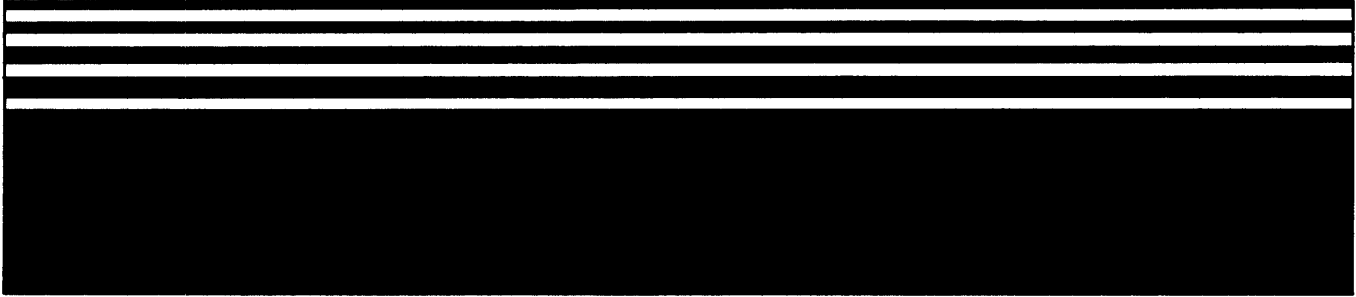


DNOS FORTRAN-78 ***Object Installation***

Part No. 2308765-9701 *A
15 December 1983



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Preface

This manual gives instructions for installing FORTRAN-78. The installation procedure requires that you use DNOS System Command Interpreter (SCI) commands. You can use the DNOS documentation to find information about commands and how to enter them from a terminal.

Before you install FORTRAN-78, read this manual to become familiar with the new installation options available to you. Also, read the DNOS FORTRAN-78 Release Information (part number 2308802-9901).

This manual is written for new FORTRAN-78 customers. If you are not a new customer and are updating to a new version of FORTRAN-78, read the Update Document (part number 2234354-9901) accompanying this software kit.

Questions?

The Texas Instruments customer support line (telephone (512) 250-7407) is available to answer your questions about installing and using FORTRAN-78. You must meet these conditions, however, before you can use the customer support line:

- * Texas Instruments supplied your software.
- * You did not modify your software.
- * You are a Texas Instruments software subscriber.

If you do not meet all these conditions, contact the supplier of your software.

We hope that you are pleased with your purchase. As you use FORTRAN-78, please take a moment to fill out a postage-paid User Response Sheet. User Response Sheets are the last pages in the FORTRAN-78 Reference Manual, the FORTRAN-78 Programmer's Guide, and the FORTRAN-78 ISA Extensions Manual. Use these sheets to suggest improvements to our product and our manuals. We try to incorporate our customers' comments into the next releases of our products.

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READ THIS DOCUMENT BEFORE ATTEMPTING TO USE THE OBJECT KIT.
THIS DOCUMENT DESCRIBES THE DNOS FORTRAN-78 OBJECT MEDIA, PART
NUMBER 2308800-1601 (DISK OR TAPE) OR PART NUMBER 2308800-1602
(DOUBLE-SIDED, DOUBLE-DENSITY DISKETTE).

TEXAS INSTRUMENTS ASSUMES NO RESPONSIBILITY FOR MODIFICATIONS
MADE TO THIS OBJECT KIT.

Section 1

Introduction

1.1 GENERAL INFORMATION

Be sure to copy or write protect the master. For copy procedures, refer to the DNOS Operations Guide, part number 2270502-9701.

This document gives some System Command Interpreter (SCI) commands in the batch form. To execute an SCI command, enter the command exactly as is, or use the interactive prompting from SCI. For a discussion of the batch command form, refer to the DNOS System Command Interpreter (SCI) Reference Manual, part number 2270503.

For a list of currently known problems and patches, refer to the DNOS FORTRAN-78 Release Information.

This document uses a standard notation to describe how you should respond to SCI command prompts. Enter items shown in all uppercase letters exactly as they appear. In place of items shown in lowercase letters, enter an item of the appropriate type. Braces ({}) denote a choice of responses, and parentheses enclose all default responses.

1.2 FILE SECURITY

If you are installing this package on a system that uses file security, be sure to log on with a user ID that is a member of the SYSMGR access group. The proper ID allows you or the installation batch streams executing under your ID to create and delete files. Refer to the DNOS Security Manager's Guide, part number 2308954-9701, for more information on file security.

1.3 MEDIA DEFINITION

Products are shipped in three formats:

- * Disk -- A disk pack or diskette, volume name DNF78OBJ, that contains the FORTRAN-78 object
- * Magnetic tape -- A magnetic tape reel or magnetic tape cartridge that contains the FORTRAN-78 object
- * Add-On -- A disk pack that contains the FORTRAN-78 object and one or more other products

1.4 INSTALLATION PROCEDURE

The object tape or disk contains the files and batch streams that perform the following functions:

- * Install the object
- * Remove any previously installed object
- * Verify the installation

1.5 SYSTEM REQUIREMENTS

You must have a functioning Distributed Network Operating System (DNOS) Release 1.1 (or later) to perform this installation.

Section 2

Preparing for Installation

2.1 INTRODUCTION

Before you install the FORTRAN-78 object, you must prepare the object files so that they can be accessed. The following paragraphs describe how to prepare the media.

2.2 DISK FORMAT

If you receive the FORTRAN-78 object on a disk, use the following steps to prepare the object for installation:

1. Since you do not write to this disk, leave the write protection on.
2. Place the disk with the volume name DNF78OBJ in an available disk drive.
3. Install the disk by issuing the following command:

```
IV UNIT=DSxx, VOLUME=DNF78OBJ
```

In this command, DSxx is the disk drive on which DNF78OBJ is loaded.

Now proceed to Section 3 for instructions on installing the FORTRAN-78 object.

2.3 MAGNETIC TAPE FORMAT

If you receive the FORTRAN-78 object on a magnetic tape reel or a magnetic tape cartridge, you must first move the files to a disk before you begin the installation process. To do this, perform the following steps:

1. Create a directory on a disk by issuing the following command:

```
CFDIR P=volname.FOR78X, M=15
```

In this command, volname is the name of the disk on which the directory is created.

2. Load the magnetic tape reel or cartridge.
3. To move the contents of the magnetic tape reel or cartridge to the directory you created, issue the following command:

```
RD S=MTxx, D=volname.FOR78X, L=.LISTING
```

In the RD command, MTxx is the name of a magnetic tape drive, such as MT02, and volname is the name of the volume you used in the CFDIR command.

The file .LISTING now contains a listing of the directory restored from the magnetic tape on tape drive MTxx. Examine this file by issuing a Show File (SF) or a Print File (PF) command.

4. Unload the magnetic tape reel or cartridge.
5. Finally, assign a synonym to the directory to which you restored the tape contents, as follows:

```
AS S=DNF78OBJ, V=volname.FOR78X
```

Now proceed to Section 3 for instructions on installing the FORTRAN-78 object.

2.4 ADD-ON FORMAT

If you receive the FORTRAN-78 object in an add-on package, use the following steps to prepare it for installation:

1. Place the disk that contains the add-on package in an available disk drive and load the disk.
2. Install the disk by issuing the following command:

```
IV UNIT=DSxx, VOLUME=volname
```

In this command, DSxx is the disk drive on which the volume is loaded, and volname is the volume name of the add-on disk. If the volume name is not marked on the disk, you can issue a Show Volume Status (SVS) command to obtain the volume name.

3. Finally, assign a synonym to the disk you just installed, as follows:

```
AS S=DNF78OBJ, V=volname
```

Now proceed to Section 3 for instructions on installing the FORTRAN-78 object.

Section 3

Installing FORTRAN-78

3.1 INTRODUCTION

This section explains how to install the FORTRAN-78 software on a DNOS system. You have three software installation options:

- * Install all of the FORTRAN-78 software on the system disk.
- * Install the FORTRAN-78 software on a secondary disk.
- * Install only the parts needed to support execution of FORTRAN-78 programs (execute only) on the system disk or a secondary disk.

Prior to beginning the installation procedures in this section, be sure to complete the media preparation procedures in Section 2.

3.2 INSTALLATION ON THE SYSTEM DISK

To install FORTRAN-78 on your system disk, perform the following steps:

1. Enter the .USE primitive as follows:

```
.USE DNF78OBJ.S$CMDS, .S$CMDS
```

The SCI menu in the following figure should be displayed. If it is not, be sure that you performed the media preparation procedures correctly. If the FORTRAN-78 object resides on a directory, be sure you assigned the value of the pathname of the directory to the synonym DNF78OBJ. Also, be sure that you entered the .USE primitive correctly. You may need to enter the primitive .OPTION MENU=LC.

TARGET DISK VOLUME NAME

Enter the volume name or device name of the disk on which you want to install the FORTRAN-78 compiler, SCI commands, and message files. If your installation uses a disk backup system in which the disk volume name changes, enter a device name (such as DS01) in response to this prompt so the logical names assigned by the INSTALL command remain correct.

LISTING DIRECTORY PATHNAME

Enter the pathname of a directory that is to contain the batch stream listings the installation process generates. Do not give a disk volume name. If the directory does not exist, the INSTALL command creates it.

INSTALL COMPILER?

Enter Y if you wish to install the FORTRAN-78 compiler, or N if you do not wish to install the compiler. To accept the default Y response, press the Return key.

INSTALL RUN TIME?

Enter Y if you wish to install the FORTRAN-78 run-time libraries, or N if you do not wish to install the run time. To accept the default Y response, press the Return key.

INSTALL MATHSTAT-78?

Enter Y if you wish to install the MATHSTAT-78 library, or N if you do not wish to install the MATHSTAT-78 library. To accept the default Y response, press the Return key.

EXPANDED MESSAGES?

If your system has key indexed file (KIF) support, and you wish to have expanded compiler and run-time messages, answer Y in response to this prompt. Otherwise, answer N.

3. After you respond to the prompts, the following message appears:

```
FORTRAN-78 OBJECT INSTALLATION BATCH STREAM STARTED.:
```

Press the Return key to display the FORTRAN-78 menu. If you receive the following error message, you can ignore it:

```
U SVC-0316 listing directory pathname ALREADY EXISTS
```

The INSTALL command constructs and executes a batch stream that installs the FORTRAN-78 object components. The compiler, run-time, and MATHSTAT-78 object are installed individually by separate batch streams executed by the main batch stream. All the batch stream listings are written to the directory \$LST.BATCH, where \$LST is the directory pathname you gave in response to the LISTING DIRECTORY PATHNAME prompt.

When the main batch stream completes execution, its batch stream listing is written to the file named \$LST.BATCH.INSLST. Likewise, the batch stream listing for the compiler installation is placed in the file \$LST.BATCH.CMPLST; the batch stream listing for the run-time installation is placed in the file \$LST.BATCH.RTMLST; and the batch stream listing for the MATHSTAT-78 installation is placed in the file \$LST.BATCH.MATLST.

On an otherwise quiet system, compiler installation takes approximately 5 minutes, the run-time installation takes 15 minutes, and the MATHSTAT-78 installation takes 5 minutes. During this time, you can monitor the progress of the installation using the Show Background Status (SBS) command. Also, you can use the Waiting for Background Task (WAIT) command to notify you when the batch streams finish executing.

4. When the installation batch streams complete execution successfully, you receive the following message:

```
FORTRAN-78 OBJECT SUCCESSFULLY INSTALLED.:
```

If an error occurs during installation, you will receive one of the following messages:

```
n ERRORS INSTALLING FORTRAN-78 COMPILER.  
n ERRORS INSTALLING FORTRAN-78 RUN TIME.  
n ERRORS INSTALLING MATHSTAT-78.
```

Examine the batch stream listing for the indicated batch stream to determine which errors occurred. Correct the cause of each error, and execute the INSTALL command again.

You can ignore the following errors, which may appear in the batch stream listings without being included in the error count n:

- * U SVC-0315 pathname DOES NOT EXIST in a Delete Directory (DD) or Delete File (DF) command
- * U SVC-0316 pathname ALREADY EXISTS in a Create Directory File (CFDIR) command

5. After you install FORTRAN-78 successfully, enter the .USE primitive to resume using the .S\$CMDS command library:

```
.USE .S$CMDS
```

6. If you received your object on a disk, unload the disk by issuing the UV command:

```
UV VOLUME=DNF78OBJ
```

7. If you received the object on tape, you can copy volname.FOR78X to a disk, or you can use the DD command to delete it, as follows:

```
DD PATHNAME=volname.FOR78X, AYS=YES
```

In the DD command, volname is the disk volume where you placed the FOR78X directory.

8. You can print the batch listings, or delete them, as follows:

```
DD PATHNAME=$LST.BATCH, AYS=YES
```

In the DD command, \$LST is the directory where you sent the batch listings when you installed the object.

9. Enter the Snapshot Global Names Definition (SGND) command to cause the operating system to record permanently the global logical names assigned by the INSTALL command. Just enter SGND and press the Return key. SGND has no prompts.

3.3 INSTALLATION ON A SECONDARY DISK

The FORTRAN-78 object is normally installed on the system disk. You can install the run-time and MATHSTAT-78 object on a secondary disk, however, in order to conserve system disk space or to facilitate construction of a system disk for a new system.

You must install the FORTRAN-78 compiler in the program file .S\$LANG on the system disk of a functioning DNOS system, since the SCI commands that execute the compiler assume that is where the compiler resides.

3.3.1 Installing the Run Time and MATHSTAT-78 on a Secondary Disk

To install the run-time or MATHSTAT-78 object on a secondary disk and the compiler on the system disk, proceed as follows:

1. Execute the INSTALL command as discussed previously. Give the volume name of your system disk as the reply to the TARGET DISK VOLUME NAME prompt. Reply Y to the INSTALL COMPILER? prompt and N to the INSTALL RUN TIME? and INSTALL MATHSTAT-78? prompts.
2. After you install the compiler, execute the INSTALL command again. This time, give the volume name of the secondary disk in reply to the TARGET DISK VOLUME NAME prompt, and reply N to the INSTALL COMPILER? prompt and Y to the INSTALL RUN TIME? and INSTALL MATHSTAT-78 prompts.
3. After you install FORTRAN-78 successfully, enter the .USE primitive to resume using the .S\$CMDS command library:

```
.USE .S$CMDS
```

4. If you received your object on a disk, unload the disk by issuing the UV command:

```
UV VOLUME=DNF78OBJ
```

5. If you received the object on tape, you can copy volname.FOR78X to a disk, or you can use the DD command to delete it, as follows:

```
DD PATHNAME=volname.FOR78X AYS=YES
```

In the DD command, volname is the disk volume where you placed the FOR78X directory.

6. You can print the batch listings, or delete them, as follows:

```
DD PATHNAME=$LST.BATCH AYS=YES
```

In the DD command, \$LST is the directory where you sent the batch listings when you installed the object.

7. Enter the Snapshot Global Names Definition (SGND) command to cause the operating system to record permanently the global logical names assigned by the INSTALL command. Just enter SGND and press the Return key. SGND has no prompts.

NOTE

The manuals provided with FORTRAN-78 assume that the run-time and MATHSTAT-78 object are installed on the system disk under the directories .FORT78 and .MSTAT78, respectively. If you install these object libraries on a secondary disk, you must provide the secondary disk volume name or a logical name in all link control files or other references to these libraries. These installation procedures assign the global logical name S\$FORTRN to the pathname volname.FORT78 and the global logical name S\$MSTAT to the pathname volname.MSTAT78. For example, the run-time library .FORT78.OSLOBJ would be changed to S\$FORTRN.OSLOBJ. Be sure that all FORTRAN-78 users on your system are aware of the location of these libraries.

3.3.2 Installing the FORTRAN Object on a Secondary Disk
To install the entire FORTRAN-78 object on a secondary disk that will be used as a system disk, proceed as follows:

1. Create the program file volname.S\$LANG (if it does not exist) by entering the Create Program File (CFPRO) command as follows:

```
CFPRO P=volname.S$LANG
```

2. Create the SCI command directory (if it does not exist) by entering the Create Directory File (CFDIR) command as follows. MAX can be greater than 347, if necessary.

```
CFDIR P=volname.S$CMDS,MAX=347
```


3. Create the message file directory by issuing this command:

```
CFDIR P=volname.S$MSG,MAX=37
```

Also, if you wish to include expanded messages on your system, create the expanded message file directory if it does not already exist, as follows:

```
CFDIR P=volname.S$EXPMSG,MAX=37
```

4. Enter the .USE primitive, then enter the INSTALL command as described previously, giving the volume name of the secondary disk in response to TARGET DISK VOLUME NAME, and replying Y to the prompts INSTALL COMPILER?, INSTALL RUN TIME?, and INSTALL MATHSTAT-78?.
5. After you install FORTRAN-78 successfully, enter the .USE primitive to resume using the .S\$CMDS command library:

```
.USE .S$CMDS
```

6. If you received your object on a disk, unload the disk by issuing the UV command:

```
UV VOLUME=DNF78OBJ
```

7. If you received the object on tape, you can copy volname.FOR78X to a disk, or you can use the DD command to delete it, as follows:

```
DD PATHNAME=volname.FOR78X, AYS=YES
```

In the DD command, volname is the disk volume where you placed the FOR78X directory.

8. You can print the batch listings, or delete them, as follows:

```
DD PATHNAME=$LST.BATCH, AYS=YES
```

In the DD command, \$LST is the directory where you sent the batch listings when you installed the object.

9. Enter the Snapshot Global Names Definition (SGND) command to cause the operating system to record permanently the global logical names assigned by the INSTALL command. Just enter SGND and press the Return key. SGND has no prompts.

3.4 EXECUTE-ONLY INSTALLATION

If you do not need to develop (compile and link) FORTRAN-78 programs, but need to be able to execute them, you can install only the FORTRAN-78 run-time message file and the SCI commands to execute FORTRAN-78 programs. Perform the execute-only installation as follows:

1. Enter the SCI .USE primitive as follows:

```
.USE DNF78OBJ.S$CMDS, .S$CMDS
```

2. Enter the Install FORTRAN-78 for Execution Only (EXINST) command as follows:

```
[ ] EXINST
```

```
INSTALL FORTRAN-78 FOR EXECUTION ONLY < VX.X.X YY.DDD >  
      OBJECT ACCESS NAME:accessname          (DNF78OBJ)  
TARGET DISK VOLUME NAME:volname  
      LISTING FILE PATHNAME:pathname  
EXPANDED MESSAGES?(Y/N):{Y/N}              (Y)
```

Respond to the prompts as follows:

OBJECT ACCESS NAME

Enter the volume name of the FORTRAN-78 object disk or the pathname of a directory containing the FORTRAN-78 object disk contents. The default is DNF78OBJ, the volume name of the FORTRAN-78 object disk. To accept the default value, press the Return key.

TARGET DISK VOLUME NAME

Enter the volume name of the disk on which the FORTRAN-78 SCI commands and the run-time message file are to be installed.

LISTING FILE PATHNAME

Enter the pathname of a sequential file to be used for the batch stream listing. The EXINST command automatically creates the listing file if it does not already exist.

EXPANDED MESSAGES

If your system has key indexed file (KIF) support, and you wish to have expanded run-time messages, answer Y in response to this prompt. Otherwise, answer N.

3. After you respond to the prompts, the following message is displayed:

```
FORTRAN-78 INSTALLATION BATCH STREAM STARTED
```

Press the Return key to display the object installation menu. If you receive the following error message, you can ignore it:

```
U SVC-0316 pathname ALREADY EXISTS
```

The EXINST command executes a batch stream that installs the FORTRAN-78 run-time message file and the SCI commands used to execute FORTRAN-78 programs. The batch stream takes about one minute to execute. During this time, you can use the SBS command to monitor the progress of the batch stream. Also, you can have the WAIT command notify you when the batch stream finishes. When the batch stream completes, the following message appears at your terminal:

```
n ERRORS INSTALLING EXECUTE-ONLY FORTRAN-78
```

If n is not 0, examine the batch stream listing file by using the SF command to determine what errors occurred. Correct the cause of the error and execute the EXINST command again.

You can ignore the following errors, which may appear in the batch stream listing without being counted and included in the error count n:

```
* U SVC-0315 pathname DOES NOT EXIST in a DD or  
DF command.
```

```
* U SVC-0316 pathname ALREADY EXISTS in a Create  
Directory File (CFDIR) command.
```

4. After you install FORTRAN-78 successfully, enter the .USE primitive to resume using the .S\$CMDS command library:

```
.USE .S$CMDS
```

5. If you received your object on a disk, unload the disk by issuing the UV command:

```
UV VOLUME=DNF78OBJ
```

6. If you received the object on tape, you can copy volname.FOR78X to a disk, or you can use the DD command to delete it, as follows:

```
DD PATHNAME=volname.FOR78X, AYS=YES
```

In the DD command, volname is the disk volume where you placed the FOR78X directory.

7. You can print the batch listings, or delete them, as follows:

```
DD PATHNAME=$LST.BATCH, AYS=YES
```

In the DD command, \$LST is the directory where you sent the batch listings when you installed the object.

This completes the execute-only installation procedure.

Section 4

Executing the Test Program

4.1 INTRODUCTION

The FORTRAN-78 object files include a test program to verify that the compiler, SCI commands, and run time are properly installed. The test program is compiled, linked, and executed by the F78TEST command provided with the object.

Before performing the test procedure in this section, be sure you performed the media preparation procedures in Section 2.

4.2 TEST PROCEDURE

To execute the test program, perform the following steps:

1. If you have not already done so, enter the .USE SCI primitive as follows:

```
.USE DNF78OBJ.S$CMDS, .S$CMDS
```

2. Enter the F78TEST command as follows:

```
[ ] F78TEST
```

```
TEST FORTRAN-78 INSTALLATION <VX.X.X YY.DDD >  
OBJECT ACCESS NAME:accessname  
TARGET DISK VOLUME NAME:volname  
LISTING DIRECTORY PATH NAME:pathname
```

Respond to the prompts as follows:

OBJECT ACCESS NAME

Enter the volume name of the FORTRAN-78 object disk or the pathname of a directory containing the FORTRAN-78 object disk contents. The default is DNF78OBJ, the volume name of the FORTRAN-78 object disk.

TARGET DISK VOLUME NAME

Enter the volume name of the disk on which the FORTRAN-78 compiler, SCI commands, and message files are installed.

LISTING DIRECTORY PATHNAME

Enter the pathname of a directory to be used for the listings generated by the FORTRAN-78 compiler and Link Editor. If the directory does not exist, The F78TEST command creates it. The compiler listing file is placed in dirname.TEST.CMPLIST, and the Link Editor listing is placed in dirname.TEST.LINKMAP.

The F78TEST command compiles a short test program and links it using the Link Editor. When the program is executed, the following is displayed on your screen:

```
THIS IS A TEST OF FORTRAN.  
HIT NEW LINE OR RETURN TO TERMINATE TEST.
```

Press the Return key to clear the screen and display the following message at the top of the screen:

```
I FORT78RT-0038 STOP FORTRAN-78 TEST COMPLETED SUCCESSFULLY
```

3. Press the Command key to display the following message at the bottom of the screen:

```
I FORT78RT-0038 STOP FORTRAN-78 TEST COMPLETED SUCCESSFULLY
```

4. Press the Return key once more to display the SCI menu again.
5. After you review the listing directory, you can delete it by issuing this command:

```
DD PATHNAME=dirname, AYS=YES
```

In the DD command, dirname is the directory pathname you gave in response to the LISTING DIRECTORY PATHNAME prompt of the F78TEST command.

6. To resume using the S\$CMDS library, enter the following command:

```
.USE.S$CMDS
```

This concludes the test procedure.

Section 5

Removing FORTRAN-78

5.1 INTRODUCTION

If you wish to remove the FORTRAN-78 object from your system, perform the steps in this section.

5.2 DELETION PROCEDURE

In the following instructions, volname is the volume name of the disk on which the FORTRAN-78 object is installed. If this is the system disk, you can omit volname and start the pathname with a period.

To delete the FORTRAN-78 object, perform the following steps:

1. Delete the FORTRAN-78 compiler, the SCI commands to execute the compiler, the SCI commands to execute FORTRAN-78 tasks, and the compiler message file by entering the following commands:

```
DT PROGRAM FILE=volname.S$LANG, TASK=FORT78
DF P=volname.S$MSG.FORT78CP
DF P=volname.S$CMDS.XF78
DF P=volname.S$CMDS.XF78F
DF P=volname.S$CMDS.XFT
DF P=volname.S$CMDS.XFTF
```

2. Delete the FORTRAN-78 run time and the run-time message file by entering the following commands:

```
DD P=volname.FORT78, ARE YOU SURE=YES
DF P=volname.S$MSG.FORT78RT
```

3. Delete the MATHSTAT-78 object directory by entering the following command:

```
DD P=volname.MSTAT78, ARE YOU SURE=YES
```

4. If expanded online message files are installed, delete them by entering these commands:

```
DF P=volname.S$EXPMMSG.FORT78CP  
DF P=volname.S$EXPMMSG.FORT78RT
```

This concludes the removal procedure.