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Volume VIII

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**THE POST-DAM SYSTEM
VOLUME VIII - REMOTE
COMPUTER COMMUNICATION**

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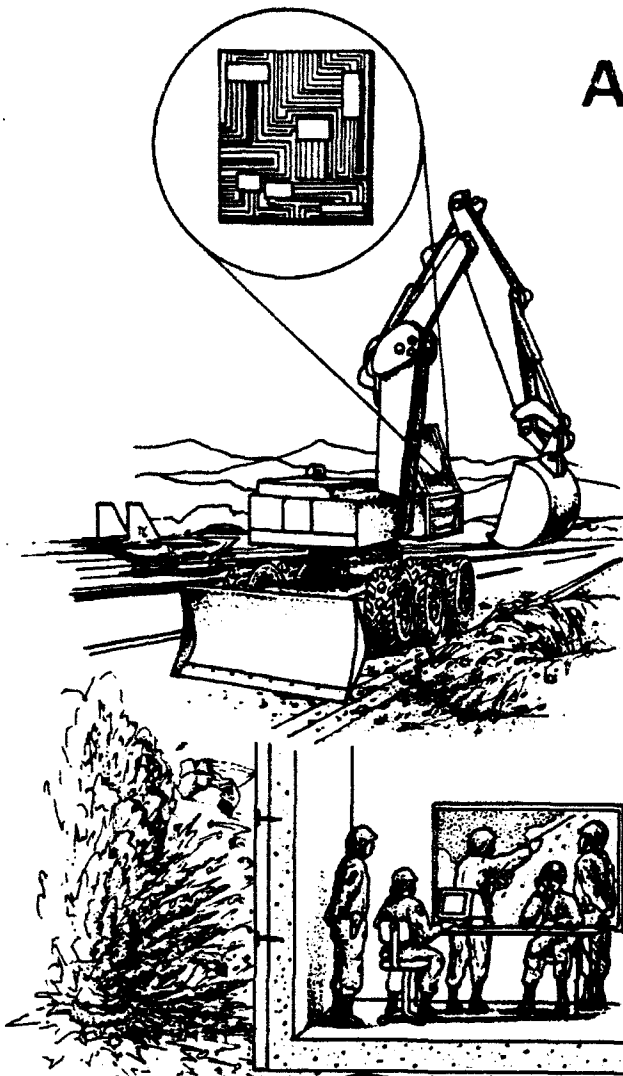
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13. ABSTRACT (Maximum 200 words)

Mission accomplishment in PACAF and USAFE depends on base recovery capability in a postattack environment. Base recovery includes identifying, analyzing, and repairing facility damage. For facilities critical to sortie generation, this process must be accomplished expediently.

In a postattack environment, field information on facility damage is collected and analyzed to determine structural integrity and usability. From this analysis, a repair schedule is developed. This is currently a time consuming process that is shortened by using a computerized system.

The scope of this effort was to develop a computerized postattack damage assessment system that recommends repair strategies, keeps inventory of materials and equipment, and schedules repairs based on manpower and equipment availability.

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EXECUTIVE SUMMARY

A. OBJECTIVE

The objective of this report is to describe the software and hardware of the POST-DAM System, developed by Applied Research Associates, Inc., for airbase facility postattack damage assessment. This report contains descriptions of prototype software and hardware, and recommendations for full-scale development of both software and hardware.

B. BACKGROUND

In a postattack environment, field information on mission-critical facility damage is collected and analyzed to determine structural integrity and usability. From this analysis, a repair schedule is developed. This is a time-consuming process when done without the aid of a computerized system. Consequently, the POST-DAM System was developed to determine repair strategies with an expert system, keep track of materials and equipment with a relational database management system, and schedule repairs based on manpower and equipment availability with a project management system.

C. SCOPE

This technical report consists of nine volumes. Volume I describes software and hardware used with the prototype POST-DAM System, and recommends software and hardware for full-scale development. Volumes II through VIII are software user's manuals, which describe how to install and use the prototype software with the POST-DAM System. Volume IX is a field manual that contains diagrams of structures that are used with the POST-DAM system to locate damaged elements.

D. EVALUATION METHODOLOGY

The prototype POST-DAM System was developed using commercial, off-the-shelf (COTS) software and hardware. The system was constructed by integrating the software and hardware in such a way that a remote computer in the field can communicate with a host computer in the Base Civil Engineering (BCE) Damage Control Center (DCC). The POST-DAM system determines repair strategies, keeps track of materials and equipment, and schedules repairs based on manpower and equipment availability. This prototype system has been evaluated in-depth, and subsequent recommendations are made herein about software and hardware that should be used for full-scale development.

E. CONCLUSIONS

The prototype POST-DAM System is functional, but has limitations with respect to both hardware and software. The following problems were encountered:

1. The prototype remote computer is not portable, and cannot be used in the field. No satisfactory, hand-held remote terminal was available for this project.

2. The expert system cannot hold all the information required for full-scale development, because it cannot use extended memory.

3. Both the relational database management system and project management system require more human interaction than desired.

4. The communication system software is not compatible with the Survivable Base Recovery After Attack Communication System (SBCS) being developed for ESD by Sumaria Systems, Inc., with which the POST-DAM System is required to interface.

F. RECOMMENDATIONS

For full-scale development, the following features should be incorporated in the POST-DAM System.

1. Replace the prototype remote computer with a hand-held terminal unit having at least 2 Mb of random access memory, and which can run applications requiring 640 Kb of base memory.

2. Replace the prototype host computer with a system having at least 4 Mb of random access memory, IEEE 802.3 LAN ports, and able to support multi-tasking operations.

3. Replace the CLIPS expert system shell with an expert system shell capable of supporting applications at least twice as large as those developed for the prototype system.

4. Set the host computer up to interface with the IEEE 802.3 Ethernet local area network (LAN) used by SBCS.

5. Construct a single computer program to replace the relational database management system and the project management system, to minimize the required amount of human intervention. This system should be developed by personnel with a strong background in computer science.

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SECTION 1

INTRODUCTION

1.1 OBJECTIVE

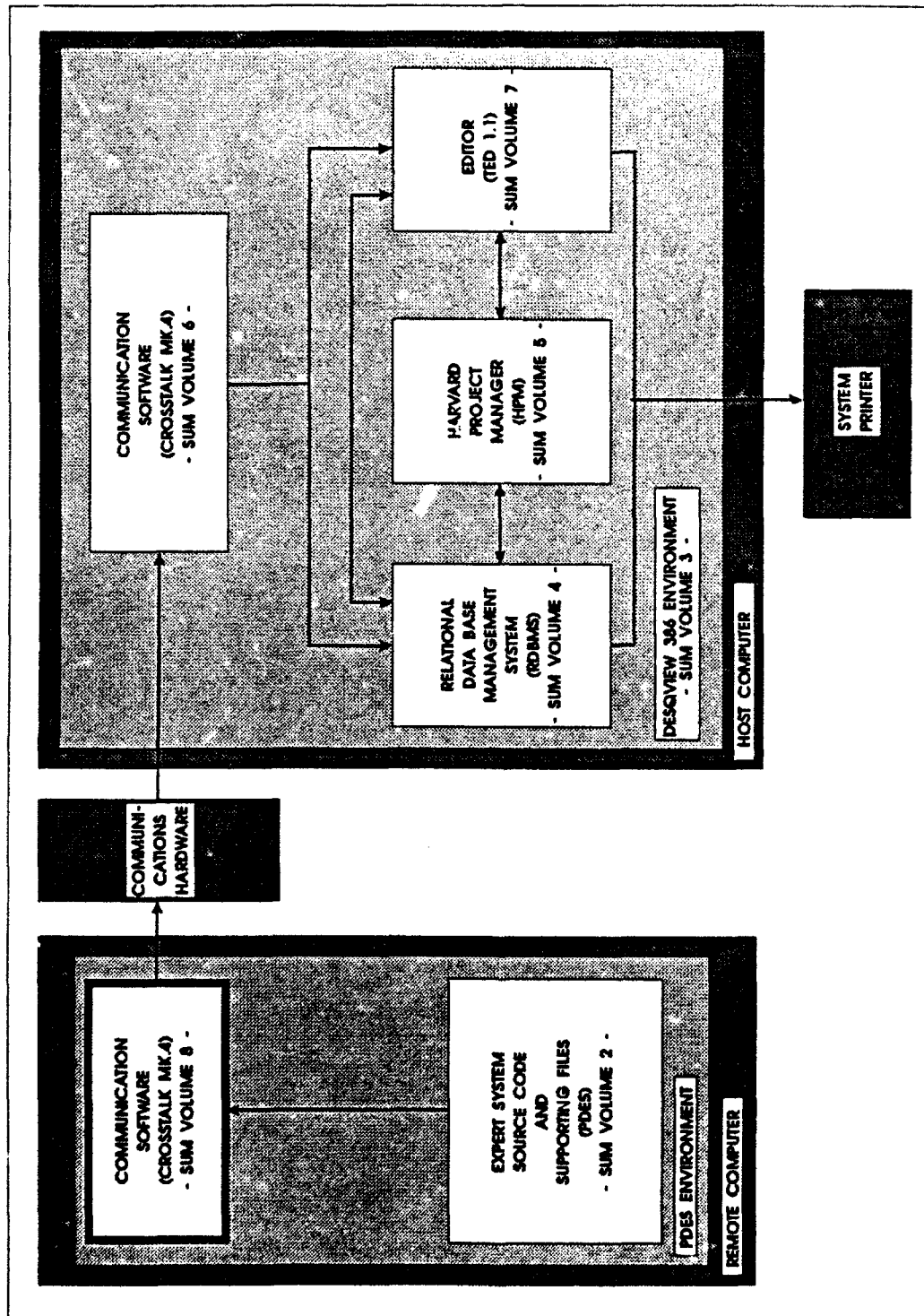
The objective of this software user's manual (SUM) is to document system and user requirements for the proper operation of the POST-DAM Remote Computer Communication (POST-DAM RCC) system, assembled in compliance with References 2.1.1, 2.1.2, and 2.1.3. Hardware and software requirements for operating POST-DAM RCC are discussed in Section 3.1 of this manual. User requirements are discussed in Sections 3.2 and 3.3, which document the procedures for installing and running POST-DAM RCC.

1.2 BACKGROUND

POST-DAM RCC consists of the communication software package CROSSTALK Mk.4 and the CROSSTALK Application Script Language (CASL) program DCC.XTS. CROSSTALK Mk.4 is a commercially available communication package, selected for communication between the POST-DAM System remote and host computers because of its ability to operate in a multitasking environment. The CASL program DCC.XTS is an application program developed by Applied Research Associates (ARA). DCC.XTS completely automates data transfer from the POST-DAM Expert System (PDES) remote computer (Reference 2.2.2) to the POST-DAM System host computer (Reference 2.2.3).

1.3 APPROACH

POST-DAM is a computer-based system, designed to aid the assessment of conventional weapon damage to mission-critical airbase facilities. The system consists of two primary components. The first component is the PDES (Reference 2.2.2), operated on remote computers in the field by Damage Assessment Teams (DATs). PDES aids the assessment of damage to each mission-critical facility, and selects expedient repair strategies from a pre-compiled database. The second component of POST-DAM is the host computer, located in the Damage Control Center (DCC). The host computer operates the systems necessary for resource management, project scheduling, and report generation (References 2.2.3, 2.2.4, 2.2.5, 2.2.6, and 2.2.7). POST-DAM RCC is an automated communication system which transfers the PDES output files from the remote computers to the host computer. The host computer receives this information via its communication system (Reference 2.2.6). Figure 1.1 shows a schematic of the POST-DAM System and the function of POST-DAM RCC within this system.



POST-DAM SYSTEM
- SUM VOLUME 1 -

Figure 1.1. POST-DAM System Schematic.

SECTION 2

REFERENCED DOCUMENTS

2.1 SETA CONTRACT

2.1.1 Postattack Damage Assessment of Facilities, Subtask 2.02, Air Force Engineering and Services Center, SETA Contract F08635-88-C-0067, December 87.

2.1.2 Postattack Damage Assessment of Facilities, Subtask 2.02.1, Air Force Engineering and Services Center, SETA Contract F08635-88-C-0067, October 88.

2.1.3 Postattack Damage Assessment of Facilities, Subtask 2.02.2, Air Force Engineering and Services Center, SETA Contract F08635-88-C-0067, February 89.

2.2 POST-DAM SYSTEM USER'S MANUALS

2.2.1 The POST-DAM System, Volume 1, Introduction to the POST-DAM System, Applied Research Associates, Inc., Report to AFESC/RDCS, March 91.

2.2.2 The POST-DAM System, Volume 2, Software User's Manual for the Expert System, Applied Research Associates, Inc., Report to AFESC/RDCS, February 91.

2.2.3 The POST-DAM System, Volume 3, Software User's Manual for DESQview 386, Applied Research Associates, Inc., Report to AFESC/RDCS, December 90.

2.2.4 The POST-DAM System, Volume 4, Software User's Manual for the Relational Data Base Management System, Applied Research Associates, Inc., Report to AFESC/RDCS, December 90.

2.2.5 The POST-DAM System, Volume 5, Software User's Manual for the Harvard Project Manager, Applied Research Associates, Inc., Report to AFESC/RDCS, December 90.

2.2.6 The POST-DAM System, Volume 6, Software User's Manual for CROSSTALK Mk.4 on the Host Computer, Applied Research Associates, Inc., Report to AFESC/RDCS, December 90.

2.2.7 The POST-DAM System, Volume 7, Software User's Manual for the TED 1.1 Editor, Applied Research Associates, Inc., Report to AFESC/RDCS, December 90.

2.2.8 The POST-DAM System, Volume 9, Field Manual of Mission-Critical Facilities for Use with the Prototype POST-DAM System, Applied Research Associates, Inc., Report to AFESC/RDCS, March 91.

2.3 HARDWARE AND SOFTWARE USER'S MANUALS

2.3.1 CROSSTALK Mk.4 User's Guide, Digital Communications Associates, Inc., 1989.

2.3.2 CROSSTALK Mk.4 Connection Options, Digital Communications Associates, Inc., 1989.

2.3.3 CROSSTALK Mk.4 CASL Reference, Digital Communications Associates, Inc., 1989.

SECTION 3
INSTRUCTION FOR USE

3.1 SYSTEM CONFIGURATION

3.1.1 Hardware Requirements

POST-DAM RCC will operate on any IBM-compatible PC, PC/XT, PC/AT, or PS/2, with 320 K of random access memory (RAM). The system operates with either a color or monochromatic monitor, and needs at least 1.4 megabytes of hard disk storage, and a 5.25-inch floppy disk drive. To communicate with the host computer the system must also be equipped with a 2400-baud, fully Hayes-compatible modem. Additional information about system hardware requirements can be found in Reference 2.3.1.

3.1.2 Software Requirements

POST-DAM RCC operates using MS-DOS 2.0 or higher, CROSSTALK Mk.4, and the CASL program DCC.XTS. The user is assumed to have a working knowledge of MS-DOS, and should consult any of the various MS-DOS reference manuals if questions on the subject occur. Instructions on installing DCC.XTS and CROSSTALK Mk.4 are given in Sections 3.2.1 and 3.2.2, respectively. Appendix A contains a source code listing for DCC.XTS.

3.2 GETTING STARTED

This section explains the procedures for installing the POST-DAM RCC software, and for setting up the proper operating environment. Several MS-DOS commands and files are mentioned in this section. If the user is unfamiliar with any of the procedures discussed, consult an MS-DOS manual for instructions. Follow the steps below to get POST-DAM RCC up and running. **NOTE:** The procedure defined below need only be performed the first time POST-DAM RCC is used.

1. Back-up the CROSSTALK Mk.4 System Diskettes using the MS-DOS command DISKCOPY.
2. Verify the computer's hardware configuration (See Section 3.1.1).
3. Verify that the POST-DAM Expert System (PDES) has been installed per Section 3.2.2 of Reference 2.2.2.
4. Install DCC.XTS per Section 3.2.1.
5. Install CROSSTALK Mk.4 per Section 3.2.2.
6. Configure CROSSTALK Mk.4 per Section 3.2.3.
7. Set-up the CROSSTALK Mk.4 Dialing Directory per Section 3.2.4.

3.2.1 Installing the POST-DAM System Automated Communication CASL Program DCC.XTS

To install DCC.XTS, the user will need to perform the following procedure:

1. Switch to the subdirectory C:\XTALK4 by entering the DOS Command
`cd c:\xtalk4`
2. Upon entering the above DOS command, the prompt C:\XTALK4> will appear. At this prompt the user enters the command
`copy c:\pd_system\dcc.xts`

This command copies DCC.XTS into the subdirectory C:\XTALK4. The program DCC.XTS is copied into the subdirectory C:\PD_SYSTM during the installation of PDES.

3.2.2 Installing CROSSTALK Mk.4

To install CROSSTALK Mk.4 on the remote computer's hard disk, it is necessary to run the INSTALL program found on the CROSSTALK Mk.4 System Disk 1. This installation program lets the user select one of three types of installation options, plus the name of the subdirectory into which the selected system files will be copied. To configure the communication package to assure proper operation of POST-DAM RCC, the user must use the following installation procedure:

1. Insert the CROSSTALK Mk.4 System Disk 1 into the computer's Drive A:.
2. Switch to Drive A: by entering, at the current prompt, the command
A:
3. At the DOS prompt A:\ >, enter the command
`INSTALL`

This command turns control over to the INSTALL program, and displays the screen shown in Figure 3.1.

4. The user then presses the [Enter] key, which displays the screen shown in Figure 3.2.
5. The screen shown in Figure 3.2 asks the user whether the CROSSTALK system files should be written to the subdirectory named C:\XTALK4. The user responds by entering

Y

```
CROSSTALK Mk.4 INSTALL v2.0
Copyright (C) 1989, 1990 Digital Communications Associates, Inc.
All Rights Reserved.

This program installs CROSSTALK Mk.4 on your computer. It will copy
files from your distribution disks to the disk drive you select.

Please respond to all questions by typing your answer and pressing the
Enter (Return) key. When choices are listed in parentheses, you may
press Enter by itself to select the first choice listed (the 'default'
or typical choice).

If you are installing CROSSTALK Mk.4 Version 2.0 on a system containing
a previous version of the program, make sure that you have a backup of
the disk or directory containing the older version of CROSSTALK.

You may stop the installation procedure at any time by pressing the Esc
(Escape) key when you are asked a question.

Press Enter to continue, Esc to cancel
```

Figure 3.1. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Installation Information Screen.

```
Choose drive and directory

The first step in the installation process is deciding where to copy
the files CROSSTALK Mk.4 needs to operate. We suggest you place the
files in a subdirectory called XTALK4 on your hard disk (drive C:).

If this location is acceptable, simply press Enter.

If you would like to INSTALL the files to a different drive and/or
directory, type 'N' and then press Enter.

INSTALL CROSSTALK Mk.4 to C:\XTALK4 (Y/N)? Y

Press Esc to cancel
```

Figure 3.2. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Installation Subdirectory Menu.

6. A positive response to the query in step 5 displays the screen shown in Figure 3.3. This screen asks the user for the desired installation method of CROSSTALK Mk.4. Here, the user selects the GENERAL method by entering

G

7. Selecting the GENERAL method of installation displays the screen shown in Figure 3.4. This screen informs the user of various interfaces available in CROSSTALK Mk.4. To continue the installation the user presses the [Enter] key.

8. Pressing the [Enter] key in Step 7 displays the screen shown in Figure 3.5. The user is then asked whether the CROSSTALK Mk.4 Menu Interface files are desired. Here the user responds by entering

N

9. The response in Step 8 displays the screen shown in Figure 3.6, the user is asked whether the CROSSTALK XVI look-alike interface files are desired. Here the user responds by entering

N

10. The N response in Step 9 displays the screen shown in Figure 3.7, which notifies the user that all necessary files have been successfully copied from the CROSSTALK Mk.4 System Disk 1 to the hard disk. The user is then instructed to insert the system disk labeled "DISK 2" into Drive A:, and press the [Enter] key. This process is continued until all required files have been copied from all four of the CROSSTALK Mk.4 System Disks.

11. After all required files are copied, the screen shown in Figure 3.8 is displayed. This screen informs the user the installation of CROSSTALK Mk.4 is complete. At this screen the user presses the [Enter] key to continue. Pressing the [Enter] key returns control to the DOS operating system, and triggers the prompt shown in Figure 3.9.

3.2.3 Configuring CROSSTALK Mk.4 for the Remote Computer

After installing CROSSTALK Mk.4, as discussed in Section 3.2.2, it is necessary to configure the system for use on the POST-DAM System's remote computer. The procedure defined below details the steps taken in configuring CROSSTALK Mk.4 on the remote computer used in the prototype version of the POST-DAM System. The configuration procedure defined here must also be followed in configuring CROSSTALK Mk.4 for other POST-DAM System remote computers. Minor deviations from this procedure may be necessary to accommodate variations in hardware configurations.

```
Which files to copy? Drive C: 27293696 bytes free

There are three ways to install CROSSTALK Mk.4, depending on how you plan
to use it and how much disk space you wish to devote to the program.

With the Developer's installation, all files (including programing files)
will be copied. If you choose General installation, all files except the
CASL programing files will be copied. With Selective installation, a
required set of files will be copied, and INSTALL will ask you questions
about how you intend to use CROSSTALK Mk.4. Only those files you will
actually need will be copied.

If you are not sure what functions you plan to use in CROSSTALK Mk.4,
we suggest you use the General installation. If you know which terminal
emulations and file transfer protocols you wish to use, or you wish to
conserve disk space, choose the Selective installation.

CROSSTALK Mk.4 requires about 600K for a typical Selective INSTALL,
1100K for a General INSTALL, and 1500K for the Developer's INSTALL.

Enter 'G' for General, 'D' for Developer's, or 'S' for Selective.

INSTALL method (G/D/S)? G

Press Enter to continue, Esc to cancel
```

Figure 3.3. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Installation Method Menu.

```
User Interface

CROSSTALK Mk.4 Version 2.8 has a new Enhanced User Interface, which
displays a Dialing Directory. This Dialing Directory is a list of
names, descriptions, phone numbers, and other related information
for the systems you call regularly. You will see this new Enhanced
User Interface when you first run CROSSTALK Mk.4.

In addition to the built-in Dialing Directory, CROSSTALK Mk.4 has
two alternate user interfaces: the CROSSTALK Mk.4 Menu Interface,
and the CROSSTALK XVI look-alike interface.

If you would rather use one of these two interfaces instead of the
new Dialing Directory, you can have INSTALL copy the necessary files,
and then use the CROSSTALK Mk.4 CONFIG script to choose your preferred
user interface.

Press Enter to continue, Esc to cancel
```

Figure 3.4. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Interface Information Screen.

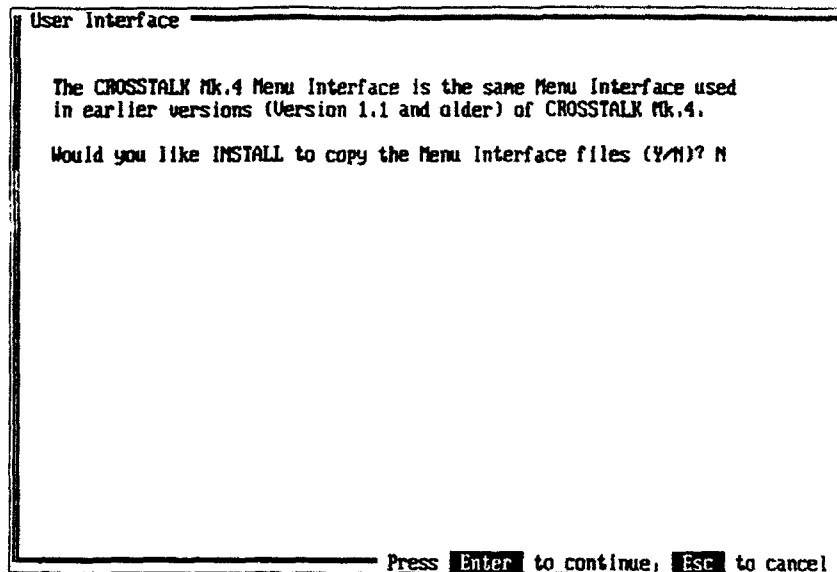


Figure 3.5. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Menu Interface Screen.

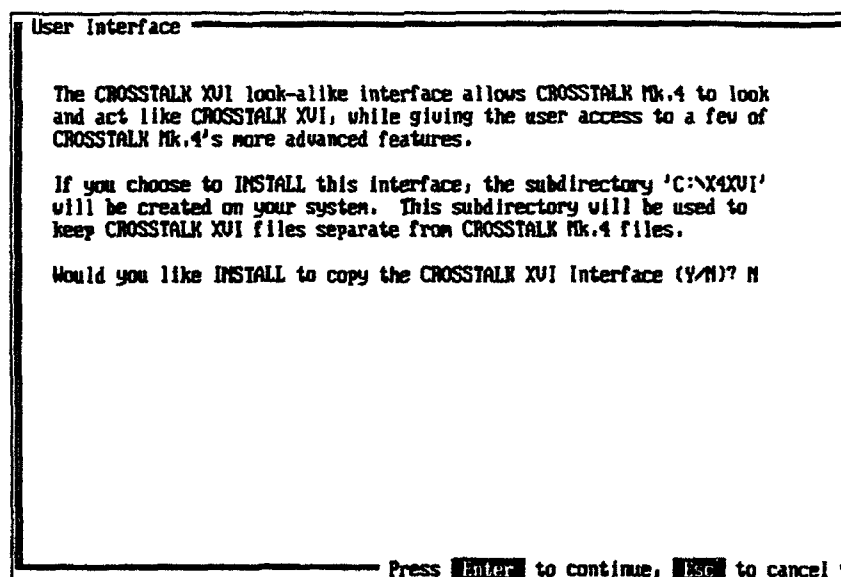


Figure 3.6. POST-DAM Remote Computer Communication CROSSTALK XVI Interface Menu.

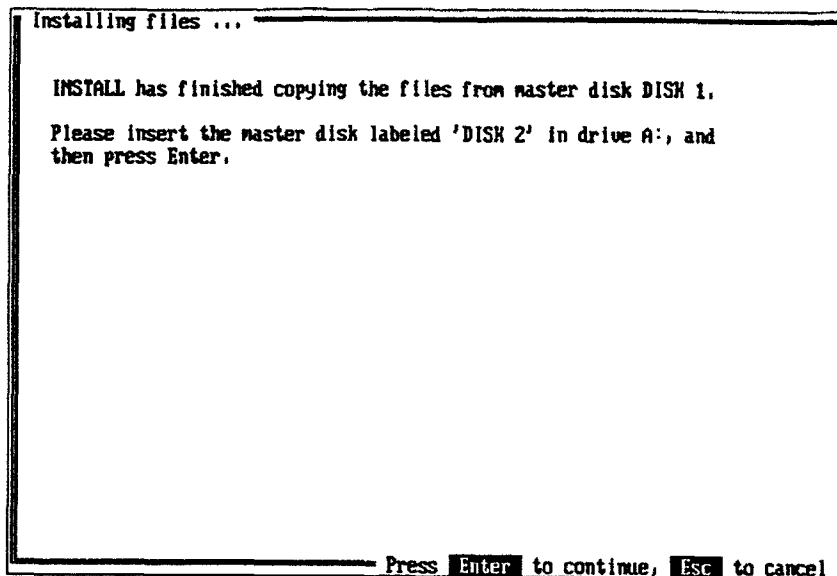


Figure 3.7. POST-DAM Remote Computer Communication CROSSTALK Mk.4 System Disk 2 Installation Screen.

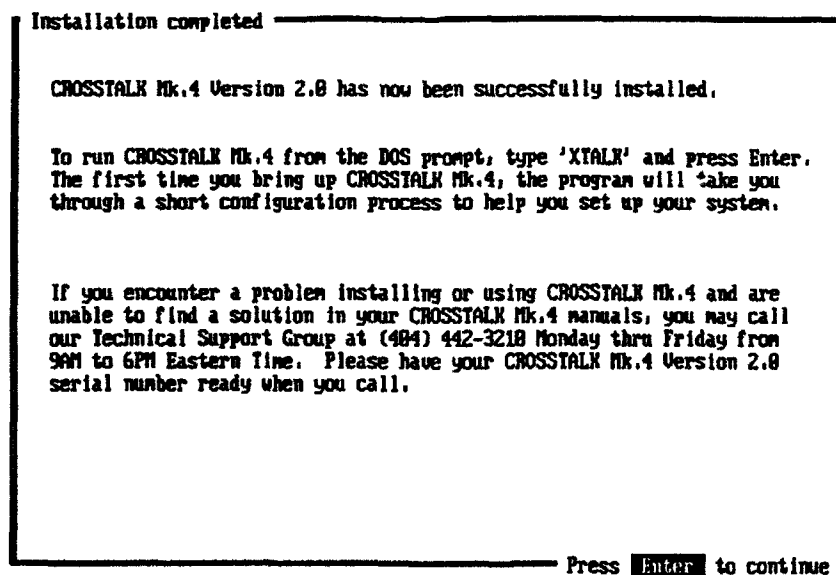


Figure 3.8. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Installation Complete Screen.

```
To run CROSSTALK Mk.4 from the DOS prompt, type 'XTALK' and press Enter.  
C:\XTALK4>
```

Figure 3.9. POST-DAM Remote Computer Communication DOS Prompt at Subdirectory C:\XTALK4.

1. After installing CROSSTALK Mk.4 as discussed in Section 3.2.2, the user begins the configuration procedure. At the C:\XTALK4 > prompt, the user enters

xtalk

This command causes the momentary display of the CROSSTALK Mk.4 Title Screen, shown in Figure 3.10, followed by the information screen shown in Figure 3.11.

2. The information screen shown in Figure 3.11 tells the user the various functions of the Configuration Script. To continue, the user presses [Enter], displaying the screen shown in Figure 3.12.
3. The screen in Figure 3.12 asks whether the remote computer has a color monitor. To respond YES the user presses [Enter], which displays the Supplemental Information screen shown in Figure 3.13.
4. The screen in Figure 3.13 contains information on various features of CROSSTALK Mk.4. To continue, the user presses the [Esc] key, which displays the CROSSTALK port screen shown in Figure 3.14.

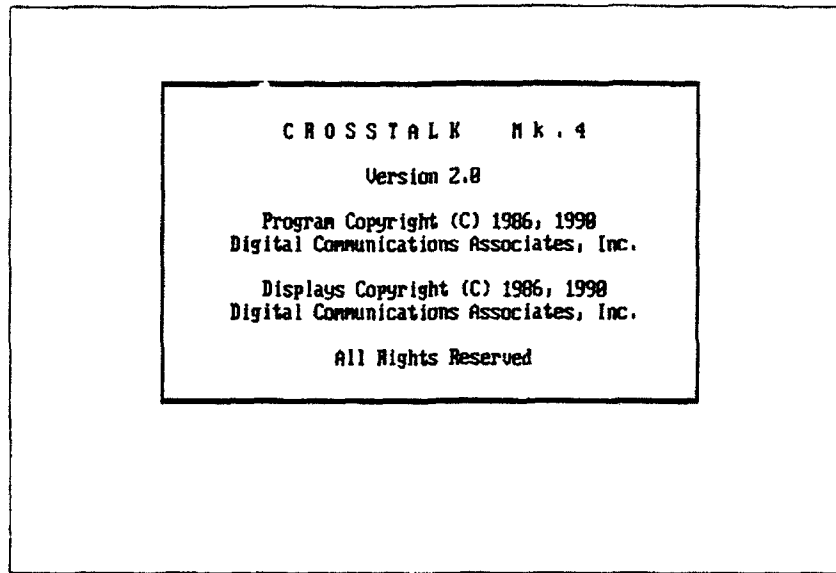


Figure 3.10. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Title Screen.

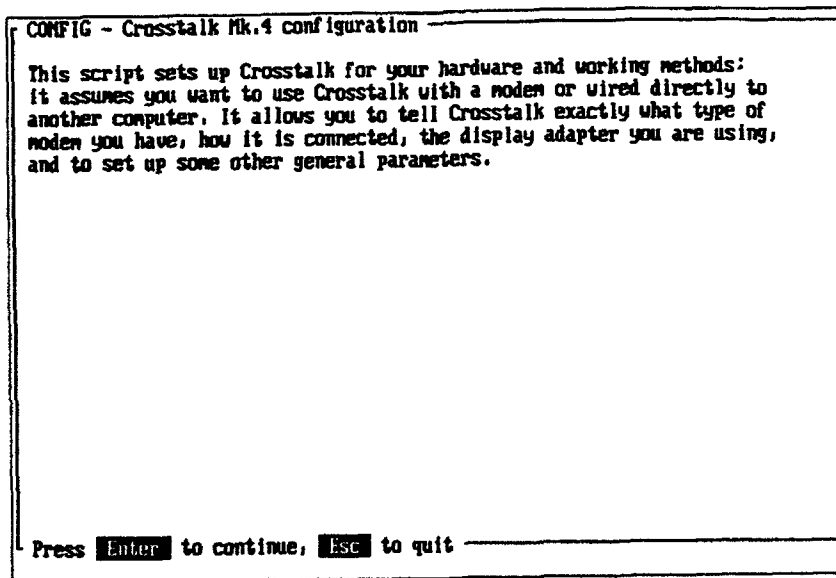


Figure 3.11. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Configuration Information Screen.

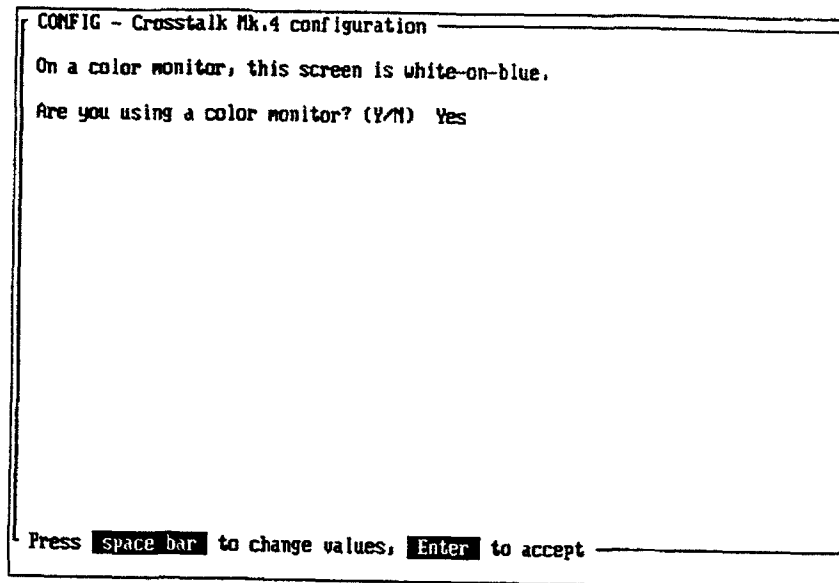


Figure 3.12. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Color Monitor Prompt Screen.

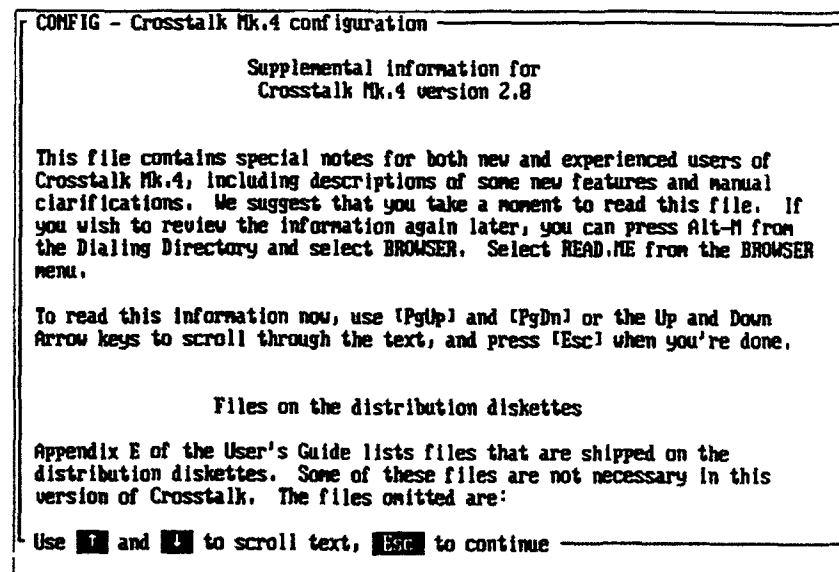


Figure 3.13. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Supplemental Information Screen.

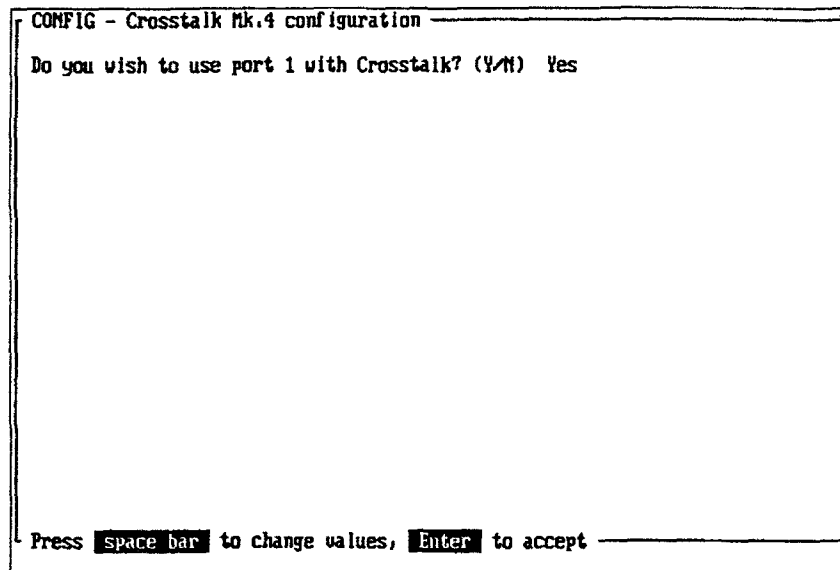


Figure 3.14. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Port 1 Prompt Screen.

5. To select Port 1 for communications, the user presses the [Enter] key. The next screen displayed is the modem type screen shown in Figure 3.15.
6. The user then selects Direct Connect (no modem), by using the up-down arrow keys, and presses [Enter], which displays the Port 2 Query Screen shown in Figure 3.16.
7. The user then presses the [Enter] key again, to inform the system that Port 2 will be used. This response causes the modem type screen to reappear, as shown in Figure 3.17.
8. The user then selects 2400 baud Hayes compatible by using the up-down arrow keys, then presses the [Enter] key, which displays the Set Default Port Screen shown in Figure 3.18.
9. The user then selects the port and speed to be used as default values for new dialing directory entries. To do this, the user changes the values shown on the screen by using the space bar and arrow keys, until the value for Normal Port equals 2 and the value for Normal Speed equals 2400 (as shown in Figure 3.19). The user then presses the [Enter] key, storing these values and displaying the screen shown in Figure 3.20.

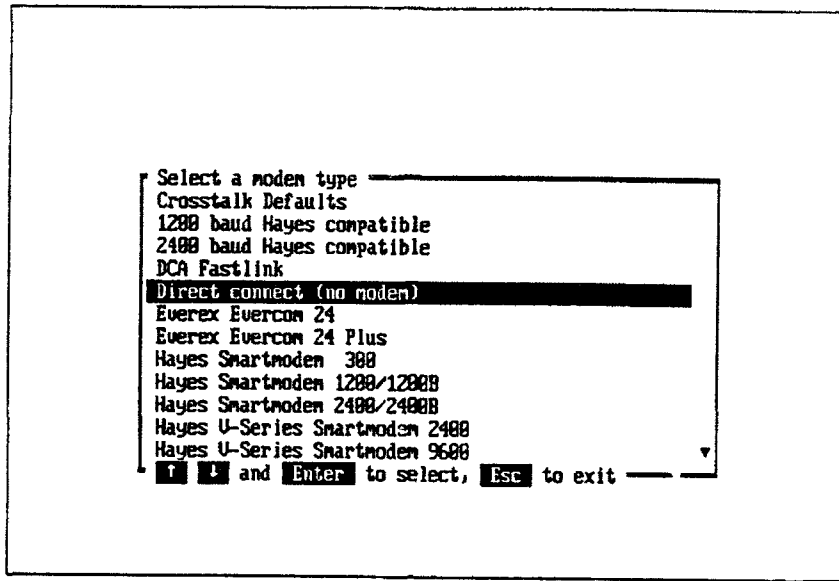


Figure 3.15. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Modem Type for Port 1 Screen.

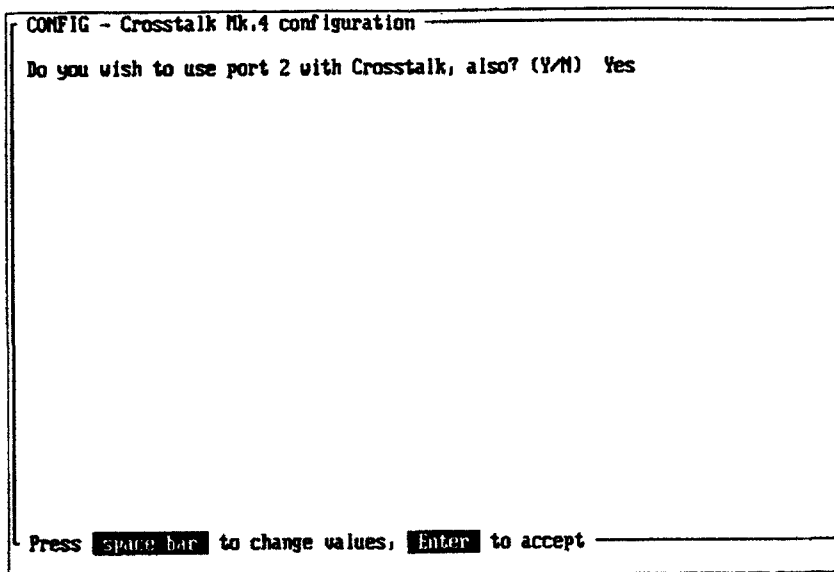


Figure 3.16. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Port 2 Prompt Screen.

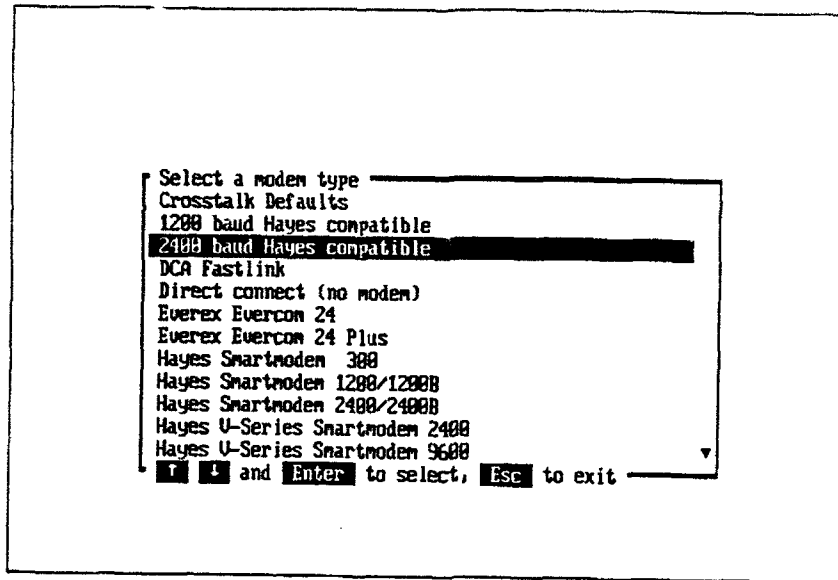


Figure 3.17. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Modem Type for Port 2 Screen.

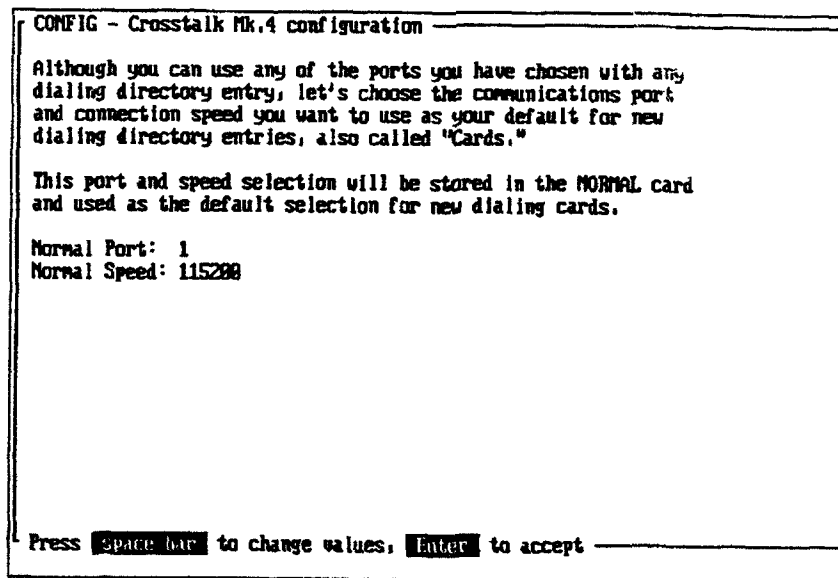


Figure 3.18. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Set Default Port Screen.

```
CONFIG - Crosstalk Mk.4 configuration

Although you can use any of the ports you have chosen with any
dialing directory entry, let's choose the communications port
and connection speed you want to use as your default for new
dialing directory entries, also called "Cards."

This port and speed selection will be stored in the NORMAL card
and used as the default selection for new dialing cards.

Normal Port: 2
Normal Speed: 2400

Press space bar to change values, Enter to accept
```

Figure 3.19. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Required Default Port Settings Screen.

```
CONFIG - Crosstalk Mk.4 configuration

OutNumber and LDnumber are optional.

OutNumber is the number your modem must dial to get through your
switchboard and into the local telephone system. Most switchboards
require you to dial 9 to do this.

OutNumber is prefixed to every phone number Crosstalk dials, unless
the number begins with an L or an X. If you have a direct outside
line for your modem, or do not have a switchboard at all, you need
no OutNumber.

Hayes-compatible modems will interpret a comma in a phone number as a
two-second pause. For example: 9, as your OutNumber would dial 9 and
wait two more seconds before dialing the rest of the number.

Please enter your OutNumber:
```

Figure 3.20. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Set OutNumber Screen.

10. The screen in Figure 3.20 lets the user enter the modem OutNumber. The prototype POST-DAM remote computer has no OutNumber on the local telephone system, so press the [Enter] key. This displays the screen shown in Figure 3.21.
11. The screen in Figure 3.21 lets the user enter the modem LDnumber. For the prototype POST-DAM remote computer, the user presses [1] and [Enter] consecutively. This displays the information screen shown in Figure 3.22.
12. After reading the information shown in Figure 3.22, the user presses the [Enter] key, displaying the Dialing Directory screen shown in Figure 3.23. The user then adds the Dialing Directory entry necessary to communicate with the POST-DAM host computer. This subject is discussed in Section 3.2.4.

3.2.4 Setting-Up the CROSSTALK Mk.4 Dialing Directory

After configuring the CROSSTALK Mk.4 system (reference Section 3.2.3), a Dialing Directory entry named DCC must be created. This entry is used to communicate with the POST-DAM host computer. To create an entry, the user must follow the procedure outlined below. Note that the following procedure applies to the specific prototype POST-DAM System hardware. Variations may be necessary for different hardware configurations.

1. From the Dialing Directory screen shown in Figure 3.23, the user highlights the name NORMAL using the up and down arrow keys. Once NORMAL is highlighted, as shown in Figure 3.24, the user presses the [INS] key to create a new Dialing Directory entry. This action results in the display of the Session Setup screen shown in Figure 3.25.
2. Modify the screen settings in Figure 3.25 until they have the same values as the DCC entry shown in Figure 3.26. Instructions for modifying individual Session Setup screen settings are given in the middle of the screen. The user moves between the various screen settings using the keyboard [TAB] keys.

3.3 RUNNING CROSSTALK MK.4

POST-DAM RCC transmits output data files generated by PDES to the POST-DAM host computer. These files may be transmitted either automatically through the POST-DAM RCC system, or interactively by the remote computer user. The files generated by PDES are temporarily stored in the sub-directory C:\POSTDAM\DAT until they are transferred to the host computer. Sections 3.3.1 and 3.3.2 discuss the procedures for both automated and interactive data transfer within POST-DAM RCC.

3.3.1 POST-DAM RCC Automated Communications

The CASL program DCC.XTS fully automates communication between POST-DAM remote computers and the host computer. The program is activated from a PDES

```
CONFIG - Crosstalk Mk.4 configuration

LDnumber is like OutNumber, but it's the number your modem must
dial to get through your switchboard and into the long distance
telephone system. This may be a 1, or you may have
a longer string of digits you use to make long distance calls
over a public or private long distance telephone network.

When Crosstalk dials, LDnumber is prefixed to phone numbers
that begin with an L, for example L-404-740-8428

You can use commas in the LDnumber, too, if you want your modem to
pause during the dialing process.

Please enter your LDnumber: 1
```

Figure 3.21. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Set LDnumber Screen.

```
CONFIG - Crosstalk Mk.4 configuration

Configuration is complete, so the next thing you will see is the
Crosstalk Mk.4 dialing directory, including the entries you have
just set up.

From the dialing directory you may press Alt-F to see
the scripts menu, and choose the CONFIG script if you wish to change
any of the settings you have just chosen.

You may also use the CONFIG script if you wish to use one of the
alternate user interfaces, such as the Crosstalk Mk.4 version 1 MENU
system, or the Crosstalk XVI look-alike screens.

Press Enter to continue, ESC to quit
```

Figure 3.22. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Change Configuration Information.

Dialing Directory		Session #1 offline	Alt-H for help	
>Name	Description	Calls	Last called	
ANSWER	Answer a call (unconfigured)	0	never	
DIRECT	Direct connection (unconfigured)	0	never	
EASYCALL	Use this to make a call	0	never	
NORMAL	Crosstalk Mk.4 Normal Setup			

Enter	Ins	Alt-S	Del
call EASYCALL	create new entry	setup EASYCALL	delete EASYCALL
Alt-M	Alt-E	Alt-Y	Alt-Q
utility scripts	edit text file	your preferences	quit to DOS

Esc to exit

Figure 3.23. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Dialing Directory Menu.

Dialing Directory		Session #1 offline	Alt-H for help	
>Name	Description	Calls	Last called	
ANSWER	Answer incoming calls	0	never	
DCC	DAMAGE CONTROL CENTER	182	3-29-91 18:07a	
DIRECT	Direct connection (unconfigured)	0	never	
EASYCALL	Use this to make a call	0	never	
NORMAL	Crosstalk Mk.4 Normal Setup			

Ins	Alt-S		
create new entry	setup NORMAL		
Alt-M	Alt-E	Alt-Y	Alt-Q
utility scripts	edit text file	your preferences	quit to DOS

Esc to exit

Figure 3.24. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Dialing Directory Menu with NORMAL Highlighted.

Session Setup		Session #1 offline		Alt-H for help	
Name:		Description:			
Number:	Local: off	Script:			
Capture: off	Printer: off	Filter:			
DownloadDir:		Keys:			
Device: MODEM	Terminal: ANSI	Protocol:			
Port: 1	BBS: off				
Speed: 2400 bps	BackSpace: off				
WordFormat: 8-N-1					
name by which you refer to this Dialing Directory entry					
Alt-C Capture Setup		Alt-U Upload Setup		Alt-K Key Setup	
				PgDn Next page	
You are setting up a Dialing Directory entry. The information on this screen is normally all that Crosstalk needs to know to place a call.					
Ctrl-Enter to accept, Esc to cancel					

Figure 3.25. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Session Setup Screen.

Session Setup		Session #1 offline		Alt-H for help	
Name: DCC		Description: DAMAGE CONTROL CENTER			
Number: 286-6363	Local: off	Script: DCC			
Capture: off	Printer: off	Filter:			
DownloadDir: C:\PDAM		Keys:			
Device: MODEM	Terminal: TTY	Protocol: ZMODEM			
Port: 1					
Speed: 2400 bps					
WordFormat: 8-N-1					
name by which you refer to this Dialing Directory entry					
Alt-C Capture Setup		Alt-U Upload Setup		Alt-K Key Setup	
				PgDn Next page	
You are setting up a Dialing Directory entry. The information on this screen is normally all that Crosstalk needs to know to place a call.					
Ctrl-Enter to accept, Esc to cancel					

Figure 3.26. POST-DAM Remote Computer Communication CROSSTALK Mk.4 Dialing Directory Entry DCC.

menu (Reference 2.2.2, Section 3.3.3.1), and manages the transfer of the PDES output data files. No user interaction is required if the POST-DAM RCC automated communication system is invoked from PDES.

3.3.2 Interactive Communications

If the user has disabled the PDES automatic communication system, the files must be sent to the host computer manually. This is accomplished by entering the following command at the DOS operating system prompt C:\XTALK4 >.

```
C:\XTALK4 > xtalk call dcc
```

Entering the above command executes the communication software package CROSSTALK, and automatically compiles and executes DCC.XTS.

3.4 POST-DAM SYSTEM AUTOMATED CASL COMMUNICATION PROGRAM DCC.XTS

DCC.XTS performs the automatic logon, dialing, data transfer from the POST-DAM remote computer to the host computer. The program operates by automatically executing the communication package CROSSTALK Mk.4. The program then dials the phone number of the prototype POST-DAM host computer modem, and enters its password. Once communication has been established, DCC.XTS transfers all PDES data files from the remote computer subdirectory C:\POSTDAM\DAT to the host computer subdirectory C:\PDAM. The program then displays a list of the programs to be transferred, followed by a chart indicating, in real time, the percentage of files transferred. After completing the file transfer, DCC.XTS disconnects from the host computer and logs off from CROSSTALK Mk.4. Control is then returned to the DOS operating system.

A listing of DCC.XTS is presented in Appendix A. Operation of DCC.XTS on systems other than the prototype system requires a telephone number change. Reference 2.3.2 should be used to modify DCC.XTS.

APPENDIX A
DCC.XTS SOURCE CODE

/*

```
*****
PROGRAM TITLE       : DCC.XTS
PROGRAM PURPOSE     : AUTOMATE THE COMMUNICATION BETWEEN THE
                     POST-DAM EXPERT SYSTEM REMOTE COMPUTER AND
                     THE POST-DAM HOST COMPUTER
PROGRAM VERSION     : 1.00 (910207)
DEVELOPED BY       : APPLIED RESEARCH ASSOCIATES, INC.
                     GULF COAST DIVISION
```

MODIFICATION RECORD :

VERSION	DATE RELEASED	PROGRAMMER	MODIFICATIONS
1.00	02/07/91	JEFF HOWARD	* ORIGINAL VERSION

*/

/*

DCC.XTS generated by LEARN - 02-07-91

*/

-- P R O C E D U R E S

```
proc WSR takes WTR
  wait quiet 5 ticks
  for i = 1 to length(WTR)
    x = mid(WTR,i,1)
    if not online then exit
    reply x;
    wait 2 ticks for x      -- Remove if reply pacing not required
  next
  reply
endproc
```

-- S T A R T

```
Trace "ssword: ^E"
wait for "Password: ^E", key 27
WSR "ARA"

Trace "for Ready."
wait for "Ready.", key 27
window #1,at 1,1,size 22,78,border 5,color 116
window #2,at 6,12,size 12,58,border 2,color 71
print #2,at 3,14,"POST-DAM COMMUNICATION SYSTEM"
print #2,at 4,23,"Version 1.00"
print #2,at 6,6,"Developed by Applied Research Associates,Inc."
print #2,at 7,27,"1990"
for i = 1 to 10000
  next i
  shut #1
  shut #2
WINDOW #1,AT 1,1,SIZE 3,78,BORDER 5,COLOR 116
PRINT #1,AT 2,24,"POST-DAM COMMUNICATION SYSTEM"
x = filefind ("c:\postdam\dcc\*.out")
if null(x) then (
  window #2,at 8,18,size 10,42,border 5,color 71
  print #2,at 1,3,bright, "No PDES .OUT files to transfer"
  for j = 1 to 7500
    next j
  shut #2
)
else (
  window #2,at 8,18,size 10,42,border 5,color 71
  print #2,at 1,3,bright, "Await automatic transfer of the"
  print #2,at 2,3,bright, "following PDES .OUT files : "
```

```

print #2,at 3,3,bright, " "
y = filefind ("c:\postdam\dcc\*.out")
while not null(y)
    print #2,normal,y
    y = filefind
wend
for j = 1 to 10000
next j
shut #2
window #2,at 22,10,size 2,58,border 2,color 112
print #2,at 2,1,flashing,"      Transferring PDES .OUT files"
send "c:\postdam\dcc\*.out"
shut #2
window #2,at 22,10,size 2,58,border 2,color 112
print #2,at 2,1,"      Transfer of PDES .OUT files complete"
for j = 1 to 7500
next j
shut #2
)
x = filefind ("c:\postdam\dcc\*.mat")
if null(x) then (
    window #2,at 8,18,size 10,42,border 5,color 71
    print #2,at 1,3,bright, "No PDES .MAT files to transfer"
    for j = 1 to 7500
    next j
    shut #2
)
else (
    window #2,at 8,18,size 10,42,border 5,color 71
    print #2,at 1,3,bright, "Await automatic transfer of the"
    print #2,at 2,3,bright, "following PDES .MAT files : "
    print #2,at 3,3,bright, " "
    y = filefind ("c:\postdam\dcc\*.mat")
    while not null(y)
        print #2,normal,y
        y = filefind
    wend
    for j = 1 to 10000
    next j
    shut #2
    window #2,at 22,10,size 2,58,border 2,color 112
    print #2,at 2,1,flashing,"      Transferring PDES .MAT files"
    send "c:\postdam\dcc\*.mat"
    shut #2
    window #2,at 22,10,size 2,58,border 2,color 112
    print #2,at 2,1,"      Transfer of PDES .MAT files complete"
    for j = 1 to 7500
    next j
    shut #2
)
x = filefind ("c:\postdam\dcc\*.eqp")
if null(x) then (
    window #2,at 8,18,size 10,42,border 5,color 71
    print #2,at 1,3,bright, "No PDES .EQP files to transfer"
    for j = 1 to 7500
    next j
    shut #2
)
else (
    window #2,at 8,18,size 10,42,border 5,color 71
    print #2,at 1,3,bright, "Await automatic transfer of the"
    print #2,at 2,3,bright, "following PDES .EQP files : "
    print #2,at 3,3,bright, " "
    y = filefind ("c:\postdam\dcc\*.eqp")
    while not null(y)
        print #2,normal,y
        y = filefind
    wend
    for j = 1 to 10000

```

```
next j
shut #2
window #2,at 22,10,size 2,58,border 2,color 112
print #2,at 2,1,flashing,"      Transferring PDES .EQP files"
send "c:\postdam\dcc\*.eqp"
shut #2
window #2,at 22,10,size 2,58,border 2,color 112
print #2,at 2,1,"      Transfer of PDES .EQP files complete"
for j = 1 to 7500
next j
shut #2
}
Trace off
shut #1
window #1,at 1,1,size 22,78,border 5,color 116
window #2,at 6,12,size 12,58,border 2,color 71
print #2,at 5,12,"EXIT POST-DAM COMMUNICATION SYSTEM"
for i = 1 to 10000
next i
shut #2
shut #1
QUIT
END
```