

Technical Information	Troubleshooting PostScript Errors

You may have run into a situation where no matter what you did, you couldn't get a PostScript** job to print. Perhaps you had trouble interpreting the error messages at the Raster Image Processor (RIP) or workstation. Maybe nothing that you did to correct the situation worked. In this document we will look at some common errors that you may encounter. We will also describe a method for troubleshooting these errors so that they may be corrected as quickly as possible. The terminology in this piece is by nature fairly technical. We will be talking about RIPs, recorders, virtual memory, specific PostScript commands as well as many other technical issues. If this terminology is unfamiliar to you, you may wish to investigate some of the books listed in the bibliography at the end of this document before proceeding.

The types of errors

There are three places where you can look for errors: at the RIP display, at the recorder panel, or at your workstation. We will start with the RIP and the recorder, and then proceed to a general discussion of the PostScript errors that you may encounter at the workstation.

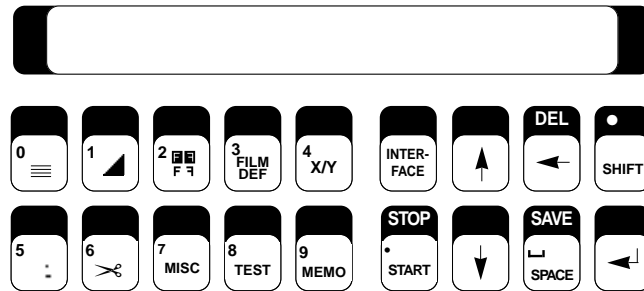
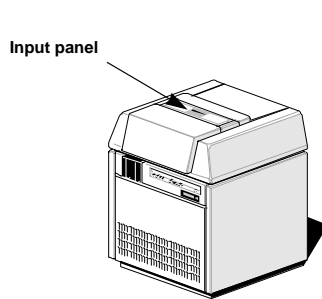


Figure 1 - Recorder/imagesetter input panel from the Linotronic* 200, 230, 330, 530.

The recorder panel

Some of the most obvious errors appear at the recorder or imagesetter panel (see Figure 1). These errors may refer to a missing cassette, improper page size, lack of material, a film jam, etc. (See list on next page.) The chart below gives some background information on imagesetters, recorders, and RIPs.

Device	Type	Panel	PostScript RIP type	RIP Naming Conventions
100P	Imagesetter ¹	Earlier panel	Internal	RIP 1 Redstone
200, 200SQ, 230	Imagesetter ¹	As in Fig. 1	Internal	RIP 2 Atlas
230	Recorder ¹	As in Fig. 1	External	RIP 3 Saturn
300	Recorder ¹	Depends on manufacture date	External	RIP 4 Saturn Plus
330	Recorder ¹	As in Fig. 1	External	RIP 30 Neptune
500	Recorder ¹	Earlier panel	External	
530	Recorder ¹	As in Fig. 1	External	

¹The term *imagesetter* may be used to describe a device with an internal RIP, although it is often used to describe laser imaging devices in general, even when the RIP and recorder are separate devices. The term *recorder* refers to a stand-alone marking device without an internal RIP.

The RIP panel

The panel on the RIP gives information on the state of the RIP, including RIP activity and RIP/recorder errors. A list of RIP panel error messages is included in each RIP manual, but a brief summary of errors that may appear while

- 0** Idle and ready to receive data
- 1** Acquiring data
- 2** Processing data
- 3** Printing
- 4** Calculating a digital halftone cell¹
- OFF** Offline

Note: Other information appears on the RIP panel during booting and initialization of the RIP; see your manual for further explanation.

¹ RIP 30 only.

the RIP is in operation appears on this page. (For more information please see your RIP manual.)

The numbers that appear on the RIP panel give an indication of what the RIP is doing. If the panel on the RIP reads '0', then the RIP is idle and ready to receive data. If the panel on the RIP reads '1', then the RIP is acquiring data. If the panel on the RIP reads '2', then the RIP is processing data. If the panel on the RIP reads '3', then the imagesetter is printing. If the panel on the RIP reads '4', then the RIP is calculating a digital halftone cell.

In the case of a PostScript error the RIP will toggle between 1 & 2 (or 4) and finally go back to 0 without ever printing. If the RIP goes back to 0 without printing the job, then it will usually generate an error message.

Note: There are two possible times when the RIP will not generate an error message. First, if the two dots on the RIP stop blinking, this means that the RIP internal software has stopped running and no error message can be generated. Also, if the job causes the RIP to reboot, no error message will be generated either.

As mentioned, in the case of a PostScript error the RIP will report the error and go back to idle status (i.e., ...0 on the RIP panel). These kinds of errors are generally caused by problems between the RIP and the front-end (usually because the RIP encountered a command that it couldn't process).

There is another type of error called a RIP/recorder error. These are normally indicated by a flashing E and a number on the RIP display. When this happens the recorder panel will usually indicate specifically what the error is (i.e. out of film, no cassette, etc.). See list at right.

E2 is the most generic of these errors. It indicates that the RIP cannot communicate with the recorder/imagesetter. Reasons for this can be a loose LI2 or LI5 cable, a film problem, RIP and recorder/imagesetter not booted in correct sequence, machine parameters inadvertently changed, etc.

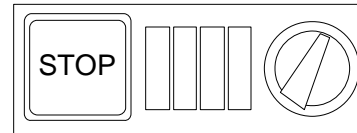
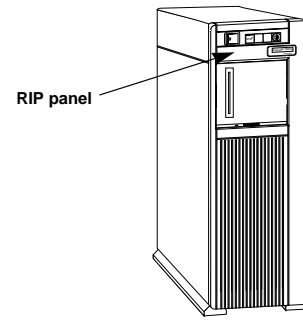


Figure 2 - RIP panel

RIP/recorder errors

Error during power-up or when copying program

- Err0 Memory test has not finished successfully
- Err1 Storage capacity of the hard disk is not sufficient
- Err2 Defective hard disk
- Err3 Cannot read floppy disk
- Err4 Wrong floppy disk
- Err5 Defective PostScript program file
- Err6 Loading of PostScript program file not possible
- Err7 Disk initialization failed
- Err8 Download failed, no files on floppy
- Err9 Hard disk error

Error in connection to imagesetter

- E 1 Recorder/printer busy
- E 2 Material problem on the laser imagesetter, or the connection to the laser imagesetter is interrupted
- E 3 Communication with laser imagesetter/recorder not possible
- E 12 No take-up cassette in the laser imagesetter
- E13 Take-up cassette is full
- E 14 End of new material
- E 51 Cutting knife not in end position
- E 52 Cutting knife defective
- E 70 Take-up cassette removed during exposure
- E 99 Default page parameters of the PostScript RIP 30 are larger than the measure or material width defined for the laser imagesetter
- E 126 Online processor not ready

E99 is another error that can be frustrating. It usually happens when the default page size in the RIP is larger than the x-width value in the memo setting on the recorder panel.

PostScript error messages

RS232 - This is the port for connecting front-end systems that are equipped with a serial port. RS232 is a standard serial communications port which the RIP can use for sending back error messages.

Centronics - This is the port for connecting front-end systems that are equipped with a parallel port. Centronics is a standard parallel communications port on many computers (except the Macintosh). The RIP receives data via this port.

LocalTalk and EtherTalk - LocalTalk and EtherTalk are two-way communications ports for connecting the RIP to AppleTalk** networks.

LI2 - This interface is used for sending bitmaps/raster data from the RIP to the recorder.

LI5 - This interface is used for the exchange of messages between the recorder and RIP.

If the RIP can't print the job, it will return an error message as long as it hasn't locked up or rebooted. If the error is not related to the RIP, recorder, or imagesetter, then it must be a PostScript error. Finding this PostScript error message is the single most important step in troubleshooting the job.

The PostScript error message format is the only way that the RIP can tell you about errors. It will appear as a box on your Macintosh** workstation screen, and look like this (see Figure 3):



Figure 3 - PostScript error message format

Different software applications may present this information slightly differently, however two pieces of information will always be supplied: the type of PostScript error and the offending command.

The PostScript error can sometimes be a clue as to what actually happened. The offending command is the command received by the RIP that could not be processed. (We will look at both the type of error and the offending command in greater detail shortly.)

An error message in any other format is generated by the software application or printer driver, usually based on the PostScript error message. Unfortunately, the messages generated by the software application do not always help very much in troubleshooting. Examples of application-generated messages are:

- -8133 - This error is generated by the LaserWriter** driver and means that any PostScript error may have occurred.
- -4100 - This means that the connection over AppleTalk has been lost.
- The job is OK but can't be printed.
- Please simplify your job by reducing the number of fonts.

If a job does not print, be sure to note the type of error and offending command. This will be important later on when you start to troubleshoot. If all you see are application-generated error messages, you may have to look a little harder to find the source of the problem.

Getting the message

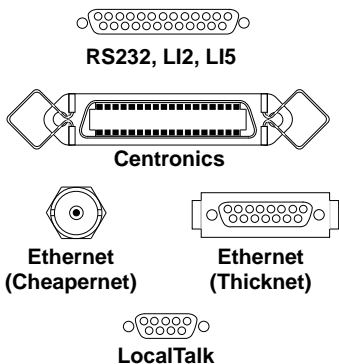


Figure 4 - What communication ports look like on the RIP.

Once you have determined the error, you may proceed. But what if there appears to be no message at all? Usually in the case where there appears to be no message, the message simply has not made it back to the screen. However, the way this is handled is different between the Macintosh and other front-end systems (like those using MS-DOS or Unix):

- When the Macintosh has sent the entire job, it breaks communication with the printer. When this happens, the dialog box disappears from the screen. If the RIP encounters the error after that time, you won't see it on the screen.
- Since many front-end systems use the Centronics** port for communication, and since Centronics does not allow for returned messages (it's for one-way communication only), there is no immediate way for the message to get back to the workstation. Even when other front-end systems use the serial port, many applications do not look for messages from the RIP.

Note: A brief explanation of communications ports appears above to the left. Also, look to Figure 4 for an illustration of the various ports.

Finding an error message

The time to look for an error message is when the RIP panel alternates between 1 and 2, and goes to 0 without ever going to 3. If an error message is not returned to the screen, there are several ways to get it:

- Watch the screen carefully. Some applications (QuarkXPress**, for example) display the PostScript error message for a very short time. The PostScript error message is then replaced by an application-generated message that is no real help in troubleshooting.
- Some applications (such as RipMaster**) keep a log of errors reported by the RIP. You can use this job log to check for errors. With RipMaster, you simply click on the line in the log that contains the PostScript error and it is displayed for you.
- You can create a PostScript file from the job and then send it to the RIP with a downloading utility (SendPS**, the Linotype Utility*, the Linotype Font Downloader, and LaserTalk** may all be used). Since these downloading programs maintain communications with the RIP until the job is finished printing, all errors will be displayed either on screen or in a log file. You can create a PostScript file from any PostScript application by pressing Command-F immediately after you click Print in the Print menu. (Hold these keys down until the message "Creating PostScript File" appears on screen.) The file will appear in the current folder as PostScript0, PostScript1, PostScript2, PostScript3, etc., up to PostScript9.
- Adding pages to the document can prolong the communication time between the Macintosh and RIP. This keeps the screen from clearing so quickly, which gives you a better chance of catching the error on screen.
- Use an error handling program (see list at end of document). These error handlers redefine the RIP's error handling mechanism to print the errors on the film instead of returning it to the front-end. An error will be printed even when the page itself won't print.
- If you are using the Centronics port and don't want to use an error handler, it is possible to connect a terminal to the serial auxiliary (or service) port. A description of this method would go beyond the scope of this article, but if you are interested, a Linotype-Hell service technician can help you do this.

What to do with the message

Note: PostScript commands are listed in the PostScript Language Reference Manual, as well as in PostScript supplements specifically for Linotronic imagesetters. (See list of references on back page.)

An understanding of the PostScript language will help you in interpreting error messages. For example, you might run into a situation where the error looks like this:

%%[PostScript error: rangecheck Offending command: setpageparams]%%

Setpageparams is a command that describes how large the page will be. A rangecheck error means you have exceeded the acceptable range of sizes for a page. In this case, you have to adjust page size to get the job to print.

Other messages are less obvious. Only experience will help you to decipher them. Below is a list of common errors:

PostScript error	Offending command	Possible cause
limitcheck	fill, stroke, clip, etc.	Usually occurs with a synthetic graphic. Increase the flatness setting in the program the graphic was created in.
undefined	od	Usually fixed by using LaserWriter driver 6.0.1.
typecheck	and	Wrong version of LaserWriter prep in RIP. Be sure that the version the file was created with and the version on the RIP are the same.
dictstackoverflow	begin	Problem with early versions of Quark 3.0 and the "zapper". Use latest zapper.
undefined	md	The RIP hasn't been initialized with a laser prep file. Printing a job from a page layout or illustration application will do this.
undefined	flxproc	Can be caused by an early version of the Linotype Font Utility or a corrupt printer font. Try reloading the font.
ioerror	filenameforall	Try rebooting RIP.

Note: *od*, *and*, and *md* are PostScript routines set up by printer drivers or applications.

Communication errors

Communication errors are caused by a loss or corruption of data between the front-end and the RIP. They can appear in two different ways: undefined or timeout.

%%[PostScript error: undefined Offending command: ekoEwqlw^746]%%

%%[PostScript error: timeout Offending command: timeout]%%

A PostScript error is undefined when the RIP doesn't understand the command that it has been given. Undefined errors can be caused by corruption of the data transmitted. This is often a result of loose cabling or network problems caused by exceeding network limitations. As a result, the offending command can be any string of nonsense characters.

Timeout errors occur because the RIP has a facility that expects to see constant data once a job has been started. If the data stops for too long (usually between 60 and 300 seconds) the RIP will timeout (i.e., the RIP will abort the job and go back to an idle state). The timeout facility is needed to prevent a stalemate between the RIP and the Macintosh. If there was no such facility, a Macintosh could be turned off while it was sending a job and the RIP would never know it. The RIP would continue to wait for the end of the job.

This timeout period is normally set to five minutes. This means that once a job has started the RIP must see at least some data every five minutes. If there is no data received during this time, the RIP will return the timeout message. However, every time the RIP receives some data, the timer is set back to zero. Network problems or some other communication problem are usually the cause of timeout problems.

Virtual memory errors

Adobe Systems Inc., the creator of PostScript, uses the term virtual memory in a slightly different sense than the usual definition. For a PostScript RIP, virtual memory (VM) is a portion of the total RAM (Random Access Memory) used for storing PostScript information. VM problems normally look like this:

%%[PostScript error: VM Offending command: lineto]%%

With VM errors the offending command could be anything. (It's just the last thing the RIP saw before it ran out of memory.) This error is normally encountered on older RIPs (that use PostScript version 47 and lower). It simply means that the virtual memory has been exhausted. The offending command is not significant in this case. Virtual memory problems are rare in newer RIPs because virtual memory space has been increased. Excessive font downloading and the use of multiple prep files may contribute to VM errors.

Troubleshooting procedures

What if your error isn't one of those mentioned above? Very often the PostScript error does not fall into any of these categories. It may just be that a particular file will always generate a certain PostScript error. In this case, the best route to take is the process of elimination. You need to find out which element of the file is causing the problem:

If it is a multi-page file, print one page at a time until you find out which page contains the error. If several pages contain the error, note what elements those pages have in common. Then concentrate your efforts on finding the error in one of those pages. When you have narrowed it down to one page, try by process of elimination to determine which element of the page is causing the problem. Try the following:

- Remove any graphics (TIFF, EPS, PICT, etc.)
- Eliminate the possibility of a font problem by changing all fonts on the page to a single typeface that is different from the ones already on the page.

When you have found the element that contains the error, take the following steps to correct it:

- If it is a corrupt graphic file, go back to the original program it was created

in, resave it, and then replace it in the document.

- If it turns out to be a certain typeface that is causing the problem, reload the printer and screen font.
- If several files are causing problems, look for something that the files have in common (perhaps the LaserWriter prep file, the system software, inits, spoolers, RIP resident programs or patches, application software, viruses, or anything new added to the system when errors started occurring.)

Conclusion

Spotting and correcting PostScript errors so that you can get your job to print is a little like trying to shoot at a moving target. The problems that occur today may not have been the ones you solved yesterday, or even the ones that you may have to solve tomorrow. In this piece we have tried to give a general description of errors and their causes to help make you a better troubleshooter. If you plan your troubleshooting carefully, you will be better able to solve future printing problems.

Sources of information

You might want to review the following texts for information on PostScript:

- *PostScript Language Reference Manual*, 2nd edition, Adobe Systems Inc., Addison-Wesley, 1990.
- *PostScript Language Reference Manual*, Adobe Systems Inc., Addison-Wesley, 1985. (Commonly referred to as the red book.)
- *PostScript Language Program Design*, 2nd edition, Adobe Systems Inc., Addison-Wesley, 1988. (Commonly referred to as the green book.)
- *PostScript Language Tutorial and Cookbook*, Adobe Systems Inc., Addison-Wesley, 1985. (Commonly referred to as the blue book.)
- *Real World PostScript*, Stephen F. Roth, ed., Addison-Wesley, 1988.
- *Understanding PostScript Programming*, David Holzgang, Sybex, 1988.
- *Linotronic Imaging Handbook*, James Cavuoto and Stephen Beale, Micro Publishing Press, 1990.
- *Inside PostScript Programming*, Frank Merritt Braswell, Peachpit Press Inc., 1989.
- *Desktop to Press* newsletter, vol. 1, # 6, April 1990, Peter Fink Communications Inc. (202-667-6400)
- *A Supplement for the Linotronic Imagesetter*, is available for PostScript versions 49.3, 51.8, and 52.3. The Linotype-Hell part numbers for these documents are 24378, 38244 and 52351.

The following error handlers are also available:

- *Ehandler.PS* (shareware from Adobe)
- *Advanced PostScript Handler*, \$295 from Systems of Merritt, Inc. 2551 Old Dobbin Drive East, Mobile, AL 36695 (205-660-1240, -7740 fax)
- *PinPoint Error Reporter*, \$49.95 from Cheshire Group, 321 So. Main St., Suite 36, Sebastopol, CA 95472 (707-887-7510, 2595 fax)

Comments

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Editors note:

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