



NAPCO

**PRO-410/410M
PROM PROGRAMMERS**

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1. INTRODUCTION



PRO-410 Programmer

Why Programming?

Because state-of-the-art alarm control centers, communicators, and other products are computer controlled -- by means of an integrated circuit called a microprocessor. These sophisticated products offer a wide variety of features that are selectable, so that they may be custom tailored to suit each particular installation. The available features (and other background information common to similar installations) are contained in another integrated circuit called a PROM (Programmable Read-Only Memory). The required features are selected by *programming* the PROM, using a NAPCO PRO-410 or PRO-410M Programmer.

To aid the user, Programming Record Sheets are available for each programmable NAPCO product. These programming sheets are, in effect, maps of the available contents of the PROM; they not only identify the *locations* of the available features, but also indicate the numerical *data entries* that must be programmed to obtain these features. Instructions for selecting appropriate data entries are contained in the Installation Manual accompanying the respective product. See The Programming Record Sheet.

General Description

The PRO-410 and PRO-410M are identical in their programming capabilities. The PRO-410M includes an integral modem that will permit the transfer of data from the PROM installed in the programmer directly to the diagnostic computer in NAPCO's Technical Service Department via your telephone. This valuable feature is described in detail elsewhere in this manual. Also in the PRO-410M, an audible beep sounds as each key is depressed.

The programmer performs several tasks. Primarily, it is used to:

- program a blank or partially-programmed PROM to provide required features,
- copy your NAPCO Master PROM onto a blank Subscriber PROM, with additional data programmed to provide the required features,
- copy an existing Subscriber PROM onto a blank PROM, with original contents altered to accommodate changes to a system, and
- verify the contents of a PROM.

The Subscriber PROM is then installed into the product for operation (the product will not function without it).

The programming process is essentially a two-step operation:

- (a) data are placed into programmer memory (either manually, or transferred from a Master PROM) where they may be changed as necessary.
- (b) final data entries are programmed ("burned") from memory into the Subscriber PROM. Once burned, Subscriber PROM data selections cannot be cleared or erased. (However, certain data entries may be added to some locations to salvage a burned PROM. See **Changing Memory Contents.**)

The Programming Record Sheet

The Programming Record Sheet is used to record system features, time-outs, and communicator transmission information. Data from this sheet are then programmed into the Subscriber PROM.

Features are selected by circling the data entry for the respective location. In most cases, multiple features or zones will be assigned to a given location, but each will have its own data (1, 2, 4, or 8). To select multiple features or zones for a given location, *add* all the data entries.

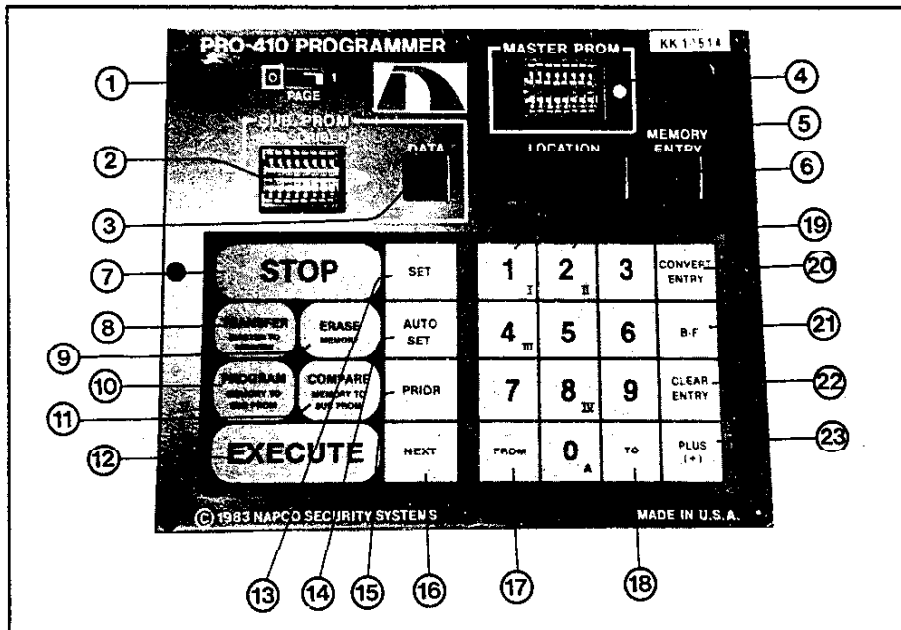
Example. In an MA-800 system, Zones 1, 2, and 4 are to be selected to REPORT ON ALARM. Referring to the "Communicator Features" section of the MA-800 Programming Record Sheet,

| | Zone 1 | Zone 2 | Zone 3 | Zone 4 | Zone 5 | Zone 6 | LOW BATT. | |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------------|-----------------|
| REPORT ON | 098 | 098 | 098 | 098 | 099 | 099 | 099 | -----(location) |
| ALARM | (1) | (2) | 4 | (8) | 1 | 2 | 4 | -----(data) |

select Zones 1, 2, and 4 by circling data "1", "2", and "8" in location 098. To program, *add* the data (11) and enter a "b" (representing "11"), or simply press [1], [PLUS], [2], [PLUS], [8] in location 098.

Also refer to the installation manual furnished with the control center.

2. FUNCTION OF CONTROLS, SOCKETS, & INDICATORS



NOTE: Circled numbers below are keyed to those in the photo above.

- ① **PAGE Switch** ([0]/1). This switch is normally set to [0].

The term "page", as used in this context, may be defined as 256 PROM locations. Some PROMs have a capacity in excess of 256 locations (2 pages).

In general, programmable data are contained on "page" 0 (locations 000-255), with page-1 locations (256-512) reserved for factory-programmed data. Unless indicated otherwise by instructions in the Programming Record Sheet or Installation Manual, keep this switch set to page [0].

- ② **SUB. PROM Socket.** Accepts the Subscriber PROM. Align the dot on the PROM with the dot on the programmer top panel on insertion.
- ③ **DATA Display.** Indicates the data entry contained in the PROM installed in the SUB. PROM socket at the location displayed. The number "0" represents a 10; letters "b" through "F" represent 11 through 15, respectively.

The DATA display will indicate an "F" whenever

- there is no PROM in the SUB. PROM socket,

- the PAGE switch is set to 1, but the Subscriber PROM has only 256 locations, or
- the Subscriber PROM contents of the location displayed is actually an "F" (15).

- ④ MASTER PROM Socket. Accepts a programmed PROM for the purposes of transferring data into memory. Align the dot on the PROM with the dot on the programmer top panel on insertion.
- ⑤ LOCATION Display. Indicates the location to which you are addressed (of both the programmer memory and the Subscriber PROM) for the purposes of reading or entering data.

The LOCATION display is also used to indicate the function accessed (see Function Keys) by means of the following abbreviations:

"trn" = TRANSFER
 "ErA" = ERASE
 "Pro" = PROGRAM
 "CPr" = COMPARE
 " " = STOP or
 "----" = EXECUTE* completed
 "SPC" = Special } See
 "Prt" = Protected } Write Protection

*During the EXECUTE process, the LOCATION display is blank.

- ⑥ MEMORY ENTRY Display. Indicates the data entry contained in the programmer-memory location shown on the LOCATION Display. The number "0" represents a 10; letters "b" through "F" represent 11 through 15, respectively.

Function Keys

No function (Transfer, Erase, Program, or Compare) will start until the [EXECUTE] key is pressed. To abort any function, press the [STOP] key; do not press the [EXECUTE] key.

- ⑦ [STOP] Key. Use this key to abort any selected function. When pressed, the LOCATION display will indicate "----".
- ⑧ [TRANSFER] Key. Use this key to transfer all or part of the contents of a programmed or Master PROM (installed in the MASTER PROM socket) to programmer memory. A block of data may be transferred to programmer memory using the [FROM]/[TO] keys (see Entry Keys) but unless so programmed, the entire contents will be transferred. When the Transfer function is selected, "trn" will appear on the LOCATION display. To transfer the entire contents to programmer memory, first press [TRANSFER], then press [EXECUTE]. To abort the transfer, press [STOP] (do not press [EXECUTE]).

- ⑨ [ERASE] Key. This key is used to erase all or part of the programmer memory. A block of memory may be erased using the [FROM]/[TO] keys (see **Entry Keys**), but unless so programmed, the *entire contents will be erased*. When the Erase function is selected, "ErA" will appear on the LOCATION display.

When starting to program a Subscriber PROM (without the use of a Master PROM), first erase the entire memory to clear any unknown entries that may exist. To do so, first press [ERASE], then press [EXECUTE]. To abort the Erase function, press [STOP] (do not press [EXECUTE]).

- ⑩ [PROGRAM] Key. Use this key to program ("burn") the Subscriber PROM from programmer memory. A block of memory may be programmed using the [FROM]/[TO] keys (see **Entry Keys**), but unless so programmed, the *entire programmer memory will be burned into the Subscriber PROM*. (Location 255 is reserved for factory use only and may not be programmed.) When the Program function is selected, "Pro" will appear on the LOCATION display.

Before programming (burning) the Subscriber PROM, first check that the data in programmer memory agree with those on the Programming Record Sheet. To burn the Subscriber PROM, first press [PROGRAM], then press [EXECUTE]. To abort the Program function, press [STOP] (do not press [EXECUTE]). After programming, verify Subscriber-PROM contents using the [COMPARE] key (see [COMPARE] Key).

CAUTION: Except for certain additions described in **Changing Memory Contents**, a burned Subscriber PROM cannot be altered.

NOTE: "Prt" flashing on the LOCATION display indicates that the Subscriber PROM has been write protected and cannot be programmed (see **Write Protection**). Press [STOP].

- ⑪ [COMPARE] Key. This key is used to compare the contents of the Subscriber PROM to programmer memory. (Location 255 is reserved for factory use and is *not* compared.) Use this feature to verify the Program function as follows:

Press [COMPARE], then [EXECUTE]. An indication of "---" on the LOCATION display indicates a successful match.

Three flashing digits on the LOCATION display will identify the first location where a mismatch was detected; the DATA and MEMORY ENTRY displays will indicate the contents of the Subscriber PROM and programmer memory, respectively. Note these data entries, then either proceed by again pressing [EXECUTE], or abort by pressing [STOP].

- ⑫ [EXECUTE] Key. This key is used to start the selected function. Until [EXECUTE] is pressed, any selected function (Transfer, Erase, Program or Compare) may be aborted by pressing [STOP]. After the function has

been executed, "---" will show on the LOCATION display.

Location Keys.

These keys set the location to be addressed. When setting the location, a dot (.) will appear on the LOCATION display. This dot functions as a cursor to identify the display position being entered. As the digits are entered, the cursor will advance to the following position, and then on to the MEMORY ENTRY display. When the location is entered, the DATA display will indicate any data contained in the Subscriber PROM in that location; the MEMORY ENTRY display will indicate any data contained in programmer memory in that location.

- ⑬ [SET] Key. To address a particular location in the programmer memory, press [SET], then a three-digit location number (see **Entry Keys**). Note that location "1" must be entered as "001"; location "2" as "002", etc. When the moving cursor (.) reaches the MEMORY ENTRY display, program the data entry.

NOTE: If a location-entry error is made, press [SET] again and repeat. If a data-entry error is made, merely press the correct digit.

- ⑭ [AUTO SET] Key. This key will automatically advance the location number with each data entry. Use this key to enter data into a block of consecutive locations, such as a telephone number. To utilize this feature, first press [AUTO SET]; then the three-digit location number that starts the block; then the data entry for that location. From this point, make *data entries only*. The location will advance *automatically*, as may be confirmed on the LOCATION display.

- ⑮ [PRIOR] Key. Pressing this key momentarily will back up the location number displayed by one, and will display any data entries for that new location. Holding down the key will continue to back up the display, one location at a time.

- ⑯ [NEXT] Key. Pressing this key momentarily will advance the location number displayed by one, and will display any data entries for that new location. Holding down the key will continue to advance the display, one location at a time.

[FROM]/[TO] Keys. A block of consecutive locations may be specified for any function (Transfer, Erase, Program, or Compare; see **Function Keys**).

- ⑰ [FROM] Key. Sets the lower limit (starting location) of the block.

- ⑱ [TO] Key. Sets the upper limit (ending location) of the block.

Thus, for example, to transfer only locations 012-018 from the Master PROM to programmer memory,

press: [TRANSFER], [FROM], [012], [TO], [018], [EXECUTE]

Note that pressing [TRANSFER], [FROM], [012], [EXECUTE] will transfer locations 012-255 to programmer memory; pressing [TRANSFER], [TO], [012], [EXECUTE] will transfer locations 000-012 to programmer memory.

Entry Keys

These keys specify the data entered into the selected programmer-memory location. Data entries may be any value, 1 through 15. However, since only a single digit may be entered in any location, 10 is represented by a "0"; 11 through 15 are represented by letters b, C, d, E, and F, respectively (see [B-F] Key).

NOTE: The digit pressed will *replace* any existing entry contained in the programmer memory. If the [PLUS] key is pressed before pressing an entry key, that digit will be *added* to any existing entry in memory.

- ① Numerical Keys ([1] through [0]). Enter the data from the programming sheets by pressing the respective key. Note that the [0] key represents the number 10. Also see [B-F] Key.

Roman Numeral Keys ([I], [II], [III], [IV]). (These are the same as Numerical keys [1], [2], [4], & [8], respectively.) When using a programming sheet specifying Roman-numeral entries, program entries as described above, taking care to press the correct digit, as shown on the panel. When *adding* Roman-numeral entries to a location, press [PLUS], followed by the Roman numeral specified.

- ② [CONVERT ENTRY] Key. Each data entry is comprised of one or more of the digits 1, 2, 4, and 8. Pressing this key will reduce the data entry (on either the DATA display or the MEMORY ENTRY display) to its prime numbers. For example, if a "C" (12) is displayed, pressing the [CONVERT ENTRY] key will flash a dash ("-") *twice* (indicating no entry for digits 1 and 2), followed by the digits "4" and "8" (the sum of which is 12). The display will then revert back to the original data entry ("C").

This is a useful feature. The flashing display in the above example ("- , -, 4, 8") corresponds to the digits programmed in the selected location, thus it can identify which *zones* were programmed for a particular feature (refer to *The Programming Record Sheet*). (Note that two adjacent locations will usually have to be "converted" to determine all the zones programmed for most features.)

- ③ [B-F] Key. Use this key to program data entries in excess of 10. When pressed, the letter "b" will show on the MEMORY ENTRY display. The display will advance to "C", "d", "E", and "F" with each stroke of the [B-F] key, and return to "b" again on the following stroke. The [CONVERT ENTRY] key may be used to determine the makeup of the letter entry.

- ②② [CLEAR ENTRY] Key. Press this key to clear the contents of the selected programmer-memory location.
- ②③ [PLUS] Key. Use this key to *add* data to a memory entry. When the [PLUS] key is pressed, the MEMORY ENTRY display will flash, indicating that it is waiting for another data entry. Each data entry *added* to a location must be preceded by the [PLUS] key. The MEMORY ENTRY display will indicate the sum.

NOTE: If the [PLUS] key is *not* pressed, a subsequent data entry will *replace* the existing entry in programmer memory.

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3. OPERATION

CAUTION: TURN POWER ON *BEFORE* INSTALLING PROM. TURN POWER OFF *AFTER* PROM IS REMOVED.

Following are general instructions for use of the PRO-410 and PRO-410M Programmers.

Programming

Note that some PROMs are blank and require a Master PROM; others are partially programmed and do not require a Master PROM. Consult the product installation manual for instructions on programming the PROM.

Program data entries from the Programming Record Sheet into the matching PROM locations. Where two or more data entries are assigned to the same location, press the [PLUS] key between entries. See **Changing Memory Contents**.

Preliminary Setup. Plug the transformer into an ac outlet and turn on the power switch. The LOCATION display will indicate "---". Check the contents of the Programming Record Sheet with respect to the specifications of the installation. Unless otherwise specified on the Programming Record Sheet or in the Installation Manual, set the PAGE switch on the programmer to [0]. Refer to Section 2 for detailed function and operation controls.

In the following illustrative procedure, the contents of a Master PROM will be transferred to programmer memory and customized as required. The Subscriber PROM will then be burned. If a Master PROM will not be used, install the Subscriber PROM and proceed with Step 4.

1. With power applied, align the dot on the Master PROM with the dot on the MASTER PROM socket and insert the PROM.
2. Align the dot on the Subscriber PROM with the dot on the SUB. PROM socket and insert the PROM.
3. Transfer the contents of the Master PROM to programmer memory: press [TRANSFER], then [EXECUTE]. To abort the transfer, press [STOP]; do *not* press [EXECUTE].
4. Referring to your Programming Record Sheet, set the first location to be programmed: press [SET], then the three-digit location number. (The first location is entered as "000"; the second as "001"; etc.) To correct a wrong entry, press [SET], then the correct number.
5. When the cursor (.) enters the MEMORY ENTRY display, program the data entry: To program new data or to change existing data, press the required numerical key or letter [B-F] key. To *add* data to an existing entry, first press the [PLUS] key, then the numerical or letter key. (See **Changing Memory Contents**.) To correct a wrong entry, merely press the correct digit or letter.

6. Program all locations as described in Steps 4 and 5. Programming may be expedited through the use of the [AUTO SET], [PRIOR], and [NEXT] keys (see Section 2).
7. Program the Subscriber PROM: press [PROGRAM], then [EXECUTE]. To abort the program function, press [STOP]; do not press [EXECUTE].

NOTE: If the LOCATION display flashes "Prt" when [EXECUTE] is pressed, the PROM installed in the SUB. PROM socket is write-protected and cannot be programmed. Press [STOP].

8. Compare the contents of the Subscriber PROM to programmer memory to verify accuracy: press [COMPARE], then [EXECUTE]. If the comparison is successful, "----" will appear on the LOCATION display.
9. With power still on, remove the programmed Subscriber PROM and install it into the control center, communicator, or other product.

Copying Similar PROMs

Similar Subscriber PROMs may be programmed quickly using [FROM]/[TO] keys to enter blocks of common data into programmer memory.

Example: An MA-800 Subscriber PROM has been programmed with certain features, and reports to an Ademco receiver. It is desired to program a similar PROM with identical features, but reporting to a SESCOA receiver.

1. Install the original Subscriber PROM into the MASTER PROM socket and transfer all feature data in locations 000 through 127 into programmer memory.

Press: [TRANSFER], [FROM], [000], [TO], [127], [EXECUTE].
Wait for "----" to appear on the LOCATION display.

2. Remove the Subscriber PROM. Install the master PROM used for SESCOA receivers (Master PROM CCI-7/8-3) and transfer SESCOA transmission data in locations 128 through 255 into programmer memory.

Press: [TRANSFER], [FROM], [128], [TO], [255], [EXECUTE].
Wait for "----" to appear on the LOCATION display.

Programmer memory now contains the original PROM's features with SESCOA transmission information.

3. Install a blank PROM into the SUB. PROM socket and burn the new Subscriber PROM from programmer memory.

Press: [PROGRAM], then [EXECUTE].
Wait for "----" to appear on the LOCATION display.

This completes Subscriber PROM programming. Additional similar PROMs may

be programmed using the foregoing procedure. However, before programming a *different* PROM, the existing programmer memory must be erased. Press [ERASE], then [EXECUTE]. To abort the erasure, press [STOP]; do not press [EXECUTE].

Checking a Blank PROM

Use the following procedure to confirm that a PROM is blank.

1. Erase programmer memory: press [ERASE], then [EXECUTE].
2. Install the blank PROM into the SUB. PROM socket. Press [COMPARE], then [EXECUTE]. If the LOCATION display indicates "---", the PROM is blank. (Any other display indicates that the PROM is *not* blank; press [STOP].)

Changing Memory Contents

Programmer memory may be changed by either replacing existing data in a location, or by adding data to that location. Since a data entry may be 1 through 0, b, C, d, E, or F, in many cases it may be easier to sum several digits using the [PLUS] key rather than compute a total letter entry.

The chart below may be used to determine which digits must be added to an existing entry to produce the required total entry.

Example: A certain location contains a "4", but an "F" (15) is required. The chart indicates that an "8" and a "3" must be added. Therefore, press [PLUS], [8] (the LOCATION display will read "C"; then press [PLUS], [3] (the LOCATION display will read "F").

REQUIRED DATA

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | b | C | d | E | F | | |
|---------------|---|---|---|---|---|---|---|---|---|---|---|-----|-----|---|-----|-----|-----|---|
| EXISTING DATA | 1 | | | | 2 | | 4 | | 6 | | 8 | 8+2 | 8+4 | | | 8+6 | | |
| | 2 | | 1 | | | | 4 | 5 | | | 8 | 0 | | | 8+4 | 8+5 | | |
| | 3 | | | | | | | 4 | | | | 8 | | | | | 8+4 | |
| | 4 | | | | 1 | 2 | 3 | | | | | | 8 | 9 | 8+2 | 8+3 | | |
| | 5 | | | | | | | 2 | | | | | | 8 | | | 8+2 | |
| | 6 | | | | | | | 1 | | | | | | | | 8 | 8+1 | |
| | 7 | | | | | | | | | | | | | | | | 8 | |
| | 8 | | | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | |
| | 9 | | | | | | | | | | | 2 | | 4 | | | 6 | |
| | 0 | | | | | | | | | | | 1 | | | | 4 | 5 | |
| | b | | | | | | | | | | | | | | | | | 4 |
| | C | | | | | | | | | | | | | 1 | 2 | 3 | | |
| | d | | | | | | | | | | | | | | | | | 2 |
| | E | | | | | | | | | | | | | | | | | 1 |
| | F | | | | | | | | | | | | | | | | | |

Add the number(s) in the box to EXISTING DATA at the left to obtain the REQUIRED DATA at the top. Be sure to press the [PLUS] key before each added digit.

Correcting a Burned PROM

In general, once programmed, a Subscriber PROM cannot be altered. Thus, if a PROM is burned with wrong data, it can either be discarded, or identified and saved for some other possible application. There is however, another method that may be used to salvage an otherwise unusable PROM.

A location in a burned PROM can only be changed by the *addition* of a data entry in that location. Thus, if the correction or change can be accomplished by adding one or more entries to that location, the PROM can be saved. Use the chart on the preceding page to determine if data entries may be added to the existing entry to yield the required result. Refer to the foregoing example, which is also applicable here.

Identifying an Unknown PROM

An unknown PROM may be identified using the following method.

1. Insert the PROM into the SUB. PROM socket; set the PAGE switch to [0].
2. Press [SET], then [251]. The DATA display will then indicate the product, as follows:

"C" = Control center (CCI-7, CCI-8, or MA-800)

"d" = Communicator (DD-1484 or DD1486)

(Proceed to Step 3.)

BLANK = (Proceed to Step 4.)

3. Press [SET], then [253]. The digit displayed (1 through 6) will indicate the PROM's receiver format (refer to the Programming Record Sheet).
4. A *blank* in location 251 (see Step 2) indicates that the PROM contains 512 locations. Set the PAGE switch to 1. The DATA display will read "C", indicating a control center.
5. Press [SET], then [252]. The DATA display will then indicate the control center, as follows:

"8" = MA-825

"9" = MA-900

"0" = MA-850

"b" = MA-825HS or MA-725

Write Protection

A PROM cannot be erased. However, its contents may be altered by adding data using the [PLUS] key, as just described. To prevent this, the PROM may be write-protected as follows:

1. Press [PROGRAM]. The LOCATION display will indicate "Pro".
2. Press [9,9,9]. The "9"s will not show on the LOCATION display. However,

on the stroke of the last "9", the "Pro" display will be replaced by "SPC", indicating a "special" function.

3. Press [EXECUTE]. When the LOCATION display indicates "---", the PROM has been write protected.

Storage After Use

NOTE: PROMs must be removed *before* shutting off power.

Keep the programmer closed when not in use to prevent liquids, dust, and other foreign matter from lodging in the PROM sockets.

Switch off power. Wind up the power cord and place the transformer and cord into the fitted compartment at the left. Press PROMs into the conductive foam contained inside the lid. Secure the PROMs by sliding the clamp down over them.

Use of the PRO-410M Modem

The PRO-410M will permit the direct transfer of data from the Master PROM in the programmer to the diagnostic computer in NAPCO's Technical Service Department via your telephone line. Note, however, that your phone must be equipped with, or adapted to, modular-type plugs and jacks.

Installation. Unplug your (modular) telephone and replace it with the duplex (2-to-1) jack supplied. (If your telephone is not equipped with a modular plug, adaptors will be required.) Install the telephone cord from the PRO-410M into one jack, and your telephone cord into the other.

Operation. To prevent accidental phone disruption, it is recommended that the PRO-410M be removed from the telephone line unless it will be used for the purpose of transferring data.

1. Plug the PROM into the MASTER PROM socket. Plug the programmer into the telephone line and call NAPCO's Technical Service Department.
2. When you are advised to transfer your data, wait until you hear a tone (the carrier from the computer), then proceed.
3. On the PRO-410M, press [TRANSFER], then [9,9,9]. *Hold down the last "9" for about 10 seconds.* The LOCATION display will read "SPC", indicating a "special" function.
4. Immediately after Step 3, press [EXECUTE] to start the data transfer. While data are being transferred, place your hand over the telephone mouthpiece to prevent audio pickup that may interfere. The transfer will be audible from the Mini-Sounder. Upon completion, the LOCATION display will read "---".
5. Technical Service Department personnel will provide follow-up assistance thereafter.

4. TROUBLESHOOTING

Should a problem arise in the operation of this equipment, go through the following simple checkout procedure.

1. Insert a PROM into the MASTER PROM socket and transfer its contents to programmer memory: press [TRANSFER], then [EXECUTE].
2. Move the PROM to the SUB. PROM socket and compare it to programmer memory: press [COMPARE], then [EXECUTE]. The LOCATION display should read " ".

If the programmer fails this test or shows other evidence of malfunction, check the following symptoms before returning it for repair.

BLANK DISPLAYS

- Bad Fuse - Check and replace if necessary.
- PROM Installed Backwards - Remove both PROMs. Switch power off, then back on again. Check that "----" is displayed. Reinstall PROMs correctly aligned. Watch for symptoms of a bad PROM.

DISPLAY SEGMENT MISSING

- Bad PROM - Replace PROM
- Bad Display - Return for service

"COMPARE" MISMATCH

- Bad PROM - Replace PROM
- PROMs Different - Normal Operation

"----" DISPLAYED AFTER LOCATION KEYS DEPRESSED

- Normal Operation - "----" displayed if not used for 5 minutes.

DATA DISPLAYS "F" IN ALL LOCATIONS

- PAGE Switch on 1 with 256-location PROM - Set PAGE switch to [0].
- SUB. PROM Socket Empty - Normal operation.

"Prt" DISPLAYED (Press [STOP] to exit)

- PAGE Switch on 1 with 256-location PROM - set PAGE switch to [0].
- No PROM in SUB. PROM Socket
- Master PROM in SUB. PROM Socket - Install PROM in MASTER PROM socket.
- Subscriber PROM is Write Protected - Compare balance of Subscriber PROM to entries on Programming Record Sheet.