(2) Each port has a status LED. This LED will be:

- CONSTANTLY LIT if there is a flow control configuration problem; the unit must be reset to clear the LED

- FLASHING or INTERMITTENTLY LIT if the port is transmitting or receiving data

- OFF if the port hasn't received or transmitted any data in the last 50 ms.

4.7.2 STATUS MESSAGES

Status messages will be transmitted out of the Resource-Q Sharer to indicate a variety of conditions, unless the user chooses to disable messages by setting position 6 of Switch G to OFF (see Table 3-4).

These are the **link-related** status messages:

(1)   Port(s) busy, your request to link is in queue position x
       (enter BREAK to abort request)

(2)   Request removed from queue

(3)   Port x now linked to port y

(4)   Break character processed, link disconnected

(5)   Abort timeout, link disconnected

(6)   No Activity timeout, link disconnected

These are the **command-related** status messages:

(7)   Broadcast mode
   (broadcast command)

(8)   leaving Broadcast mode
   (exit broadcast or abort broadcast commands)

(9)   Exiting from Menu mode
   (after option #9 from main menu)

(10)   A software reset of the unit is now being performed!
   (reset command)

(11)   unable to process your request at this time

Message 11 may be displayed when you:

- try to access the battery-backed-up memory when someone else is doing so or is linked;

- try to exit broadcast mode when you were not in broadcast mode, or

- exit broadcast mode but buffered data still remains in the Sharer's internal buffer; when all buffered data is sent, message 8 is displayed.

NOTE

Terminal flow control will be ignored when sending status messages.

NOTE

All status messages are preceded and followed by at least one carriage-return/line-feed-character pair, with the exception of the reset message, which is terminated by only a single carriage return.

4.8 EIA RS-232 Lead Protocol and RTS/DCD Lead Pass-Through

In the following descriptions of the RS-232 lead protocol that the Resource-Q Sharer uses, "DTR/CTS output" means DTR output if a port is jumpered in DTE position or CTS output if a port is jumpered in the DCE position. "CTS/DTR input" means CTS input if a port is DTE and DTR input if it is DCE. The same correspondence holds true for "RTS/DCD output" or "DCD/RTS input."

DTR/CTS OUTPUT will be activated after a reset. If a port is using hardware flow control these leads will go low when the receive buffer allocated to that port is too full. As detailed in Section 4.2.9, flow control is disabled on a port when the Resource-Q Sharer is exercising the logoff procedure; the Sharer activates DTR/CTS OUTPUT at the beginning and end of the procedure to flush the attached device of data. Imbedded logoff commands can change the state of DTR/CTS OUTPUT during the logoff procedure; see Section 4.6.3.

CTS/DTR INPUT will only be monitored if a port is using hardware flow control. Under this configuration, the Resource-Q Sharer will not transmit data out a port if this input is low.

RTS/DCD OUTPUT will be low after a reset or when a port is not linked. Once a port is linked, this output will follow DCD/RTS INPUT from the other port, unless you set Switch G position 5 to ON (NORMAL RTS/DCD; see Table 3-4); with this setting, RTS/DCD OUTPUT will not go low (even if the linked port's input is low) if there is still data in the Resource-Q Sharer's internal buffer to be transmitted out this port. All ports in a broadcast mode will have their RTS/DCD OUTPUTS always high. During a logoff procedure RTS/DCD OUTPUT will normally stay in the state it was in before the procedure started, but the user can imbed commands in the logoff string to raise or lower RTS/DCD (see Section 4.6.3).

5.0 Troubleshooting

If you have problems with your Resource-Q Sharer system, read this chapter carefully. You may find that the problems are actually the result of a small oversight in installation or configuration.

When troubleshooting most data-communications networks, first check all of the basics to eliminate the simplest of problems. After the usual culprits have been eliminated from your "hit list," you can move on to performing diagnostic tests to diagnose more complex problems.

5.1 Checking the Basics

Check the following items before performing any of the tests listed in this chapter or contacting your dealer for technical support.

- **Power:** Is the power supply plugged in? Is the outlet delivering power? The Resource-Q Sharer is receiving power if the power (PWR) LED is illuminated.

- **Reset button:** If you have changed any of the internal DIP switches, make sure you press the reset button to confirm changes made to the ports.

- **Proper configuration:** Confirm proper port configurations, including the DTE/DCE jumpers and the port DIP switches. Also, check the following:

    — Are any ports disabled? Enable the port using switch positions 4 and 5 of that port's configuration DIP switch. See Chapter 3, "Installation," step number 6, and the companion table on page 12.

    — Make sure you haven't used the system option switches (Switches F and G) as individual port configuration switches. Switches F and G are used exclusively for setting Resource-Q Sharer system options.

- **Connections:** Check the connection between the Resource-Q Sharer and the 4-Port Expansion Board (if you've installed one). Check the cable connections at each of the Sharer's DB25 connectors and at each attached device.

5.2 Testing for Trouble Spots

A couple of "dumb terminal" tests may help to locate a problem This section presents a two-part test to help determine if the problem is in the Resource-Q Sharer, or in the cables and equipment connected to the Resource-Q Sharer.

5.2.1 INTRODUCING THE PORT TEST

The test involves removing the cable and equipment connected to a suspect port and replacing it with a reliable dumb terminal and EIA RS-232 cable (test equipment that you know to be operating properly). Run the entire test on that first port. If no problems are determined, move on to the next problem port.

The assumption of this test is this: If a particular port on the Resource-Q Sharer is not operating properly, it will not be able to respond to even the simplest requests for such things as the system help screen or queue status messages. That is, it won't be able to complete a basic data exchange with an attached device.

- The first part of the test checks the Resource-Q Sharer port for proper data speed and word structure settings according to your current port switch settings.

- The second part of this test is similar to the first, except all of the port switch positions are now set in the OFF position.

NOTE

Under certain conditions, the Resource-Q Sharer may return correct messages to your terminal, even though the problem actually exists in the word-structure settings you have chosen. There are enough possibilities to make it impractical to list all the conditions in which this may occur. If the Sharer and attached equipment pass the port test but communication still fails when you bring the system back up, check carefully for word structure errors before calling your dealer.

5.2.2 THE PORT TEST: PART ONE
(USING CURRENT PORT SWITCH SETTINGS)

Do not change the port switch settings.

1. Set the system option switches as shown below. Note your original system switch settings so that you can properly reset these two switches when you've finished testing.

- Switch F: Switch positions 1, 3, and 4 on (all others off); a <Return> or <Enter> key is now the break-link character.

- Switch G: positions 6 and 7 on to enable status messages and link requests from group ports (all others off).

- Do not change the DTE/DCE shunt jumpers.

2. Connect the test equipment (dumb terminal and EIA RS-232 cable) to a malfunctioning port; use either a straight-through or crossover cable as appropriate for your application. Configure the terminal to match the port's current switch position settings (data rate, word structure, flow control).

3. Perform the following test:

- Press the Resource-Q Sharer reset button, wait five (5) seconds.

- Type the command

  @help@

  to call up the Resource-Q Sharer help screen. If you make a mistake keying in this command, delete the characters, press the reset button again, wait 5 seconds, and re-enter the command.

If you are testing a PC or terminal port, you can also try the following:

- Type a "1" on the keyboard. A status message ("in queue position X") should appear on the terminal's monitor.

- Press the <Return> or <Enter> key; a second status message ("request removed from queue") should appear on the monitor.

If the Resource-Q Sharer passes this part of the test (you do receive the help screen or proper status messages), then the problem is probably in:

- your original equipment's configuration,

- your original installation EIA RS-232 cables, or

- your original equipment (PC, terminal, etc.).

If the Resource-Q Sharer fails this part of the test (you do not receive the help screen or the proper status messages), then move on to part two of this test.

5.2.3 HOW TO RUN THE TEST: PART TWO
(USING TEST SETTINGS)

1. Simply set *all port switch positions* to the OFF position. Do not change the system option switches (F and G); these settings should be identical to those used in Part One of this Test (see above).

2. Configure the Resource-Q Sharer terminal port:

- Set all DIP switch positions in the OFF position (19.2 Kbps data speed, 7 data bits, no parity, X-ON/X-OFF flow control, terminal port setting).

3. Reconfigure the dumb terminal with the same settings:

- 19.2 Kbps data speed, 7 data bits, no parity, 1 stop bit, X-ON/X-OFF flow control.

4. Perform the following test:

- Press the reset button, wait five (5) seconds.

- Type the command

  @help@

  to call up the Resource-Q Sharer help screen. If you make a mistake keying in this command, press the reset button again, wait 5 seconds, and re-enter the command.

- Type a "1" on the keyboard A status message ("in queue position X") should appear on the terminal's monitor.

- Press the <Return> or <Enter> key; a second status message ("request removed from queue") should appear on the monitor.

If the Resource-Q Sharer passes this part of the test (you do receive the proper status messages):

- the problem is most likely that you configured the DIP switch incorrectly.

- it is possible, though not likely, that the particular port's DIP switch is malfunctioning (that is, it can only be read by the system with all of its switch positions set in the OFF position).

If the Resource-Q Sharer fails this part of the test (you do not receive the proper status messages), you might have a bad unit. Contact your dealer for technical assistance and customer support.

NOTE
Change the system option switches back to their original settings.

5.3 Guide to Solving Small Problems by Yourself

Here are some problems you might have that you might be able to troubleshoot on your own. Use this index to find information about problem-solving possibilities fast.

5.3.1 PORT OPERATION

PORTS 5 THROUGH 8 NOT WORKING PROPERLY

- The 4-Port Expansion Board might not have been installed correctly. Reinstall it according to the instructions in Chapter 3, "Installation" (Step #5, pages 8 and 9).

SOME PORTS ARE NOT WORKING AT ALL

- The ports might be disabled. Make sure the ports' DIP switch positions 4 and 5 are set to correspond to the proper parity rather than both being ON (see Table 3-3).

CAN'T SET STOP BITS TO MATCH DEVICE

- Don't bother trying to set stop bits for any port on the Resource-Q Sharer; the Resource-Q Sharer will successfully communicate with devices that use any stop bit settings.

5.3.2 SYSTEM COMMANDS

I WAS IN THE MIDDLE OF ENTERING A COMMAND, BUT NOW IT'S GONE . . .

- Resource-Q Sharer might have been manually powered down (unplugged) or reset.

- A power failure might have reset the unit.

- The Resource-Q Sharer might have received a reset command from some other port.

COMMANDS ARE NOT BEING ACCEPTED

- Resource-Q Sharer will not accept commands from linked ports.

- Your port might be disabled; check the port's DIP switch positions 4 and 5.

- You might be using the wrong data rate or word structure settings for your device. Check the port's DIP switch positions 1 through 6.

- You might not be entering the correct command format; command strings must begin and end with the combination of an asterisk followed by an "at sign": "*@". For example: *@help*@

5.3.3 INACTIVITY TIMEOUTS

INACTIVITY TIMEOUTS DO NOT WORK

- Inactivity timers timeout only when there is a pending request in the queue; if there are no requests in the system queue, inactive port

users will not have their links automatically broken by the inactivity timeout even if they exceed the preset time period for inactivity.

- The Abort timer is shut off if the user enters data (even one character) within one minute of receiving access to a shared-access port.

- The No Activity timer resets itself and starts its count over again if the user enters data, even one character.

- The No Activity time period you've chosen might be too long; select a shorter time period.

- They might be disabled; check system option Switch G. Its position 8 must be ON for the Abort timer to work, and one of positions 1 through 4 must be OFF to enable the Inactivity timer.

5.3.4 BREAK-LINK CHARACTER

BREAK-LINK CHARACTER DOESN'T BREAK MY LINK TO THE OTHER PORT

- The link will be broken only when this character is processed and 2 seconds of inactivity follows (not when the character is received by the Resource-Q Sharer). If a device is running a slower data rate or if it has flow-controlled the Resource-Q Sharer to stop transmitting, it may take some time for the Sharer to reach the break character and any preceding data buffered to this device.

- Check the break-link character configuration to make sure you are using the correct character.

- You might have a word structure/data rate configuration problem. If you are sending ASCII data you probably should be using 7-data-bit word structure.

THE UNIT WILL NOT REMOVE MY REQUEST FROM THE QUEUE WHEN I ENTER THE BREAK-LINK CHARACTER

- See the second and third points above.

BREAK SEQUENCE NOT PASSING THROUGH THE RESOURCE-Q SHARER

- The break sequence will pass through the Resource-Q Sharer only if you are in link; make sure your device is actually linked to another port.

- The break sequence might not be long enough.

5.3.5 REQUESTING A LINK/LINKING TO A RESOURCE

REQUESTS NOT GETTING TO THE QUEUE

- The requesting port might be disabled; check the port's DIP switch positions 4 and 5.

- The port might be set for the wrong data rate; check the port's DIP switch positions 1 through 3.

- You might be in menu mode or in the middle of entering a command.

- If the requesting port is assigned to a group: Link requests from group ports might be disabled; either enable link requests by setting Switch G position 7 to ON or remove the port from the group.

RESOURCE-Q SHARER WILL NOT ESTABLISH REQUESTED LINK TO SELECTED RESOURCE

- Someone else might be linked to the resource.

- The resource might be in the middle of a break-link procedure.

NOTE

If a resource is sending continuously, the default No Receive timeout in the break-link procedure will never occur and the resource will be stuck in the break-link procedure indefinitely. You may need to program a No Receive timeout of zero seconds into the logoff string for the resource's port (see Sections 4.2.9 and 4.6.3).

- If your port is configured to receive broadcast data: Someone might have entered the

broadcast command from another device attached to the Resource-Q Sharer. The Sharer won't make a link or accept data from ports receiving (or about to receive) a broadcast.

WHEN I TRY TO LINK TO A RESOURCE I GET LINKED TO SOME OTHER DEVICE

- Verify that the resource's cables are on the correct port. If not, see the third point under the problem description below.

I AM LINKED BUT THE DATA I'M SENDING ISN'T GETTING THROUGH

- The resource might be down. If so, break your link and disable the resource's port (by setting the port's switch positions 4 and 5 to ON) until it can be brought back on line.

- The resource might be disconnected from its port. If so, reattach unplugged cable or replace broken cable; your transmission should go through without further difficulty. If it doesn't, break your link and try again.

- The resource might be attached to the wrong port. Check the help screen or the current copy of the Port Assignment/Configuration (PAC) template (if you're using the original in this manual rather than a photocopy, the PAC template is Appendix A) to see which devices should be on which ports. If there has been a mixup, reset the unit, unplug it, detach all wrongly placed cables, and reattach them correctly. Make sure that all ports now attached to devices are enabled, and that all ports now unused are disabled.

- Check the number of the port you're linked to. You might have selected an enabled but unused port by mistake. All unused ports should be disabled.

MY LINK WAS BROKEN or

MY REQUEST WAS REMOVED FROM THE QUEUE

- Resource-Q Sharer was manually powered down (shut off) or reset.

- A power failure has reset the unit.

- The Resource-Q Sharer received a reset command from some other port.

- Link broken only: You sent a data byte equal to the break-link character and didn't send another byte within two seconds.

- Request removed only: You sent a break-link character or a break sequence.

5.3.6 DATA LOSS/DATA BUFFER/LEDs
DATA LOSS

- Check the flow control settings for any problem port. Reset flow control for a port in question by resetting the port DIP switch positions 7 and 8.

- Your equipment's cable might not support hardware flow control leads.

- If the Sharer is using software flow control, the parity or word structure might be incorrect.

- If a port's LED is constantly lit (unless the port is involved in a break-link procedure), the data buffer might be overflowing.

PORT LED CONSTANTLY LIT

- This might indicate a buffer overflow (see above).

- The port might be currently receiving a lot of data or a break sequence.

BUFFER IS ALWAYS FULL or

BUFFER DOESN'T HOLD AS MUCH AS IT SHOULD

- Someone might be trying to transmit to a resource that is down, to a disconnected resource, or to an unused port that has not been disabled. In this condition, at least some of the Resource-Q Sharer's buffer will remain full until the resource comes back on line or the transmission is canceled; the Sharer won't be able to give the occupied memory segments to other ports that need them. Reattach or replace cables, or disable ports that are unused or down.

POWER LED NOT ON

- Verify that the transformer is plugged into a power outlet.

- Verify that the power outlet is actually receiving power.

- Verify that the power cord's connection to the Resource-Q Sharer's circuit board hasn't come loose or been broken.

LEDs DON'T FLASH WHEN I SEND DATA TO RESOURCE-Q SHARER

- Check the data-rate settings of any affected port.

- Check the condition of the DTE/DCE shunt jumper; if a jumper was recently changed, remove it and check for bent pins or other damage.

- Check the EIA RS-232 cable and connectors for improper connection and/or damage.

- The port might have been disabled; make sure the port's DIP switch positions 4 and 5 are not both ON.

- If a port's LED is constantly lit, the port may have overflowed the buffer.

PORT LED DID NOT STAY LIT, EVEN THOUGH I KNOW THE RESOURCE OVERFLOWED THE RESOURCE-Q SHARER BUFFER

- Overflow is acceptable during the break-link procedure when the Sharer is trying to flush the resource of data intended for a previously linked device.

5.3.7 BROADCAST MODE
CAN'T BROADCAST TO ALL PORTS

- You might have a link request in the Resource-Q Sharer queue.

- Some or all other ports might be in link.

BROADCAST DATA LOST

- You might have ended your time in the broadcast mode with the abort command; this action purges buffered data.

- The Resource-Q Sharer might have been reset.

5.3.8 LOGOFF STRINGS
LOGOFF STRING NOT ACCEPTED BY THE RESOURCE-Q SHARER

- You might not be correctly entering your logoff string; remember to terminate the logoff string with the characters "*C".

- Someone else might be changing a logoff string and has you locked out of the Resource-Q Sharer.

- A port might be in the middle of a break-link sequence; try again.

MODEM IS NOT DISCONNECTING AFTER DROPPING DTR IN BREAK-LINK PROCEDURE

- The cable linking the modem and the Resource-Q Sharer might not support DTR.

- You might have to program a delay after dropping DTR or program the port to wait until DCD input is inactive before proceeding.

5.3.9 STATUS MESSAGES
STATUS MESSAGES NOT RECEIVED

- Status messages might be disabled. Make sure system option Switch G position 6 is ON.

- Your port's switch settings for data rate or word structure might be wrong (check the port's switch positions 1 through 6).

5.4 Equipment Repair and Returns

Equipment that needs to be repaired should be returned to your dealer. If you cannot identify and correct a fault using the testing procedures described in this manual, contact your dealer.

Please follow the suggestions listed on the next page before contacting your dealer. However, if you are unsure of any procedure described in this manual, or if you have some problem with the Resource-Q Sharer that isn't listed here, *do not attempt to repair or alter the unit; contact your dealer for assistance.*

5.4.1 BEFORE CALLING YOUR DEALER

Things to do before calling your dealer:

1. Perform any tests described in this Troubleshooting chapter to verify the current installation. Check to ensure that the various components of your network are compatible and that you have a supported, valid network configuration.

2. Check the cables and connectors to ensure that they have been correctly attached and that no cables/wires have been crimped or broken during cable installation.

3. If you know that the problem occurs on a single terminal or resource, replace the device with a unit that you are positive is in proper working condition (if this is both possible and practical). If the problem is resolved by this action, you can assume that the problem was in the device, not in the Resource-Q Sharer or associated cables.

4. If the problem continues even after you have replaced the device in question, call your dealer for technical assistance with the Resource-Q Sharer.

5.4.2 CALLING YOUR DEALER

You should have the following information readily available before you contact your dealer for assistance.

1. A complete description of the problem, including the following points:

- The nature and duration of the problem;

- The components involved in the problem;

- The completed Port Assignment/Configuration template; and

- Any particular application that, when used, appears to create the problem.

2. An accurate list of network hardware attached to the Resource-Q Sharer.

3. A record of changes that have been made to your network configuration prior to the occurrence of the problem; changes to hardware and to software (both network and user applications), and changes to system administration procedures should all be noted in this record.

5.4.3 SHIPPING AND PACKAGING INFORMATION

If you need to transport or ship your Resource-Q Sharer, follow these suggestions:

- Package the unit carefully; it is recommended that you use the original container.

- Units should be wrapped in a "bubble-wrap" plastic sheet or bag.

- Do not pack the unit in styrofoam "popcorn."

- If the shipping is repair- or return-related, pack its power supply and this manual (unless it's been written in) with the unit; contact your dealer to get a Return Authorization (RA) number.

Appendix A: Port Assignment/ Configuration (PAC) Template

Record all the important information about your ports, devices, and groups on copies of this three-page Port Assignment/Configuration (PAC) Template. It will make configuring and reconfiguring the Sharer's hardware and software much easier. Store a current copy with your Resource-Q Sharer for on-the-spot reference, and remember to create an updated copy when your system changes.

Port 0 (Switch A)

Device_____ Location_____

(Port/Device Name_____) Device is: DTE____ DCE____

Data Rate (bps)_____ Data Bits_____ Parity: Even____ Odd____ None____

Flow Control: Hardware_____ X-ON/X-OFF____ No Flow Control____

Grouped: No____ Yes____: Group Letter:____

Break-Link Processing: None____ Under Group____ Port:_____

Port 1 (Switch B)

Device_____ Location_____

(Port/Device Name_____) Device is: DTE____ DCE____

Data Rate (bps)_____ Data Bits_____ Parity: Even____ Odd____ None____

Flow Control: Hardware_____ X-ON/X-OFF____ No Flow Control____

Grouped: No____ Yes____: Group Letter:____

Break-Link Processing: None____ Under Group____ Port:_____

Port 2 (Switch C)

Device_____ Location_____

(Port/Device Name_____) Device is: DTE____ DCE____

Data Rate (bps)_____ Data Bits_____ Parity: Even____ Odd____ None____

Flow Control: Hardware_____ X-ON/X-OFF____ No Flow Control____

Grouped: No____ Yes____: Group Letter:____

Break-Link Processing: None____ Under Group____ Port:_____

Port 3 (Switch D)

Device_____   Location_____

(Port/Device Name_____)   Device is: DTE____   DCE____

Data Rate (bps)_____   Data Bits____   Parity: Even____   Odd____   None____

Flow Control: Hardware____   X-ON/X-OFF____   No Flow Control____

Grouped: No____   Yes____: Group Letter:____

Break-Link Processing: None____   Under Group____   Port:_____

Port 4 (Switch E)

Device_____   Location_____

(Port/Device Name_____)   Device is: DTE____   DCE____

Data Rate (bps)_____   Data Bits____   Parity: Even____   Odd____   None____

Flow Control: Hardware____   X-ON/X-OFF____   No Flow Control____

Grouped: No____   Yes____: Group Letter:____

Break-Link Processing: None____   Under Group____   Port:_____

Port 5 (Switch H)

Device_____   Location_____

(Port/Device Name_____)   Device is: DTE____   DCE____

Data Rate (bps)_____   Data Bits____   Parity: Even____   Odd____   None____

Flow Control: Hardware____   X-ON/X-OFF____   No Flow Control____

Grouped: No____   Yes____: Group Letter:____

Break-Link Processing: None____   Under Group____   Port:_____

Port 6 (Switch I)

Device_____   Location_____

(Port/Device Name_____)   Device is: DTE____   DCE____

Data Rate (bps)_____   Data Bits____   Parity: Even____   Odd____   None____

Flow Control: Hardware____   X-ON/X-OFF____   No Flow Control____

Grouped: No____   Yes____: Group Letter:____

Break-Link Processing: None____   Under Group____   Port:_____

Port 7 (Switch J)

Device_____   Location_____

(Port/Device Name_____)   Device is: DTE____   DCE____

Data Rate (bps)_____   Data Bits____   Parity: Even____   Odd____   None____

Flow Control: Hardware_____   X-ON/X-OFF____   No Flow Control____

Grouped: No____   Yes____: Group Letter:____

Break-Link Processing: None____   Under Group____   Port:_____

Port 8 (Switch K)

Device_____   Location_____

(Port/Device Name_____)   Device is: DTE____   DCE____

Data Rate (bps)_____   Data Bits____   Parity: Even____   Odd____   None____

Flow Control: Hardware_____   X-ON/X-OFF____   No Flow Control____

Grouped: No____   Yes____: Group Letter:____

Break-Link Processing: None____   Under Group____   Port:_____

Groups

Group A____: Name_____   Break-Link Processing_____

Group B____: Name_____   Break-Link Processing_____

Group C____: Name_____   Break-Link Processing_____

Group D____: Name_____   Break-Link Processing_____

Group E____: Name_____   Break-Link Processing_____

Group F____: Name_____   Break-Link Processing_____

Group G____: Name_____   Break-Link Processing_____

Group H____: Name_____   Break-Link Processing_____

Group I____: Name_____   Break-Link Processing_____

Appendix B:
Quick Reference/Help Sheet

(SYSTEM MANAGER: We recommend that you copy this page, fill in the lines below on the master copy, run off several copies of the completed master, and distribute them to your users.)

I. RESOURCE-Q SHARER CONFIGURATION (ITEMS YOU SHOULD BE AWARE OF)

The break-link character (the character you'll use to break links) is: _____
The One-Minute Abort Timeout (the Sharer uses to automatically break links) is : __disabled __enabled.
The Inactivity Timeout (the Sharer uses to automatically break links) is: __disabled __enabled.
   If enabled, the time period is: _____.
Status messages are: __disabled __enabled.

II. HOW TO MAKE A LINK

First, unless you're sure your previous link has been broken, enter the break-link character. Press the space bar to see a help menu or enter a valid port number or group letter to request a link to an attached resource. If the resource is available, you will be linked; otherwise your request will be placed in the system queue. Requests are processed on first-in-first-out basis as resources become available. System status messages (if enabled) will tell you if you are linked or what queue position you are currently in.

III. HOW TO REMOVE MY REQUEST FROM THE SYSTEM QUEUE

Enter the break-link character chosen for your Resource-Q Sharer or send a break sequence (via the <break> key on most terminals).

IV. HOW TO GET MY CURRENT QUEUE POSITION

Assuming status messages are enabled, when your queue position changes the Resorce-Q Sharer will automatically display your current queue position. Press any key (except the break-link character, break key, <?>, or <*>) and you will receive another status message containing your current queue position.

V. HOW TO SEND THE BREAK-LINK CHARACTER AS DATA WITHOUT BREAKING THE LINK

Send the next data character within two seconds.

VI. HOW LINKS CAN BE BROKEN

Break your own link by pressing the key(s) on your keyboard that generate the break-link character that's been chosen for your Resource-Q Sharer or by appending the break-link character to the end of the data you want to send. If status messages are enabled, wait for the "link broken" status message to appear.

If it's enabled, the Abort timeout will break users' new links if they do not enter a data character within one minute after their links are initially established. The Inactivity timeout (if enabled) will break links for users who forget to break their own, after the period of inactivity that has been specified for your Resource-Q Sharer has elapsed. Links are considered inactive if users do not enter or receive data or have any data buffered in the Sharer.

Enter "*@reset*@" or option #3 from the Resource-Q Sharer's command menu ("?" or "*@menu*@" to access the menu) to perform a software reset of the unit which will break all links. WARNING: Only do this if you are sure that all current links are inactive and you can't wait for the Inactivity timeout(s) to occur.

Appendix C: Quick Setup Guide

<u>Tools</u>: 2 screwdrivers (1 flathead, 1 Phillips head).

1. Select a site for easy monitoring/management and place the Resource-Q Sharer there.

2. Make a list of the devices you're going to attach to the Resource-Q Sharer. Include the following information about each device or group of devices: the number of the assigned port (0-9; it's a good idea to assign the lowest-numbered ports to shared devices and the other ports to PCs or terminals); the name of the device (16 characters maximum) and its location; whether it's DTE or DCE; word structure; flow control; baud rate; identifying letter (A-I) and name (16 chars. max) of the device group (where applicable); and special logoff procedures, if any, that would be desirable for the device or group.

Use the Port Assignment/Configuration (PAC) Template on pages 46-7 to record this information; use it to complete steps 3, 5, and 6.

3. Remove the 3 screws on each side of the unit's cover and lift the cover off. Set the DIP shunt jumpers to configure each port as DTE or DCE as required. Shunt jumpers are located behind the DB25 connectors. Use straight-through EIA RS-232 cable to connect equipment; configure each port as the type oppposite the attached device (DCE for DTE, DTE for DCE). If it's necessary for you to use crossover cables, configure each port as the same type as the attached device.

4. If required, install 4-Port Expansion Board.

A.Remove (and retain) the screw located near IC chip U23 and insert a spacer in the hole left vacant by the screw; insert the second spacer in the hole located near IC U20.

B.Align the card's connectors with the holes in the rear panel of the Resource-Q Sharer. Align connector plug on card with socket on main circuit board. Press the plug into the socket.

C.Install the 8 screwlocks.

Install the screw from Step A through the expansion card into either spacer. Install the screw provided with the expansion card into the other spacer.

5. Set the 8-position DIP switches.

A.Set the configuration DIP switch for each port. The ports on the rear panel are served by the DIP switches at the front of the main circuit board:

port 0/switch A	port 5/switch H
port 1/switch B	port 6/switch I
port 2/switch C	port 7/switch J
port 3/switch D	port 8/switch K
port 4/switch E	

- Refer to Table C-1 to configure each port for your equipment.

— Positions 1-3 set the data rate (bps).

— Positions 4, 5 set parity bits or disable the port (disable all unused ports); switch position 6 sets data bits (8 or 7).

— Positions 7, 8 set flow control (hardware, software (X-ON/X-OFF), or no flow control) and (Switch A only) clear long-term memory.

NOTE
Each port is compatible with any stop-bit setting.

B.Set the 2 configuration DIP switches for the Resource-Q Sharer system options. Switches F and G are system option switches and have no port correlation.

- Refer to Tables C-2 and C-3 to configure the system option switches.

— Switch F is used to set the break-link character for the Resource-Q Sharer.

— Switch G is used to set five other system options.

C.Press the reset button to confirm the changes to the ports.

6. Connect a PC or terminal to the Sharer as a "programming console." Power up the Sharer and console and boot communications software if the console is a PC. Press <?> on the console to access the Sharer's command menu; press <8> to select the port/group naming/assigning function. Follow the prompts and enter port names and group assignments first, then group names. Press <Esc> to return to the command menu; press <1> to select the break-link programming function; choose from options presented on the help screen (and Figure C-3) and enter logoff sequences for ports where necessary. When this is done, power down the Sharer.

7. One at a time, connect cables from your equipment to the Sharer's DB25 female connectors, power up the Sharer, test each connection, and power down. When everything checks out, replace the cover and power up the Sharer for its shakedown period. We recommend that you test the Resource-Q Sharer under heavy data traffic to verify correct settings. Typically, incorrect port settings will become apparent during these situations.

8. Photocopy the completed PAC Template (Appendix A) and store it with the Resource-Q Sharer.
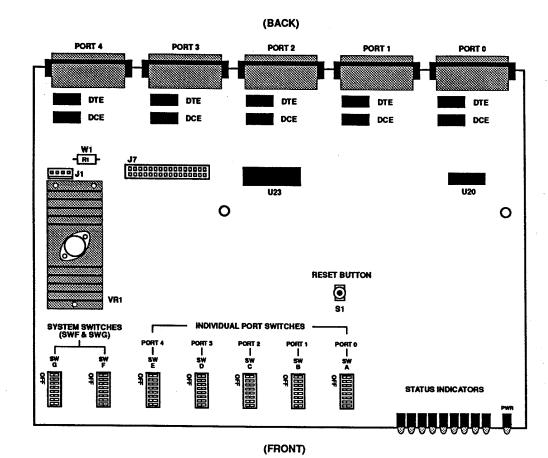
(BACK)

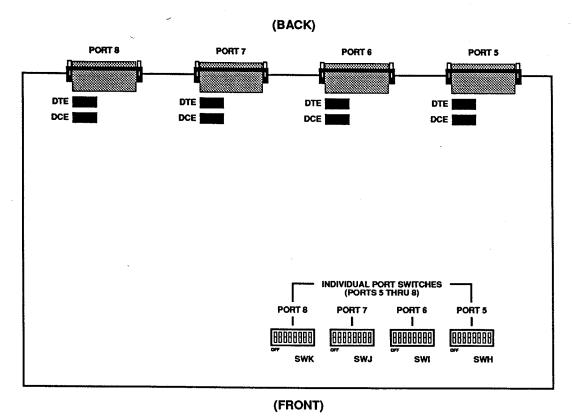Figure C-1. Resource-Q Sharer switch and jumper locations.

(FRONT)

Figure C-1. Resource-Q Sharer switch and jumper locations.

(BACK)

Figure C-2. Expansion card switch and jumper locations.

(FRONT)

Figure C-2. Expansion card switch and jumper locations.

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Table C-1. Individual Port Switch Settings (SWA-SWE and SWH-SWK).

OPTION	SWITCH POSITION SETTINGS							
	1	2	3	4	5	6	7	8
Baud Rate								
110 or (special order) 14400	ON	ON	ON					
300	OFF	ON	ON					
600	ON	OFF	ON					
1200	OFF	OFF	ON					
2400	ON	ON	OFF					
4800	OFF	ON	OFF					
9600	ON	OFF	OFF					
19200	OFF	OFF	OFF					
Port disable/Parity								
Port disabled				ON	ON			
Even parity				OFF	ON			
Odd parity				ON	OFF			
No parity				OFF	OFF			
Data bits/word								
8 data bits						ON		
7 data bits						OFF		
Flow control								
Load defaults Switch A Only!							ON	ON
No Flow Control							OFF	ON
Hardware (DTR/CTS)							ON	OFF
Software (X-ON/X-OFF)							OFF	OFF

Table C-2. DIP Switch G Settings.

OPTION	SWITCH POSITION							
	1	2	3	4	5	6	7	8
Inactivity Time Period Before Auto Break-Link								
DISABLED	ON	ON	ON	ON				
1 second	OFF	ON	ON	ON				
3 seconds	ON	OFF	ON	ON				
10 seconds	OFF	OFF	ON	ON				
15 seconds	ON	ON	OFF	ON				
25 seconds	OFF	ON	OFF	ON				
1 minute	ON	OFF	OFF	ON				
3 minutes	OFF	OFF	OFF	ON				
5 minutes	ON	ON	ON	OFF				
7 minutes	OFF	ON	ON	OFF				
10 minutes	ON	OFF	ON	OFF				
15 minutes	OFF	OFF	ON	OFF				
20 minutes	ON	ON	OFF	OFF				
30 minutes	OFF	ON	OFF	OFF				
45 minutes	ON	OFF	OFF	OFF				
55 minutes	OFF	OFF	OFF	OFF				
Lead Control								
Normal (RTS/DCD pass-through unless data in buffer, then RTS/DCD up)					ON			
RTS/DCD pass-through					OFF			
Transmit Status Messages To Devices								
Enabled						ON		
Disabled						OFF		
Link Requests from Group Ports								
Enabled							ON	
Disabled							OFF	
One Minute Abort Timer								
Enabled								ON
Disabled								OFF

Table C-3. DIP Switch F Settings (abbreviated).

Break-Link Character				Switch Position							
ASCII	DEC.	HEX	KEY(S)	1	2	3	4	5	6	7	8
DISABLED				ON	ON	ON	ON	ON	ON	ON	ON
(Do not use; triggers manufacturer test)				OFF	ON	ON	ON	ON	ON	ON	ON
(DEL)	127	7F	delete	ON	ON	ON	ON	ON	ON	ON	OFF
(ESC)	27	1B	escape, ^[	ON	ON	OFF	ON	ON	OFF	OFF	OFF
(SUB)	26	1A	^Z	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
(EM)	25	19	^Y	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
(CAN)	24	18	^X	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
(ETB)	23	17	^W	ON	ON	ON	OFF	ON	OFF	OFF	OFF
(NAK)	21	15	^U	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
(DC4)	20	14	^T	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
(DC3)	19	13	^S	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
(DC2)	18	12	^R	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
(DC1)	17	11	^Q	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
(DLE)	16	10	^P	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
(BEL)	7	07	^G	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
(EOT)	4	04	^D	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
(ETX)	3	03	^C	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
(NUL)	0	00	^@	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Figure C-3. Logoff String Commands.

```
DESCRIPTION OF POSSIBLE IMBEDDED LOGOFF STRING COMMANDS:
*0  send Asterisk character out port   | *9  delay until DCD/RTS input is down
*1  delay one second before proceed    | *A  delay until CTS/DTR input is down
*2  raise RTS/DCD output on port       | *Bx delay until no receive data for
*3  raise DTR/CTS output on port       |     x seconds (0-9) from port
*4  lower RTS/DCD output on port       | *C  exit logoff input mode
*5  lower DTR/CTS output on port       | *D  send Escape character out port
*6  send 250 ms break seq. out port    | *E  send Backspace character out port
*7  delay until DCD/RTS input up       | *F  send Null character out port
*8  delay until CTS/DTR input is up    |  x  send character x out port
```

NOTES:
(1) The *1 command can be used in succession to delay a whole number of seconds between operations.
(2) A 250-ms break sequence (command *6) is the same as depressing the <break> key on most terminals.
(3) The commands *7-*A will debounce (stabilize) the EIA RS-232 input lead for 50 ms to assure that it is really in the requested state before proceeding.
(4) All programmed logoffs can be cleared (as well as all port names and group assignments) by setting Switch A positions 7 and 8 both on and resetting the unit. After a few seconds, reconfigure these switches to their original positions and reset the unit again.

Appendix D: The ASCII Character Set

The characters in the extended ASCII range (8 data bits) may vary according to your equipment. Therefore, only the standard 7-bit character set is represented here . The "CHAR./KEYS" column shows the character symbol and/or the keyboard key(s) necessary to generate the character; "CTRL" followed by a character means that you press the control key and the character key(s) at the same time. The "CTRL. NAME" column lists ASCII control names of nonprintable characters in parentheses ( ).

DECIMAL	HEX	OCTAL	BINARY	CHAR./KEYS	CTRL. NAME
0	00	000	0000000	CTRL @	(NUL)
1	01	001	0000001	CTRL A	(SOH)
2	02	002	0000010	CTRL B	(STX)
3	03	003	0000011	CTRL C	(ETX)
4	04	004	0000100	CTRL D	(EOT)
5	05	005	0000101	CTRL E	(ENQ)
6	06	006	0000110	CTRL F	(ACK)
7	07	007	0000111	CTRL G	(BEL)
8	08	010	0001000	backspace, CTRL H	(BS)
9	09	011	0001001	CTRL I	(HT)
10	0A	012	0001010	CTRL J	(LF)
11	0B	013	0001011	CTRL K	(VT)
12	0C	014	0001100	CTRL L	(FF)
13	0D	015	0001101	return, CTRL M	(CR)
14	0E	016	0001110	CTRL N	(SO)
15	0F	017	0001111	CTRL O	(SI)
16	10	020	0010000	CTRL P	(DLE)
17	11	021	0010001	CTRL Q	(DC1)
18	12	022	0010010	CTRL R	(DC2)
19	13	023	0010011	CTRL S	(DC3)
20	14	024	0010100	CTRL T	(DC4)
21	15	025	0010101	CTRL U	(NAK)
22	16	026	0010110	CTRL V	(SYN)
23	17	027	0010111	CTRL W	(ETB)

DECIMAL	HEX	OCTAL	BINARY	CHAR./KEYS	CTRL. NAME
24	18	030	0011000	CTRL X	(CAN)
25	19	031	0011001	CTRL Y	(EM)
26	1A	032	0011010	CTRL Z	(SUB)
27	1B	033	0011011	escape, CTRL [	(ESC)
28	1C	034	0011100	CTRL \	(FS)
29	1D	035	0011101	CTRL]	(GS)
30	1E	036	0011110	CTRL ^	(RS)
31	1F	037	0011111	CTRL _	(US)
32	20	040	0100000	space	(SP)
33	21	041	0100001	!	
34	22	042	0100010	"	
35	23	043	0100011	#	
36	24	044	0100100	$	
37	25	045	0100101	%	
38	26	046	0100110	&	
39	27	047	0100111	'	
40	28	050	0101000	(	
41	29	051	0101001	)	
42	2A	052	0101010	*	
43	2B	053	0101011	+	
44	2C	054	0101100	,	
45	2D	055	0101101	-	
46	2E	056	0101110	.	
47	2F	057	0101111	/	
48	30	060	0110000	0	
49	31	061	0110001	1	
50	32	062	0110010	2	
51	33	063	0110011	3	
52	34	064	0110100	4	
53	35	065	0110101	5	

DECIMAL	HEX	OCTAL	BINARY	CHAR./KEYS	CTRL. NAME
54	36	066	0110110	6	
55	37	067	0110111	7	
56	38	070	0111000	8	
57	39	071	0111001	9	
58	3A	072	0111010	:	
59	3B	073	0111011	;	
60	3C	074	0111100	<	
61	3D	075	0111101	=	
62	3E	076	0111110	>	
63	3F	077	0111111	?	
64	40	100	1000000	@	
65	41	101	1000001	A	
66	42	102	1000010	B	
67	43	103	1000011	C	
68	44	104	1000100	D	
69	45	105	1000101	E	
70	46	106	1000110	F	
71	47	107	1000111	G	
72	48	110	1001000	H	
73	49	111	1001001	I	
74	4A	112	1001010	J	
75	4B	113	1001011	K	
76	4C	114	1001100	L	
77	4D	115	1001101	M	
78	4E	116	1001110	N	
79	4F	117	1001111	O	
80	50	120	1010000	P	
81	51	121	1010001	Q	
82	52	122	1010010	R	
83	53	123	1010011	S	

DECIMAL	HEX	OCTAL	BINARY	CHAR./KEYS	CTRL. NAME
84	54	124	1010100	T	
85	55	125	1010101	U	
86	56	126	1010110	V	
87	57	127	1010111	W	
88	58	130	1011000	X	
89	59	131	1011001	Y	
90	5A	132	1011010	Z	
91	5B	133	1011011	[	
92	5C	134	1011100	/	
93	5D	135	1011101	]	
94	5E	136	1011110	^	
95	5F	137	1011111	_	
96	60	140	1100000	`	
97	61	141	1100001	a	
98	62	142	1100010	b	
99	63	143	1100011	c	
100	64	144	1100100	d	
101	65	145	1100101	e	
102	66	146	1100110	f	
103	67	147	1100111	g	
104	68	150	1101000	h	
105	69	151	1101001	i	
106	6A	152	1101010	j	
107	6B	153	1101011	k	
108	6C	154	1101100	l	
109	6D	155	1101101	m	
110	6E	156	1101110	n	
111	6F	157	1101111	o	
112	70	160	1110000	p	
113	71	161	1110001	q	

DECIMAL	HEX	OCTAL	BINARY	CHAR./KEYS	CTRL. NAME
114	72	162	1110010	r	
115	73	163	1110011	s	
116	74	164	1110100	t	
117	75	165	1110101	u	
118	76	166	1110110	v	
119	77	167	1110111	w	
120	78	170	1111000	x	
121	79	171	1111001	y	
122	7A	172	1111010	z	
123	7B	173	1111011	{	
124	7C	174	1111100			
125	7D	175	1111101	}	
126	7E	176	1111110	~	
127	7F	177	1111111	delete	(DEL)