SILENT KNIGHT

MODEL 5520 AND 5521

DESK TOP PROGRAMMER

OPERATION MANUAL

REVISED AUGUST 1990

PART NUMBER 150479

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2 PROGRAMMING 2816 EEPROMs

2.1 LCD DISPLAY

The LCD display is divided into two lines. The first (top) line of the LCD describes the current step that is being programmed. The second (bottom) line shows the current step data. Since each line can only hold 16 characters, some words will be abbreviated.

2.2 QWERTY KEYPAD

<ENTER> The **<ENTER>** key is used to store data in memory. This key MUST be pressed before moving to the next option if you want the data to be stored in memory.

<STEP →> There are two ways to use this key:

    MENU MODE   Menu steps let you choose one of a list of options. When the **<STEP →>** key is pressed, line 2 of the display will scroll to the next data option.

    Y/N OPTIONS   Some Y/N options require you to enter specific zone or ID numbers that will be affected by the option. When a zone number is entered, it is considered a "YES" answer. Pressing the **<STEP →>** key when programming this type of option will select "YES" for ALL of the data.

<BACK ←> There are three ways to use this key:

    MENU MODE   When the **<BACK ←>** key is pressed while at a Menu step, Line 2 will scroll to the previous choice.

    Y/N OPTIONS   Pressing the **<BACK ←>** key when programming this type of option will select "NO" for ALL of the bits.

    DATA OPTIONS   If you are programming an option that requires you to enter data, pressing the **<BACK ←>** key will backspace the cursor. This function would be used when an incorrect key was pressed by mistake.

<MENU SKIP> Pressing the **<MENU SKIP>** key will advance the display to the next step but any changes made to Line 2 of the display will be ignored.

<SHIFT> <MENU SKIP> Allows you to jump back to the previous menu.

<SHIFT> <BACK ←>   The BACK function allows you to go back to the previous step.

<SHIFT> <STEP →>   The STEP function allows you to jump to any step by entering the Step #. If you are in a step that has many substeps, you may jump to any of these by entering the substep #.

SPECIAL KEYS FOR USE WHEN EDITING TEXT STRINGS

<CTRL> <E> This will ERASE ALL of the words in the section that is being edited. There are three sections where this feature may be used: Messages 0-31, Messages 32-63, and Locations 1-80. After pressing <CTRL> and <E> at the same time, the display will ask you if you want to erase all words. Press <Y> for Yes or <N> for No.

<CTRL> <F> This will display the number of unused (free) characters in either the Messages section or the Locations section.

<CTRL> <P> This will pack together all the used words, freeing up any unused words or characters. It will also display the amount of free character space in that section.

SEMI-AUTOMATIC PACK The programmer will automatically pack when the "FULL" message is displayed.

EXAMPLE: You want to change the message **"INTRUSION"** to **"BURGLARY"**. Go to the Message # where **"INTRUSION"** has been entered and enter "BURGLARY". The LCD says **"FULL!"** because there isn't room to add the 8 characters in the word "BURGLARY". Press **<ENTER>** to see how much free space is available. Press the space bar and re-enter the word "BURGLARY".

<CTRL> <RST> This will Reset the programmer completely. The data stored in memory will be erased.

2.3 MODEL 5520/21 MENU STRUCTURE

Figure 2.3A shows the various menus and submenus that are displayed during programming.

BE SURE TO LOAD BEFORE YOU EDIT OR SAVE.

```
                          ┌─────────────┐
                          │ REV XXXXXX  │
                          │ 5521        │
                          └─────────────┘
                                ↕
┌──────────────────────────────────────────────────────────────────────────┐
│ ←→ [1420] ←→ [5107] ←→ [1520] ←→ [2750] ←→ [HEX¹] ←→ [5207] ←→ [2820] ←→ [1501] ←→ [2730] ←→ [ETC.²] ←→ │
└──────────────────────────────────────────────────────────────────────────┘
                                ↕
        ┌──────────┐        ┌──────┐   ┌──────┐      ┌──────┐
   ←→ │ VERIFY │ ←──────────→ │ LOAD │ ← │ EDIT │ ←──→ │ SAVE │ ←→
        └──────────┘        └──────┘   └──────┘      └──────┘

[XBUS] [MODEM] [SOCKET]   [XBUS] [MODEM] [SOCKET]   [XBUS] [MODEM] [SOCKET]
```

┌──┐
│ PROGRAMMABLE OPTIONS (These vary among   │
│ the different control/communicator models.) │
└──┘
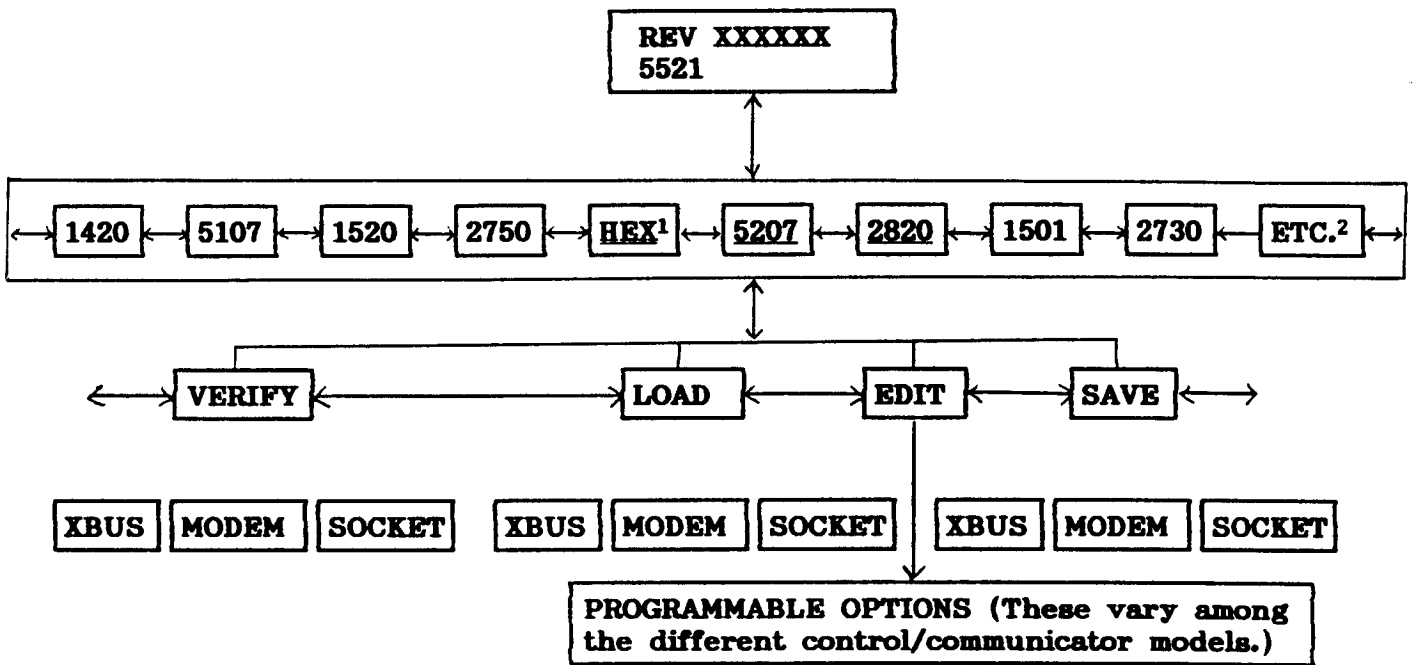
NOTE 1:   Underlined model numbers designate control/communicators that are programmed using the Model 2816 EEPROM (large socket). The remaining control/communicators that are shown are programmed using the Model 2444 EEPROM (small socket).

NOTE 2:   Model numbers and options that can be programmed may vary between the 5520 and 5521, and among different software revisions.

--Move DOWN through the menus by pushing the **<ENTER>** key.

--Move back UP through the menus by holding down the **<SHIFT>** key and pushing the **<MENU/SKIP>** key.

--Move to the RIGHT by pushing the **<STEP ⊕>** key.

--Move to the LEFT by pushing the **<BACK ⊕>** key.

```
                    Push the <MENU/SKIP> key while
                    holding down the <SHIFT> key.
                                 ↑
Press the <BACK ⊕> key. ←───────┼───────→ Press <STEP⊕> key.
                                 ↓
                        Press <ENTER> key.
```
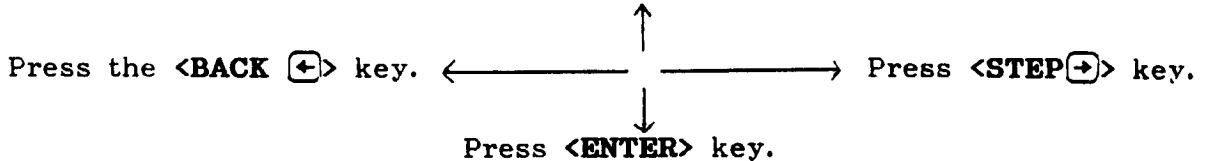
NOTE: To reset the programmer, press and hold the **<CTRL>** *key and press* **<RST>** *(upper left corner of keypad, behind EEPROM socket). Resetting the programmer will clear the editing memory.*

```
┌─────────────┐                              ┌───────────────────┐
│ EDIT 5207   │ ───────────────────────────→ │ REV. XXXXXX       │
│ SYSTEM OPTS.│                  <CTRL><RST>  │ 5521 PROGRAMMER   │
└─────────────┘                              └───────────────────┘
```
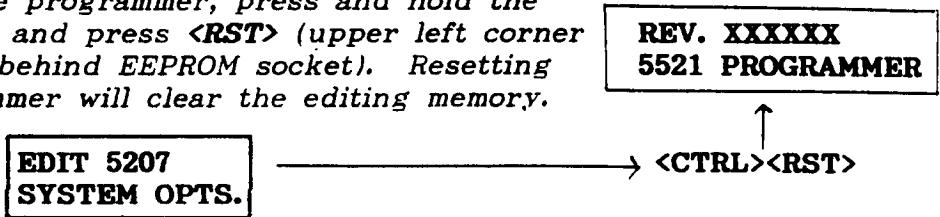
FIGURE 2.3A: MODEL 5520/21 MENU STRUCTURE

3 PROGRAMMER OPERATION

1. If your programmer is not equipped with a rechargeable battery, you must connect the power transformer provided (see Figure 4A).

    a) Plug the transformer cable into the power connector on the programmer.
    b) Plug the transformer into a 120-V_{AC}, 60-Hz wall outlet.
    c) Turn ON the power switch located on the back of the programmer.

This manual covers two different models of programmers. They are identified as Model 5520 and Model 5521.

The display will appear as follows:

Line 1	=	**"REV DATE"**
Line 2	=	**"5520 PROGRAMMER"**
or Line 2	=	**"5521 PROGRAMMER"**

This is the first menu of the programmer. The revision level may be different depending on when the programmer was purchased. Software updates will be available from the Silent Knight factory. Also, Line 2 can be scrolled to show **"TERMINAL"**, **"RECEIVER"**, and **"XBUS TEST"**. These three items are for factory test use only. Use the **<STEP ⊡>** key to scroll Line 2 to show **"PROGRAMMER"**.

2. Press the **<ENTER>** key.

Line 1	=	**"MODEL"**
Line 2	=	**"(MODEL #)"**

3. This is a menu of the models which can be programmed with the programmer. Use the **<STEP ⊡>** key to scroll through the model numbers until you reach the correct one. The following example demonstrates the procedure for panels using 24-pin 2816-type devices.

4. Press the **<ENTER>** key.

Line 1	=	**"(MODEL #)"**
Line 2	=	**"LOAD"**

This is a menu of programmer functions. Use the **<STEP ⊡>** key to scroll through the options.

a) **LOAD** – Will load the internal memory of the programmer from a previously programmed EEPROM.

CAUTION: ALWAYS load before editing or attempting to save data.

b) **EDIT** – Allows you to change the options in the internal memory of the programmer.

c) **SAVE** – Will save the internal memory of the programmer into an EEPROM.

d) **VERIFY** – Will compare an EEPROM with the internal memory of the programmer.

NOTE: "VERIFY" is done automatically when you "SAVE".

3.1 USING THE "LOAD" FUNCTION /SOCKET (USE BEFORE EDIT & SAVE)

Use the <STEP ⊕> key to select the LOAD function.

LOAD Line 1 = "(MODEL #)"
      Line 2 = "LOAD"

Press <ENTER>.

      Line 1 = "LOAD (MODEL #)"
      Line 2 = "SOCKET"

This is a menu of programmer channels. Use the <STEP ⊕> key to scroll through the options.

a) **SOCKET** – Allows you to load the internal memory of the programmer with the data stored in a master (previously programmed) 2816 EEPROM.

b) **XBUS** – Allows you to load the programmer internal memory by connecting the programmer directly to the EXPANSION Bus of the panel.

c) **MODEM** – Allows you to load the programmer internal memory using the 5530 MODEM and a remotely located panel.

      Line 1 = "LOAD (MODEL #)"
      Line 2 = "SOCKET"

Press <ENTER>.

      Line 1 = "LOAD (MODEL #)"
      Line 2 = "INSERT 2816"

The LOAD function can be used in two different ways. It can be used to Load one "PAGE" of data at a time or to load the entire contents of the EEPROM into the programmer. Refer to Appendix A (Section 7.1) for Single Page Loading explanation and instructions.

CAUTION: Before handling an EEPROM, you should touch the static discharge pad located under the small programming socket. This will reduce the risk of damage to the EEPROM from static voltage, especially in carpeted areas or low humidity.

1. Make sure that the lever on the large programming socket is in the UP position before inserting the chip.

2. Place a master (previously programmed) 2816 chip in the large socket on the programmer, making sure that the notch on the chip is towards the lever (see Figure 3.1A).

FIGURE 3.1A: PLACEMENT OF EEPROM IN SOCKET

3. Lower the lever on the socket.

4. Press the <ENTER> key.   Line 1 = "LOAD (MODEL #)"
                                   Line 2 = "REMOVE 2816"

5. Raise the lever and remove the 2816.

   A copy of the data in the Master 2816 is now stored in the programmer. The stored data will remain in the programmer until power is removed from the system.
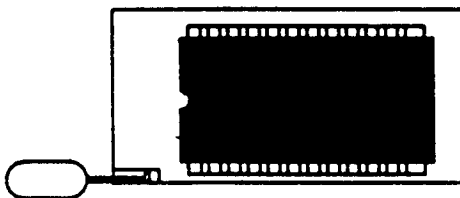
6. Press the <ENTER> key.   Line 1 = "(MODEL #)"
                                   Line 2 = "EDIT"

At this time you would probably want to "EDIT" some options, then "SAVE" this information into a new 2816.

3.2 USING THE "EDIT" FUNCTION (MUST USE "LOAD" FUNCTION FIRST)

In this mode you will step through the options and program them as needed. An explanation of each option will be found in the installation manual for each model.

                                   Line 1 = "MODEL (MODEL #)"
                                   Line 2 = "EDIT"

1. Press the "ENTER" key.   Line 1 = "EDIT (MODEL #)"
                                   Line 2 = "SYSTEM OPTS."

2. At this point you may either press <ENTER> to edit the system options or use the <STEP ⊕> key to see the other categories that may be edited.

3. When all of your choices have been made, press <SHIFT> <MENU>.

                                   Line 1 = "EDIT (MODEL #)"
                                   Line 2 = "SYSTEM OPTS."

4. Press <SHIFT> <MENU> again.   Line 1 = "MODEL (MODEL #)"
                                   Line 2 = "EDIT"

5. Use the <STEP ⊕> or <BACK ⊖> key to change Line 2 until it shows "SAVE". You can now use the SAVE procedure to store the options on a 2816.

3.3 USING THE "SAVE" FUNCTION (MUST USE "LOAD" FUNCTION FIRST)

NOTE: For an explanation on how to SAVE a single page, refer to Appendix A (Section 7).

1. The current display should show: Line 1 = "MODEL (MODEL #)"
                                     Line 2 = "SAVE"

2. Press the <ENTER> key.   Line 1 = "SAVE (MODEL #)"
                                   Line 2 = "SOCKET"

3. Press the <ENTER> key.   Line 1 = "SAVE (MODEL #)"
                                   Line 2 = "INSERT 2816"

4. Place the 2816 in the large socket with the notch of the chip toward the lever. The 2816 may be a blank or one that contains unwanted data (all data in the 2816 will be overwritten).

5. Lower the lever on the socket to secure the chip in place.

6. Press the <ENTER> key.   Line 1 = "PASS"
                                   Line 2 = "REMOVE 2816"

NOTE: Programming a 2816 takes up to 21 seconds. The programmer will beep once when it has finished programming.

7.   The 2816 in the socket is now programmed.

8.   If Line 1 of the display shows **"FAIL"**, the chip did NOT program. Make sure that you followed the programming procedure properly and try again. If the chip fails again, then either it is not making good contact in the socket, or it is defective. Remove the 2816 and reseat it into the socket. If it still does not work, try another 2816.

NOTE: "VERIFY" is done automatically when you "SAVE".

3.4 USING THE VERIFY FUNCTION /SOCKET

1.   Choose the "VERIFY" menu.

Line 1	=	**"MODEL (MODEL #)"**
Line 2	=	**"VERIFY"**

2.   Press the **<ENTER>** key.

Line 1	=	**"VERIFY (MODEL #)"**
Line 2	=	**"INSERT 2816"**

3.   Insert a 2816 as described in the LOAD function.

4.   Press the **<ENTER>** key.

Line 1	=	**"VERIFY (MODEL #)"**
Line 2	=	**"REMOVE 2816"**

5.   If **"FAIL"** is displayed, the data in the programmer's memory is not identical to the data in the 2816.

4 PROGRAMMING A 2816 INSTALLED IN A PANEL

The procedure for programming installed EEPROMs is only slightly different from programming EEPROMs in the programming socket.

NOTE: The panel MUST be in one of the programming modes to use the XBUS.

4.1 CONNECTIONS

4.1.1 STANDARD CONNECTIONS

1. Turn OFF the programmer and panel. Connect one end of the 12-wire double ended cable (provided) to the XBUS connector on the programmer (see Figure 4.1A below). The XBUS wires should extend **down** from the connector slot.

MODEL 5520 REAR VIEW

XBUS   MODEM   PIN 1   PIN 1 (BROWN WIRE)   ON / OFF   POWER
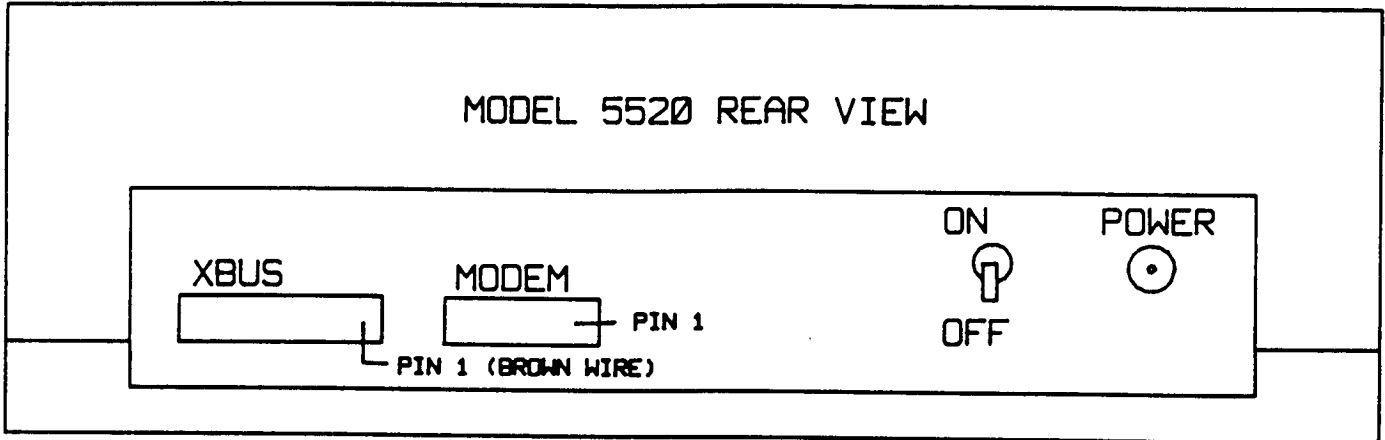
FIGURE 4.1A: CONNECTING THE CABLE TO THE PROGRAMMER

2. Connect the other end of the cable to one of the XBUS connectors on the panel.

WARNING: Improper connection of the XBUS will result in damage to the programmer. Check the connections before applying power.

3. Apply power to the control panel ONLY. (The programmer will be powered from the XBUS).

   Line 1 = "REV 870514"
   Line 2 = "PROGRAMMER"

4. Press the <ENTER> key.

   Line 1 = "MODEL"
   Line 2 = "(MODEL #)"

5. Press the <ENTER> key again.

   Line 1 = "MODEL (MODEL #)"
   Line 2 = "LOAD"

4.1.2 CONNECTING THE PROGRAMMER TO THE MODEL 2750 PANEL

To connect the Model 2750 Control/Communicator to the Model 5521 Desk Top Programmer, you must use the 7-wire cable adaptor (P/N 130295--7-pin connector on one end, 12-pin connector on the other) instead of the 12-wire double ended cable described in section 4.1.1. Plug the 12-pin connector to the XBUS (12-pin connector) on the back of the programmer. Connect the other end of the cable to header H3 on the 2750 circuit board. Once all connections have been made, apply power to the 2750.1

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4.2 USING THE "LOAD" FUNCTION /XBUS (MUST USE "LOAD" FUNCTION FIRST)

At this time you may either "LOAD" data from a master 2816 in the programming socket (see 2816 programming) or from the 2816 installed in the control panel.

1. Press the <ENTER> key.   Line 1 = **"LOAD (MODEL #)"**
                                              Line 2 = **"SOCKET"**

In this example we will load from the **(MODEL #)** XBUS.

2. Use the <STEP →> key to scroll Line 2 of the display to show **"XBUS"**. Press <ENTER>. Approximately 5 to 10 seconds later, the display will show:

                                              Line 1 = **"LOAD (MODEL #)"**
                                              Line 2 = **"REMOVE 2816"**

3. If the display does not indicate a Fail condition, a copy of the data in the 2816 installed in the panel will be contained in the memory of the programmer.

4.3 USING THE "EDIT" FUNCTION /XBUS (MUST USE "LOAD" FUNCTION FIRST)

The Editing procedure is identical to the explanation in Section 3.2 of this manual.

4.4 USING THE "SAVE" FUNCTION /XBUS (MUST USE "LOAD" FUNCTION FIRST)

1. Find the "SAVE" menu.   Line 1 = **"MODEL (MODEL #)"**
                                            Line 2 = **"SAVE"**

2. Press the <ENTER> key.   Line 1 = **"SAVE (MODEL #)"**
                                              Line 2 = **"SOCKET"**

3. Use the <STEP →> key to scroll Line 2 of the display to show **"XBUS"**.

NOTE: Make sure that the 12-conductor cable is connected to the programmer and the (Model #).

The SAVE function takes approximately 75 seconds.

4. Press <ENTER>.   Line 1 = **"SAVE (MODEL #)"**
                                          Line 2 = **"REMOVE 2816"**

5. If no FAIL condition is displayed, the data stored in the programmer has been programmed into the 2816 located on the panel.

NOTE: "VERIFY" is done automatically when you "SAVE".

4.5 USING THE VERIFY FUNCTION /XBUS

1. Find the "VERIFY" menu.   Line 1 = **"MODEL (MODEL #)"**
                                            Line 2 = **"VERIFY"**

2. Press the <ENTER> key.   Line 1 = **"VERIFY (MODEL #)"**
                                              Line 2 = **"SOCKET"**

3. Use the <STEP →> key to scroll Line 2 of the display to show **"XBUS"**. Press <ENTER>. Line 2 of the display will show either **"PASS"** or **"FAIL"**.

NOTE: The "VERIFY" function will take approximately 5 to 10 seconds.

4. If no FAIL condition is displayed, the data in the 2816 located on the panel matches the data stored in the programmer.

5 USING A MODEM

Connect the MODEM to the phone line as described in the MODEM Users Manual. Connect the MODEM to the 10-position connector on the back of the programmer.

The MODEM may be used to LOAD, SAVE, and VERIFY. Since the sequence of events is the same for all three items, the example will show how to use the LOAD function only.

EXAMPLE

After connecting the MODEM to the programmer, turn on the power.

| | Line 1 | = | **"REV 870514"** |
| | Line 2 | = | **"PROGRAMMER"** |

Press **<ENTER>**.

| | Line 1 | = | **"MODEL"** |
| | Line 2 | = | **"(MODEL #)"** |

Press **<ENTER>**.

| | Line 1 | = | **"MODEL (MODEL #)"** |
| | Line 2 | = | **"LOAD"** |

Press **<ENTER>**.

| | Line 1 | = | **"LOAD (MODEL #)"** |
| | Line 2 | = | **"SOCKET"** |

Use the **<STEP ⊕>** key to scroll Line 2 to show **"MODEM"**. Press **<ENTER>**.

| | Line 1 | = | **"LOAD (MODEL #)"** |
| | Line 2 | = | **"ACCOUNT** |

Enter the Account # that is programmed in the panel as Account #4 and press **<ENTER>**.

| | Line 1 | = | **"LOAD (MODEL #)"** |
| | Line 2 | = | **"WAITING"** |

At this Point, someone must activate the "Request Download" feature of the panel. The panel will then call the programmer.

NOTE: The phone number of the line connected to the programmer must be programmed as the Computer Phone # in the control/communicator panel before Requesting Download.

When the programmer answers, Line 2 of the display will show **"PAGE"**. When the Load operation is complete, Line 2 of the display will show **"PASS"** or **"FAIL"**.

If Line 2 shows **"VOICE"**, a call came in but it is not communicating data to the programmer.

If Line 2 shows **"ERROR"**, a call came in but the communication was interrupted. Reset the programmer and repeat the procedure above.

6 PROGRAMMING THE 2443, 2444 AND 9346 EEPROMs

This section applies to 8-pin EEPROMs.

1. Apply power to the programmer. The display will show:

    Line 1 = **"REV 870514"**
    Line 2 = **"PROGRAMMER"**

This is the first menu of the programmer. The revision level may be different depending on when the programmer was purchased. Software updates will be available from Silent Knight. Also, Line 2 can be scrolled to show **"TERMINAL"**, **"RECEIVER"**, and **"SLOT TEST"**. These three items are for factory test use only. Use the **<STEP ➡>** key to scroll Line 2 to show **"PROGRAMMER"**.

2. Press the **<ENTER>** key.

    Line 1 = **"MODEL"**
    Line 2 = **"(MODEL #)"**

3. This is the menu of the models which can be programmed with the programmer. Use the **<STEP ➡>** key to scroll through the model numbers until you reach the one that you wish to program. The Model 2730 is used in the following examples.

    Line 1 = **"MODEL"**
    Line 2 = **"2730"**

4. Press the **<ENTER>** key.

    Line 1 = **"MODEL 2730"**
    Line 2 = **"LOAD"**

This is a menu of programmer functions. The **<STEP ➡>** key may be used to scroll through the options (Load, Edit, Save or Verify).

   a) **LOAD** - Will load the internal memory of the programmer from a previously programmed EEPROM. Always load before editing or saving to a chip.

   b) **EDIT** - Allows you to change the options stored in the memory of the programmer.

   c) **SAVE** - Will save the internal memory of the programmer into an EEPROM.

   d) **VERIFY** - Will compare an EEPROM with the internal memory of the programmer.

NOTE: *"VERIFY" is done automatically when you "SAVE".*

6.1 USING THE "LOAD" FUNCTION

Use the <STEP ⊕> key to select the LOAD function.

LOAD Line 1 = "MODEL 2730"
      Line 2 = "LOAD"

Press <ENTER>.

      Line 1 = "LOAD 2730"
      Line 2 = "SOCKET"

When Line 2 shows "SOCKET", you can load the internal memory of the programmer with the data stored in a master EEPROM. The other four types of "LOAD" menus (XBUS, MODEM, etc.) cannot be used with the 8-pin EEPROMs.

CAUTION: **Before handling an EEPROM, you should touch the static discharge pad located under the small programming socket. This will reduce the risk of damage to the EEPROM from static voltage, especially in carpeted areas or low humidity.**

1. Make sure that the lever on the programming socket is in the UP position before inserting the chip.

2. Place a master (previously programmed) chip in the small socket on the programmer, making sure that the notch on the chip is towards the lever.

3. Make sure that the chip is as close to the lever as shown below.
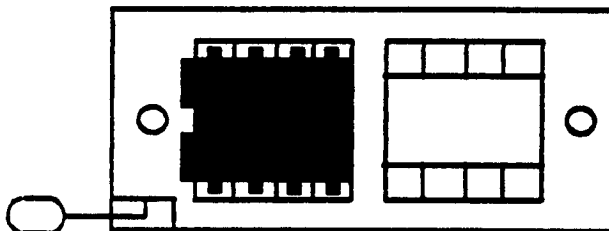
FIGURE 6.1A: EEPROM SOCKET

4. Lower the lever on the socket.

5. Press the <ENTER> key.
          Line 1 = "LOAD 2730"
          Line 2 = "REMOVE 2444"

6. Raise the lever on the socket and remove the chip.

   A copy of the data in the master chip is now stored in the programmer. The stored data will remain in the programmer until power is removed from the system. At this time you would probably want to "EDIT" some options, then "SAVE" this information onto a new chip.

7. Press the <ENTER> key.
          Line 1 = "MODEL 2730"
          Line 2 = "EDIT"

6.2 USING THE "EDIT" FUNCTION

In this mode you will step through the options and program them as needed. An explanation of each option will be found in the installation manual for each model.

| | | Line 1 = **"MODEL 2730"** |
| | | Line 2 = **"EDIT"** |

1. Press the "ENTER" key. Line 1 = **"EDIT 2730"**
    Line 2 = **"CONTROL"**

2. At this point you may either press **<ENTER>** to edit the Control options or use the **<STEP ⊕>** key to advance to the Dialer options.

3. When all of your choices have been made for the control options, Line 2 of the display will show **"CONTROL"**. Press the **<STEP ⊕>** key.

    Line 1 = **"EDIT 2730"**
    Line 2 = **"DIALER"**

4. Press the **<ENTER>** key to edit the Dialer options.

5. When you have viewed all of the options and made the necessary changes, Line 2 of the display will show **"DIALER"**.

6. Press **<SHIFT> <MENU>**. Line 1 = **"MODEL 2730"**
    Line 2 = **"EDIT"**

7. Use the **<STEP ⊕>** or **<BACK ⊕>** key to change Line 2 until it shows **"SAVE"**. You may now use the SAVE procedure to store the options on the chip in the socket.

6.3 USING THE "SAVE" FUNCTION

1. The current display should show: Line 1 = **"MODEL 2730"**
    Line 2 = **"SAVE"**

2. Press the **<ENTER>** key. Line 1 = **"SAVE 2730"**
    Line 2 = **"INSERT 2444"**

3. Place the chip in the small socket with the notch of the chip toward the lever. The chip may be a blank or one that contains unwanted data (all data in the chip will be overwritten).

4. Lower the lever on the socket to secure the chip in place.

5. Press the **<ENTER>** key. Line 1 = **"PASS"**
    Line 2 = **"REMOVE 2444"**

6. The chip in the socket is now programmed.

7. If Line 1 of the display shows **"FAIL"**, the chip did NOT program. Make sure that you followed the programming procedure properly and try again. If the chip fails again, then it is defective. Try another chip.

NOTE: "VERIFY" is done automatically when you "SAVE".

6.4 USING THE VERIFY FUNCTION

The VERIFY function is the same as for the 2816 except you will use an 8-pin EEPROM chip and the small programming socket.

7 APPENDIX A

7.1 LOADING/SAVING A SINGLE PAGE (2816)

This feature can be used to "merge" options from multiple 2816 EEPROMs. When using this feature you may not use the MODEM or XBUS at this time. All programming must be done using the large socket on the programmer. The 2816 EEPROM contains 8 pages of programming. Referring to the HEX PROGRAMMING FORM, the first number of the HEX address is the page that the particular option is located on.

EXAMPLE: The option for Fast Restores is located at address $007. This option is stored on Page 0 of the programmer.

Follow the directions in this manual for Loading or Saving data. When the LCD Display shows **"INSERT 2816"**, press the letter **<P>**. Line 2 of the display will show **"PAGE (0-7) -"**. Enter the desired page number and press <ENTER>. Line 2 of the display will again show **"INSERT 2816"**. Insert the EEPROM and press **<ENTER>** to Load or Save a single page.

7.2 DEFAULT EEPROMs and EPROMs

7.2.1 DEFAULT EEPROM (CONTROL PANEL)

A Default EEPROM (electrically erasable programmable read-only memory) is shipped in the EEPROM socket of each **panel** (Model 5207, 2820, etc.). This EEPROM contains the basic default values for setting up a control panel. **Always** load the data from this EEPROM into memory before programming a blank EEPROM. This EEPROM contains the system messages which are essential to run the control panel. Once the data has been loaded into the programmer, it may be changed to meet your particular needs.

If the original default program is lost for any reason, these chips can be used to recover the data. Insert the appropriate chip (see table 7.2.1) into the programmer and read the default values into the programmer's memory. Then connect the programmer to the panel and read the values into the chip that is in the panel.

CAUTION: **Install the 2896, 4799 or 5296 chips into the PROGRAMMER. Do NOT install these chips into panels.**

TABLE 7.2.1A: DEFAULT EEPROMS FOR CONTROL/COMMUNICATOR PANEL

CHIP #	PANEL MODEL #
2896	2820
4799	4720/21
6396	5207-12

7.2.2 DEFAULT EPROM (PROGRAMMER)

A default EPROM (erasable programmable read-only memory) is supplied with each **programmer** (Model 5520 or 5521). The EPROM is different from the default EEPROM shipped with the panel, in that the EPROM can **NOT** be reprogrammed, and must **NOT** be installed in a panel. However, you can load the data from the **EPROM** into the programmer, then save the data onto an **EEPROM**, which you can subsequently install in a panel.

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7.3 WARNING MESSAGES

After Loading and before Saving panel data, the programmer will check certain options for valid data. If invalid data is found, the LCD will show "WARNING X". The number X indicates the type of error. The warning message does not prevent you from Loading or Saving but the error should be corrected before proceeding. Press <ENTER> to proceed.

The programmer cannot detect some kinds of programming errors. It is also possible for a warning to be invalid. When a warning is displayed, check the applicable section of the program. If the program appears to be correct, ignore the warning.

WARNING NUMBER	DESCRIPTION OF ERROR
1	Invalid data in the System Options
2	Invalid data in the Messages Menu
3	No Code 0
4	Phone #1 invalid
5	N/A
6	N/A

The following warnings are displayed in English instead of by number:

"XXXX BAD FORMAT"
You have attempted to load a 2816 chip that has not been properly formatted or is of the wrong model type. Load a default chip that is known to be good and save the data onto the "bad" chip before proceeding. ("XXXX" is the model number of the system you are programming, such as the 2820 or 5207).

"NOT LOADED"
You are attempted to save data without first loading a valid chip. Load a valid chip, then try again.

"BAD CODE"
The passcode you entered does not match the code on the panel. On protected panels, you must know the passcode to change options.

7.4 CONNECTION TO A COMPUTER

The programmer may also be connected to a computer for programming EEPROMs, either using the Model 5525 Cable Adaptor, or by connection to the XBUS.

7.4.1 DIRECT CONNECTION

When using a Model 5520 or 5521 with Software Revision 880217 or later, you can connect the programmer directly to the computer to program the EEPROM. This connection should be made using the Model 5525 Cable Adaptor, available from Silent Knight. Connect one end of the cable to the modem port on the 5520. Connect the other end of the cable to the serial port on the computer.

When the "552X PROGRAMMER" option is selected using the 5540 or 5541 software, the computer will verify the connection to the programmer. If the programmer is not connected properly, the computer will display **"PROGRAMMER NOT RESPONDING"**. If everything is operational, the computer will respond with two options:

1. Load from the programmer.
2. Save to the programmer.

NOTE: DO NOT press any keys on the programmer. All operations are initiated from the computer.

The operator selects the desired option and enters the account number to SAVE/LOAD. Progress messages are displayed on the computer screen and on the programmer display.

7.4.2 USING THE XBUS

You can also connect the programmer to the XBUS and program an EEPROM from the computer using the programmer as an interface. The programmer must be powered up with the panel that is being programmed. This is the same as SAVING/LOADING through the XBUS, as described in Section 4.

7.5 SOFTWARE UPDATES AND REPLACEMENT

From time to time it will be necessary to update the programmer's software to add new models and to correct errors in the existing software. The following paragraphs describe how to change the software PROM in the programmer.

1. Turn off the power to the programmer and unplug the transformer.

2. Remove the four corner screws located on the bottom of the programmer. When removing these screws, hold on to the cover and the base. Do Not let the cover fall away from the base as this may result in damage to the cables inside the programmer.

3. Set the programmer in an upright position on a table.

4. Carefully lift the bottom of the cover to expose the battery and printed circuit board. Figure 7.5A shows the location of U6 and U7. These EPROMs must be replaced with the EPROMs that contain the updated software.
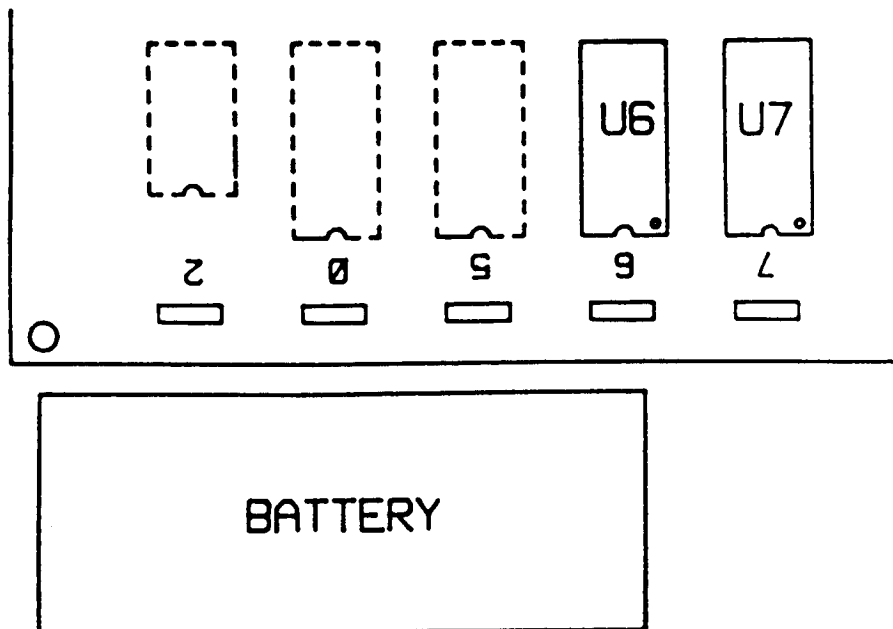
FIGURE 7.5A: EPROMS U6 AND U7

7.6 <u>REMOVING THE EPROM</u>

Use a small flat blade screwdriver to gently lever the EPROM out of its socket. Slip the screwdriver under one end of the EPROM and pry up slightly, then place the screwdriver under the other end and finish removal.

7.7 <u>INSERTING THE EPROM</u>

Before inserting each new EPROM, make sure that Pin 1 of the EPROM is located at the lower right corner of the socket (see Figure 7.5A).

Be sure to match the numbers on the EPROM (6 & 7) to the corresponding sockets. Apply even pressure on each end of the pins of the EPROM so that it goes in squarely. Check to make sure that all of the pins of the EPROM are correctly inserted into the socket. If any of the pins are accidently bent, they may be straightened by using a pair of needle nose pliers.

After the EPROMs have been inserted, switch on the power to the programmer. The programmer will produce a short tone and the software revision level will be displayed on the LCD display. Now switch off the power and carefully close the cover and replace the four mounting screws. Do Not overtighten the mounting screws.

7.8 <u>ACCOUNT PROTECTION</u>

Some of the panels offered by Silent Knight will feature protection from account stealing. This feature affects programming in the following ways:

1. You must enter a password (usually Code 0) to load the chip.

2. Programs may only be saved to the previously loaded chip. Therefore, you cannot use the programmer to duplicate chips for protected systems.

These features prevent reprogramming of the systems by unauthorized persons.

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