Your Fax Troubleshooting and Escalation Checklist

Version 2

CONTENTS

Changes in V2:

- Customer version
- Updated the attributes required to record a wav file.
- Added Section 5-Troubleshooting a Fax Send Failure.
- Added Section 6-Troubleshooting a Fax Receive Failure.
- Added Section 7-Fax Error Codes.

- Updated description in Section's 1.3 and 4 regarding SE settings that can be changed.

1 Fax Electronic Checklist

In the X64x, X85x and X4600 series of MFDs, the fax checklist will be available on the product's SE webpage (http://ipaddress/se).

NOTE: If a fax failure occurs between two Lexmark machines, a fax checklist for **each** machine must be completed.

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1.1 Fax Checklist Part I

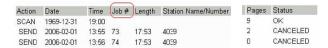1. Fill out the following information: Name of tester, Customer failed fax Job ID,

How to Gather Job ID information

Find the Job ID on:

- The printed Transmission/Receive log.

- T30 log (http://ipaddress/se "Dump Fax T30 Log" or "Dump Last 10 of Fax T30 Logs"),

- Fax Call log (http://ipaddress Reports "Fax Call Log"), or Fax Job log (http://ipaddress > Reports > "Fax Job Log").

Fax Job Log

Wednesday, 2006-02-08 11:25

Action	Date	Time	Job #	Length	Station Name/Number	Pages	Status
SCAN	1969-12-31	19:00				9	OK
SEND	2006-02-01	13:55	73	17:53	4039	2	CANCELED
SEND	2006-02-01	13:56	74	17:53	4039	0	CANCELED

2. Fill out the date and time of the fax failure.

3. Select the type of connection the machine is using.

4. Check the description of the type of connection the machine is using.

5. Make the choice that fits the line condition. To find out if there is noise over the line, call the fax number and listen for noise. A clear line should be free of hums and static.
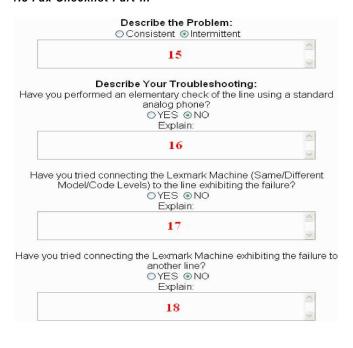
1.2 Fax Checklist Part II

6. Choose the type of fax problem. When collecting debug from the sender, select "Send". When collecting debug from the receiver, select "Receive".

7. Describe the sending machine. If "Lexmark MFD" is selected, the "Make" and "Model" fields will not be accessible since the report will automatically extract this information from the device. If the device is not a Lexmark device, the "Make" and "Model" fields must be manually entered.

8. Describe the receiving machine. If "Lexmark MFD" is selected, the "Make" and "Model" fields will not be accessible since the report will automatically extract this information from the device. If the device is not a Lexmark device, the "Make" and "Model" fields must be manually entered.

9. Enter the code levels for each application. If the "Type of Problem" is "Send", these fields will be automatically supplied. If not, the code levels can be access from the **Fax SE Menu** from the op panel (**411) and webpage (**http://ipaddress > Reports > "Device Information"**).

10. Enter the code levels for each application. If the "Type of Problem" is "Receive", these fields will be automatically supplied. If not, the code levels can be access from the **Fax SE Menu** from the op panel (**411) and webpage (**http://ipaddress > Reports > "Device Information"**).

11. The technical support representative may request a wav recording of the fax failure. If so, check this field if you are supplying a wav recording from the **sending** side. (see section 2)

12. The technical support representative may request a wav recording of the fax failure. If so, check this field if you are supplying a wav recording from the **receiving** side.

13. Describe any visible error messages on the sending side.

14. Describe any visible error messages on the receiving side.

1.3 Fax Checklist Part III

Describe the Problem:
○ Consistent ⊙ Intermittent

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Describe Your Troubleshooting:
Have you performed an elementary check of the line using a standard analog phone?
○ YES ⊙ NO
Explain:

    16

Have you tried connecting the Lexmark Machine (Same/Different Model/Code Levels) to the line exhibiting the failure?
○ YES ⊙ NO
Explain:

    17

Have you tried connecting the Lexmark Machine exhibiting the failure to another line?
○ YES ⊙ NO
Explain:

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Other Comments:

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20 [Submit] [Reset] [Cancel]

15. Check whether it is a consistent or intermittent problem. Describe the problem.
16-19. Describe the troubleshooting that has been done and select the proper responses to each question. It is important to supply as much information as possible in these boxes. Please refer to **Sections 5-7** for troubleshooting information.

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20. **Submit** will automatically collect the necessary debug from the machine and save the checklist by prompting you to save a file named "**faxsngevent**" to your PC. When escalating the issue, you must supply this file to the technical support center. **Reset** will clear all the fields from the checklist. **Cancel** will bring you back to the main SE Menu webpage.

1.4 Additional In formation

It is important to note that pressing "**Submit**" does not send the debug and checklist automatically to any Lexmark tech support server or email. It simply gathers the necessary debug and saves the checklist to a file name "**faxsngevent**". You must still manually send this file to the technical support center TSC when escalating a fax issue.

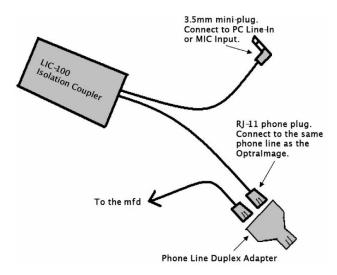The **faxsngevent** fill contains the following information:

- Fax Checklist
- Last 10 fax T30 logs
- Caller ID log (if available)
- Fax settings page
- Fax call log
- Fax job log
- Network settings page
- History log
- Lbtrace
- Printer settings

2 Recording .wav File (Possible Engineering Request)

If members of the engineering staff are unable to determine the cause for the fax failure, it may be requested that that a recording of the facsimile be submitted for evaluation.

Connect the Omnicron LIC-100 isolation coupler to a logging recorder (PC) and the telephone circuit as shown in the connection diagram below.

Connection Diagram

Use a .wav file recording program to record the entire failing fax call. Examples of .wav recording programs are:

- Audacity – available at http://audacity.sourceforge.net/
- CD Wave – available at http://www.cdwave.com/
- Windows Sound Recorder
- Scanner Recorder – available at http://www.davee.com/scanrec/

Steps to record a wav file using Window's Sound Recorder.

1. Open **Windows Sound Recorder**. (Windows 95: Start Í Programs Í Multimedia Sound Í Recorder. Windows 98, 2000, & XP: Start Í Programs Í Entertainment Í Sound Recorder)
2. Go to **File** > **Properties** > **Convert Now** and select these options:
   a. Format: **PCM**
   b. Attributes: **22,050 Hz, 8 Bit, Mono**
3. Select **Save As**, and then name the file **Fax Record**. Click **OK** twice.
4. Press the **Record button** and let the Recorder run for **60 seconds**.
5. After the Recorder has stopped go to the **File Menu** and choose save as. Name the file **BLANK.WAV** and save it.
6. To **increase the recording time** from the default maximum of 60 seconds, follow this process:
   a. Select the **Edit** menu.
   b. Choose **Insert File** and select the BLANK.WAV created in step 5.
   c. This process increases the maximum recording time of Sound Recorder by 60 seconds. Repeat step 6 to add one minute of record time. For example, for a 5 minute recording time, insert BLANK. WAV five times using step 6.
7. Once you have enough record time allocated, start the Recorder and capture the failing fax call.

Steps to record a wav file using Audacity's sound recording program.

1. Run the **Audacity** program.
2. Go to **Edit** > **Preferences**.
3. A window titled 'Audio Preferences' will open up.
   a. Under the "**Audio I/O**" tab, make sure that '**Channels**'= **'1(Mono)'**.
   b. Under the "**Quality**" tab, make sure that **'Default Sample Rate'** = **'22050 Hz'**.
   c. Under the "**File Formats**" tab, make sure that **'Uncompressed Export Format'** = 'WAV (**Microsoft 8 bit PCM)**'
4. Click **OK** to close window.
5. Press the **Record** button to start recording the call.
6. Press the **Stop** button to stop recording the call.
7. After completely recording the failing fax call, please save the wav recording by using the **'Export as WAV'** option available under the File menu.

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3 Other Fax Settings and Menus *3.1 Dump*

Fax Settings Data

Shows all fax settings and their values.

3.2 Dump Fax T30 Log

Shows the T30 log of the last fax call.

3.3 Dump Last 10 Fax T03 Logs

Shows the T30 logs of the last ten fax calls.

3.4 Dump Caller ID Log

Provides caller ID (when available) information for the last 40 incoming calls.

3.5 Change Fax Settings

There are two options under the Change Fax Settings menu.

3.5.1 Change Faxtrace Settings

These settings control the level of fax debug that will be dumped during a fax job. These settings should not be changed unless directed by the Fax PE.

3.5.2 Change Modulation Settings

These settings should not be changed unless directed by the Fax PE. However, the user can control the max fax speed via the regular fax menu webpage (**http://ipaddress** **>** **Configuration > Fax Settings > Analog Fax Setup > Fax Send Settings or Fax** **Receive Settings > Max Speed**), or via the op panel.

Note: Separate Max Speed setting for Send and Receive. To set Max Speed to 14400 on both send and receive, both settings must be changed under "Fax Send Settings" and "Fax Receive Settings".

4 Fax Op Panel SE Menu settings

To access the fax se menu, press ****411** from the home screen.

Warning! **DO NOT** change settings unless specified in **Sections 5-7.**

5 Troubleshooting a Fax Send failure

Step 1: Verify physical phone line connection
Connect an extension handset to the extension jack available at the back of the MFD
and pick up extension handset to check if a dial tone is present on the line.

- *If dial tone is present:*
      Proceed to Step 2.
- *If dial tone is not available:*
      Use another phone cable.
      Use another phone line.
      Check with telephone line provider.

Step 2: Verify phone line quality
Using the extension handset, check if phone line is free of any static or external noise in
order to ensure that line quality is suitable for fax transmissions.

- *If line quality is clear:*
      Proceed to Step 3.
- *If line is noisy:*
      Use another phone cable.
      Use another phone line.
      Check with telephone line provider.

Step 3: Verify if outgoing calls can be made using the phone line
Using the extension handset, place an outgoing voice call to check if call can be
completed.

- *If calls can be placed successfully:*
      Proceed to Step 4.
- *If unable to place any outgoing calls:*
      The phone line is problematic. Check with telephone line provider.

Step 4: Verify if phone line is analog or digital
Check if the MFD is connected to an analog or digital line.

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- *Digital line is used:*
  Proceed to Step 5.
- *Analog line is used:*
  Proceed to Step 6.

Step 5: Verify if MFD is connected to a VoIP line (internet provided phone service)
If MFD is connected to a VoIP line, verify if the server is configured to support fax transmissions.

- *If server configurations support fax calls:*
  Proceed to Step 6.
- *Problem related to server setup:*
  Stop here. Check with VoIP provider.

Step 6: Verify phone system used
If MFD is connected to a PABX phone system proceed to Step 7, else proceed to Step 9.

Step 7: Verify 'Behind a PABX' user setting
If MFD is connected to a PABX phone system, enable 'Behind a PABX' user setting and then test.

- *If MFD still fails to send faxes :*
  Disable 'Behind a PABX" and proceed to Step 8.
- *If MFD is now able to send faxes :*
Stop here. No additional troubleshooting steps are required.

Step 8: Verify 'Dial Prefix' user setting
If 'Dial Prefix' user setting contains a prefix number required to access an external line, then make sure it is not included again when entering the destination number. If the setting is empty then the prefix number must be entered before the destination number.

- *Problem not related to Dial Prefix:*
  Proceed to Step 9.
- *Problem related to Dial Prefix:*
Stop here. No additional troubleshooting steps are required.

Step 9: Verify the nature of failure
Test to verify if the MFD is failing to send faxes to any destination number or only to a specific destination number.

- *MFD fails to send only to a specific destination number:*
  Proceed to Step 10.

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- *MFD fails to send to any destination number:*
    Proceed to Step 11.

Step 10: Verify communications with the specific remote fax device
Test if faxes can be sent to the specific destination number from any other fax device.

- *Other fax device is able to send:*
    Proceed to Step 11.
- *Other fax device fails too:*
    Stop here. Problem is not with the MFD.
    Check if remote fax device is configured to receive faxes.
    Check if user's phone number has been blocked by the remote end.

Step 11: Adjust 'Transmit Level' SE setting
Test by adjusting the transmitted signal strength by decreasing/increasing the 'Transmit Level' setting in steps of 1db. For example, if default value is -11 db, changing it to -12db will decrease the signal strength by 1db and changing it to -10db will increase the signal strength by 1db. Recommended adjustment range is ±5 db (in 1db steps) from the default value.

- *MFD still fails to send faxes :*
  Restore the default Transmit level value and then proceed to Step 12.
- *MFD is now able to send faxes :*
  Stop here.
  Continue using the newly changed Transmit level setting.

Step 12: Check the Fax error code
Print the T30 transmission/Job/Call log and check the error code being reported. Verify it against the error codes listed in Section 7 and follow the suggested resolution.

- *If Problem still persists:*
  Follow procedure described in Section 1 to escalate issue.
- *If Problem is resolved:*
  Stop here.

6 Troubleshooting a Fax Receive failure

Step 1: Verify physical phone line connection
Connect an extension handset to the extension jack available at the back of the MFD
and pick up extension handset to check if a dial tone is present on the line

- *If dial tone is present:*
  Proceed to Step 2.
- *If dial tone is not available:*
  Use another phone cable.
  Use another phone line.
  Check with telephone line provider.

Step 2: Verify phone line quality
Using the extension handset, check if phone line is free of any static or order to ensure
that line quality is suitable for fax transmissions.

- *If line quality is clear:*
  Proceed to Step 3.
- *If line is noisy:*
Use another phone cable.
Use another phone line.
Check with telephone line provider.

Step 3: Verify if incoming calls can be received on the phone line
Disconnect phone cable from MFD and connect it directly to the extension handset.
Have someone call this number and verify if extension handset rings. Allow 3-5 rings
then pickup handset and check if connection can be established with the caller.

- *Extension handset rings and able to connect:*
Reconnect the phone cable to the MFD and proceed to.

- *Extension handset does not ring:*
  The phone line is problematic. Check with telephone line provider.

Step 4: Verify 'Enable Fax Receive' user setting Check
the value of the 'Enable Fax Receive' user setting.

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- *'Enable Fax Receive' is On:*
  Proceed to Step 5.
- *'Enable Fax Receive' is Of:*
  Turn on the setting to enable MFD to receive faxes and then test. If
  issue still exists proceed to Step 5.

Step 5: Verify 'Distinctive Ring' user setting

If distinctive ring feature is available on the phone line then verify if the appropriate
'Distinctive Ring' (Single, Double, Triple) setting is enabled on the MFD.

- *Distinctive ring (Single, Double Triple) is enabled:*
  Proceed to Step 6.
- *Distinctive ring (Single, Double Triple) is disabled:*
  Turn on the setting to enable MFD to answer to distinctive rings and then
  test. If issue still exists proceed to Step 6.

Step 6: Verify if phone line is analog or digital
Check if the MFD is connected to an analog or digital line.

- *Digital line is used:*
  Proceed to Step 7.
- *Analog line is used:*
  Proceed to Step 8.

Step 7: Verify if MFD is connected to a VoIP line
If MFD is connected to a VoIP line, verify if the server is configured to support fax
calls.

- *If server configurations support fax calls:*
  Proceed to Step 8.
- *Problem related to server setup:*
  Stop here. Check with VoIP provider.

Step 8: Verify the nature of failure
Test to verify if the MFD is unable to receive faxes from any remote fax device or only
from a specific remote fax device.

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- *MFD fails to receive from any remote fax device:*
  Proceed to Step 12.
- *MFD fails to receive only from a specific remote fax device:*
  Proceed to Step 9.

Step 9: Verify communications with the specific remote fax device
Test if any other fax device connected to the phone line is able to receive faxes sent from the specific remote fax device.

- *Other fax device is able to receive:*
  Proceed to Step 10.
- *Other fax device fails too:*
  Stop here. Problem is not with the MFD.
  Contact telephone line provider to check if line is faulty.
  Problem could be with the remote fax device.

Step 10: Verify 'Block No Name Fax' user setting
Verify if 'Block No Name Fax' setting is enabled to prevent the MFD from receiving faxes from a remote fax device that has a 'blank' station ID setting.

- *'Block No Name Fax' is On:*
  Disable setting to start receiving faxes from devices with blank station ID.
- *'Block No Name Fax' is Of:*
  Proceed to Step 11.

Step 11: Check 'Banned Fax List' user setting
Check if 'Banned Fax List' contains the remote fax device's number.

- *'Banned Fax List' contains sender's number:*
  Remove number from list to allow MFD to receive faxes from it.
- *'Banned Fax List' does not contain sender's number:*
  Proceed to Step 12.

Step 12: Adjust 'Receive Threshold' SE setting
Test by adjusting the received signal level by decreasing/increasing the 'Receive Threshold' setting in steps of 2db. For example, if default value is -43 db, changing it to -45db will decrease the received signal level by 2db and changing it to -41db will increase the received signal level by 2db. Recommended adjustment range is between -33db and -48db (in 2db steps).

- *MFD still fails to receive faxes:*
  Restore the default Receive Threshold value and then proceed to Step 13.
- *MFD is now able to receive faxes:*
  Stop here.
  Continue using the newly changed Receive Threshold setting.

Step 13: Check the Fax error code
Print the T30 transmission/Job/Call log and check the error code being reported.
Verify it against the error codes listed in Section 7 and follow the suggested resolution.

- *If Problem still persists:*
  Follow procedure described in Section 1 to escalate issue.
- *If Problem is resolved:*
  Stop here.

7 Fax Error Codes

Error Code	Description	Resolution
000	No error occurred during fax transmission	• Not applicable
200	Error occurred when transmitting training.	• Check line quality. • Select a lower 'Max Speed' value under Fax Send settings. • Adjust Transmit level.
3XX	Error occurred when receiving image data.	• Check line quality. • Adjust 'Receive Threshold'. • Select a lower 'Max Speed' value under Fax Receive settings.
4XX	Error occurred when sending image data.	• Check line quality. • Adjust 'Transmit Level'. • Select a lower 'Max Speed' value under Fax Send settings.
5XX	Received unknown response from remote fax device.	• Not applicable
6XX	Error occurred when receiving a frame.	• Check line quality. • Adjust 'Receive Threshold'.

7XX	Error occurred when sending a frame.	• Check line quality. • Adjust 'Transmit Level'. • Select a lower 'Max Speed' value under Fax Send settings.
800	Received EOT unexpectedly from the modem in V34 mode.	• If error persists disable V34 modulation scheme.
802	Too many timeouts occurred during ECM reception.	• If error persists disable ECM mode.
803	Fax was canceled by user.	• Not applicable
804	Unexpectedly received disconnect command from remote end.	• Check line quality. • Adjust Transmit Level/Receive Threshold values. • Remote device could be requesting an unsupported feature.
805	Remote fax device failed to respond to the DCS command.	• Adjust Transmit Level/Receive Threshold values. • Remote device could be malfunctioning.
808	T1 Timeout occurred when trying to establish a connection with	• Adjust Transmit Level/Receive Threshold values.

	remote fax device.	
809	T2 Timeout occurred due to loss of command/response synchronization.	•Adjust Transmit Level/Receive Threshold values.
80A	T5 Timeout occurred when transmitting image data to remote fax device.	• Check line quality. • Adjust 'Transmit Level'. • Select a lower 'Max Speed' value under Fax Send settings.
80B	Too many errors when transmitting image in ECM mode.	• Check line quality. • Adjust 'Transmit Level'. • Select a lower 'Max Speed' value under Fax Send settings.
80C	Remote device failed to respond to the 'CTC' command.	• Select a lower 'Max Speed' value under Fax Send settings. • Adjust 'Transmit Level'.
80D	Received too many requests from remote end to repeat the previous command sent.	• Check line quality. • Adjust 'Transmit Level'. • Check if line conditions on remote end will facilitate a good connection.
80E	Functional limitation- Remote fax device does not support G3 receive	• Not applicable
811	Failed to detect a fax device at the remote end.	• Verify MFD is answering to fax call and not a voice call. • Decrease value of 'Rings To Answer' setting.

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812	No more data rates available in V34 modulation scheme.	• Adjust to a lower modulation scheme.
813	Timeout occurred after waiting too long to receive a good frame.	• Adjust 'Receive Threshold'.
814	Tried too many times at selected speed using V34 modulation scheme.	• Adjust 'Transmit Level'. • Adjust to a lower modulation scheme.
815	Fax transmission was interrupted due to power failure.	• Check MFD hardware if error persists
818	Fax transmission failed due to insufficient memory to store scanned image.	• Adjust 'Memory Use' setting to allocate more memory for send jobs.
819	Fax transmission failed due To insufficient memory to store received image.	• Adjust 'Memory Use' setting to allocate more memory for receive jobs.
81A	A timeout occurred during transmission of a page in ECM mode.	• Select a lower 'Max Speed' value under Fax Send settings.
880	Failure to transmit training	• Select a lower 'Max Speed'

	successfully in V17, V29, V27ter modulation schemes.	value under Fax Send settings. • Adjust 'Transmit Level'. • Check line quality.
881	Failure to transmit training successfully in V33, V29, V27ter modulation schemes.	• Select a lower 'Max Speed' value under Fax Send settings. • Adjust 'Transmit Level'. • Check line quality.
882	Failure to transmit training successfully in V17, V29 modulation schemes.	• Select a lower 'Max Speed' value under Fax Send settings. • Adjust 'Transmit Level'. • Check line quality.
883	Failure to transmit training successfully in V17, V27ter modulation schemes.	• Select a lower 'Max Speed' value under Fax Send settings. • Adjust 'Transmit Level'. • Check line quality.
884	Failure to transmit training successfully in V29, V27ter modulation schemes.	• Select a lower 'Max Speed' value under Fax Send settings. • Adjust 'Transmit Level'. • Check line quality.
885	Failure to transmit training successfully in V17 modulation scheme.	• Select a lower 'Max Speed' value under Fax Send settings. • Adjust 'Transmit Level'. • Check line quality.

886	Failure to transmit training successfully in V29 modulation scheme.	• Select a lower 'Max Speed' value under Fax Send settings. • Adjust 'Transmit Level'. • Check line quality.
887	Failure to transmit training successfully in V27 modulation scheme.	• Select a lower 'Max Speed' value under Fax Send settings. • Adjust 'Transmit Level'. • Check line quality.
888	Failure to transmit training successfully at 2400 bps in V27 modulation scheme.	• Adjust 'Transmit Level'. • Check line quality.
889	Failed to connect at minimum speed supported by MFD.	• Adjust 'Transmit Level'. • Incompatible connection.
88A	Failed to connect using V34 modulation scheme.	• Check line quality. • Adjust to a lower modulation scheme. • Adjust Transmit Level/Receive Threshold values.

901	No fax tones detected from remote end.	• Verify if destination number is correct. • Verify if remote fax device is enabled to receive incoming faxes.

902	No dial tone detected.	• Check by enabling 'Behind a PABX' setting. • Check phone line. • Check MFD modem hardware.
903	Busy tone detected.	• Check with remote end if successive redial attempts also fail.
904	Hardware error detected.	•Check/replace MFD hardware if error persists.
905	A timeout occurred after dialing number and waiting for response.	• Check with remote end if successive redial attempts also fail.
906	Fax send was cancelled by user.	• Not applicable
907	Modem detected a digital line connection.	• Verify MFD is connected to an analog phone line.
908	Phone line was disconnected.	• Restore phone line connection.
A00	Received request for unsupported function from remote fax device.	• Not applicable.

A01	Received request for unsupported image width from remote fax device.	• Not applicable.
A02	Received request for unsupported image resolution from remote fax device.	• Not applicable.
A03	Received request for unsupported compression type from remote fax	• Not applicable.
A04	Received request for unsupported image length from remote fax device.	• Not applicable.
F00	Unknown error occurred	• Not applicable