NAPCO

OPERATING AND INSTALLATION INSTRUCTIONS

MAGNUM ALERT 854
ALARM CONTROL CENTER
& DIGITAL COMMUNICATOR

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UL Listed: Household Fire & Burglary Warning System Control Unit

WI398C 9/92

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1. INTRODUCTION

GENERAL DESCRIPTION

The MAGNUM ALERT-854 is a microcomputer-based eight-zone residential and commercial control panel with provisions for Ambush, Panic, a Fire Zone and a variety of reporting features. The system is contained within a wall-mounted enclosure and includes an integral digital communicator, an integrated siren driver, a multifunction 4-wire digital keypad, a transformer, a battery, and a partially-programmed PROM (programmable read-only memory) integrated circuit.

The digital keypad allows the user to perform the following functions:

* arm and disarm the system,
* check the status of each zone,
* check which zones were violated after an alarm,
* temporarily shunt one or more zones.
* cancel entry delay,
* send a Panic or Ambush alarm,
* enter or change arm/disarm codes,
* test the audible alarm circuit,
* test each zone for problems,
* test the communicator while disarmed,
* reset Ac Failure indication,
* bypass a Priority-with-Bypass Zone, and
* turn the Door Chime feature on/off

Four LEDs, a digital readout and a sounder on the keypad provide visual and audible system and individual-zone status information. Most keys have secondary functions that are accessed by holding down the key until the sounder beeps, and are therefore termed "hold-down" functions. The following hold-down functions are provided:

Key [1] - Alarm Test
Key [2] - Display Shunted Zones
Key [3] - Display Status
Key [4] - Instant Alarm (cancels entry delay)
Key [5] - Door Chime on/off
Key [6] - Communicator Confidence Test
Key [7] - Fault Find
Key [8] - Program
Key [9] - Reset (Ac-Fail Indication, Fire Zone, Output Relay Devices, and Fault-Find mode; Bypass Priority-with-Bypass)
Key [S] - Alarm History (indicates last alarmed zone(s))

Each PROM is programmed for the particular installation to establish its specific alarm and reporting features.

FEATURES

Protection Zones

* Eight end-of-line-resistor supervised zones.
* Two separately-programmable entry delays for Exit/Entry Zones.
* Burglary Zone options include:
  - Priority or Priority with Bypass
  - Selective or Group Shunting
  - 24-Hour Protection
  - Day Zone Supervision
  - Auto Reset
  - Exit/Entry Delay 1; Exit/Entry Delay 2
  - Preprogrammed Auto Shunt (removable)
  - Optional 50mS or 7mS Loop Response (normally 750mS)
  - Programmable Abort Delay

Alarm Outputs

* Timed Burglary Output: Programmable by zone and time
* Timed Relay Output: Programmable by zone and time
* Timed Fire Output: Fixed to Fire Zone, programmable for time
* Pulsing Bell Output: Fixed to Fire Zone, programmable for time

Keypad Functions

* Keypad permits:
  - Arm/Disarm Code Selection of up to 4 user codes, up to 4 digits each
  - Digital Code Entry to arm/disarm system
  - Selective and Group Shunt Selection
  - Panic Zone Activation
  - Ambush Activation
  - Hold-Down Function Access
  - Resetting of various functions and conditions
* LEDs display:
  - Alarm State (armed/disarmed) (ARMED/ALARM)
  - Zone Status (STATUS) - one or more zones in trouble
  - Zones Shunted (SHUNT) - one or more zones shunted
  - Fire Zone Status (FIRE/TROUBLE)
* Digital Readout displays:
  - Zone(s) in alarm and alarm history
  - Zone(s) in trouble
  - Zone(s) shunted
* Sounder indicates:
  - Entry Delay in Progress
  - Hold-Down Function Accessed
  - Entry Door Opened while Disarmed (Door Chime)
  - System Armed with a Zone in Trouble
  - Day Zone in Trouble
  - Fire Zone Alarm/Trouble
  - Central-Station Ringback

Communicator Features

* Integral digital communicator with true dial-tone detection, double-pole line seizure and anti-jam.
* Programmable abort delay time.
* Rotary or Touch Tone dialing available. Rotary dialing available as backup to unsuccessful Touch-Tone dialing.
* Two telephone numbers and receiver/data formats can be accessed. A single master PROM is compatible with all popular receivers.
* Two-digit event codes and 4-digit subscriber codes programmable for those receivers accepting these formats.
* Central-Station Ringback.

Reporting Features

* Report on Alarm
* Opening and/or Closing Reporting by Individual User
* Opening Report After Alarm
* Day Zone Trouble; Fire Zone Trouble
* Ambush; Panic
* Test Timer; Restart Test Timer on Any Report
* Ac Failure; Low-Battery Report
* Conditional-Closing Report; Conditional-Closing/Status Report
* Control-Center Restoral Report; Zone Restoral Report
* Backup Reporting; Double Reporting; Split Reporting

Other Features

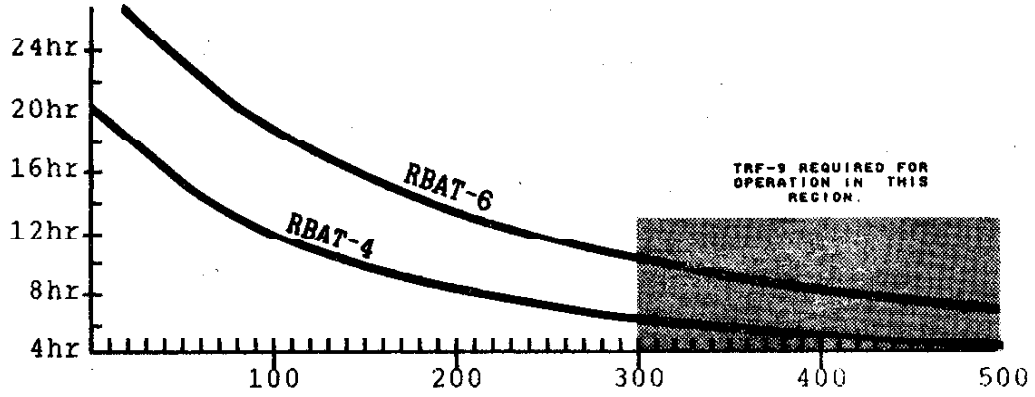
* Audible Bell-Test on Arming
* Come Up Armed After (extended) Power Failure
* Programmable Door-Chime Duration

NOTE: The factory-programmed portion of the PROM constitutes proprietary information of NAPCO and is protected by copyright law. Unauthorized use of the PROM in other than NAPCO products is prohibited.

SPECIFICATIONS

Operating Temperature:	0-49 degrees C (32-120 degrees F)
Input Power:	16Vac, Class 2 step-down transformer 14.4VA (TRF-8)
Loop Voltage:	10 to 13Vdc
Loop Current:	5.5mA (normal resistance)
Loop Resistance:	300 ohms maximum series resistance/loop 200 ohms on Fire Zone without FT-279
Alarm Outputs	
Siren/Bell Output:	(Selectable for speaker or bell) Siren - 15W, 8 ohms; 30W, 4 ohms Bell - Commercial, 12Vdc, 1.2A max; Residential, 10.9-12.3Vdc, 125mA max.*
Relay Output:	12Vdc regulated (see Comb. Standby Current) If Lug E14 used & Jumper B cut: 1A max. (Siren/Bell Output is then limited to one 15W/8-ohm speaker; or 1A max. for bells.)
Contact Ratings:	24Vdc, 2A (resistive)
Auxiliary Output:	Commercial, 12Vdc regulated Residential, 10.9-12.0Vdc*
Combined Standby Current:	Remote Power, Aux. Output, Relay Output 300mA maximum with standard TRF-8 500mA maximum with optional TRF-9
Remote Station (RP8S4):	25mA each (typ.); 5 max.
Battery:	Rechargeable, sealed lead-acid, 12Vdc, 4AH (RBAT4)
Standby Time:	4 hours at 500mA Combined Standby Current (see graph below)
Fuses:	Siren Driver: 4A, 1AG (F1); Aux. Power/Relay Output: 3A, 1AG (F2); Remote Power: 1A, 1AG (F3); Speaker/Bell: 3A, 1AG (F101)
Dimensions (HxWxD) & Weight:	12.6x12.6x 3.6" (32x32x9.1cm); 15 lb (6.8kg)

*If using optional PS3002 Power-Supply Module, same as Commercial.



Combined Standby Current (mA), without PS3002 Power-Supply Module.

ORDERING INFORMATION

Equipment Supplied

MA854	Residential 8-zone, 12-volt alarm control panel with integral communicator and siren driver; white keypad (1); TRF-8 transformer (1); DD497 PROM (1); and RBAT4 battery (1)
RP854	Remote 4-Wire Arming Station with dual-function keypad; LED, digital-display, and sounder indication; panic and shunt.

Optional Peripherals and Accessories

(* = UL-Listed Accessory)

RBAT4	Rechargeable Battery, 12Vdc, 4AH
RBAT6	Rechargeable Battery, 12Vdc, 6AH
RBAT-H1*	Dual Battery Harness
TRF-8	Transformer, 16Vac, 14.4VA, Class 2
TRF-9	Transformer, 16Vac, 20VA, Class 2 (U.L. Listed)
DH-1*	Diode Harness
EOL1K*	End-of-Line Resistor Assembly, 1k ohms
FT-279*	End-of-Line Relay/Resistor Supervisory Module
GSM-400	Ground-Start Module
M278*	Line-Reversal Module
PS3002*	Power-Supply Module
TM900*	Timer Module
RPB-1	Surface Mounting Backplate for RP854
RPB-2	Double Gang Box for RP854
TPS-2	Tamper Switches (set of 2) (U.L. Listed)
OI120/QG	MAGNUM ALERT 854 Operating Guide
PF159	Programming Record Sheets, 100/pad
PRO-410M	PROM Programmer
DD497	Partially-Programmed PROM
DD493BNK	Blank PROM
A245	Consumer Brochure, Residential
A245COM	Consumer Brochure, Commercial

COMPATIBLE UL-LISTED DEVICES (Optional PS3002 Power-Supply Module required except where indicated by "*".)

Bells:	Ademco AD8-12, AD10-12 Amseco MBL-8/12V. -10/12V: Wheelock 34T-12R*
Grade-A Bell:	Ademco AB-12, Bell in Box
Speakers:	Ademco 713 Atlas Sound VT-158U
Smoke Detectors:	(Residential Units Only**) BRK 1812, 2812TH ESL 445AT* Pyrotector 3212, 7212

**2 maximum; 4 maximum with TRF-9 Transformer

UL CLASSIFICATION

Household Fire & Burglary Warning System Control Unit:
Combination Fire and Burglary. See RECOMMENDED UL-LISTED DEVICES (above) for compatible bells, speakers and smoke detectors.

SUMMARY OF UL REQUIREMENTS

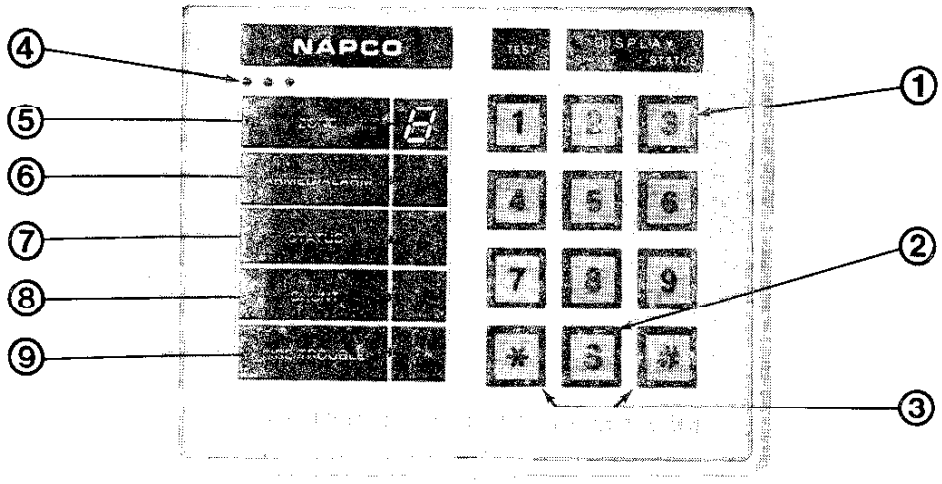
The following summarizes UL programming and wiring requirements.

Household Fire and Burglary:

- FT-279 End-of-Line Relay for Fire
- minimum alarm time-out of 4 minutes
- maximum exit time of 60 seconds
- maximum entry time of 45 seconds

In California: May be used for residential fire protection (approved by the California Fire Marshal).

2. CONTROLS & INDICATORS



RP-854 Keypad

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

REGULAR FUNCTIONS

(1) Numerical Keys [1] through [9]. Used to enter arm/disarm code(s) and to select zones to be shunted. Also have special Hold-Down Functions as described in **HOLD-DOWN FUNCTIONS.**

(2) Shunt Key [S]. Used to select zones to be shunted. Also has a special Hold-Down Function as described in **HOLD-DOWN FUNCTIONS.**

(3) Panic Buttons [*] and [#]. Signal an immediate emergency when *both* buttons are pressed *at the same time*.

(4) Sounder. Emits an audible tone whenever

* a hold-down function has been accessed;
* an attempt is made to arm the system when a zone is in trouble;
* entry delay is in progress (to remind the user to disarm the panel);
* a Day Zone is in trouble; or
* an alarm or trouble exists on the Fire Zone.

A tone while disarmed indicates that someone has activated the door chime feature (Zone 1).

A momentary beep when arming indicates that a zone is in trouble (does not apply to selective- or group-shunted zones).

A momentary beep shortly after arming (about 15 seconds to a minute, or so) indicates a central-station ringback if a closing report is programmed.

⑤ Digital Readout. Displays zone(s) in trouble, zone(s) shunted or zone(s) violated (Alarm History) when respective hold-down function is accessed. Displays *"P"* (with steady sounder beep) if an attempt is made to arm with a priority condition, or if a Day Zone trouble or ac-failure indication is not reset.

⑥ Top Red **ARMED/ALARM** LED. Glows steadily to indicate that the system is armed. A slow flash when armed warns that at least one non-24-Hour Zone was in alarm (display violated zone(s) on readout). A rapid flash indicates that the system is armed with Instant Protection (Hold-Down Function 4).

⑦ Green **STATUS** LED. Glows steadily to indicate that all zones that are not shunted are operating properly and the system may be safely armed. A slowly-flashing LED warns that one or more zones is in trouble. (Hold down Key [3] to display troubled zones on the digital readout.) A rapidly-flashing LED signifies a Day-Zone trouble.

⑧ Yellow **SHUNT** LED. Glows steadily to indicate that one or more zones has been manually shunted, and that the system is only partially armed. (The shunted zones are displayed on the digital readout when the Display Shunt hold-down feature, Key [2], is depressed for about 2 seconds.)

⑥ ⑦ ⑧ All LEDs flashing together indicates an ac power failure. The panel may be armed on standby battery power as follows: (1) Hold down Test Key [1] to test battery operation. (2) if okay, hold down Reset Key [9] until it beeps to reset the flashing LEDs, then (3) enter the arming code (otherwise a *"P"* will appear on the display and the panel will not arm). **NOTE:** All LEDs flashing rapidly (with sounder) indicates Program Mode.

⑨ Bottom Red **FIRE/TROUBLE** LED. Flashes to indicate that the Fire Zone is in trouble; glows steadily to indicate an alarm condition.

HOLD-DOWN FUNCTIONS

In addition to its regular functions, the digital keypad provides a series of dual functions. Note that these functions are accessed by holding down the designated key for about 2 seconds, until a beep is heard from the sounder, and are thus known as "Hold-Down" functions.

Key [1] - Test. Momentarily sounds the burglar alarm. Instruct the user to make this test weekly.

Key [2] - Display SHUNT. Displays the zone(s) shunted on the digital readout. While holding down Key [2], note the number(s) displayed indicating the zone(s) shunted.

Key [3] - Display STATUS. Displays the zone(s) in trouble on the digital readout. While holding down Key [3], note the number(s) displayed indicating the zone(s) in trouble.

Key [4] - Instant Protection. Cancels the entry delay period(s). This feature is utilized to sound an instant alarm on intrusion through the Exit/Entry Zone(s). When selected, the ARMED/ALARM LED will flash rapidly to indicate that the system is armed with instant protection. Entry delay is automatically reinstated on disarming.

Key [5] - Door-Chime Off/On. The Door-Chime feature functions on Zone 1 only. If Zone 1 is selected as the regular entry door (it need not be a delayed zone), the sounder will sound upon entry while disarmed. To enable the Door-Chime feature, hold down Key [5] until it beeps. The duration of the "chime" is programmable.

Key [6] - Communicator-Confidence Test. Checks the telephone line for the presence of a dial tone. (This feature is applicable only to those systems programmed to communicate with a central station.)

Key [7] - Fault Find. Sets all zones for the fastest loop response (7mS) while disarmed; also, causes the sounder to beep for 2 seconds when a zone in trouble is cleared. This feature aids the installer in locating "swingers" and assists the user in repairing zone troubles. Normal operation is restored by holding down Reset Key [9].

Key [8] - Program. After the Program Code is entered, the Program Mode is accessed for the purpose of entering, changing, or voiding personal arm/disarm codes. See **Loading Personal Codes.**

Key [9] - Reset. Functions as a general-purpose reset to

* reset Fire Zone alarm/trouble indication;
* reset Ac-Failure indication (top three LEDs blinking);
* reset output-relay devices;
* reset the Fault-Find mode;
* bypass a troubled zone designated as a Priority-with-Bypass Zone. See **Priority Zone With Bypass** in the glossary.

Key [S] - Alarm History. This will display (on the digital readout) all alarm conditions that have occurred. While holding down Key [S], note the number(s) displayed indicating the zone(s) violated. After the system is rearmed, the previous alarm history will remain memorized unless automatically erased by a new alarm.

3. GETTING STARTED

Refer to the Operating Guide for the MA854 (OI120, supplied) for detailed operating instructions.

POWER-UP SEQUENCE

1. *Before applying power*, plug the PROM into the socket on the circuit board.
2. Connect ac power.
3. Install the RBAT4 (supplied).
4. Connect a telephone cord to the RJ31X jack.

PERSONAL CODES

Loading Personal Codes

Up to four different personal arm/disarm codes may be entered into the control panel using the keypad. Hold down Key [8] until the sounder beeps, then enter the Program Code (programmed in the PROM). After the Program Code has been entered, the top three LEDs on the keypad will flash and the sounder will beep rapidly, indicating access to the Program Mode. Now enter up to four codes using any combination of up to four digits (numbers 1 through 9) as follows:

Press [S] then [1] then [any 4 digits] = first user's code
[S] then [2] then [any 4 digits] = second user's code
[S] then [3] then [any 4 digits] = third user's code
[S] then [4] then [any 4 digits] = fourth user's code

After all codes have been entered, press [S] *twice* to exit the Program Mode.

NOTE: It is not necessary to assign all four codes.

The numbers selected become the only codes recognized by the system. Each user should be assigned his own dissimilar code and should be cautioned against divulging that code to anyone else. Thus, should it become necessary to remove a user from the system, that one code may be voided without affecting other codes, and that user would then be prevented from entry.

Changing or Voiding a Code

Changing any user's code is accomplished using the foregoing procedure and simply changing the 4-digit combination. Thus, to change User 3's code:

1. Hold down Key [8] until the sounder beeps.
2. Enter the Program Code (LEDs flash; sounder beeps).
3. Press [S] then [3] then [4 new digits] = User 3's new code.
4. Press [S] *twice*.

Similarly, User 3's code may be voided by not entering a 4-digit combination. Thus, to void User 3's code:

1. Hold down Key [8] until the sounder beeps.
2. Enter the Program Code (LEDs flash; sounder beeps).
3. Press [S] then [3] = User 3's code erased.
4. Press [S] *twice*.

AC-FAILURE INDICATION

Loss of ac power is indicated by the top three LEDs flashing simultaneously. Hold-down function Key [9] will temporarily reset the LEDs in order to check zone status and to arm the system.

ARMING & DISARMING THE SYSTEM

When a personal code is entered into the keypad, the red ARMED/ALARM LED will either come on, indicating that the panel is armed; or go off, indicating that the panel is disarmed. If a wrong code is entered, the system will fail to respond. *Wait at least 2 seconds* before attempting to re-enter a code.

FALLBACK CODE

If the system fails to respond to a correct code, as may occur after an extended power failure, all personal codes have been erased and the preprogrammed Fallback Code must be utilized to arm and disarm. See **Fallback Code** in the glossary.

NOTE: The Fallback Code will not work if any personal code is programmed.

ALARM RESET

Disarm the control panel to silence a sounding device.

AMBUSH ZONE

The Ambush Zone may be accessed by the user by entering his Ambush Code just prior to disarming. Thus, should he be forced to disarm by an assailant, the user can silently signal an

emergency while appearing to be merely disarming the system. The arm/disarm personal code must be entered less than 10 seconds after the Ambush Code for an ambush report to be transmitted. The Ambush Zone is a "report-only" zone.

KEYPAD PANIC

The Keypad Panic Zone is accessed by simultaneously pressing the two Panic Buttons (Keys [*] and [#]) on the keypad, or remote panic buttons wired to the keypad, and may be programmed to send a silent alarm to a central station, activate an audible alarm, or both. Note that the [*] and [#] keys on the keypad must be pressed at the same time to activate Keypad Panic. See **Panic Zone** in the **GLOSSARY**.

COMMUNICATOR-CONFIDENCE TEST

This feature checks the telephone line for the presence of a dial tone only in those systems that are programmed to communicate with a central station.

Hold down Key [6] until the sounder starts to beep. If the line is okay, the beeping will stop, otherwise a steady tone will sound (check phone lines). To silence the sounder, hold down Reset Key [9].

FAULT FIND

When the Fault-Find mode is accessed (Key [7]), two things occur:

a. the loop response of all zones is preset to 7mS (fastest loop response), and

b. clearing a zone in trouble causes the sounder to beep for about 2 seconds.

This set of conditions aids both installer and user. The installer, tapping and poking at suspect points, can easily locate swingers by listening for the beep. Similarly, the user can confirm the repair of a zone in trouble by listening for the beep, and thus eliminate the need of returning to the keypad to visually check after each attempt.

Hold down Reset Key [9] to restore normal operation. Arming the system automatically cancels the Fault-Find mode.

4. PROM PROGRAMMING

PROGRAMMING MATERIALS

Subscriber PROM. The partially-programmed DD497 PROM (integrated-circuit) supplied with the control panel becomes a subscriber PROM when programmed with the selected features and communicator information required for the installation. The PROM is programmed on a NAPCO PRO-410/410M Programmer. After programming, the subscriber PROM is plugged into the PROM socket on the control-center circuit board.

Glossary. Detailed programming instructions are contained in the **GLOSSARY & PROGRAMMING DATA** section of this manual. Glossary entries are listed in alphanumeric order, not in order of PROM location; PROM locations follow entry where applicable.

Programming Record Sheets. Programming Record Sheets (PF153) similar to those that follow are completed when planning system features and communicator information for the particular installation. These sheets are used when programming the subscriber PROM, and should be retained for future reference.

PROGRAMMING STEPS

1. Contact the central station to confirm receiver format, data format, event codes, subscriber numbers and telephone number(s). Two receiver descriptions and telephone numbers, and up to 4 Subscriber Identification Numbers may be required.

2. Complete the Programming Record Sheet. Reference record sheets for the MA854 are furnished in the following pages. Select the desired features by circling the respective "location" boxes. Refer to the **GLOSSARY** for guidance in selecting "data" entries.

3. To program the subscriber PROM, follow the instructions furnished with the PRO-410/410M Programmer. Note, however, the PAGE switch on the Programmer. Factory-programmed data are contained on PROM Page 1, programmable data on Page 0; thus the PAGE switch is normally set to [0]. The PAGE 1 position is used only to alter factory-programmed data in order to accommodate special applications. It is not necessary to copy a NAPCO Master PROM onto the DD497 PROM supplied with the system. The DD497 PROM already contains the master information preprogrammed into it. Plug the partially-programmed DD497 PROM into the Programmer [SUBSCRIBER] PROM socket.

CAUTION: Before attempting to alter preprogrammed data on Page 1, be sure that all Page-0 data in memory are erased (press [ERASE], then [EXECUTE]). Except for the Page-1 location being programmed,

there should be nothing in memory. After programming Page 1, return the PAGE switch to [0] and clear the memory to continue programming.

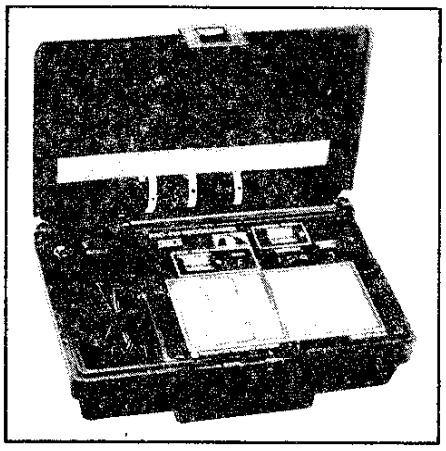
4. Program the data entries in the boxes on the Programming Record Sheets into the respective PROM locations. The Programmer digitally displays the entries, but will display "0" for the number "10", and letters "b", "C", "d", "E", and "F" for the numbers "11" through "15", respectively. To program a "10", press [0]. To program "11" through "15", either press [b] through [F] respectively, or use the [PLUS] key to enter any two (or more) digits that add up to the desired entry.

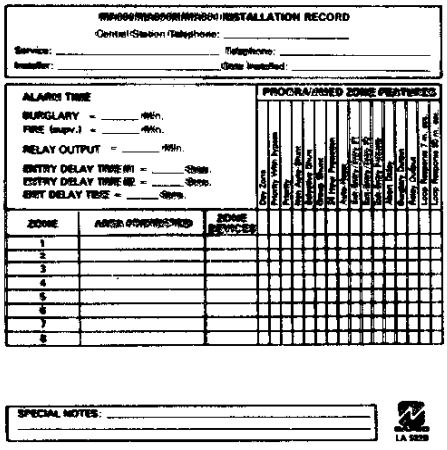
Entry Total:	10	11	12	13	14	15
Display:	0	b	C	d	E	F

Thus, to program "13", enter either [d] *or* [8] [PLUS] [5], *or* [8] [PLUS] [4] [PLUS] [1], etc. Similarly, to *add* to an existing PROM location, *first press the* [PLUS] *key*, then the complementary digit, otherwise the digit entered will *replace* the digit in memory.

Refer to the PRO-410/410M instruction booklet for further programming details.

5. Complete the PROGRAMMED ZONE FEATURES section of the supplied INSTALLATION RECORD label (reproduced below). Peel off the adhesive covering and affix the label to the lower-left corner inside the enclosure door. This summary will be used by the installer to match wiring options to programmed features.





PROGRAMMING RECORD SHEET FOR THE MAGNUM ALERT-854

FEATURE	GROUP 1 ZONE 1	2	3	4	5	6	7	PANIC 8	GROUP 2 FIRE 8	AM-BUSH	FIRE TBL	DAY TBL	TEST TIMER	NO AC	LOW BAT
REPORT ON ALARM	166	166	166	166	167	167	167	167	168	168	168	168	169	169	169
	1	2	4	8	1	2	4	8	1	2	4	8	1	2	4
CONTROL-CENTER RESTORAL(1)	170	170	170	170	171	171	171	171	172	172	172	172	173	173	173
	1	2	4	8	1	2	4	8	1		4			2	4
ZONE RESTORAL(1)	184	184	184	184	185	185	185	185							
	1	2	4	8	1	2	4	8							
DAY ZONE	186	186	186	186	187	187	187	187							
	1	2	4	8	1	2	4	8							
PRIORITY WITH BYPASS(2)	188	188	188	188	189	189	189	189							
	1	2	4	8	1	2	4	8							
PRIORITY	190	190	190	190	191	191	191	191							
	1	2	4	8	1	2	4	8							
REMOVE AUTO-SHUNT(2)	192	192	192	192	193	193	193	193							
	1	2	4	8	1	2	4	8							
SELECTIVE SHUNT	194	194	194	194	195	195	195	195							
	1	2	4	8	1	2	4	8							
GROUP SHUNT	196	196	196	196	197	197	197	197							
	1	2	4	8	1	2	4	8							
24-HOUR PROTECTION	198	198	198	198	199	199	199	199							
	1	2	4	8	1	2	4	8							
AUTO-RESET	200	200	200	200	201	201	201	201							
	1	2	4	8	1	2	4	8							
EXIT/ENTRY ZONE (ENTRY DELAY 1)	202	202	202	202	203	203	203	203							
	1	2	4	8	1	2	4	8							
EXIT/ENTRY ZONE (ENTRY DELAY 2)	204	204	204	204	205	205	205	205							
	1	2	4	8	1	2	4	8							
EXIT/ENTRY FOLLOWER	206	206	206	206	207	207	207	207							
	1	2	4	8	1	2	4	8							
ABORT DELAY	208	208	208	208	209	209	209	209							
	1	2	4	8	1	2	4	8							
BURGLARY OUTPUT	210	210	210	210	211	211	211	211							
	1	2	4	8	1	2	4	8							
RELAY OUTPUT	212	212	212	212	213	213	213	213							
	1	2	4	8	1	2	4	8							
7mS LOOP RESPONSE(3)	214	214	214	214	215	215	215	215							
	1	2	4	8	1	2	4	8							
50mS LOOP RESPONSE(3)	216	216	216	216	217	217	217	217							
	1	2	4	8	1	2	4	8							

TIME EXAMPLE CHART (seconds or minutes)		
TIME	1st BOX	2nd BOX
5	5	NONE
15	F	NONE
30	E	1
45	d	2
60	C	3

248	249	TEST-TIMER OFFSET (hours)

DELAY TIME		
218	219	EXIT DELAY (seconds)
220	221	ENTRY DELAY 1 (seconds)
222	223	ENTRY DELAY 2 (seconds)
232	233	ABORT DELAY (seconds)

TIME-OUT		
224	225	BURG. TIME-OUT (minutes)
226	227	RELAY TIME-OUT (minutes)
228	229	FIRE TIME-OUT (minutes)
230	231	DOOR-CHIME TIME (1/4 seconds)

DATE INSTALLED:

CUSTOMER:

ADDRESS:

TOUCH-TONE(A) DIALING	178	COME UP ARMED AFTER POWER FAILURE(4)	180
	1		4
TOUCH-TONE(A) /ROTARY BACKUP	178	PULSE BELL/SWEEP OUTPUT	181
	2		1
BACKUP REPORTING	178	RESET OUTPUT-RELAY DEVICES	181
	4		2
DOUBLE REPORTING	178	ENABLE ZONE 8 AS FIRE ZONE	181
	8		4
OPENING REPORT AFTER ALARM	179	RESET TEST TIMER ON REPORT	181
	1		8
CONDITIONAL CLOSING REPORT	179	DISABLE FAULT FIND	182
	2		1
CONDITIONAL CLOSING/ STATUS REPORT	179	ENABLE KEYPAD PANIC	182
	4		2
SPLIT REPORTING	179	ENABLE COMMUNICATOR CONFIDENCE TEST	182
	8		4
AUDIBLE TEST ON ARMING	180	DISABLE BELL TEST	182
	1		8
AUTO RESET AFTER ALARM TIME-OUT	180	DISABLE SWINGER SHUTDOWN	183
	2		1

Example: For 2 seconds, enter "8" in loc. 230

NAPCO

PROGRAMMING NOTES

1 When programming ZONE RESTORAL, CONTROL-CENTER RESTORAL must also be programmed.

2 When programming PRIORITY WITH BYPASS, do not program REMOVE AUTO SHUNT.

3 If neither 7 nor 50mS LOOP RESPONSE is programmed, loop response will be 750mS.

4 Zones 5 and 6 will be delayed. See GLOSSARY.

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PROGRAMMING RECORD SHEET FOR THE MAGNUM ALERT-854
Communicator Transmission Information

ALARM/TROUBLE CODES

	GROUP 1 ZONE 1	2	3	4	5	6	7	PANIC 8	GROUP 2 FIRE 8	AR-BUSH	FIRE TBL	DAY TBL	TEST TIMER	NO AC	LOW BAT
Single Digit	000	002	004	006	008	010	012	014	016	018	020	022	024	026	028
Extended or Two Digit	001	003	005	007	009	011	013	015	017	019	021	023	025	027	029

RESTORE CODES

Single Digit	040	042	044	046	048	050	052	054	056	058	060	062	064	066	068
Extended or Two Digit	041	043	045	047	049	051	053	055	057	059	061	063	065	067	069

OPENING/CLOSING CODES

	Closing User 1	2	3	4	Conditional Closing	Opening User 1	2	3	4
Single Digit	030	032	034	036	038	070	072	074	076
Extended or Two Digit	031	033	035	037	039 (1)	071	073	075	077
Select User(s) Closing	174 1	174 2	174 4	174 8		Select User(s) Opening	176 1	176 2	176 4	176 8

KEYPAD CODES
(Do not enter zeros)

Ambush		Program (Must be programmed)						Fallback			
236	237	238	239	240	241	242	243	244	245	246	247

SUBSCRIBER I.D. NUMBERS

	Alarm/Restoral ID (2) GROUP 1				GROUP 2				Opening/Closing ID (3)			
Telephone 1	100	101	102	103	104	105	106	107	108	109	110	111
Telephone 2	132	133	134	135	136	137	138	139	140	141	142	143

	Format Rcvr	Data	Pre-Dial Delay	Access Number	Dial-Tone Detection
Telephone 1	112	113	114	115	116
Telephone 2	144	145	146	147	148

Telephone Number

117	118	119	120	121	122	123	124	
125	126	127	128	129	130	131		
149	150	151	152	153	154	155	156	
157	158	159	160	161	162	163		

ENTRY	RECEIVER FORMAT
Blank	ADEMCO, SILENT KNIGHT "SLOW"
1	SESCOA, VERTEX, DCI, FRANKLIN (4)
2	RADIONICS "FAST" (4)
3	SILENT KNIGHT "FAST"
4	RADIONICS, DCI, FRANKLIN "SLOW" (4)
5	(RESERVED)
6	(RESERVED)
7	RADIONICS BFSK (4)
8	FOR 2300Hz HANDSHAKE, ADD AN "8" TO THIS LOCATION

ENTRY	DATA FORMAT
Blank	EXTENDED OR SINGLE DIGIT
1	SINGLE DIGIT
2	TWO DIGIT (OR 4/2)
4	SUM CHECK

NOTES:

(1) TWO-DIGIT FORMAT ONLY.
(2) GROUP-2 CODES MUST BE ENTERED, EVEN IF THEY ARE THE SAME AS GROUP-1 CODES.
(3) MUST BE PROGRAMMED IF OPENING/CLOSING CODES ARE PROGRAMMED.
(4) THESE FORMATS TYPICALLY USE A 2300Hz HANDSHAKE; ADD AN "8" TO THIS ENTRY.

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Abort Delay (Locations 208, 209; 232, 233)

A delay period that allows cancellation of the central-station report. This is done by disarming the panel within the delay period. Program PROM locations 208, 209 for zone selection; locations 232, 233 for delay time (see **Time Selection**).

NOTE: If Abort Delay is selected for a 24-Hour Zone or a Zone-Restoral Zone, the zone must be cleared before disarming the panel.

Ac-Failure Reporting (Locations 169; 173)

If ac is removed from the control panel, the top three LEDs will blink simultaneously. To arm in this condition, first press Key [9]. If programmed for Report On Alarm, the report will be delayed for 1 hour. Restorals will report immediately.

Access Number for Outside Line (Locations 115, 147)

Some subscribers will have a telephone system that requires one digit to access an outside line before the telephone number can be dialed. Also, the first dial tone encountered (prior to the access number) may have a frequency that is different from that of the accessed dial tone (440Hz). One or more 4-second Pre-Dial Delay "d"s may be entered before the access number instead of a dial tone with frequency "E". See **Pre-Dial Delay**.

If your subscriber's system uses an access number:

1. Contact the telephone-equipment supplier to find out if a dial tone other than 440Hz is received prior to dialing the access number. If the communicator must delay before dialing the access number instead of attempting to recognize the dial tone, find out how many 4-second delays must be programmed.

2. For Telephone 1,

   a. Enter the Dial-Tone Detection "E" ([8] [PLUS] [6]) or Pre-Dial Delay "d" ([8] [PLUS] [5]) in location **114**. Enter any extra "d"s that may be required starting in location **115**.

   b. Enter the access number digit in location **115**, or the first available location thereafter.

   c. Starting in the first available location after the access number, enter any Pre-Dial Delay "d"s needed before the second dial tone; the Dial-Tone Detection "E" for the second dial-tone frequency; then the telephone number.

3. If Telephone 2 is used, repeat Step 2 starting in location 146. (See **Backup Reporting**; **Double Reporting**; and **Split Reporting**.) Also see **Dial-Tone Detection**; **Pre-Dial Delay**.

Alarm Codes See **Report on Alarm**

Alarm History

Hold-Down Key [S]. This will display (on the digital readout) all alarm conditions that have occurred. While holding down Key [S], note the number(s) displayed indicating the zone(s) violated. When the system is rearmed, the previous alarm history will stay memorized until automatically erased by a new alarm condition.

Alarm Outputs (Locations 181, 210-213; 224-227; Terminals 21-23;25, 26, 27; Jumpers B, C, E, & F)

The MA654 has an integrated siren driver for both burglary and fire alarms, one relay contact output for additional devices, and a communicator that can report alarms to a central station. A bell may be used on the siren output terminals.

The following table summarizes wiring and programming for signalling an alarm in typical installations. See **Time Selection** for time-out durations.

Output	Wiring	Output Locations	Time-Out Locations	Remarks
Sweep Siren*	Speaker on 26,27	210, 211	224, 225	See Note
Steady Siren	Speaker on 26,27	4 in 181	228, 229	--
Pulsing Sweep Siren	Speaker on 26,27	5 in 181	228, 229	--
Steady Bell*	Bell on 27(-), 26(+)	210, 211	224, 225	Cut Jumper E
Pulsing Bell	Bell on 27(-), 26(+)	5 in 181	228, 229	Cut Jumper E
Relay Output	25(-), 22(+)	212, 213	226, 227	
Dry Contacts	21 (COM) 22 (N/O) 23 (N/C)	212, 213	226, 227	Cut Jumper B
Reset Output-Relay Devices	25(-), 23(+)	2 in 181	-- --	Dedicated for Reset

*In U.L. installations, see **Time Selection** for time-out requirements.

NOTE: Cut Jumper F to produce a two-tone alternating siren sound; cut Jumper C to prevent the fire signal from sounding a steady siren.

Relay Output. The maximum Relay Output current in standby or alarm is combined with the total standby outputs (including Remote Power and Auxiliary Power Output). If it is desired to utilize a device that will draw up to 1A in alarm, (a) cut Jumper B for dry contacts, and (b) connect Lug E14 (ALARM POWER) to Terminal 21 (common). An alarm device may then be powered from Terminals 22 (+) and 25 (-).

Speaker/Bell Output. Connect one or two (in parallel) 8-ohm, 15-watt speakers across Terminals 26 (-) and 27 (+).

Alarm Power See Alarm Outputs: Relay Output

Ambush Code (Locations 236, 237)

A 1- or 2-digit code that is entered by the user prior to disarming to access the Ambush Zone, causing a silent report to be sent to a central station. Thus, should a user be forced to disarm by an assailant, he can silently signal an emergency while appearing to be merely disarming the system. The Ambush Zone will automatically report when programmed to report on alarm.

To program the ambush feature,

1. Program Ambush to Report on Alarm ("2" in location 168).
2. Enter 1 or 2 digits as the Ambush Code in locations 236-237.
3. Enter an Ambush-Zone alarm report code in locations 018-019.

Inform the user what the Ambush Code is, and that his arm/disarm code must be entered less than 10 seconds after the Ambush Code for an ambush report to be sent.

Easy Arming. The Ambush Code may also be used as a 1- or 2-digit Easy-Arm (arm-only) Code. Program this code into locations 236-237, then enter it as one of the user codes (see **Loading Personal Codes**). The Easy-Arm Code itself cannot disarm the system. Note that no personal code may begin with the same digit(s) as the Easy-Arm Code, as it can't disarm.

NOTE: Caution the user that if an inadvertent attempt is made to *disarm* using the Easy-Arm Code, entering the regular disarm code within 10 seconds will cause an Ambush report to be sent.

Anti-Jam Time (Location 006)

NOTE: The Anti-Jam Time location is contained on PROM Page 1 (see **PROGRAMMING STEP 3**).

If the communicator does not detect a dial tone within 12 seconds, the Anti-Jam feature will be activated. That is, the communicator will go off line for a 16-second anti-jam interval in order to free the telephone circuit from incoming calls, then

make another 12-second attempt at dial-tone detection. If still unsuccessful, the communicator will again go off line for 16 seconds, then proceed to dial anyway.

Consult the telephone-equipment supplier to determine if a longer time is required for the Anti-Jam feature to function. To increase the anti-jam interval from the factory-set 16 seconds to 31 seconds, set the PAGE switch on the PRO-410/410M Programmer to [1], erase memory, and enter an "F" in location 006 (see **CAUTION** after **PROGRAMMING STEP 3.**)

To test the Anti-Jam feature, call the alarm phone line from a different phone line, then activate an alarm. The incoming call should be disconnected by the control panel.

Arm Lug (Lug E4)

Lug E4 (ARM) will go to approximately 1Vdc when the system is armed. . This lug may be used for auxiliary equipment. For use, refer to the instructions furnished with the peripheral device.

Audible Test on Arming (Location 180).
Note: This feature *must* be selected for U.L. installations.

To test the alarm circuit each time the system is armed, add a "1" to location 180. The alarm is then activated briefly about 4 seconds after the panel is armed. If the alarm does not sound, the device may be defective.

Auto-Reset (Locations 180; 200, 201)

If a zone signals an alarm and is selected for Auto-Reset, it will automatically rearm itself as soon as the alarm condition is cleared. Auto-Reset may be delayed to occur after the time-out period by programming a "2" in location 180.

Zones 1 through 8 that are not programmed for Auto-Reset will not be capable of signalling another alarm until (a) the cause of the alarm has been cleared and (b) the panel is disarmed.

Also see **Disable Swinger Shutdown.**

Auto-Reset After Alarm Time-Out See **Auto-Reset**

Auto-Shunt Zone See **Remove Auto-Shunt**

Backup Reporting (Location 178)

When Backup Reporting is selected and the communicator does not reach the first telephone number after two attempts, seven attempts will be made to reach the second telephone number. Enter

Subscriber Identification Numbers for Telephone 2 (locations **132-143**) and other information required for Telephone 2 (locations **144-163**). If Double Reporting is selected with Backup Reporting, all reports sent to the first telephone number will also be transmitted to the second telephone number. However, if the first transmission fails, *two* reports will be sent to Telephone 2 (Double Reporting).

NOTE: Subscriber Identification Numbers for both Telephones 1 and 2 *must* be entered, even if they are the same.

Battery, RBAT4

12Vdc standby power source in the control panel to provide backup protection in the event of a power loss. One RBAT4 battery (4AH) is supplied with the MA854. The RBAT6 (6AH) is available as an option. Note that the battery is an integral part of the system. It *must* be installed, even if ac power is present.

Burglary Lug (Lug E10)

Lug E10 (BURG) will go to about 1Vdc when a burglary alarm is tripped. E10 may be used to trip an LW-900 Long-Range Wireless Interface. Or, a relay (400 ohms minimum) may be connected between E10 and Terminal 24 (+ AUX. POWER) if a diode is inserted in series (cathode to E10; anode to relay coil).

Burglary Output See **Alarm Outputs**

Closing Report (Select User(s) Closing) (Location **174**)
Conditional Closing Report (Locations **179; 038-039**)
Conditional Closing/Status Report (Locations **179; 000-029; 038-039**)

On arming, the communicator can transmit a closing code for each user, a conditional-closing code, and a status report that identifies the problem zone to the central station. Note that Subscriber Identification Numbers (locations **108-111; 140-143**) and Closing Codes (locations **030-037**) *must* be entered for any closing report. Program (unconditional) closing report (Select User(s) Closing, location **174**) to report each time the panel is armed. Each of up to four users may have his own Closing Code (locations **030-037**).

Select Conditional Closing ("2" in Location **179**) to report only when arming with an auto-shunted zone. This transmission will consist of a Closing Code followed by a Conditional-Closing Code.

Select both unconditional *and* conditional closing report to always send a closing report, and a conditional-closing report only if there is a problem.

Select Conditional Closing/Status Report ("4" in location **179**) to

send a Conditional-Closing followed by a status report that identifies the problem zone(s). The second Alarm-Code location is generally used for this purpose. If this location is vacant, the first location will be used.

A typical Conditional Closing/Status Report is represented by the following example.

Example. A burglar breaks into a commercial establishment during the night, breaking the window foil. The Alarm Subscriber Identification Number is "123"; the Alarm Code is "1" (Burglary Zone 1); the Opening/Closing Subscriber Identification Number is "456"; the Conditional-Closing Code is "F"; the Closing Code for User 1 is "C". The communicator will send the following report to the central station (single-digit data format):

1231 - Sent when alarm occurs.
456C - Closing: User returned; inspected damage; rearmed.
456F - Conditional Closing.
FFF1 - Zone status at time of closing: Window foil still broken. Zone 1 auto-shunts; repair required.

Come Up Armed After Power Failure (Location 180)

When a "4" is programmed into location 180, the control panel will return in an armed state when ac is restored after an extended power failure (and the backup battery is dead). Also, Zones 5 and 6 will be delayed for 3 to 4 minutes so that devices such as PIRs are allowed sufficient time to reset (warm up).

Control-Center Restoral See **Restoral Report**

Data Format (Locations 113, 145)

Consult the central station to find out which of the following formats to use.

Extended Format. Extended-format reporting allows the communicator to transmit an extra digit to the central station. This extra digit is generally used to report the user or the zone on which the event occurred.

Example. An installation uses the following programmed transmission information: Subscriber Identification Number is "678", a Closing Report is selected for User 3; Extended Format Closing Code is "C3" (Closing, User 3). If User 3 closes, the communicator will transmit:

678C - Subscriber "678" has closed.
CCC3 - Closing, User 3.

Extended Format may be used with most central-station receivers.

Most receivers capable of recognizing multiple reporting will also recognize Extended Format. The central station will indicate the event codes to be programmed. Extended Format does *not* require any programming in locations **113** and **145**. To use Extended Format, follow Steps 2 through 5 of **Two-Digit Event-Code Format** later in this section.

Single-Digit Event Code Format. If the receiver cannot accept extended reporting,

1. Program a "1" in location **113** (and **145** for a second telephone number, if used). See **Double Reporting** and **Backup Reporting**.

2. Enter the first digit for any Alarm/Trouble Code, Restore Code and Opening/Closing Codes.

NOTE: If it is desired to have a Single-Digit Event Code for one telephone number and Extended Format for the other, program both digits for all event codes. Use the first digit to indicate the alarm type and the second digit to indicate the zone. The telephone number with a "1" in location **113** (or **145**) will transmit only the first digit. The other telephone number will use both digits. (Single-Digit Format will ignore the second digit of the event code.)

Two-Digit Event Code Format. Some central-station receivers require that a two-digit code be sent in each report.

Example. In a certain installation, the Alarm Subscriber Number is "123"; a burglary alarm occurs on Zone 1 (Alarm Code "31"). The communicator will send "12331".

To use Two-Digit Event Code Format,

1. Program a "2" in location **113** (**145** for a second telephone number, if used). See **Double Reporting** and **Backup Reporting**.

2. Enter an Alarm Code (locations **000-029**) for each zone or condition to report on alarm (see **Report on Alarm**) or for a Conditional Closing/Status Report as follows:

   a. Enter the first digit of the Alarm Code. (This digit may be used to indicate alarm type.)

   b. Enter the second digit of the Alarm Code. (This digit may be used to indicate the zone.)

3. Repeat Step 2 to enter Restore Codes (locations **040-069**) for each zone selected for Control-Center Restoral or Zone Restoral (see **Restoral Report**).

4. If Opening Report or Opening Report After Alarm is selected,

enter a two-digit Opening Code for each user (locations 070-077). See **Opening Report; Opening Report After Alarm.**

5. If Closing Report is selected, enter a two-digit Closing Code (locations 030-037) for each user. If a Conditional Closing or Conditional Closing/Status Report is selected, also enter a two-digit Conditional-Closing Code (locations **038, 039**).

NOTE: Single-Digit Format will override Two-Digit Format in location **113** or **145**.

Sum-Check Format. Sum Check is a sophisticated data format used to enhance the speed and check the accuracy of the received transmission. This format should be preferred whenever the central station is capable of receiving it.

After transmitting the Subscriber Identification Number and the event code, the communicator sends a verifying digit that is the sum of both. The receiver compares the verifying digit with the sum of the other two numbers to check transmission accuracy. To select Sum Check, program a "4" in location **113** (or **145** for a second telephone number, if used).

Day Zone (Locations **186, 187**)

A Burglary Zone programmed to cause visual and audible indication at the keypad if the loop has an open condition only when disarmed. This feature may be used to warn of trouble during the day, when the control panel is not armed. If the Day Zone experiences a problem (a break in a window foil, for example), the green STATUS LED on the keypad will flash, the sounder will beep repeatedly, and the digital readout will display the problem zone(s). Hold down Key [9] to silence the sounder and clear the display. Arm and disarm the panel to reset the Day Zone.

Dial-Tone Detection (Locations **116, 148**)

At least one Dial-Tone Detection entry is usually required for each telephone number used to ensure that a dial tone is present before the communicator dials.

When an "E" ([8] [PLUS] [6]) is programmed before the first digit of an outside telephone number, the communicator dial-tone detection circuit is set to detect the standard 440Hz dial tone. The "E" is generally entered in location **116** for Telephone 1 and location **148** for Telephone 2, if used.

It may be necessary to program at least one 4-second Pre-Dial Delay before a Dial-Tone Detection "E". With certain nonstandard exchanges, Pre-Dial-Delay "d"s may be used without a Dial-Detection "E". (See **Access Number for Outside Line; Pre-Dial Delay.**)

Disable Bell Test (Location 182)

Program an "8" in location 182 to prevent unauthorized persons from sounding the bell or siren.

Disable Fault Find (Location 182)

Program a "1" in location 182 to prevent unauthorized use of the Fault-Find mode. See **HOLD-DOWN FUNCTION 7.**

Disable Swinger Shutdown (Location 183)

Normally, Zones 1 through 6 with Auto-Reset will only reset twice (3 alarms) until rearmed in order to prevent "swingers" (intermittents) from causing repeated false alarms, See **Auto-Reset.** The Swinger-Shutdown feature is not applicable to Zones 7 and 8. To disable Swinger Shutdown on all zones, program a "1" in location 183.

Door Chime (Zone 1)

This annunciator feature may be used on Zone 1 while disarmed to sound a beep at the keypad when the zone goes into trouble. Press hold-down function Key [5] until it beeps to enable or disable the Door Chime. Chime duration is programmable (locations 230, 231) in units of 1/4 seconds. If the "chime" feature will not be used, a "1" in location 230 is recommended to prevent accidental activation. (The feature will function normally, but the sounder will not respond to a 1/4-second time-out.) See **Time Selection.**

Double Reporting (Location 178)

When Double Reporting is selected, only information that is *successfully* sent to Telephone 1 will be sent to Telephone 2 as well.

To program Double Reporting, enter an "8" in location 178. Enter Subscriber Identification Numbers for Telephone 2 (locations 132-143) and related information required for Telephone 2 (locations 144-163).

If Backup Reporting is selected with Double Reporting, reports sent to the first telephone number will also be transmitted to the second telephone number. However, if the first transmission fails, two reports will be sent to Telephone 2.

Split Reporting will override Double Reporting if both are programmed.

NOTE: Subscriber Identification Numbers for both Telephones 1 and 2 *must* be entered, even if they are the same.

"E" Lugs (E3, E4, E5, E9, E10, E11, E12, E14)

E3 - See Ground-Start Module, GSM-400
E4 - See Arm Lug
E5 - See Listen-In Module
E9 - See Fire Lug
E10 - See Burglary Lug
E11 - See Low Battery
E12 - See Relay Control
E14 - See Alarm Outputs: Relay Output

Easy Arm See Ambush Code

Enable Communicator-Confidence Test (Location 182)

Program a "4" in location 182 to enable the Communicator-Confidence Test. See HOLD-DOWN FUNCTION 6.

Enable Keypad Panic See Panic Zone

Enable Zone 8 as Fire Zone See Fire Zone

Exit/Entry Delay (Locations 218-223)

Permits exit and entry through the Exit/Entry Zone(s) (see locations 202-205) after the system is armed without setting off an immediate alarm. Exit delay allows the user to leave the premises after the panel has been armed. Entry delay allows the user time to enter and disarm the panel. Upon entering, the keypad sounder will emit a steady tone to remind the user to disarm.

Two individually-programmable entry-delay times are provided to accommodate different entry zones (one exit delay is sufficient for all). If two or more Exit/Entry Zones are entered in succession, the delay programmed for the *last* Exit/Entry Zone entered will take precedence over all others.

Exit-Delay time (locations 218-219) and Entry-Delay time (locations 220-223) may each be programmed for up to 255 seconds (4-1/4 minutes). See Time Selection. If delay times are not programmed, exit delay will be 60 seconds; entry delay will be 30 seconds.

NOTE: In U.L. installations, Exit-Delay time may not exceed 60 seconds; Entry-Delay time may not exceed 45 seconds.

Exit/entry delay may be cancelled by hold-down function Key [4] (Instant Protection) prior to arming, however it will be automatically restored upon disarming.

Exit/Entry Follower (Locations **206, 207**)

A zone programmed as an Exit/Entry Follower will ignore detection during the exit delay, and *only* during entry delay if the Exit/Entry Zone is entered *first*. Thus, detection devices (passive infrared detectors, for example) along the path between the keypad and the exit/entry door will not signal an alarm during exit/entry delay under normal conditions. However, if a device in the Exit/Entry Follower Zone detects a violation when the exit/entry door has not first been entered, there will be no entry delay and the Exit/Entry Follower Zone will go into an instant alarm.

If the panel is armed with the entry delays cancelled (Instant Protection), any violation on the Exit/Entry Zone or the Exit/Entry Follower Zone will cause an immediate alarm.

Extended Format See **Data Format**

Fallback Code (Locations **244-247**)

After an extended power failure (longer than battery standby capacity), all personal codes will be erased. Should this occur, the system will fail to respond to any personal code, but will respond to the 4-digit Fallback Code that is programmed into PROM locations **244-247** until the personal codes can be restored. The Fallback Code will only function when all personal codes have been lost. To prevent unauthorized entry using the Fallback Code, personal codes should be restored as soon as possible.

Fire Lug (Lug E9)

Lug E9 (FIRE) will go to about 1Vdc when a fire alarm is tripped. E9 may be used to trip an LW-900 Long-Range Wireless Interface. Or, a relay (400 ohms minimum) may be connected between E9 and Terminal 24 (+ AUX. POWER) if a diode is inserted in series (cathode to E9; anode to relay coil).

Fire Zone (Location **181**)

Programming a "4" in location **181** will enable Zone 8 supervision by the bottom red keypad LED. Normally-open devices are connected to Zone 8 (Terminals 15 and 16). A short across Zone 8 will cause a fire alarm: the red LED will light and the the sounder will pulse; an open circuit (trouble) will cause a blinking red LED and a pulsing sounder after a 10-second delay. The sounder may be silenced using Reset Key [9]. The LED will go off within 30 seconds after reset if the alarm or trouble is cleared.

If the Fire Zone is selected to Report on Alarm (location **168**) or to Restore (location **172**), the Alarm Codes in locations **016-017** and the Restore Codes in locations **056-057** will be sent. Trouble

"E" Lugs (E3, E4, E5, E9, E10, E11, E12, E14)

E3 - See Ground-Start Module, GSM-400
E4 - See Arm Lug
E5 - See Listen-In Module
E9 - See Fire Lug
E10 - See Burglary Lug
E11 - See Low Battery
E12 - See Relay Control
E14 - See Alarm Outputs: Relay Output

Easy Arm See Ambush Code

Enable Communicator-Confidence Test (Location 182)

Program a "4" in location 182 to enable the Communicator-Confidence Test. See HOLD-DOWN FUNCTION 6.

Enable Keypad Panic See Panic Zone

Enable Zone 8 as Fire Zone See Fire Zone

Exit/Entry Delay (Locations 218-223)

Permits exit and entry through the Exit/Entry Zone(s) (see locations 202-205) after the system is armed without setting off an immediate alarm. Exit delay allows the user to leave the premises after the panel has been armed. Entry delay allows the user time to enter and disarm the panel. Upon entering, the keypad sounder will emit a steady tone to remind the user to disarm.

Two individually-programmable entry-delay times are provided to accommodate different entry zones (one exit delay is sufficient for all). If two or more Exit/Entry Zones are entered in succession, the delay programmed for the *last* Exit/Entry Zone entered will take precedence over all others.

Exit-Delay time (locations 218-219) and Entry-Delay time (locations 220-223) may each be programmed for up to 255 seconds (4-1/4 minutes). See Time Selection. If delay times are not programmed, exit delay will be 60 seconds; entry delay will be 30 seconds.

NOTE: In U.L. installations, Exit-Delay time may not exceed 60 seconds; Entry-Delay time may not exceed 45 seconds.

Exit/entry delay may be cancelled by hold-down function Key [4] (Instant Protection) prior to arming, however it will be automatically restored upon disarming.

Exit/Entry Follower (Locations **206, 207**)

A zone programmed as an Exit/Entry Follower will ignore detection during the exit delay, and *only* during entry delay if the Exit/Entry Zone is entered *first*. Thus, detection devices (passive infrared detectors, for example) along the path between the keypad and the exit/entry door will not signal an alarm during exit/entry delay under normal conditions. However, if a device in the Exit/Entry Follower Zone detects a violation when the exit/entry door has not first been entered, there will be no entry delay and the Exit/Entry Follower Zone will go into an instant alarm.

If the panel is armed with the entry delays cancelled (Instant Protection), any violation on the Exit/Entry Zone or the Exit/Entry Follower Zone will cause an immediate alarm.

Extended Format See **Data Format**

Fallback Code (Locations **244-247**)

After an extended power failure (longer than battery standby capacity), all personal codes will be erased. Should this occur, the system will fail to respond to any personal code, but will respond to the 4-digit Fallback Code that is programmed into PROM locations **244-247** until the personal codes can be restored. The Fallback Code will only function when all personal codes have been lost. To prevent unauthorized entry using the Fallback Code, personal codes should be restored as soon as possible.

Fire Lug (Lug E9)

Lug E9 (FIRE) will go to about 1Vdc when a fire alarm is tripped. E9 may be used to trip an LW-900 Long-Range Wireless Interface. Or, a relay (400 ohms minimum) may be connected between E9 and Terminal 24 (+ AUX. POWER) if a diode is inserted in series (cathode to E9; anode to relay coil).

Fire Zone (Location **181**)

Programming a "4" in location **181** will enable Zone 8 supervision by the bottom red keypad LED. Normally-open devices are connected to Zone 8 (Terminals 15 and 16). A short across Zone 8 will cause a fire alarm: the red LED will light and the the sounder will pulse; an open circuit (trouble) will cause a blinking red LED and a pulsing sounder after a 10-second delay. The sounder may be silenced using Reset Key [9]. The LED will go off within 30 seconds after reset if the alarm or trouble is cleared.

If the Fire Zone is selected to Report on Alarm (location **168**) or to Restore (location **172**), the Alarm Codes in locations **016-017** and the Restore Codes in locations **056-057** will be sent. Trouble

and Restore Trouble on the Fire Zone are reported in locations 020-021 and 060-061, respectively.

NOTE: (a) Even though Zone 8 is used as the Fire input, Keypad Panic may still be used with any features selected for Zone 8, and may report an alarm using locations 014-015. (b) If neither ENABLE ZONE 8 AS FIRE ZONE nor ENABLE KEYPAD PANIC is programmed. Zone 8 may be used as a regular Burglary Zone.

Ground-Start Module, GSM-400 (Lug E3)

If the dial tone is not continuously active, Ground-Start Module Model GSM-400 will be required at Lug E3 to establish the dial tone. For installation, refer to the instructions furnished with the GSM-400.

Group Shunt (Location 196, 197)

Removal of a preset group of zones from the system. Group shunting is often used to deactivate some or all interior zones simultaneously so that the user may move freely throughout the premises but still be protected from intrusion through armed perimeter zones.

Group shunting is accomplished by pressing Key [S] *twice*. The next time the panel is disarmed, all shunted zones will automatically revert to non-shunted zones.

When group shunting is selected, the yellow SHUNT LED on the keypad will light. The zones shunted may be confirmed by holding down Display Shunt Key [2] until the sounder beeps. While holding the key down, check the digital display to see the zone(s) shunted.

Jumpers (B, C, E, F) See **Alarm Outputs**

Keypad Panic See **Panic Zone**

Line-Reversal Module, M278

The Line-Reversal Module allows the control panel to be monitored by a central station through leased lines. On alarm, the module reverses normal line-voltage polarity. For details, refer to the instructions furnished with the module.

Listen-In Module (Lug E5)

If installation requires a Listen-In Module, connect the module to Lug E5. The voltage (12V) at E5 drops to zero when the communicator goes off-hook. When the communicator transmission is completed, the voltage at E5 returns and the Listen-In Module can occupy the phone line.

Loop Response (Locations 214-217)

Loop response is the amount of time that a normally-closed circuit must remain open, or a normally-open circuit must remain closed, to trigger an alarm. The slower the loop response, the more immune the system will be to intermittents ("swingers"). Selectable loop-response times are:

750mS (.75 sec.): The slowest loop-response time, recommended for use with magnetic contacts, window foil, etc. Unless programmed otherwise, loop-response time will be 750mS (milliseconds) for all zones.

50mS (.05 sec.): Used for momentary Panic Buttons and area-protection devices, such as photoelectric eyes, passive infrared sensors, floor mats, etc.

7mS (.007 sec.): An extremely fast loop response used primarily for window bugs, and to eliminate the need for a pulse extender.

Low Battery (Location 169, 173; Lug E11)

A low-battery alarm will signal when the battery terminal voltage drops to 11.0V. A low-battery condition may report to a central station by programming a "4" in location 169. Lug E11 (LOW BATT.) will go to 0Vdc when a low-battery condition exists. E11 may be used to trigger an LW-900 Long-Range Wireless Interface.

No Ac See **Ac-Failure Reporting**

Opening & Closing Codes See **Opening Report; Closing Report**

Opening Report (Select User(s) Opening) (Location 176)
Opening Report After Alarm (Location 179)

Opening and closing reports are generally used in commercial installations. On disarming, the communicator can send an opening code for each user (Opening Report), or it may transmit only when the panel is disarmed after an alarm has occurred (Opening Report After Alarm). Note that Subscriber Identification Numbers (locations 108-111; 140-143) and Opening Codes (locations 070-077) *must* be entered for either opening report.

Program Select User(s) Opening (location 176) to report each time the panel is disarmed. Each of up to four users may have his own Opening Code (locations 070-077). If selecting Opening Report, *do not* select Opening Report After Alarm.

Program Opening Report After Alarm ("1" in location 179) to report only when disarming after an alarm. This feature may be used by the central station to verify that the subscriber has re-

and Restore Trouble on the Fire Zone are reported in locations 020-021 and 060-061, respectively.

NOTE. (a) Even though Zone 8 is used as the Fire input, Keypad Panic may still be used with any features selected for Zone 8, and may report an alarm using locations 014-015. (b) If neither ENABLE ZONE 8 AS FIRE ZONE nor ENABLE KEYPAD PANIC is programmed, Zone 8 may be used as a regular Burglary Zone.

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If the dial tone is not continuously active, Ground-Start Module Model GSM-400 will be required at Lug E3 to establish the dial tone. For installation, refer to the instructions furnished with the GSM-400.

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Removal of a preset group of zones from the system. Group shunting is often used to deactivate some or all interior zones simultaneously so that the user may move freely throughout the premises but still be protected from intrusion through armed perimeter zones.

Group shunting is accomplished by pressing Key [S] *twice*. The next time the panel is disarmed, all shunted zones will automatically revert to non-shunted zones.

When group shunting is selected, the yellow SHUNT LED on the keypad will light. The zones shunted may be confirmed by holding down Display Shunt Key [2] until the sounder beeps. While holding the key down, check the digital display to see the zone(s) shunted.

Jumpers (B, C, E, F) See **Alarm Outputs**

Keypad Panic See **Panic Zone**

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If installation requires a Listen-In Module, connect the module to Lug E5. The voltage (12V) at E5 drops to zero when the communicator goes off-hook. When the communicator transmission is completed, the voltage at E5 returns and the Listen-In Module can occupy the phone line.

Loop Response (Locations 214-217)

Loop response is the amount of time that a normally-closed circuit must remain open, or a normally-open circuit must remain closed, to trigger an alarm. The slower the loop response, the more immune the system will be to intermittents ("swingers"). Selectable loop-response times are:

750mS (.75 sec.): The slowest loop-response time, recommended for use with magnetic contacts, window foil, etc. Unless programmed otherwise, loop-response time will be 750mS (milliseconds) for all zones.

50mS (.05 sec.): Used for momentary Panic Buttons and area-protection devices, such as photoelectric eyes, passive infrared sensors, floor mats, etc.

7mS (.007 sec.): An extremely fast loop response used primarily for window bugs, and to eliminate the need for a pulse extender.

Low Battery (Location 169, 173; Lug E11)

A low-battery alarm will signal when the battery terminal voltage drops to 11.0V. A low-battery condition may report to a central station by programming a "4" in location 169. Lug E11 (LOW BATT.) will go to 0Vdc when a low-battery condition exists. E11 may be used to trigger an LW-900 Long-Range Wireless Interface.

No Ac See Ac-Failure Reporting

Opening & Closing Codes See Opening Report; Closing Report

Opening Report (Select User(s) Opening) (Location 176)
Opening Report After Alarm (Location 179)

Opening and closing reports are generally used in commercial installations. On disarming, the communicator can send an opening code for each user (Opening Report), or it may transmit only when the panel is disarmed after an alarm has occurred (Opening Report After Alarm). Note that Subscriber Identification Numbers (locations 108-111; 140-143) and Opening Codes (locations 070-077) *must* be entered for either opening report.

Program Select User(s) Opening (location 176) to report each time the panel is disarmed. Each of up to four users may have his own Opening Code (locations 070-077). If selecting Opening Report, *do not* select Opening Report After Alarm.

Program Opening Report After Alarm ("1" in location 179) to report only when disarming after an alarm. This feature may be used by the central station to verify that the subscriber has re-

sponded to the alarm and disarmed the panel. If Opening Report After Alarm is selected, do *not* select Opening Report.

Panic Zone (Zone 8)

When using Zone 8 for Panic, program 24-Hour Protection ("8" in location 199) and Report On Alarm ("8" in location 107). Note that if Zone 8 is not programmed for 24-Hour Protection, Panic may still be activated when disarmed, but an "8" will be displayed on the digital readout and the red LED will flash.

To enable Panic from the keypad, program a "2" in location 182. The Panic Zone is accessed by pressing Keys [*] and [#] together. Keypad Panic may be disabled either by programming or by cutting the brown jumper at the lower end of the keypad circuit board, behind Key [S].

Remote momentary pushbutton panic switches (N/O) may be connected to the two white wires on the keypad (see Wiring Diagram). Remote switches may be also be used on Zone 8 input terminals except if Zone 8 is enabled as the Fire Zone. In U.L. systems, remote-panic buttons must be located in the same room as the keypad.

NOTE: Even though Zone 8 is used as the Fire input, Keypad Panic may still be used with any features selected for Zone 8, and may report an alarm using locations 014-015. Do not program the Panic Zone (Zone 8) for a Restoral Report, or a restoral will be sent as soon as the Panic Buttons are released.

Pre-Dial Delay Locations (114, 146)

A Pre-Dial Delay may be used whenever a delay is required before dialing. It is usually required to program Dial-Tone Detection, which causes the communicator to wait for a dial tone before dialing (see **Dial-Tone Detection**). Certain telephone exchanges send a nonstandard dial tone that the communicator may not be able to detect. With these nonstandard exchanges, it is possible to program Pre-Dial Delay rather than Dial-Tone Detection. This will cause the communicator to wait for a predetermined time before dialing rather than look for a nonstandard dial tone.

Contact the telephone-equipment supplier to find out how long a delay is required before dialing. Select Pre-Dial Delay by programming one "d" ([8] [PLUS] [5]) for each 4-second delay required. Enter Pre-Dial Delay "d"s starting in location 114 for Telephone 1. If Telephone 2 is used, enter Pre-Dial Delay "d"s starting in location 146. See **Backup Reporting; Double Reporting; Split Reporting**. Also see **Access Number for Outside Line**.

Priority Zone (Locations 190, 191)

A zone that will prevent arming if in trouble. If an attempt is

made to arm, the sounder will emit a steady tone and a "*P*" will be displayed on the digital readout. The priority condition may be silenced by disarming. Any zone may be selected as a Priority Zone. A zone in trouble that is neither a Priority Zone nor an Auto-Shunt Zone will cause an alarm on arming.

Priority Zone with Bypass (Locations 188, 189)

A Priority Zone that will permit arming if the priority condition is bypassed by entering an arm/disarm code, then pressing Reset Key [9]. If the system is so programmed, the zone will auto-shunt, and the condition can be reported to a central station.

Any zone not selected as a Priority Zone may be programmed as a Priority Zone with Bypass. When programming a zone as Priority with Bypass, do not program Remove Auto-Shunt.

Program Code (Locations 238-243)

A code, entered to access the Program Mode, that allows an authority to program users' personal codes (see **BASIC OPERATION - PERSONAL CODES**. Enter the 3- to 6-digit Program Code starting in location 238. Also see **HOLD-DOWN FUNCTION KEY [8]** (Section 2).

Pulsing Bell Output See **Alarm Outputs**

Receiver Format (Locations 112, 144)

The communicator can be programmed to transmit to any standard central-station receiver. A receiver format must be entered for each telephone number used, but a different format may be assigned to each.

Refer to **Double Reporting** and **Backup Reporting** to determine if Telephone 2 will be programmed. Call the central station for each telephone number to check the type of receiver in use. From the following table, enter the receiver format for each phone number.

ENTRY	RECEIVER FORMAT	DATA FREQ.	DUTY CYCLE (ON/OFF)	INTERDIGIT TIME
(blank)	Ademco, Silent Knight "slow"	1900Hz	60/40mS	600mS
1	Sescoa, Vertex, DCI, Franklin	1800	30/20	800
2	Radionics "fast"	1800	13/12	400
3	Silent Knight "fast"	1900	40/30	560
4	Radionics, DCI, Franklin "slow"	1800	60/40	600
5	Reserved			
6	Reserved			
7	Radionics BFSK			
8	Add "8" for 2300Hz handshake; Do not add if 1400Hz handshake.			

Program the receiver-format entry in location 112 for Telephone 1

and location **144** for Telephone 2, if used.

Relay Control (Lug E12)

Lug E12 (RELAY) will go to approximately 1Vdc when the relay is tripped. This may be used to trip an LW-900 Long-Range Wireless Interface. Or, a relay (400 ohms minimum) may be connected between Lug E12 and Terminal 24 (+ AUX. POWER) if a diode is inserted in series (cathode to E12; anode to relay coil).

The Fire Zone cannot be programmed to activate the relay output, however Lug E12 may be used. Connecting a diode from the FIRE Lug E9 (cathode) to E12 (anode) will activate the relay when the Fire Zone is tripped.

Relay Output See **Alarm Outputs**

Remove Auto-Shunt (Locations **192, 193**)

All zones are preprogrammed for Auto-Shunt, and will be bypassed (automatically shunted out) if in trouble when arming. A momentary beep will sound at the keypad to warn that the system has been armed without the protection of the auto-shunted zone. (Note that the exit/entry door must be closed before arming, otherwise the Exit/Entry Zone will be auto-shunted.) Auto-shunting may be removed from any Zone 1-8 by programming.

NOTE: If auto-shunt is removed from a zone in trouble that is not programmed for Priority arming (locations **190, 191**), that zone will cause an alarm on arming. If selecting Priority with Bypass, *do not* select Remove Auto-Shunt.

For U.L. installations, non-24-Hour Zones *with* auto-shunt (Remove Auto-Shunt *not* programmed) must be programmed for Priority Zone with Bypass. If an attempt is made to arm with these zones in trouble, the sounder will come on, a *"P"* will be displayed, and the panel will not arm (enter the arm/disarm code to silence the sounder and clear the display). To arm, hold down Reset Key [9] for about 2 seconds, then enter the arm/disarm code.

Report on Alarm (Locations **166-169**)

Violation of a zone selected to Report on Alarm will cause the communicator to transmit the code selected for that zone to the central station. Enter Alarm Codes (locations **000-029**) for each zone to report on alarm, even if identical codes are used for different zones.

Reset Output-Relay Devices (Location **181**)

If detection devices used require removal of dc voltage to reset, program a "2" in location **181** and wire the device power leads to

Terminals 23 (+) and 25 (-). Holding down Reset Key [9] until the sounder beeps will momentarily remove power from Terminal 23.

NOTE: If the relay connected to Terminal 23 is used to reset output-relay devices, it may not be used for other purposes.

Reset Test Timer on Report See **Test Timer**

Restoral Report
Restoral, Control Center (Locations 170-173)
Restoral, Zone (Locations 184, 185)

If programming Zone Restoral, Control-Center Restoral must be programmed as well. When selecting a Restoral Report, (a) Subscriber Alarm/Restoral Identification Numbers *must* be programmed for Telephone 1 (locations 100-107) and Telephone 2 (locations 132-139), if used; and (b) Restore Codes (locations 040-069) *must* be entered for each zone selected to report a restoral.

When selecting Zone 8 as a Panic Zone, *do not* program it for a Restoral Report, otherwise a restoral will also be sent.

The communicator can transmit a report to the central station when a zone or the control panel is restored. To select the time of reporting, refer to the following table.

PROGRAM:	FOR CONTROL-CENTER RESTORAL REPORT TO BE SENT:	AND FOR ZONE RESTORAL REPORT TO BE SENT:	
Instant Auto-Reset (locations 200, 201)	* When zone is repaired, or * When control center is disarmed	* When zone is repaired, whether control center is armed or disarmed	
Auto-Reset After Alarm Time-Out (locations 200, 201; "2" in location 180)	* When resets (alarm times out & zone is repaired), or * When control center is disarmed	* When zone resets (alarm times out & zone is repaired, whether control center is armed or disarmed	
		(See Note 2) ZONE REPAIRED WITH CONTROL CENTER	
		ARMED	DISARMED
No Auto-Reset	* When control center is disarmed (regardless of zone condition)	* When control center is disarmed	* When control center is armed & disarmed again

NOTE:
1. 24-Hour Zone restorals are sent as shown under ZONE RESTORAL.
2. It is recommended that Zone-Restoral or 24-Hour Zones be programmed with Auto-Reset or Priority to prevent accidental auto-shunting of a latched zone.

Restore Codes See **Restoral Report.**

Select User(s) Closing See Closing Report

Select User(s) Opening See Opening Report

Selective Shunt (Locations 194, 195)

Removal of one particular zone from the system. Any or all Zones 1-8 programmed for selective shunt may be removed from the system, but each must be removed separately.

Selectively shunt a zone by pressing Shunt Key [S] followed by the zone number. The next time the panel is disarmed, all shunted zones will automatically revert to non-shunted zones.

When one or more zones is shunted, the yellow SHUNT LED on the keypad will light. The zones shunted may be confirmed by holding down Display Shunt Key [2] until it beeps; with the key depressed, the shunted zones will be shown on the numeric display.

Single-Digit Format See Data Format

Smoke Detectors (Terminals 23-25)

Smoke detectors are normally connected to Terminals 23 (+) and 25 (-), as shown in the Wiring Diagram. In this configuration, the smoke detectors will be reset by the normally-closed contacts of the relay connected to Terminal 23. If they are of the self-resetting type, the smoke detectors may be powered from the Constant Auxiliary Voltage Output at Terminal 24 (+), rather than Terminal 23, thus freeing the relay for other purposes. Note, however, that if the relay *is* used to reset the smoke detectors, it may not be used for any other purpose.

Split Reporting (Location 179)

Split Reporting causes all reports except Low Battery, Openings and Closings to be sent to one receiver, while Low Battery, Openings and Closings report to a second receiver. Split Reporting will override Backup Reporting or Double Reporting if either combination is programmed.

If Split Reporting is selected, enter Subscriber Identification Numbers for Telephone 2 (locations 132-143) and other information required for Telephone 2 (locations 144-163).

NOTE. Subscriber Identification Numbers for both Telephones 1 and 2 *must* be entered, even if they are the same.

Subscriber Identification Numbers (Locations 100-111; 132-143)

Different Subscriber Identification Numbers may be used by the central station to distinguish Alarm and Restoral Reports (locations 100-107) from Opening and Closing Reports (locations 108-111). Similarly, different numbers may be used to distinguish Alarm/Restoral Reports for Group 1 zones (Zones 1-8) from Group 2 zones (Fire to Low Battery). Both groups *must* be programmed, even if both use the same number. See **Report on Alarm; Restoral Report; Opening Report; Closing Report.**

Furthermore, if a second telephone is used, different Subscriber Identification Numbers may be required for Alarm/Restoral Reports (locations 132-139) and Opening/Closing Reports (locations 140-143). As above, both groups *must* be programmed, even if both use the same number. See **Double Reporting; Backup Reporting.**

NOTE:

1. If the central station cannot accept two-digit or extended event codes, the Alarm and Restore Codes may be the same as the Opening and Closing Codes *or* the Alarm/Restore Codes may be the same for Groups 1 and 2 if the respective Subscriber Identification Number is different.

2. Starting at the left-most location, enter at least 3 digits for each Subscriber Identification Number, even if the first two are zeros. A fourth digit is available for those receivers capable of recognizing 4-digit subscriber codes.

Sum Check See **Data Format**

Supervisory Zone See **Fire Zone**

Telephone Numbers (Locations **117-131; 149-163**)

To report to a central station, Telephone Number 1 (locations 117-131) *must* be programmed. Telephone Number 2 (locations 149-163) is programmed if Backup Reporting, Split Reporting or Double Reporting is selected.

Telephone Number 1 will be preceded by at least one Dial-Tone Detection entry ("E" in location **116**) or Pre-Dial Delay entry ("d" in location **114**) to ensure that the communicator detects a dial tone or waits a reasonable time to access a telephone line before dialing. (See **Dial-Tone Detection; Pre-Dial Delay.**) Furthermore, private telephone systems may require a separate Dial-Tone Detection or Pre-Dial Delay digit, followed by an Access

Number (location 115) to obtain an outside line. (See **Access Number for Outside Line.**)

It should be noted here that Telephone Number 1 need not actually start in location 117 nor end in location 131, as extra locations have been provided to allow for additional prefix digits, if required. What *is* important is that Telephone Number 1, with its associated Pre-Dial Delay, Access Number, and Dial-Tone Detection, be wholly contained within locations 116-131, and that they be in their proper sequence. It may, in fact, be advantageous to leave one or two blank locations before entering the telephone number to allow for the unexpected (an additional Pre-Dial Delay, for example).

The extra locations within the Telephone Number group may also be used to correct telephone-number programming errors. To correct an error, enter an "F" ([8] [PLUS] [7]) in the location with the incorrect digit and enter the correct digit in the following location. The "F" will be ignored by the communicator when dialing. The above applies to Telephone Number 2 (locations 149-163) as well.

Test Timer (Locations 024, 025; 169; 181)

When a "1" is programmed into location 169, a daily test report will be transmitted to the central station from the time the panel is powered up. The respective Alarm Code is programmed into locations 024, 025.

By entering an "8" in location 181, the timer will be programmed to send a daily test only if there has been no other report. (Note that this, or the above, is required in U.L. installations). Thus, if one normally reports an opening every weekday morning, for example, this feature may be utilized to maintain reporting continuity on weekends.

Test-Timer Offset (Locations 248, 249)

If *Test Timer* is programmed, the test timer will report immediately upon power-up, and every 24 hours thereafter. To delay the timer reporting time up to 24 hours from power-up time, program locations 248 and 249 in hours (see **Time Selection**). (If these locations are left blank, the test timer will report immediately upon power-up.)

Keypad Timer Offset. As an alternative to programming the PROM, a timer offset may be entered at the keypad. (An offset time entered at the keypad will override any offset time programmed in the PROM.) Entering an offset time is similar to loading a Personal Code. Hold down Key [8] until the sounder beeps, then enter the Program Code to enter the program mode. Press [S], then [9], then one of the following entries, "1" through "91".

NOTES:

1. Only the offset times listed are available. Do not attempt to enter numbers other than those listed at right.
2. The accuracy of the offset time listed is +0/-1 hour; that is, the report may be as much as 1 hour early. However, entering "91" will cause an instant report.

Entry	Offset	Entry	Offset
1	24 hrs	11	8 hrs
2	23	21	7
3	22	31	6
4	21	41	5
5	20	51	4
6	19	61	3
7	18	71	2
8	17	81	1
9	16	91	0

Press [S] twice to exit the program mode. Exiting with *no* time entered will give an offset time of 25 hours. The easiest and most accurate way to offset the test-timer report is to fully reset the test timer by entering "91" (to report immediately), then key in the desired offset entry (it will then report precisely at the chosen offset time, and every 24 hours thereafter).

Time-Out (Locations 224-231)

Specifies the length of time that an alarm, alert, or delay will remain active. Abort-Delay time and Burglary Time-Out must be programmed, or the feature will not activate. See **Time Selection.** **NOTE:** In California, do not program a time-out for fire alarms.

Time Selection Also see Programming Sheet

The following times are programmable:

Time	Locations	Units	Max. Programmable Time
Abort Delay (See Note 1)	232, 233	seconds	4 min, 15 sec (255 sec)
Exit Delay (See Note 2)	218, 219	seconds	4 min, 15 sec (255 sec)
Entry Delay 1 (See Note 2)	220, 221	seconds	4 min, 15 sec (255 sec)
Entry Delay 2 (See Note 2	222, 223	seconds	4 min, 15 sec (255 sec)
Burglary Time-Out (See Notes 1&3)	224, 225	minutes	4 hr, 15 min (255 min)
Relay Time-Out	226, 227	minutes	Untimed (See Note 4)
Fire Zone 8 Time-Out	228, 229	minutes	Untimed (See Note 4)
Door-Chime Duration	230, 231	1/4 seconds	Untimed (See Note 4)
Timer Offset	248, 249	hours	23 hr (See Note 5)

NOTES:

1. If both locations are left blank, this feature will not activate (time-out = 0).
2. If both locations are left blank, Exit Delay = 60 sec; Entry Delay = 30 sec.
3. Must be at least 4 min for U.L. installations.
4. If both locations are left blank, this feature will remain active until system is disarmed. (Door Chime may be reset using Key 9; however if a time *is* programmed, it cannot be reset and must time out.) If both locations are programmed "F", maximum time = 4 hr, 15 min (255 min); or 63.75 sec (255 qtr-sec) for Door-Chime Duration.
5. If left blank and *Test Timer* selected, will report immediately on power-up.
6. In the State of California, do not program a time-out for fire alarms.

The Time Selector Chart on the Programming Sheet shows example

times only, in seconds or minutes. In reality, any time up to those shown in the foregoing table may be programmed. Note that each of the above times is programmed in two locations. The first location has a time factor of 1, the second a time factor of 16.

1st BOX	2nd BOX
tx1	tx16

Time (t):	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Entry:	*	1	2	3	4	5	6	7	8	9	0	b	C	d	E	F

*Blank.

NOTE: If *both* programming locations are left blank, refer to the notes in the foregoing table for feature time-out.

To select a time up to 15 seconds, 15 minutes, or 15 quarter seconds (3.75 seconds), program the respective entry into the first box only; do not program the second box. To select a time greater than 15 seconds, 15 minutes, or 15 quarter-seconds, program both boxes as follows:

1. For the feature selected, choose an appropriate time in units shown (all seconds, minutes, or quarter-seconds -- not minutes and seconds, etc.).

2. Divide the time chosen by 16. Enter the *quotient* in the *2nd* BOX and the *remainder* in the *1st* BOX.

3. Check entries by adding the contents of the 1st BOX to 16 times the contents of the 2nd BOX. (Remember that a "zero" entry represents "10".)

Example 1. Program Entry Delay 1 for 1-1/2 minutes.

1. Entry Delay 1 (locations 220, 221) is in units of seconds, thus delay time is 90 seconds.

2. Divide by 16: 90/16 = 5 (quotient) + 10 (remainder). Enter the quotient in the 2nd BOX and the remainder in the 1st BOX:

220	221
0	5

remainder (0 for "10") quotient

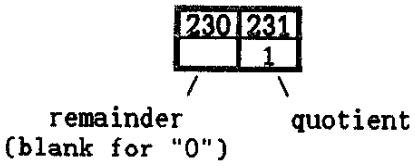
3. Check entries (remember, a "0" entry = "10"): 10 + 16(5) = 90.

Example 2. Program the sounder to sound a Door "Chime" for 4

seconds.

1. Chime time duration (locations 230, 231) is in units of quarter-seconds, thus chime duration is 16 quarter-seconds.

2. Divide by 16: 16/16 = 1 (quotient) + 0 (remainder). Enter the quotient in the 2nd BOX and the remainder (blank entry for "0") in the 1st BOX:



3. Check entries (remember, a blank entry = "0"): 0 + 16(1) = 16.

Touch-Tone Dialing (Location 178)
Touch-Tone/Rotary Backup (Location 178)

Select Touch-Tone Dialing only when the subscriber has Touch-Tone service. Touch-Tone dialing is faster than rotary dialing, but not always as reliable.

For the communicator to use Touch-Tone on all dial attempts, add a "1" to location 178. To use Touch-Tone on the first attempt with subsequent Rotary dial attempts, add a "2" to location 178. Touch-Tone Dialing will override Touch-Tone Rotary Backup if both are selected. Note that if Backup Reporting is also selected, the communicator will use Rotary dial to reach Telephone 2.

Trouble

An abnormal zone condition (a break in a normally-closed loop; a short on a normally-open loop; or either on an end-of-line-resistor supervised loop) when disarmed.

Trouble on a Burglary Zone will be indicated by a sounder beep upon arming (does not apply to selective- or group-shunted zones). If auto-shunt has been removed from a Burglary Zone, that zone will go into alarm on arming. Note that if the zone is Exit/Entry, it will go into alarm after exit-delay and entry-delay times have elapsed.

Trouble (open circuit) on a Day Zone (normally closed) will be indicated by a flashing green STATUS LED and a beeping sounder; the digital readout will display the troubled zone(s). Keypad indications are reset by Key [9].

Trouble on a Fire Zone will be indicated on the bottom red FIRE/TROUBLE LED and the sounder. An open circuit (trouble) will

cause a flashing LED and a beeping sounder after a 10-second delay. (A short circuit will cause an alarm condition: steady-on LED and beeping sounder.) Reset Key [9] will silence the sounder; the LED will go out within 30 seconds if the trouble is cleared.

Two-Digit Format See Data Format

Zone Restoral See Restoral Report

Normally, control-center restoral is programmed for a zone in order to send a restoral report to the central station. The report will be sent when either the zone is repaired or the panel is disarmed. If the restoral report is to be sent *only* when the zone is repaired, Zone Restoral should be selected (also program Control-Center Restoral). It is recommended that Auto Reset and Priority or Priority with Bypass also be selected for proper operation. See Restoral Report.

24-Hour Protection (Locations 198, 199)

A zone that provides protection at all times, whether or not the system is armed. Neither the green STATUS nor the red ARMED/ALARM LED will indicate the condition of a zone programmed for 24-Hour Protection, however an alarm condition will be recorded by Alarm History (see **HOLD-DOWN FUNCTION [S]**).

CHANGES FROM THE PREVIOUS EDITION

Following is a summary of changes made to this manual since the last edition.

Page 5: **SPECIFICATIONS** revised to comply with UL:
- Bell Output
- Auxiliary Output

Page 6: **ORDERING INFORMATION** updated:
- EOL1K End-of-Line Resistor Assembly added.
- PS3002 Power-Supply Module added.

Page 7: **COMPATIBLE UL-LISTED DEVICES**, revised
- Ademco Bell numbers corrected.
- Wheelock Bell 34T-12R added.
- ESL 445AT Smoke Detector added.

Page 50: **WIRING DIAGRAM**, updated:
- Lug E7 (AC) added.
- Fire-Zone EOL Resistor note added.

5. INSTALLATION

CONTROL-PANEL MOUNTING

Choose a mounting location accessible to (a) a continuously-powered ac source, (b) a cold-water-pipe ground ideally no further away than 10 feet, and (c) telephone lines (keep telephone wiring away from speaker wires). Remove appropriate knockouts for cables. Place the control panel at a convenient viewing height and mark the mounting holes.

A keypad should be located near the exit/entry door. If a keypad is to be mounted at the panel, remove the knockout on the enclosure door. A backplate and junction box are available for remote mounting. See **KEYPAD MOUNTING; ORDERING INFORMATION.**

Up to 5 keypads may be connected if the longest cable run from the panel to the farthest keypad, whether daisy chained or home-run wired, is less than 1000 feet. See Combined Standby Current specifications. Each keypad typically draws 25mA, however do not use more than 5 keypads.

GROUNDING

Connect the control-panel grounding screw to a metal cold-water pipe. Do *not* use a gas pipe, plastic pipe or ac ground connections. Use at least 16-gauge wire. Make the run as short and direct as possible, without any sharp bends in the wire.

TAMPER SWITCHES

Tamper switches may be installed to prevent opening of the enclosure door or removal of the cabinet from the wall. Ideally, tamper switches should be connected to a zone that is active at all times, thus it may be necessary to program that zone for 24-Hour Protection. When used on a normally-open zone, normally-closed tamper switches (normally open when set) should be wired in parallel. On a normally-closed zone, install NAPCO TPS-2 normally-open tamper switches (normally closed when set) in series. There are two tamper-switch provisions in the cabinet:

1. To prevent cabinet removal from the wall, there are three mounting holes on the left side of the cabinet; another hole on the back that allows the switch button to contact the wall.

2. To prevent opening the cabinet door, there are three mounting holes on the right side of the cabinet. When mounted, the tamper-switch button should contact the inside of the door. Be sure to alert the user that opening the enclosure door will cause a tamper alarm.

KEYPAD WIRING (Also see Wiring Diagram)

Connections to the keypad are summarized in the following table.

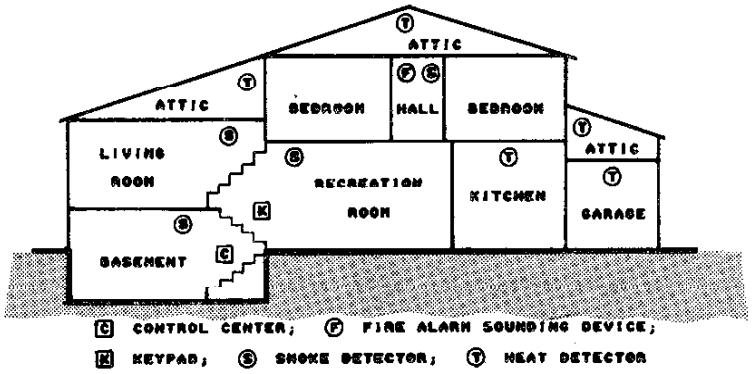
NOTE: If using a soldering iron, avoid splashing solder onto keypad circuit board or components.

KEYPAD WIRE COLOR	MA854 TERMINAL
Yellow	1
Green	2
Red	3
Black	4
White* } to normally-open momentary-contact	
White* } Remote Panic Pushbutton Switch(es)	

* Wire additional Panic Switches in parallel. Insulate *both* white wires if not used (a short will cause a panic alarm).

TYPICAL FIRE INSTALLATION

At least one smoke detector should be installed directly outside each sleeping area. If there is more than one floor, additional smoke detectors should be installed on each level, including the basement. The living-area and basement smoke detectors should be installed near the stairway of the next upper level.



For increased protection, additional detectors should be installed in areas other than those required, such as dining rooms, individual bedrooms, furnace rooms, utility rooms and hallways. Heat detectors, rather than smoke detectors, are recommended in garages, attics, and kitchens due to conditions that may result in false alarms and improper operation. Large areas and areas with partitions, ceiling beams, doorways, and open joists will require additional detectors. Refer to NFPA Standard 74 (National Fire Protection Association, Batterymarch Park, Quincy, MA 02269) for additional information, including proper mounting methods.

TESTING THE SYSTEM

After installation is completed, test the system as follows. Call the central station to inform them of the test. Initiate an alarm, preferably on a zone that activates a steady siren. Verify proper signalling, then call the central station to confirm their receipt of a good transmission.

WIRING LEGEND

INSTRUCTIONS: Should removal of the circuit board be necessary, use this wiring legend to relocate leads to their proper terminals. Enter wire identification number or color code in WIRE NUMBER column; enter wire function in DESCRIPTION column (optional).

TERMINAL NUMBER	WIRE NUMBER	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
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16		
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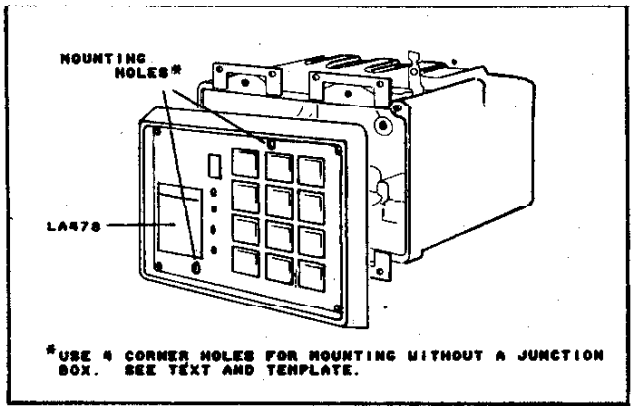
NOTE. A small piece of "fish-paper" insulation is installed under the right screw that secures the printed-circuit board to the enclosure cross member. Should it be necessary to remove the screw for any reason, be sure to install the insulating paper under the right screw, between the board and the cross member, before replacing the screw.

KEYPAD MOUNTING

Mounting onto the Enclosure Door. Use a screwdriver to remove the knockout in the front door of the enclosure. Align the mounting holes on the keypad with the slots in the cabinet door and secure in place with #6 screws and nuts.

Surface Mounting onto a Wall Using an RPB-1. Mount the RPB-1 onto the wall using #6 pan-head screws. Do not overtighten screws as uneven walls may distort keypad. Snip out strain relief bracket (near large hole) for additional clearance. Pull wires through the hole in the back or run a cable through the smaller hole in the side. (Keypad wires may have to be shortened to fit.) Raise the keypad front panel and mount the keypad onto the RPB-1 with the screws provided. Lower the front panel. (If keypad cover tends to bind, back out screws slightly.)

Flush Mounting into a Wall Using the RPB-2. Hold the mounting box flush against the wall (with mounting ears towards the wall) and mark around the outside of the box with a pencil. Carefully cut out the hole for the box. Insert the box into the wall and tighten the mounting screws. Raise the keypad front panel and position the keypad on the RPB-2 box. (Only the RPB-2 may be used; any other double-gang box may be too small.) Use the mounting holes (see illustration) to secure the keypad to the RPB-2 with #6 screws, then lower the front panel.

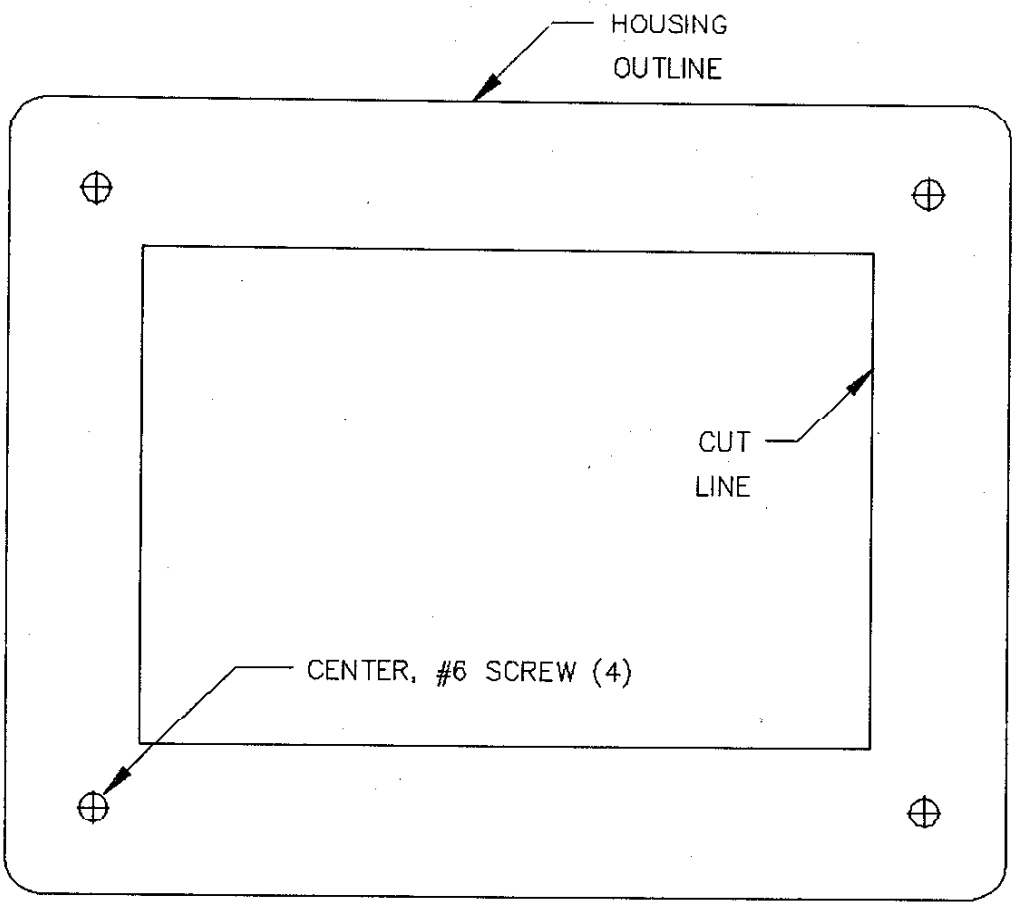


RP854 Keypad in RPB-2 Double-Gang Box (front panel of keypad omitted for clarity).

Flush Mounting Without a Mounting Box. Pin the Mounting Template (see next page) to the wall or mark through the template onto the wall. Cut carefully around the lines shown. (A poorly cut hole may show after mounting.) Raise the keypad front panel and screw the keypad onto the wall using the four corner mounting holes (see illustration). Do not overtighten screws as uneven walls may distort keypad, causing keypad cover to bind.

Completing the Installation. Raise the front panel. Fill in the coverage for the zones listed on label LA478. Upon completion, lower the front panel and remove its protective vinyl film cover.

MOUNTING TEMPLATE



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NAPCO SECURITY SYSTEMS, INC. (NAPCO) warrants its products to be free from manufacturing defects in materials and workmanship for fifteen months following the date of manufacture. NAPCO will, within said period, at its option, repair or replace any product failing to operate correctly without charge to the original purchaser or user.

This warranty shall not apply to any equipment, or any part thereof, which has been repaired by others, improperly installed, improperly used, abused, altered, damaged, subjected to acts of God, or on which any serial numbers have been altered, defaced or removed. Seller will not be responsible for any dismantling or reinstallation charges.

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In order to exercise the warranty, the product must be returned by the user or purchaser, shipping costs prepaid and insured to NAPCO. After repair or replacement, NAPCO assumes the cost of returning products under warranty.

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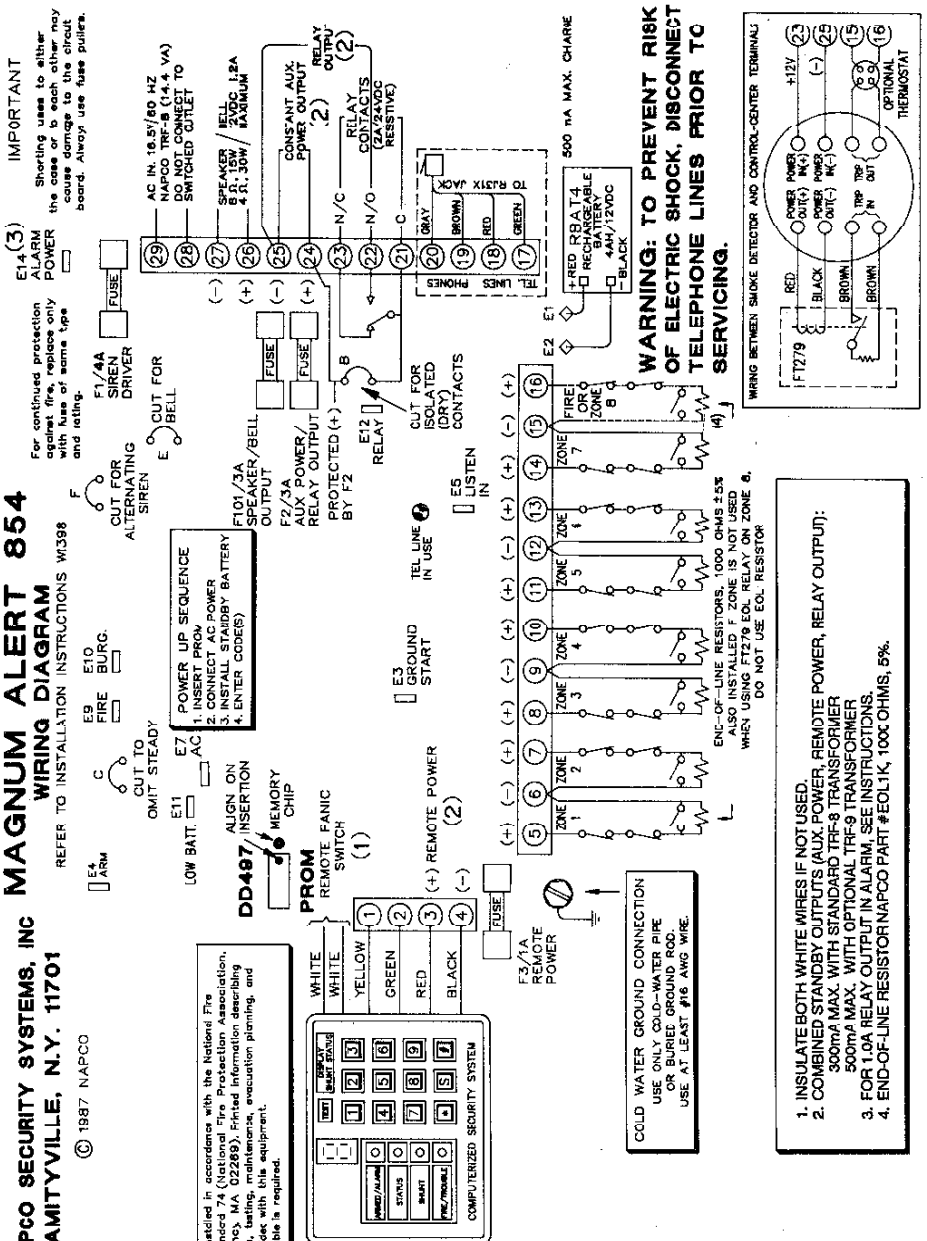
WIRING DIAGRAM



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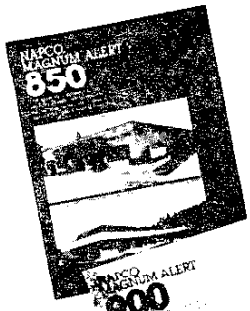  **NAPCO CUSTOMER LITERATURE** Full-color folders in easily understandable language. Show how each system protects the customer's home or business. Ideal for sales presentations, mailers, etc. Priced $9.00 per 100 (Sold in lots of 100)		
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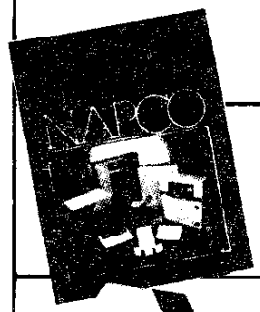
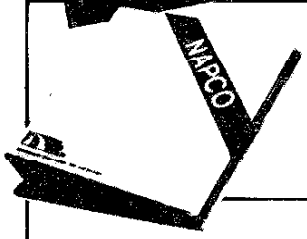
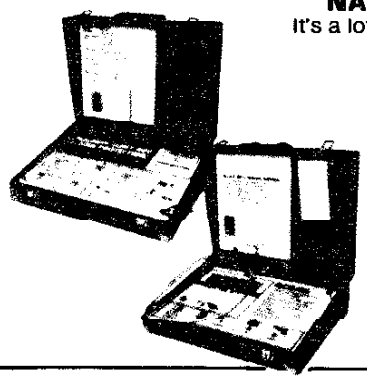
 **NAPCO PROPOSAL FOLDER** Pocketed folder for literature, technical sheets and proposals. Helps you wrap up sales with a professional look. Literature Folder (A176) .75 each ☐		
 **NAPCO SALES & TECHNICAL GUIDE** Binder contains: Sales literature; Working instructions for all products; Engineering updates and Memos; Troubleshooting guides. You are placed on a select mailing list to receive all future updates. Binder (A173) $24.95 each ☐		
 **NAPCO BRIEFCASE DEMONSTRATORS** It's a lot easier to close sales by demonstrating the system right at your customer's premises.		
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