



Multi-Feed Detector

For use with the:
Document Scanner 9500
Document Scanner/Microimager 990
Kodak Imagemark Scanners 900 and 923
Kodak Imagemark Microimager 70

User's Guide

A-61120
Part No. 1E8110

Using the Multi-Feed Detector

Introduction

The *Kodak Digital Science* Multi-Feed Detector aids in document processing by detecting documents that may go through the feeder one on top of the other. Multi-feeds can easily happen due to damp documents, adhesives on documents, electrostatically charged documents, or a maladjusted feeder gap.

The Multi-Feed Detector is an accessory on the following models:

- *Kodak Digital Science* Scanner 9500 (S or D)
- *Kodak Digital Science* Scanner/Microimager 990 (S or D)
- *Kodak Imagemark* Scanners 900 and 923 (S or D)
- *Kodak Imagemark* Microimager 70

For the purpose of this User's Guide, the equipment listed above will be generically referred to as "scanner".

NOTE: This accessory is not intended for use on machines with the Check Feeder accessory.

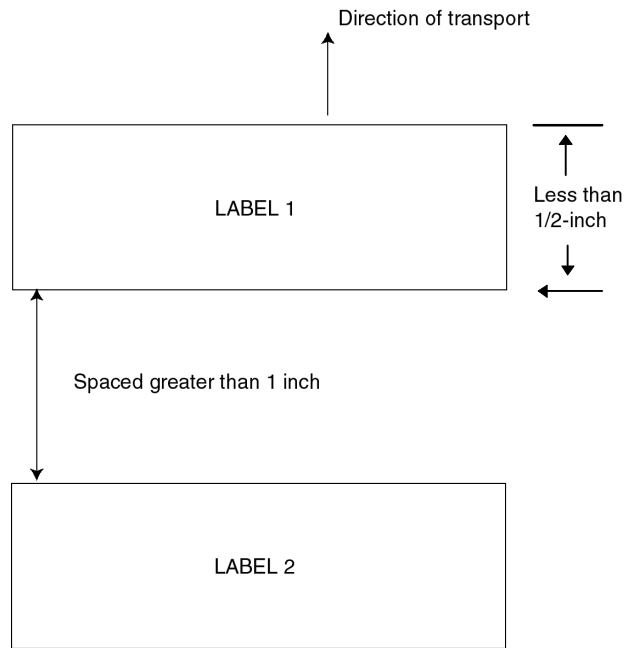
Before you begin

For the Multi-Feed Detector to function properly be sure of the following:

- Documents must be greater than or equal to 2.5 inches (104 mm) in length. (Length is measured parallel to the direction of feeding.)
- Minimum document width is 4.5 inches.
- The thickness of the documents within a batch must be the same within $\pm 10\%$ from any nominal value from 2.0 to 7.0 mils.
- Documents should be in good condition.
- The document stack is fanned before feeding to aid in document separation.
- For a microimager, be sure the Advanced Document Controller* and skew detection is installed and enabled in the desired mode.

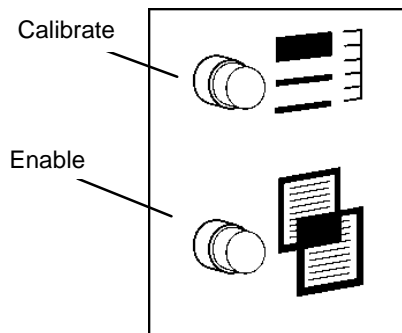
* All *Kodak Digital Science* 9000 series Document Scanners and *Kodak Imagemark* 900 series Scanners come with the Advanced Document Controller installed.

- Labels should be placed on the documents so they do not pass under the thickness sensor. If the labels on the document will pass under the thickness sensor, they must be less than or equal to ½-inch in length and spaced greater than 1 inch. They must be placed 2 inches or more from the trail and lead edges of a document.



Enabling/disabling the Multi-Feed Detector

The Multi-Feed Detector is controlled by two buttons located to the left of the document output tray as you are facing the machine.



Calibrate (upper button) — allows you to calibrate the thickness threshold limit.

Multi-Feed Detector Enable/Disable (lower button) — allows you to enable or disable the Multi-Feed Detector.

NOTE: When the transport is running, you cannot change the Enable or Calibrate state of the Multi-Feed Detector.

F72 Skew/Double Detection On/Off — allows you to use a function code to enable and disable the system. The lights do not change.

When a multi-feed is detected, both buttons illuminate. Depending upon the scanner or scanner/microimager firmware and how the unit is configured, one of the following messages will be displayed:

- MCP Version 8.40 or greater displays the following message:
E204 Skewed/Double document - refeed
E107 Warning Skewed/Double document - refeed
- Versions less than 8.40 displays the following message:
E204 Skewed document - refeed
E107 Warning Skewed/Double document - refeed

The Multi-Feed Detector Enable/Disable button indicates the state of the accessory. If the lamp is ON, the accessory is enabled. While the transport is stopped, press the lower button to enable or disable the accessory as desired. The Multi-Feed Detector automatically enables after power-up or a successful calibration as described in the next section.

Calibrating the Multi-Feed Detector

You need to calibrate the Multi-Feed Detector to set the double thickness threshold. Calibration should be performed every time a set of documents with different thicknesses have to be scanned.

The optimum threshold set value is one that is very close to the actual document thickness that is being imaged. Documents must be very close to the same thickness in order for the Multi-Feed Detector to function properly.

To calibrate the thickness threshold follow the steps below:

1. Stop the transport.
2. Disable the Multi-Feed Detector by pressing the lower button so it is not illuminated.
3. Press the **Calibrate** button (it should illuminate).
4. Start the transport by pressing the green **Run** key.
5. When both Multi-Feed Detector buttons are flashing together, feed a representative sample of the calibration document so that it passes under the thickness sensor. This document thickness will be measured and stored as the new thickness threshold.

When calibration is complete, the buttons will stop flashing and the Multi-Feed Detector will automatically be enabled (the Multi-Feed Detector Enable button will be illuminated).

NOTE: The thickness calibration document will be scanned and/or microfilmed unless the machine is placed in a non-filming or scanning mode (i.e., Count Only mode) prior to thickness calibration.

Operating the scanner with the Multi-Feed Detector enabled

When the Multi-Feed Detector is enabled, the scanner is continuously checking documents for multi-feeds when the transport is running. When a multi-fed document is encountered, an error will be reported. The scanner will report a document as a true multi-fed document if it overlaps another document by $\frac{3}{4}$ of an inch or more.

When a multi-feed is detected, one of the following errors will occur (depending upon how the scanner is configured):

- If the scanner is setup to stop and display an error, an E204 message will be displayed. The transport will stop and both Multi-Feed Detector indicators will be illuminated. To recover from an E204 error:
 - reset the image address
 - reset the document stack
 - start the transport again
- If the scanner is setup to beep and display an error or just display an error, an E107 message will be displayed. The transport will continue to run, and both Multi-Feed Detector indicators will be illuminated. To recover from an E107 error:
 - reset the image address
 - reset the document stack
 - press either the Enable, Calibrate or Stop button in order to reactivate the Multi-Feed Detector.

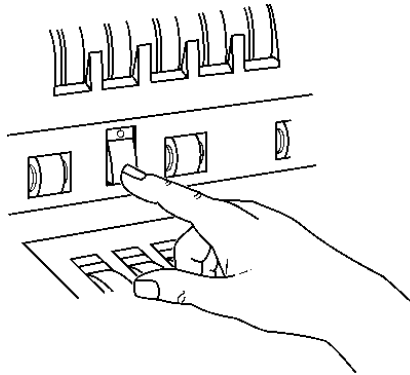
NOTES:

- A skewed document can also trigger an E107 or E204 error. If **only** the Multi-Feed Detector Enable button is illuminated when an E107 or E204 error is displayed, then the document was skewed.
- If for some reason, a document misses the Multi-Feed Detector sensor, the error situation described above will also occur (according to the setup of the scanner).

Retracting the thickness sensor

Under normal circumstances, you should not need to adjust the thickness sensor manually. However, if you are feeding documents of mixed thickness or lightweight documents, you may need to manually retract the thickness sensor. To do this:

1. Open the front cover of the scanner.
2. Release the feeder latch and lift the top of the feeder upward.
3. Press the extended portion of the sensor in until it snaps up into the retracted position.

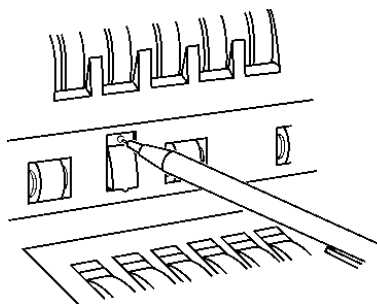


NOTE: The Multi-Feed sensor is located approximately 1 inch left of the feeder centerline as you face the scanner.

4. Place the feeder top back into its original position.
5. Close the front cover.
6. Disable the Multi-Feed Detector. See the section entitled, "Enabling/disabling the Multi-Feed Detector" for more information.

To manually extend the thickness sensor:

1. Open the front cover of the scanner.
2. Release the feeder latch and lift the top of the feeder upward.
3. Use a pointed instrument; such as a ball-point pen, to press in on the recessed area at the top end of the thickness sensor until it snaps down into its operating position.



4. Place the feeder top back into its original position .

5. Close the front cover.
6. If desired, calibrate and re-enable the Multi-Feed Detector. See the section entitled, "Calibrating the Multi-Feed Detector" for more information.

Error recovery

Error recovery methods are required when a multi-feed has been detected. The two methods described below meet the needs of most users. However, other methods may be used.

IMPORTANT: *For scanners: Before beginning error recovery, make sure all images and headers have been transferred from the image buffer to the host system.*

Interactive/online method

Use the Interactive/Online method when your primary concern is that the scanned database or film has no duplicate images.

Follow these steps to use the Interactive/Online method:

1. At the host system, search through the most recently scanned files to determine which images have been scanned and transferred.
2. Find the last successfully scanned image. Record/remember the sequential ID number and/or the image address assigned to the last successfully scanned image.
3. Sort through the stack of documents being scanned to find the document that produced the last successfully scanned image. You will have to rescan all of the documents that follow the last successfully scanned document.
4. When using the Document Scanner/Microimager 990 or Microimager 70, determine the image address of the document that produced the last successfully scanned image (documents that have been successfully scanned and stored in the image buffer have been microfilmed).

Enter this image address into the Document Scamer/Microimager 990 or *Imagelink* Microimager 70 using the Next IA key or function code F09, which may be programmed as a programmable key. When using Image Management Code, this action serves to reset the image search location on microfilm for subsequent documents scanned.

5. Download the sequential ID number and/or the next image address using a scanner-unique command (DC and HC, respectively). The value(s) you download should correspond to the document following the last successfully scanned image.
6. Begin scanning the documents that follow the last successfully scanned document.

NOTE: Documents detected as multi-feeds and the documents directly following are not scanned or given image marks on film.

Batch/offline method

Use the Batch/Offline method when your primary concern is efficient use of time, duplicates in the database do not represent a problem, and there is adequate space in the scanned image database or film roll for the duplicate images (same images with different sequential ID numbers and image addresses.)

Follow these steps to use the Batch/Offline method:

1. Remove the stack of successfully scanned documents from the exit hopper.
2. Take the last three or four documents from the top of the stack and put them into the feed tray or at the top of the next stack of documents.
3. Begin scanning the documents.

Troubleshooting

Under normal operating conditions, only the Multi-Feed Detector Enable button is illuminated. Following are some reasons why both Multi-Feed Detector buttons may be continually illuminated and an E204 error is displayed on the operator interface.

Both Multi-Feed Detector buttons are constantly illuminated:

| Condition | Cause |
|---|--|
| Valid multi-feed detection or the document did not pass under the document detection sensor | The scanner has encountered a multi-fed document, or the document missed the sensor. Depending upon the scanner configuration, the transport will stop and display an E204 error; just display a warning message or beep and display a warning message. <ul style="list-style-type: none">• Press the green Run button or either Multi-Feed Detector button. This automatically re-enables the Multi-Feed Detector. |
| Calibration out of range | During calibration, a document that was too thick was fed. <ul style="list-style-type: none">• Restart the transport and calibrate again. |
| Auto-zero function incomplete or out of range | Upon starting the transport, it stops with an E204 error. <ul style="list-style-type: none">• Check to make sure the sensor is not stuck out of position or the sensor is not retracted.• Restart the transport. |
| Only one document goes through the feeder and returns an error | Thickness sensor may be mechanically retracted but the Multi-Feed Detector is enabled. <ul style="list-style-type: none">• Extend the thickness sensor or disable the Multi-Feed Detector. |

Both Multi-Feed Detector buttons are not constantly illuminated:

| Condition | Cause |
|---|---|
| Skewed document, not a multi-feed | Encountered a skewed document. <ul style="list-style-type: none"><li data-bbox="695 346 1268 384">• Press the green Run button to continue. |
| Calibration — both lights continue to flash | Document feed missed the sensor during calibration. <ul style="list-style-type: none"><li data-bbox="695 441 1451 506">• Refeed the document so it passes under the sensor to complete the calibration. |

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