# Configuration

## Table of Contents

# Introduction

**Qualified Persons**

| ⚠ WARNING |
|---|
| The equipment covered by this publication must be installed, operated, and maintained by qualified persons who are knowledgeable in the installation, operation, and maintenance of overhead electric power distribution equipment along with the associated hazards. A qualified person is one who is trained and competent in:<br><br>• The skills and techniques necessary to distinguish exposed live parts from nonlive parts of electrical equipment<br><br>• The skills and techniques necessary to determine the proper approach distances corresponding to the voltages to which the qualified person will be exposed<br><br>• The proper use of the special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electrical equipment<br><br>These instructions are intended only for such qualified persons. They are not intended to be a substitute for adequate training and experience in safety procedures for this type of equipment. |

**Read this Instruction Sheet**

| *NOTICE* |
|---|
| Read this instruction sheet thoroughly and carefully before installing or operating the communication and control unit. Familiarize yourself with the Safety Information and Safety Precautions on pages 4 through 6. The latest version of this publication is available online in PDF format at **sandc.com/en/support/product-literature/**. |

**Retain this Instruction Sheet**

This instruction sheet is a permanent part of your communication and control unit. Designate a location where you can easily retrieve and refer to this publication.

**Proper Application**

| ⚠ WARNING |
|---|
| The equipment in this publication must be selected for a specific application. The application must be within the ratings furnished for the selected equipment. |

**Special Warranty Provisions**

The standard warranty contained in S&C's standard conditions of sale, as set forth in Price Sheets 150 and 181, applies to the S&C Communication and Control Unit, except that the first paragraph of the said warranty is replaced by the following:

**(1) General:** The seller warrants to the immediate purchaser or end user for a period of 10 years from the date of shipment that the equipment delivered will be of the kind and quality specified in the contract description and will be free of defects of workmanship and material. Should any failure to conform to this warranty appear under proper and normal use within 10 years after the date of shipment, the seller agrees, upon prompt notification thereof and confirmation that the equipment has been stored, installed, operated, inspected, and maintained in accordance with the recommendations of the seller and standard industry practice, to correct the nonconformity either by repairing any damaged or defective parts of the equipment or (at the seller's option) by shipment of necessary replacement parts. The seller's warranty does not apply to any equipment that has been disassembled, repaired, or altered by anyone other than the seller. This limited warranty is granted only to the immediate purchaser or, if the equipment is purchased by a third party for installation in third-party equipment, the end user of the equipment. The seller's duty to perform under any warranty may be delayed, at the seller's sole option, until the seller has been paid in full for all goods purchased by the immediate purchaser. No such delay shall extend the warranty period.

Replacement parts provided by the seller or repairs performed by the seller under the warranty for the original equipment will be covered by the above special warranty provision for its duration. Replacement parts purchased separately will be covered by the above special warranty provision.

Warranty of the S&C Communication and Control Unit is contingent upon the installation, configuration, and use of the control or software in accordance with S&C's applicable instruction sheets.

This warranty does not apply to major components not of S&C manufacture, such as batteries and communication devices. However, S&C will assign to the immediate purchaser or end user all manufacturer's warranties that apply to such major components.

## Safety Information

**Understanding Safety-Alert Messages**

Several types of safety-alert messages may appear throughout this instruction sheet and on labels attached to the communication and control unit. Familiarize yourself with these types of messages and the importance of these various signal words:

| ⚠ DANGER |
|---|
| "DANGER" identifies the most serious and immediate hazards that *will likely* result in serious personal injury or death if instructions, including recommended precautions, are not followed. |

| ⚠ WARNING |
|---|
| "WARNING" identifies hazards or unsafe practices that *can* result in serious personal injury or death if instructions, including recommended precautions, are not followed. |

| ⚠ CAUTION |
|---|
| "CAUTION" identifies hazards or unsafe practices that *can* result in minor personal injury if instructions, including recommended precautions, are not followed. |

| *NOTICE* |
|---|
| *"NOTICE"* identifies important procedures or requirements that *can* result in product or property damage if instructions are not followed. |

**Following Safety Instructions**

If you do not understand any portion of this instruction sheet and need assistance, contact your nearest S&C Sales Office or S&C Authorized Distributor. Their telephone numbers are listed on S&C's website **sandc.com**, or call S&C Headquarters at (773) 338-1000; in Canada, call S&C Electric Canada Ltd. at (416) 249-9171.

| *NOTICE* | |
|---|---|
| Read this instruction sheet thoroughly and carefully before installing or operating your communication and control unit. | |

**Replacement Instructions and Labels**

If you need additional copies of this instruction sheet, contact your nearest S&C Sales Office, S&C Authorized Distributor, S&C Headquarters, or S&C Electric Canada Ltd.

It is important that any missing, damaged, or faded labels on the equipment be replaced immediately. Replacement labels are available by contacting your nearest S&C Sales Office, S&C Authorized Distributor, S&C Headquarters, or S&C Electric Canada Ltd.

## Location of Safety Labels and Tags



### Reorder Information for Safety Information

| Location | Safety Alert Message | Description | Part Number |
|:---:|:---:|:---|:---:|
| A | ⚠ **IMPORTANT** | Place in operation or charge batteries in this equipment . . . | G-6227▲ |
| B | ⚠ **IMPORTANT** | Place in operation or charge batteries in this equipment . . . | G-6226▲ |
| C | ⚠ **WARNING** | Electrical Shock—Before energization and at all times when energized . . . | G-6289▲ |
| D | ⚠ **WARNING** | Electrocution Hazard—Failure to follow these instructions can cause serious injury or death . . . | G-6815▲ |
| E | ⚠ **WARNING** | Electrocution Hazard—Failure to follow these instructions can cause serious injury or death . . . | G-6814 |

▲ This part is a tag to be removed and discarded after the control unit is installed and adjusted.

## Safety Precautions

This publication provides instructions for configuring the optional communication processor module for the WESDAC® DART (Distribution Automation Remote Terminal) by Westronic Inc., furnished in the communication and control unit of an S&C Scada-Mate Switching System. The communication processor module (CPM) provides emulation of a variety of commonly used communication protocols. Inclusion of this optional feature is denoted by the addition of the suffix "-Pl" to the communication and control unit catalog number.

Instructions for installation and operation of the Scada-Mate Switch are provided in Instruction Sheet 768-500, "S&C Scada-Mate® Switching Systems: *Installation and Operation*," shipped with the switch. Instructions for installation, operation, and maintenance of the communication and control unit are provided in Instruction Sheet 768-550, "S&C Scada-Mate® Switching Systems Communication and Control Units: *Instructions for Installation, Operation, Maintenance, and Configuration*."

Configuring the communication processor module specifies how it will operate. This procedure uses the D20/CPM configuration system and involves defining for this specific installation the following information:

- The CPM address
- Operating parameters of the communication channel between the master station and the CPM
- Status point mapping and analog point mapping

The data are saved on diskette as a configuration file, then downloaded to the CPM. The CPM will operate under this configuration until a new one is created and downloaded.

The D20/CPM configuration system does not check the accuracy of values entered, so it is essential that you check data accuracy before entry.

## Installing the Configuration System

To install the D20/CPM Configuration System, the following are required:

- A PC computer
- The D20/CPM configuration system software (on two 3.5-inch diskettes)
- The CPM application configuration files (on a 3.5-inch diskette)
- The DART maintenance cable (S&C catalog number TA-2247 for a 25-pin serial port, or TA-2248 for a 9-pin serial port)
- An isolated 120-volt ac source (if the CPM is to be configured without high voltage available to the Scada-Mate Switch)

| NOTICE |
|---|
| Make a backup copy of all the D2O/CPM configuration system software diskettes and the CPM application configuration files diskette. Use these copies to configure the communication processor module. Store the original diskettes in a safe place. |
| In the following steps there are a number of menu selections that have no bearing on CPM configuration, including files relating to WESMAINT. Do not alter any of these files! |
| If a file is accidentally changed and the change is not corrected...Stop! Make a new backup copy of the CPM application configuration files diskette from the original diskette and start over. |

| NOTICE |
|---|
| In some computers, the communication port signal ground is internally connected to the chassis ground to reduce electromagnetic interference (EMI). When such a computer is used to configure the CPM in a transceiver-equipped communication and control unit, a ground loop is created that will short-circuit one of the battery packs. |
| To avoid short-circuiting the battery pack, when the computer has the chassis ground connection, disconnect the power connector to the transceiver. |
| After the CPM is configured, reconnect the power connector to the transceiver. |

## Configuring the Processor

Follow these steps to configure the Dart RTU:

**STEP 1.** Start the D20/CPM configuration system.

   (a) Switch the power switch on the Dart RTU to the **Off** position.

   (b) If high voltage is not available to the Scada-Mate Switch, switch the power switch on the battery charger to the **Off** position.

   (c) Connect an isolated 120-Vac source to the battery charger terminals marked EXT/AC.

   (d) Switch the power switch on the battery charger to the **On** position.

   (e) Place the battery-charger input selector switch in the **Voltage Sensor Source** position when high voltage is available to the Scada-Mate Switch or in the **External Source** position when high voltage is not available to the Scada-Mate Switch.

(f)  Connect the cable between the communication port of the computer and the CPM MAINTENANCE port on the Dart RTU.

(g)  Switch the power switch on the Dart RTU to the **On** position.

(h)  Turn on the computer and insert the D2O/CPM configuration system software diskette #1 into the floppy drive "A" (or "B"). Type "a:" (or "b:") and press the <ENTER> key. At the A:\> (or B:\>) prompt, type "install" and press the <ENTER> key.

(i)  Follow the directions shown on the screen and copy the D20/CPM configuration system software to hard drive C. When needed, the prompt will require inserting diskette #2 into the drive.

(j)  After the D2O/CPM configuration system software has been copied to the hard drive, insert the CPM application configuration files diskette into the floppy drive.

(k)  At the "C:\>" prompt, type "config" and press the <ENTER> key. The *CrossTalk title* screen will open briefly. The *Main Menu* screen will then open, as shown in Figure 1.



```
            ~Westronic Inc. Configuration System 4.40~



            ┌─ Main Menu ──────────
            │      Communications
            │      Configure D20
            │      Utilities
            │      Setup
            │      Enter DOS
            │      Quit
            │
            └─ Select with ↑ ↓, press ◄┘ ─
```
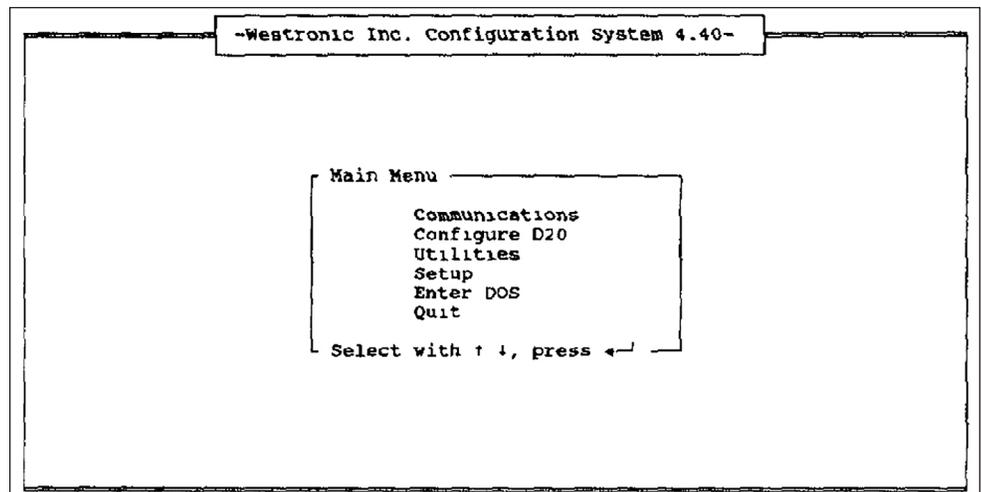
**Figure 1. The *Main Menu* screen.**

**STEP 2.**  The *Setup System* screen will open. See Figure 2 on page 10. Using the arrow keys, move the cursor to the appropriate locations to revise the screen so that it looks like Figure 3 on page 10.

When using the "B" floppy drive, all references to drive A should instead show as B.

(a)  Press the <ENTER> key after each change to step to the next parameter. In this example, a computer with a color monitor is used, so "Color Monitor:" was changed from the **No** state to the **Yes** state to use the color display.

(b)  Press the <ENTER> key to step through the remaining parameters. The *D20 Configuration System Setup* screen will open and ask whether the configuration should be saved to the disk. See Figure 4 on page 10.

# Configuring the Communication Processor
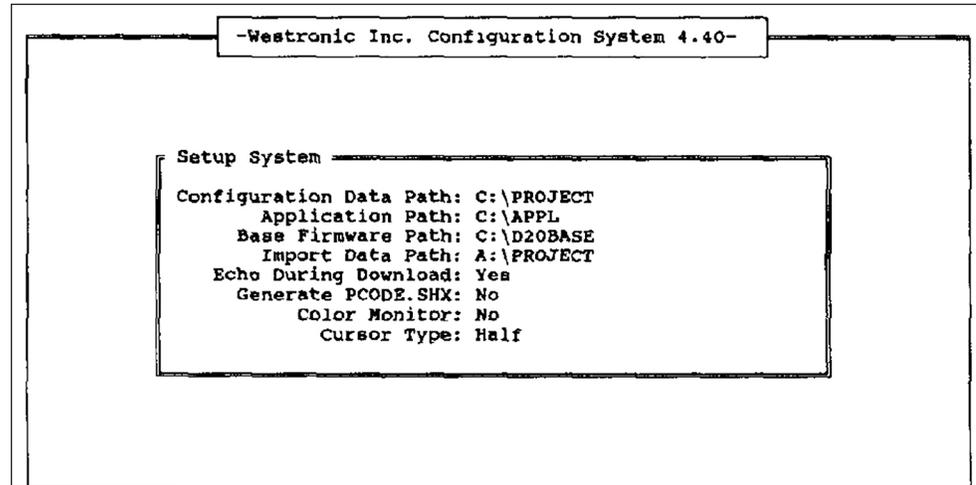


**Figure 2. The *Setup System* screen configured as it opens.**
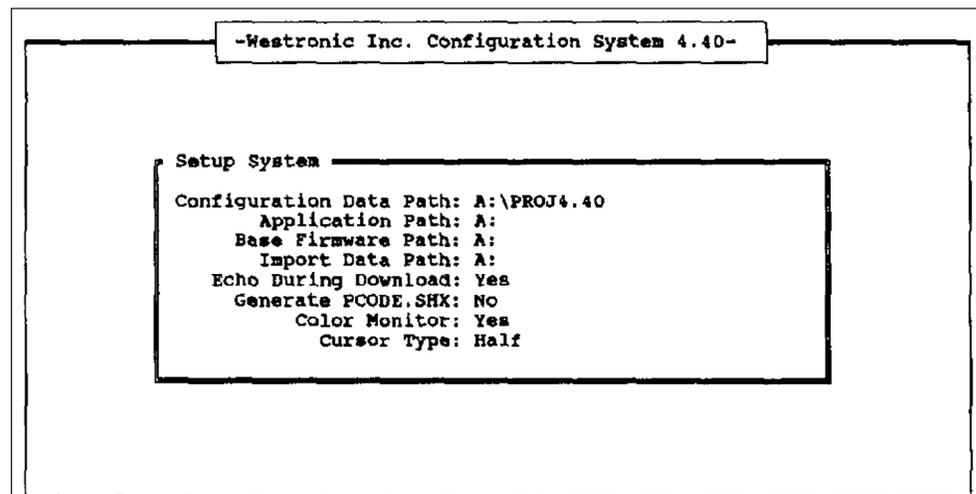


**Figure 3. Follow Step 2 to configure the *Setup System* screen to match the settings in this example.**
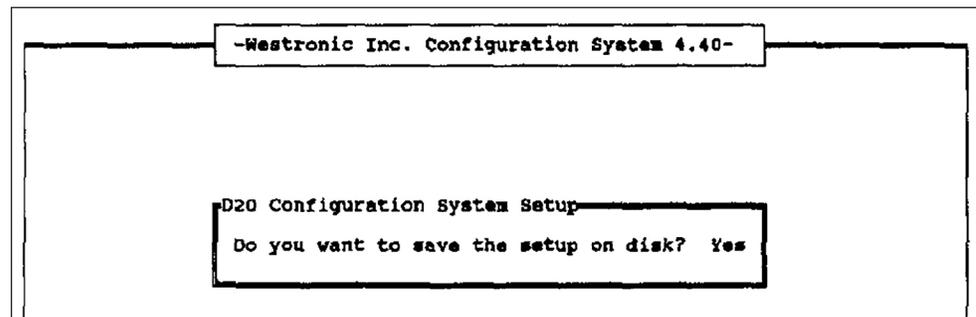


**Figure 4. This screen allows the configuration to be saved to disk.**

**STEP 3.** Press the <ENTER> key to save the configuration. The *Main Menu* screen will open. See Figure 5 on page 11.
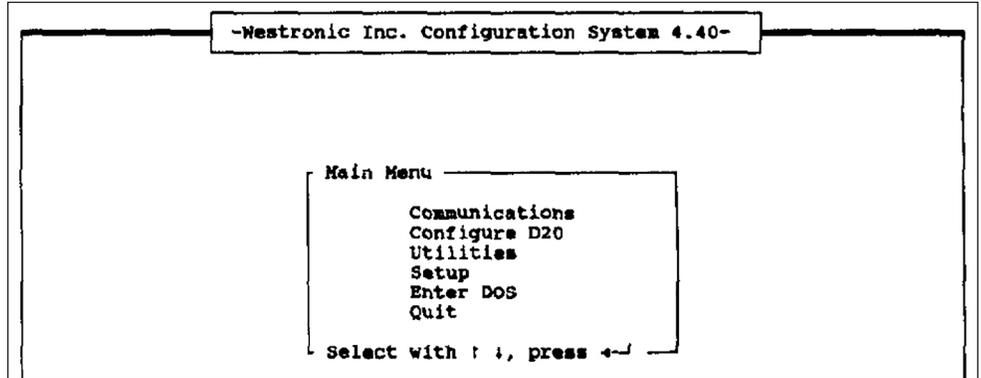
**Figure 5.** The *Main Menu* screen.

**STEP 4.** Using the arrow keys, select the **Configure D20** option and press the <ENTER> key. The *Configure D 20* screen will open. See Figure 6.
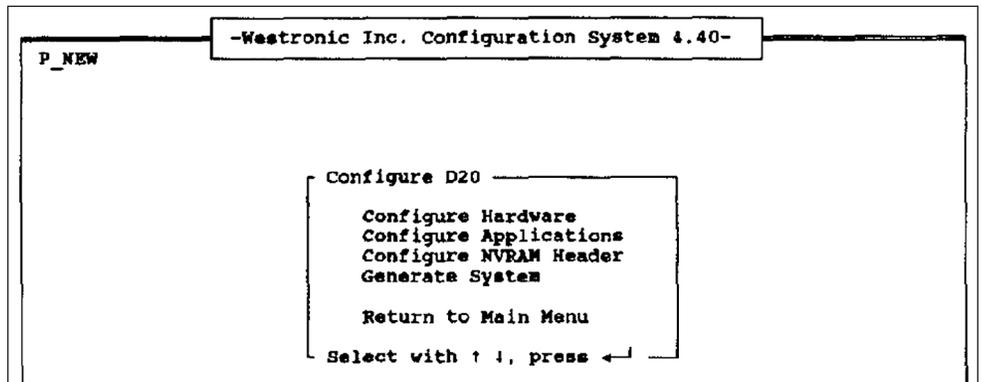


**Figure 6.** The *Configure D20* screen.

**STEP 5.** Using the arrow keys, select the **Configure Applications** option and press the <ENTER> key. The *Select Application Table* screen will open. See Figure 7.
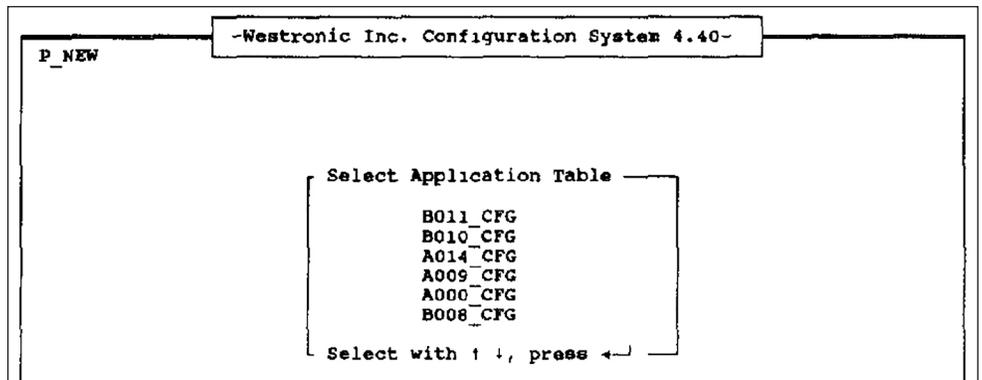


**Figure 7.** The *Select Application Table* screen.

**STEP 6.** Three application files of the form **Axxx-CFG** and three application files of the form **Bxxx-CFG** will be listed, as shown.

Do not select AOOO-CFG, AO14-CFG, or any of the Bxxx-CFG files. Using the arrow keys, select the remaining Axxx-CFG file-in this instance **AOO9-CFG** and press the <ENTER> key. This application file is used to configure the CPM, and was specifically developed in accordance with the requirements of the communication protocol.

The *Title* screen for this file will open, similar to the screen shown in Figure 8 on page 12.

<table>
<tr><td>

**NOTICE**

More than three application files of the form Axxx-CFG could have been included on the CPM application configuration files diskette. It may be necessary to open all AxxrcCFG files except Ao00,CFG and A014,CFG to determine which one specifies the CPM address, operating parameters of the communication channel between the master station and the CPM, and status point mapping and analog point mapping, as discussed in the following steps. If the wrong application file is selected, press the <ESC> key and select another file.

</td></tr>
</table>

```
/* ************************************************************************ */
/*                                                             A009_CFG    */
/*    Name:         Springfield Power Company Protocol Configuration       */
/*    Author:       H. Simpson                                             */
/*    Date:         December 7, 1991                                       */
/*                                                                         */
/*    Description:  The following are the record definitions for the       */
/*                  Springfield Power Company (SPC) protocol.              */
/*                  Only port #1 has been activated for master computer.   */
/*                                                                         */
/*                  DART CPM Configuration                                 */
/*                                                                         */
/* ************************************************************************ */
DEFINE_TABLE = 1                  /* Port configuration table definition   */
     NAME = A009_CFG
     MAXRECS = 1                  /* Number SPC protocols running in system   *
     CONTROL_WORD = 0x12          /* Multi-Element, NVRAM, Read / Write     */
     DEFINE_RECORD:
        SIZE = * { 11 }
     DEFINE_DATA:
        u*2,        /* RTS_On_Delay   (Minimum turnaround time)            */
        u*2,        /* RTS_Off_Delay (RTS hold on after finished Tx)       */
        u*2,        /* Character to character timeout (milliseconds)       */
        u*2,        /* Communication port timeout (milliseconds)           */
A009_CFG.TXT ═══ Insert ═══ Wrap: OFF ═══════════ line 1     col 1    ═
```

**Figure 8. The *Title* screen.**

**STEP 7.** Using the arrow keys, scroll down past the various define tables to the data tables. One of the data tables will reference the RTU address (actually the CPM address) in the comments. Stop scrolling when this occurs. Comments are contained in text starting with "/*."

The data table referencing the RTU address will be similar to the table shown in Figure 9 in the "DATA_TABLE = 2" section. For some protocols, the data may be arranged differently.

```
     /* *********************************************************************** */

DATA_TABLE = 1                    /*  Port Configuration Table Definition    */

    30,             /* RTS On Delay = 30 ms                                 */
    12,             /* RTS Off Delay = 12 ms                                */
    30,             /* Character to character timeout = 30 ms               */
    60000,          /* Communication port timeout = 60 seconds             */
    1200,           /* Baud rate = 1200 baud                                */
    2,              /* Stop bits = 2                                        */
    0,              /* Parity    = None                                     */
    1,              /* 1 Logical RTU defined on this COM port               */
    0,              /* Offset of 0 into the LRU cross reference table       */
    "COM1",         /* Using CPM   communication port #1                    */


     /* *********************************************************************** */

DATA_TABLE = 2       /* LRU Cross Reference Configuration Table             */

    20, 0,          /* RTU address of LRU , Offset into A009_LRU              *


     /* *********************************************************************** */
A009_CFG.TXT ═══ Insert ═══ Wrap: OFF ═══════════ line 157   col 11   ═
```

**Figure 9. The *Data Table* screen.**

**STEP 8.** Change the program from **Insert** mode to **Overtype** mode (at the bottom of the screen) by pressing the <INSERT> key. Then, change the RTU address to the appropriate value for this installation. In this example, the address "20" (see Figure 9 on page 12) was changed to "6" (see Figure 10).

```
    /* ********************************************************************** */

DATA_TABLE = 1                   /*  Port Configuration Table Definition      */

    30,              /* RTS On Delay = 30 ms                                 */
    12,              /* RTS Off Delay = 12 ms                                */
    30,              /* Character to character timeout = 30 ms               */
    60000,           /* Communication port timeout = 60 seconds             */
    1200,            /* Baud rate = 1200 baud                                */
    2,               /* Stop bits = 2                                        */
    0,               /* Parity    = None                                     */
    1,               /* 1 Logical RTU defined on this COM port               */
    0,               /* Offset of 0 into the LRU cross reference table       */
    "COM1",          /* Using CPM   communication port #1                    */


    /* ********************************************************************** */

DATA_TABLE = 2      /* LRU Cross Reference Configuration Table               */

    6, 0,                /* RTU address of LRU , Offset into A009_LRU        */


    /* ********************************************************************** */
A009_CFG.TXT ===== Overtype ===== Wrap: OFF ============== line 157   col 9  ==
```

**Figure 10. The *Data Table* screen showing Overtype mode.**

**STEP 9.** Place the program in **Edit** mode (shown at the bottom of the screen) by simultaneously pressing the <ALT> and <A> keys. Then, save the change by pressing the <ENTER> key. See Figure 11. The *Configure D20* screen will open. See Figure 12.

```
    /* ********************************************************************** */

DATA_TABLE = 1                   /*  Port Configuration Table Definition      */

    30,              /* RTS On Delay = 30 ms                                 */
    12,              /* RTS Off Delay = 12 ms                                */
    30,              /* Character to character timeout = 30 ms               */
    60000,           /* Communication port timeout = 60 seconds             */
    1200,            /* Baud rate = 1200 baud                                */
    2,               /* Stop bits = 2                                        */
    0,               /* Parity    = None                                     */
    1,               /* 1 Logical RTU defined on this COM port               */
    0,               /* Offset of 0 into the LRU cross reference table       */
    "COM1",          /* Using CPM   communication port #1                    */


    /* ********************************************************************** */

DATA_TABLE = 2      /* LRU Cross Reference Configuration Table               */

    6, 0,                /* RTU address of LRU , Offset into A009_LRU        *


    /* ********************************************************************** */
  Edit action:  save  cancel  goto  find  replace  block  include  upload  wrap
```

**Figure 11. The *Data Table* screen with the change saved.**

```
                        ~Westronic Inc. Configuration System 4.40~
 P_NEW


                          ┌ Configure D20 ───────────┐
                          │                          │
                          │   Configure Hardware     │
                          │   Configure Applications │
                          │   Configure NVRAM Header  │
                          │   Generate System        │
                          │                          │
                          │   Return to Main Menu    │
                          │                          │
                          └ Select with ↑ ↓, press ←┘ ─┘
```

**Figure 12. The *Configure D20* screen.**

STEP 10. Communication parameters are set at the factory and must be accessed only to verify they are correct or to revise the settings from those normally configured. These parameters are listed in another data table.

(a) Access this data table by repeating Steps 5 and 6. Use the arrow keys to scroll through the various tables and locate the data table with comments relating to communication parameters. See Figure 13. This data table will be similar to the one shown in the "DATA_TABLE = 1" section.

(b) Review the communication parameters. To revise a parameter, press the <INSERT> key to change the program from **Insert** mode to **Overtype** mode.

(c) Change the parameters as required. Then, place the program in **Edit** mode by simultaneously pressing the <ALT> and <A> keys.

(d) Save the change by pressing the <ENTER> key.

(e) When communication parameter entry is completed, press the <ESC> key. The *Configure D20* screen will open. See Figure 14.

```
      /* ********************************************************************* */

  DATA_TABLE = 1                   /*  Port Configuration Table Definition          */

      30,                 /* RTS On Delay = 30 ms                              */
      12,                 /* RTS Off Delay = 12 ms                             */
      30,                 /* Character to character timeout = 30 ms            */
      60000,              /* Communication port timeout = 60 seconds           */
      1200,               /* Baud rate = 1200 baud                             */
      2,                  /* Stop bits = 2                                     */
      0,                  /* Parity     = None                                 */
      1,                  /* 1 Logical RTU defined on this COM port            */
      0,                  /* Offset of 0 into the LRU cross reference table     */
      "COM1",             /* Using CPM   communication port #1                 */


      /* ********************************************************************* */

  DATA_TABLE = 2      /* LRU Cross Reference Configuration Table               */

      6, 0,             /* RTU address of LRU , Offset into A009_LRU            */


      /* ********************************************************************* */
  A009_CFG.TXT ===== Insert ====== Wrap: OFF ============ line 157   col 9   ==
```

**Figure 13.** The *Data Table = 1* screen with communication parameters.

```
                   -Westronic Inc. Configuration System 4.40-
  P_NEW


                        ┌─ Configure D20 ──────────┐
                        │                          │
                        │   Configure Hardware     │
                        │   Configure Applications │
                        │   Configure NVRAM Header  │
                        │   Generate System        │
                        │                          │
                        │   Return to Main Menu    │
                        │                          │
                        └─ Select with ↑ ↓, press ←┘
```
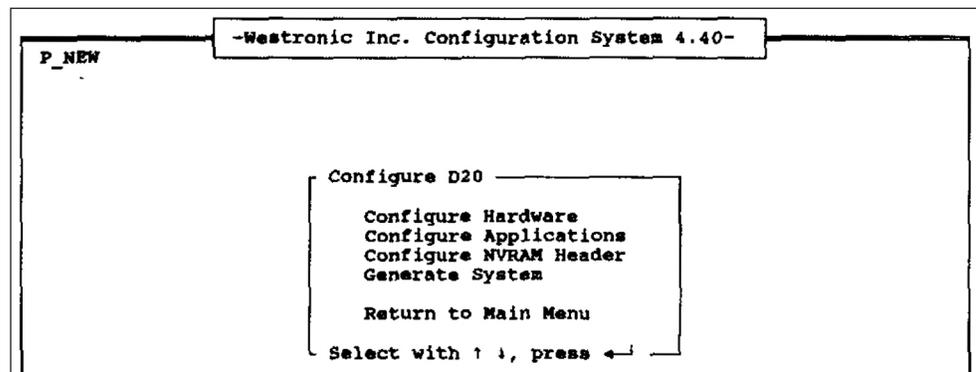
**Figure 14.** The *Configure D20* screen.

**STEP 11.** Status point mapping and analog point mapping are set at the factory and must be accessed only to verify they are correct or to revise the settings from those normally configured. These parameters are listed in other data tables.

(a) Access the data table by repeating Steps 5 and 6. Use the arrow keys to scroll through the various tables and locate the data table with comments relating to status point mapping. See Figure 15. This data table will be similar to the one shown in the "DATA_TABLE = 5" section.

(b) Review the status point mapping. To revise the mapping, press the <INSERT> key to change the program from **Insert** mode to **Overtype** mode.

(c) Change the mapping as required. Then, place the program in **Edit** mode by simultaneously pressing the <ALT> and <A> keys.

(d) Save the changes by pressing the <ENTER> key.

(e) Review the analog point mapping and make revisions in the same manner. This data table will be similar to the one shown in the "DATA_TABLE = 6" section. See Figure 15.

(f) When the status point and analog point mapping parameters are set correctly, press the <ESC> key. The *Configure D20* screen will open. See Figure 16.

```
/* *********************************************************************** */

DATA_TABLE = 5                   /* Status/SOE point mapping                    */

    /* -------------------- LRU #0 - Port 1 ------------------ */
     0,3,  1,3,  2,3,  3,3,  4,3,  5,3,  6,3,  7,3,  8,3,  9,3,
    10,3, 11,3, 12,3, 13,3, 14,3, 15,3, 16,3, 17,3, 18,3, 19,3,
    20,3, 21,3, 22,3, 23,3, 24,3, 25,3, 26,3, 27,3, 28,3, 29,3,
    30,3, 31,3, 32,3, 33,3, 34,3, 35,3, 36,3, 37,3, 38,3, 39,3,


    /* *********************************************************************** */

DATA_TABLE = 6                   /* Analog point mapping                        */

    /* -------------------- LRU #0 - Port 1 -------------------- */
     0,10,00,  1,10,00,  2,10,00,  3,10,00,  4,10,00,  5,10,00,
     6,10,00,  7,10,00,  8,10,00,  9,10,00, 10,10,00, 11,10,00,
    12,10,00, 13,10,00, 14,10,00, 15,10,00, 16,10,00, 17,10,00,

/* *********************************************************************** */

A009_CFG.TXT ===== Insert ======= Wrap: OFF =============== line 207   col 1   ==
```

**Figure 15. The *Data Table* screen with point mapping parameters.**

```
                    -Westronic Inc. Configuration System 4.40-
  P_NEW



                        Configure D20

                            Configure Hardware
                            Configure Applications
                            Configure NVRAM Header
                            Generate System

                            Return to Main Menu

                          Select with ↑ ↓, press ↵
```
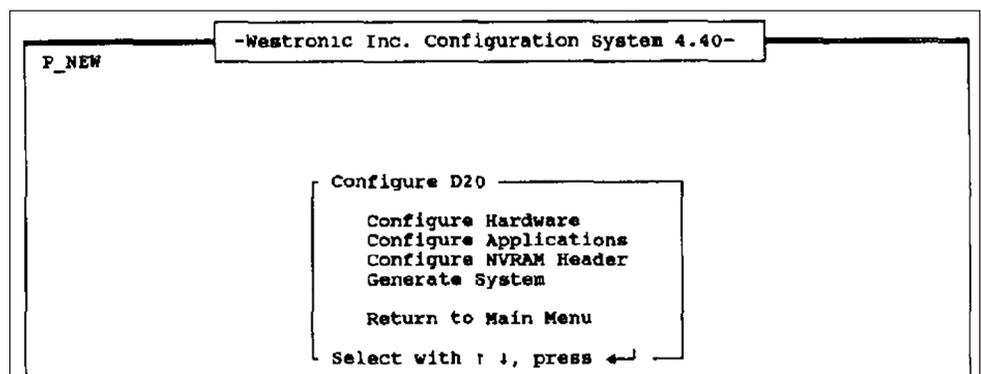
**Figure 16. The *Configure D20* screen.**

**STEP 12.** Using the arrow keys, select the **Generate System** option, and press the <ENTER> key. The *Generate System* screen will open. See Figure 17 on page 16.
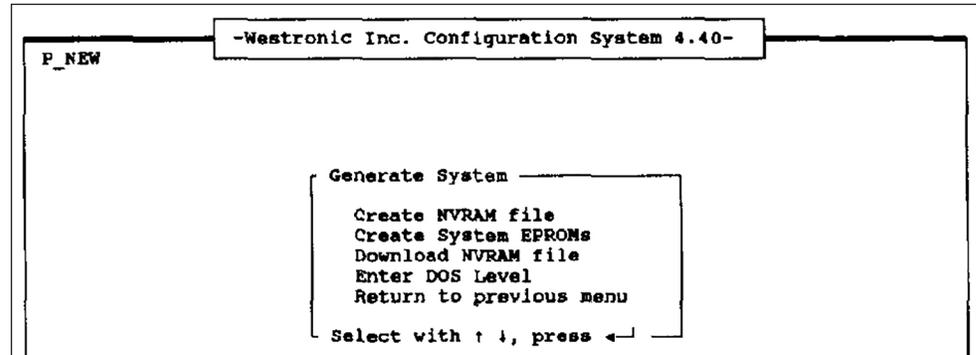
```
                 ┌─ -Westronic Inc. Configuration System 4.40- ─┐
   P_NEW         └                                              ┘



                          ┌─ Generate System ──────────┐
                          │                            │
                          │    Create NVRAM file       │
                          │    Create System EPROMs     │
                          │    Download NVRAM file      │
                          │    Enter DOS Level          │
                          │    Return to previous menu  │
                          │                            │
                          └─ Select with ↑ ↓, press ◄┘ ─┘
```

**Figure 17.** The *Generate System Menu* screen.

**STEP 13.** Using the arrow keys, select the **Create NVRAM file** option and press the <ENTER> key. The data files will be compiled and saved on the CPM application configuration files diskette. When compiling is complete, a screen will open similar to the screen in Figure 18.
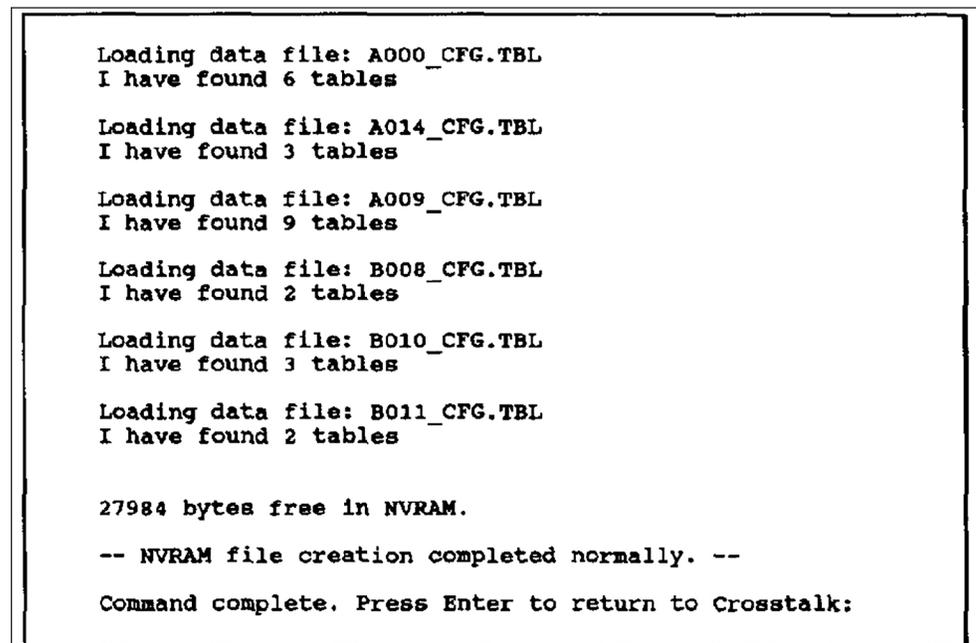
```
       Loading data file: A000_CFG.TBL
       I have found 6 tables

       Loading data file: A014_CFG.TBL
       I have found 3 tables

       Loading data file: A009_CFG.TBL
       I have found 9 tables

       Loading data file: B008_CFG.TBL
       I have found 2 tables

       Loading data file: B010_CFG.TBL
       I have found 3 tables

       Loading data file: B011_CFG.TBL
       I have found 2 tables


       27984 bytes free in NVRAM.

       -- NVRAM file creation completed normally. --

       Command complete. Press Enter to return to Crosstalk:
```

**Figure 18.** The *NVRAM File Creation Process* screen.

**STEP 14.** Press the <ENTER> key. The *Generate System* screen will open. See Figure 19 on page 17.
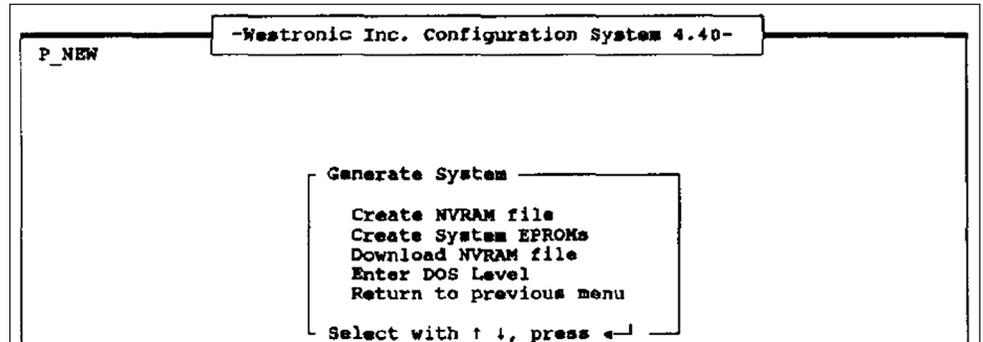
**Figure 19.** The *Generate System Menu* screen.

**STEP 15.** Using the arrow keys, select the **Return to previous menu** option and press the <ENTER> key. The *Configure D20* screen will open. See Figure 20.
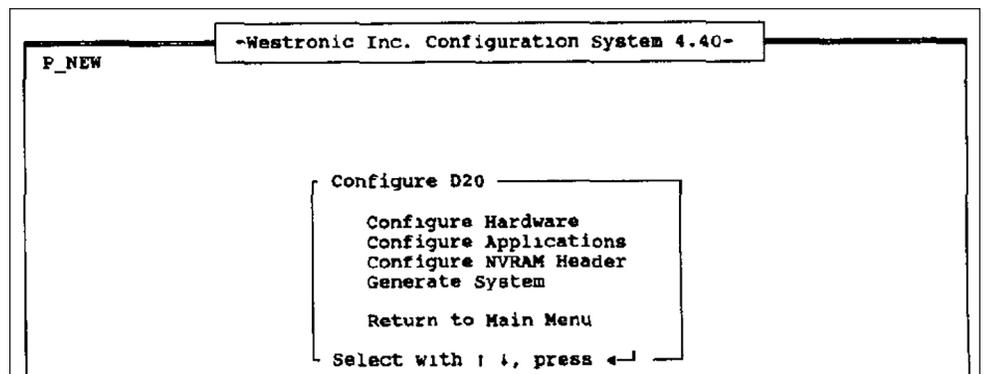


**Figure 20.** The *Configure D20* screen.

**STEP 16.** Using the arrow keys, select the **Return to main Menu** option and press the <ENTER> key. *Main Menu* screen will open. See Figure 21.
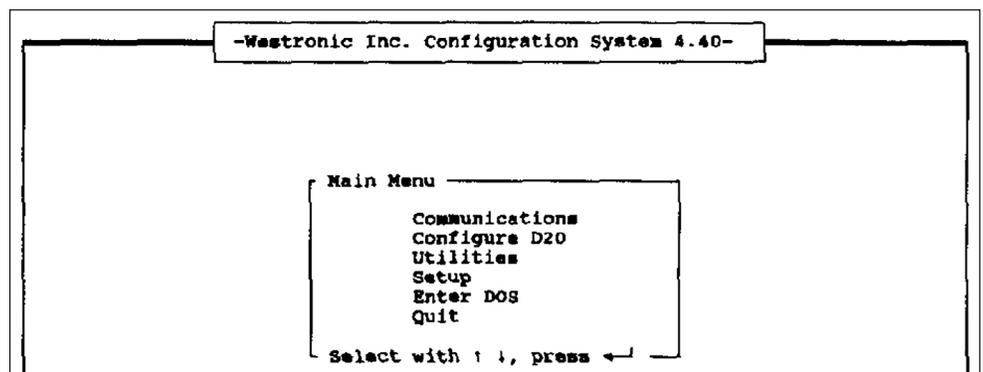


**Figure 21.** The *Main Menu* screen.

**STEP 17.** Using the arrow keys, select the **Communications** option and press the <ENTER> key. The *Communications* screen will open. See Figure 22 on page 18.
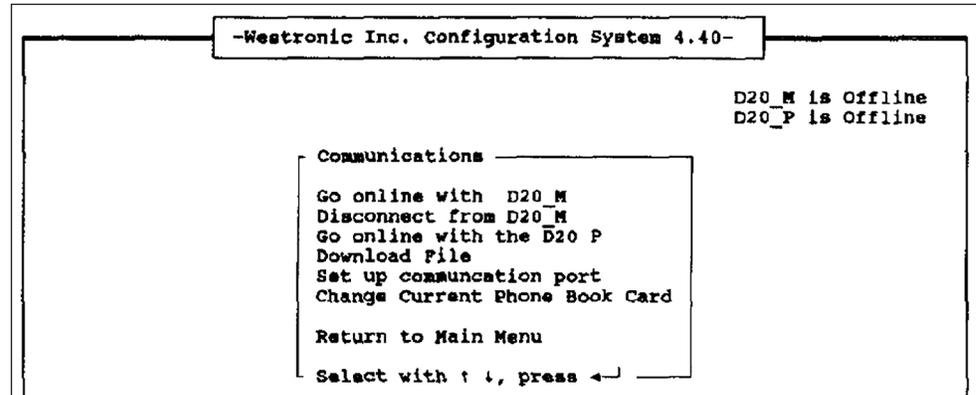
**Figure 22.** The *Communications* screen.

**STEP 18.** Using the arrow keys, select the **Go online with D20_M** entry and press the <ENTER> key. Press the <ENTER> key again. (Pressing <ENTER> the first time returns the prompt "Press F1 to return.") The communication link will be established between the CPM and the computer. The *Westronic Indorporated WESDAC D20 System Login* screen will open. See Figure 23.
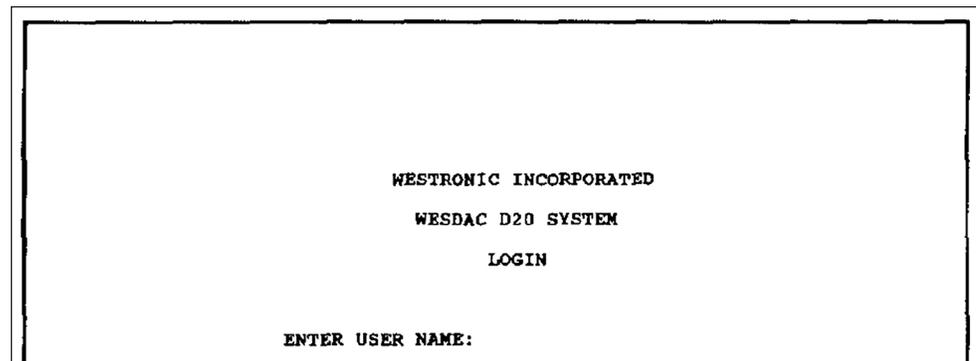


**Figure 23.** The *System Login* screen.

**STEP 19.** At the **ENTER USER NAME:** prompt, type "westronic" and press the <ENTER> key. At the **PASSWORD:** prompt, type "rd" and press the <ENTER> key. The *Main Menu* screen for the Wesdac D20 system will open. See Figure 24.
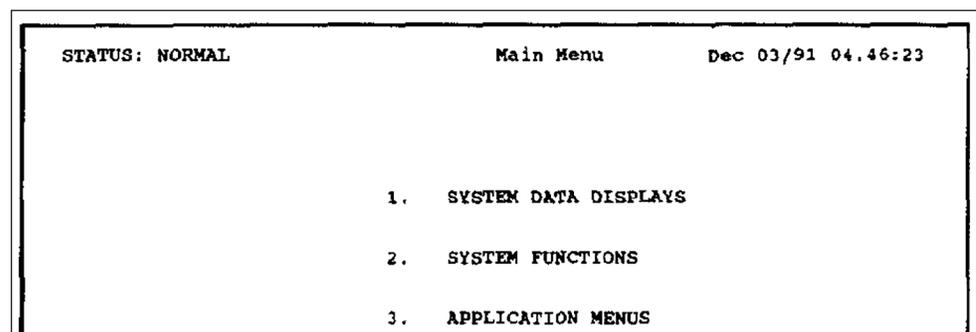


**Figure 24.** The *Main Menu* screen.

**STEP 20.** Using the arrow keys, select the **2. SYSTEM FUNCTIONS** option and press the <ENTER> key. The *System Function Menu* screen will open. See Figure 25 on page 19.

```
STATUS: NORMAL                System Function Menu          Dec 03/91 04:47:22

                        1.        SET TIME and DATE

                        2.        PERIPHERAL STATUS DISPLAY

                        3.        D20 MONITOR

                        4.        ERROR LOG




Logout  Redraw  Open_window  Advance  View_previous  Beginning  End  Top_menu
Escape
Use cursor keys or item number to position, then press Enter to select.
Press F1 to return.
```

**Figure 25.** The *System Function Menu* screen.

**STEP 21.** Using the arrow keys, select the **3. D20 Monitor** option and press the <ENTER> key. The D20 monitor will open with a screen similar to the screen in Figure 26.

```
        Exception  encountered while in DL01 -   302CA01!
        Vector = 14  PC =    27906
        Instruction Address is    27902

        Exception  encountered while in DL02 -   302D52!!
        Vector = 14  PC =    27906
        Instruction Address is    27902

        Exception  encountered while in DL03 -   302E04!!
        Vector = 14  PC =    27906
        Instruction Address is    27902

        Exception  encountered while in DL04 -   302EB6!'
        Vector = 14  PC =    27906
        Instruction Address is    27902

        Welcome to the 68K Monitor!

        D20M>
        Press F1 to return
```

**Figure 26.** The *D20 Monitor* screen.

**STEP 22.** At the **D20M>** prompt, type "sp" and press the <ENTER> key. This action will stop the processor, permitting it to accept the NVRAM file saved on the CPM application configuration files diskette.

(a) A second **D20M>** prompt will appear; type "f 200000 300000 00" and press the <ENTER> key. This action will clear all processor registers. Ignore the error message that may open.

(b) A third **D20M>** prompt will appear; press the <F1> key. The *Communications* screen will open. See Figure 27 on page 20.
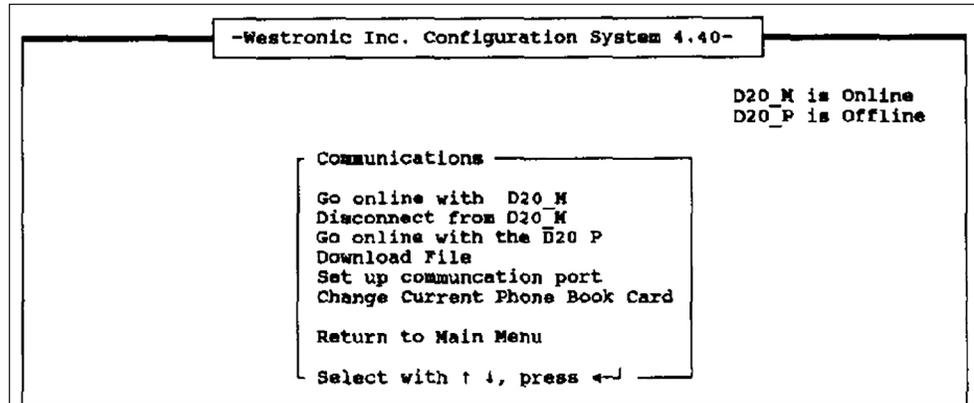
**Figure 27. The *Communications* screen.**

**STEP 23.** Using the arrow keys, select the **Download File** option and press the <ENTER> key. The NVRAM file will be downloaded from the computer to the CPM. The *Communications* screen will open. See Figure 28.
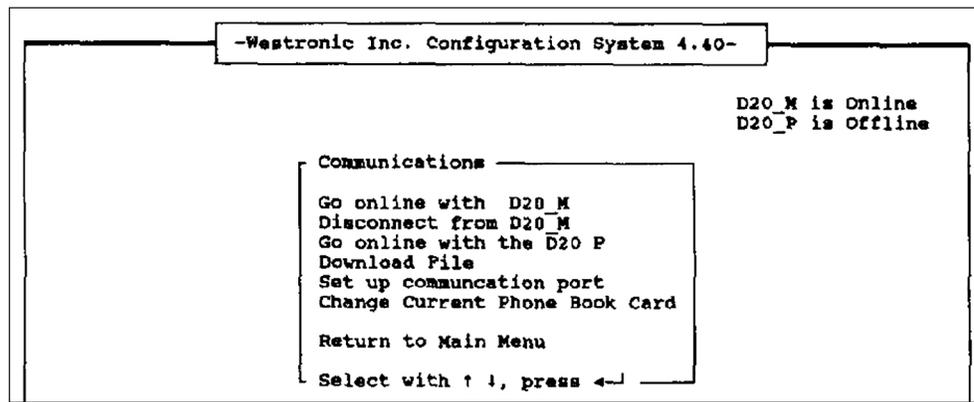


**Figure 28. The *Communications* screen.**

**STEP 24.** Using the arrow keys, select the **Go online with D20_M** option and press the <ENTER> key. The *D20_M* screen will open. See Figure 29.
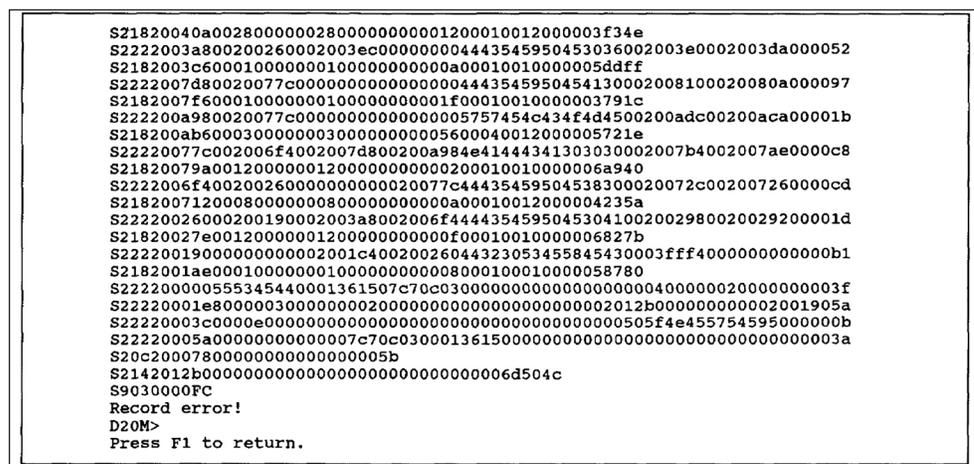


**Figure 29. The *D20_M* screen.**

**STEP 25.** Ignore the entry "Record error!" At the the **D20M>** prompt, type "boot" and press the <ENTER> key. The *Release* screen will open. See Figure 30 on page 21.

```
RELEASE: Nov. 1, 1990

Power-up Diagnostics:
    > Boot CODE (U3) - pass
    > User RAM  (U4) - pass
    > ROOT: Creating Base Processes
          : Watchdog   - pass
          : Monitor    - pass
    > ROOT: NVRAM test - pass
    > ROOT: EPROM test - pass


Spawnning Process(es)
========= ============

PID      Name GP PR Stack    Agr_List Proc_Add Sp_Err Ac_Err
  3025AC ALSP  0 C8   640250       0     E27C     0      0
  30265E WMII  0 FE   640200       0     240C8    0      0
  3027C2 DNPN  0 50  2000100       0     27E02    0      0
  302874 DNPL  0 50  2000100       0     287AC    0      0
  302926 B011  0 50  2000100       0     2AA3C    0      0
  3029D8 LOG   0 FE   640200       0     2AE68    0      0
  302A8A WIN   0 32   640125       0     2F2C8    0      0

Press F1 to return.
```

**Figure 30. The *Release* screen.**

**STEP 26.** Press the <F1> key. The *Communications* screen will open. See Figure 31.

```
          -Westronic Inc. Configuration System 4.40-

                                                  D20_M is Online
                                                  D20_P is Offline

              Communications

              Go online with  D20_M
              Disconnect from D20_M
              Go online with the D20_P
              Download File
              Set up communcation port
              Change Current Phone Book Card

              Return to Main Menu

              Select with ↑ ↓, press ←┘
```

**Figure 31. The *Communications* screen.**

**STEP 27.** Using the arrow keys, select the **Disconnect from D20_M** option and press the <ENTER> key. The *Communications* screen will open. See Figure 32 on page 22.
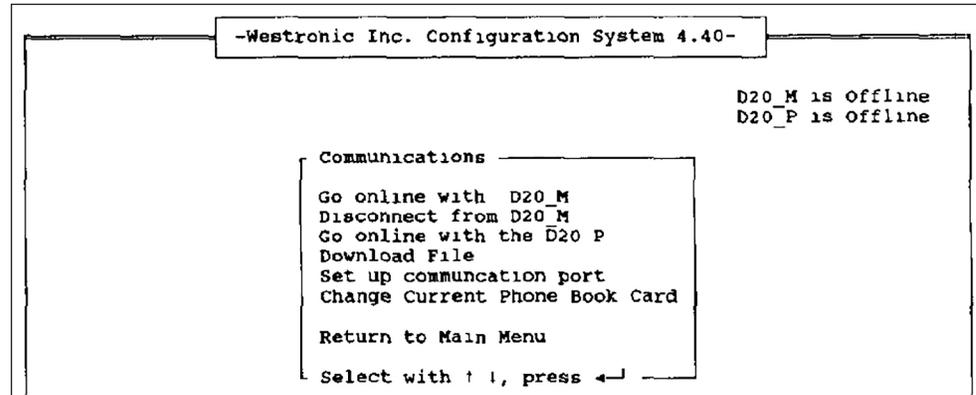
# Configuring the Communication Processor

```
    -Westronic Inc. Configuration System 4.40-

                                                D20_M is Offline
                                                D20_P is Offline

          Communications

          Go online with  D20_M
          Disconnect from D20_M
          Go online with the D20_P
          Download File
          Set up communcation port
          Change Current Phone Book Card

          Return to Main Menu

          Select with ↑ ↓, press ←┘
```

**Figure 32.** The *Communications* screen.

**STEP 28.** Using the arrow keys, select **Return to Main Menu** option and press the <ENTER> key. The *Main Menu* screen will open. See Figure 33.
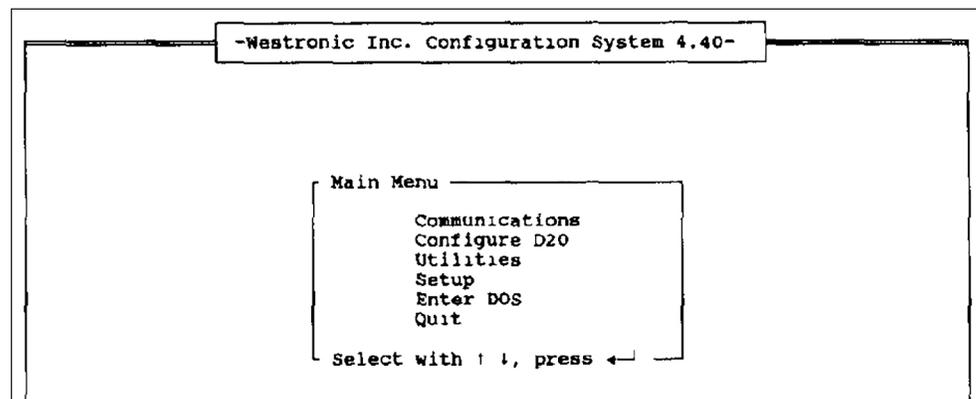
```
    -Westronic Inc. Configuration System 4.40-




          Main Menu

                  Communications
                  Configure D20
                  Utilities
                  Setup
                  Enter DOS
                  Quit

          Select with ↑ ↓, press ←┘
```

**Figure 33.** The *Main Menu* screen.

**STEP 29.** Using the arrow keys, select the **Quit** option and press the <ENTER> key.

Congratulations, programming is complete. Turn off the DART RTU and the computer. Disconnect the DART maintenance cable. If an isolated 120-volt ac source was connected to the battery charger, turn off the battery charger and disconnect the ac source.

For additional information about the CPM, refer to the Westronic Inc. CPM Product Documentation, "Guide to Configuring the CPM" and the "Configuration Users Guide."