November 1984

This manual describes how to use PROGRAMMABLE
DEVICE SUPPORT. A description of various utility
programs is also provided.

PROGRAMMABLE DEVICE SUPPORT

User's Manual and Utilities Guide

SUPERSESSION/UPDATE INFORMATION: This is a new document
                                    for this release.

OPERATING SYSTEM AND VERSION: VAX/VMS V3.5

FTWARE VERSION: PROGRAMMABLE DEVICE SUPPORT
                                    Version 1.0

ORDER NUMBER:

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PREFACE

1.0 Manual Objectives

The purpose of the manual is to describe how to obtain programmable device support with the PROGRAMMABLE DEVICE SUPPORT system. Various PROGRAMMABLE DEVICE SUPPORT utility programs are also described.

2.0 Audience

This manual is for individuals involved in database administration or operations, or for programmers who need to understand database operations.

3.0 Prerequisites

The reader of this manual should be familiar with the VAX/VMS operating system and have some knowledge of a high-level programming language.

.0 Structure of This Document

This manual is organized as follows:

Chapter 1: Provides an overview of the PROGRAMMABLE DEVICE SUPPORT system.

Chapter 2: Provides information on the use of PROGRAMMABLE DEVICE SUPPORT screens.

Chapter 3: Explains the Device Services menu which can be used to to do such things as uploading, downloading, and comparing of your programmable devices.

Chapter 4: Explains the Library Services menu which lets you document and list your programmable devices.

Chapter 5: Explains the Network Status menu which displays the status of the programmable devices as well as the network.

Chapter 6: Explains the Read/Write/Monitor Device menu which allows you to display and monitor coils and registers.

Chapter 7: Lists and describes PROGRAMMABLE DEVICE SUPPORT system user messages.

5.0 Associated Documents

Further information on various topics covered in this manual may be found in the following manuals:

o BASEWAY Installation Guide/Release Notes

   (order number XX-12345-01).

o PROGRAMMABLE DEVICE SUPPORT Installation Guide/Release Notes

   (order number XX-12365-01)

o SHOP FLOOR GATEWAY Installation Guide/Release Notes

   (order number XX-12355-01)

o BASEWAY User's Manual and Utilities Guide

   (order number XX-12347-01).

o VAX DATATRIEVE User's Guide

   (order number AA-K080A-TE)

o ALL-IN-1 Office Menu User's Guide

   (order number AA-N321A-TE).

CHAPTER 1

OVERVIEW OF PROGRAMMABLE DEVICE SUPPORT

1.1 Overview

PROGRAMMABLE DEVICE SUPPORT is a tool to manage shop floor devices. The system uses the power, efficiency, and convenience of a computer to load and maintain programmable device programs. In addition, PROGRAMMABLE DEVICE SUPPORT presents a common device interface to all devices.

Programmable devices are defined interactively and attributes such as programmable device name, manufacturer name and device model number, and date of installation, are assigned to each programmable vice.

The attributes assigned to each programmable device are checked for validity when the device is defined. Each known address in a programmable device has additional attributes; for example, format of data, name of each data element, and minimum sample time.

Several data formats are supported and include status conditions (single-bit values) and 16-bit signed binary values.

1.2 Facilities

PROGRAMMABLE DEVICE SUPPORT can perform the following functions:

o   print directories of program libraries

o   examine and modify deposit coils, holding registers, and memory locations

o   examine states of programmable controllers

o   maintain the integrity of programmable device programs

o   list and print timely and accurate ladder listings and
    documentation for devices

1.3 Logic Program Development Using PROGRAMMABLE DEVICE SUPPORT

PROGRAMMABLE DEVICE SUPPORT can aid in the development of logic
programs for shop floor devices. Each user of PROGRAMMABLE DEVICE
SUPPORT can maintain a separate library containing programs for each
of the programmable controllers that he or she is working on. An
independent production library of programmable device programs is
maintained online.

1.4 Devices Supported

The following programmable devices are currently supported:

o   Allen-Bradley PLC-2/30, PLC-3

o   Modicon 484 and 584

```
              PROGRAMMABLE DEVICE SUPPORT
              (layered on top of BASEWAY)
              +----------------+
BASEWAY       ! VAX Processor  !         (max. of 4, can
              !                !          support up to 4
              !                !          user applications)
              +----------------+
                      !
===============================================================================
                      !
              +---------+
SHOP FLOOR    !PDP-11   !              (max. of 4)
GATEWAY       !Processor!
              +---------+
                  !   !
===============================================================================
                  !   !
----------------------------------------------------------------------------
    !       !       !       !       !       !       !       ?
    !       !       !       !       !       !       !       !
+------+ +------+ +------+ +------+ +------+ +------+ +------+ +------+
!Progr.! !Progr.! !Progr.! !Progr.! !Progr.! !Progr.! !Progr.! !Progr.!
!Device! !Device! !Device! !Device! !Device! !Device! !Device! !Device!
+------+ +------+ +------+ +------+ +------+ +------+ +------+ +------+
    !       !       !       !       !       !       !       !
    ?       ?       ?       ?       ?       ?       ?       ?
--------------------------------------+    +-----------------------------+
    Shop Floor Equipment              !    !   Shop Floor Equipment      !
+-------------------------------------+    +-----------------------------+
```
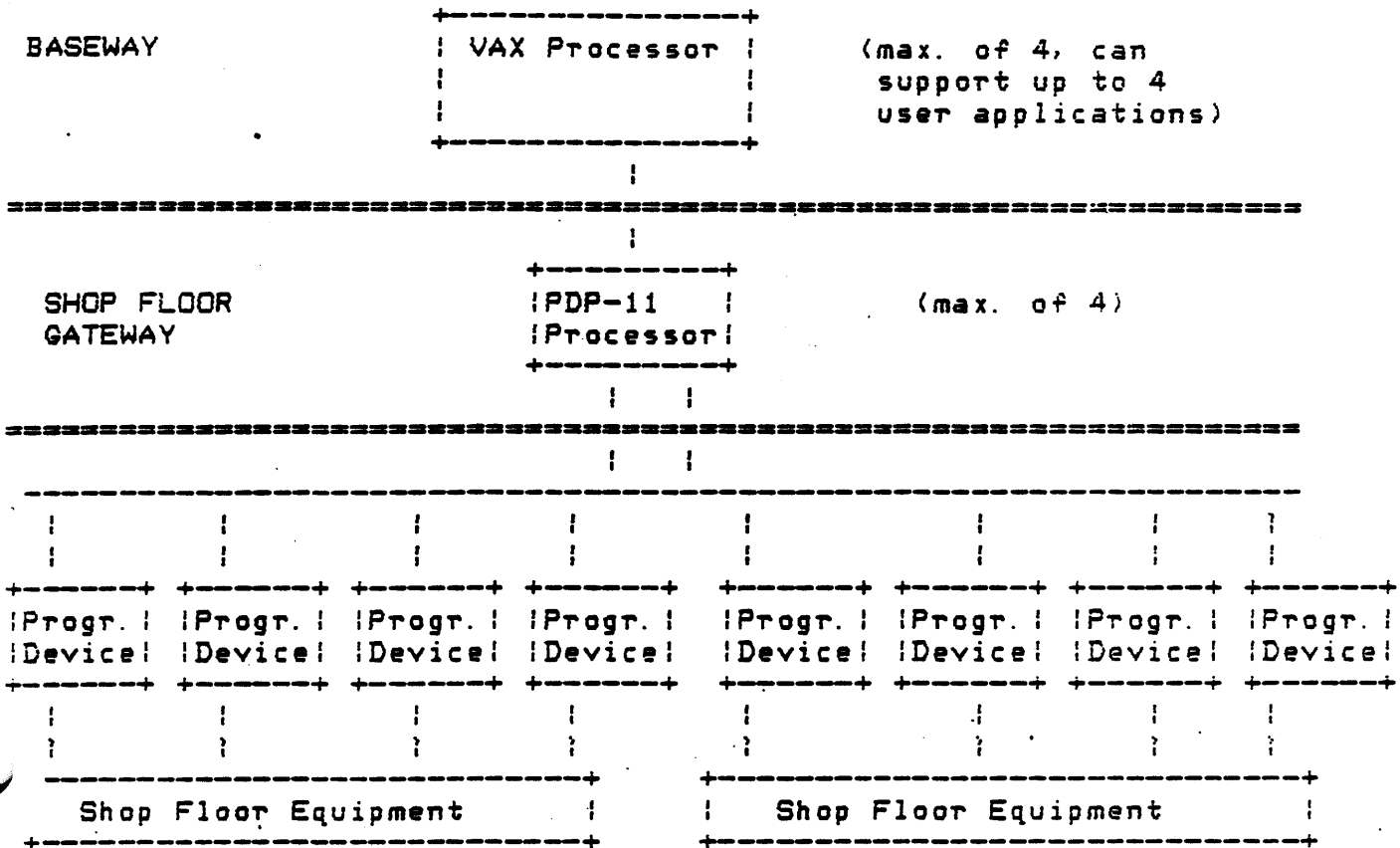
Figure 1. System Overview Showing Relationship of
BASEWAY, PROGRAMMABLE DEVICE SUPPORT, and SHOP FLOOR GATEWAY

CHAPTER 2

UNDERSTANDING PROGRAMMABLE DEVICE SUPPORT SCREENS

2.1 Introduction

PROGRAMMABLE DEVICE SUPPORT screens utilize Digital's VAX Forms Management System (VAX FMS).

2.2 Screen Layout and Notation

To give you a better idea of the format of PROGRAMMABLE DEVICE SUPPORT screens, Figure 2 shows a "generic" screen layout.

```
+-----------------------------------------------------------------------+
| program library name        report name                     time |
| program page                                                date |
|                                                                       |
|                                                                       |
|  user input field > _____        display field : XXXXXXXXXXX |
|                                                                       |
|                                                                       |
|   messages                                                           |
|                                                                       |
+-----------------------------------------------------------------------+
```

Figure 2. Example Form Layout

2.2.1   Input Fields

User input fields are preceded by the ">" character.

```
|
|    Gateway Node Name>_____
|
```

2.2.2   Display Fields

Display-only fields are preceded by a ":" (colon) character.
Information in display-only fields is put there by the program.   For
example,

```
|
|   Device Name:  _____
|
```

2.3   Keyboard and Key Usage

Characters may be entered in either upper- or lowercase;   all
characters that are required to be uppercase will be modified by the
system.

IMPORTANT: In this manual, the word "enter" means type the desired character(s) and then press the RETURN key.

2.4 BASEWAY Menu and PROGRAMMABLE DEVICE SUPPORT

PROGRAMMABLE DEVICE SUPPORT can be accessed by entering the letters PDS from the BASEWAY System Overview menu.

```
+-----------------------------------------------------------------+
! menu                                               9:00 AM!
! page 1                                            14-JUN-84!
!                                                             !
!                                     ! application name        !
!                                     !                         !
!     APP   User Application          ! BASEWAY Application Bus !
!     PDS   Programmable Device Support !                       !
!     SYS   System Management         !    System Overview      !
!     STS   System Status             !                         !
!     EXIT  Leave BASEWAY System      !                         !
!                                     !                         !
!           Type choice> _____  !                         !
!           Then press RETURN                                   !
+-----------------------------------------------------------------+
```


The PROGRAMMABLE DEVICE SUPPORT System Overview menu will be displayed:

```
+-----------------------------------------------------------------+
!menu                                                04:59 AM!
!page 1                                             15-JUN-84!
!                                                             !
!    DSS     Device Services            !      application name    !
!    LSS     Library Services           !                          !
!    NST     Network Status             ! PROGRAMMABLE DEVICE SUPPORT!
!    RWM     Read/Write/Monitor Device  !                          !
!                                       !                          !
!                                       !    System Overview       !
!                                       !                          !
!           Type choice> _____                               !
!           Then press RETURN                                      !
+-----------------------------------------------------------------+
```


Chapters 3, 4, 5, and 6 discuss the use of the various menu items listed above.

2.5 The EXIT Menu Item

    To leave the system, enter the word, EXIT.   You   can   leave   the
system   by   entering   "EXIT"   at   any   Type choice> prompt.   It is not
necessary to first return to the BASEWAY System Overview menu.

2.6   Specifying Files in PROGRAMMABLE DEVICE SUPPORT

     Specifying files in PROGRAMMABLE DEVICE SUPPORT is simple if you
remember that for files in your library you need only type the file
name when prompted.

     NOTE: File names contain a maximum of 9 characters and   must   be
alphanumeric.

     For files in other libraries, you must precede the file name with
the library name, followed by a slash, followed by the file name.

     For example, a user named Jack Smith has his files in a library
called "SMITH".   (Note, however, that a user may have more than one
library; see your system manager if you need to have more than one
library.) Whenever Jack wants to refer to a file called "DEVICE 006"
in his library he simply types the name of the file.

     File name > DEVICE006

     If Jack wants to reference a file in Jill Johnson's library,   he
must precede the filename with Jill's library name as shown below:

     File name > JOHNSON/DEVICE006

2.7 Authorization Levels

Your use of PROGRAMMABLE DEVICE SUPPORT depends to a great extent on the type of authorization (privilege) your System Manager has set up for you. Actions that involve modification to the production library are normally restricted solely to the System Manager, however. See your System Manager if you need additional authorization privileges.

2.8 Verifying Requested Operations

Some PROGRAMMABLE DEVICE SUPPORT operations require you to verify an action you have requested before the action is attempted. These operations include uploading, downloading, deleting, copying, and others.

When a default value is shown in the verification field, you can accept the default value by pressing RETURN (this is a "No" response and results in the cancellation of the request), or you can explicitly enter a valid value.

Occasionally no default value will be shown in the verification field. In this case, "N" is still the default value.

2.9 Keypad Keys

2.9.1 Location of Keypad Function Keys and Associated Keyboard Keys

In the figure below, the characters enclosed in parentheses denote what is actually printed on the key.

Note: On keys showing two functions, the bottom (alternate) function is obtained by pressing the PF1 key first.

```
                              +--------+--------+--------+--------+
                              !activate ! Help   !        !        !
                              !alt. key ! (PF2)  ! (PF3)  ! (PF4)  !
               +-------+      !function !        !        !        !
               !       !      !  (PF1)  !        !        !        !
               !Prev.  !      +--------+--------+--------+--------+
               !Field  !      !Update   !        ! Print  !        !
               !(BACK  !      ! (7)     ! (8)    ! (9)    ! (--)   !
               ! SPACE)!      !         !        !PrintAll!        !
               +-------+      +--------+--------+--------+--------+
   +-----+                    !Cancel   !Select  ! Delete !        !
   !Next !     +---------+    ! (4)     ! (5)    ! (6)    ! (,)    !
   !Field!     !Erase    !    !         !        !        !        !
    TAB)!      !Char     !    !         !        !        !        !
   ----+       !(DELETE) !    +--------+--------+--------+--------+
               +---------+    !Frstpag  !Nextpag !        !        !
                              ! (1)     ! (2)    ! (3)    ! Enter  !
                              !Lastpag  !Prevpag !        !        !
                              !         !        !        !(ENTER) !
               +-------+      +--------+--------+--------+        !
               !Erase  !      !        !        !        !        !
               !Field  !      ! Exit Screen       ! (.)   !        !
               !(LINE  !      !      (0)          !       !        !
               ! FEED) !      !        !        !        !        !
               +-------+      +--------+--------+--------+--------+
```

Figure 3. Keypad and Associated Keys

2.9.2 Explanation of Keypad Function Keys

NOTE: For user terminals with keyboard overlays, "PF1" is
equivalent to the GOLD key. The letters "KP" denote "Keypad" keys
which are the rows of keys directly below the PF keys.

Generally, where you are instructed to press two keys, e.g.,
press PF1 + KP1 keys, you should press the first key and then press
the second key. An exception to this is CTRL/R, which requires you to
press the CTRL key and, holding it down, type "R".

Those function keys used frequently in PROGRAMMABLE DEVICE
SUPPORT are summarized in the following section.

2.9.3 Commonly Used Keypad Function Keys

The following is a description of the more frequently used keypad keys as they apply to the PROGRAMMABLE DEVICE SUPPORT. A complete list of keypad function keys is given in Section 3.6.0.1 below.

When you want to leave a particular program, remember that you must press Keypad 0.

Select - Keypad 5. Pressing this key when the cursor is positioned in a field which allows a list of the currently defined names to be displayed. Using the Select function minimizes the need for typing.

```
+------------------------------------------------------------------+
|                         Current Devices                          |
|                                                                  |
|               1  DEVICE1010                                      |
|               2  DEVICE2210                                      |
|               3  DEVICE3330                                      |
|                                                                  |
|                         Selection > 0                            |
|                                    --                            |
+------------------------------------------------------------------+
```

You may either enter the number of your selection, or press the RETURN key to go back to the field you came from.

To see if there are more items in the above list, press Keypad 2. Press Keypad 1 to go back to the beginning of the list.

Keypad 7 - Update. Pressing this key causes the data on the screen to be associated with the part of the system you are defining. Once defined, the associated data will be displayed when Keypad 5 is pressed.

Keypad 6 - Delete. Pressing this key will cause a definition to be deleted. The name must have been previously defined to be deleted.

Keypad 4 - Cancel. This key causes information typed on the screen to be erased. The cursor will return to the first field on the screen.

Keypad 0 - Go To Menu/Exit Screen. This key causes the menu to be displayed and may be selected at any time.

BACKSPACE - Move cursor back to previous field.

LINEFEED - Erase value displayed in current field.

2.9.4 Complete List of Keypad Function Keys and Associated Keys

TO ACCOMPLISH THIS	DO THIS ...
move to next field	press TAB
move to previous field	press BACKSPACE
erase contents of input field	press LINEFEED
Go to menu/exit screen	press KP0 key
get help	press PF2 key
restart screen	press PF1 + KP0 keys
move to first page of utility	press KP1 key
move to last page of utility or show more items in list	press PF1 + KP1 keys
move to next page of utility	press KP2 key
move to previous page of utility or show previous items	press PF1 + KP2 keys
cancel changes made to displayed screen	press KP 4 key
delete definition	press KP6 key
send definition, display new screen	press KP7
print copy on line printer	press KP9 key
print copy of all screens	press PF1 + KP9
repaint the screen	press CTRL + R keys (CTRL/R)

2.10 HELP Function

Two levels of user help are available: help for the field in which the cursor is currently located (one-line help) and help for an entire screen (help screen). When you press the PF2 (Help) key once, one-line help is displayed at the bottom of the screen. When you depress the Help key twice, the current screen clears and a help screen is displayed. Help screens are available for most PROGRAMMABLE DEVICE SUPPORT reports and utility programs.

2.10.1 Format of Help Screen

The format of a help screen is similar to that of a normal display screen with some exceptions:

o The word "HELP" appears in the screen header.

o The phrases: "Press HELP for more help, or RETURN to continue." or "Press RETURN to continue" may appear on the last line of the help screen.

2.11 Error Signaling and Recovery

Typing errors and invalid uses of editing and field termination functions are signaled by a "beep" of the terminal bell. In addition, a message may be displayed at the bottom of the screen.

Some fields may not be modified by the user; the system will skip over these fields or the terminal may "beep" if there are no more valid fields to skip to.

CHAPTER 3

DEVICE SERVICES MENU

To select the Device Services menu, type the letters DSS from the PROGRAMMABLE DEVICE SUPPORT System Overview menu. As shown below, this menu lists activities dealing with programmable device maintenance.

```
+--------------------------------------------------------------------+
|menu                                                       11:01 AM|
|page 2                                                     15-JUN-84|
|                                                                    |
|   UPL      Upload Device Logic          |    application name      |
|   DNL      Download Device Logic         |                          |
|   CMP      Compare Device Logic          |   PROGRAMMABLE DEVICE SUPPORT |
|   LLL      Create Ladder Listing         |                          |
|   LLT      Display Ladder Listing        |   Device Services        |
|   EDD      Edit Logic Documentation      |                          |
|                                                                    |
|            .Type choice>                                           |
|            Then press RETURN                                       |
+--------------------------------------------------------------------+
```

Device Services Menu

3.1 Upload Device Logic

Upload allows you to move a file from a programmable device's memory to a file in your user library.

To upload, enter the letters UPL from the Device Services menu.

1. Press Keypad 5 to select a current Device name, or type in a Device name of up to 16 characters. Now press TAB.

2. Press Keypad 5 to select a file name, or type the name of the file (including a library name if the file is not in your library), that you want the device's memory placed in. Up to 21 characters may be entered. (The logic file name is usually the same as the device name, but it does not have to be.) This file will reside in your library and will have the file extension .LGC.) Now press RETURN.

3. You will be prompted with the message, "Verify UPLOAD (Y/N) >". Enter a Y to upload the file; enter an N (or press RETURN) to cancel the upload and return to the File name > prompt.

4. CAUTION: If the file already exists, a message will be printed. Enter a Y if you want the old file to be replaced by the new file. Enter an N (or simply press RETURN) if you do not want the current file deleted and the upload will be cancelled.

5. If you responded with Y and the uploading is successful, a message will be displayed on your terminal.

```
+-------------------------------------------------------------------+
: upload                  Upload Device Logic              03:51 AM:
: page 1 of 1                                             15-JUN-84:
:                                                                   :
:                                                                   :
: Device Name > 1L03943        Description: Paint Shop Body Recogni :
: File Name   > SMITH/AB230PROG Manufacturer: Allen-Bradley         :
:                              Model:         PLC-2/30              :
: Device State: Non-Production  Memory Size:                2048    :
:                              Device Set: DAYGLO                   :
:                                                                   :
+-------------------------------------------------------------------+
```

Example Upload Device Logic

3.2 Download Device Logic

Download lets you move a file from the Production Library to the programmable device's memory.

To download, enter the letters DNL from the menu.

NOTE: A file must be in the Production library before it can be downloaded and requires a special privilege. A production device may only be loaded from a file in the production library. Other devices may be loaded from any valid file. In addition, various keyswitches on the devices must be set properly before the actual downloading can occur. See Appendix A for information about the keyswitch positions for downloading Allen-Bradley devices.

1. Press Keypad 5 to select a current Device name, or type in a Device name of up to 16 characters. Now press TAB.

2. Press Keypad 5 to select the name of the programmable device logic file, or type the file name (including a library name if the file is not in your library). Up to 21 characters may be entered. (The logic file name is usually the same as the device name, but it does not have to be.) In addition, it is usually the last file uploaded for the programmable device.) Now press RETURN.

3. When you press RETURN, the File History portion of the screen is filled in by the system.

4. You will then be prompted with the message, "Verify DOWNLOAD (Y/N) >". Enter a Y to download the file; enter an N (or press RETURN) to cancel the download.

5. CAUTION: If the file already exists, a message will be printed. Enter a Y if you want the old file to be replaced with the new file. Enter an N (or simply press RETURN) if you do not want the current file deleted.

6. If you responded Y and the downloading was successful, a message will be displayed.

```
+------------------------------------------------------------------------+
! download                Download Device Logic              03:51 AM !
! page 1 of 1                                                15-JUN-84 !
!                                                                        !
!                                                                        !
! Device Name > 1L03943           Description: Paint Shop Body Recogni ! 
! File Name > SMITH/AB230PROG      Manufacturer: Allen-Bradley          !
!                                  Model: PLC-2/30                       !
! Device State: Non-Production     Memory Size:            2048          !
!                                  Device Set: DAYGLO                    !
!                                                                        !
+------------------------------------------------------------------------+


+------------------------------------------------------------------------+
! File History:     SMITH/AB230PROG                                      !
! File Uploaded: 15-JUN-84  06:35 PM        Memory:        2048          !
! from Device: 1L03943                      Data Table:    256           !
! Manufacturer: Allen-Bradley                                            !
! Model: PLC-2/30                                                        !
+------------------------------------------------------------------------+
```

Example Download Device Logic

3.3   Compare Device Logic

This menu choice compares a programmable device's memory with a selected logic file.

NOTE: This program will check to make sure that the file and the device are from the same manufacturer and model of device.

Enter the letters CMP from the menu.

1.   Press Keypad 5 to select a current Device name, or type in a Device name of up to 16 characters.   Now press TAB.

2.   Press Keypad 5 to select a file name, or type in a file name (including a library name if the file is not in your library).   Up to 21 characters may be entered.   (The logic file name is usually the same as the device name, but it does not have to be.) Now press RETURN.

3.   If the logic file and device file names are incompatible, the program will display a message, the screen will clear, and the cursor will return to the File Name > prompt.   (Press BACKSPACE to return to the Device Name field.)

4.   You will next be asked to verify the compare operation.   If you enter Y, the file history will be displayed.   Enter N (or press RETURN) to cancel the compare.

5.   If differences are found, you will be asked if you want to print a log file.

```
+-----------------------------------------------------------------------+
| compare                 Compare Device Logic               03:51 AM |
| page 1 of 1                                                15-JUN-84 |
|                                                                       |
|                                                                       |
| Device Name > 1L03943              Description:  Paint Shop Body Recogni|
| File Name > SMITH/AB230PROG        Manufacturer: Allen-Bradley        |
|                                    Model: PLC-2/30                    |
| Device State: Non-Production       Memory Size:              2048     |
|                                    Device Set: DAYGLO                 |
|                                                                       |
+-----------------------------------------------------------------------+


+-----------------------------------------------------------------------+
| File History:     SMITH/AB230PROG                                     |
| File Uploaded: 15-JUN-84   06:35 PM        Memory:       2048         |
| from Device: 1L03943                       Data Table:   256          |
| Manufacturer : Allen-Bradley                                          |
| Model: PLC-2/30                                                       |
|                                                                       |
+-----------------------------------------------------------------------+
```

Example Compare Device Logic

3.4   Create Ladder Listing

After you have uploaded a programmable device's memory into a logic file, you can produce a ladder listing (often called a "translation") for it. The ladder listing will be copied to a file (and will have a file extension of (.LIS) which will reside in your library.

To access the menu item, enter the letters LLL.

1.   Press Keypad 5 to select a logic file to translate, or type in the name of a logic file to translate (up to 19 characters) and press TAB.

   NOTE: The ladder listing will have the same name as the logic file name entered here.

2.   (optional) Press Keypad 5 to select a documentation file name, or type a file name of up to 19 characters. This file will contain notes describing the ladder listing.

3.   (optional) Enter up to 26 characters in this field to produce a title at the top of each page of the ladder listing.

4.   Enter an F (full listing) or press TAB to obtain the default (L which denotes an abbreviated listing) in the Translation option> field.

5.   FIELD APPLICABLE TO MODICON ONLY--Range of Networks to list >

   o   For listing a specified portion of the logic file, enter numbers that indicate the low and high range of networks to be listed. (The starting number must be less than or equal to the ending number.)

   o   For listing the entire logic file, leave these fields blank and simply press RETURN.

6.   A message asking for verification will be displayed. Enter a Y to proceed with the creation of the ladder listing; enter an N (or press RETURN) to stop creation of the listing.

7.   If you respond Y, the translation will be performed and messages will be printed inside a boxed area on the lower half of the screen.

8.   The listing will be routed to a default line printer and a message stating that the ladder listing has been created will be displayed.

```
+-----------------------------------------------------------------------+
| devladder          Create Ladder Listing                  09:06 AM|
|  age 1 of 1                                     .         15-JUN-84|
|                                                                       |
|                                                                       |
|       Logic File To Translate >    AB230PROG                          |
|            Documentation File >    AB230PROG                          |
|        Title for Listing      >    THIS IS MY LISTING                 |
|       Translation Option > L                                          |
|       Range of Networks To List >   to                                |
|                                                                       |
+-----------------------------------------------------------------------+


+-----------------------------------------------------------------------+
|                                                                       |
|                    Translator Status                                  |
|                                                                       |
+-----------------------------------------------------------------------+
```

Example Create Ladder Listing

3.5 Display Ladder Listing

To display an existing ladder listing on your terminal, enter the letters LLT.

NOTE: To allow you to display the entire width of the ladder listing on your terminal screen, the size of the lettering is reduced. The lettering will return to its normal size when you return to the menu.

1. Press Keypad 5 to select the file name of the ladder listing you wish to see displayed (this name is the same as the logic file name). Now press RETURN.

2. The first page of the ladder listing will be displayed on your terminal.

3. Press Keypad 2 to move forward in the listing; press Keypad 1 to move back.

```
+-----------------------------------------------------------------------+
! ladderout          Display Ladder Listing                    08:59 AM!
! page 1 of 1                                                  15-JUN-84!
!                                                                       !
!                                                                       !
!                  Listing file to display >   AB230PROG                !
!                                                                       !
+-----------------------------------------------------------------------+
```

Example Display Ladder Listing

3.6 Edit Logic Documentation

Documentation files (sometimes called "annotate" files) are used
to explain the contents of ladder listings or logic files.

To create or edit a documentation file, enter the letters EDD
from the menu.

1. Press Keypad 5 to select a documentation file, or enter the
   name of a file (up to 20 characters). This file will reside
   in your library and will have the file extension .DOC.

   NOTE: You must have a logic file with the same name in
   the library you select.

2. If this is a new file, you will be prompted for verification
   of the creation of this file. You must explicitly enter Y to
   display the appropriate screen for the device, or N to return
   to the file name prompt.

3. If you enter the name of a file that already exists, type Y
   to begin editing the file and N to return to the file name
   prompt.

4. For an Allen-Bradley PLC-2

   - Type in a word (3, 4, or 5 digits) or a label (1, 2
     digits) and press TAB.

   - Type in a bit address (0 or 1, or 00-17) and press TAB.

   - (optional) Type in up to three lines of operand comments
     and press TAB.

   - (optional) Type in a description (up to 41 characters).

   - Press UPDATE when you are finished. A message will be
     displayed.

   - You will then be asked if you are finished editing.
     Enter a Y or N.

   - You will be asked if you wish to save the changes. Enter
     a Y or N.

   NOTE: Allen-Bradley PLC-3 and Modicon 484 and 584 are
   also supported.

```
+-----------------------------------------------------------------------+
:docfile            Edit Logic Documentation              9:00 AM:
 age 1 of 1                                               15-JUN-84:
 :                                                                     :
 :                                                                     :
 :      +------------------------------------------------------+       :
 :  :   :      Document file > AB230PROG                       :   :   :
 :  :   :          Manufacturer>                               :   :   :
 :  :.  :              Model>                                  :   :   :
 :  :   :   This file will be used with the following PD translator: :   :
 :  :   :          Allen-Bradley                               :   :   :
 :  :   :          PLC-2/30                                    :   :   :
 :  :   +------------------------------------------------------+   :   :
 :                                                                     :
+-----------------------------------------------------------------------+
```

```
+-----------------------------------------------------------------------+
:docfile            Edit Logic Documentation              9:05 AM:
:page 2 of 2                                              15-JUN-84:
:                                                                     :
:      Word:   Address or Label > 123      Bit or Byte Address > 01   :
:                                                                     :
:         Operand Comment >THIS IS                                    :
:                         >123/01's                                   :
:                         >NAME                                       :
:                                                                     :
:      Description > Comment for 123/01                               :
:                                                                     :
+-----------------------------------------------------------------------+
```

Example Edit Logic Documentation

Initial Logic Documentation easier w/EDT.

More good for small changes.

CHAPTER 4

LIBRARY SERVICES MENU

Enter the letters LSS from the PROGRAMMABLE DEVICE SUPPORT System Overview menu to select Library Services. Library Services menu items allow you to document and list your programmable device programs.

```
+------------------------------------------------------------------+
|menu                                                      9:10 AM|
|page 2                                                  15-JUN-84|
|                                                                  |
|                                                                  |
|        CF    Copy File                     |  application name   |
|        DF    Delete File                   |                     |
|        RF    Rename File                   |  PROGRAMMABLE DEVICE SUPPORT |
|        BD    Display Brief Directory       |                     |
|        DD    Display Detailed Directory|                         |
|        PR    Print File                    |  Library Services   |
|        CMPF  Compare Two Files             |                     |
|                                                                  |
|              Type choice>                                        |
|              Then press RETURN                                   |
+------------------------------------------------------------------+
```

Library Services Menu

4.1 Copy File

This menu option is useful if you want to:

o make a copy of a file that is currently in your library

o make a copy of a file that is currently in another user's library

o make a copy of a file that is currently in the production library

The copy is placed in your own library.

Select this menu option by typing the letters CF from the menu.

1. Press Keypad 5 to select one of the files in your library, or type in the name of the file you want to copy and press TAB.

2. Press Keypad 5 to select a file, or type the name of the file that want the copy put into and press TAB.

    NOTE: You must have a special authorization to place a copy of a file in another user's library.

3. Now type in the letter that denotes the kind of file you are copying; i.e., L for logic, D for documentation. Press RETURN.

4. If the file you are copying TO is an existing file, a message asking for verification of the copy operation will be displayed. Enter Y to perform the copy, or N if you do not want to copy.

```
+----------------------------------------------------------------------------------+
| ibcopy                          Copy File                             7:31 AM!   |
| age 1 of 1                                                          15-JUN-84!    |
:                                                                                  :
:                                                                                  :
:         Copy File FROM >  AB230PROG                                              :
:          Copy File TO  >  AB230COPY                                              :
:            File Type   >  L                                                      :
:                                                                                  :
+----------------------------------------------------------------------------------+
```

Example Copy File

4.2 Delete File

This option allows you to delete a file that is no longer needed or which occupies too much space in your library (ladder listing files occupy a good deal of space, and it is recommended that you not allow them to accumulate in your library).

Enter the letters DF to select this menu item.

NOTE: You must have specific authorization to delete files in other libraries.

1. Press Keypad 5 to select a file to delete, or type in the name of the file. Press TAB.

2. Type in the appropriate letter(s) to denote the kind of file you wish to delete. Choices are L (logic), D (documentation), P (ladder listing), LD (BOTH logic and documentation). Now press RETURN.

3. A message asking you to verify the deletion will then appear. Type Y to perform the deletion, type N (or press RETURN) to stop the deletion of the file.

```
+-------------------------------------------------------------------------+
| `ibdelete                Delete File                          03:49 AM|
| _age 1 of 1                                                  15-JUN-84|
|                                                                         |
|                                                                         |
|         File to DELETE  >  AB230COPY                                     |
|            File Type(s)  >  L                                           |
|                                                                         |
+-------------------------------------------------------------------------+
```

Example Delete File

4.3 Rename File

This menu option allows you to change the   name   of   an   existing
file.

Enter the letters RF from the menu.

1. Press Keypad 5 to select a file that you wish to rename,   or
    type in a file name (up to 9 characters) and press TAB.

2. Now type in a new file name and press TAB.

3. Type the letter denoting the type of file you are renaming (L
    or D) and press RETURN.

4. A message asking you to verify the rename operation will
    appear.

    NOTE: If you have typed in the name of a file that
    already exists, a message will be displayed. Enter a Y to
    rename; enter an N if you don't want to rename.   (If you
    respond "Y", the file that already existed will be deleted
    from your library.)

5. A message stating that the renaming has been successful will
    be displayed.

```
+--------------------------------------------------------------------+
| ibcopy                     Rename File                    4:05 PM |
| age 1 of 1                                               15-JUN-94 |
|                                                                    |
|                                                                    |
|         Current File Name>   AB230PROG                             |
|             New File Name>   AB230DUPL                             |
|                 File Type>   L                                     |
|                                                                    |
+--------------------------------------------------------------------+
```

Example Rename File

4.4   Display Brief Directory

Use this menu option to display the names and types of the files
in a particular library.   Your own library is the default library
value.

Enter the letters BD to select this menu item.

1.   Press RETURN to display files in your library, or enter the
     name of the library you wish to see displayed (up to 12
     characters).

2.   The file names and types will be displayed (an "X" denotes
     the existence of a particular type of file).

3.   Press Keypad 2 to move forward in the list of file names;
     press Keypad 1 to move back.

4.   Press Keypad 0 when you want to return to the menu or PF1
     (gold) + Keypad 0 to return to the Library> prompt.

```
+-----------------------------------------------------------------------+
| ibbrief                 Display Brief Directory          10:09 AM|
| age 1 of 1                                               JUN-15-84|
|                                                                       |
|          Library Name > SMITH          (default is SMITH)             |
|                                                                       |
+-----------------------------------------------------------------------+


+-----------------------------------------------------------------------+
|                                                                       |
|   File Name        Device Name    Logic       Documentation   Print   |
|                                                                       |
|    AB230DUPL       1L03943         X                                  |
|    TEST                            X           X              X       |
+-----------------------------------------------------------------------+
```

Example Display Brief Directory

4.5 Display Detailed Directory

Enter the letters DD to obtain detailed information about one or
more logic files in a library.

1. Press TAB to accept the default value for the Library Name,
    or type in a Library Name (up to 12 characters) or an
    asterisk (*) to display all libraries and then press TAB.

2. Press TAB to accept the default value for the User Name, or
    type in a User Name (up to 12 characters) or an asterisk (*)
    to display files for all users and then press TAB.

3. Press TAB to accept the default value, press Keypad 5 to
    select a Device Name, or type in a Device Name (up to 16
    characters) and press TAB.

4. Press Keypad 5 to select the common name for a set of files
    (up to 9 characters). For example, "DEVICE3" would be the
    shared name of the files defined for   DEVICE3   (i.e.,
    "DEVICE3.LGC", "DEVICE3.DOC", and "DEVICE3.LIS", the logic,
    documentation, and listing files, respectively, for DEVICE3.

5. Now press RETURN to see a detailed directory displayed.

```
+------------------------------------------------------------------------+
| lbdisplay         Display Detailed Directory              6:04 PM |
|   age 1 of 1                                             JUN-15-84 |
|                                                                        |
|                                                                        |
|    Library Name>    SMITH         |    Manufacturer: Allen-Bradley    |
|    User Name>       SMITH         |                                   |
|    Device Name>     1L03943       |    Model       : PLC-2/30         |
|    File Set>        AB230DUPL     |                                   |
|                                                                        |
+------------------------------------------------------------------------+
```

```
+------------------------------------------------------------------------+
|                                                                        |
|    Upload Information             |   Directory Entry Information      |
|    Time:        15-JUN-84 06:35 PM |                                   |
|    From Device: 1L03943           |   Version:    1                   |
|                                   |                                   |
|    Download Information           |   Last Update:   15-JUN-84 7:10 PM |
|    Time:                          |   Creation Date: 14-JUN-84 3:35 PM |
|    From Device:                   |                                   |
|                                                                        |
+------------------------------------------------------------------------+
```

Example Display Detailed Directory

4.6 Print File

With this option, you can print out a documentation or ladder listing at a specified line printer.

This option is selected by entering the letters SP from the menu.

1. Press Keypad 5 to select the file you wish to print, or type in the name of a file (up to 19 characters) and then press TAB. (Don't forget to include the library name if this file is not in your library.)

2. Type the letter that identifies the kind of file you wish to print (P for ladder listing file, D for documentation file) and then press TAB.

3. To route your printout to the default printer, press RETURN in the Printer > field, or press Keypad 5 to select a printer.

4. A message asking for verification of the printing request will then be displayed. Enter a Y to print, enter N if you changed your mind.

5. A message indicating that the file has been sent to the printer will be displayed.

```
+--------------------------------------------------------------------------+
 ibspool                        Print File                       06:12 PM
 age 1 of 1                                                      15-JUN-84

       File to Print>   A-B230
           File Type>   L
             Printer>   SYS$PRINT:

+--------------------------------------------------------------------------+
```

Example Print File

4.7 Compare Two Files

This option compares two files and reports on any differences it finds. The files must be of the same type, manufacturer, and model.

Enter the letters FC from the menu.

1. Press Keypad 5 and select one of the two files you wish to compare and press TAB.

2. Press Keypad 5 to select the second file to be compared. Press TAB to move to the File Type > field.

3. Press RETURN to accept the default value for the File Type, or type the letter that denotes the type of files (D for documentation or L for logic file) and then press TAB.

4. A message asking for verification of the compare operation will be displayed. Enter a Y to start the compare, enter an N if you have changed your mind.

5. When the compare has been completed, the system will display a message reporting any differences that it found.

```
+------------------------------------------------------------------------+
| ilcomp              Compare Two Files                        11:03 PM |
| age 1 of 1                                                   15-JUN-84 |
|                                                                        |
|                                                                        |
|    File1 Name>     AB230DUPL            Manufacturer: Allen-Bradley    |
|                                         Model:        PLC-2/30         |
|                                                                        |
|    File2 Name>     AB230COPY            Manufacturer: Allen-Bradley    |
|                                         Model:        PLC-2/30         |
|     File Type>     L                                                   |
+------------------------------------------------------------------------+
```

Example Compare Two Files

CHAPTER 5

NETWORK STATUS MENU

    The Network Status menu is selected when you enter NST from the
PROGRAMMABLE DEVICE SUPPORT System Overview menu. This menu allows
you to display all programmable device statuses.

```
+----------------------+--------------------------------------------+
|menu                                                      10:00 AM|
|page 4                                                   JUN-15-84|
|                                                                  |
|                                                                  |
|    DDS   Display Device Status          |  application name      |
|    DTS   Display Detailed Device Status |                        |
|                                         |  PROGRAMMABLE DEVICE  SUPPORT|
|                                         |                        |
|                                         |  Network Status        |
|                                                                  |
|          Type choice>                                            |
|          Then press RETURN                                       |
+------------------------------------------------------------------+
```

5.1   Display Device Status

This menu item allows you to obtain a less detailed amount of information about a device.   Enter the letters DDS from the menu.

1.   Press Keypad 5 to select a Device name, or type an asterisk (*) to display all devices and press RETURN.

2.   The devices will be displayed in alphabetical order.

```
+----------------------------------------------------------------------+
| 'genstat              Display Device Status              7:54 PM|
|   age 1 of 1                                            15-JUN-84|
|                                                                  |
|    +------------------------------------------------------------+    |
|    |                                                          |    |
|    |  Device Name>    AB_2_30_A                               |    |
|    |                                                          |    |
|    +------------------------------------------------------------+    |
|                                                                  |
+----------------------------------------------------------------------+


+----------------------------------------------------------------------+
|                                                                  |
|    Device Name      Production   Enabled   Allocated  Polled   Reachable|
|                                                                  |
|    AB_2_30_A                     Yes                             |
|    MOD_584_B                                                     |
+----------------------------------------------------------------------+
```

Example Display Device Status

5-3

5.2 Display Detailed Device Status

You can obtain a full page of information about individual programmable devices.

This option is selected by entering the letters DTS from the menu.

NOTE: It may take several seconds for the information to be gathered and displayed.

1. Press Keypad 5 to select a Device Name, or type an asterisk (*) to see all devices and press RETURN.

2. The devices will be displayed in alphabetical order.

```
+----------------------------------------------------------------------+
| devstat             Display Detailed Device Status          7:54 PM|
| age 1 of 1                                                 15-JUN-84|
|                                                                     |
|    +------------------------------------------------------------+   |
|    |                                                            |   |
|    |   Device Name>    AB_2_30_A                                |   |
|    |                                                            |   |
|    +------------------------------------------------------------+   |
|                                                                     |
+----------------------------------------------------------------------+


+----------------------------------------------------------------------+
| Description:   Borrowed PLC-2/30        Memory Size:    2048        |
| Manufacturer:  Allen-Bradley            Contractor:                 |
| Model:         PLC-2/30                 Location:     Bay area      |
| Device Set:    REAL_DEVICES             Installed:                  |
| Network:       Data Highway             Defined:      19-SEP-84     |
| Port:          2                        Updated:      24-SEP-84     |
| Station:       011                      Updated By:   TESTMGR       |
| Flags:         Enabled                                              |
+----------------------------------------------------------------------+


+----------------------------------------------------------------------+
| Status:      PROGRAM LOAD          Memory Size:            0        |
| Interface:   1771-KA               Starting Address:       512      |
| Processor:   PLC-2/30                                               |
| Revision:    F                     Option Switches:    000000000    |
| Series:      A                                                      |
+----------------------------------------------------------------------+
```

Example 1.   Display Detailed Device Status

```
+--------------------------------------------------------------------------+
|devstat            Display Detailed Device Status              7:54 F
|page 1 of 1                                                   15-JUN-8
|
|    +----------------------------------------------------------------+
|    |                                                                |
|    |   Device Name>    AB_3_B                                       |
|    |                                                                |
|    +----------------------------------------------------------------+
|
+--------------------------------------------------------------------------+


+--------------------------------------------------------------------------+
| Description:   Our PLC-3              Memory Size:   65536                |
| Manufacturer:  Allen-Bradley         Contractor:                         |
| Model:         PLC-3                  Location:      Bay area             |
| Device Set:    REAL_DEVICES           Installed:     19-SEP-84            |
| Network:       Data Highway           Defined:       19-SEP-84           |
| Port:          2                      Updated:       24-SEP-84           |
| Station:       016                    Updated By:    TESTMGR             |
| Flags:         Enabled                                                   |
+--------------------------------------------------------------------------+


+--------------------------------------------------------------------------+
| Status:           RUN MODE           Mode Control Word:    104120        |
| Interface:        HIGHWAY PORT       Diagnostics Address:  141322        |
| Processor:        PLC-3              Revision:            D               |
| Interface Mode:   NORMAL             Series:              A               |
| Major Fault:                         Memory Used:         1661           |
| Context:          1                  Memory Size:         65536          |
| Thumbwheel Value: 1                                                      |
+--------------------------------------------------------------------------+
```

Example 2.   Display Detailed Device Status

```
+--------------------------------------------------------------------+
| evstat              Display Detailed Device Status       7:54 PM|
| age 1 of 1                                              15-JUN-84|
|                                                                    |
|    +----------------------------------------------------------+    |
|    |                                                          |    |
|    |  Device Name>   MOD_584_A                                |    |
|    |                                                          |    |
|    +----------------------------------------------------------+    |
|                                                                    |
+--------------------------------------------------------------------+


+--------------------------------------------------------------------+
| Description:  Our Modicon 584        Memory Size:   0              |
| Manufacturer: Modicon                Contractor:                   |
| Model:        584                    Location:    Bay area         |
| Device Set:   REAL_DEVICES           Installed:                    |
| Network:      Modbus                 Defined:     19-SEP-84        |
| Port:         2                      Updated:     24-SEP-84        |
| Station:      10                     Updated By: TESTMGR           |
| Flags:        Enabled                                              |
+--------------------------------------------------------------------+


+--------------------------------------------------------------------+
|    Slave ID:   3               4K Sections of Page 0 Memory:  8    |
|                                1K Sections of State RAM:     12    |
|    Run Light: X                Segments in the 584:          1     |
|                                                                    |
+--------------------------------------------------------------------+
```

Example 3.   Display Detailed Device Status

CHAPTER 6

READ/WRITE/MONITOR DEVICE MENU

This menu allows you to display and modify registers and coils. This is extremely useful for making desired memory modifications and then monitoring the devices to see that proper polling of the machines has resumed.

The Read/Write/Monitor Device menu can be selected by entering the letters RWM from the PROGRAMMABLE DEVICE SUPPORT System Overview menu.

```
+------------------------------------------------------------------+
!menu                                                               !
!page 5                                                             !
!                                                                   !
!                                                                   !
!        MDM    Modify Device Memory    ! application name          !
!        DDM    Display Device Memory   !                           !
!                                        ! PROGRAMMABLE DEVICE SUPPORT !
!                                        !                          !
!                                        ! Read/Write/Monitor Device !
!            Type choice>                !                          !
!            Then press RETURN           !                          !
+------------------------------------------------------------------+
```

6.1 Modify Device Memory

This menu option is used to display and/or change the contents of a selected range of addresses. For Allen-Bradley PLC-3s and Modicon 484s and 584s, the addresses can be displayed in either decimal or binary.

CAUTION: If you modify any registers, their contents will be written back. Extreme caution is advised since your action may impact the safety of those working with shop floor equipment.

1. Press Keypad 5 to select a device name. (The Description, Manufacturer, Model, and Memory Size fields will be filled in once you have selected the device name.)

2. Type in the register address you want monitoring to start at and press TAB.

3. Type in the number of bits to be displayed (must be between 1 and 16) and press TAB, or press RETURN to accept the default value (1).

4. (optional) Type in the desired register format for the display; type a B for binary, or a D for decimal.

5. Now press RETURN to display the Modify Device Memory screen.

6. To change a value, press Keypad 7 (Update) and press TAB to move to the desired field. Once you have typed in the change, press RETURN. You will be asked to confirm the change ("Y" to change, "N" to retain the previous value).

```
+---------------------------------------------------------------------+
|  tlregmod              Modify Device Memory                3:04 PM|
|  age 1 of 1                                              15-JUN-84|
|                                                                     |
|  Device Name>        1L03943        Description : Paint Shop body rec |
|  Register Address>   112/12         Manufacturer: Allen-Bradley      |
|  Quantity>           1              Model:        PLC-2/30           |
|  Register Format>    B              Memory Size:  0000002048         |
|                                                                     |
+---------------------------------------------------------------------+
```

```
                +--------------------------------------------------+
                | Address      Data          Address      Data    . |
                +--------------------------------------------------+

            +---------------+-------+        +-----------+---------+
            |    112/12|   O     |        |          |         |
            |          |         |        |          |         |
            |          |         |        |          |         |
            +---------------+-------+        +-----------+---------+
```

Example Modify Device Memory

6.2 Display Device Memory

This program lets you monitor the contents of a selected range of addresses at a selected interval. Any changes during the monitoring period are denoted by an asterisk (*). For Allen-Bradley PLC-3s and Modicon 484s and 584s, the addresses can be displayed in either decimal or binary.

To select this menu item, enter the letters DDM from the menu.

1. Press Keypad 5 to select a device name. (The Description, Manufacturer, Model, and Memory Size fields will be filled in.)

2. Type in a starting register address and press TAB.

3. Type in the quantity of registers (must be between 1 and 16) to be monitored and press TAB, or press RETURN to accept the default value (1).

4. (optional) Indicate a register format by typing a B for binary and a D for decimal. Press TAB to move to the next field.

5. Press RETURN to accept the default time interval of 5 seconds (which means that a scan is performed every 5 seconds), or type in a new value.

```
+-----------------------------------------------------------------------+
|utlregdsp                    Monitor Device Memory            04:56 AM|
| age 1 of 1                                                   15-JUN-84|
|                                                                       |
|                                                                       |
|   Device Name>          1L03943        Description :  Paint Shop Body rec |
|   Register Address>  114/06            Manufacturer:  Allen-Bradley   |
|   Quantity>             16             Model:         PLC-2/30        |
|   Register Format>   D                 Memory Size:   0000002048       |
|   Time Interval>     5                                                |
|                                                                       |
+-----------------------------------------------------------------------+
```

```
          +-------------------------------------------------------+
          | Address     Data              Address     Data        |
          +-------------------------------------------------------+

          +--------------+--------+        +--------------+--------+
          |    114/06    |   O    |        |              |   O    |
          |              |   O    |        |              |   O    |
          |              |   O    |        |              |   O    |
          |              |   O    |        |              |   O    |
          |              |   O    |        |              |   O    |
          |              |   O    |        |              |   O    |
          |              |   O    |        |              |   O    |
          |              |   O    |        |              |   O    |
          +--------------+--------+        +--------------+--------+
```

Example Monitor Device Memory

CHAPTER 7

MESSAGES

This chapter lists PROGRAMMABLE DEVICE SUPPORT software messages
that can occur at run time.

7.1 Informational Messages

ADDUSR   Adding new user

   Informational. You have successfully defined a new user.

   User Action. None.

ALREDDEF   Address already defined--must delete to redefine

   Informational. You have tried to define an address that is
   already defined.

   User Action. Delete the existing address and redefine it.

BADDOC   INVALID entries found. They will be deleted.

   Informational. The documentation file contains invalid
   documentation for this device.

   User Action. None. The invalid documentation commands will be
   deleted.

BITEXIST   Bit location already exists

   Informational. You have tried to define a bit location that
   already exists.

   User Action. Define a different bit location.

CANNOTSYNC   Cannot synchronize logic file and reference file

   Informational. An attempt was made to resynchronize the logic
   file and the reference file after a difference was found. This
   was not successful.

   User Action. None.

CINCONS   Reference file has inconsistent format

   Informational. Errors were found in the format of the reference
   file.

   User Action. Recreate the reference file. Either run the
   compare again if the program in a device was used, or if another
   logic file was used, recreate the file.

CLEANRES   Cleaning up resources

   Informational. System is deleting work files created during the
   production of a ladder listing.

   User Action. None.

COMMDEL   Comments for current instruction were deleted

   Informational. You have deleted comments for an instruction in a
   ladder listing.

      User Action. None.

COMPSHRT   Program in reference file shorter than one in logic file

   Informational. The program in the reference file is shorter than
   the program in the logic file.

   User Action. None.

COMPSUC   Compare was successful

   Informational. The compare on the logic file was successful.

   User Action. None.

COMPSYNC   Compare resychronized. Current logic rung (signed word),
                  reference rung (signed word)

   Informational. The logic file and the reference file were
   resynchronized.   The current rung numbers are the ones indicated
   in the message.

User Action.   None

.EATCOMF   Creating command file from template

Informational. System is creating a command file for the current
translation (ladder listing).

User Action.   None.

DIFFAT   Differences found. Logic rung (signed word), reference
                    rung (signed word)

Informational. The two programs are different at the rung
locations indicated.

User Action.   None.

.EODC   No program end in reference file. Logic rung (signed
                    word), reference rung (signed word)

Informational. The end of the reference file was reached before
the end of the program was seen. The last rungs found are the
ones indicated in the message.

User Action.   Recreate the reference file.   Either run the
compare again if the program in a device was used, or if another
logic file was used, recreate the file.

_JDL   No program end in logic file. Logic rung
                    (signed word), reference rung (signed word)

Informational. The end of the logic file was reached before the
end of the program was seen. The last rungs found are the ones
indicated in the message.

User Action.   Recreate the logic file.

EODS   No program end. Logic rung (signed word), reference
                    rung (signed word)

Informational. The end of the logic and reference files was
reached without seeing the end of program word. The last rung
numbers seen are the ones indicated in the message.

User Action.   Recreate both the logic file and the reference file
used during the compare.

FILEXIST   File already exists in output library

Informational. You have entered a documentation file name that
already exists.

User Action.   None.

ISSTART   Programmable device currently running

Informational.   The programmable device that was specified   is
currently   running,   and   the   operation   specified   cannot   be
completed.

User Action.   Stop the device and try again.

ISSTOP   Programmable device not running

Informational.   The programmable device that was specified   is
currently   stopped,   and   the   operation   specified   cannot   be
completed.

User Action.   Start the device and try again.

LINCONS   Logic file has inconsistent format

Informational.   Errors were found in the format of the file being
compared.

User Action.   Recreate the file being compared.

MDLMNFDIF   Model and/or manufacturer differ for files

Informational.   You   have   tried   to   compare   files   that   have
different manufacturers or that are of different models.

User Action.   None.

NOCLOGIC   Reference file used in compare is empty

Informational.   The logic file and the one used as   reference   in
the compare are empty.

User Action.   Recreate the reference file used for   the   compare.
If   the   program   in a programmable device was used as reference,
run the compare again.   If   another   logic   file   was   used   as
reference, recreate the file.

NOCOMM   No comments to delete for current instruction

Informational.   You have tried to delete a comment that does   not
exist.

User Action.   None.

NOCPLC3ETX   No ETX for record (signed word) in reference file

Informational. In the reference file, the record indicated does not have an ETX (end of text) byte. The data in the file is inconsistent.

User Action. Recreate the reference file. Either run the compare again if the program in a device was used, or if another logic file was used, recreate the file.

NOCPLC3RST   Unable to find the start of logic records in reference file

Informational. No program records were found in the reference file.

User Action. Recreate the reference file. Either run the compare again if the program in a device was used, or if another logic file was used, recreate the file.

NOCPLC3STR   Unable to find the start of record (signed word) in reference file

Informational. Unable to find the start of the record indicated in the message for the reference file. The data in the file is inconsistent.

User Action. Recreate the reference file. Either run the compare again if the program in a device was used, or if another logic file was used, recreate the file.

NOCPLC3STX   No STX for record (signed word) in reference file

Informational. In the reference file, the record indicated does not have an STX (start of text) character. The data in the file is inconsistent.

User Action. Recreate the reference file. Either run the compare again if the program in a device was used, or if another logic file was used, recreate the file.

NOCSTX   No STX found in compare file

Informational. The STX (start of text) byte delimiting the start of the logic program was not found in the reference logic used for the compare.

User Action. Recreate the file used as reference for the compare. If the program in a programable device was used as reference, run the compare program again. If another logic file was used as reference, recreate the file.

NOFILES   No files found

Informational.   This message appears if you try to list a library
that has no files.

User Action.   None.

NOINFO   No information is available

Informational.   You have tried to display device information, but
there are no devices defined to PROGRAMMABLE DEVICE SUPPORT.

User Action.   None.

NOLLOGIC   Logic file empty

Informational.   The logic file contains no records.

User Action.   Recreate the logic file.   ·

NOLOGIC   Logic file and reference file empty

Informational.   The logic file and the one used as   reference   in
the compare have no records.

User Action.   Recreate   the   logic   file   and   the   one   used   as
reference   for   the   compare.   If   the   program in a programable
device was used as reference, run the compare program again.   If
another logic file was used as reference, recreate the file.

NOLPLC3ETX   No ETX for record (signed word) in file to compare

Informational.   In the file being compared, the record indicated
does not have an ETX (end of text) byte.   The data in the file is
inconsistent.

User Action.   Recreate the file being compared.

NOLPLC3RST   Unable to find the start of program in file to compare

Informational.   No program records were found in the   file   being
compared.

User Action.   Recreate the file being compared.

NOLPLC3STR   Unable to find the start of record (signed word) in file
                    to compare

Informational.   Unable to find the start of the record   indicated
in the message for the file being compared.   The data in the file
is inconsistent.

User Action.   Recreate the file being compared.

NOLPLC3STX   No STX for record (signed word) in file to compare

    Informational. In the file being compared, the record indicated
    does not have an STX (start of text) character. The data in the
    file is inconsistent.

    User Action. Recreate the file being compared and try again.

NOLSTX   No STX found in logic file

    Informational. The STX (start of text) byte delimiting the start
    of the logic program was not found in the logic file used for the
    compare.

    User Action. Recreate the logic file.

NOMFILE   No more files found

    Informational. You have tried to display another file, but there
    are no more to be displayed.

    User Action. None.

NORANGE   Range values not applicable for Allen-Bradley

    Informational. You have entered a range of networks to list for
    an Allen-Bradley documentation file.   A range of value is not
    valid for Allen-Bradley devices.

    User Action. None.

OWNATTACHED   Programmable device allocated to owning process

    Informational. The programmable device that was specified is
    currently allocated by the owning process, and therefore, is
    allocated to this subprocess.

    User Action. None.

PROGRAMSHRT   Program in logic file shorter than one in reference
                 file

    Informational. The program in the logic file is shorter than the
    program in the reference file used as reference.

    User Action. None.

PRTLOGFND   Printer Logical record found

    Informational. You have typed a printer logical name that
    already exists.

    User Action.   None.

PRTLOGUAL   Unable to add printer logical name

    Informational. A system problem has occurred.

    User Action.   Contact your System Manager.

PRTLOGUDL   Unable to delete printer logical name

    Informational. A system problem has occurred.

    User Action.   Contact your System Manager.

RESERVED   Reserved

    Informational. You have typed a reserved word in the user name
    field.

    User Action.   Enter a nonreserved user name instead.

SCREENPRT   Screen printed

    Informational. The system has printed a screen on the line
    printer.

    User Action.   None.

STARTGATE   Start gateway command issued

    Informational. You have entered a command to start up a gateway.

    User Action.   None.

STOPGATE   Stop gateway command issued

    Informational. You have entered a command to stop a gateway.

    User Action.   None.

TRANSUBMIT   Translation submitted to batch

    Informational. A translation (ladder list file) is being created
    for an Allen-Bradley PLC-3 device.

    User Action.   None.

USERLOGIN   PROGRAMMABLE DEVICE SUPPORT user logged in

    Informational. You have entered a command to access PROGRAMMABLE
    DEVICE SUPPORT.

User Action.   None.

ERLOGOUT   PROGRAMMABLE DEVICE SUPPORT user logged out

Informational.   You   have   entered   a   command   to   exit   from
PROGRAMMABLE DEVICE SUPPORT.

User Action.   None.

WORKING   Please wait

Informational. PROGRAMMABLE DEVICE   SUPPORT   is   performing   the
action you requested.

User Action.   Wait until message has disappeared before   entering
further information.

7.2 Warning Messages

BADCOMFL   Invalid reference file specified

Warning. The file containing the reference logic program is invalid.

User Action. Specify a valid file or device.

BADERRFL   Invalid error file specified

Warning. The file or device specified to be used for logging messages found is invalid.

User Action. Specify a valid file or device.

BADLOGFL   Invalid logic file specified

Warning. The file logic file specified is invalid.

User Action. Specify a valid file or device.

BADPHYFILE   Invalid physical file found for translation to logical

Warning. There was no physical file specified for translation or the file specified could not be accessed. This message will be displayed only if there are inconsistencies in the way the directories are accessed.

User Action. Contact the system manager.

COMPFAIL   Errors found during compare

Warning. The logic file and the reference file are different.

User Action. None.

DEVNOTSTART   Programmable device not started

Warning. The programmable device that was specified is not currently started and must be started to perform the specified action.

User Action. Start the device and try again.

DEVNOTSTOP   Programmable device not stopped

Warning. The programmable device that was specified is not currently stopped. It must be stopped to perform the specified action.

User Action.   Stop the device and try again.

:VREQFST   Device entry required first

Warning.   You have pressed RETURN without first entering a device
.name.

User Action.   Enter a valid device name.

DUPNAME   Duplicate name

Warning.   You have specified a file name that has already been
used.

User Action.   Enter a unique name for the file.

EMPTYFILE   File to be downloaded to programmable device is empty

Warning.   The file that was specified was probably created by an
abnormally aborted upload attempt and is empty.

User Action.   Delete the file and download another one.

FILETOOBIG   File to be downloaded to programmable device too big

Warning.   The programmable device that was specified doesn't have
enough memory to accept the entire file to be downloaded. The
file was probably meant for another programmable device.

User Action. Download a smaller program or obtain more
programmable device memory.

INVCOMPFILE   Compare file invalid

Warning.   The program detected an error or unknown file state in
the compare file.   The compare file specified is probably for
another make, model, or configuration of programmable device.

User Action.   Check for problems specified in explanation and try
again.   If no problem can be found, submit a complete SPR.

INVCONFIG   Programmable device in an invalid or unsupported
                      configuration

Warning.   The program is unable to continue the specified
function because the required actions are unknown for this
programmable device configuration, or the programmable device is
in an invalid configuration.

User Action.   Check the configuration of the programmable device
and try again.

INVDOWNFILE   Download file invalid

Warning.   The program detected an error or unknown file state   in
the   download   file.   The download file specified is probably for
another make, model, or configuration of programmable device.

User Action.   Check for problems specified in the explanation and
try again.   If no problem can be found, submit a complete SPR.

NOCOMPFILE   Unable to open compare file

Warning.   The program was unable to open   the   specified   compare
file.   Possible   problems   are: improper file quotas, improper
file or directory   specifications,   file   protection   violations,
file   locked,   insufficient   privileges,   or invalid logical name
assignments.

User Action.   Check for problems specified in explanation and try
again.

NOFILE   File not found

Warning.   You have tried to access a file   that   is   not   in   the
specified library.

User Action.   Check   to   see   that   you   typed   the   file   name
correctly.

NONXTFLD   No next field on form

Warning.   You have tried to   advance   to   the   next   field   on   a
screen, but there are no more input fields on the screen.

User Action.   None.

NOPRVFLD   No previous field on form

Warning.   You have tried to go back to   a   previous   field   on   a
screen, but there are no previous fields there.

User Action.   None.

RECLOCK   Definition is accessed by another user, please wait

Warning.   You have tried to   access   a   definition   in   a   ladder
listing that is already being used by another user.

User Action.   Wait until the other user has finished.

VALIDREQ   Valid entry required in field

Warning.   You have typed an invalid entry in a field.

User Action.   Clear field and reenter a valid value.

Messages

7.3 Error Messages

AMBIGUOUS   Entry is ambiguous

   Error. You have typed an invalid option after the Choice >
   prompt.

   User Action. Reenter a valid value.

CREATBATCH   Error creating batch file

   Error. A programming error has occurred.

   User Action. Contact your System Manager.

DEVNOTSUP   Device not supported for this utility

   Error. You have entered the name of a device whose model is not
   supported for the current function.

   User Action. Enter the name of a device whose model is supported
   by PROGRAMMABLE DEVICE SUPPORT.

ERRCPYWRK   Error while copying work file to logic file

   Error. A system error has occurred.

   User Action. Contact your System Manager.

ERRCREFIL   Unable to create file

   Error. A programming error has occurred.

   User Action. Contact your System Manager.

ERRINVERIFY   Error found during verification

   Error. The system found an error in reading or writing the file.

   User Action. Try reading or writing the file again.

FILENAME   Invalid file name format

   Error. You have typed the file name in an incorrect format.

   User Action. Retype the file name in a valid format.

INVCALL   Invalid call to routine

   Error. A serious error has occurred.

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User Action.   Contact your System Manager.

VENTRY   Invalid entry

Error.   You have typed an entry that is not valid for the current field.

User Action.   Reenter a valid value for the field.

INVINS   Invalid instruction number

Error.   You have typed an incorrect instruction number when creating a documentation file for a device.

User Action.   Press SELECT to obtain a list of valid instruction numbers.

INVLIFORUS   Invalid library name for user name specified

Error.   You have entered a library name in the wrong format.

User Action.   Entered a library name in the correct format.

INVPRINT   Error in printer name specified

Error.   You have typed a printer name that does not exist.

User Action.   Check to make sure that you have typed the name correctly.

INVRANGE   Invalid range specification

Error.   You have entered an incorrect range of stations to be monitored.   Valid station numbers are 1—377.   In addition, the maximum station number must be greater than or equal to the first station number.

User Action.   Reenter a number in the correct range.

INVSCH   Invalid schedule number

Error.   You have typed an invalid schedule number when creating a documentation file for a device.

User Action.   Enter a valid schedule number for the particular device.

INVUSFORLI   Invalid user name for library name specified

Error.   You have typed a library name that is not the same as your user name and you are not authorized for access to the

library.

User Action.   None.

LIBNAME   Invalid library name format

Error.   You have entered a library name in the wrong format.

User Action.   Retype the library name using the proper format.

MDLNOTSUP   Model not supported for this utility

Error.   You have entered a device name whose model is not
supported by PROGRAMMABLE DEVICE SUPPORT.

User Action.   Entered the name of a device supported by
PROGRAMMABLE DEVICE SUPPORT.

MUSTFILL   -   All data items must be entered before continuing

Error.   You have pressed RETURN before completing all required
fields on the screen.

User Action.   Enter information in all required fields, then
press RETURN.

NOACCPROD   No privilege to access production machine

Error.   You have attempted to access a production programmable
device and you are not authorized to do so.

User Action.   None.

NOADDPROD   Cannot add to the production library

Error.   You have tried to copy a file into the production library
using the wrong program.

User Action.   Use the appropriate program.

NOCOPYIM   Unable to copy file to itself

Error.   You have tried to copy a file to the same file.

User Action.   Give the file a new name if you are trying to make
a duplicate of its contents.

NODELETE   Record not deleted

Error.   Because of a system problem, your attempt to delete a
file has not been successful.

User Action.   Check with your System Manager.

JLGCENTRY   No entry for logic file

Error.   You have entered a logic file name that PROGRAMMABLE
DEVICE SUPPORT does not recognize.

User Action.   Recheck to see that you have entered the file name
correctly.

NOLIBRARY   Library not found

Error.   You have entered a library name that does not exist.

User Action.   Recheck to see that you have entered the file name
correctly.

NOMDEV   No more devices found

Error.   You have attempted to display another device, but there
are no more to display.

User Action.   None.

NOPRIV   No privilege for attempted function

Error.   You have attempted to access a program that you are
authorized to use.

User Action.   None.

NOPRODACC   No privilege to access production library

Error.   You have attempted to access the production library and
you are not authorized to do so.

User Action.   None.

NORECORD   Record not found

Error.   You have requested that PROGRAMMABLE DEVICE SUPPORT read
a record or access a file that it does not recognize.

User Action.   Contact your System Manager.

NORENPROD   Cannot rename production library files

Error.   You have attempted to rename a file in the production
library. Production library file names cannot be changed. —

User Action.   None.

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Messages

NOTPRINT   Device specified is not a printer

Error. You have entered the name of a device that is not a
printer in the printer field.

User Action.   Enter the name of a valid printer.

NOTTERM   Port entered is not a terminal

Error. You have entered a port number that is not a terminal
port.

User Action.   Enter a valid port number.

NOUPDATE   File not updated

Error. You have entered a "No" response when prompted to save
your edited file.

User Action.   None.

NOUPLPROD   Cannot upload directly into production library

Error. You have tried to upload a program directly to a
production library file.

User Action.   You must first upload the program to a user library
file and then insert it into the production library.

NOUSER   User authorization not found

Error. You have attempted to access a program that you are not
authorized to use.

User Action.   None.

ONLYPROD   Only production library valid for production device

Error. You have tried to upload the memory contents of a
production device to a file that does not reside in the
production library.

User Action.   None.

OPENBATCH   Unable to open batch file

Error. You were trying to create a ladder listing for an
Allen-Bradley PLC-3 and a programming error has occurred.

User Action. Contact your System Manager.

OPENCOM   Unable to open command file

Error. You were trying to create a ladder listing for an Allen-Bradley device other than a PLC-3 and a programming error occurred.

User Action.   Contact your System Manager.

OPENOPTION   Unable to open option file

Error. You were trying to create a ladder listing for an Allen-Bradley device and a programming error occurred.

User Action.   Contact your System Manager.

OPENTEMPL   Unable to open template file

Error. You were trying to create a ladder listing for an Allen-Bradley device other than a PLC-3 and a programming error occurred.

User Action.   Contact your System Manager.

PRINTFAIL   Unable to send output to printer specified

Error. You are trying to send output to a printer that is disabled or that does not exist.

User Action. Check to make sure that your entered the name of the printer correctly.

STRINVLIB   _* is invalid for library

Error. You have entered the wildcard character in the field for a Library.

User Action.   Enter a valid library name in the field.

SYNTAX   Invalid specification format

Error. You have typed a file name in an incorrect format.

User Action.   See the VAX/VMS Command Language User's Guide for a discussion of valid file name specifications.

TIMEOUT   Timeout encountered during execution

Error. The communication with the device took longer than allowed.

User Action.   Try again after checking setup.

Messages

TOOMANYFLS   Too many files selected for display

    Error.   You have tried to display all of the files in a   library
    and there are too many to display at one time.

    User Action.   Modify request to display only some of the files.

7.4 Fatal Messages

NOBSLSYM   BASEWAY symbols have not been defined

> Fatal. You have tried to log in to PROGRAMMABLE DEVICE SUPPORT,
> but the symbols for BASEWAY are not defined.

> User Action. Contact your System Manager.

NOPDSSYM   PROGRAMMABLE DEVICE SUPPORT symbols have not been defi

> Fatal. You have tried to log in to the system but PROGRAMMABLE
> DEVICE SUPPORT has not been set up properly.

> User Action. Contact your System Manager.

NOPROGDIR   Program directory file not found

> Fatal. A programming error has occurred.

> User Action. Contact your System Manager.

NOPROGLIB   Program library file not found

> Fatal. A programming error has occurred.

> User Action. Contact your System Manager.

APPENDIX A

KEYSWITCH POSITIONS FOR DOWNLOADING ALLEN-BRADLEY DEVICES

The following chart gives the keyswitch positions which must be used when downloading Allen-Bradley programmable devices.

Model	Keyswitch Position
Allen-Bradley 1772 PLC-2/30 with 1771-KA Data Highway TM Interface Card, Series A, Rev. F or later	PROGRAM or RUN/PROGRAM
Allen-Bradley 1772 PLC-2/30 with 1771-KA Data Highway TM Interface Card Prior to Series A, Rev. F	TEST or RUN/PROGRAM with PLC operating in REMOTE TEST mode (accomplished via Industrial Terminal)
Allen-Bradley 1775 PLC-3	MEMORY PROTECT OFF

Keyswitch Positions for Downloading Allen-Bradley Devices