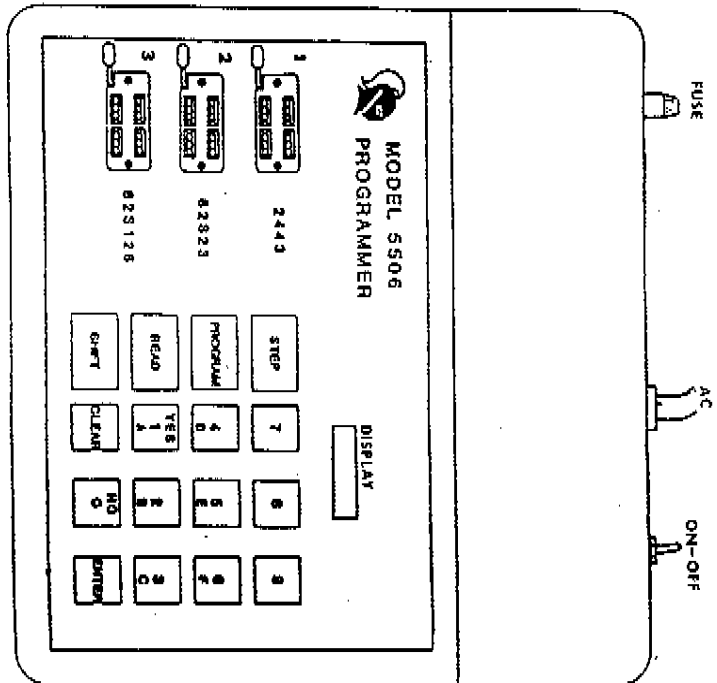## INTRODUCTION

The Silent Knight Model 5506 is a "user friendly" desk top programmer. It is as easy to use as a pocket calculator. This manual will supply the necessary information that will allow you to program PROMs to customize Silent Knight equipment to meet the user's needs.

The 5506 can be used to program three different types of proms.

1. The Xicor 2443 EEPROM
2. The Signetics 82S23 PROM
3. The Signetics 82S126 PROM

The Xicor 2443 is the only one which is Electrically Erasable which means that it can be reprogrammed over and over. The two Signetics PROMs can only be programmed once.

Figure 1 below shows the general layout of the 5506.

MODEL 5506 PROGRAMMER

FUSE   A.C   ON-OFF

1   2443
2   82S23
3   82S126

DISPLAY

STEP 7 8 9
PROGRAM YES NO ENTER
READ CLEAR
SHIFT

MODEL 5506 DESCRIPTION

PROM SOCKETS

The 5506 has three zero-insertion force sockets, one for each type of PROM (See Figure 1). A PROM can be inserted when the lever on the socket is pointing "UP". The PROM must be inserted with the notch toward the lever end of the socket. When the prom is in place, move the lever to the "DOWN" position (See Figure 2). Figure 1 shows the correct socket and orientation for each type of PROM. ALWAYS be sure that you use the correct socket for each type of PROM.

CAUTION: Never have more than one PROM in the programmer at any given time.

DISPLAY

NOTCH

Figure 2

The Model 5506 has a six digit LED display. The left two digits indicate the programming step number and the right four digits are used to display the data.

TOUCH KEYS

The 5506 provides 16 TOUCH KEYS that are used for data entry, clearing the display, reading PROMS and programming.

ENTER KEY

The ENTER key will enter the data that is in the display into the internal memory of the 5506. When the ENTER key is pressed, it will also increment the step number and display the data that is currently in memory for that step.

STEP KEY

The STEP key is used to jump to any step number and display the data that is currently in the 5506 memory.

SHIFT KEY

The SHIFT key enables you to enter the hex characters A, B, C, D, E, and F into the display. It is much the same as the SHIFT key on a typewriter.

CLEAR KEY

The CLEAR key has three functions.

1) When the CLEAR key is pressed while in the NORMAL

programing mode, the four data display digits will go blank.

2) When the CLEAR key is pressed while in the STEP mode, the two step digits will go to "0".

3) When the CLEAR key is pressed while in the SHIFT mode, the display will return to the same display that was present before the SHIFT key was pressed.

READ KEY

The READ function will read the data from a previously programmed PROM and store it in the 5506 internal memory. This can be used to see how a PROM was programmed or it can be used to copy the program of a PROM.

PROGRAM KEY

The PROGRAM key writes data into the PROM from the internal memory of the 5506. After programming, the prom is automatically read to make sure that it matches the data stored in the memory of the 5506. After this is completed the display will show PASS or FAIL.

USING THE TOUCH KEYS

You will now learn how to use the touch keys and their functions. DO NOT insert a PROM until told to do so. In the following excersises an "*" symbol denotes a blank space on the display.

1. Apply power to the 5506.

Display = HELLO*

The first thing that you will want to do is determine the software revision level in the 5506. When this is done, the display will show the 6 digit revision level followed by the model numbers of Silent Knight equipment that may be programmed by the 5506.

a) Press ENTER.

Display = *0***0

This indicates that the 5506 is in Step 0 and the data for that step is currently 0.

b) Press ENTER.

The display will show the current revision level for approximately 1 second. After this time the 5506 will display each model number for about one second. To stop this sequence, press and hold the ENTER key. The display will now

show the current revision level only

Display = 8503-1

NOTE: Due to software changes, the revision level shown above may not match the one on your display.

ENTER KEY

This example will show how to "ENTER" information into the internal memory of the 5506.

a) Press ENTER

Display = *0***0

b) Step 0 data is always going to be a model number. For this example, we will use Model 1501. Press the numbers 1-5-0-1 on the keypad. Notice as you press each number, it appears in the right four spaces of the display. When the fourth digit is entered, the display will show:

Display = *01501

c) Press ENTER.

Display = *1***1

This indicates that the 5506 is now at Step 1 and the current data for that step is 1. Step 0 has now been entered into the 5506 memory.

d) We will now enter data 1 for Step 1. Since the display shows a 1 for the data in Step 1, we will enter this information by pressing ENTER. This is known as a default value. You will see this word appear on Prom Coding Forms. If you press ENTER without entering any information, the default value will be entered. Press ENTER.

Display = *2***0

A 1 has now been stored in memory for Step 1. The step counter has advanced to Step 2 and the default value is 0.

STEP KEY

As mentioned before, the STEP key is used to jump to any step and display the data for that step that is currently in the 5506 memory.

a) Press STEP. You are now in the STEP mode.

Display = *0*#**

b) Press 0

Display = *0*#**

c) Press ENTER

Display = *01501

This indicates that the 5506 has jumped to Step 0 and the data currently in memory is 1501.

d) Press STEP

Display = *0****

e) Press 5

Display = *5****

f) Press ENTER

Display = *54**0

0 is the current data in Step 5.

SHIFT KEY

a) Press SHIFT

Display = *5***-

b) Press E (key 5)

Display = *5***E

c) Press ENTER

Display = *6***0

Display = *5**14

An "E" has been entered as data for Step 5. If the STEP function is used to verify this, the display will read:

The display shows 14 for the data because a hexidecimal E is equal to a decimal 14.

d) If you verified the data for Step 5, Press enter so that the display will show *6***0

e) Press ENTER

Display = *01501

Because there are only 6 steps in programming the Model 1501, the display has returned to Step 0.

PROGRAMMING

We will now program the Prom. CAUTION: This programming is for exercise purposes only!!! If you wish to complete this step, use a XICOR 2443 EEPROM ONLY. It is the ONLY PROM which can be erased.

a) The 5506 must be in Step 0 to program
b) Press PROGRAM

Display = CHIP#1

Place the 2443 EEPROM in socket number 1. Make sure the notch is toward the lever end of the socket.

c) Press PROGRAM

Display = PASS**
or
Display = FAIL**

When PROGRAM was pressed for the second time, the EEPROM was programmed and the data was compared to the data in the 5506 memory. If the data matched, the display indicated "PASS". If the data did not match, the display indicated "FAIL". If the display indicated "FAIL", either the PROM was not inserted correctly or the PROM was bad. Remove the PROM.

READ FUNCTION

We will now READ back the data that we had programmed into the PROM.

a) Turn the power OFF.
b) After 5 seconds, turn the power back on (this erased any data that was in the 5506).

c) Press ENTER

Display = HELLO*

d) Enter the Model Number 1501 (this is to let the 5506 know that the PROM was programmed for a Model 1501).

Display = *O***0

Display = *01501

f) Press READ

g) Insert the PROM into socket 1.
j) Press ENTER

   Display = "CHIP 1

   Display = *01501

You are now READING the data from the PROM. To sequentially READ each step, press ENTER. The step will be displayed along with its data. The data for each step is also stored in the memory of the 5506. After Step 6 has been read, the display will go back to Step 0. If the program function was used at this time, a duplicate of this PROM would be made.

CLEAR FUNCTION

As mentioned earlier, the CLEAR function works in three different ways.

1. CLEARING the data can be accomplished in the following manner.

a) STEP to Step 5

   Display = *5**14

b) Press CLEAR

   Display = *5****

The data for Step 5 has been erased.

c) Press 1

   Display = *5**1

d) Press ENTER

   Display = *6***0

The data in Step 5 has now been changed to 1. If this was the only change to make, the chip could be reprogrammed at this point (Do Not reprogram at this time). The second function of the CLEAR key is to clear the step counter to zero.

a) Press STEP

   Display = *0****

b) Press 6

   Display = *0****

c) Press CLEAR

   Display = *6****

7

   Display = *0****

The step counter is now at 0 and is waiting for new data. If no new data is required at this step, press ENTER and the previous value at Step 0 will appear.

   Display = *01501

3. The last function of the CLEAR key is to clear the SHIFT mode.

a) Press SHIFT

   Display = *0***-

b) Press CLEAR

   Display = *0***

New data can now be entered.

c) Press 1-5-0-SHIFT

   Display = *0150-

d) Press CLEAR

   Display = *0*150

e) Press 1-ENTER

   Display = *1***1

The Model Number 1501 has once again been entered into the internal memory of the 5506.

HELPFUL HINTS

Now that you know how to operate the Model 5506, there is some other facts that will be useful.

ERROR MESSAGE

If the ERROR message appears on the display, it means that an invalid function has been performed. In the case of the model number, the ERROR message will appear if a model number is entered that the 5506 cannot program. Press CLEAR to enter a new number. Whenever the ERROR message appears, press CLEAR to return to the step where the error was made and enter the correct information.

DEFAULT VALUES

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Default values are given on the Prom Coding Forms for the individual models. If ENTER is pressed before any data is entered, the default value will be placed in the internal memory of the 5506. If ENTER is pressed before a model number is entered for Step 0, the 5506 will display the software revision level and the model numbers that the programmer can program. For any other step a default value will be placed in the 5506 memory.

PROM CODING FORMS

The Prom Coding Forms are provided in the individual manuals for Silent Knight products. They provide a list of options that must be entered into the PROMs. The forms provide the software requirements of the programmer, PROM type to be used, Step #, space to write in data, default value, and a description of what the step is for.

STEP #: The Step # given in the Prom Coding Form relates to the Step # that will appear in the display of the 5506.

DATA: A data column is provided so that your selection can be indicated before you attempt to program. This will help speed up the programming procedure. If a number is given in the data column and there is no explanation on selecting this option, it means that this number MUST be entered as data. This will ALWAYS be the case for Step 0. In some instances, numbers are given and you are asked to circle the ones that you want. When it comes time to enter the data for that step, enter only the numbers that you have circled then press ENTER. If a blank space appears in the data column, you must write in your selection. If NOT USED appears in the data column, press ENTER to procede to the next step.

RANGE: If a RANGE value is given, you MUST enter a value that is within the RANGE. If the value that you enter is not within the RANGE given, some unknown value will be placed in that step for data. This could cause improper system operation when the PROM is used.

If there are any special notes or requirements pertaining to a certain model, they will be included in the Prom Coding Form.
When all of the steps have been completed, the step display will return to Step 0. At this time it would be a good idea to step through the sequence and make sure that all of the information that you entered is correct.

SOFTWARE

The software of the 5506 already contains program information for all of Silent Knight's present PROM programmed equipment as well as information required for models not in production at this printing.

As products are developed beyond the capabilities of the present software, it will be possible to update the software of your 5506 programmer to enable it to program the newer products.

Silent Knight will inform you via new product spec sheets as new software is available.

Each new product as it is introduced, will include installation and PROM programming instructions that apply to the specific products.

The process of programming, however, will be similar in nature to the programming of present day controls and communicators.

SERVICE

The unit must be returned to the factory for service. If the unit does not operate, check the fuse at the back of the case. Replace it only with a fuse of the same type and ratings.

If the unit still does not function properly, contact the Silent Knight Customer Service Department. Please specify the Model Number (5506), the software revision level, and the symptoms of the malfunction.

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