APPENDIX G: PROBLEM DETERMINATION

If Remote SpoolPrint is not working correctly the problem can be traced to many sources. Below are procedures you can use to locate the area causing the problem. To avoid costly delays in contacting our technical support staff, we request you use these procedures listed below first. If you are still unable to correct the problem, we ask that you call our technical support staff as soon as practical.

General

Some common problems can easily be found by checking the following:

Verify the following:

Remote SpoolPrint is installed on both the sending and receiving systems.

Passwords (temporary or permanent) have been set on both systems.

Your communications link between the two systems is active and working correctly. You can verify this by checking other functions which use the same comm link. For example verify if IBM's Display Station Passthru, SNADS, or DDM is working correctly, if you are also using any of these. For example, another person at the remote system may be performing maintenance and might have the link down.

Check to see if the operating system (OS/400) has been updated recently, and if Remote SpoolPrint has worked since the update. You may need to reapply changes to OS/400 (change communications entry in subsystem QCMN, etc.)

Consider if Remote SpoolPrint has worked before, and if so, determine when it quit working. Ask other personnel what changes have been made to the communications network. You may need to change your Remote Writer descriptions to reflect changes made.

If none of the situations above appear to be your problem, you first need to determine which system has the problem. To do this we recommend you continue with the procedures below, starting with your sending system. When an error occurs the sending system usually generates enough error information to determine which system has the problem.

AS/400 Sending System

The first thing you need to do is check the information presented on the "Display Writer Status" screen. This will tell you if the Remote Writer is still executing and will help you locate the Remote Writer's joblog. If the Remote Writer does not display on this screen it has finished execution and its joblog has been printed. This screen will also tell the outq the remote writer is monitoring and if the Remote Writer has experienced a communications error. However the information provided here assumes the Remote Writer is working correctly and can provide misleading information if it isn't. Therefore, do not rely too heavily on this screen for problem determination.

If the Remote Writer is still executing, the next step is to determine its status. Enter the command Work with Active Jobs (WRKACTJOB). Under subsystem BDS you should see the Remote Writer. Note its status (EVTW, DEQW, MSGW, ICFW, or RUN).

EVTW (Event wait)

This status indicates the Remote Writer has no spool entries to send. Verify the source outq is in a Release status and it contains spool entries with a Ready status.

DEQW (Dequeue wait)

On Remote SpoolPrint release 5.2 or later this status indicates either the Remote Writer is in a wait state (there are no spool entries to send) or it is in communications error state. On earlier releases, this status only indicates a communications error state. Verify the source outq has spool entries to send. If so skip to "Locating the Joblog" below.

MSGW (message wait)

A function check has occurred. Skip to "Remote Writer still Executing" below.

ICFW (ICF wait)

The Remote Writer has given data to APPC to transmit, and is waiting for APPC to send the data to the remote system. Press F-11 (display elapsed data) and periodically (every 15 seconds) press F-5 (refresh). Look at the CPU (not CPU%) and AuxIO values to determine if the task is hung or is executing. If the task is hung the problem is probably one of two things: Either there is a function check has occurred on the receiving system or your communications link is itself has a problem. Please note that at startup, the Remote Writer may sit in an ICFW state for up to two minutes trying to establish communications with the receiving program. In this case the job will usually terminate abnormally. If so skip to "Locating the Joblog" below. If the Remote Writer does not terminate after a few minutes skip to the section “AS/400 Receiving System” below. If the problem is not found, you must investigate your communications link. Contact your communications administrator, IBM, or Broderick Data Systems if you need assistance.

RUN

The Remote Writer is probably executing normally. If output moves very slowly you may have a performance problem on either your sending or receiving system, (or an intermediate system if APPN is used) or your communications line is being heavily utilized. On very rare occasions the Remote Writer could be stuck in a loop. If so contact Broderick Data Systems.

Locating the Joblog

Next you must find the joblog produced by the Remote Writer. The joblog is the single most useful piece of information used for problem determination (for any problem, not only Remote SpoolPrint). In fact you will probably not be able to determine the problem without it. If you are unable to find the joblog we suggest you recreate the problem by starting the Remote Writer again.

Remote Writer still executing

If the Remote Writer is still executing, to display the Remote Writer's joblog perform the following:

Enter the WRKSBS command with no parameters.
Select option 8 (work with subsystem jobs) at subsystem BDS.

Note: If you have Remote SpoolPrint release 5.2 or later you can issue the command WRKACTJOB instead of the above commands.

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Select option 5 (work with job) at the Remote Writer line.
Select option 10 (job log).
Press F-10 (detailed messages)
Press F-18 (end of log) if necessary
Skip to the section "Remote Writer Joblog Analysis" below.

Remote Writer finished execution

If the Remote Writer has finished execution the joblog will be in a spool entry with file name QPJOBLOG. First determine if the joblog has printed on a printer and if so, go to the printer and retrieve the print out. Most systems however route joblogs to an outq which does not print to a printer. If so you must locate this outq and find the joblog in it. If you were the user which started the Remote Writer you can speed up this process by issuing a Work Submitted Jobs (WRKSBMJOB) command. Locate a job with the same name as the Remote Writer name and select option 8 (work with spool entries).

Select option 5 (display spool entry) at file QPJOBLOG or route the spool entry to a printer. At the control field type in "B" (bottom) and press enter.

Remote Writer Joblog Analysis

Please note that the job log contains the same information regardless if the Remote Writer is still active or if you are viewing the spool entry QPJOBLOG after the Remote Writer completed execution. If viewing the joblog as part of an active Remote Writer, remember to place your cursor on a desired message and press the HELP key to view the detailed message. In either case if your installation has modified the Logging Level from the values shipped from BDS, not all needed information may be present. If you suspect this, verify that Job Description BRSPL38 in library BRODERICK contains Logging level LOG(4 0 *NOLIST). If not we recommend you change the logging level and recreate the problem. Also some installations change the LOGCLPGM parameter to *YES. This degrades the Remote Writer's performance and produces many messages in the joblog, which makes it difficult to locate relevant messages. If so, you may wish to change the job description BRSPL38 and recreate the error.

We recommend you start at the bottom of the joblog and work towards the top. This is because there are many messages at the start of the joblog which look like errors but are actually normal operation. Please note if the Remote Writer has completed execution you may see several messages at the end of the log which are the normal result of the Remote Writer requesting an abnormal termination.

There many possible error situations and so you must look inquisitively at the joblog to determine the problem. Some of the more common messages are listed below:

The message "Communications error occurred while ... APPC RC=xxxx" appears. This message means is almost always preceded by a system message describing a communication error. The message may appear cryptic but generally is one of the following:

"Cannot allocate objects needed for device .....". This message is usually the result of the Remote Writer defined incorrectly or the link is not active. To verify perform the following:

1) Enter the command Work with Configuration Status (WRKCFGSTS *LIN) and press enter.

2) Scroll until you find the Line, Control Unit, and Device which communicates with the receiving system. Verify all are ACTIVE.

3) Select option 8 (work with description) at the Device Description line and press enter. Select option 5 (display) and press enter.

4) Write down the following information:
   Remote Location Name
   Local Location name
   Remote Network ID
   Mode(s)

5) Press enter and enter the command DSPMODSTS xxxxxx where xxxxxx is the device description. Verify the mode you are using is status STARTED. If the Mode you are using is status RESET or doesn't appear, your link has a configuration problem or you are using the wrong Mode. Contact the communications administrator to correct the problem.

6) Edit the Remote Writer description. Verify this information agrees with the Device description. If not, make the appropriate changes and stop/restart the Remote Writer.

"Evoke Request was rejected...". This message means the sending system asked the receiving system to start our receiving program, but the remote system could not start the receiving program. There are many reasons for this. Skip to the section "AS/400 Receiving System" to determine the problem.

"Remote system abnormally terminated the conversation". This message means the receiving program started executing and then it discovered a problem. Skip to the section "AS/400 Receiving System" to determine the problem.

"Function check. XXX-YYYY unmonitored .....". Remote SpoolPrint is in error. XXX-YYYY is the CPF message detected. Below are the only situations where a function check does not mean Remote SpoolPrint has a serious problem. In all other situations answer "D" to the message to produce a dump of the program in error, answer "D" to each function check as a result, locate the joblog the Remote Writer generates, and call Broderick Data Systems.

CPF-5424 Internal Failure ... OS/400 detected a bug in its software. This situation is rare for OS/400 version 2 or later. Issue a "C" to each message received until the Remote Writer is cancelled. Then restart the Remote Writer. This situation usually occurs when a temporary hardware error occurred and OS/400 did not recover correctly (i.e. a bad modem). If you receive numerous occurrences of this message you should begin hardware problem determination procedures.

CPF-5425 Device varied off while in use. An operator varied off the APPC device the Remote Writer was using, probably as a result of a communications link failure. For some reason OS/400 does not return a negative return code to the Remote Writer, but issues an escape message (function check) instead. To recover, issue a "C" to this message and any that follow until the Remote Writer is cancelled. Then restart the Remote Writer.

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AS/400 Receiving System

Most problems on the receiving system will appear on the message queue QSYSOPR. Please note that on some AS/400 systems, there is another message queue QSYSMSG which will receive certain APPC error messages. To determine if your system has this message queue, enter the command DSPMSG QSYSMSG. For sake of discussion, this chapter will refer to both message queues as QSYSOPR. Please remember if you have QSYSMSG you will always need to check both queues for messages.

The following messages and their meanings commonly occur in QSYSOPR: ***"Program start request for device xxxxxx was rejected with reason code yyy,zzzz.*** The system tried to start our receiving program, but could not. OS/400 is very flexible (complicated) and there are many things that can go wrong when starting an evoked job. The three digit reason code (yyy) gives the specific problem. Please note that an in depth knowledge of OS/400 work management (Job Queues, Classes, Subsystems, etc.) may be needed to understand the reason code. You may need to show the reason code to your communications administrator or your system programmer. The three digit reason codes and their meanings are listed in the following manuals:

Communications: Programmer's Guide, Chapter 11 Communications Error Handling, Section Failed Program Start Requests.

Communications: APPC/APPN Users Guide, Appendix A Return Codes, Section Program Start Request Errors.

System/38 Communications Programmers Guide

Any one of these manuals can be used. The most common reason codes and your response are listed below:

715: Neither password nor user ID was provided and no default user profile was specified in the communications entry. This reason code usually occurs after a new release of OS/400 is installed on the receiving system. The user may note the AS/400 can send spool entries but cannot receive them from other systems. If so the subsystem QCMN was changed by your installation and the new release of OS/400 removed those changes. For a quick solution issue the following command (Please note that subsystem QCMN must be terminated first, which will end all passthru sessions into this AS/400):

CHGCMNE SBSD(QCMN) DEV(*ALL) DFTUSER(QUSER)

Since updates to a new release of OS/400 are infrequent, the above change may be forgotten when the next release is installed. Since installations usually install new OS/400 releases during nights and weekends, Remote SpoolPrint may be affected for a long period before the problem is found. A better solution is to review Appendix E, "AS/400 Security Considerations". Remote SpoolPrint is able to send user ID and password information to the receiving AS/400 if a few conditions are met. For S/36 source systems the only change needed in most cases is to enter the SECEDIT COMM procedure and add an entry for the AS/400's remote location. For S/38 and AS/400 source systems, the only change needed in most cases is to edit the Remote Writer description and change the APPC User ID and password fields.

"Outq xxxxx.xxxxxx not found" The target outq you specified on the Remote Writer does not exist on the receiving system. Change the Remote Description on the sending system.

"Your password has expired" Call BDS to receive a temporary or permanent password. Verify you have received an invoice and it has been paid to receive a permanent password. If you have not received an invoice you may call to request this sent. You will receive an extension on your temporary password until the invoice has been paid.

"Function Check ..." Remote SpoolPrint has a problem. Please call BDS as soon as possible.