SYSTEM 500
Hook-up & Installation

LIGHTNING DAMAGE PROTECTION PLAN
EXCLUSIVE WITH FIRE BURGLARY INSTRUMENTS INC

FEELSAFE

TM

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ISSUE A   MAR. '86   I-2225

The System 500 is designed to operate exclusively with the OMNI 1000 and OMNI 2000 Control Panels. Incorporating the System 500 will enable all on and off-premises telephones (assuming they are touchtone) to be used as keypads. OMNI 1000 and OMNI 2000 keypads may be used in conjunction with the System 500 if desired, or the System 500 can be used by itself. If the System 500 is used as a standalone, (with no keypads on site) remote red led and sonalert terminals have been provided to indicate arm status and all sonalert activity. To access the System 500, specific keys must be depressed in specific order via the telephone pad. The System 500 will respond clearly with English language messages concerning the system's status. The System 500 English language messages must be programmed (hand tailored) into a FBI model F102 prom chip, as per the programming section of this manual. The System 500 can also be programmed to allow off-premises access via touchtone telephones. Lastly, there are 3 auxiliary relays which contain Form C Dry Contacts, that can be used to activate on-premises lites, air conditioners, etc. via the System 500. This installation instruction will explain terminal connections of the System 500 to the OMNI 1000 and OMNI 2000 Control Panels first, then proceed with the prom programming. THE ACTUAL SYSTEM 500 OPERATION WILL BE EXPLAINED IN THE USER MANUAL.
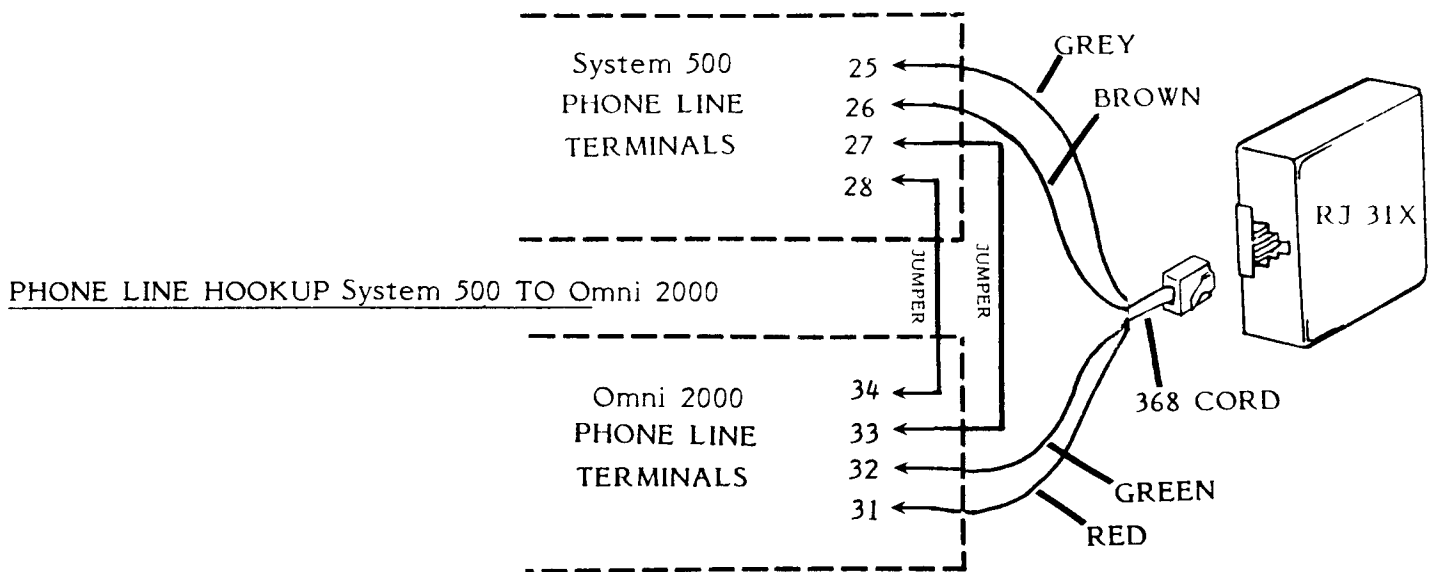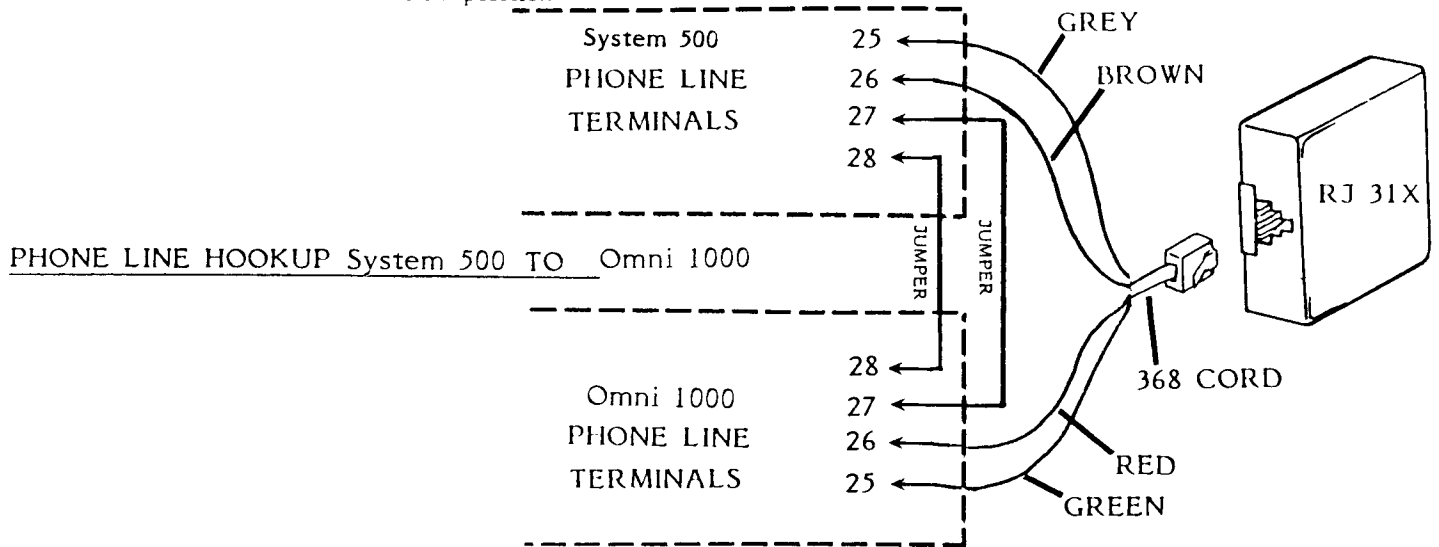
NOTE: The System 500 is designed to work exclusively with touchtone phones. Therefore, NO rotary phones can be on site with the System 500.

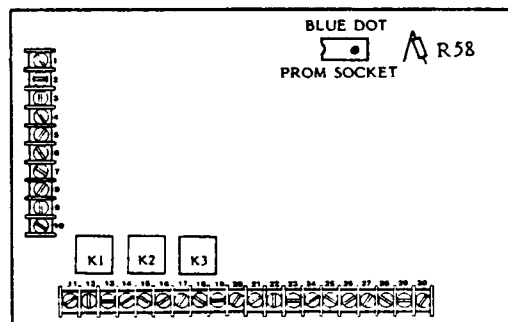| HOOKUP/WIRING			
System 500 Terminals	Omni 1000 Terminals	Omni 2000 Terminals	Description
1	1	1	Keypad Data Terminals.
2	2	2	The System 500 reads loop data and instructs
3	3	3	the Control Panel via these terminals.
4	4	4	
5	5	5	
6	*	8	System 500 detects fire trouble on Omni 2000 here
7	*	9	System 500 detects low bat on Omni 2000 here
8	32	37	System 500 detects AC loss here
9	*	27	System 500 detects fire alarm on Omni 2000 here
10	23	29	System 500 detects burglary alarm here
11	Common		Form C dry contacts on relay
12	Normally closed		Number 3. Toggled by #3
13	Normally open		at telephone
14	Common		Form C dry contacts on relay
15	Normally closed		number 2. Toggled by #2
16	Normally open		at telephone
17	Common		Form C dry contacts on relay
18	Normally closed		Number 1. Toggled by #1
19	Normally open		at telephone
20(-) 21(+)	A remote red led may be wired to these terminals to display arm status of the system.		
21(+) 22(-)	A remote Mallory Model 515 Sonalert may be wired to these terminals to annunciate on entry time, ringback, day loop, chime feature, etc.		
23(+) 24(-)	A remote 8Ω 10 watt speaker may be wired here to listen to System 500 English Language messages accessed by phone.		
25(grey) 26(brown)	The grey & brown wires from the 368 cord which plugs into the RJ31X must be wired to these terminals. These wires contain the premises phones. (see diagram page 2)		
27	27	33	System 500 phone line connections to the
28	28	34	control panels. See diagram page 2.
29(+)	20	25	DC from control panels to power System 500
30(-)	21	26	The System 500 draws approximately 70 ma in standby and 170 ma while active. Therefore, a maximum of 2 keypads may be used in conjunction with System 500.

* = These terminals do not have to be connected when the System 500 is wired to Omni 1000.

✳ CONTACTS RATED AT 250 VAC, 60 VDC, 3 AMP.

When the Convenience Switch on the System 500 box is depressed, the home phones will be connected directly to the outside lines, which enables the customer to prevent access to System 500 by on-premises telephones. However, external access to System 500 can still be accomplished. Furthermore, the Control Panel will seize the home phones if a violation occurs. This switch should normally be in the OUT position.

PHONE LINE HOOKUP System 500 TO Omni 1000

System 500 PHONE LINE TERMINALS
25
26
27
28

JUMPER
JUMPER

GREY
BROWN

RJ 31X

368 CORD

Omni 1000 PHONE LINE TERMINALS
28
27
26
25

RED
GREEN

PHONE LINE HOOKUP System 500 TO Omni 2000

System 500 PHONE LINE TERMINALS
25
26
27
28

JUMPER
JUMPER

GREY
BROWN

RJ 31X

368 CORD

Omni 2000 PHONE LINE TERMINALS
34
33
32
31

GREEN
RED

System 500 P.C. Board.

BLUE DOT
PROM SOCKET
R58
K1 K2 K3

F.C.C. Registration No. AE398E-69554-AL-E for FIRE BURGLARY INSTRUMENTS MODEL SF-200

NOTE: Whenever the Secur-fone is disarmed, it will automatically deliver a status message. If status is not reported on disarm, depress [*] [*] twice. If the message "The Central was not called. Press Reset" is generated, depress [#] [0] to reset. Depress [*] [*] AGAIN to OBTAIN Final System Status. At this point any other system functions desired may be performed.

2

A Prom chip model F102 (DM74S387N, or 63S140N) must be programmed with an FBI 110 or 110C programmer for proper operation of the System 500. Two quadrants of the Prom must be programmed. Either quadrants one and two or quadrants three and four may be used. The condition of the R58 resistor jumper in the System 500 will dictate which two quadrants the System 500 will read. The chart below depicts the R58 jumper setting for the desired quadrants used.

R58 Jumper	Quadrants
Connected	1 & 2
Cut	3 & 4

The main body of programming that is required for the System 500 is the ENGLISH LANGUAGE words that will be reported (said) when any of the zones of the Control Panel are read by the System 500. In other words,the zones of the Control Panel must be Named.

        Example: Zone 1 = Front door

                    Zone 2 = Kitchen

                    Zone 3 = Basement
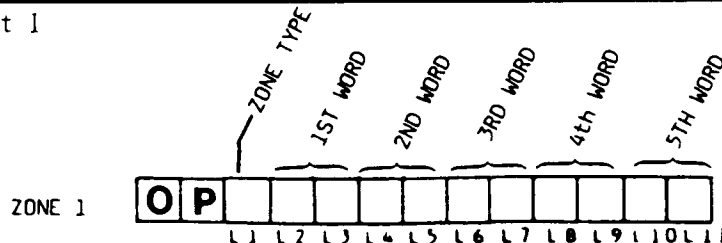
Furthermore, the three auxiliary relays must also be named.

        Example: Relay 1 = Air conditioner

                    Relay 2 = Front yard lights

                    Relay 3 = Relay 3

(THIS INSTRUCTION BOOKLET IS DESIGNED TO FACILITATE WRITING OUT THE SYSTEM 500 PROGRAM SHEET WHICH IS LOCATED AT THE END OF THIS MANUAL)

STEP A

Quadrant 1

ZONE 1

The first location of the OP Field, Quad 1, marked L1 must contain a digit from the chart below which represents the TYPE of zone that zone 1 has been programmed in the Omni 1000 or Omni 2000 Control Panel.
(example: 24 HR Trouble Zone, 24 HR Alarm Zone, Controlled Burglary Zone) Select the appropriate digit from chart below:

NOTE: If zones are programmed as 24 HR. alarm zones, the System 500 will not report the zone words, therefore locations L2-L11 should be programmed [F].

Digit	Zone Type
0	24 Hr Alarm
1	24 Hr Trouble
3	Controlled Delay, Instant, or Interior

The second through eleventh location marked L2-L11 of this field represent the 5 total words that can be programmed to NAME zone 1. Locations L2 and L3 represent the first word, L4 and L5 the second word, etc. Each word desired has a 2 digit Hexidecimal number that corresponds to that word. The two digit numbers and corresponding words can be found in the PROGRAMMABLE LIBRARY, page 10. Write in the appropriate two digit numbers that represent the words desired for zone 1 in this OP field. If zone 1 requires less than five words, leave the corresponding locations for the unused words blank.

The following is an <u>example</u> of how the OP field should be programmed if zone 1 is a controlled delay, front door.

ZONE 1 | O | P | 3 | 2 | A | 1 | C | | | | | |

3 = Controlled Delay
2A = Front
1C = Door
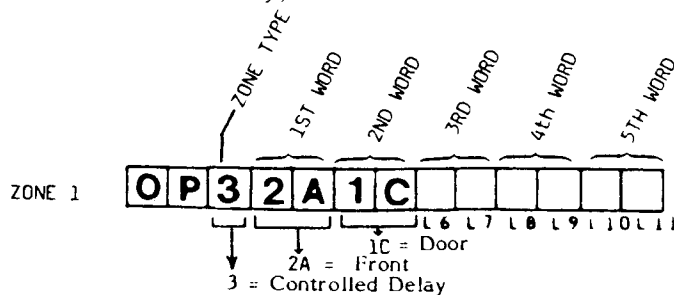
Since zone 1 is a burglary zone, there are many conditions it could actually be in during many instances of daily operation. (example: Alarm, Bypass, Trouble while the system is disarmed, etc.) When status is requested from the System 500, the words that were programmed here into the OP field will <u>PRECEDE</u> the <u>PHRASES</u> that apply from the <u>DEDICATED LIBRARY</u> of Terms for the condition of zone 1. (example: Zone 1 is bypassed; then status is requested. The System 500 will say "FRONT DOOR IS BYPASSED". "FRONT DOOR" is from this OP field, "IS BYPASSED" comes from the Dedicated Library.)
Zone 1 has been successfully programmed.

Quadrant 1

ZONE 2 | 1 | P | | | | | | | | | | | |
L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11
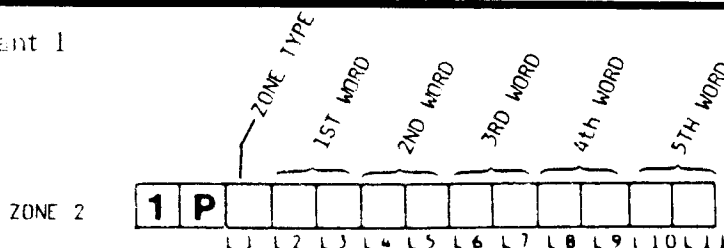
The 1P field of Quadrant 1 represents zone 2 on the Omni 1000 and Omni 2000. The same procedure must be followed here, as Step A. L1 location represents the zone type. Select an appropriate digit from Chart A in Step A. Location L2-L11 represent the 5 total words to <u>Name</u> zone 2. Select the 2 digit numbers that CORRESPOND TO the <u>words</u> desired from the <u>PROGRAMMABLE LIBRARY</u>.

Quadrant 1

ZONE 3 | 2 | P | | | | | | | | | | | |
L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11
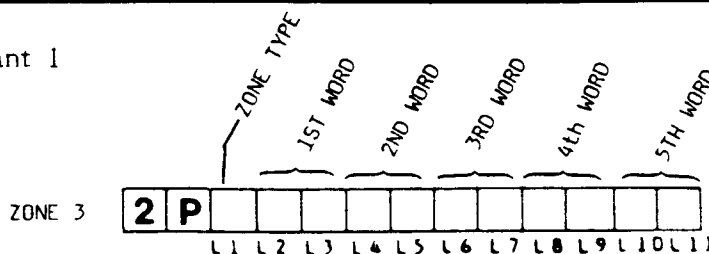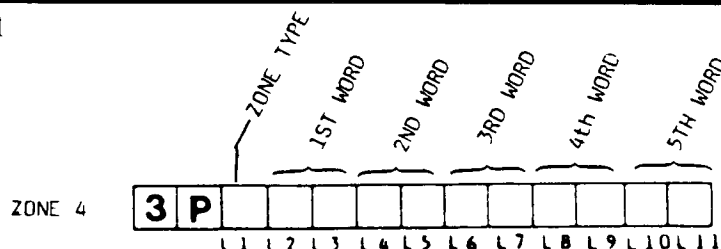
The 2P field quadrant 1 represents zone 3 on the Omni 1000 and Omni 2000. Follow the same procedure as Step A.

Quadrant 1

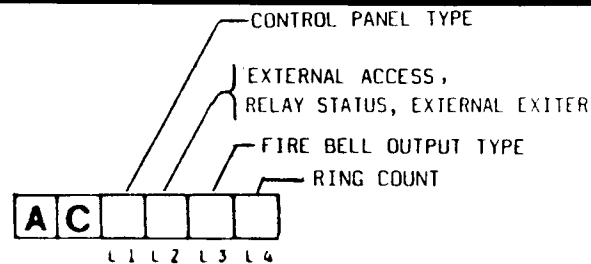ZONE 4 | 3 | P | | | | | | | | | | | |
L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11

The 3P field quadrant 1 represents zone 4 of the Omni 1000 and Omni 2000. Follow the same procedure as Step A.

Quadrant 1

```
                                    ┌──CONTROL PANEL TYPE
                                   /
                                  / │ EXTERNAL ACCESS,
                                 /  │ RELAY STATUS, EXTERNAL EXITER
                                /  ┌─FIRE BELL OUTPUT TYPE
                               /  /  ┌── RING COUNT
                    ┌──┬──┬──┬──┬──┬──┐
                    │A │C │  │  │  │  │
                    └──┴──┴──┴──┴──┴──┘
                        L1 L2 L3 L4
```

THE FIRST LOCATION of this AC field marked L1 informs the System/500 what Control Panel is being used. Select an appropriate digit from the following chart for this L1 location.

Digit	Control Panel Type
1	OMNI 1000
3	OMNI 2000

THE SECOND LOCATION of this AC field marked L2 is used to determine the following three options:

Option One - External Access: If External Access is programmed, all system functions can be accomplished from off-premises touch-tone telephones, including arm/disarm and code reprogramming.

Option Two - Automatic Relay Status: If this option is programmed, whenever system status is requested from the System/500, it will include the status of all auxiliary relays. If "Automatic Relay Status" is not selected, relay status must be initiated manually by depressing [#] then [8].

Option Three - External Exiter: This option has been included in the System/500 and should be used only if the main control instrument (OMNI 1000 or OMNI 2000) has been designed to include at least one controlled INTERIOR zone. The purpose of this option is to enable the end user to call from an off-premise telephone, arm his system without excluding the interior zone.
When External Exiter is programmed and the system is armed from an OFF-PREMISES TELEPHONE, auxiliary relay 3 will automatically activate momentarily. Relay 3 closed circuit contacts (System/500 terminals 11 and 12) MUST be wired in series with the Control Panel Loop.
The momentary activation of relay 3, after arming will simulate exit through the delay zone causing the control panel to include the interior zone. Relay 3 will not activate momentarily when the system is armed from on-premises telephones.
Lastly, when this option is selected, relay 3 can no longer be utilized as an auxiliary relay circuit.

NOTE: If this option is not selected, relay three will operate the same as auxiliary relay 1 and 2. Select the digit from the following chart which corresponds to all options desired.

DIGIT	EXTERNAL ACCESS	AUTOMATIC RELAY STATUS	EXTERNAL EXITER
0	NO	YES	NO
3	YES	YES	NO
7	YES	YES	YES
8	NO	NO	NO
B	YES	NO	NO
F	YES	NO	YES

THE THIRD LOCATION marked L3 informs the System 500 what type of Fire Bell output has been programmed in the Omni 1000 or Omni 2000 Control Panels. When the System 500 system is used in conjunction with the Omni 1000, the Omni 1000 PANEL MUST be programmed PULSING BURG BELL OUTPUT for the Fire zone. Therefore, this location L3 in the System 500 must be programmed with Digit [4] when used with the Omni 1000. The Omni 2000 can be programmed for EITHER PULSING BURGLARY BELL OUTPUT FOR THE FIRE ZONE OR STEADY FIRE HORN OUTPUT. Therefore, select a digit from the following chart which informs the System 500 what type of Fire output is being used on the respective Control Panels.

DIGIT	Control Panel Fire Output
4	Pulsing Burg Bell output for Fire
C	Steady Fire Horn output

Note: If the System 500 is used with Omni 1000, this L3 location MUST be programmed Digit [4], AND the Omni 1000 MUST be programmed PULSING BURG BELL OUTPUT for the Fire zone in Quad 2, 3P field, L1 location on ITS Prom.

THE FOURTH LOCATION OF THE AC FIELD marked L4 determines the number of rings required before the System 500 will pick up, when accessed from OFF-premises telephones.
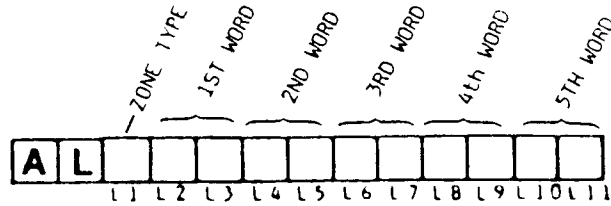
Select the digit desired from the following chart.

NOTE: If external access has not been selected, program this location "F".

| DIGIT	NUMBER OF RINGS
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
A	10
B	11
C	12
D	13
E	14
F	No External Access

STEP F

Quadrant 1

Zone 5

The AL field of quadrant 1 represents zone 5 on the Omni 2000. The same procedure must be followed here as Step A to Name zone 5 of the Omni 2000. L1 represents the zone type. Select an appropriate digit from Chart A. Select the 2 digit numbers that represent the words desired from the PROGRAMMABLE LIBRARY.

Note: If the System 500 is being used in conjunction with the Omni 1000, this AL field MUST be left blank.
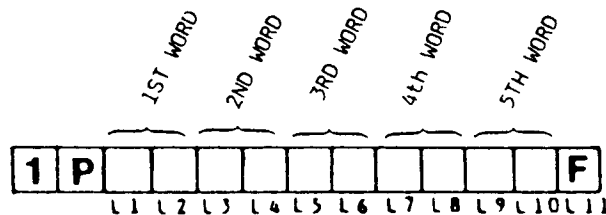
STEP G

Quadrant 2

Zone 6
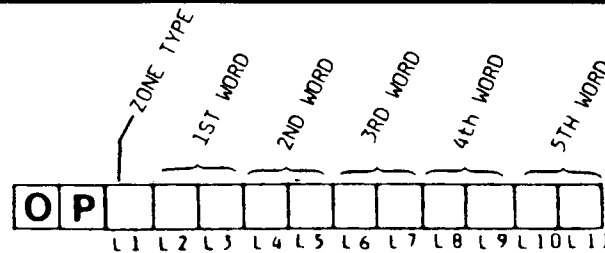
The OP field quadrant 2 represents zone 6 of the Omni 2000. Follow the same procedure as step F to Name zone 6.

Note: If the System 500 is being used in conjunction with the Omni 1000, this field MUST be left blank.
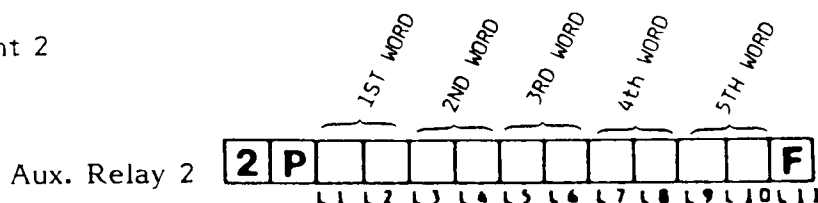
STEP H

Quadrant 2

Aux. Relay 1

The 1P field quadrant 2 is used to Name auxiliary relay #1. Locations L1-L10 represent the 5 total words. Select the 2 digit numbers that correspond to the words desired from the PROGRAMMABLE LIBRARY. The L11 location must be left blank.

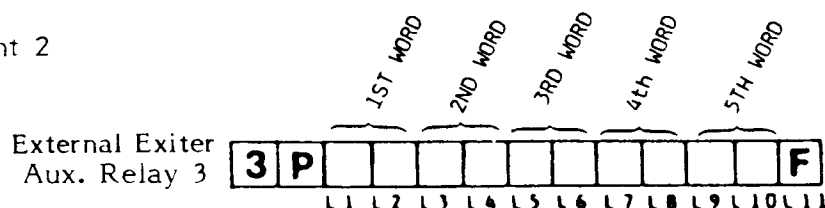Note: If relay 1 is not used, leave this field blank.

STEP I

Quadrant 2

Aux. Relay 2 $\boxed{2}\,\boxed{P}$ | | | | | | | | | | | $\boxed{F}$

1ST WORD 2ND WORD 3RD WORD 4th WORD 5TH WORD

L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11

The 2P field quadrant 2 represents auxiliary relay 2. The same procedure must be followed as in Step H to Name relay 2.

Note: If relay 2 is not used, leave this field blank.

STEP J

Quadrant 2

External Exiter
Aux. Relay 3 $\boxed{3}\,\boxed{P}$ | | | | | | | | | | | $\boxed{F}$

1ST WORD 2ND WORD 3RD WORD 4th WORD 5TH WORD

L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11

The 3P field quadrant 2 represents auxiliary relay 3. The same procedure must be followed as in Step H to Name relay 3.

Note: If relay 3 is not used, leave this field blank.

NOTE: If External Exiter has been selected in Quad 1, AC Field, L2 Location, then this 3P Field, all locations, MUST be programmed "F".

STEP K

QUADRANT 2

$\boxed{A}\,\boxed{C}$ | | | | SECURITY ACCESS CODE

L1 L2 L3 L4
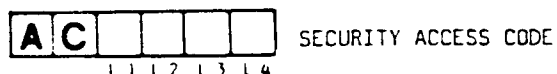
This AC Field Quadrant 2 can be used to program 1 through 4 digits (numbers 0-9) Security access code, beginning in L1 and ending in L4. This must be utilized when the System/500 is accessed from OFF-Premises telephones, before any system functions can be accomplished. If all locations in this field are programmed "F", then system functions can be accomplished from OFF-Premises phones without entering this security access code. However, all system functions that require the main control panel code still apply.

Note: This field only applies if external access has been programmed. If external access has not been selected, program L1-L4 "F".

Note: If security access code is programmed, the customer must wait for the System/500 to pick up after the programmed number of rings, then depress [*] and his 1 through 4 digit security access code. Then proceed with desired functions as explained in the End User Manual. If the correct access code is not entered in 3 tries, the System/500 will terminate the phone call.

STEP L

The System/500 Program Sheet has been successfully written out at this point. All other fields not mentioned in quadrant 1 and 2 must be left blank also. (i.e. quad 1 AF, FF and Quad 2 AF, FF, AL fields). Utilize the following information called Proper Prom Programming Procedure to actually program the data written out on the program sheet into the prom chip.

Once the prom chip has been successfully programmed, it must be inserted into the System/500 socket, BLUE DOT UP.

PROPER PROM PROGRAMMING PROCEDURE

STEP A   Power up 110 or 110C. The Prom MUST NOT be in the Programmer at this time. Insertion of the Prom will be the last step prior to depressing the Program Button.

STEP B   Select the desired Quadrant to program. The 110 and 110C will program one quadrant (or $\frac{1}{4}$ of the chip) at a time.

STEP C   Depress [ENTER] momentarily, then [0] while the programmer socket is empty. Depressing [ENTER and 0] loads the present contents of the socket into memory. In the case of an empty socket, memory is loaded with Blanks or [F's]. A Blank and an [F] are the same thing. The only time the [F] Button must actually be depressed is if one specific location in a Field must be jumped over to get to another location to enter a number. Trailing [F's] at the end of a field need not be depressed as long as their locations are Blank.

STEP D   Punch in desired information for OP field through AL field in this Quadrant. Movement from OP to the next field and so on, can be accomplished by depressing [ENTER] then [9]. At the bottom left corner of the programmer resides a chart which represents the field names, descriptions and most important, the field numbers. Jumps can be accomplished from one field to another by depressing [ENTER], then the respective field number desired. Example: To jump from OP field to AC field, depress [ENTER] then [7]. This variable jumping will become useful for duplicating master chips.

STEP E   After completing data entry into all desired fields, the Prom may be inserted into the programmer socket. The Blue Painted dot must be situated down. The Prom must be pushed all the way in. The programmer does not care what field you are in when you program. Depress the [Program] Button momentarily, [Finish] should be displayed.

STEP F   The present quadrant has been successfully programmed. To program additional quadrants, the Prom must be removed, select the desired quadrant and repeat steps C-F.

Summary:

[F]: The [F] Button does not display anything when depressed, however it jumps from one location to the next. The only time the [F] Button must actually be depressed is when a jump must be made over one location to get to another location where a number must be entered. Trailing F's need not be depressed as long as their locations are blank.

[Enter], then [0] with socket empty: Loads F's in selected quadrant.
[Enter], then [0] with Prom in socket: Loads memory with present data that resides in the quadrant selected.
[Enter] then [9]: Increments fields from OP to AL back to OP again.
[Enter] then field number: Jumps from one field to another as designated by respective field number.

00	A	27	FLOW	4C	PRESSURE
01	AC	28	FOUR	4D	PROGRAM
02	AIR CONDITIONER	29	FREEZER	4E	PROTECTED
03	ALARM	2A	FRONT		
04	ALL				
05	AND			4F	READY
06	ARE	2B	GARAGE	50	RECEIVING
07	AREA	2C	GUEST	51	RELAY
08	ATTIC			52	RESET
				53	RIGHT
		2D	HALL		
		2E	HAVE	55	ROOM
		2F	HIGH		
09	BACK				
0A	BASEMENT			56	SAFE
0B	BATH	30	IMMEDIATELY	57	SECURITY
0C	BATTERY	31	IN	58	SERVICE
0D	BE	32	INSTANT	59	SEVEN
0E	BEDROOM	33	INTERIOR		
0F	BOILER	34	IS	5B	SIDE
10	BURGLAR			5C	SIX
11	BYPASSED			5D	SKYLIGHT
		35	KITCHEN	5E	SLIDING
				5F	SMOKE
				60	SOUND
12	CALL	36	LAUNDRY	61	SOUTH
13	CENTRAL	37	LEAVE	62	SSSSSS
14	CHECKED	38	LEFT	63	STAIRS
15	CLOSET	39	LIGHTS	64	STOCK
16	COMPUTER	3A	LIVING	65	SYSTEM
		3B	LOW		
				66	TEMPERATURE
17	DDD			67	THE
18	DELAYS	3C	MASTER	68	THREE
19	DEN	3D	MEDICAL	69	TROUBLE
1A	DETECTOR	3E	MUST	6A	TWO
1B	DINING				
1C	DOOR			6B	UP
1D	DOWN	3F	NINE		
		40	NORTH	6C	VIOLATED
1E	EAST	41	NOT		
1F	EIGHT			6D	WALL
20	ENTRANCE	43	OFF	6E	WAS
21	EXIT	44	OFFICE	6F	WATER
		45	ON	70	WERE
		46	ONE	71	WEST
		47	OUT	72	WINDOW
22	FACTORY				
23	FAN	48	PANIC		
24	FIRE	49	PERIMETER	73	YOU
25	FIVE	4A	POLICE		
26	FLOOR	4B	PRESS	74	ZERO
				75	ZONE

NOTE: DDD is to indicate past tense of a word.

SSSS is to pluralize a word.

"IS IN ALARM"

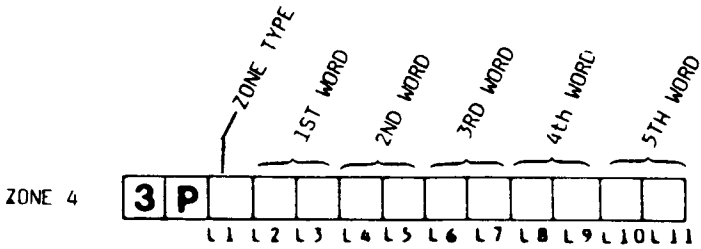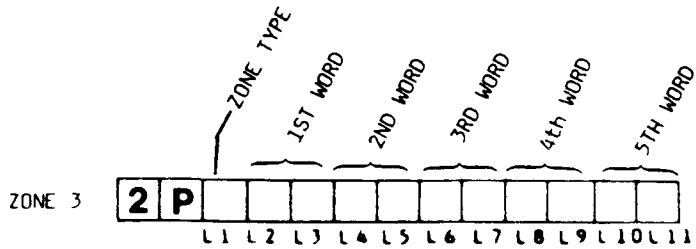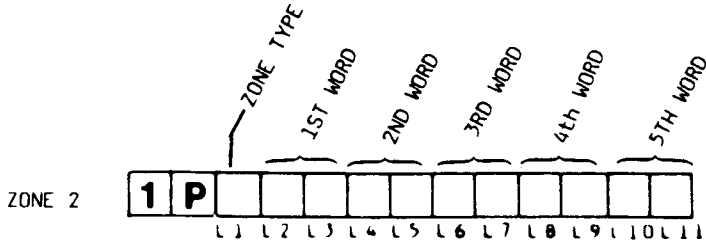"IS IN TROUBLE AND MUST BE CHECKED"

"IS NOT RESET. PRESS RESET"

"IS BYPASSED"

"THE SECURITY COMPUTER IS READY FOR PROGRAM"

"THE SECURITY COMPUTER PROGRAM IS OFF"

"THE SECURITY SYSTEM IS ON"

"THE SECURITY SYSTEM IS OFF"

"THE SECURITY SYSTEM IS IN TROUBLE. CALL FOR SERVICE"

"THE CENTRAL WAS CALLED"

"THE CENTRAL WAS NOT CALLED. PRESS RESET"

"ALL SYSTEM DELAYS ARE ON"

"ALL SYSTEM DELAYS ARE OFF"

"THE AC IS IN TROUBLE AND MUST BE CHECKED"

"THE BATTERY IS IN TROUBLE. CALL FOR SERVICE"

"THE FIRE ZONE IS IN TROUBLE. CALL FOR SERVICE"

"YOU HAVE PRESSED PANIC"

"YOU HAVE PRESSED MEDICAL"

"THE FIRE SOUND IS ON"

"THE BURGLARY SOUND IS ON"

"IS ON"

"IS OFF"

QUADRANT 1

ZONE TYPE · 1ST WORD · 2ND WORD · 3RD WORD · 4th WORD · 5TH WORD

ZONE 1 | O | P | L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11

ZONE 2 | 1 | P | L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11

ZONE 3 | 2 | P | L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11

ZONE 4 | 3 | P | L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11

ALWAYS F | A | F | L1 L2

ALWAYS F | F | F | L1 L2 L3

— CONTROL PANEL TYPE
{ EXTERNAL ACCESS,
RELAY STATUS, EXTERNAL EXITER
— FIRE BELL OUTPUT TYPE
— RING COUNT

| A | C | L1 L2 L3 L4

ZONE 5 | A | L | L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11

QUADRANT 2

ZONE TYPE · 1ST WORD · 2ND WORD · 3RD WORD · 4th WORD · 5TH WORD

ZONE 6 | O | P | L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11

RELAY 1 | 1 | P | ... | F | L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11

RELAY 2 | 2 | P | ... | F | L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11

RELAY 3 | 3 | P | ... | F | L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11

| A | F | L1 L2   ALWAYS F

| F | F | L1 L2 L3   ALWAYS F

| A | C | L1 L2 L3 L4   SECURITY ACCESS CODE

| A | L | L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11   ALWAYS F