOT, as shown below. If this appears to be the case, use the iBOTs status display to verify that the location of the two iBOTs in the display matches their true position in the machine.
  - If the locations do not match, identify which iBOT is not matched correctly, and remove it from the machine. Follow the normal iBOT removal procedure to accomplish this. Then click the **`Clear Jam`** button on the Run screen, and click **`Start`** to continue running.
  - If the location of both iBOTs is shown correctly in the display, go to the iBOTs, and use the red brake-release button on one of the iBOTs to move it at least six inches away from the other iBOT. Click the **`Clear Jam`** button on the Run screen, and then click **`Start`** to continue running.

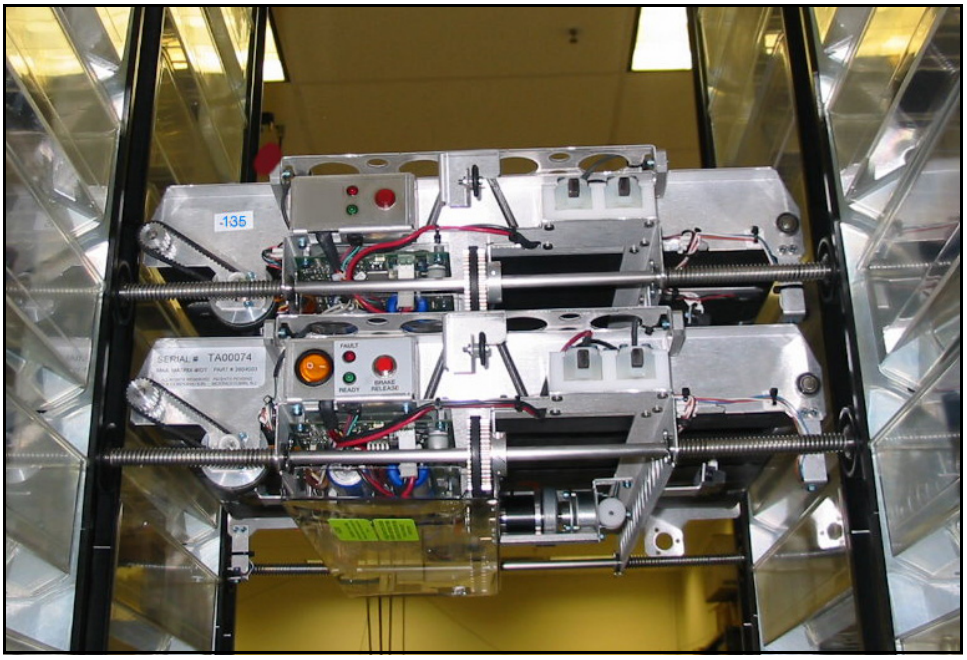

Figure 134: iBOT Collision

- A loose or damaged piece of track may have blocked an iBOT's wheel(s) or not engaged the gear teeth. Call OPEX service if this occurs.
- A gate may have misfired, causing one of the iBOTs' wheels to go on a wrong track. The red arrow in Figure 135 points to a gate that failed to fire, causing the corresponding wheel of the iBOT to keep going forward, while the rest of the iBOT is trying to go down the column.

  It is also possible for a pair of gates to misfire, causing two of the iBOTs' wheels to go on a wrong track.

  In such cases, try to push the iBOT back the way it came (holding down the red brake-release button), to a position where it can move smoothly. It may take a little force to accomplish this. If this proves difficult, remove the iBOT from the machine and reintroduce it when convenient.

  Click the **`Clear Jam`** button on the Run screen, and click **`Start`** to continue running.

Figure 135: Wheel traveling the wrong path after gate misfire

- An iBOT may have collided with a gate that did not fully open or close. The red ellipse in the picture highlights a gate in such a state. After the collision, the offending gate will usually finish its movement, so it will look like it is in proper position. If the jammed iBOT is very close to a gate, and there is no other obvious source of a collision, the iBOT probably collided with the gate.

  Use the red brake-release button on the iBOT to move the iBOT forward and backward, and verify that it is moving smoothly without obstruction. If it is not moving smoothly, the iBOT will need to be removed from the machine.

  Click the **`Clear Jam`** button on the Run screen, and click **`Start`** to continue running.

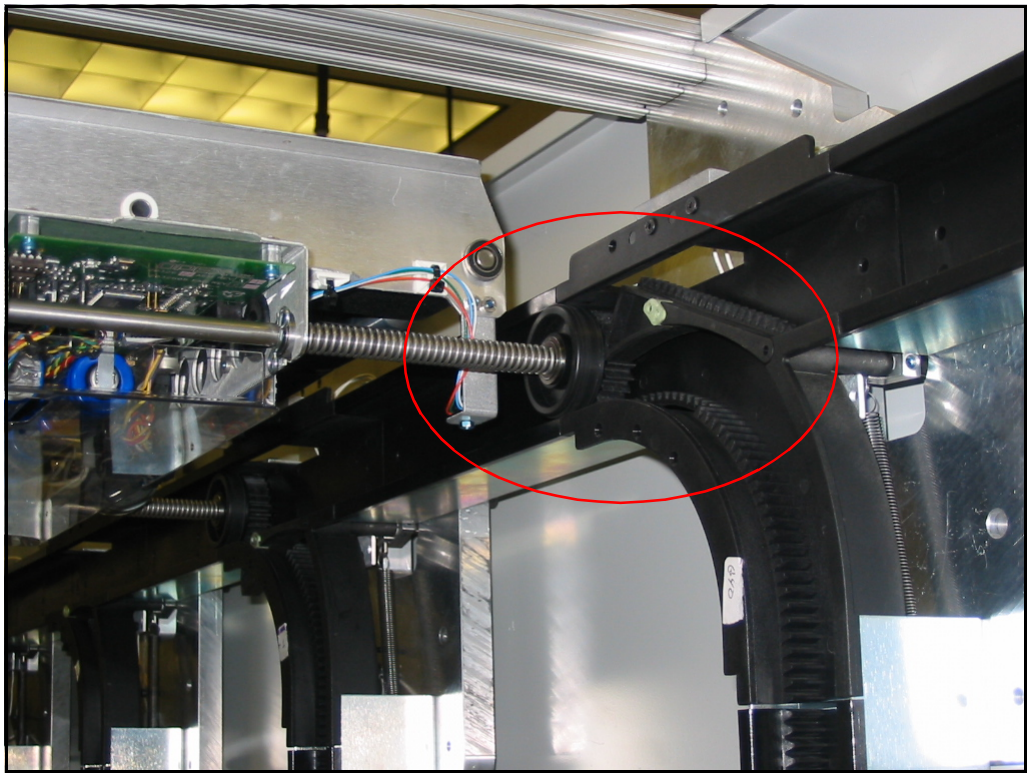

Figure 136: iBOT collided with half-open gate

- An iBOT may have collided with a bin that has not been inserted properly, and is jutting into the machine slightly. Check the next couple of bins below the location of a jammed iBOT, on both sides of the machine, and ensure that all the bins are inserted properly.

  Use the red brake-release button on the iBOT to move the iBOT up and down, and verify that it is moving smoothly without obstruction. If it is not moving smoothly, the iBOT will need to be removed from the machine.

  Click the `Clear Jam` button on the Run screen, and click `Start` to continue running.

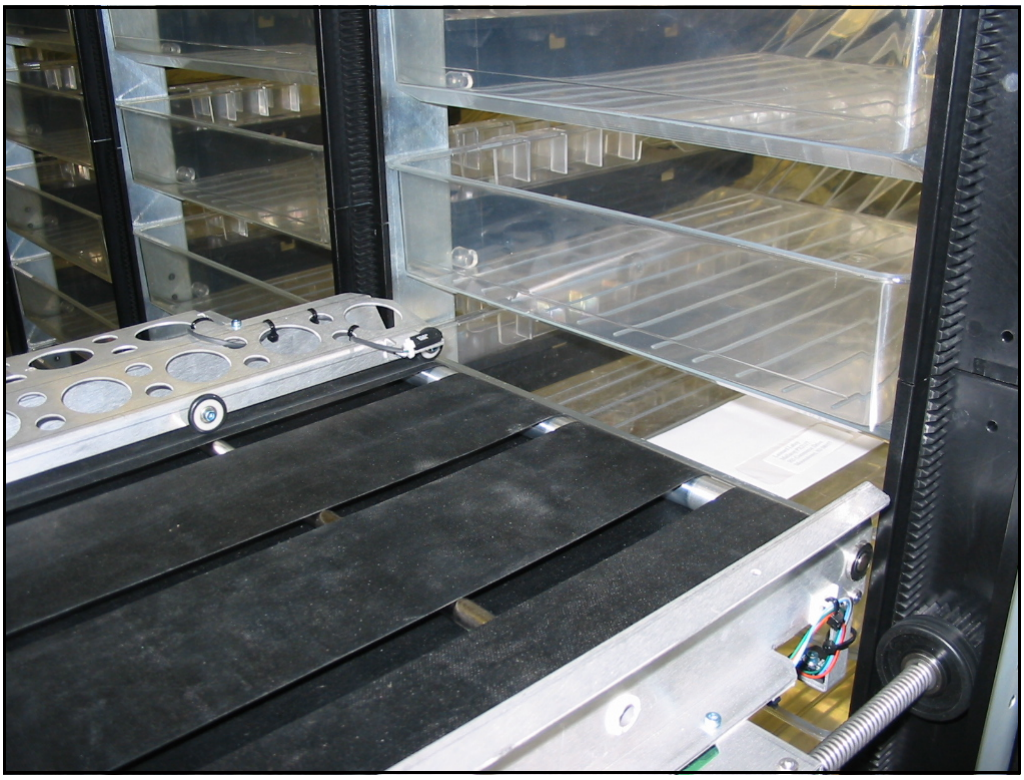

Figure 137: iBOT collided with bin

Clearing other iBOTs out of the way / Bringing them Home

In certain situations, it may be a good idea to bring all the non-jammed iBOTs home. For example:

- It is difficult to reach the jammed iBOT due to other iBOTs being in the way.
- The jam looks complicated and may take a while to recover from, and bringing the other iBOTs home would save them from running out of power and being stranded.

To bring the non-jammed iBOTs home, click the **Home** button on the Run screen. All the non-jammed iBOTs will try to get back home. Please be patient since this may take a little while. It is possible that some iBOTs may not be jammed but are still unable to get home.

Any iBOT removed from the machine because of a collision can be reintroduced into the machine at a suitable time.

iBOT Conveyor Stall

Description This jam occurs when an iBOT cannot detect any movement in its conveyor, despite attempts to run the conveyor motor.

Resolution Use the iBOTs status display (in the iBOTs tab in the Run screen) to identify the location of the jammed iBOT, and find it in the machine. Check if there is anything obstructing the movement of its conveyor, like the wedged piece shown in the picture. Remove any obstruction, and then click the **Clear Jam** button in the Run screen. Click **Start** to continue running.

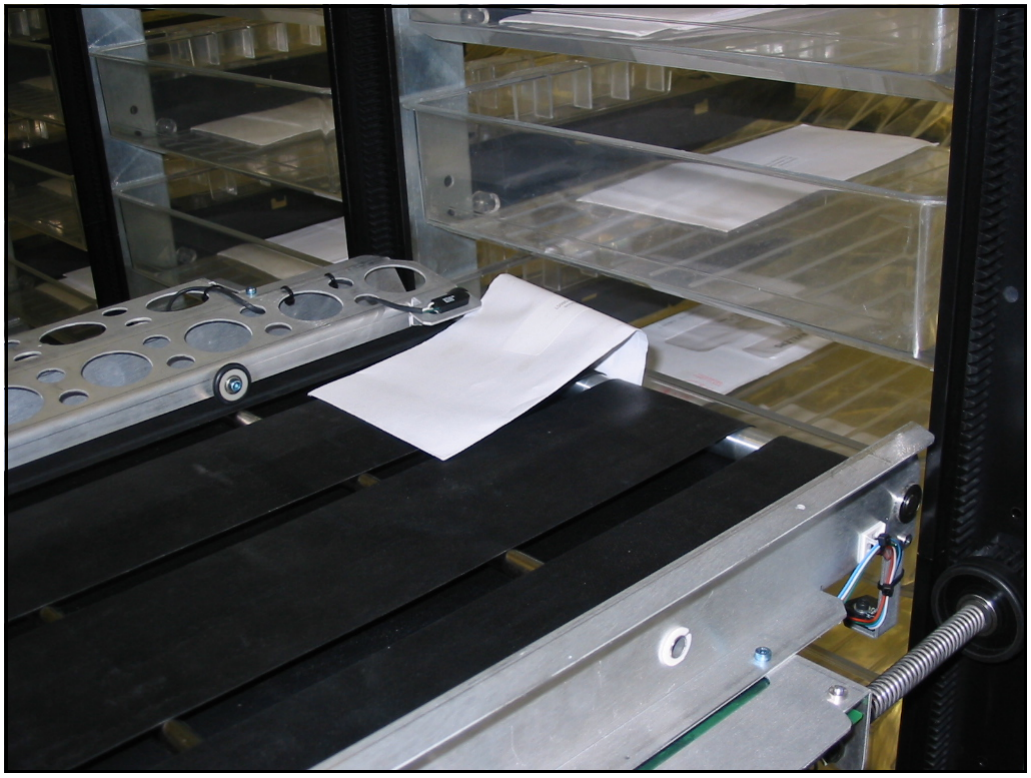

Figure 138: Conveyor stopped by wedged mail

iBOT Missed Index

Description There is an index mark located in the loading column, just below the loading position, and is pointed to by the arrow in the picture. iBOTs recognize this mark, and use it to synchronize their position every time they go through the loading column. If an iBOT goes past a position where it expects to see the index mark, but does not, it signals this jam.

Resolution Use the following procedure to recover from this situation:

1. The iBOT that has just passed the index mark and traveled up the loading column is the iBOT that has triggered the jam.
2. Use the red button on the iBOT to move the iBOT below the index mark, then click `Start` to try running the machine.
3. If the situation does not get resolved by this, remove the iBOT from the machine.

The iBOT can be reintroduced into the machine at a suitable time.

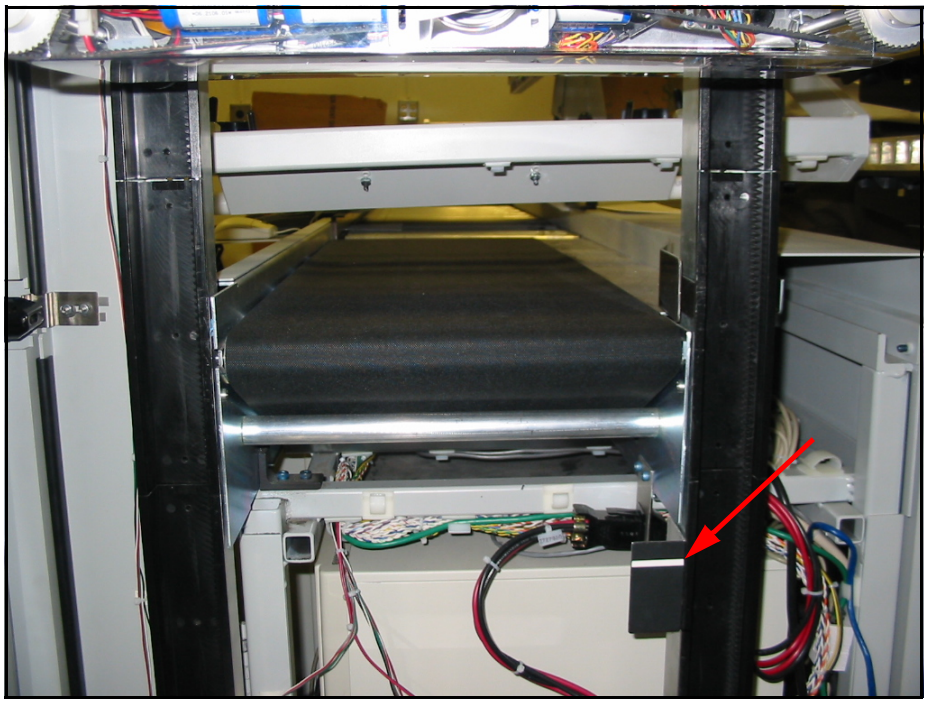

Figure 139: Index mark location

Clearing other iBOTs out of the way / Bringing them Home

In certain situations, it may be a good idea to bring all the non-jammed iBOTs home. For example:

- It is difficult to reach the jammed iBOT due to other iBOTs being in the way.
- The jam looks complicated and may take a while to recover from, and bringing the other iBOTs home would save them from running out of power and being stranded.

To bring the non-jammed iBOTs home, click the **Home** button on the Run screen. All the non-jammed iBOTs will try to get back home. Please be patient since this may take a little while. It is possible that some iBOTs may not be jammed but are still unable to get home.

iBOT Out Of Control Detected

Description This jam occurs when an iBOT has reached the out of control speed limit despite attempting to control it.

Resolution Click the **Start** button in the Run screen to continue running. If the Out of Control jam occurs again with the same iBOT, remove that iBOT from the system.

Clearing other iBOTs out of the way / Bringing them Home

In certain situations, it may be a good idea to bring all the non-jammed iBOTs home. For example:

- It is difficult to reach the jammed iBOT due to other iBOTs being in the way.
- The jam looks complicated and may take a while to recover from, and bringing the other iBOTs home would save them from running out of power and being stranded.

To bring the non-jammed iBOTs home, click the **Home** button on the Run screen. All the non-jammed iBOTs will try to get back home. Please be patient since this may take a little while. It is possible that some iBOTs may not be jammed but are still unable to get home.

iBOT Over-Voltage Detected

Description This jam occurs when an iBOT detects that it has charged up to a voltage that exceeds its maximum limit.

Resolution Click the **Start** button in the Run screen to continue running. If the Over-Voltage jam occurs again with the same iBOT, remove that iBOT from the system.

Clearing other iBOTs out of the way / Bringing them Home

In certain situations, it may be a good idea to bring all the non-jammed iBOTs home. For example:

- It is difficult to reach the jammed iBOT due to other iBOTs being in the way.
- The jam looks complicated and may take a while to recover from, and bringing the other iBOTs home would save them from running out of power and being stranded.

To bring the non-jammed iBOTs home, click the **Home** button on the Run screen. All the non-jammed iBOTs will try to get back home. Please be patient since this may take a little while. It is possible that some iBOTs may not be jammed but are still unable to get home.

iBOT Reset Detected

Description This jam occurs when the Real-Time Controller detects that an iBOT has reset itself.

Resolution Use the iBOTs status display (in the iBOTs tab in the Run screen) to identify the location of the jammed iBOT. Remove the iBOT from the machine using normal removal procedures.

The iBOT can be reintroduced into the system at a convenient time. If the same iBOT keeps getting reset, remove the iBOT and do not put it back in the system.

Clearing other iBOTs out of the way / Bringing them Home

In certain situations, it may be a good idea to bring all the non-jammed iBOTs home. For example:

- It is difficult to reach the jammed iBOT due to other iBOTs being in the way.
- The jam looks complicated and may take a while to recover from, and bringing the other iBOTs home would save them from running out of power and being stranded.

To bring the non-jammed iBOTs home, click the **Home** button on the Run screen. All the non-jammed iBOTs will try to get back home. Please be patient since this may take a little while. It is possible that some iBOTs may not be jammed but are still unable to get home.

Incompatible iBOTs Detected

Description The Real-Time Controller has detected an iBOT in the system that is incompatible with the Controller. This can happen if the Controller software is upgraded but the iBOTs are not when an iBOT upgrade is necessary.

Resolution Identify the incompatible iBOT and remove it from the machine. This iBOT cannot be reintroduced into the machine till its software is upgraded.

Clearing other iBOTs out of the way / Bringing them Home

In certain situations, it may be a good idea to bring all the non-jammed iBOTs home. For example:

- It is difficult to reach the jammed iBOT due to other iBOTs being in the way.
- The jam looks complicated and may take a while to recover from, and bringing the other iBOTs home would save them from running out of power and being stranded.

To bring the non-jammed iBOTs home, click the **Home** button on the Run screen. All the non-jammed iBOTs will try to get back home. Please be patient since this may take a little while. It is possible that some iBOTs may not be jammed but are still unable to get home.

Input Section E-Stop Pressed

Description This jam occurs if the E-Stop switch in the input section (pointed to in the picture) has been pressed.

Resolution E-Stop switches enable a quick stop of all motors in the machine in the event of an emergency involving potential personnel injury. Check to ensure that it is safe to run the machine. To reset the E-Stop, twist the E-Stop knob clockwise. The machine can be restarted now by clicking the **Start** button on the Run screen.

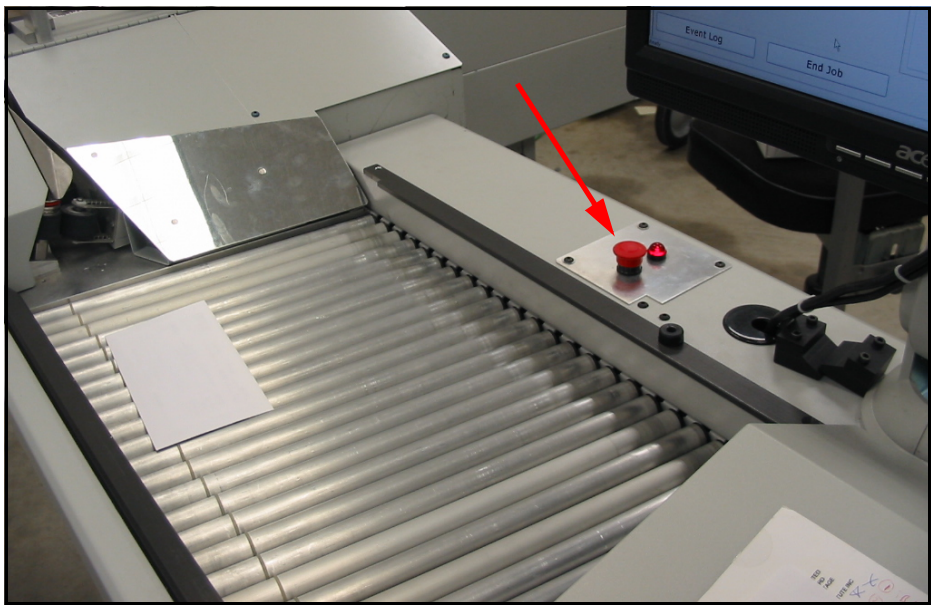

Figure 140: E-stop location

Labeler Fault Detected

Description Labeler Fault indicates a problem with the labeler unit. There are a variety of problems that can occur with the labeler, and cause this jam. The jam message on the Run screen indicates what error condition occurred.

Resolution Check the jam message on the Run screen to see which error condition occurred. There are 10 possible error conditions, and these are listed below, along with the steps to take to recover from the error.

1. Print trigger received when arm not in home position
2. Arm retracted fully but home sensor signal not blocked
3. Both home sensor and extended sensor blocked
4. Arm is in home position when extend sensor blocked
5. Stepper motor running but no movement detected at sensors

These error conditions indicate a problem with certain mechanical parts and sensors in the labeler unit. This may have been a chance occurrence, so press `Start` on the Run screen to continue with the job. If the error returns immediately, call OPEX service.

6. **Unexpected label detected on labeler pad:** This indicates that a label was detected at a time when none was expected. Check the printer to see if a label is sticking out, and the labeler pad to see if a label has got stuck to it. The picture below shows this situation, with the arrow indicating a label

sticking out of the printer. Remove the label gently, and then click the **Start** button to continue the job.

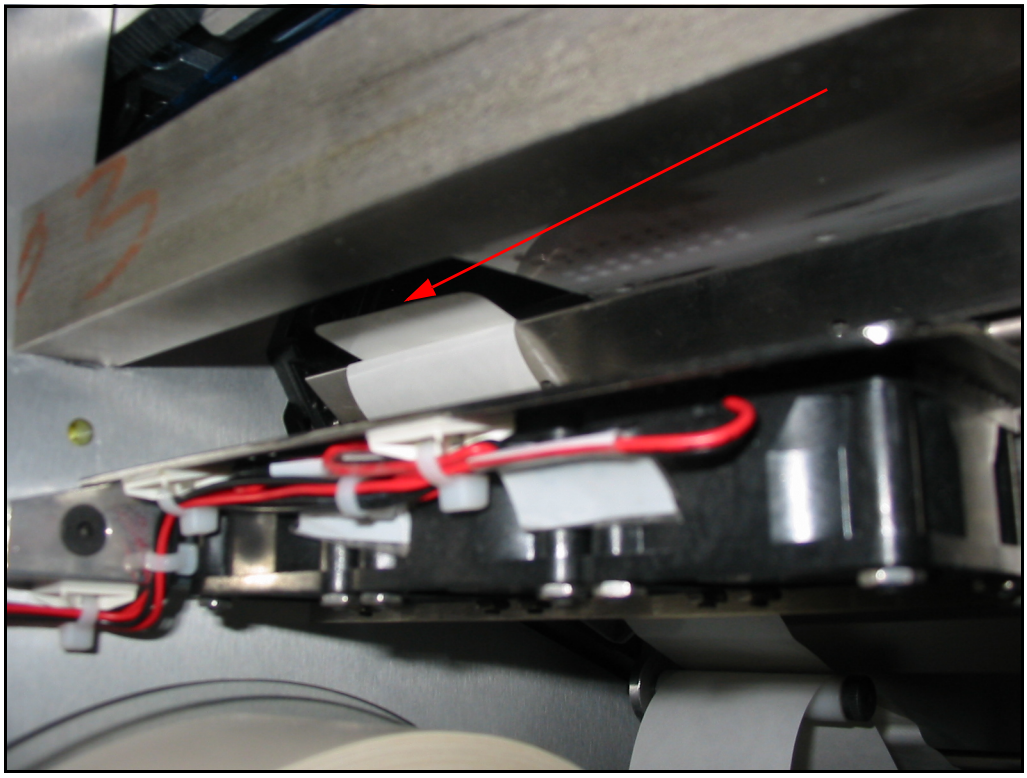

Figure 141: Unexpected label

7. **Label applied but did not stick to piece:** The labeler attempted to apply a label on to a piece, but the label did not stick to the piece. Check the labeler pad and its surrounding areas for the unapplied label, and remove it. Click the **Start** button to continue the job.
8. **Labeler pad did not get label from printer:** This indicates that the labeler expected the printer to print out a label, but the labeler was unable to detect any labels coming out of the printer. Check the labeler pad and its surrounding areas for an unapplied label, and remove it if found. The picture below shows a label that the printer printed, but was missed by the labeler pad. The long arrow indicates the labeler pad, and the short arrow

the printed label. In some cases, there may be no label printed out. Click the **Start** button to continue the job.

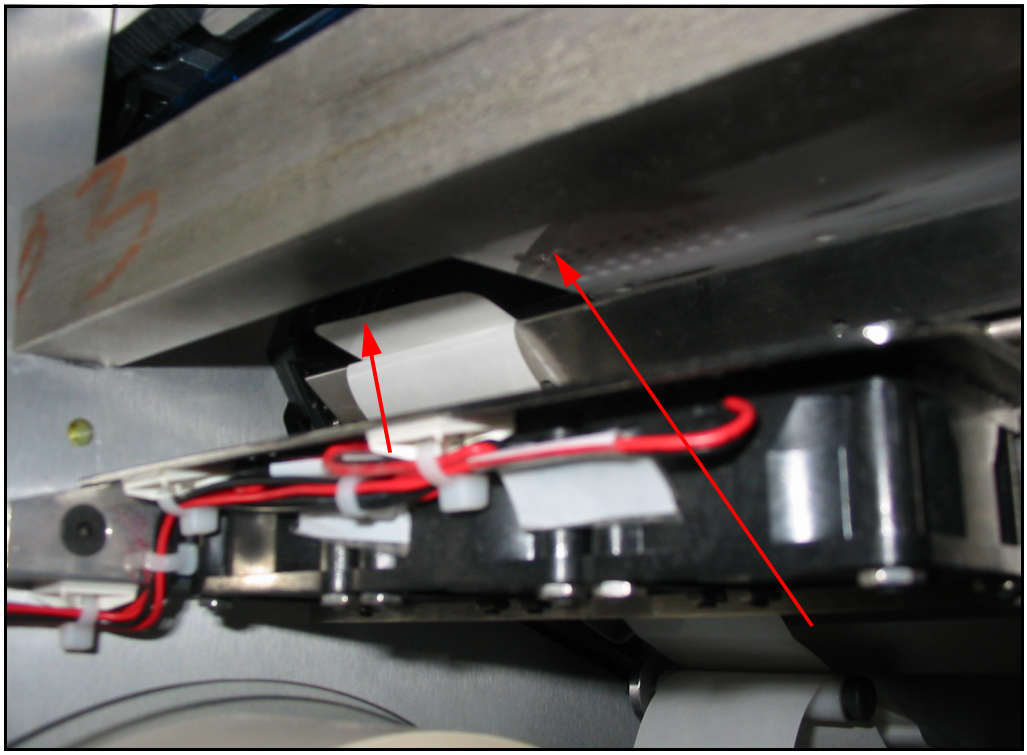

Figure 142: Label missed by labeler pad

9. **Printer ready timeout error:** The printer did not respond to the labeler in time. This is often due to some issue with the printer. If that is the case, a description of the printer error will be included in the jam message, for example, “Printer: Ribbon has ended”. Take steps to resolve the printer error, and then click the **Start** button to continue the job.
10. **Stepper board communication error:** This indicates a communication error with the stepper control board. Click the **Start** button to continue the job. If this fault keeps happening, call OPEX service.

There is a Diagnostics screen that can help troubleshoot printer and labeler faults. This screen is available at Diagnostics > Device > Print & Label. It shows the motors and sensors in the printer-labeler system. The motors can be operated from this screen, and the status of the sensors can be viewed. However, some familiarity with how the printer-labeler system works is required in order to use this screen.

If there are labeler errors that do not get resolved using this help information, please call OPEX service.

Labeler Response Missing

Description This jam occurs if the labeler is not communicating properly with the Real-Time Controller.

Resolution Press the **Start** button and resume the job. If this problem persists please call OPEX service.

Labeler Skew Sensor Blocked

Description This jam occurs when the labeler skew sensor is blocked.

Resolution Locate the skew sensor using the photos and descriptions below. Check for any obstruction in the path of the sensor or for any disconnected wiring. If an obstruction is found, remove the obstruction and then press the **Start** button to resume the job. If the problem persists or wiring issues are found, please call OPEX service.

The skew sensor is mounted on a metal plate below the labeling pad, in the loading column. It actually consists of two parts – the bottom part is located on the inside of the plate (loading column side), and the top part is outside the plate (labeler side).

The arrow in this photo shows the bottom part of the skew sensor, with no obstructions.

Figure 143: Skew sensor

This image shows the labeler side of the plate, and the arrow points to the top part of the skew sensor.

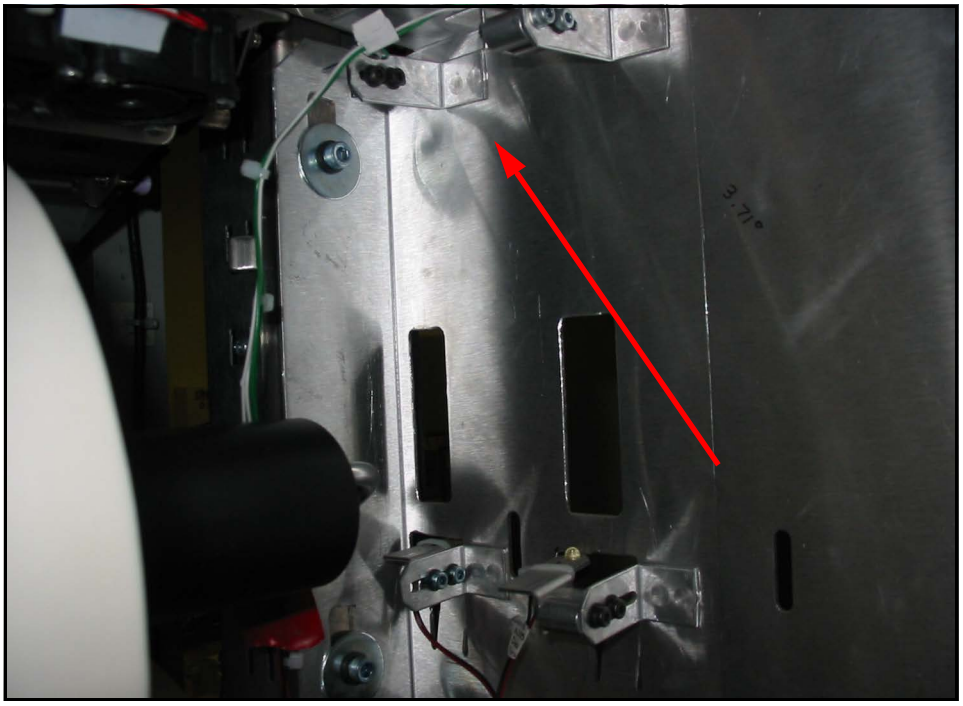

Figure 144: Top of skew sensor

This photo shows a stray label blocking the skew sensor. Remove the label or other obstruction from the sensor path.

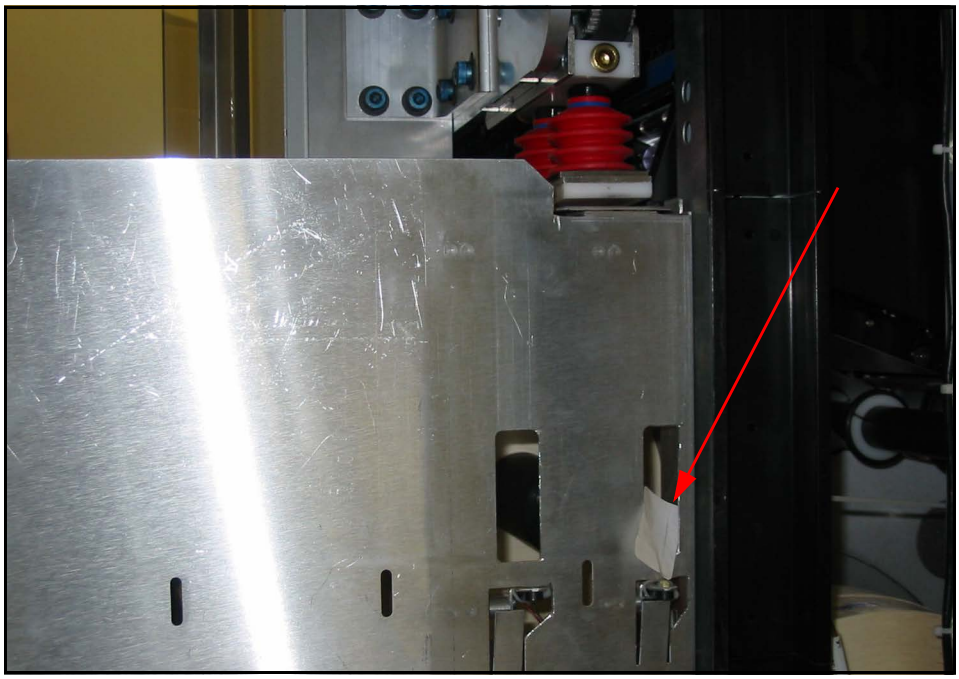

Figure 145: Label blocking skew sensor

Load Failure jam

Description This jam occurs when a piece is not loaded properly on to an iBOT at the loading position.

Resolution This can happen due to several reasons including:

- The piece gets skewed in the Input section, and is not able to load up on the iBOT properly, as shown in the picture.
- The piece may ride up on top of the iBOT's hold-down bar instead of passing under it, resulting in a jam.
- The piece may catch on something in the Input section and not reach the iBOT within an expected time-frame, causing a "Load Failure" jam to be called.

In all these cases, remove the offending piece from the iBOT or the Input section, and click `Start` to continue running.

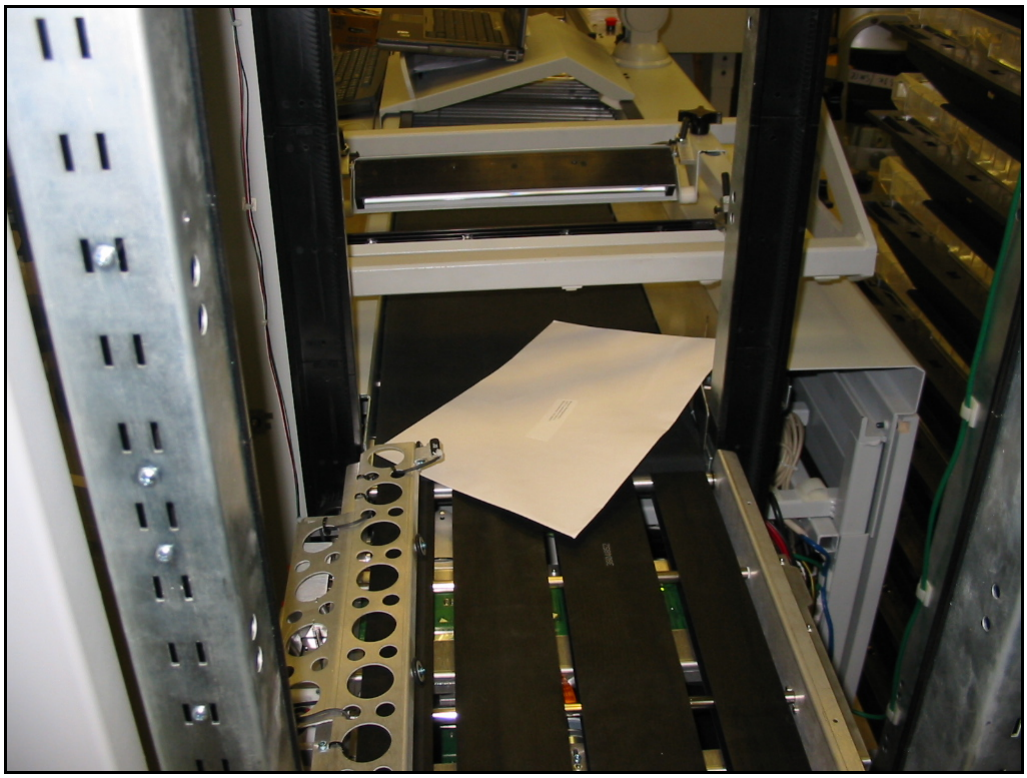

Figure 146: Mail loaded crooked on iBOT

No iBOTs Detected

Description This jam occurs when the Real-Time Controller cannot detect any iBOTs in the system.

Resolution Try these steps to recover from this jam:

1. Verify that there is indeed at least one iBOT in the machine, and that the power on all iBOTs in the system is turned on.
2. Exit the host program, wait 10 seconds, and then restart it. Use the iBOTs tab in the Run screen or the iBOTs screen in diagnostics to check if the iBOTs in the system have now been recognized.
3. If no iBOTs have been recognized, place a Service call to OPEX.

Printer Response Missing

Description This is caused when the Printer is not communicating with the host computer.

Resolution Check the status of the printer from the control panel of the printer located on the side of the labeler. If any fault condition is displayed on the panel (for example “Ribbon End”), rectify the condition. If the control panel indicates “OFFLINE”, press the **`LINE`** button to bring the printer back online. Resume the job by selecting the **`Start`** button on the run screen. If the problem persists, please call OPEX service.

Software Error or Software Problems Detected

Description This jam occurs when an unexpected situation arises in the software.

Resolution Click the **`Start`** button on the Run screen to continue running.

Stacker or Labeler Door Open

Description For safety reasons, the Mail Matrix will not run if the door at either end of the machine is open, or the small labeler door is open, or if the entire labeler enclosure is open.

Resolution Ensure that all of the doors and/or access panels are closed properly.

This photo shows the example of an open stacker door at the loading column end. Close the door tightly and push in the knobs (pointed to in the picture) to prevent accidental opening.

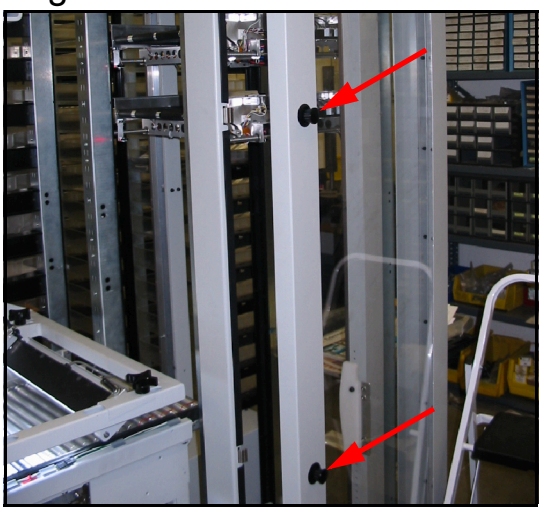

Figure 147: Door knobs

This image shows the small labeler door in an opened condition. Please close the small labeler door so that the latch catches (arrow shows latch for small door).

Figure 148: Labeler door open

This image shows the labeler enclosure opened up. Please close the labeler unit to the side of the Mail Matrix so that the latch catches (see arrow).

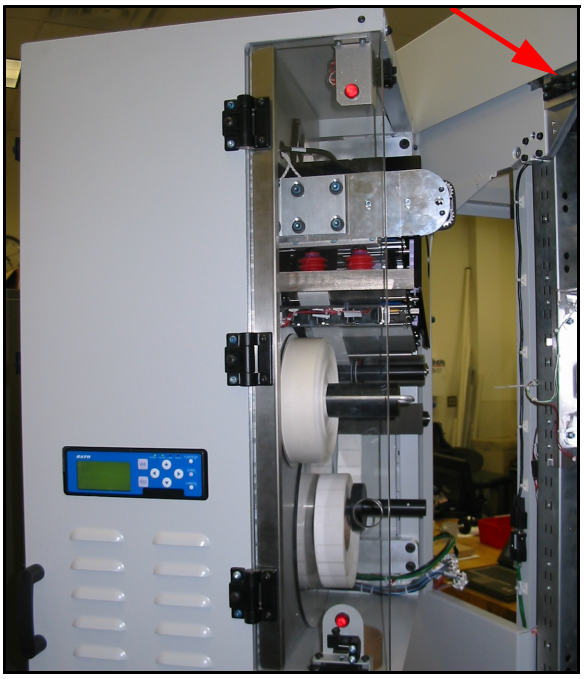

Figure 149: Latch location

Too Many Verifier Rejects

Description This is caused when the verifier does not clearly read the labels. If the verifier fails to read the barcode on a number of successive labels, then the machine stops with this jam.

Resolution Check for correct printing of labels, and for proper label placement on the mail pieces.

If possible, look at the last labeled piece, which would be on the iBOT that has just left the labeler location. Check the location of the label on the piece to ensure that it is correct. Look at the label and check that it is printed correctly. Misaligned printer ribbon or label feed can cause parts of the text or barcode to fall off the edge of a label. If that is the case, then open up the printer and rectify the problem.

If everything seems all right, but the problem persists please call OPEX service.

“Unknown” jam or “Unknown Reason” jam

Description An “Unknown Reason” jam occurs if the Real-Time Controller signals a jam that the host is not familiar with. This could occur, for example, if the Controller software has been upgraded, but the host software has not.

Resolution Click the **`Start`** button on the Run screen to continue running.

If this jam occurs frequently, make a Service call to OPEX.

“Failure to Unload” jam

Description This jam occurs when an iBOT is at the destination bin of the piece it is carrying, but is unable to deliver it into the bin.

Resolution Check to see why the iBOT is unable to unload its piece, and rectify the situation. Some possible situations are described below:

Destination bin is full. The destination bin may be full, and the iBOT is unable to push the piece it is carrying, into the bin. In that case, empty the bin and replace it back in the machine. Pull the partially-delivered piece from the iBOT and place it in the bin.

Click the **`Clear Jam`** button on the Run screen, and click **`Start`** to continue running.

Figure 150: Overfilled bin

The piece being delivered may have not made it into the bin properly. It may have slipped under the lip of the bin and got wedged in there as shown in the picture.

Pull out the wedged piece and place it in the destination bin.

Click the **`Clear Jam`** button on the Run screen, and click **`Start`** to continue running.

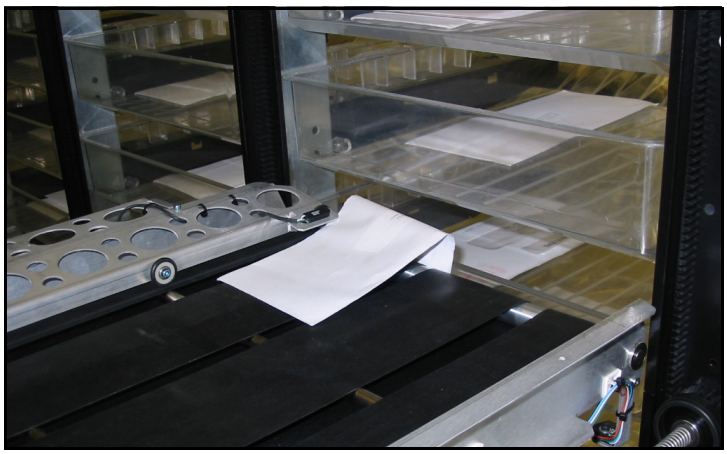

Figure 151: Mail wedged under lip of bin

An iBOT may actually have delivered its piece into the bin, but the sensor on the iBOT may not have recognized the delivery. This can happen if the piece was not positioned correctly under the hold-down during loading, and was simply lying on top of the iBOT conveyor belts. That piece would have been delivered into the bin, but it would not have triggered the iBOT sensor.

If the jammed iBOT does not have a piece on it, this is probably what happened.

Click the `Clear Jam` button on the Run screen, and click `Start` to continue running.

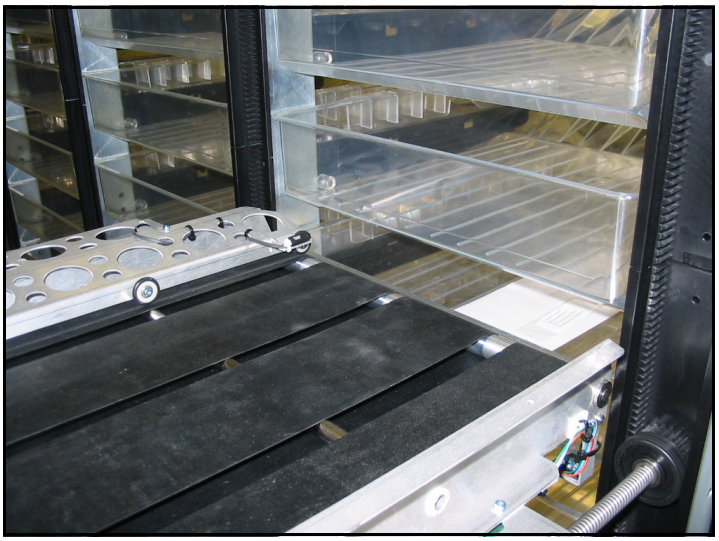

Figure 152: Mail delivered, but iBOT did not detect it

Verifier Response Missing

Description This is caused by failure of communications between the Verifier and the Real-Time Controller.

Resolution The verifier is mounted inside the stacker door, and is connected to the Real-Time Controller through a cable that runs on the inside of the door. Verify that this cable is all right.

Press the `Start` button on the run screen to resume the job. If the problem persists, call OPEX service.

Wireless Communication Failure

Description A Wireless Communication Failure jam occurs when the Real-Time Controller fails to communicate with an iBOT despite repeated attempts to do so. This jam can occur at the start of a run, when the Controller tries to communicate with all iBOTs, or when an iBOT is at a critical location, like the loading position.

Resolution Click the **`Start`** button on the Run screen to continue running.

If this jam occurs frequently, use the diagnostics screen “Wireless Clarity” to check if the channel being used for the Mail Matrix is comparatively clear.

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8 Database Management Utility

Overview

The Database Management Utility provides an interface for configuring the database the Mail Matrix uses to sort mail. The database utility creates a new *.csv file for the Directory Retrieval System (DRS) to use, so you can always keep the original, customer-supplied database should you ever need to reference it. The database utility allows the user to:

- Import an existing database for use in the Mail Matrix system
- Add and remove recipients to the sort plan
- Create “groups” of recipients for sorting assignments
- View, export, and print the sort plan.
- Designate bin destinations for recipients and/or groups
- Create a new database

The database utility runs as a separate application to the Mail Matrix Host software. Use the shortcut on the desktop to open the database utility.

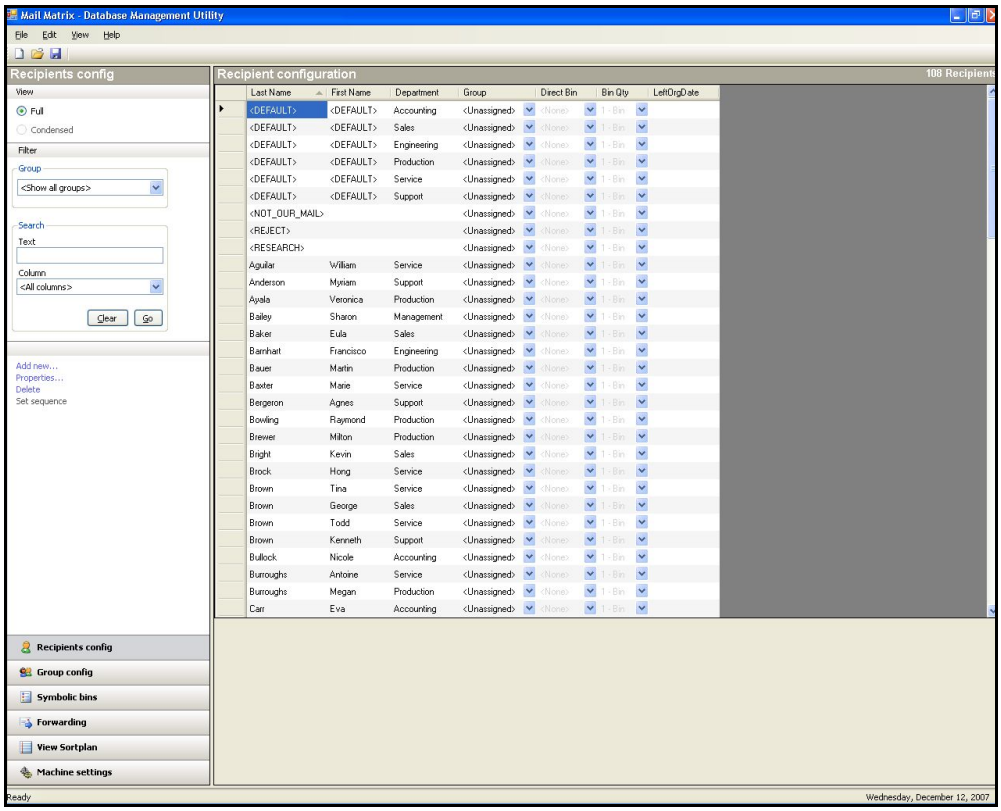

Figure 153: Database Management Utility

Importing an Existing Database

In most cases, the customer will have an existing database (or spreadsheet or some other type of electronic file) containing the names of all their mail recipients. The database may or may not also contain additional information that you can use to sort mail, such as a department name or mailcode. Use the Database Management Utility to tailor the database for the use of sorting mail with the Mail Matrix.

Note: *If the customer does not have such a database, you can also create a new database from scratch as described in* "Creating a New Database" on page 218*.*

To import an existing database:

1. Double-click on the Database Management Utility icon on the desktop.

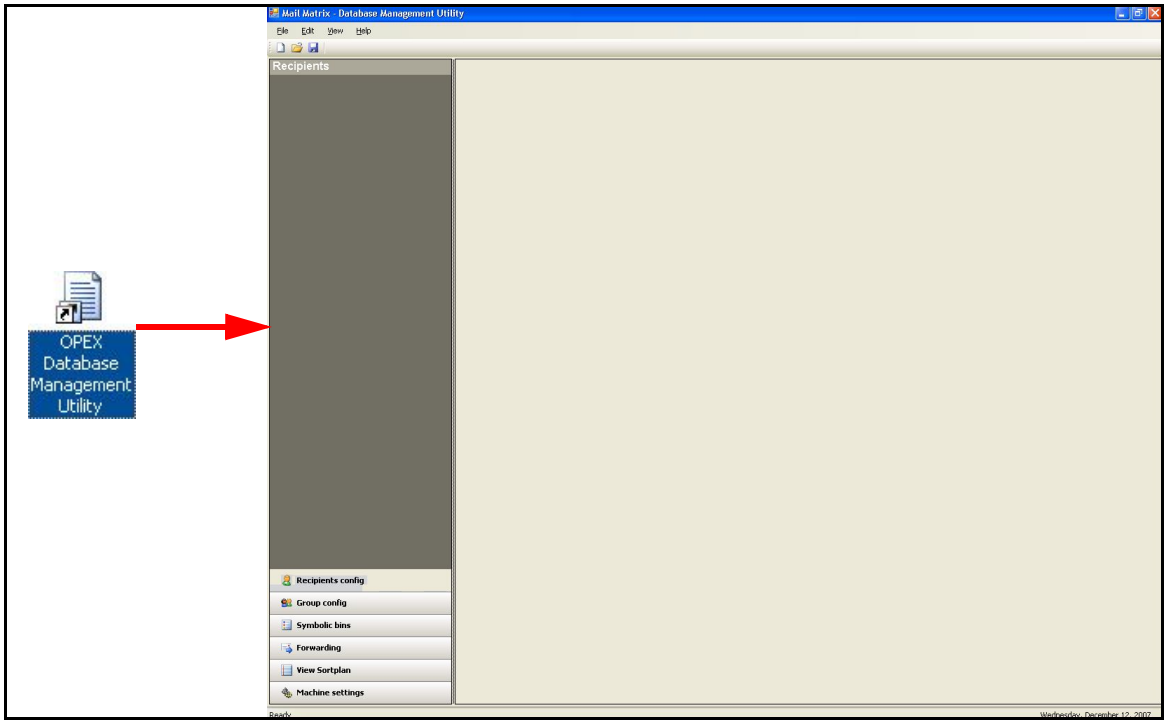

Figure 154: Database management Utility

2. Click `File > New` to open the **import database wizard**.

3. Enter the name for your new database, then click **Next**.

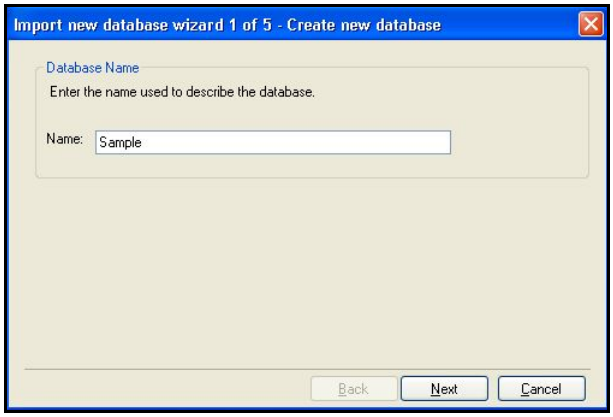

Figure 155: Database Name

4. Click on the **Import Wizard** button.

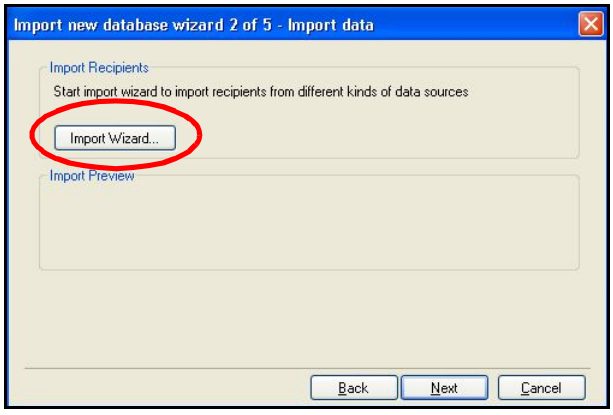

Figure 156: Import Wizard button

5. Enter the database information in the Source Database screen (Figure 157):
   a. Choose the type of file from the **Database Format** drop-down list. The Database Management Utility can process the following types of files:
      - CSV (Comma Separated Value)
      - Tab Delimited Text
      - DBF 3 (dBase III)
      - DBF 4 (dBase IV)

b. Enter the path to the existing database file in the **Database Path** field.

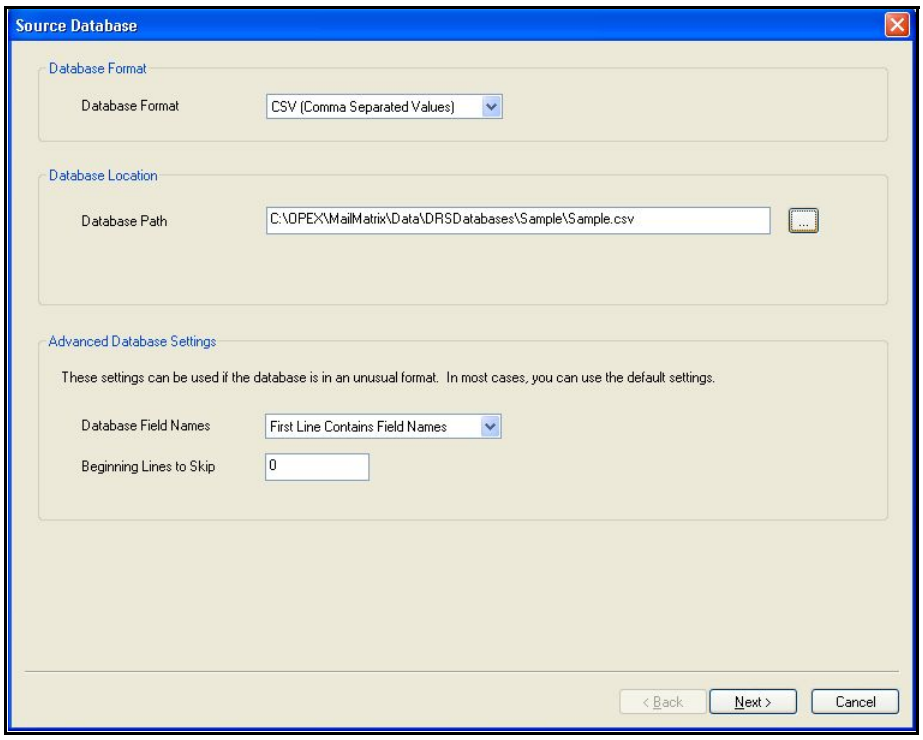

Figure 157: Source Database screen

c. In most cases, you will set the **Database Field Names** drop-down to **`First Line Contains Field Names`**. If the database does not have the names of the fields in the first line, select **`No Field Names in Database`** and enter the column name information manually in the next step.

Note: *Some databases may have extraneous information in the first several lines, before the actual names begin. If this is the case, determine how many lines at the top you need to skip and enter the number in the* **Beginning Lines to Skip** *field.*

6. Click **Next** on the Source Database screen to access the Fields to Import Screen, which lists the names of the columns it found, if any, in the database specified in step 5.

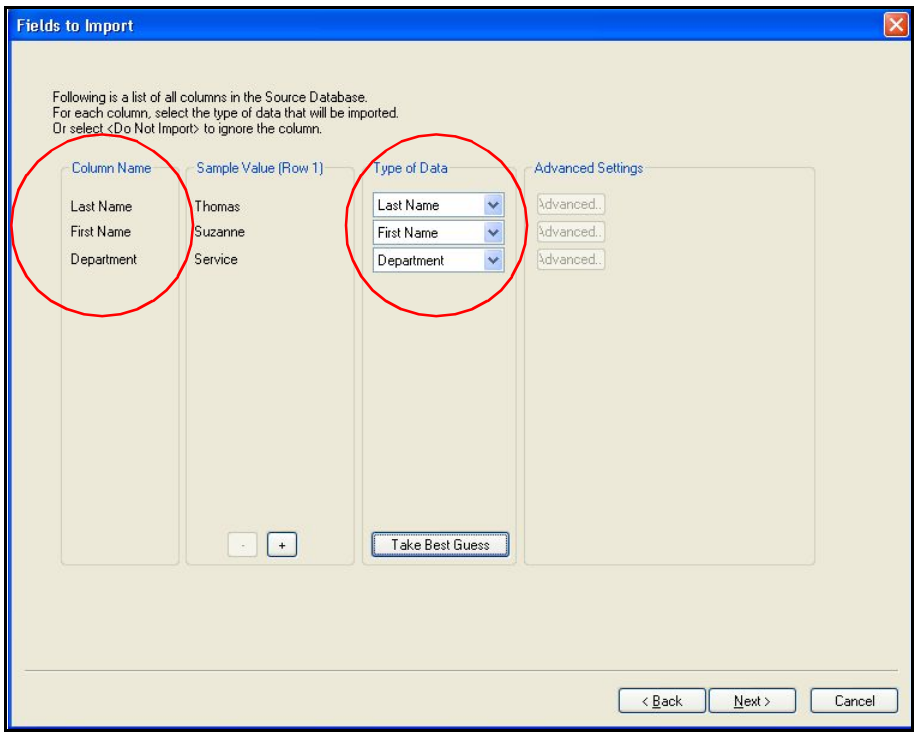

Figure 158: Fields to Import screen

7. Click the **Take Best Guess** button to have the software attempt to make the proper matches between the columns in the database and the system's "Type of Data" assignment. If the designations aren't correct, adjust them in the **Type of Data** drop-down lists.

   Note: *The example shown in Figure 158 provides a very basic example of a customer database, which contains only the last name, first name, and department designation for mail recipients. The database you upload may have many additional fields, some of which may not be applicable for your purposes. For those fields, choose* **Do Not Import** *from the drop-down list.*

8. Click **Next** when you have all the **Type of Data** fields filled in properly.

9. Click **Finish** on the Import Complete screen.

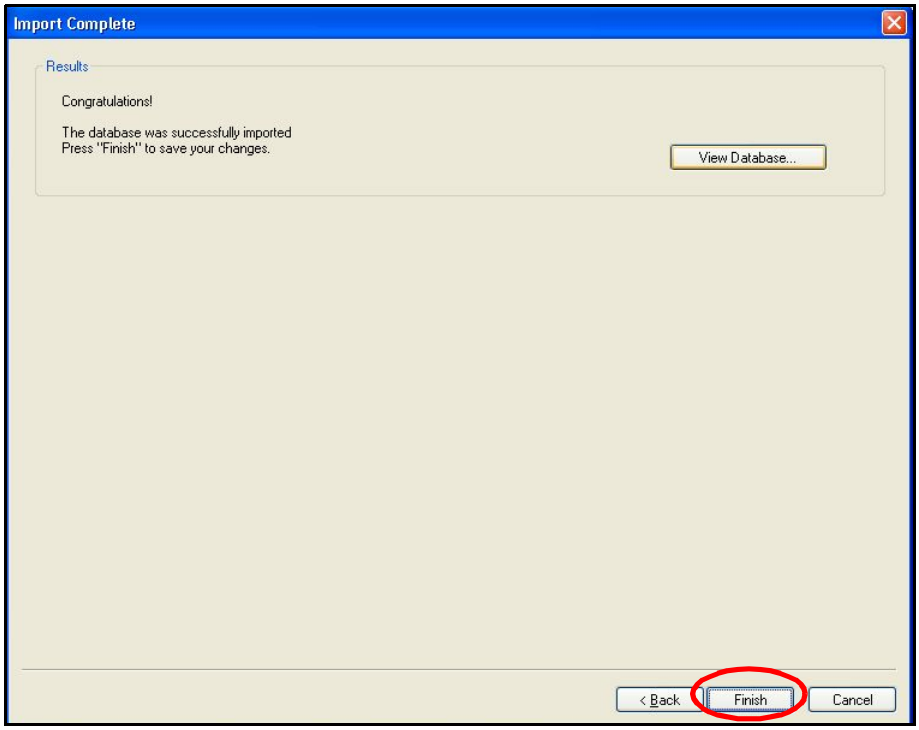

Figure 159: Import Complete

10. The Import Data wizard screen will list the number of records and columns found in the imported database. Click **Next** to continue.

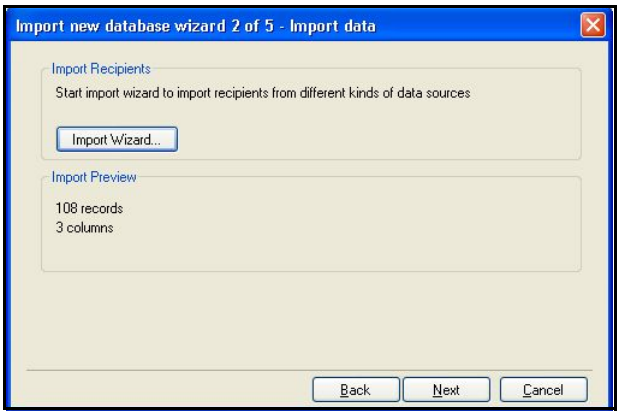

Figure 160: Import preview

11. Enter the names of additional columns you want or need in the database in the Add Columns screen. Click **Next** when you are finished.

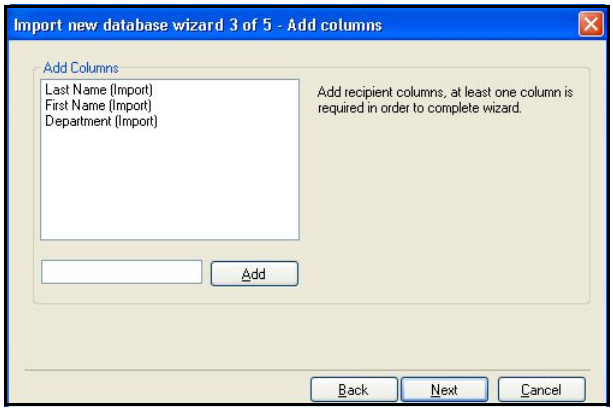

Figure 161: Add columns

12. Choose an Equivalence Column for the database. The equivalent answer setting is mainly used for mailstop or lockbox sorting. This setting tells the DRS that if all the possible matches share the same value in the Equivalence Column, they can be considered “equivalent answers” and the DRS can accept any one as a matching record. You can choose any of the imported fields as the “equivalent answer” field. Click **Next** when you are finished.

Note: *Equivalence columns are usually only valid for lockbox setups.*

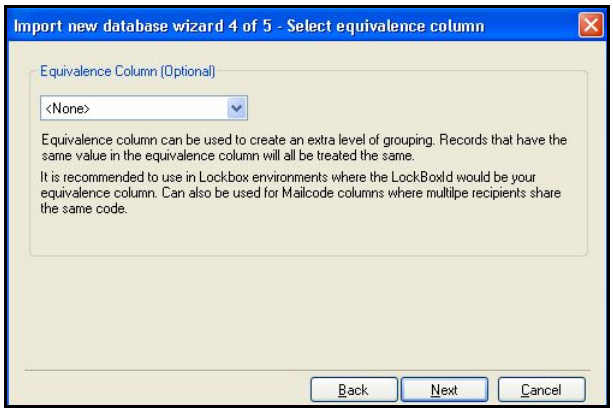

Figure 162: Equivalence Column

13. Click **`Finish`** on the Performing Import screen.

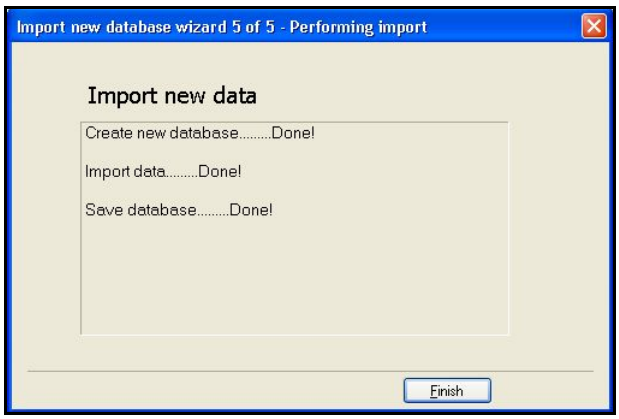

Figure 163: Finish

14. The Recipient Configuration screen will appear (Figure 164), displaying all the fields imported from the database.

Once you have imported the database into the utility, you can add and remove recipients, make bin assignments, group recipients to make custom sorting solutions, and view the sort plan.

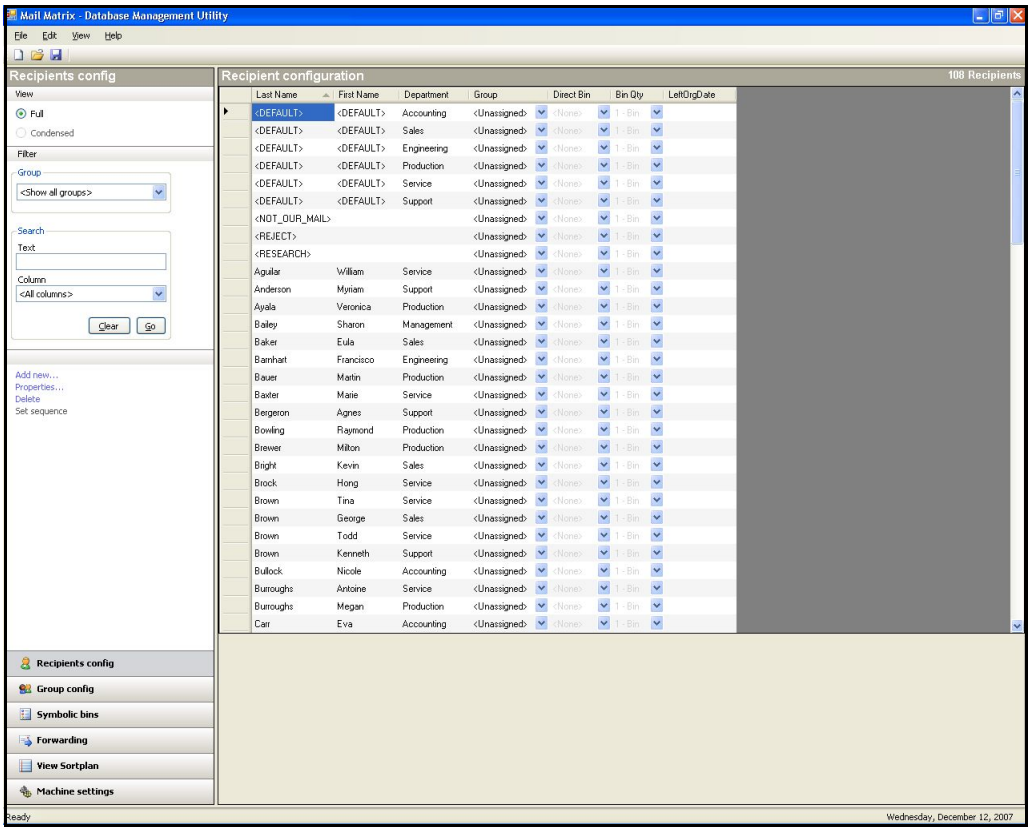

Figure 164: Recipient Configuration screen

Creating groups

The groups established within the Database Management Utility allow you to arrange your sort plan several recipients at a time. For example, you can break your recipients into groups based on department, to make it easier to deliver mail after it has been removed from the system. You may have people on vacation or people who no longer work for the company in your database. If you do not want to sort these recipients to bins, but you don't want to remove them from your database entirely, you can add them to groups and sort their mail accordingly.

The Database Management Utility will only assign bins to recipients who belong to a group. Therefore, you must assign all of the recipients in your database who will receive mail to a group, even if they are all members of the same group.

1. Click the **`Group config`** button in the menu list on the left of the utility screen (Figure 165).

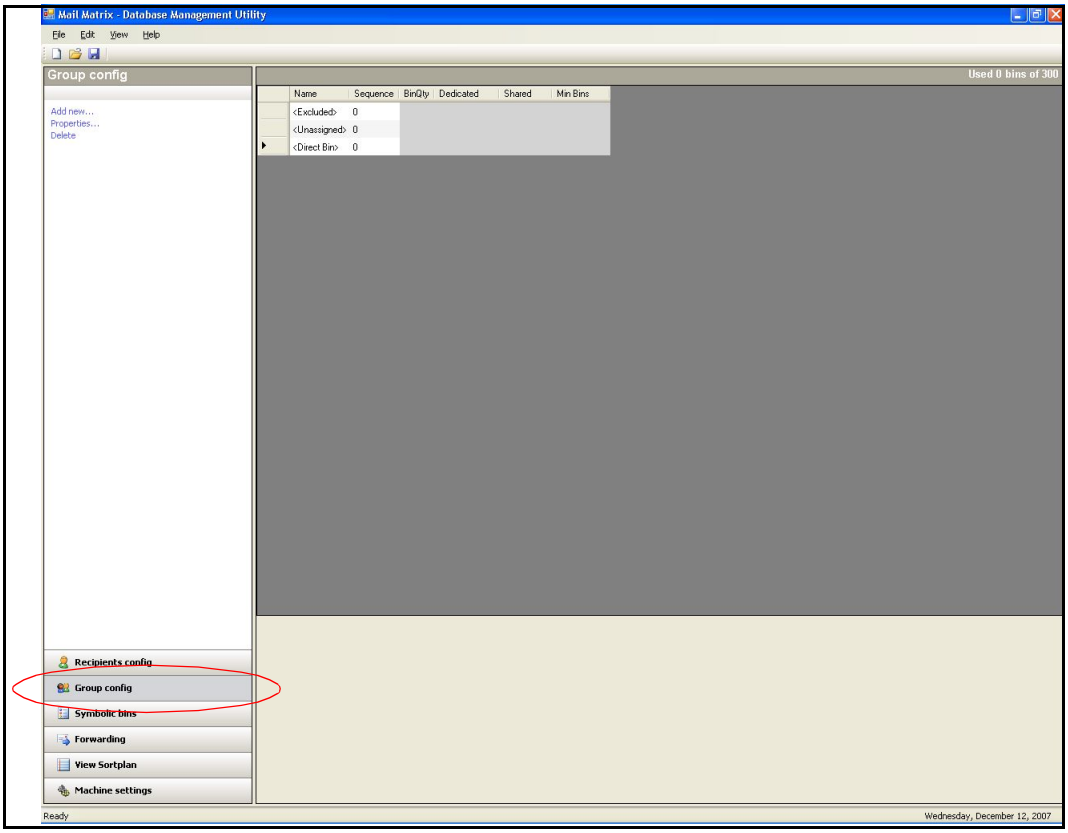

Figure 165: Group configuration screen

2. Click **`Add new...`** from the menu choices on the left of the screen to bring up the Add Group dialog (Figure 166).

3. Enter the name of your new group in the Name field of the Add Group dialog. In our example, we will be sorting to all of the employees in the database. We will name this group **`Employees`**.

   Note: *Leave the rest of the options in the Add Group dialog at their default settings for now.*

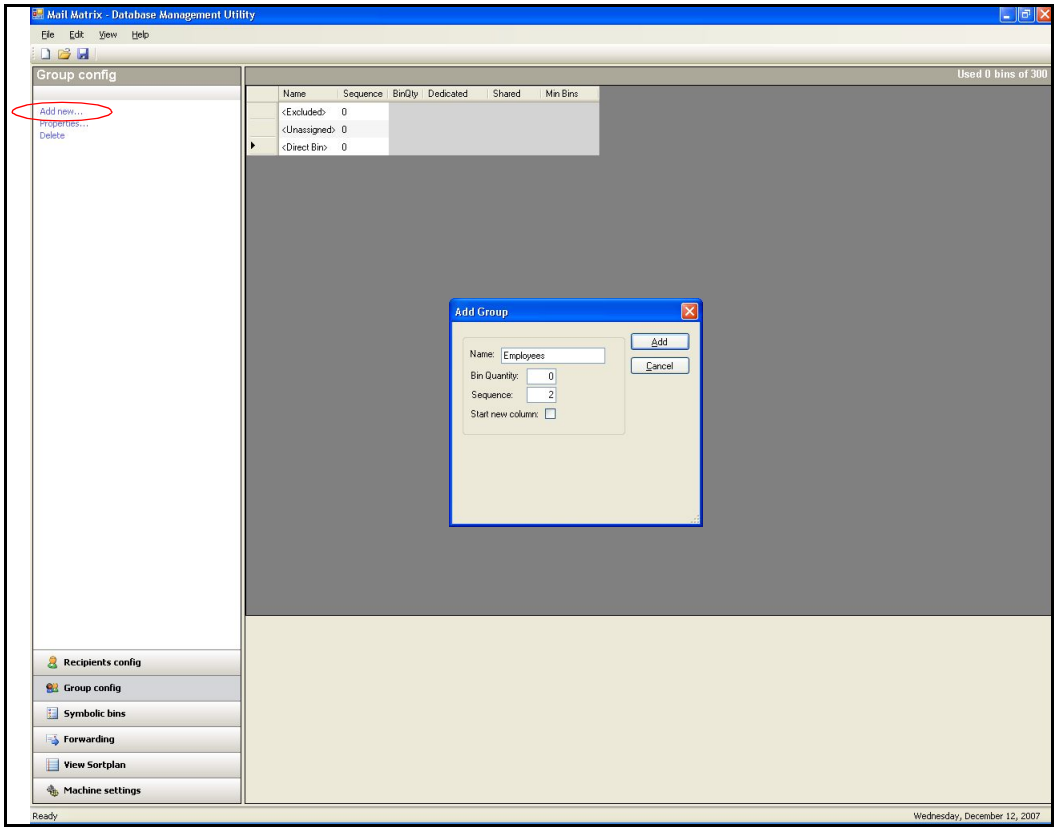

Figure 166: Add new group

4. In the sample database we imported in the previous section, there are several entries for entire departments and for items named **`<NOT OUR MAIL>`**, **`<RESEARCH>`**, and **`<REJECT>`** (see Figure 164). For our sorting purposes, we want to keep these items together, near the front of the

machine. To accomplish this, we'll create another group and name it **Quick Button**, as shown in Figure 167.

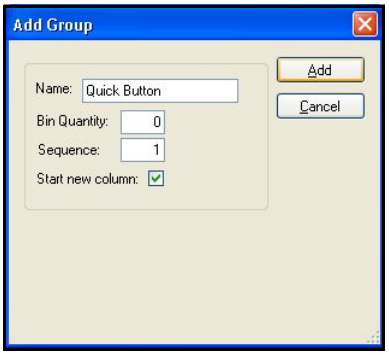

Figure 167: Add the Quick Button group

5. Now that you have created some groups, click **Recipients config** to return to the Recipient Configuration screen.
6. Select the database entries that you want to put in the Quick Button group.

   Note: *In many instances, you can make this easier by sorting the database by a column. Click the column name at the top to organize the database by that particular column.*
7. Click **Properties...** to adjust the properties for all the selected recipients at once (Figure 168).

8. In the Properties dialog, select the **Quick Button** group and click **OK**.

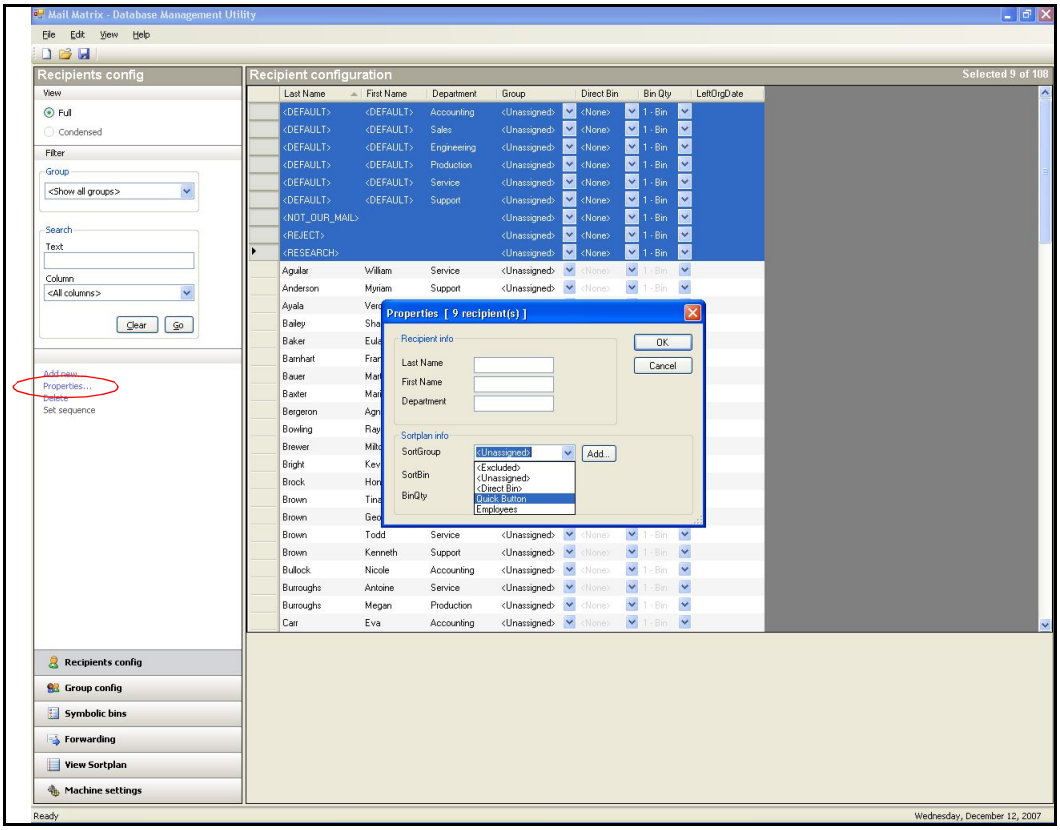

Figure 168: Add recipients to the Quick Button group

9. Select the recipients you want to add to the Employees group you created in step 3, then click **`Properties...`** Add the selected recipients to the Employees group (Figure 169).

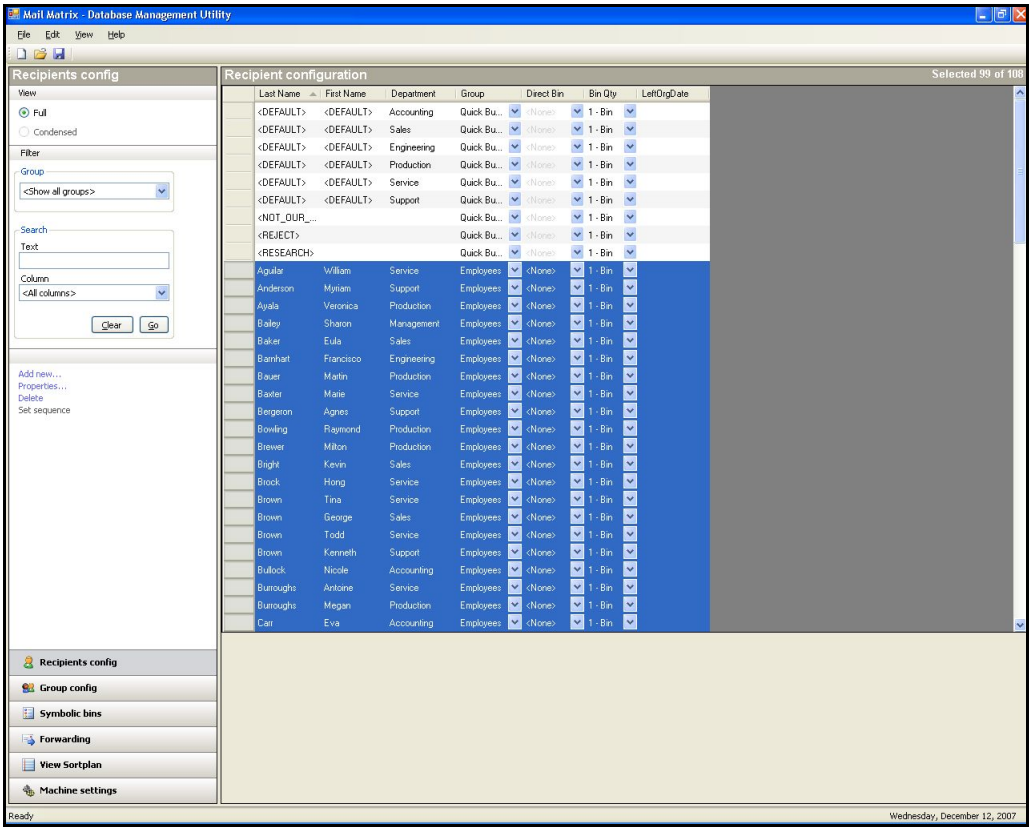

Figure 169: Add recipients to the Employees group

10. Now that you have added recipients to your groups, go back to the Group Configuration screen (click **`Group config`** button on the lower left of the screen) and determine how many of the machine's bins you want to dedicate to each group.

On the Group Configuration screen (Figure 170), notice that the **0** entry in the Bin Quantity (BinQty) field for the newly-created groups is shown in red, to indicate that the entry is invalid. Also take note of the numbers in the Dedicated column, which tells you how many recipients are assigned to each group. For our example, we added 9 recipients to the Quick Button group, and 93 recipients to the Employees group.

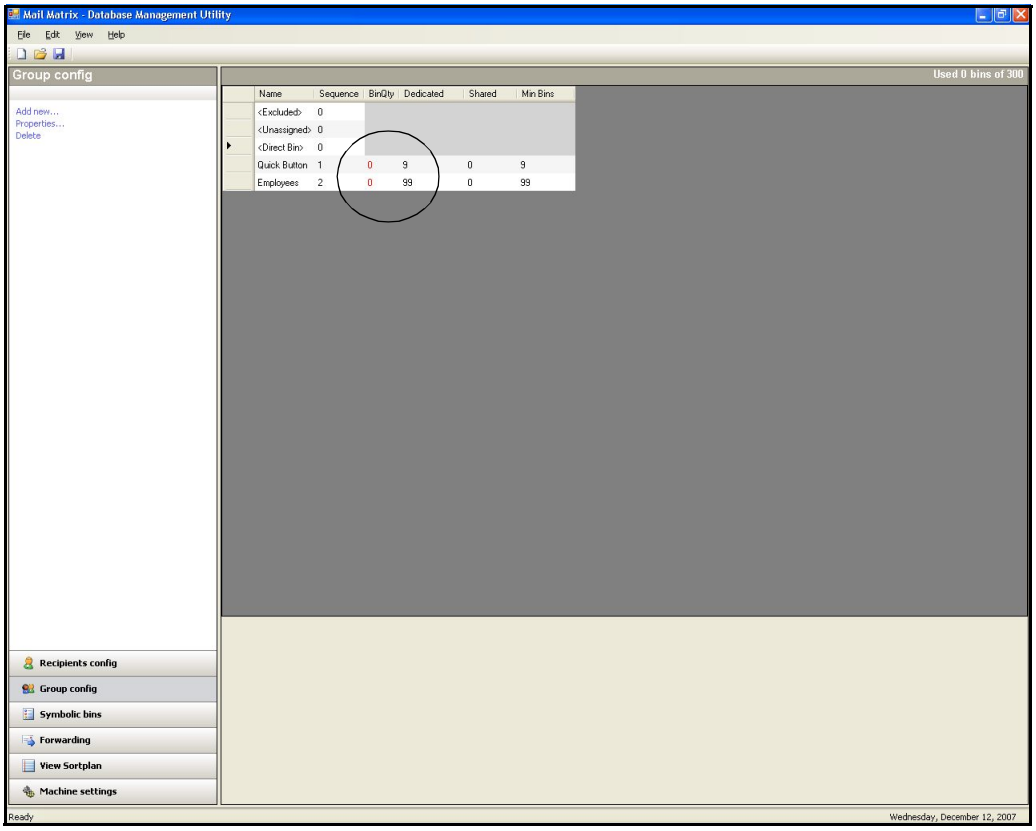

Figure 170: Groups in need of bin assignments

a. Select the group you want to edit and click **`Properties...`** For this example, we will edit our Quick Button group first.

b. Enter the number of bins you need to dedicate to this group in the BinQty field. Since we have 9 recipients in our Quick Button group, we will dedicate 9 bins for this group (Figure 171).

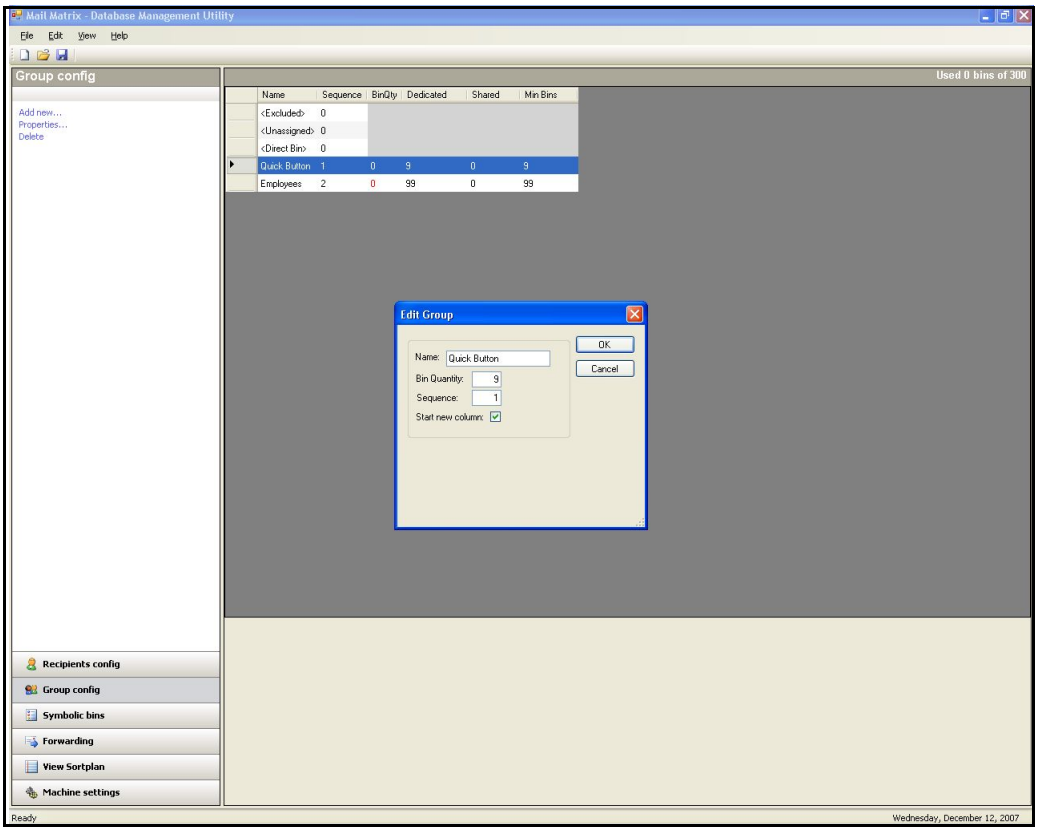

Figure 171: Dedicating bins for the Quick Button group

c. Click **OK** to save the settings for the first group, then repeat these steps for the Employees group. In this example, we have 93 employees, and we will dedicate 93 bins for them.

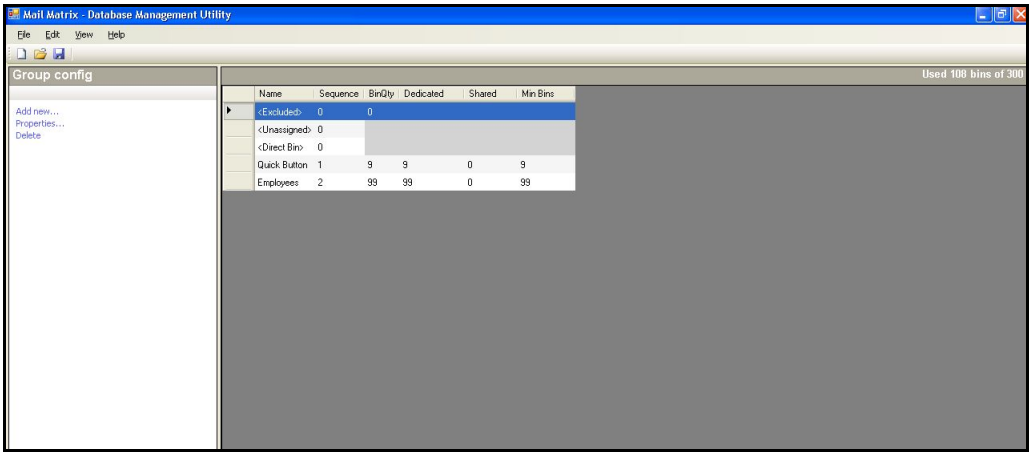

Figure 172: Groups with bin assignments

At this point, you have created some groups and have assigned all of your recipients to one group or another. Now that all of the recipients are members of a group, the Database Management Utility has the information it needs to make bin assignments.

Before moving along, however, take note of some of the other features of group configuration.

Bins used

When you start dedicating bins to groups, an indicator near the top of the screen will keep a running total of how many bins are being used in your sort plan. This indicator is very helpful to make sure you do not dedicate more bins than you have installed on the machine.

This indicator is displayed on the Recipients Configuration and Group Configuration screens.

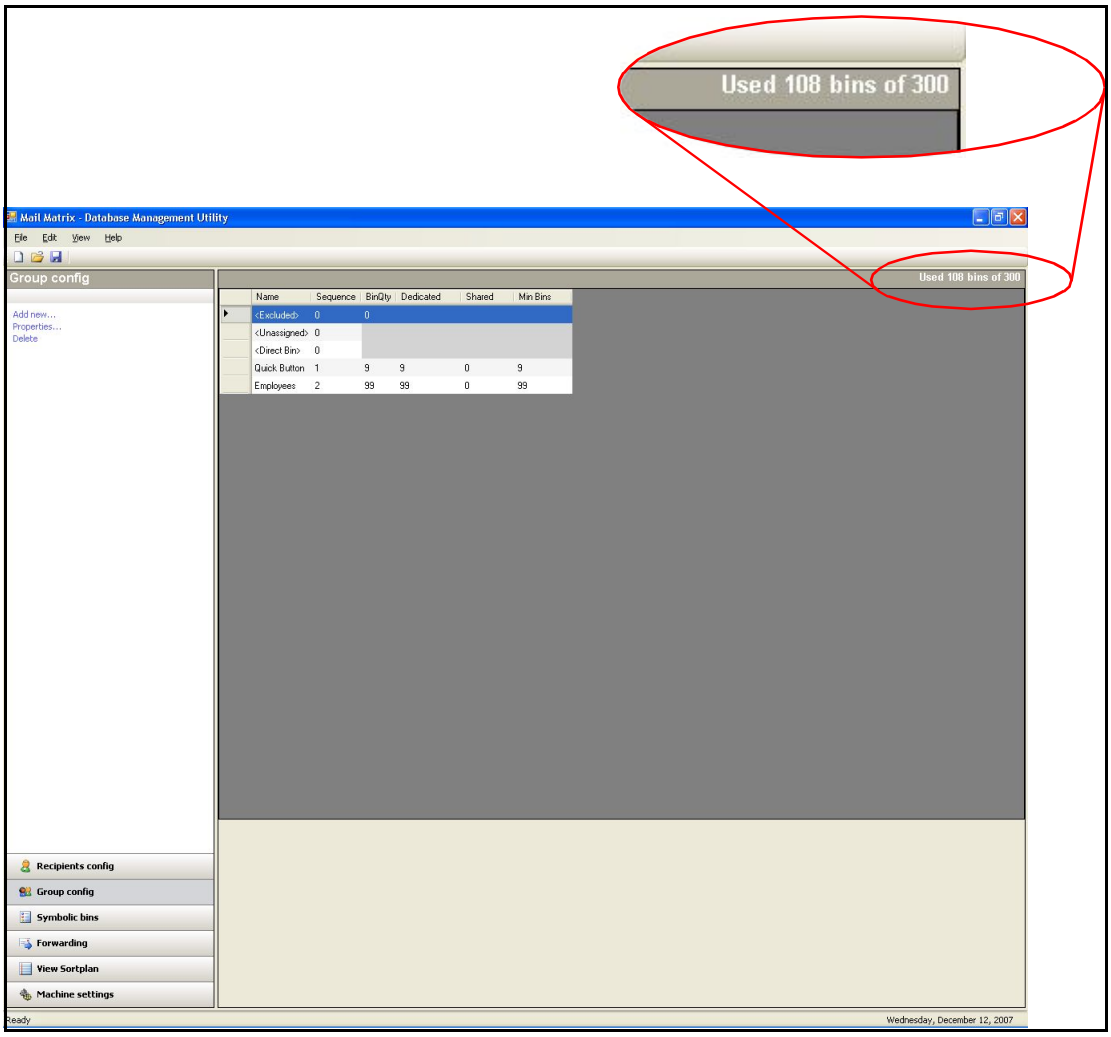

Figure 173: Bins used indicator

Sequencing groups

Another important aspect of creating your sort plan is the ability to arrange your groups as you see fit. For our example, it would be best to keep the Quick Button group closer to the front of the machine, so that when the operator comes and clears the bins, all of the special condition mail (i.e. mail sent to a department, misdirected mail, trash, etc.) is in the first column. In this case, you would want to have the management utility arrange your bin assignments accordingly.

Set the number in the sequence field for each group. The group with the number 1 in the sequence field will come first in your sort plan; the group with the number 2 will come next and so on. For this example, we'll set the sequence for the Quick Button group to **1**, so it will come first in the sort plan, and we'll set the Employees group to **2**, so it follows the Quick Button group. You can set the sequence for any other groups you may have in a similar manner.

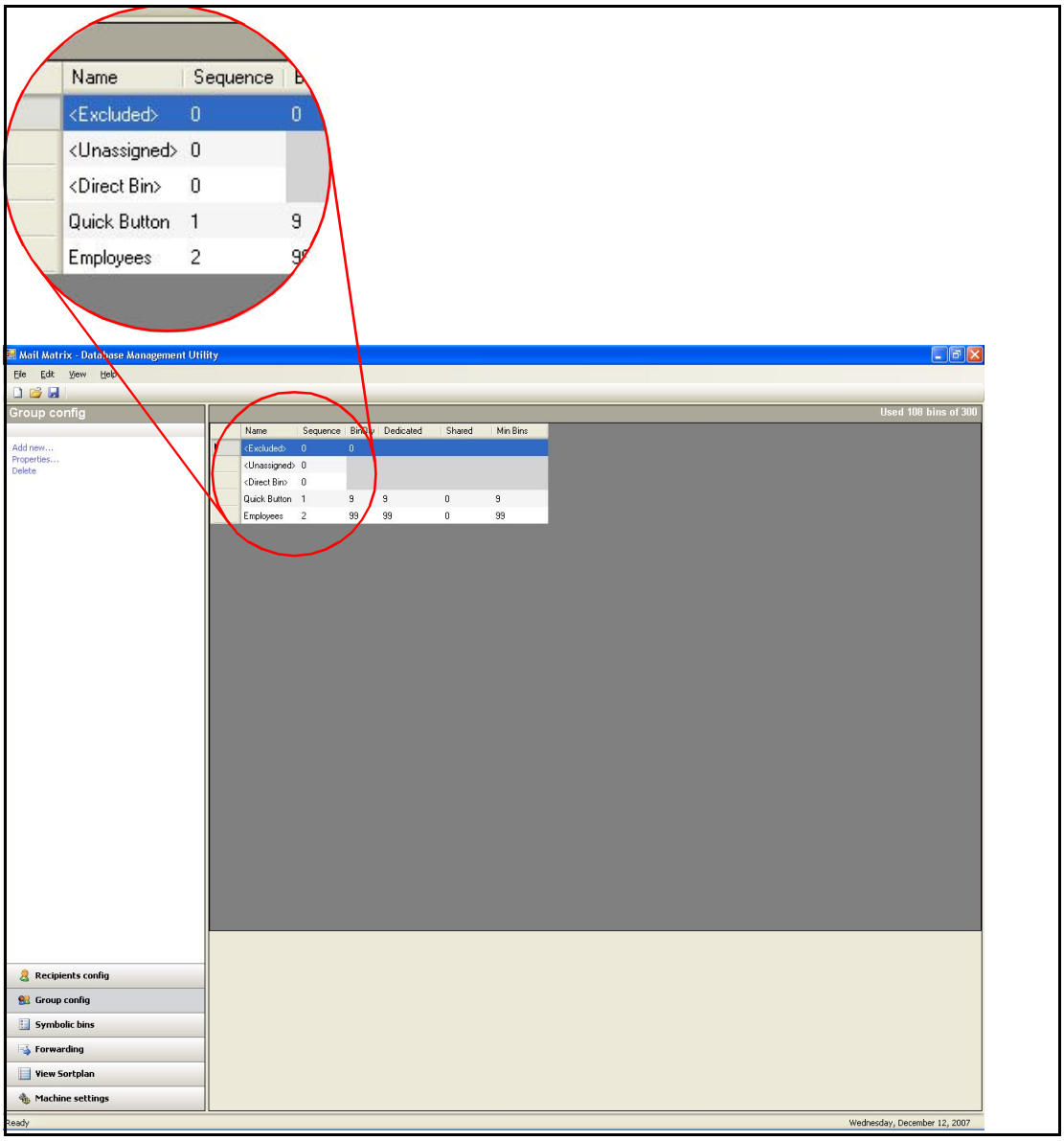

Figure 174: Sequencing groups

Symbolic bins

You can also assign recipients directly to a particular bin. This can be particularly useful if, for example, you have people on leave or people who no longer work for the company, and you want to sort their mail out without taking them completely out of your database. To do so, you must designate special, symbolic bins that you want to direct mail to, then select the recipients you want to send to those bins.

Add the symbolic bins:

1. Click **`Symbolic bins`** in the menu on the lower left of the screen.

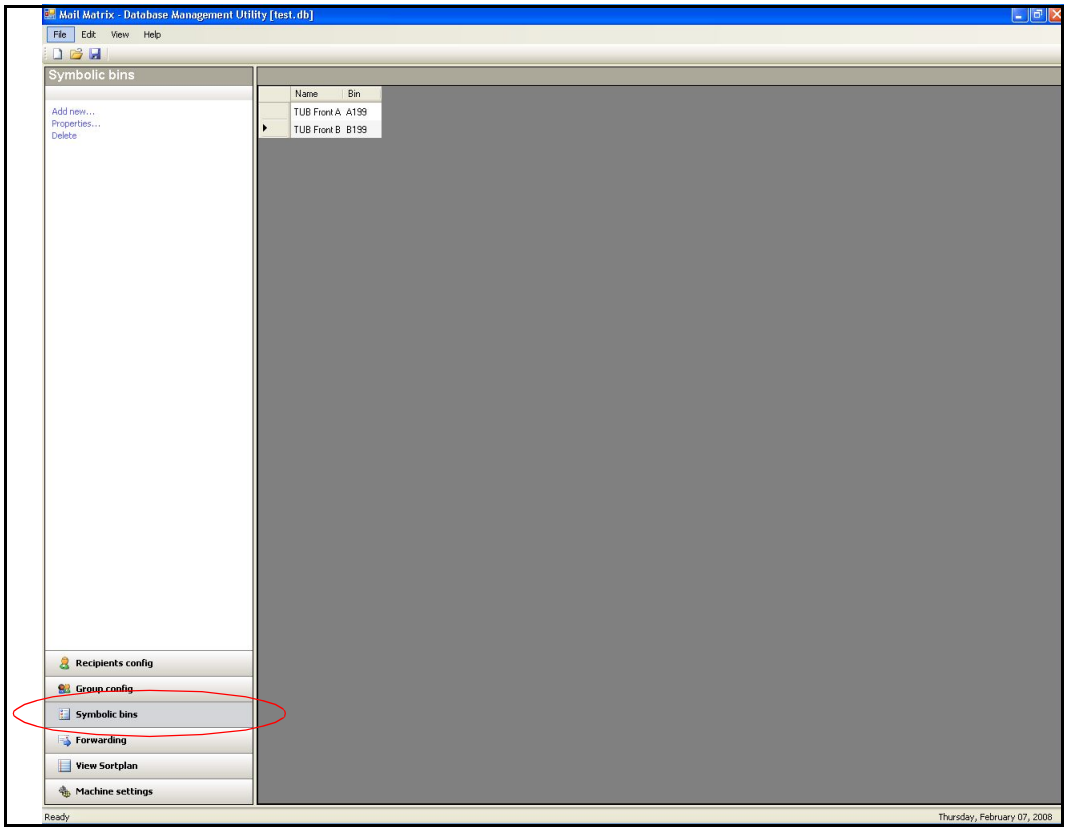

Figure 175: Symbolic Bins screen

2. Click **`Add new...`** to bring up the Add Symbolic Bin dialog box (Figure 176).
3. Enter a name for the bin in the Symbolic Name field, then enter a bin number in the Bin field. Later, when you assign recipients to your symbolic

bins, you will only see the name you specify here, so make sure it is something you will remember later.

Note: *The tubs that sit on the floor underneath each column can be designated symbolic bins as well. The tubs are numbered by their column, followed by the number 199 for the front side of the machine or 299 for the back side of the machine (A199, E299, etc.).*

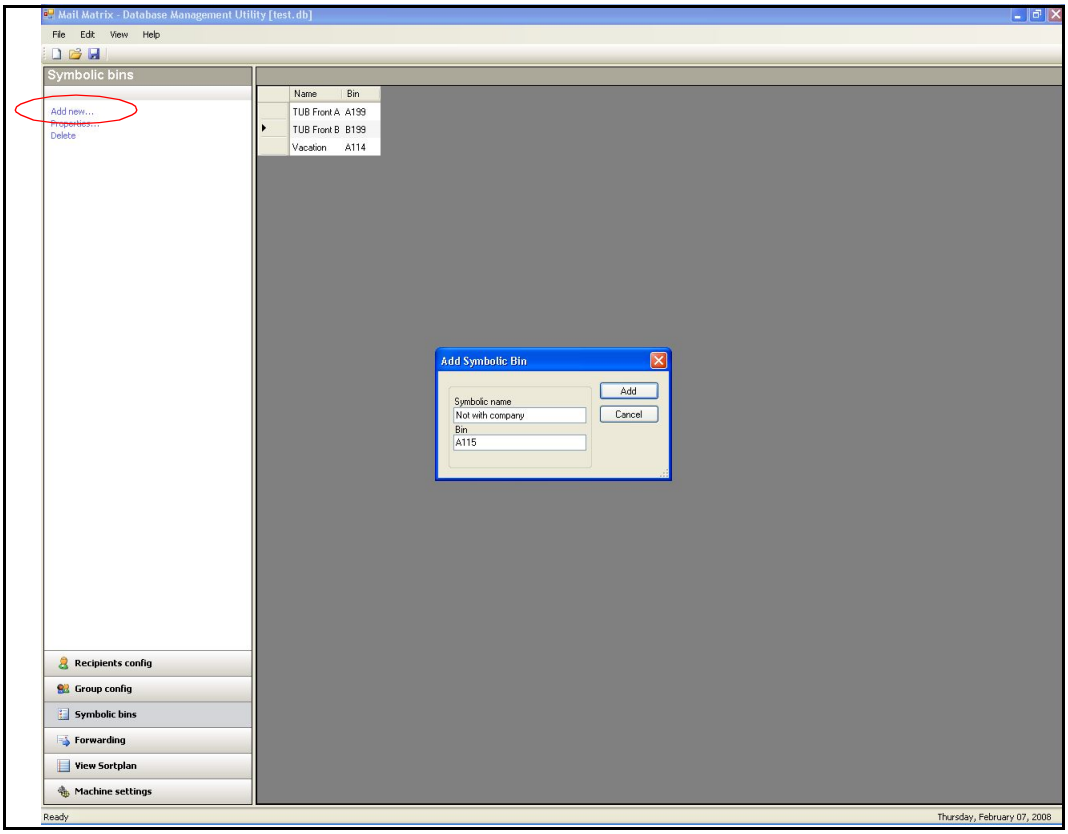

Figure 176: Add symbolic bin

4. Click **Add** to add the bin.
5. Repeat this process for the rest of the symbolic bins you would like to add.

Assign recipients to the symbolic bins:

1. Click **`Recipients config`**.
2. Right-click on the recipient you want to assign to a symbolic bin and select **`Properties...`**

   Note: *If you are assigning several recipients to the same symbolic bin, you can hold the* **`Ctrl`** *key on the keyboard and select all of them at once, then right-click and select* **`Properties...`**
3. Change the **SortGroup** field to **`<Direct Bin>`**. This is necessary for any recipient that will be assigned a symbolic bin. These recipients can no longer be part of another group.
4. Select the symbolic bin name from the **SortBin** field. This is the name you specified in step 3 of the last procedure.

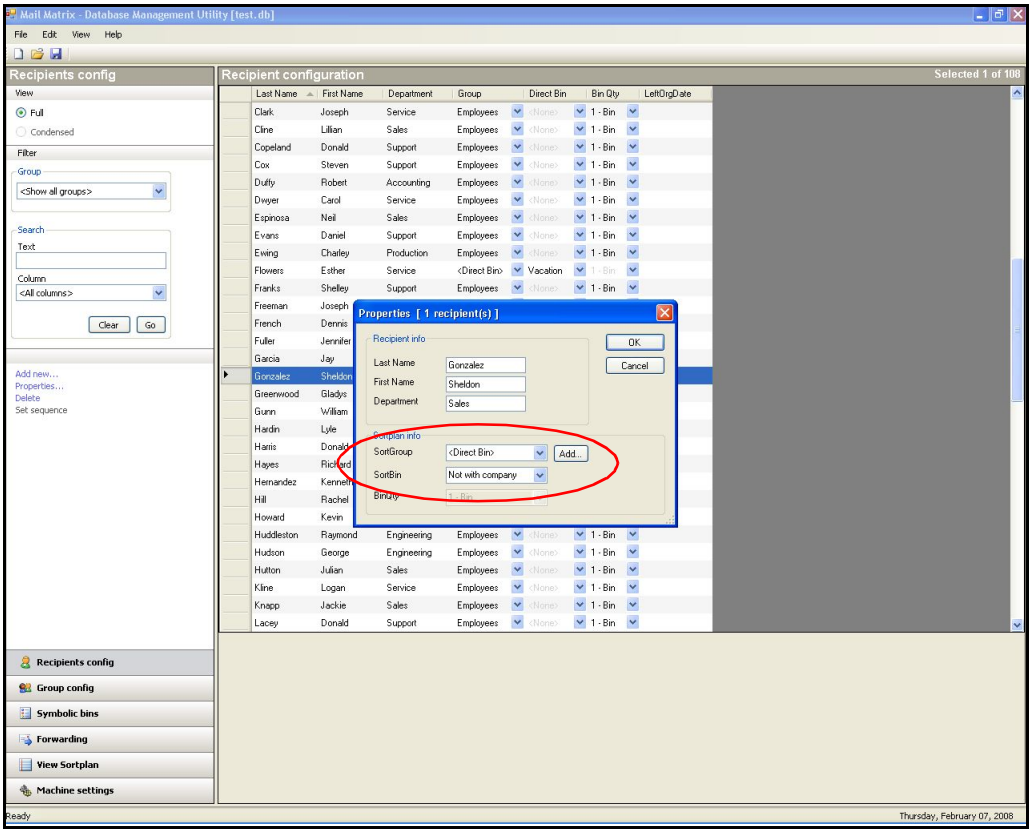

Figure 177: Select symbolic bin name

5. Click **`OK`** to save the changes.

6. Click on **`View Sortplan`** to make sure your settings are correct.

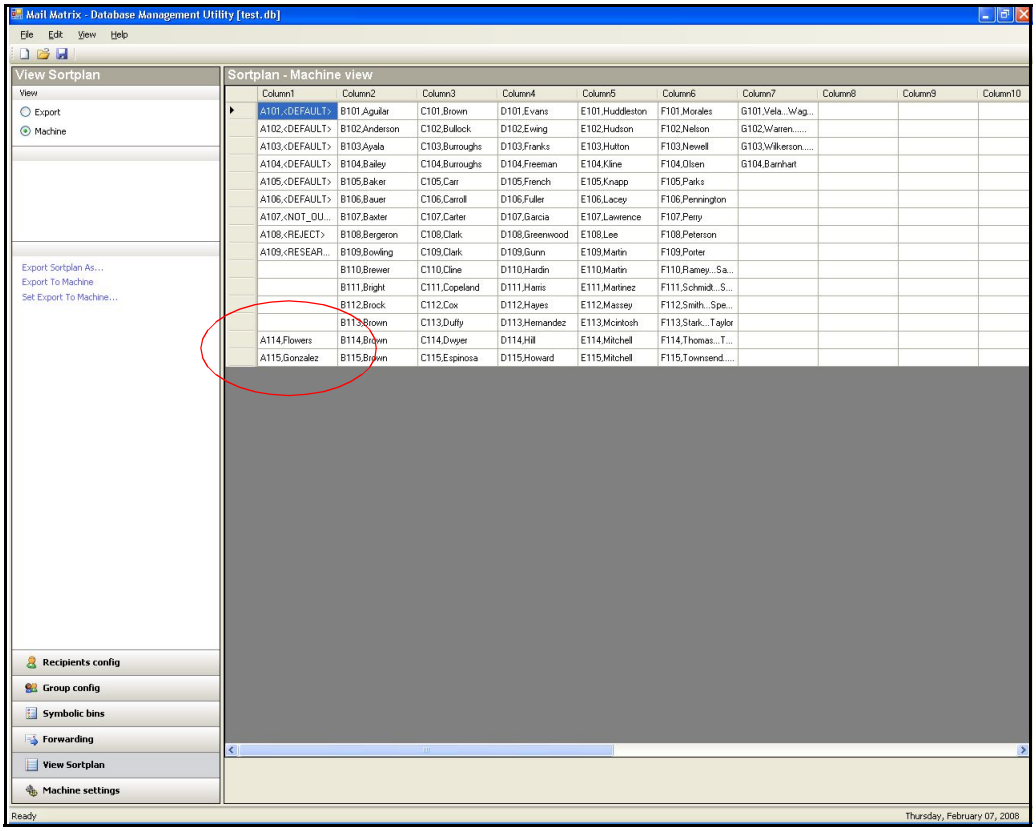

Figure 178: View the sort plan

Forwarding mail

The database management utility also provides the ability to forward mail from one recipient to another. This is handy, for example, if a recipient is on vacation and wants to have his mail sent to a coworker for a week. The forwarding feature will automatically route one recipient's mail to another's bin, and can continue to do so for a specified period of time.

1. Click **`Forwarding`** in the main menu at the bottom left of the screen.
2. Click **`Add new...`** to set up a new forwarding scheme.

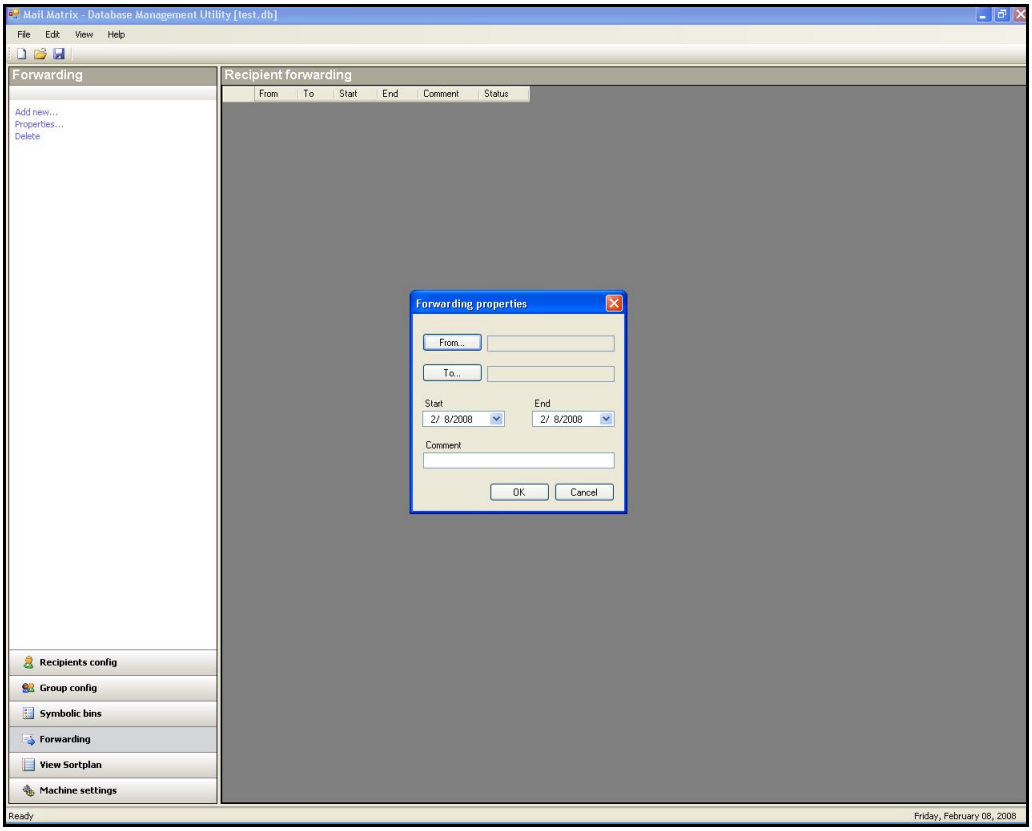

Figure 179: Add new forwarding scheme

3. Click the **From...** button in the forwarding properties dialog box to access the Recipient lookup dialog.
4. Choose the recipient whose mail you need to forward in the Recipient lookup dialog and click **OK**.

   Note: *You can scroll up an down through the list to select or you can type the recipient's name in the box in the upper-left corner of the screen and click* **Search**.

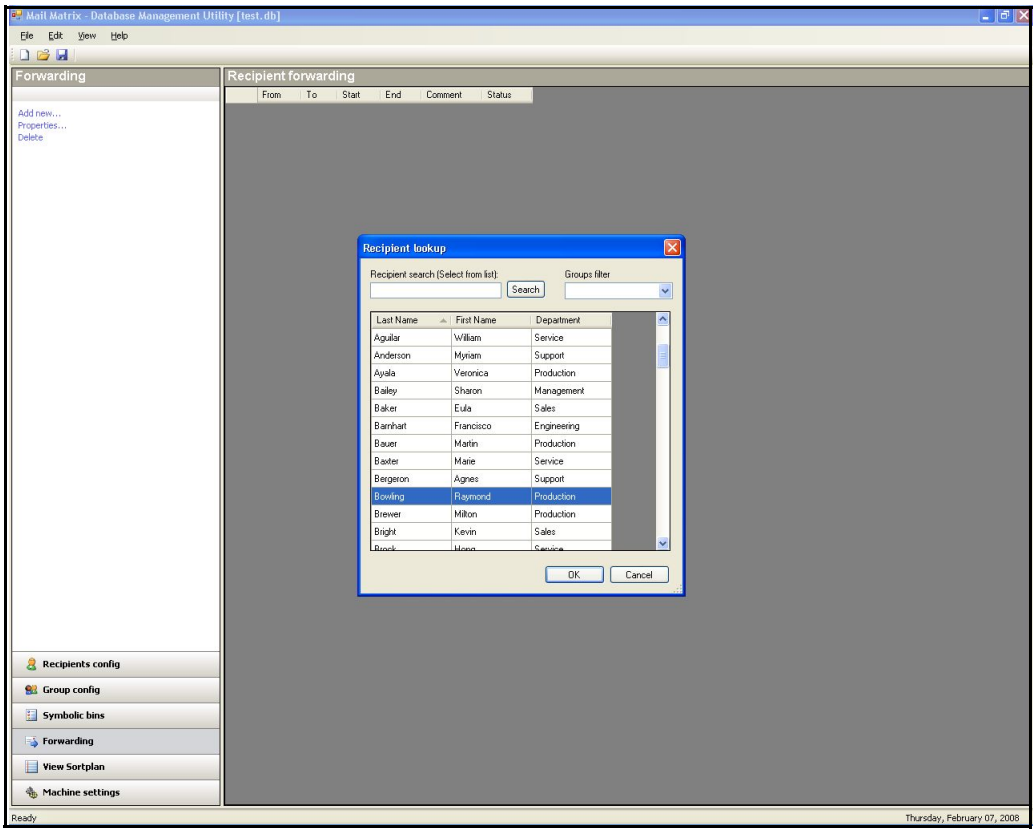

Figure 180: Choose the recipient

5. Click the **To...** button in the forwarding properties dialog box to access the Recipient lookup dialog.
6. Choose the recipient you wish to forward the mail to in the Recipient lookup dialog and click **OK**.

7. Select a range of dates you want this action to take place. For example, if the recipient is going to be on vacation, you would want to enter the start and end dates of the person's vacation here.

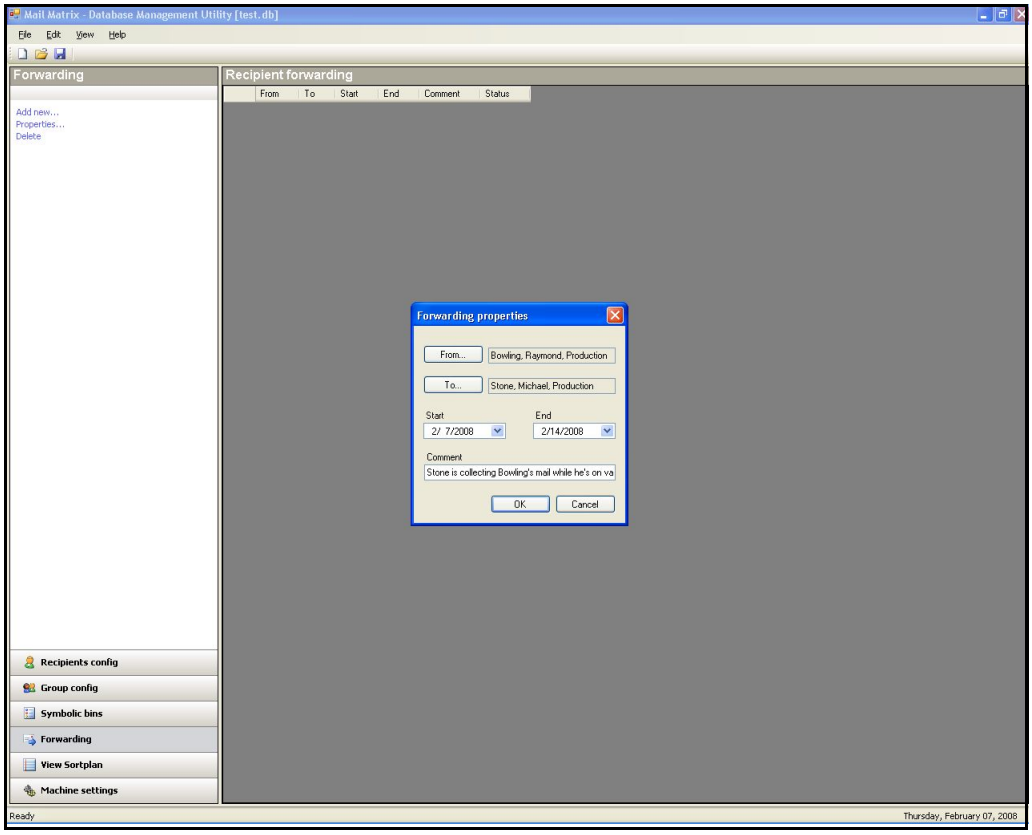

Figure 181: Forwarding properties dialog

The Forwarding screen will display all of your established forwarding actions, as well as whether they are active, pending, or expired.

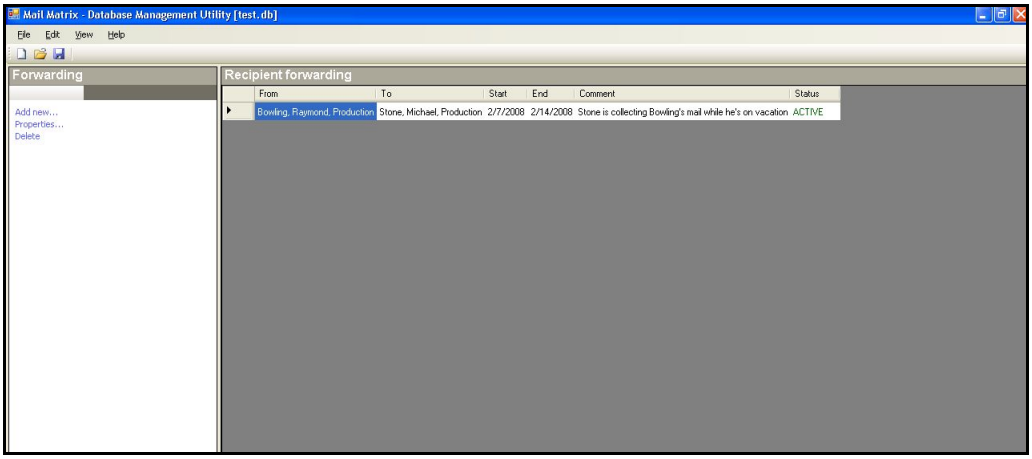

Figure 182: Established forwards

Adding recipients to the database

It is also possible to add new recipients to the database within the Database Management Utility.

1. Click **`Recipients config`** to access the Recipient Configuration screen.
2. Click **`Add new...`** to open the new recipient dialog box.

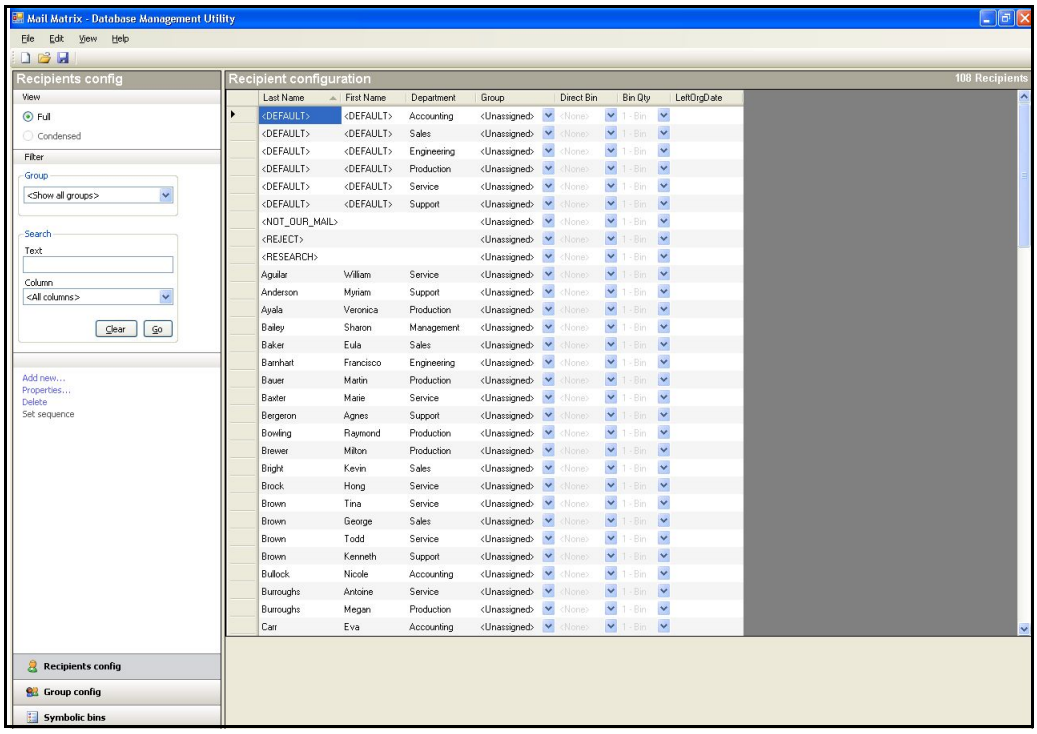

Figure 183: Recipients configuration screen

3. Enter the first name, last name, department and group information into the Add new recipient dialog box. Click **`OK`** to add the recipient to the database.

Figure 184: Add new recipient

Viewing the Sort Plan

Once you have all the necessary recipients assigned accordingly, you can look at a graphical representation of your sort plan to help you set everything up to fit your needs. You can view the sort plan at any time after you have added recipients to groups.

Click the **`View Sortplan`** button, then select the **`Machine`** radio button to access the machine view. The machine view displays the graphical representation of the sort plan.

In Figure 185, notice that the Quick Button group, which we sequenced first in the group configuration, appears first in the sort plan in column 1. The Employees group (sequenced second) appears next, and begins in column 2, because this group is set to start a new column.

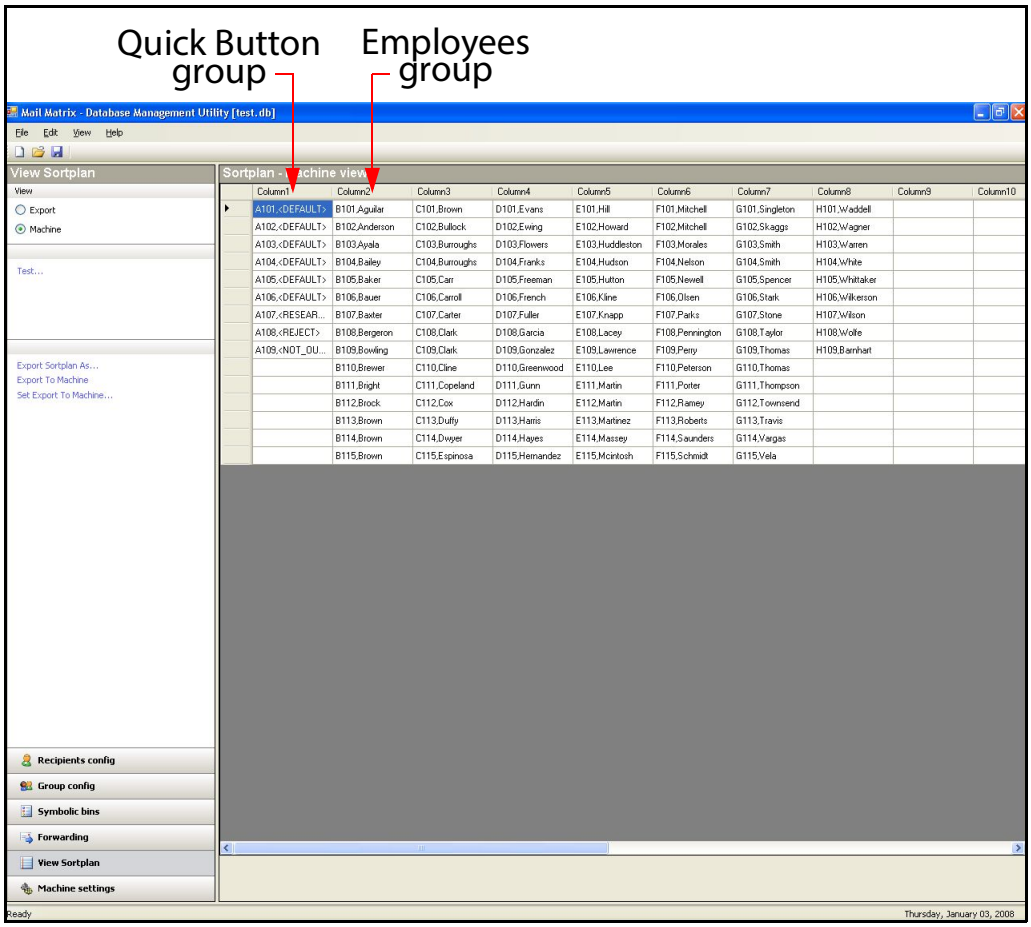

Figure 185: Sort plan machine view

Click the **Export** radio button on the View Sortplan screen to open the export view, which displays the sort plan as a spreadsheet.

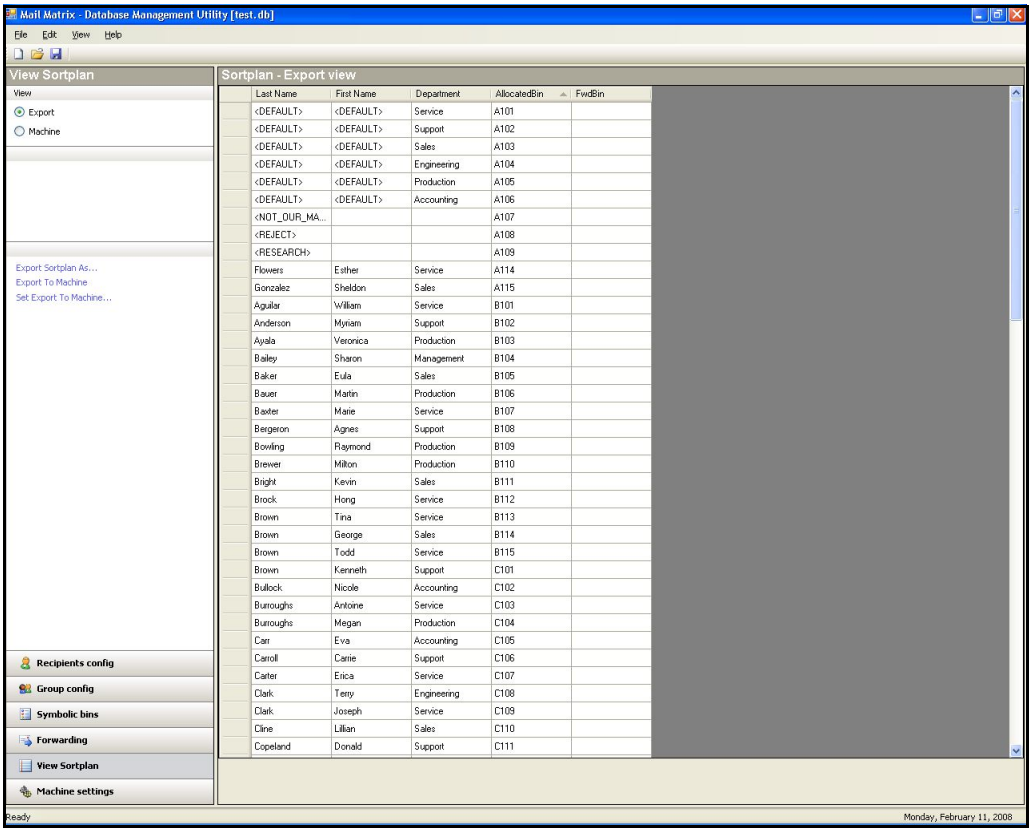

Figure 186: Export view

Exporting the Sort Plan

The final step in creating your sort plan is to export a new *.csv file to a location where it can be accessed by the Directory Retrieval System (DRS) and used in your job. You will need to export a new *.csv file any time you make changes to the database with the management utility.

The process of exporting the sort plan takes place in three steps. The first step is to identify where you will save the new database, and the second step involves actually saving the *.csv file. Last, you have to import the database into the Host software for use in your job. Usually, you will only have to perform the first step the very first time you edit your database with the Database Management Utility.

1. Designate a location and filename for your new *.csv file:

a. Click **`View Sortplan`** to access the export functions (Figure 187).

b. Click **`Set Export To Machine...`** to determine the location for your new database. The database utility will save the new file in .csv format, in the location you choose.

c. Use the browser window to navigate to the location where you want to save your database. The database can be saved anywhere on the Host PC (or a connected network directory) where it can be accessed by the DRS.

Note: *There is a default directory created when the software is installed that we recommend you use to save databases (C:/OPEX/Mail Matrix/Data/DRSDatabases). Databases saved here will be easier to find later when importing into the Host software.*

d. Enter a name for the new database in the **`File name`** field of the browser window (Figure 187) and click **`Open`**.

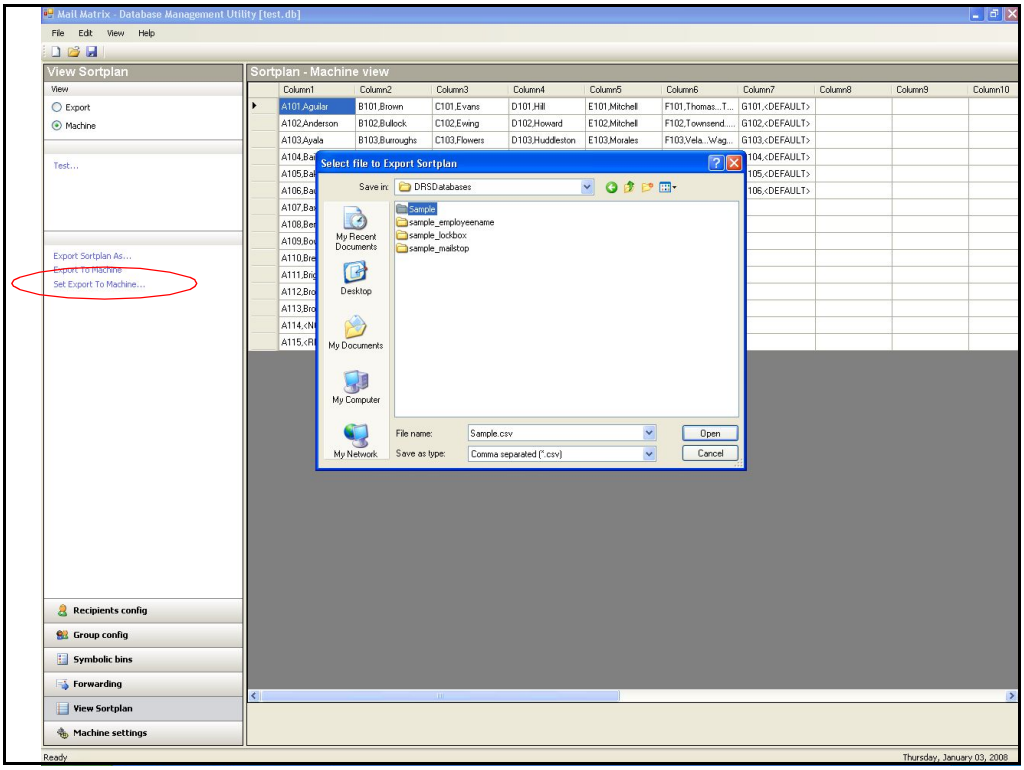

Figure 187: Set the location for the database export

2. Export the database:

a. Click **`Export to Machine`** to save the new database to the predetermined location.

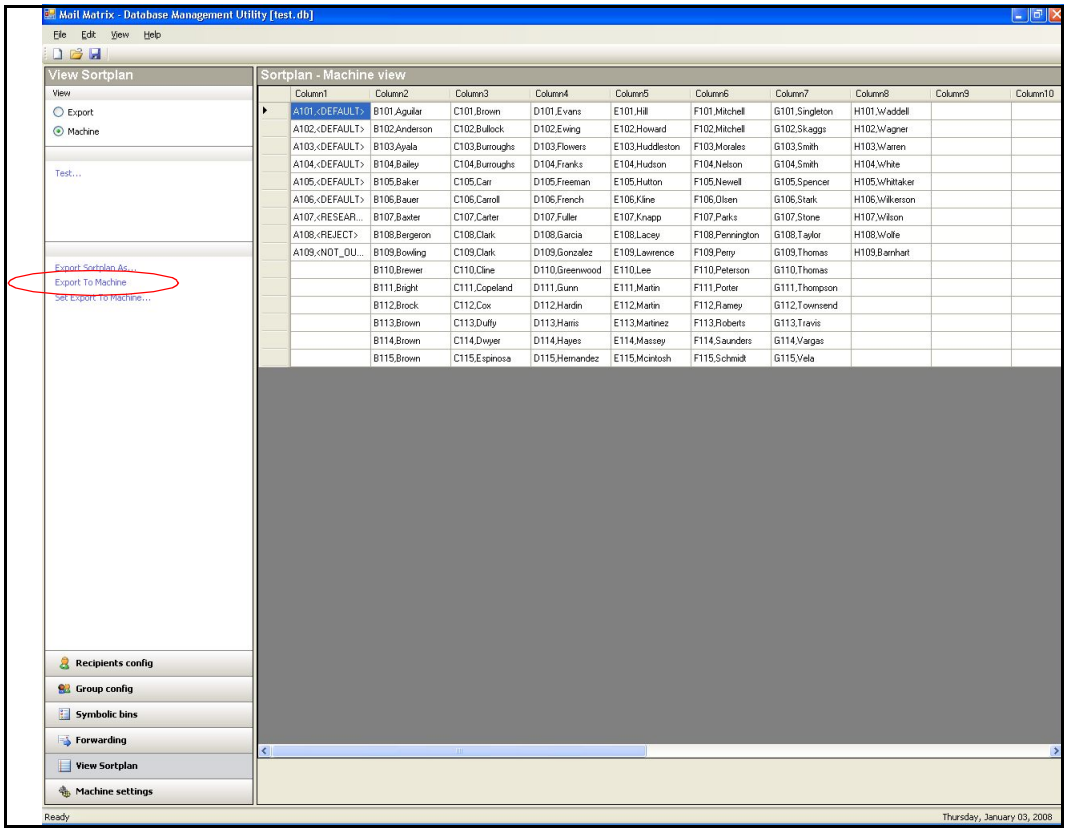

Figure 188: Export the database to the predetermined location

b. A dialog box should appear, alerting you that the new database was successfully imported. The location of the file is also displayed here. Click **`OK`**.

Figure 189: Database successfully exported

Note: *You can also click* **`Export Database As...`** *to save the database to a location you choose. This function is intended to be used if you just want to quickly save the database to a different location, such as a USB flash drive. The utility will not remember the location if you use this function.*

3. Open the Host software (if it is not already open) and import the new database:
   a. In the Host software, open the **`Database Setup`** parameters (Figure 190).

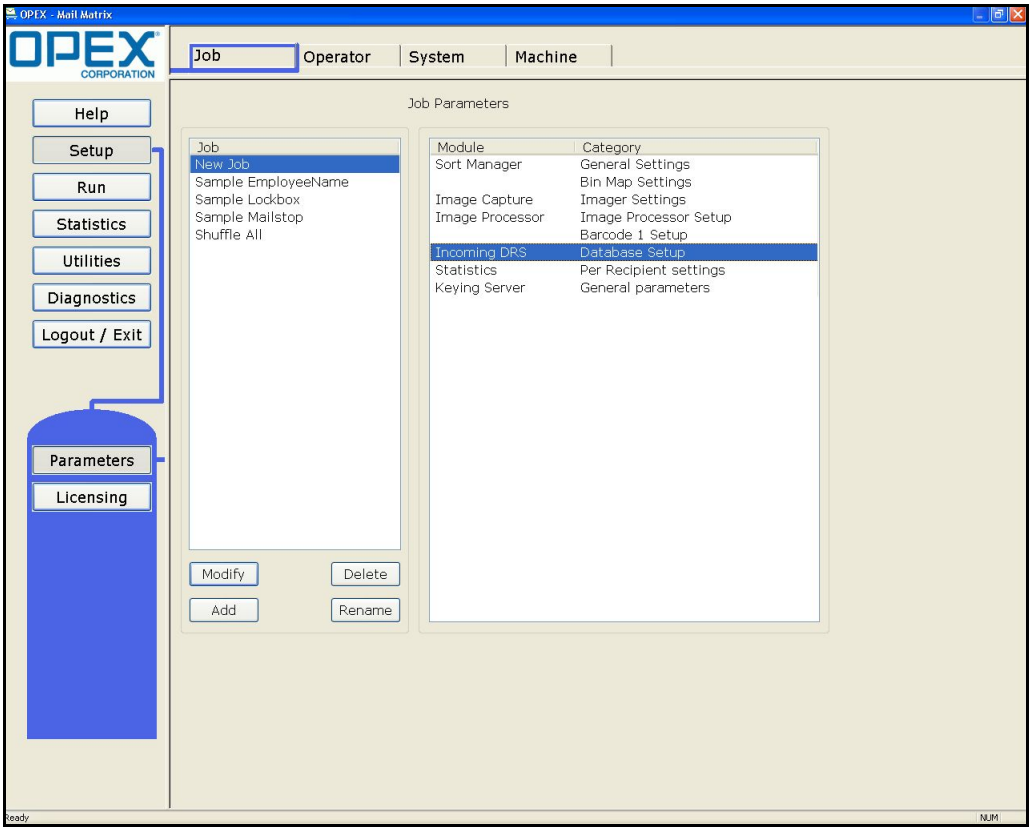

Figure 190: Database setup parameters

b. Click the **Create New Database** button.

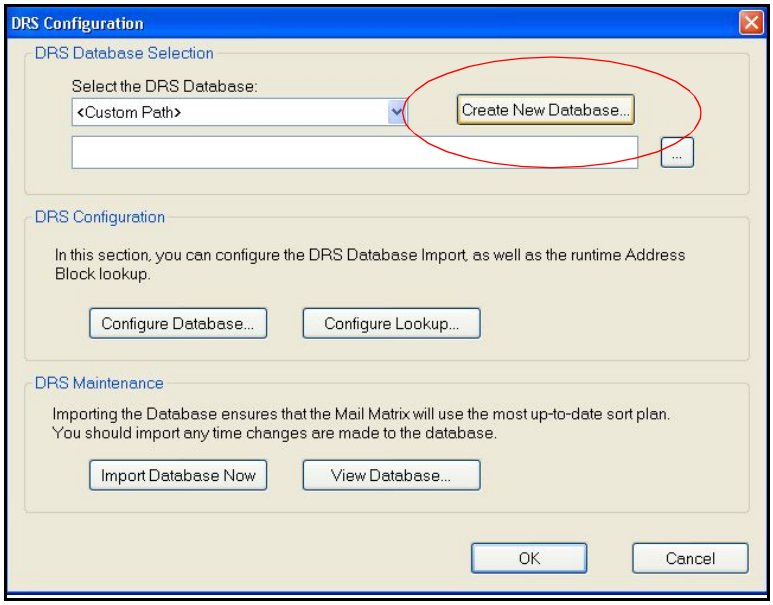

Figure 191: Create new database

c. Select the default database options and enter a name for your new database. Click **OK**. A new folder will be created in the C:/OPEX/Mail Matrix/Data/DRSDatabases directory with the name you designate here.

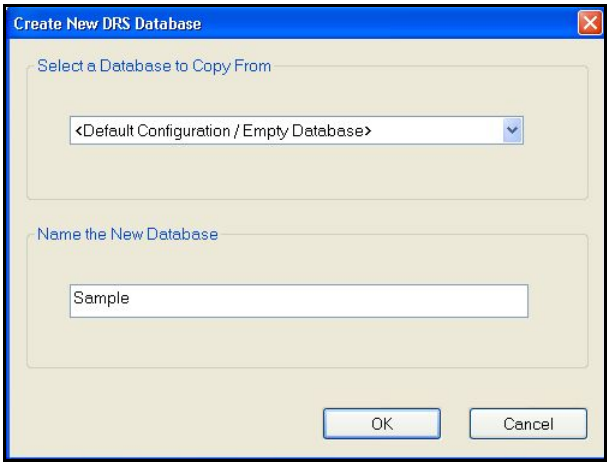

Figure 192: New database properties

d. At this point, it is highly recommended that you copy your newly-exported *.csv database file into this new directory. This will help you keep all of your database information in the same place.

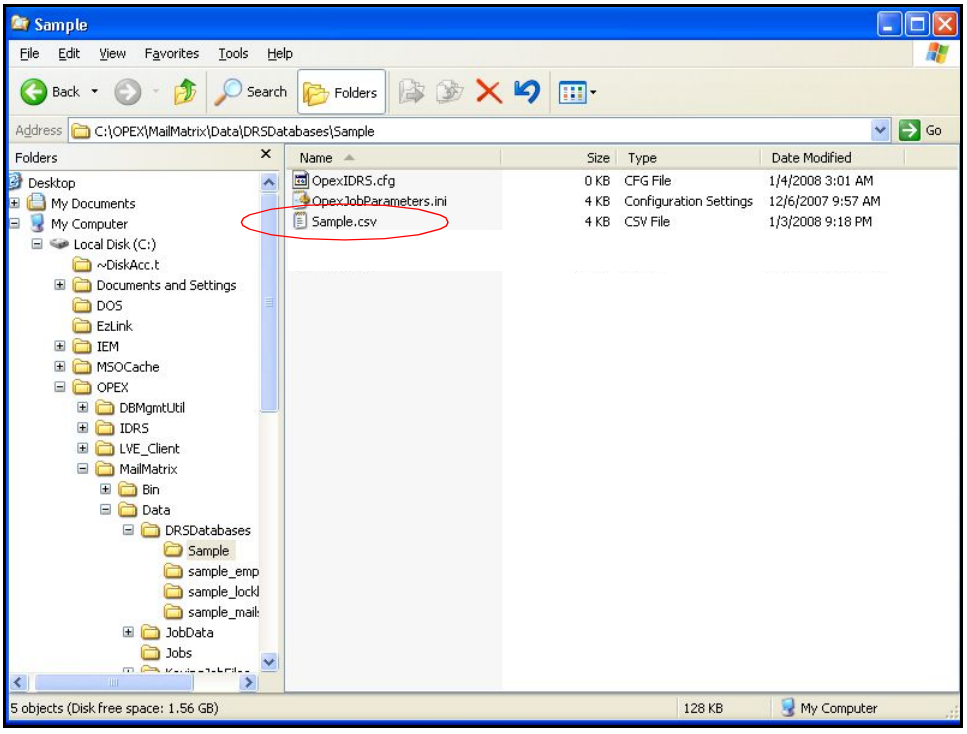

Figure 193: New database directory

e. Click **`Configure Database...`**

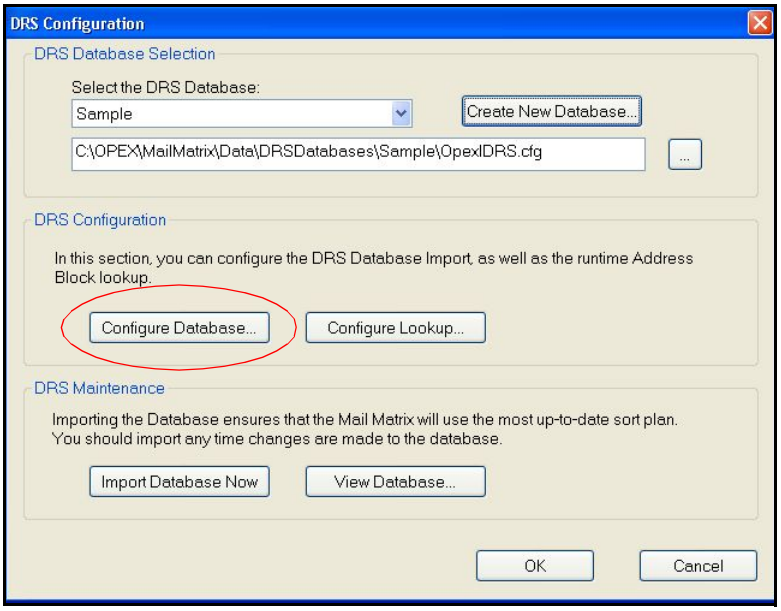

Figure 194: Configure database

f. Enter the path to your new .csv file in the Database Path field. Click the Browse button (...) to navigate to the directory, if necessary. Click **`Next`**.

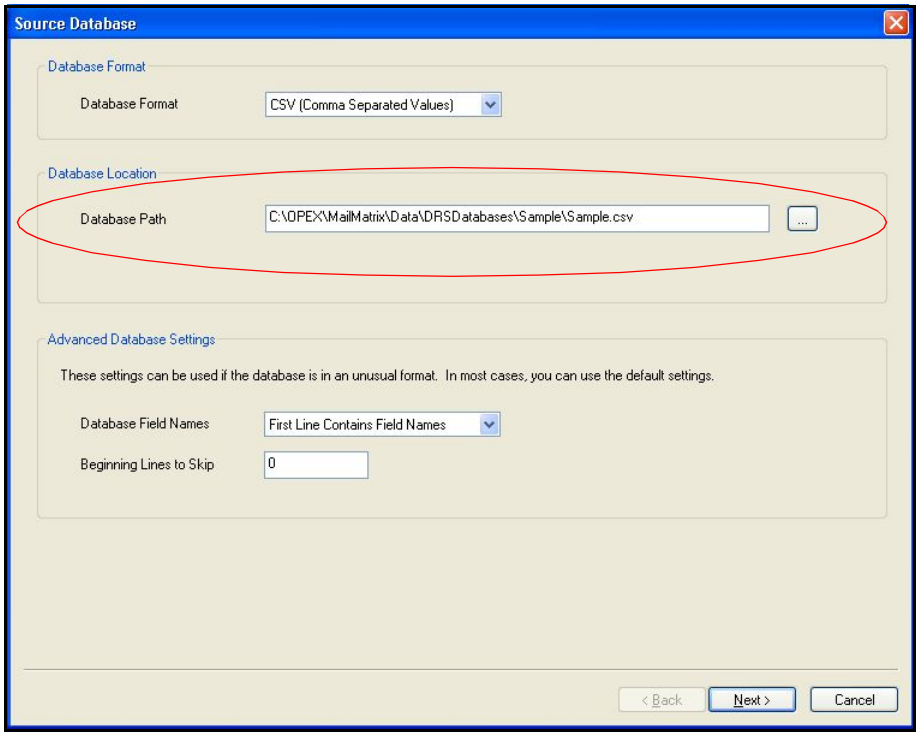

Figure 195: Designate the path to the database file

g. Click **`Take Best Guess`** and make sure the Type of Data fields are filled in correctly, then click **`Next`**.

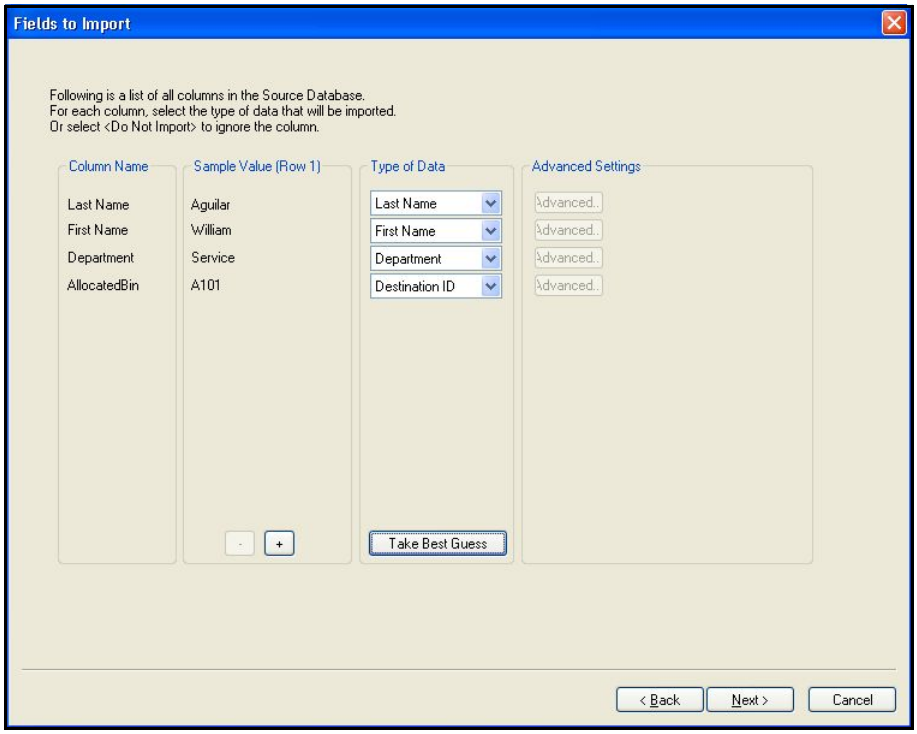

Figure 196: Import the fields from the database

h. Click **`Configure Updates...`** on the Import Complete screen.

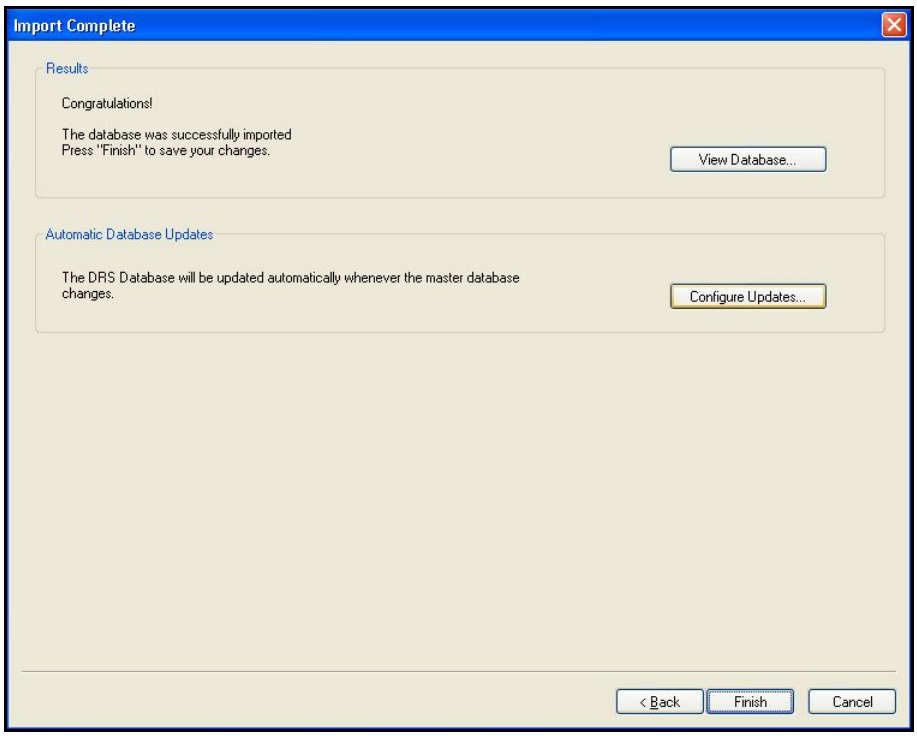

Figure 197: Import Complete screen

i. The DRS will automatically load a new database for you when you edit it, if you establish the settings here. The best choice here is usually **`Whenever Database Changes`**, which means that the DRS will look at the database file and, if the date/time stamp has changed since the last

time the job was run, the DRS will load the newer database automatically. Click **OK** when you have made your settings.

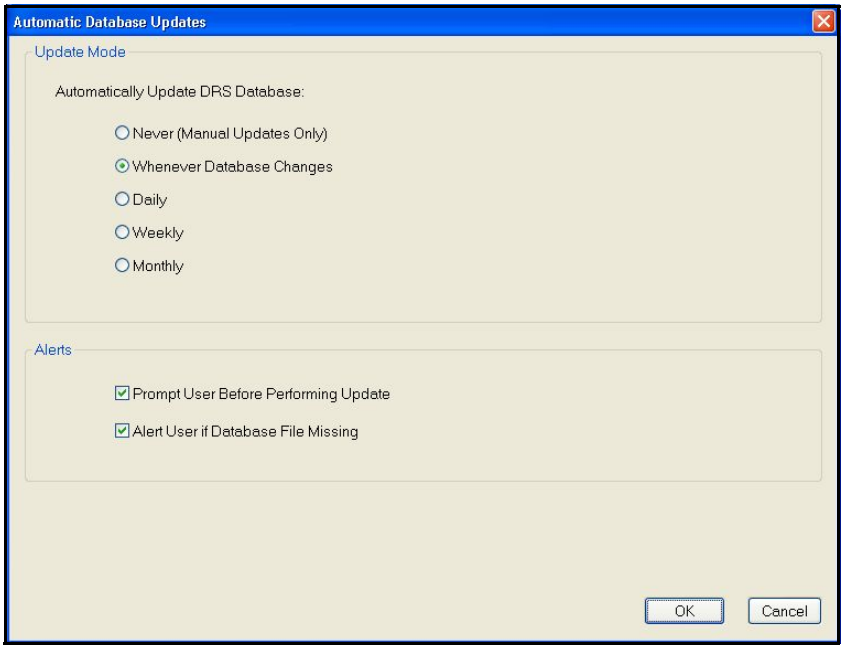

Figure 198: Database update configuration

j. Click **Finish** to finish the setup.

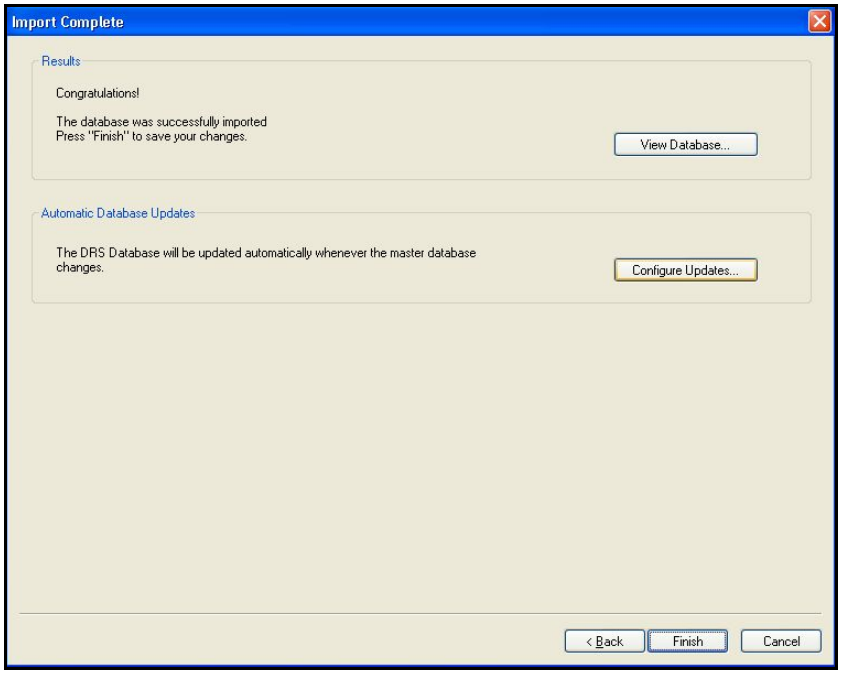

Figure 199: Finish the database setup

Creating a New Database

In most circumstances, you will be working with an existing database file, and you will import that file into the management utility as described in the previous procedures. In the event that you do not have an existing file, you can create a new database from within the database management utility, and add recipients and groups from scratch.

1. Select **`File > New`**.
2. Enter a name for the new database in the import wizard dialog box and click **`Next`**.

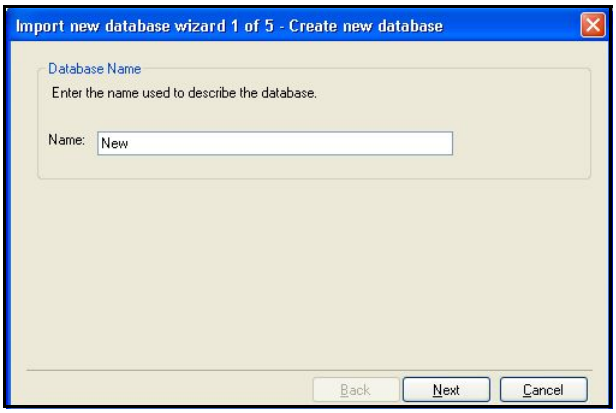

Figure 200: Database Name

3. Click **`Next`** on the import data screen. You will not import a database here.

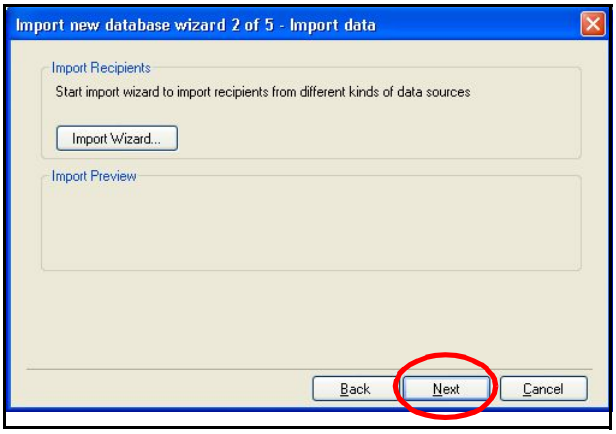

Figure 201: Import screen

4. Add the columns you want in your database on the next screen. Enter the name of the column in the field (shown below) and click **Add**. Click **Next** when you have added all your columns.

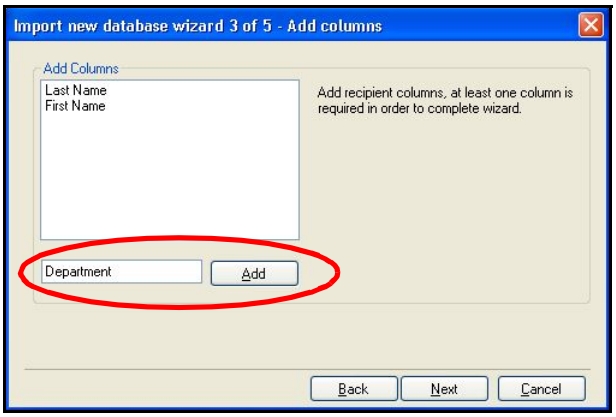

Figure 202: Adding columns

5. In most cases, you want to enter **<None>** in the Equivalence Column list. See step 12 on page 186 for more information. Click **Next** to continue.

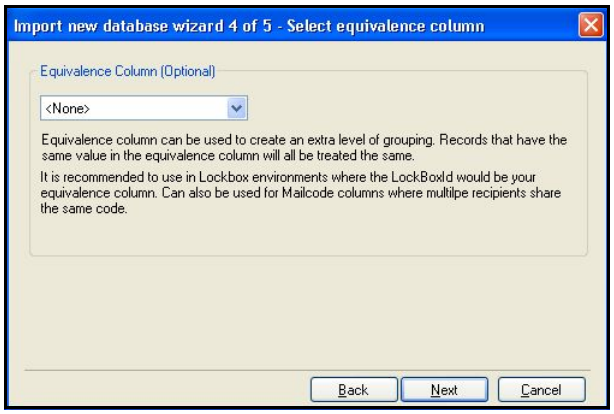

Figure 203: Equivalence Columns screen

6. Click **Finish** when the database has been saved. The management utility will open your new, empty database.

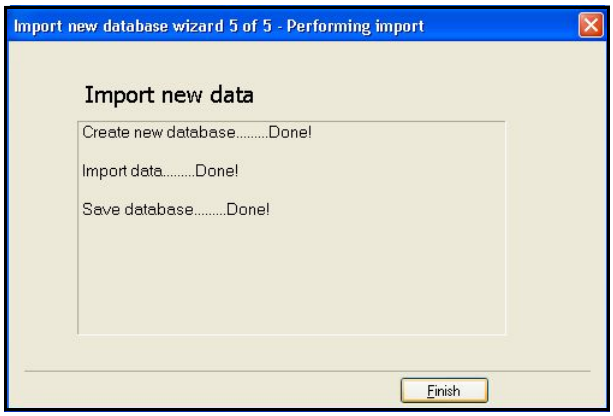

Figure 204: Completed

7. Add recipients to the database as described on page 206.

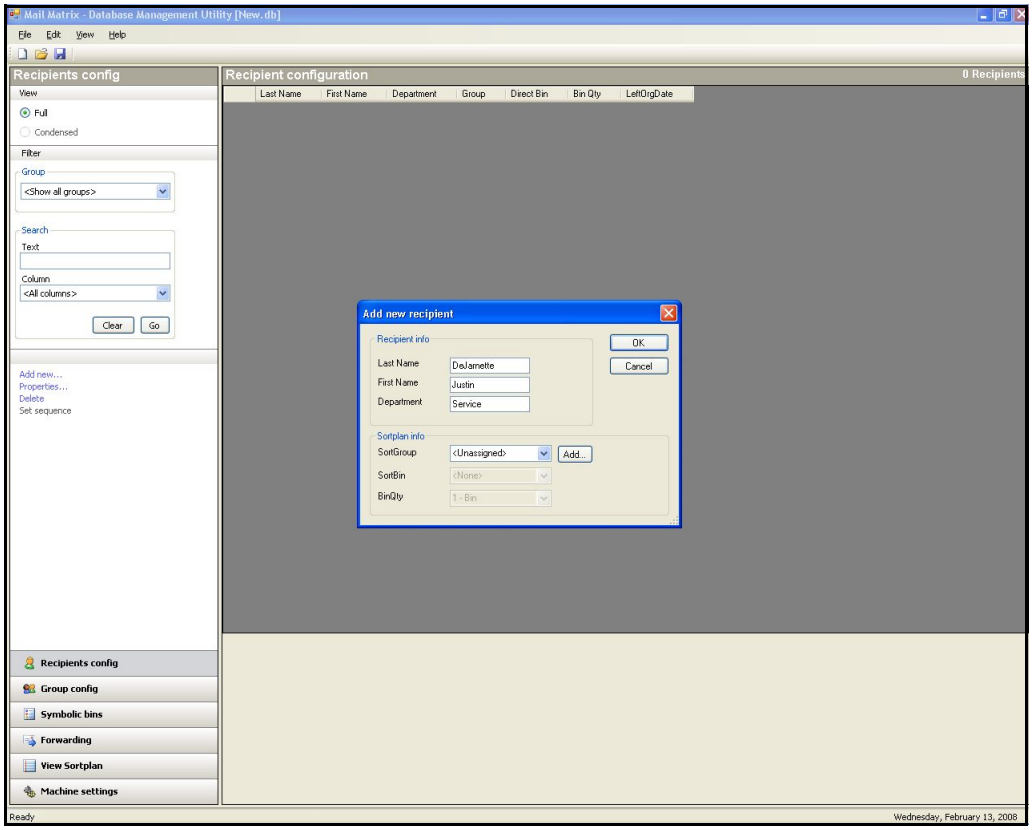

Figure 205: Adding recipients

Glossary

Mail Matrix

Operator Manual

Auto-feeder A purchaseable option that sits in front of the conveyor, allowing stacked envelopes to be fed automatically onto the conveyor.

Barcode A series of bars and spaces arranged in a predetermined pattern to represent elements of data.

Charging rail Charging rails are copper strips that provide power to the iBOTs so that they can run in the stacker section and make their deliveries.

Conveyor A mechanical assembly used for moving mail from one place to another. Conveyors are located in three areas:

- In the input section, the conveyor is used to deliver the mail to an available iBOT.
- On an iBOT, the conveyor belts can move in either direction, making it very easy to support the double-sided stacker section.
- The optional Auto-Feeder has a slotted conveyor belt which advances the feeder cleaver and pulls the media toward the in feed.

DRS The OPEX Directory Retrieval System (DRS) references a database containing recipient names and bin assignments. The DRS attempts to find a matching recipient for each piece keyed (or for each piece identified by the imaging section, if installed), then sorts the mail to the bin specified for that recipient.

E-Stop Emergency Stop. A button used to stop the machine in case of emergency.

Host Operator's main interface with the machine. The Host PC software interfaces with the system’s controller to manage the system's non machine-related functions.

iBOT Delivery cars used to pick up incoming pieces at the loading station, and deliver the sorted pieces into the bins in the stacker section.

Imager A purchaseable option, located in the feeder area, used for name/ address identification and barcode recognition

Job A profile of parameter settings you use for processing documents. When you run mail through the Mail Matrix, you must specify which job to run. Jobs allow you to process mail in a similar manner from run to run.

Jam A problem with the system, typically (but not always) caused by a blockage.

Manager Person who creates operators and has access to most of the machine's controls and features.

Menu bar Vertical series of menus on the left side of the screen. Use the Menu Bar to navigate through the various system parameters and utilities.

MLOCR Multi-Line Optical Character Recognition. Used by the scanner to identify letters, numbers, and symbols on documents.

Operator The person running the machine. Operators have very limited access to system controls and settings.

Path sensor Used to provide feedback as to the location of a piece of mail in the system.

Traffic Controller A layer of system software acting as the central coordinator for the Opex wireless network.

Transceiver A PC board used for traffic control mounted on the stacker module above the loading column. This is the board responsible for communicating with all of the iBOTs.

Ultracapacitors The iBOTs contain a set of capacitors that stores electrical charge and provides power for the iBOT to run. The capacitors hold enough charge for several loops in the system, and they get charged every time an iBOT goes up the loading column.

UPS Uninterruptible Power Source.

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About OPEX Corporation

OPEX Corporation is more than a manufacturer of machines. We continuously reimagine technology to power the future for our customers.

With an innovative approach, we engineer unique automated solutions that support our customers so they can solve the most pressing business challenges for both today and tomorrow. Our scalable Warehouse, Document, and Mail Automation solutions improve workflow, accelerate change, and drive efficiencies in infrastructure.

We are a family-owned and operated organization with more than 1200 committed employees who innovate, manufacture, install, and service products that are helping transform industry every day. We listen to our customers, respect each other, and work together to help reimagine the future through automated solutions.

At OPEX, we are Next Generation Automation.

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