

SILENT KNIGHT
MODEL 2750
CONTROL/COMMUNICATOR
INSTALLATION MANUAL
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Table of Contents

1 INTRODUCTION	1
1.1 FEATURES	1
1.2 ACCESSORIES	2
2 PRECONNECTION REQUIREMENTS	3
2.1 TELEPHONE REQUIREMENTS	3
2.2 FCC REQUIREMENTS	3
2.3 UL INSTALLATION REQUIREMENTS	3
2.3.1 EEPROM PROGRAMMING	3
2.3.2 SPECIAL INSTRUCTIONS	4
3 CONTROL PANEL DESCRIPTION	4
3.1 AC POWER TRANSFORMER	4
3.2 BATTERY CABLES	4
3.3 FUSES	4
3.4 DC POWER SWITCH	4
3.5 EEPROM	4
3.6 TERMINAL STRIP DESCRIPTION	6
3.7 CONNECTORS	8
3.7.1 RF CONNECTOR (H1)	8
3.7.2 INTERCOM MODULE CONNECTOR (H2)	8
3.7.3 EEPROM CONNECTOR (H3)	8
3.7.4 KEYSWITCH/RELAY CONNECTOR (H4)	8
3.7.5 STATUS CONNECTOR (H5)	8
3.8 JUMPER BLOCK JB1	8
3.9 DIALER FAILED LED	8
4 INSTALLATION OVERVIEW	9
5 WIRING PRECAUTIONS	10
6 MODEL 2750 CONTROL PANEL INSTALLATION	11
6.1 SELECT A LOCATION	11
6.2 MOUNT THE 2750	11
6.3 INSTALL THE 9220 POWER TRANSFORMER	11
6.4 CONNECT ALL INITIATING DEVICES AND ACCESSORIES	11
6.5 CONNECT POWER TO THE 2750	12
7 DIGITAL KEYSTATION INSTALLATION	12
7.1 MOUNTING THE KEYSTATIONS	12
7.2 WIRING THE KEYSTATIONS	12
7.3 MODEL 2713 KEYSWITCH/RELAY MODULE	14
7.3.1 DESCRIPTION	14
7.3.2 INSTALLATION	14
8 ZONE OPERATION AND WIRING	15
8.1 ZONE OPERATION	15
8.2 ZONE WIRING--6 INTRUSION and EMERGENCY zones (all except FIRE)	15
8.3 ZONE CONFIGURATION EXAMPLE	17
8.4 FOUR-WIRE SMOKE DETECTOR	17
9 INSTALLATION OF THE MODEL 1521 SUPERVISED RF RECEIVER	18
10 LOCAL ANNUNCIATION	19
10.1 EXTERNAL DC ALARM BELL OR DC SIREN	19
10.2 EXTERNAL SIREN OUTPUT	19
10.3 MODEL 4180 STATUS DISPLAY MODULE	20
11 TELEPHONE LINE WIRING	21
12 MODEL 7368 INTERCOM/TWO-WAY AUDIO MODULE	22
12.1 MODEL 7368 WIRING	22
12.2 MODEL 7368 OPERATION	22
13 EEPROM	23
13.1 FACTORY PROGRAMMED OPTIONS	23
13.1.1 PREPROGRAMMED CONTROL OPTIONS	23
13.1.2 PREPROGRAMMED DIALER OPTIONS	23
13.2 CHANGING THE OPTIONS	24

14 REPORTING FORMATS	25
14.1 SILENT KNIGHT 3/1 AND SESCOA 3/1 FORMATS	26
14.2 SILENT KNIGHT FSK AND 4/2 FORMATS	27
14.3 RADIONICS BFSK	28
14.4 SIA8 AND SIA20	29
15 OPTIONS DESCRIPTIONS	30
15.1 CONTROL OPTIONS	30
15.1.1 ZONE OPTIONS (applies to the 6 intrusion zones)	30
15.1.1.1 24 HOUR	30
15.1.1.2 DELAYED	30
15.1.1.3 INTERIOR	30
15.1.1.4 SILENT	30
15.1.1.5 CHIME	30
15.1.1.6 BYPASSABLE	30
15.1.1.7 FAST RESPONSE	30
15.1.1.8 REPORT DELAYED	30
15.1.2 SYSTEM OPTIONS	31
15.1.2.1 INT SW. DISABLED (INTERIOR SWITCH DISABLED WHEN ARMED)	31
15.1.2.2 AUTO INT ALARM (AUTOMATIC INTERIOR WITH BURGLAR ALARM)	31
15.1.2.3 AUTO INT DISARM (AUTOMATIC INTERIOR OFF WHEN DISARMING)	31
15.1.2.4 AUTO INT ARM (AUTOMATIC INTERIOR ON WHEN ARMING)	31
15.1.2.5 SILENT EMR ALARM (SILENT EMERGENCY ALARM)	31
15.1.2.6 SILENT POL ALARM (SILENT POLICE ALARM)	31
15.1.2.7 SWINGER BYPASS	31
15.1.2.8 DEFAULT ARM	31
15.1.2.9 AWAY (Exit Door Used)	31
15.1.2.10 HOME	31
15.1.2.11 SPKR DIALER FAIL (EXTERNAL SPEAKER OFF UNLESS DIALER FAILS)	32
15.1.2.12 INT FOLLOWERS (INTERIOR FOLLOWERS)	32
15.1.2.13 DURESS	32
15.1.2.14 DIALER (NO REPORTS TO DIALER)	32
15.1.2.15 SHUTDOWN /FIRE (RESET/SHUTDOWN ALL EXCEPT FIRE)	32
15.1.2.16 SHUTDOWN ALL (RESET/SHUTDOWN ALL)	32
15.1.2.17 DISPLAY SILENT (DISPLAY ZONES SELECTED AS SILENT)	32
15.1.2.18 CODE 2 CONTROL (CODE 2 CONTROLLED BY USER CODE)	32
15.1.2.19 SMK POWER RESET (SMOKE POWER RESET 3 OR 6 SECONDS)	32
15.1.2.20 CODE 5 ARM ONLY (ACCESS CODE 5 CAN ARM ONLY)	32
15.1.3 TIMERS	32
15.1.3.1 SWINGER BYPASS	32
15.1.3.2 EXIT DELAY	32
15.1.3.3 ENTRY DELAY	32
15.1.3.4 REPORT DELAY	33
15.1.3.5 AUTO SHUTDOWN	33
15.1.4 ACCESS CODES	33
15.1.4.1 CODE 0 (MAINTENANCE CODE)	33
15.1.4.2 CODE 1 (MAIN USER CODE)	33
15.1.4.3 CODES 2 THROUGH 4	33
15.1.4.4 CODE 5	33
15.1.5 MISCELLANEOUS CONTROL OPTIONS	33
15.1.5.1 ACCESS CODE REQ	33
15.1.5.2 RELAY 1 TIMED	33
15.1.5.3 RELAY 2 TIMED	33
15.1.5.4 FAST RESTORE (REPORT RESTORE ON MOMENTARY INPUTS)	33
15.1.5.5 RELAY DURATION (IF TIMED)	34
15.2 DIALER OPTIONS (5520 AND 5540 ONLY)	34
15.2.1 CODES REPORTED FOR 3/1 FORMAT	34
15.2.2 LOW AC HOURS	34
15.2.3 # RINGS	34
15.2.4 FAIL OUTPUT ENABLE	34
15.2.5 RING ENABLE	34
15.2.6 ZONE 6 REPORT AS UNDEFINED	35
15.2.7 MUST REPORT TO PHONE #2	35
15.2.8 COMPUTER	35
15.2.9 GROUND START	35
15.2.10 REPORTS BY PHONE NUMBER	35
15.2.11 ACCOUNT #1	36
15.2.12 ATTEMPTS #1	36
15.2.13 FORMAT #1	36
15.2.14 LISTEN IN TIME	36
15.2.15 TOUCH-TONE ONLY PHONE #1	36
15.2.16 ROTARY ONLY PHONE #1	36
15.2.17 LISTEN TO #1	37

15.2.18 ATTEMPTS #2	37
15.2.19 FORMAT #2	37
15.2.20 TOUCH-TONE ONLY PHONE #2	37
15.2.21 ROTARY ONLY PHONE #2	37
15.2.22 LISTEN TO #2	37
15.2.23 DEMO MODE	37
15.2.24 COMPUTER account #	37
15.2.25 TOUCHTONE ONLY	37
15.2.26 ROTARY ONLY	37
15.2.27 TELEPHONE NUMBERS	37
16 PROGRAMMING	38
16.1 USING THE MODEL 5520 DESK TOP PROGRAMMER	38
16.1.1 REMOVING THE EEPROM FROM THE 2750	38
16.1.2 MODEL 5520 PROGRAMMING PROCEDURE	38
16.1.2.1 GETTING STARTED	38
16.1.2.2 REPROGRAMMING THE OPTIONS	38
16.1.2.3 LEAVING THE PROGRAM	39
16.2 PROGRAMMING WITH THE MODEL 5540 DOWNLOADING SOFTWARE	40
16.2.1 GETTING STARTED	40
16.2.2 REPROGRAMMING THE OPTIONS	40
16.2.3 DOWNLOADING THE DATA	40
16.2.4 PRINTING THE OPTIONS	40
16.2.5 VERIFYING THE SELECTIONS	40
16.2.6 LEAVING THE PROGRAM	40
16.3 EEPROM CODING FORMS (5520 AND 5540 ONLY)	40
16.4 PROGRAMMING WITH THE KEYSTATION (CONTROL OPTIONS ONLY)	45
16.4.1 REPROGRAMMING ALL CONTROL OPTIONS	45
16.4.2 REPROGRAMMING ACCESS CODES ONLY	46
16.4.2.1 REPROGRAMMING THE MAINTENANCE CODE (CODE 0)	46
16.4.2.2 REPROGRAMMING CODES 1 THROUGH 5	46
16.4.2.3 REPROGRAMMING CODES 2 THROUGH 5 <i>WITHOUT</i> KNOWING SECRET CODES (CODE 1 ONLY).....	46
16.5 CONTROL OPTIONS CODING FORM (KEYSTATION)	46
17 KEYSTATION OPERATION	49
17.1 KEYSTATION LEDs	49
17.2 BUILT-IN SPEAKER	50
17.3 KEYSWITCHES	50
17.4 KEYSTATION TEST FUNCTIONS	51
18 SYSTEM OPERATION	52
19 TRANSIENT VOLTAGE PROTECTION	52
19.1 TYPES OF PROTECTION	52
19.2 EARTH GROUND	53
19.3 BATTERY TESTING	53
20 HOUSEHOLD EVACUATION PLANNING	53
21 POST-INSTALLATION TEST	53
22 MODEL 2750 TROUBLESHOOTING GUIDE	53

1 INTRODUCTION

The Silent Knight Model 2750 is a reliable, versatile, residentially UL Listed combination Control/Communicator. It can also be used for commercial applications, although its UL Listing does not extend to commercial use.

This manual describes the capabilities and the installation and programming procedures for the Model 2750. Features and accessories are listed in this section. Section 2 lists telephone, FCC and Underwriters Laboratories requirements. Sections 3 through 12 explain how to install the Model 2750 and its accessories. In sections 13 through 16, the various options and programming procedures are described. Sections 17 through 19 discuss the operation and maintenance of the system. Section 20 describes a residential fire evacuation plan. The importance of periodic testing is discussed in section 21. Section 22 discusses troubleshooting.

1.1 FEATURES

- * 8 zones, including 6 fully programmable and supervised Intrusion Zones, a supervised Fire Zone and a supervised Emergency Zone.
- * Individual zone outputs for each zone input.
- * Switched smoke detector output. Power is removed for 3 or 6 seconds (programmable) when disarming from a Fire alarm. Provides a voltage of +12.6 V_{DC} when AC is on, and the battery voltage (less 1.2 V_{DC}) when on standby battery power. Current available is 0.5 A. When used in UL installations, current available is 0.25 A.
- * External speaker/bell output, selectable to drive speakers or bells via Shunt Block P6. When driving bells, maintains steady Intrusion and Emergency alarms and pulsing Fire alarms. When used in UL installations, current available from bell output is 0.75 A.
- * Accessory power outputs (terminals 5 and 7) that supply power to all accessory devices including the arming station. 13.8 V_{DC} nominal voltage with AC applied and battery voltage when on battery standby. Current available is 0.75 A. When used in UL installations, current available is 0.35 A.

NOTE: *The sum of the current ratings of all 12-V_{DC} accessories connected to terminals 5 and 7 must not exceed 1.25 A.*

- * External speaker power supply output that supplies power for up to two 8-Ω, 15-W speakers. This output will draw power from the battery during alarm. +21 V_{DC} unregulated with no load. +17 V_{DC} @ 1.5-A load. Current available is 2.7 A.
- * Separate exit/entry delays with entry warning tone.
- * 4-wire digital keystations (6 wires required if using the optional speaker). 4 arming stations per system.
- * Compatibility with the SIA reporting format and 5 other standard reporting formats.
- * Full function, computer controlled up- and downloading of options and system control functions.
- * 6 multipurpose arm/disarm codes, including Code 2 (Maid's Code) feature.
- * Plug-on supervised RF receiver.
- * Plug-on front door intercom and 2-way audio listen-in function.
- * Plug-on keyswitch/relay module that provides READY/ARMED and ALARM status outputs, a mechanical key input, and 2 relay outputs that are controlled via the arming station and/or the downloading computer.
- * Open/Close reporting by user code.
- * Two-number dialing with same or different account codes and reporting formats. Alarms, trouble conditions and status can be programmed to be reported or not reported to each number.
- * Heavy-duty 1.75-A and 12-V_{DC} power supply.
- * Battery charger (6.5 ampere-hour battery).
- * Dual-speaker driver outputs.
- * Door chime feature.
- * DC power switch.
- * 3 panic buttons--**FIRE**, **EMER**, and **POLICE** (Model 4210 and 4212 keystations).
- * Home/Away Default arming option. Automatically sets the status of the Interior and No Delay functions when the system is armed and an exit door is used or not used.

- * MOV (metal oxide varistor) protection for all terminals from lightning and other transients.
- * Local alarm memory.
- * Walk Test and Dialer Test functions.
- * Control and annunciation of all alarm and system statuses at remote arming stations.
- * No External Speaker/Bell Unless Dialer Fails option.
- * Storage of all programmable options and data, including access codes, in EEPROM, which prevents loss of information even if all power is removed from panel. EEPROM can be reprogrammed up to 1000 times.
- * Two built-in watchdog circuits:
 - One circuit watches the crystal and operation of the control and dialer microprocessors and resets the system if either fails.
 - The other circuit monitors communications between the control and dialer microprocessors and will attempt to reset the communications function if it is lost for more than 10 seconds.
- * Built-in ground-start relay.

1.2 ACCESSORIES

The following accessories are available for use with the Model 2750:

- * Model 6712 12-V_{DC} 6.5-AH Rechargeable Battery - Provides at least 4 hours of stand-by power to the basic 2750 unit. Additional accessories will reduce this time.
- * Model 9220 16.5-V_{AC} 40-VA Transformer - Supplied with the Model 2750. Provides AC power to the 2750 and accessories.
- * Smoke Detectors - The 2750 is designed to work with 4-wire smoke detectors (ESL 445AT) with an end-of-line (EOL) resistor and power supervision module.
- * Model 2713 Keypress/Relay Module (not UL Listed) - Provides READY and ARMED status outputs, a mechanical key input that toggles ARMED status, 2 relay outputs, and a common alarm output (active whenever any zone is in alarm).
- * Model 4210 Digital Keystation (not UL Listed) - Provides complete system control. Contains indicators for zone and system status, keypad with tactile touch switches plus back light and built-in speaker for audible annunciation. Allows remote arming, disarming, zone bypassing (shunting), system test and manual activation of emergency and fire alarms. You can also program and enter up to 6 user access codes from the Model 4210.
- * Model 4211 Digital Keystation.

NOTE: Models 4210 and 4211 are the only UL Listed keystations used with the Model 2750. Keypad current draw is 40 mA.

- * Model 4212 Digital Keystation (not UL Listed) - Includes a front door intercom and 2-way audio capability, which allows users to talk to the person at the front door.
- * Model 7368 Intercom Feature (not UL Listed) - Plug-on Front Door Intercom/Listen-In--Talk Back Module. Can use up to 4 keystations with Intercom capability. Allows the keystations to talk and listen to a Model 7381 Front Door Intercom Station so that the user can talk to people at the front door to determine whether or not to let them in. Allows hands-free communications to the central station via the phone lines immediately after an alarm is reported. The speakers are automatically silenced during the communication period.

NOTE: The intercom cannot be used to talk/listen to the other keystations.

- * Model 1521 Supervised RF Receiver (not UL Listed) - Receives transmissions from the Models 1501, 1502, 1503, 1504, 1505, 1506 and 1507 RF Transmitters. The Supervised RF Receiver will connect to the Model 2750 through a prewired interconnect harness (shipped with receiver) that quickly plugs into the 2750 circuit board.
- * Model 4180 Serial To Parallel Status Display Module - May be used for Derived Channel or Long Range RF applications.

2 PRECONNECTION REQUIREMENTS

2.1 TELEPHONE REQUIREMENTS

1. If requested by the telephone company, the following information must be provided before the Model 2750 can be connected to the phone lines.
 - A. Manufacturer--Silent Knight Security Systems
 - B. Model Number--2750
 - C. FCC Registration Number--AC698R-69183-AL-R
 - D. Type of jack (to be installed by the telephone company)--RJ31X

NOTE: *The telephone company must also be notified if this device is permanently disconnected.*

2. The 2750 may not be directly connected to coin telephone or party line services.
3. Under certain circumstances, the telephone company may temporarily discontinue services and/or make changes in its facilities and services that may affect the operation of this device. However, the telephone company is required to give adequate notice in writing of such changes or interruptions.
4. The Model 2750 cannot be adjusted or repaired in the field. In case of trouble with the device, notify the installing company or return to:

SILENT KNIGHT SECURITY SYSTEMS
7550 Meridian Circle
Maple Grove, MN 55369-4927
612-493-6455
800-328-0103

2.2 FCC REQUIREMENTS

WARNING: **This equipment generates and uses radio frequency energy and if not installed and used in strict accordance with this manual, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required, at his or her expense, to take whatever measures may be required to correct the interference.**

2.3 UL INSTALLATION REQUIREMENTS

If the Model 2750 is to be installed as a UL Listed system, the following requirements must be met.

The items listed below are **NOT** acceptable in a UL installation:

1. The Models 1521 RF Receiver
2. The Model 4180 Status Display Module
3. The Model 7368 Front Door Intercom
4. The Model 2713 Keypad/Relay Module

2.3.1 EEPROM PROGRAMMING

For a UL Listed system, the EEPROM must be programmed as follows:

1. A maximum entry delay of 45 seconds must be programmed.
2. A maximum exit delay of 60 seconds must be programmed.
3. Sounding appliance shutdown must be programmed for not less than 4 minutes.
4. The number of dial-out attempts must be between 5 and 10 inclusive.
5. The GROUND START option must not be selected.
6. The SWINGER BYPASS option must be disabled.
7. The SPKR DIALER FAILED option must be disabled.
8. The SHUTDOWN/ FIRE (RESET/SHUTDOWN ALL EXCEPT FIRE) option must be disabled.
9. The SHUTDOWN ALL (RESET /SHUTDOWN ALL) must be disabled.
10. The REPORT DELAY must not exceed 45 seconds.
11. The LISTEN TO options must be disabled.
12. All zones except the keypad emergency zone must be programmed as AUDIBLE--not silent (see item 13).
13. The keypad emergency zone must be programmed as SILENT.

2.3.2 SPECIAL INSTRUCTIONS

1. All loops must be terminated in a 4.7-K Ω end-of-line resistor; the loop must have a maximum of 50 Ω of line resistance.
2. The maximum total current draw from terminals 3 and 4 (DC Sounding Appliance) or from terminals 4 and 5 (AC Sounding Appliance) must not exceed 0.75 A.

3 CONTROL PANEL DESCRIPTION

Figure 3A represents the Model 2750 circuit board. This board contains the mechanical and electronic components and connectors needed to install, monitor and protect the system. The following paragraphs describe the major components of the system.

3.1 AC POWER TRANSFORMER

An external transformer (Model 9220 included) is used to supply 16.5 V_{AC} (40 VA) to power the system under normal conditions, and to supply charging current to the backup battery. The primary winding plugs directly into a conventional 115-V_{AC} unswitched outlet. The secondary is wired into terminals 1 and 2 of the 2750 with a 2-conductor cable (preferably shielded). Secure the transformer to the outlet with the retaining tab and screw.

3.2 BATTERY CABLES

The RED (+) and BLACK (-) battery cables are used to connect a 12-V_{DC} battery (Silent Knight Model 6712) to the system. The battery provides backup power to the 2750 during AC power interruptions.

CAUTION: Observe proper polarity when connecting the battery cables of the 2750. A polarity device mounted on the 2750 circuit board will automatically remove battery power to the board (indicated by an audible "click") if battery polarity reverses.

NOTE: The Model 6712 12-V_{DC}, 6.5-AH rechargeable battery will provide at least 4 hours of standby operation to the basic 2750 system. The use of accessories may reduce this time, so additional battery capacity may be needed.

3.3 FUSES

F1 is a 1-A fast-blow fuse that provides over-current protection for the smoke detectors or any other accessories connected to terminal 33 of the 2750.

F2 is a 2.5-A fuse that provides over-current protection for any accessories connected to terminal 5 or 7 of the 2750. Fuse F2 is rated twice as high as the maximum current for terminals 5 and 7 because of the high sensitivity of the fuse.

F3 is a 5-A fuse that provides over-current protection for sirens or any other accessories connected to terminal 4.

CAUTION: Always replace a fuse with another of the SAME rating. NEVER use a fuse of a higher rating or short the fuse with wire, or damage will result.

3.4 DC POWER SWITCH

The DC power switch is used to remove DC power from the circuitry of the 2750. When this switch is in the OFF position with AC connected, the only thing that remains functional is the battery charging circuit. If AC is not connected, the standby battery should not be connected, as leakage current through the charging circuit could discharge the battery over a period of time.

3.5 EEPROM

The EEPROM (Electrically Erasable Programmable Read-Only Memory) contains information that is used by the Control and Dialer Microprocessors. This information determines what control options the system will perform. This information must be programmed into the EEPROM by using either the Model 5520 Desk Top Programmer or the Model 5540 Downloading Software. Refer to the programming section (section 16) and the EEPROM coding forms for information on reprogramming the EEPROM.

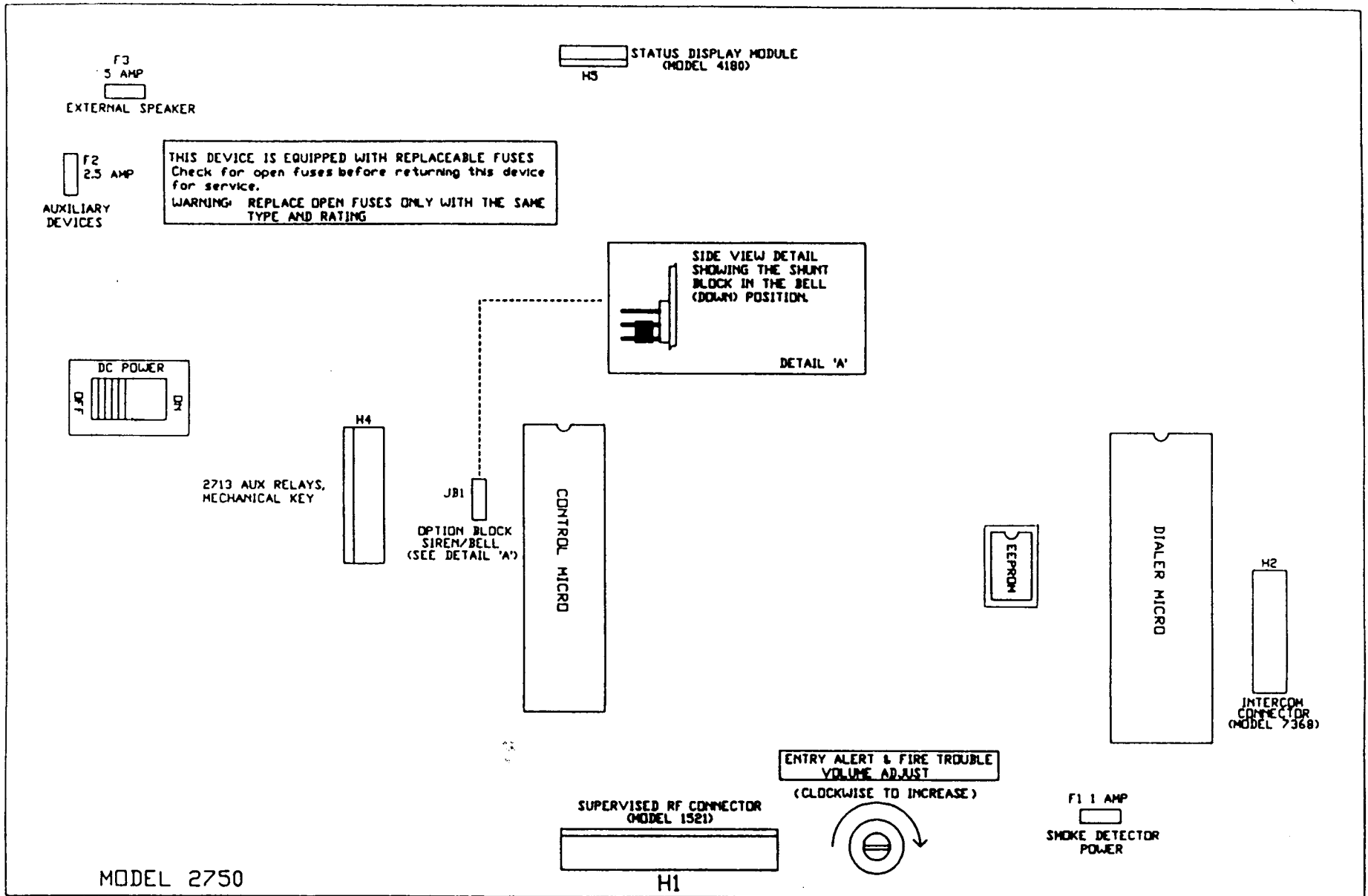


FIGURE 3A: MODEL 2750 CIRCUIT BOARD

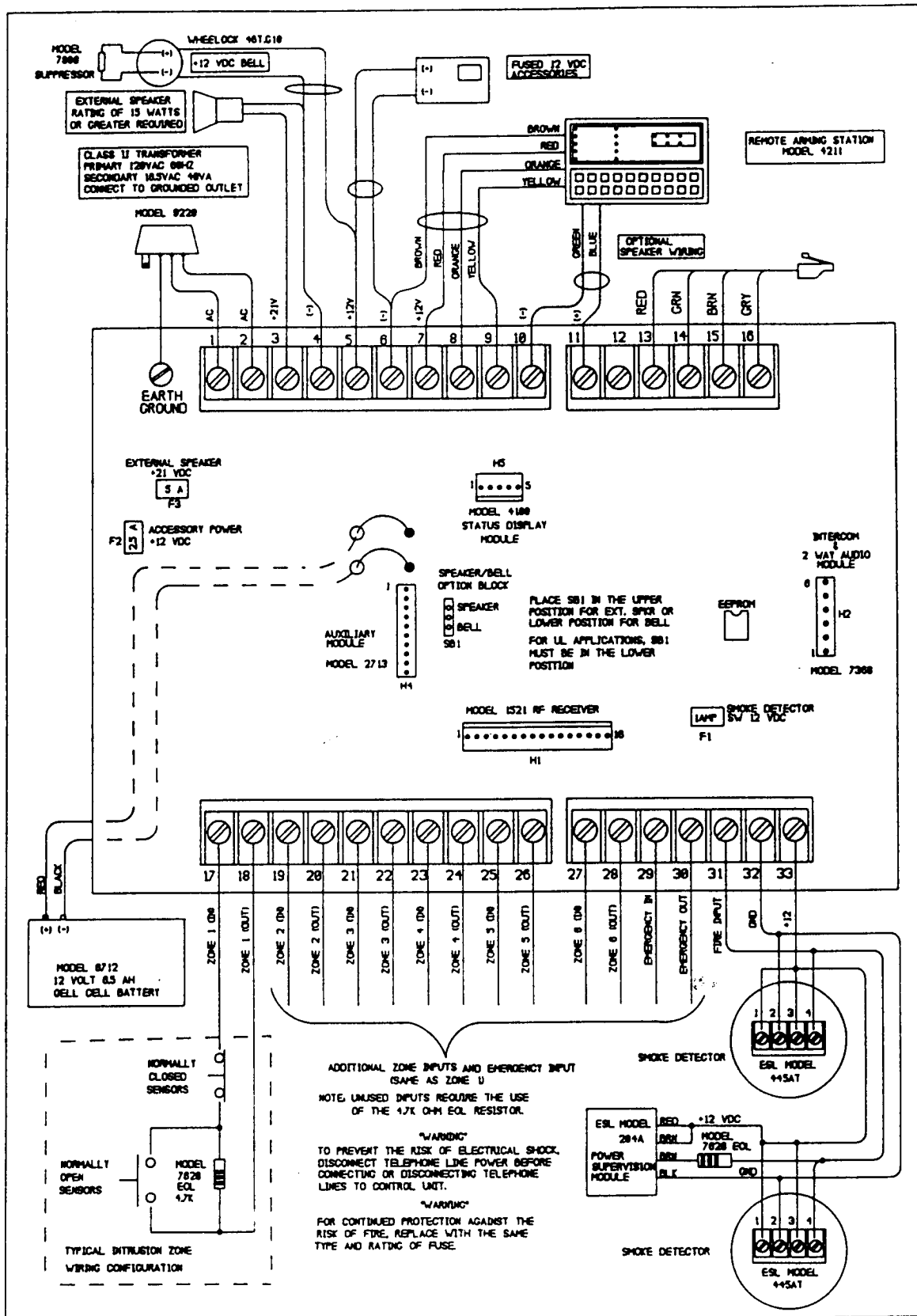
3.6 TERMINAL STRIP DESCRIPTION

TERMINAL NUMBER	DESCRIPTION
1	16.5 VAC, 60 Hz, (40 VA)
2	16.5 VAC, 60 Hz
3	External Speaker Power 21 VDC
4	External Speaker/Bell Driver
5	Accessory Power +9 - 14 VDC*1
6	Ground*2
7	Accessory Power +9 - 14 VDC*1
8	Serial Out (Keystations)
9	Serial In (Keystations)
10	Ground
11	Internal Speaker Driver
12	Answer
13	Telephone Company Line (RING)
14	Telephone Company Line (TIP)
15	House Phones (TIP)
16	House Phones (RING)
17	Zone 1 In
18	Zone 1 Out
19	Zone 2 In
20	Zone 2 Out
21	Zone 3 In
22	Zone 3 Out
23	Zone 4 In
24	Zone 4 Out
25	Zone 5 In
26	Zone 5 Out
27	Zone 6 In
28	Zone 6 Out
29	Emergency In
30	Emergency Out
31	Fire In
32	Smoke Detector Ground
33	Smoke Detector +9 - 14 VDC*3

*1 NOTE: The sum of the current ratings of all 12-VDC accessories connected to terminals 5 & 7 must not exceed 1.25 A (0.35 A for UL installations).

*2 NOTE: Earth ground is connected to circuit ground internally.

*3 NOTE: The maximum number of Model 7620 Smoke Detectors allowed per control panel is 10.



Refer to section 1.1 for electrical ratings and section 1.2 for accessories.

CHECK FOR OPEN FUSES BEFORE RETURNING THIS DEVICE FOR SERVICE.
REPLACE OPEN FUSES ONLY WITH THE SAME TYPE AND RATING.

FIGURE 3.6A: MODEL 2750 WIRING DIAGRAM

3.7 CONNECTORS

3.7.1 RF CONNECTOR (H1)

This 16-pin connector is used to connect the Model 1521 RF Receiver to the 2750.

3.7.2 INTERCOM MODULE CONNECTOR (H2)

This 6-pin connector is used to connect the Model 7368 Front Door Intercom/2-Way Audio Board. For wiring information, see the instructions shipped with the Model 7368.

3.7.3 EEPROM CONNECTOR (H3)

This 7-pin connector is used to interface the EEPROM with the Model 5520 Desk Top Programmer. Refer to section 16.1.1 for instructions.

3.7.4 KEYSWITCH/RELAY CONNECTOR (H4)

This 10-pin connector is used to connect the Model 2713 Keyswitch/Relay Module to the 2750. For information on wiring the Model 2713, see section 7.3.

3.7.5 STATUS CONNECTOR (H5)

This 5-pin connector is used to connect the Model 4180 Status Display Module to the Model 2750. For information on wiring the Model 4180, refer to section 10.3.

3.8 JUMPER BLOCK JB1

Place JB1 in the upper position when using an external siren, and in the lower position when using a DC bell.

3.9 DIALER FAILED LED

This LED goes on whenever the dialer fails to communicate with the central station. This might happen for a variety of reasons. One reason could be that the dialer is malfunctioning. Another might be that the dialer has made the programmed number of attempts to call the central station, and the central station's line has been busy each time the dialer tried to call.

4 INSTALLATION OVERVIEW

Table 4 - I lists the various accessories available for use with the 2750, the fuse through which each draws its power, and their standby (idle) and active (alarm) current drains. Accessories with no fuse number are resistively current limited.

TABLE 4 - I: ACCESSORY CURRENT DRAINS

MODEL #	FUSE #	STANDBY	ACTIVE	MAX. # OF DEVICES
2750	N/A	90 mA	150 mA	N/A
1521	F2	75 mA	200 mA	1
4210, 4211, 4212	F2	40 mA	360 mA	4
4180	F2	24 mA	140 mA	1
7150	F2	25 mA	40 mA	1
7368	F2	50 mA	750 mA	1
ESL 445AT	F1	.05 mA	15 mA	10
2713	F2	15 mA	25 mA	1
Amseco Bell	F3	0 mA	125 mA	3
8-Ω Speaker	F3	0 mA	1.25 A	2
7381	F2	N/A	N/A	4
ESL 204A EOLR	F1	40 mA	N/A	1

To determine the current load of the Model 6712 battery, add the standby current drains of all the remote modules and accessories (see table 4 - I) used in the system. Then determine the standby time from figure 4A, which shows the expected hours of standby time for various current loads.

NOTE: Figure 4A shows the standby capacity for one battery only. The standby time for each additional battery increases proportionally. Only one battery is to be used in UL applications. Do not exceed the current draw requirements for UL applications, as stated in section 2.3.2.

CAUTION: A battery is mandatory for proper system operation.

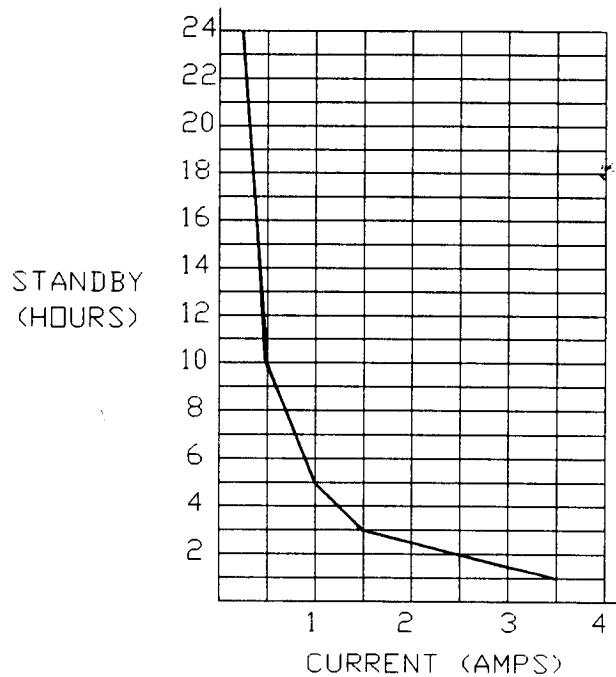


FIGURE 4A: BATTERY DISCHARGE RATES

A block diagram of the Model 2750 and its accessories is shown in figure 4B.

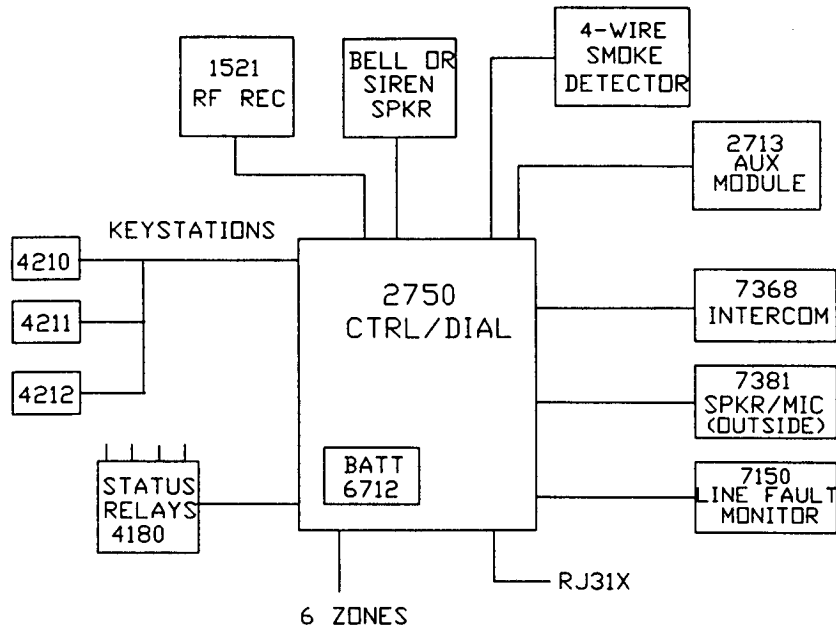


FIGURE 4B: MODEL 2750 BLOCK DIAGRAM

5 WIRING PRECAUTIONS

To avoid induced noise (transfer of electrical energy from one wire to another), keep input wiring isolated from high current output and power wiring. Induced noise can interfere with telephone communication, or even cause false alarms.

1. Avoid pulling one multiconductor cable for the entire panel. Instead, separate the wiring as follows:

High current input/output: AC power and speaker and bell wiring

Low current input/output: Keystation and zone loop wiring

Telephone wiring

Model 7368 wiring

2. Wires from different groups should not be pulled through the same conduit. If you must run them together, do so for as short a distance as possible, or use shielded cable. Connect the shield to circuit ground at the panel. High and low voltages must be routed separately.
3. Wiring within the cabinet should be routed around the perimeter of the cabinet. It should not cross the printed circuit board, where it could induce noise into the sensitive microelectronics, or pick up unwanted RF noise from the high speed circuits.

6 MODEL 2750 CONTROL PANEL INSTALLATION

6.1 SELECT A LOCATION

When selecting a location to mount the 2750 control panel, consider the following factors:

1. The unit should be mounted as close to the center of the building as possible, where it will not be exposed to extremes in temperature, and where it will be free from moisture.
2. The panel should be accessible to "Main Drop" wiring runs.
3. The 2750 should be located well within a secured area, but should be accessible for testing and service.

6.2 MOUNT THE 2750

Mount the 2750 so it is firmly secured to the wall surface. When mounting on concrete, especially when moisture is expected, attach a piece of $\frac{3}{4}$ -inch plywood to the concrete surface before attaching the 2750. Mount any other desired components to the plywood interface.

6.3 INSTALL THE 9220 POWER TRANSFORMER

Figure 6.3A shows the connection of shielded 2-conductor cable to the Model 9220 UL Listed Class II Power Transformer (16.5 V_{AC}, 40 VA). The transformer should be plugged into a 120 V_{AC} 60Hz continuous duty (unswitched) grounded outlet.

CAUTION: The Model 9220 contains an internally fused secondary winding. DO NOT SHORT the secondary terminals together when power is applied or the internal fuse will blow. Be sure the shield conductor cannot come in contact with the AC output screws.

CAUTION: Make sure the AC outlet you intend to use for the Model 9220 plug-in transformer has a "good" connection to earth ground. This can be done at the outlet, using a digital voltmeter, by measuring the AC voltage between the "hot" side of the outlet and neutral, then comparing that voltage to the voltage reading made between the "hot" side and the ground connection. The difference between these two voltage readings should not exceed .2 V_{AC}. If these voltages are not within .2 V_{AC}, the outlet does not have an earth ground and must be grounded by running a 14-gauge wire from the outlet to a good source for earth ground.

NOTE: A licensed electrician may be required to perform this procedure.

CAUTION: To reduce the risk of fire or electrical shock, connect directly to a grounded (3-prong) receptacle.

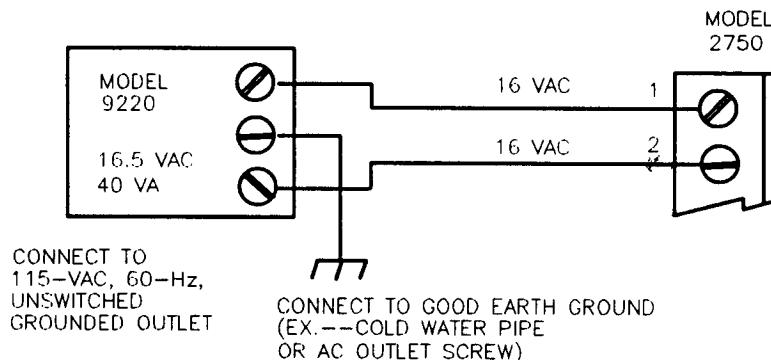


FIGURE 6.3A: MODEL 9220 TRANSFORMER

6.4 CONNECT ALL INITIATING DEVICES AND ACCESSORIES

Connect all initiating devices and accessories to the 2750 terminal strips before connecting AC or DC power to the panel. Use the wiring diagram in figure 3.6A and the terminal strip description in section 3.6 as guides.

6.5 CONNECT POWER TO THE 2750

Once all the connections have been made to the Model 2750 and associated equipment, double check them against the installation manual. When they are confirmed to be correct, the system may be powered up in the following sequence:

1. DC power switch in the OFF position.
2. Connect the battery cables to the 12-V_{DC} rechargeable battery.
3. Turn the DC power switch ON.
4. Program the control panel using the Model 5520 Desk Top Programmer or download over the phone lines using the Model 5540 Downloading Software.

If the system does not operate properly, refer to the troubleshooting section in this manual (section 22).

7 DIGITAL KEYSTATION INSTALLATION

Keystations are available with or without intercom.

NOTE: Model 4210 and 4211 (without intercom) are UL Listed keystations.

All keystations require 4 wires for power and serial data communications. The speaker, if used, requires 2 additional wires. When wiring the Model 7368 intercom and the 4212 keystation, an additional 4-wire shielded cable must be used.

7.1 MOUNTING THE KEYSTATIONS

When mounting a keystation, begin by removing the rear mounting plate. Insert a flat-blade screwdriver into the slots located on the bottom edge of the keystation. Gently turn the screwdriver until the mounting plate pulls away from the frame. Once the mounting plate has been removed, secure it to the wall using #6 or #8 screws. The mounting plate should be oriented so that the word "TOP" is toward the top of the plate and facing you. The square hole in the mounting plate is for the wiring that runs to the keystation.

When all the wires have been connected to the keystation, set the top of the keystation over the tabs on the top of the mounting plate and press each corner until you hear it click into place.

NOTE: You may have to squeeze the keystation gently (top to bottom) to align it while snapping the bottom edge into place.

7.2 WIRING THE KEYSTATIONS

A 6-position pigtail is provided on each keystation to connect it to the 2750 (see figure 7.2A). Wire gauge must be #22 or larger (i.e., 18, 16, 14, etc.). Maximum length is 1000 feet. Table 7.2 - I shows which keystation pin must be wired to each 2750 terminal.

TABLE 7.2 - I: KEYSTATION WIRING CHART

KEYSTATION PIN #	WIRE COLOR	DESCRIPTION	TERMINAL # - 2750
1	BROWN	KEYSTATION GND	6
2	RED	KEYSTATION PWR	7
3	ORANGE	KEYSTATION IN	8
4	YELLOW	KEYSTATION OUT	9
5	GREEN	SPKR GND	10
6	BLUE	SPKR	11

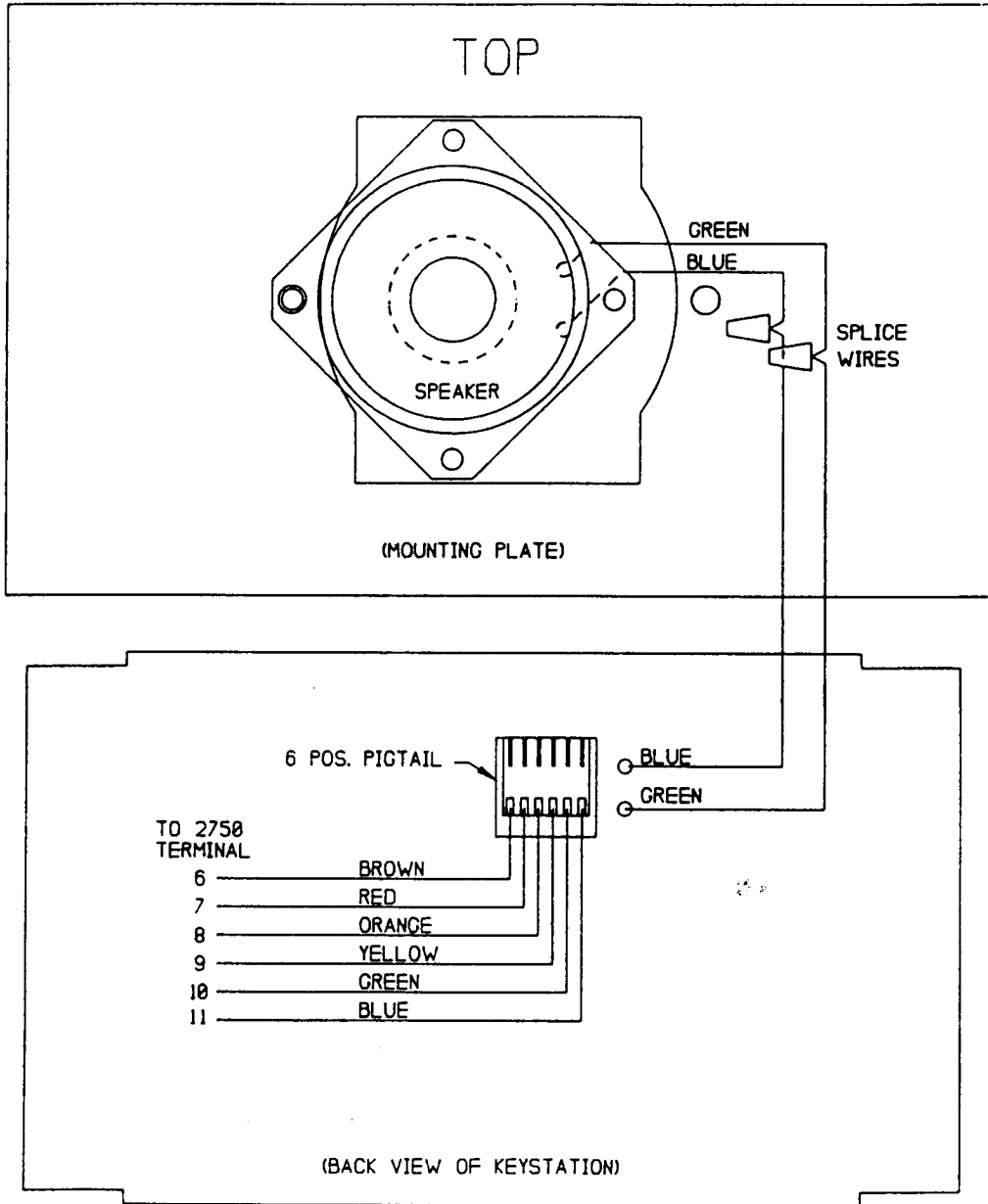


FIGURE 7.2A: WIRING THE KEYSTATIONS

7.3 MODEL 2713 KEYSWITCH/RELAY MODULE

NOTE: The Model 2713 has not been investigated by UL.

7.3.1 DESCRIPTION

The Model 2713 Keyswitch/Relay Module provides the following inputs and outputs:

1. READY Status.

NOTE: This **READY LED** does not flash during the dialing sequence. In this respect, it differs from the **READY LED** on the keystation.

2. ARMED Status.
3. Mechanical Key input. Momentary input to ground toggles the ARMED status of the 2750.
4. Relay 1 output, controlled by the **DOOR** switch and digit **1**.
5. Relay 2 output, controlled by the **DOOR** switch and digit **2**.
6. Common alarm output. This output is active whenever the 2750 is in alarm. This output will stay active until an access code is entered.

NOTE: If a zone is programmed as silent and the option **DISPLAY SILENT ZONES** (see section 15.1.2.17) is not selected, this output will not come on with the alarm.

7.3.2 INSTALLATION

Figure 7.3.2A shows how to install the Model 2713.

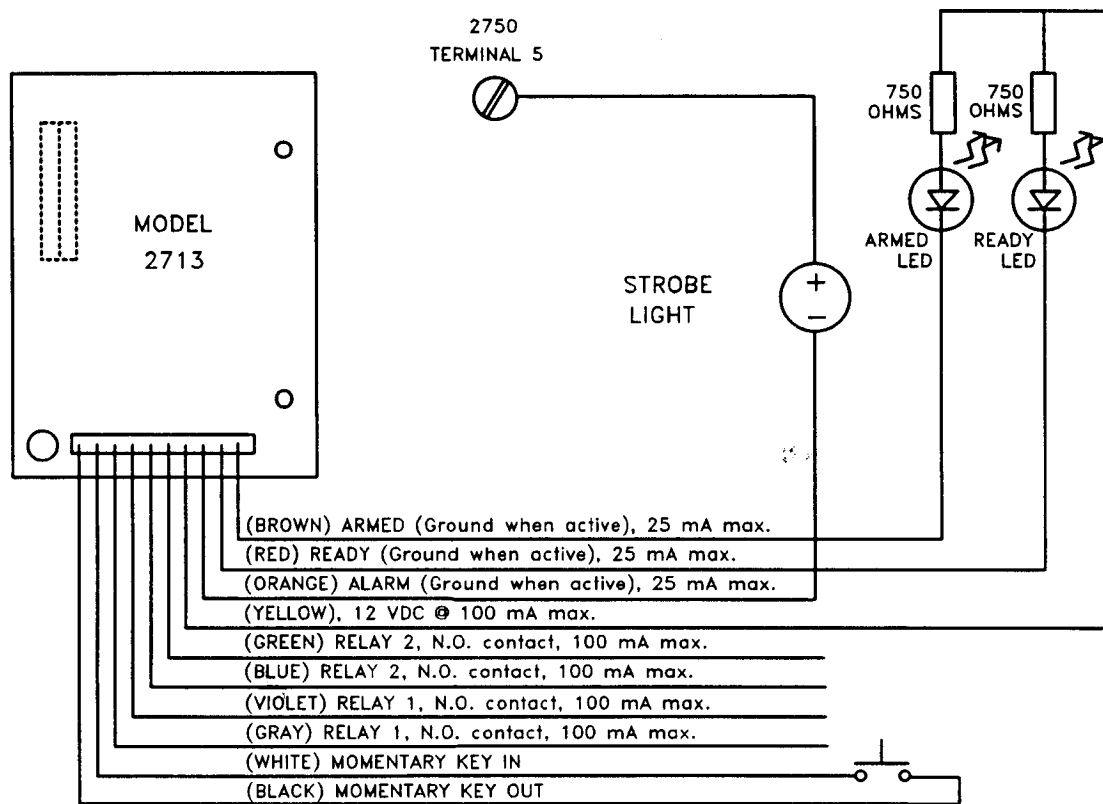


FIGURE 7.3.2A: WIRING THE MODEL 2713 KEYSWITCH/RELAY MODULE

8 ZONE OPERATION AND WIRING

8.1 ZONE OPERATION

The 6 zones and the Fire and Emergency inputs are each supervised with a 4.7-K Ω EOL resistor. Each alarm loop has a separate 13.8-V_{DC} output current limited to 14 mA.

When the system is not armed, a short across the loop or to ground and/or an open loop will cause a NOT READY condition on a controlled zone (a zone that can be activated only when the system is armed) or an ALARM condition on 24-hour zones.

When the system is armed, zone programming and system status determine if and when a short and/or open will cause an alarm on a controlled zone.

A short across the EOL resistor of the Fire loop will cause a fire alarm condition. An open and/or short to ground on the Fire loop will cause a fire trouble condition.

The nominal (no alarm) loop input voltage to ground is approximately 3.95 V_{DC} on the 6 zone inputs and the Emergency input, and approximately 3.25 V_{DC} on the Fire input.

A voltage of less than 2.25 V_{DC} or greater than 5.25 V_{DC} on any input is guaranteed to cause an alarm. A voltage of between 2.25 V_{DC} and 2.75 V_{DC} and between 4.5 V_{DC} and 5.25 V_{DC} on any input is in a gray area--it may or may not cause an alarm.

A resistance of less than 10 K Ω to ground or greater than 3 K Ω in series with the loop will cause the input to be in alarm. This applies to all inputs.

8.2 ZONE WIRING--6 INTRUSION and EMERGENCY zones (all except FIRE)

The zones of the Model 2750 can be wired in 4 basic ways. These three ways are illustrated in figure 8.2A. By combining these basic zone wiring methods with the various zone programming options (see section 15.1.1), you can achieve a great variety of possible zone configurations. It is recommended that you bench test any configurations before you install the control panel.

NOTE 1: An end-of-line resistor must be used with each zone as illustrated in figure 8.2A.

NOTE 2: Wire gauge must be #22 or larger (i.e., 20, 18, etc.). Maximum length is 500 feet.

NOTE 3: All unused zones must have an EOL resistor connected to their loop outputs.

END-OF-LINE RESISTORS

A 4.7-K Ω EOL resistor must be used with all intrusion zones. The EOL resistor must be installed across the last sensor of each loop.

The EOL resistors are Silent Knight Model 7628, 4.7-K Ω resistors. Any unused inputs must be terminated with the EOL resistor to their respective loop outputs. Refer to figure 8.2A.

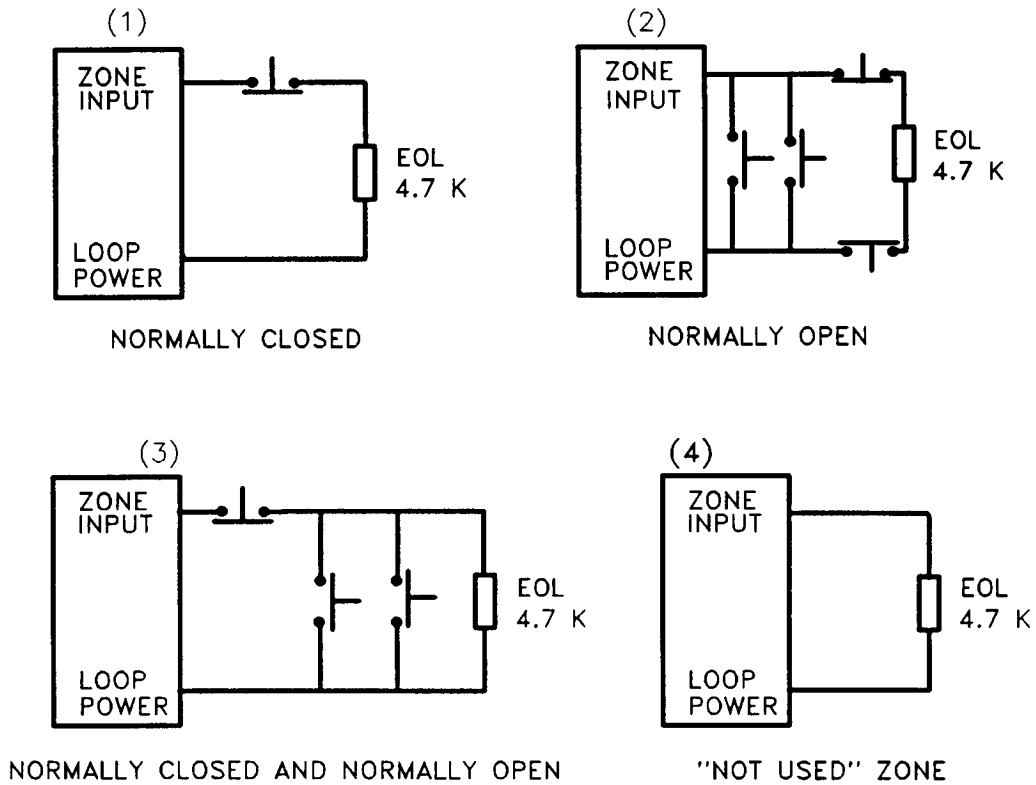


FIGURE 8.2A: MODEL 2750 ZONE WIRING EXAMPLES

- (1) - Supervised Intrusion Zone using Normally Closed contact initiating devices only and an end-of-line resistor. An alarm will occur if the loop is opened or broken.
- (2) - Supervised Intrusion Zone using Normally Open initiating devices and an end-of-line resistor. An alarm will occur if the loop is closed or broken.
- (3) - Zone using **both** Normally Open and Normally Closed initiating devices. An alarm will occur if a Normally Open contact is closed, if a Normally Closed contact is open, or if the loop is broken.
- (4) - "Not used" zone.

8.3 ZONE CONFIGURATION EXAMPLE

In the following chart, sample configurations are described. See sections 15.1 and 16 for instructions on programming these options into the Control EEPROM. (Reminder--You must use an EOL resistor.)

- * ZONE 1 -Intrusion zone using Normally Open contact devices. Not bypassable.
- * ZONE 2 -Intrusion zone using both Normally Open and Normally Closed contact devices and an end-of-line resistor. Not bypassable.
- * ZONE 3 -Intrusion zone with slow detection time. Bypassable. N.O. contacts
- * ZONE 4 -Tamper detection. Active 24 hours a day. Not bypassable. N.O. contacts.
- * ZONE 5 -Intrusion zone, exit/entry delayed. Bypassable. N.O. contacts.
- * ZONE 6 -Interior zone using Normally Closed contact devices. Bypassable.
- * ZONE 7 -Intrusion zone, active 24 hours a day with slow detection time. Bypassable. N.O. contacts.
- * ZONE 8 -Intrusion zone, exit/entry delayed. Bypassable. N.O. contacts.
- * EMERGENCY - Silent emergency alarm.

NOTE: *The Fire zone is always a supervised, end-of-line, 24-hour zones using Normally Open contact devices only. The only programming option for this zone is "Fire audible alarm won't shut down" (see section 15.1.2.15).*

8.4 FOUR-WIRE SMOKE DETECTOR

The Model 2750 is designed to work with four-wire smoke detectors (ESL 445 AT) and an end-of-line (EOL) power supervision module (ESL 204A).

Figure 8.4A illustrates how to wire the smoke detector to the 2750. The ESL 445AT draws 0.05 mA in the normal standby mode and 15 mA in the alarm mode. A maximum of 10 four-wire smoke detectors may be used on the 2750. Maximum loop resistance is 30 Ω .

NOTE: *If you choose not to use the supervision module, the negative side of the smoke detector power will not be supervised. The ESL 204A module is required in UL installations.*

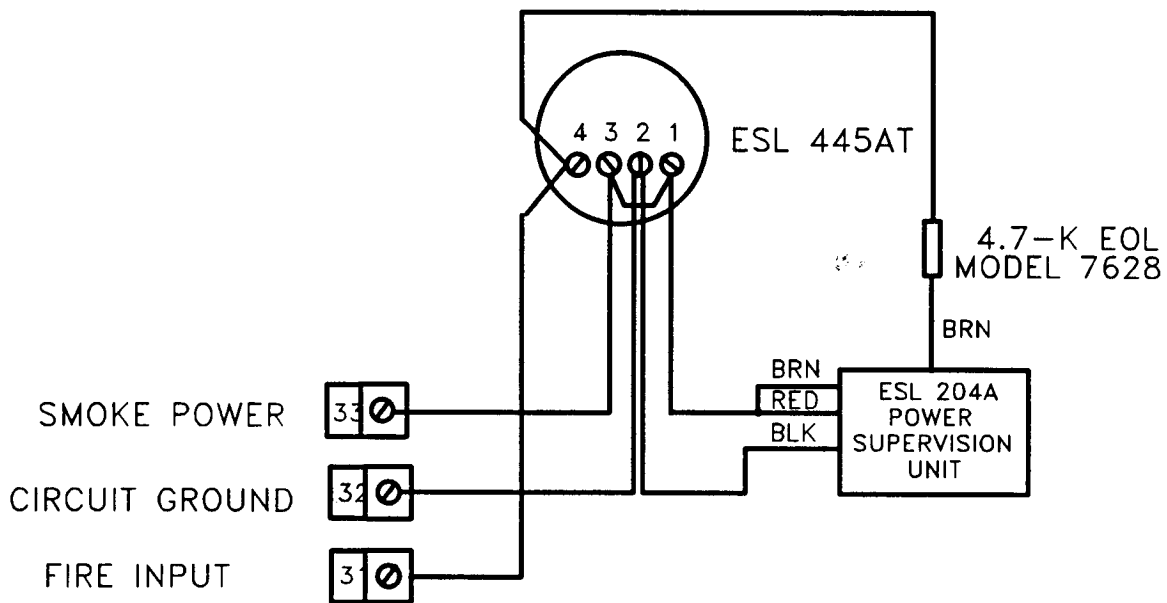


FIGURE 8.4A: FOUR-WIRE SMOKE DETECTOR

9 INSTALLATION OF THE MODEL 1521 SUPERVISED RF RECEIVER

NOTE: *The Model 1521 has not been investigated by UL.*

The 1521 receiver is shipped with a 4-foot long interconnect cable, which allows the RF receiver to be located at least 1 foot away from the metal control panel cabinet. It is important that the RF receiver be installed in an area not surrounded by metal or metal objects. Metal affects radio signals in such a way that will cause reduced reception in an RF receiver. Check for wire lath or foil-backed insulation before committing to an installation location.

Use the wire harness that has 16 pins on one end and 22 on the other (P/N 130283, supplied with the Model 1521). First, plug the 22-pin connector onto the 1521. Plug the 16-pin end of the cable into Connector Header H1 on the 2750 circuit board.

Table 9 - I cross references the RF zone number with the affected 2750 zone. For example, the Trouble output of the RF receiver is connected to the Emergency Zone Trouble input of the 2750.

TABLE 9 - I: 2750 ZONE CROSS REFERENCES

PIN NUMBER	RF FUNCTION
1	CIRCUIT GROUND
2	+8 TO +18 V _{DC}
3	TEST BEEP
4	* TROUBLE
5	ARMED
6	WALK TEST
7	ZONE 1
8	ZONE 2
9	ZONE 3
10	ZONE 4
11	ZONE 5
12	ZONE 6
13	ZONE 7
14	ZONE 8
15-22	NOT USED

*** NOTE:** *RF troubles (transmitter low battery and supervisory) will be reported to the central station receiver and visually indicated at the 1521.*

10 LOCAL ANNUNCIATION

10.1 EXTERNAL DC ALARM BELL OR DC SIREN

NOTE: A speaker cannot be used in a UL installation.

Figure 10.1A shows the wiring of an external alarm bell. To use the bell or siren, install the shunt block in the lower position. To use the speaker, install the shunt block in the upper position.

WARNING: If a speaker is connected with the shunt block in the lower "bell" position, damage to the speaker will result.

If you use a bell, you must install the supplied transient suppressor, Model 7800, as close as possible to the bell contacts. If you use the electronic siren you do not need to install the transient suppressor.

NOTE 1: CSFM listed systems require one (1) listed audible driver to be installed inside residence. (CSFM approval is pending.)

NOTE 2: Wire gauge must be #18 or larger. Maximum length is 150 feet.

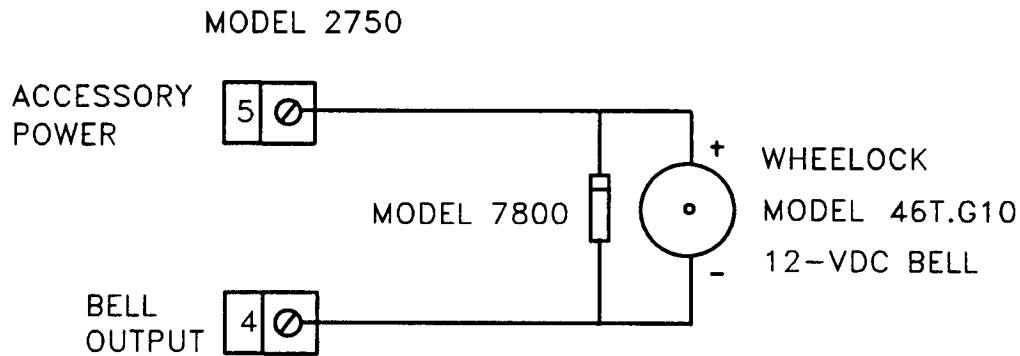


FIGURE 10.1A: EXTERNAL ALARM BELL WIRING

10.2 EXTERNAL SIREN OUTPUT

NOTE: An external siren cannot be used in a UL installation.

Terminal 4 (siren driver) was designed for use with an 8-Ω speaker. If you wish to use a siren, it must be connected between terminal 4 (siren driver) and terminal 3 (external speaker power). For proper operation, move the shunt block on SB1 to the upper position on the 2750 PC board. UL installations are required to use the ATLAS VT-158U Speaker.

NOTE: Wire gauge must be #16 or larger. Maximum length is 150 feet.

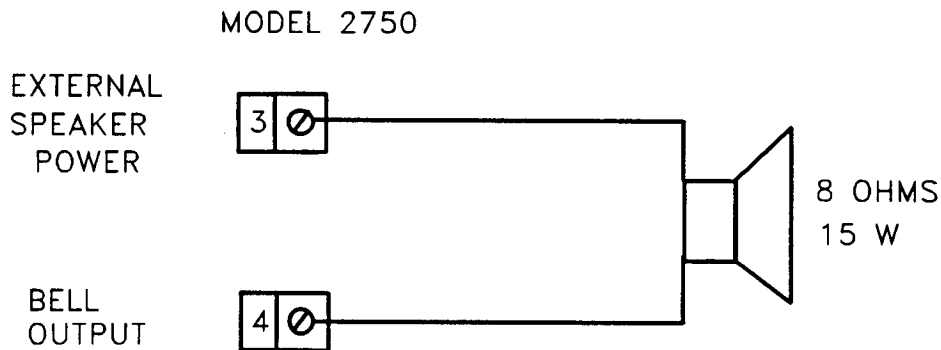


FIGURE 10.2A: EXTERNAL SIREN WIRING (NON-UL INSTALLATIONS ONLY)

10.3 MODEL 4180 STATUS DISPLAY MODULE

The Model 4180 Status Display Module provides 4 relay outputs that can be driven from any of 16 different outputs.

1. The outputs for zones 1 - 6 follow the **EMERGENCY** and **FIRE** LEDs. They are active as long as the zone is in alarm. They do not come on for NOT READY, ALARM MEMORY, BYPASS or PROGRAMMING status.
2. **READY** status.
3. **ARMED** status.
4. **CHIME/INTERIOR** status.
5. **AC POWER** status.
6. **Fire Trouble**.
7. **Alarm status** (comes on for all alarms).

NOTE: If a zone is programmed as silent and the DISPLAY SILENT ZONES option (see section 15.1.2.17) is not selected, this output will not come on with the alarm.

8. **Silent Intrusion**. If an Intrusion Zone has been programmed as Silent and is in alarm, this output will be active. After the alarm is reported, the output will turn off.
9. **Duress Alarm**. This output will be active whenever a duress code is used to arm/disarm or reset an alarm. After the alarm is reported, the output will turn off.

Table 10.3 - I shows the data that can be obtained from outputs P2 and P3 on the 2750.

TABLE 10.3 - I: P2 AND P3 OUTPUTS

PIN #	WIRE COLOR	P2 - 2750	P3 - 2750
1	BROWN	ZONE 1	READY
2	RED	ZONE 2	ARMED
3	ORANGE	ZONE 3	CHIME/INT
4	YELLOW	ZONE 4	POWER
5	GREEN	ZONE 5	FIRE TROUBLE
6	BLUE	ZONE 6	ALARM
7	VIOLET	EMERGENCY	SILENT ALARM
8	GRAY	FIRE	DURESS

In addition to the 4 on-board relays, the 16 outputs available on P2 and P3 can be used to drive external relays and/or LEDs as shown in figure 10.3A.

NOTE: Minimum coil resistance must be 240 Ω.

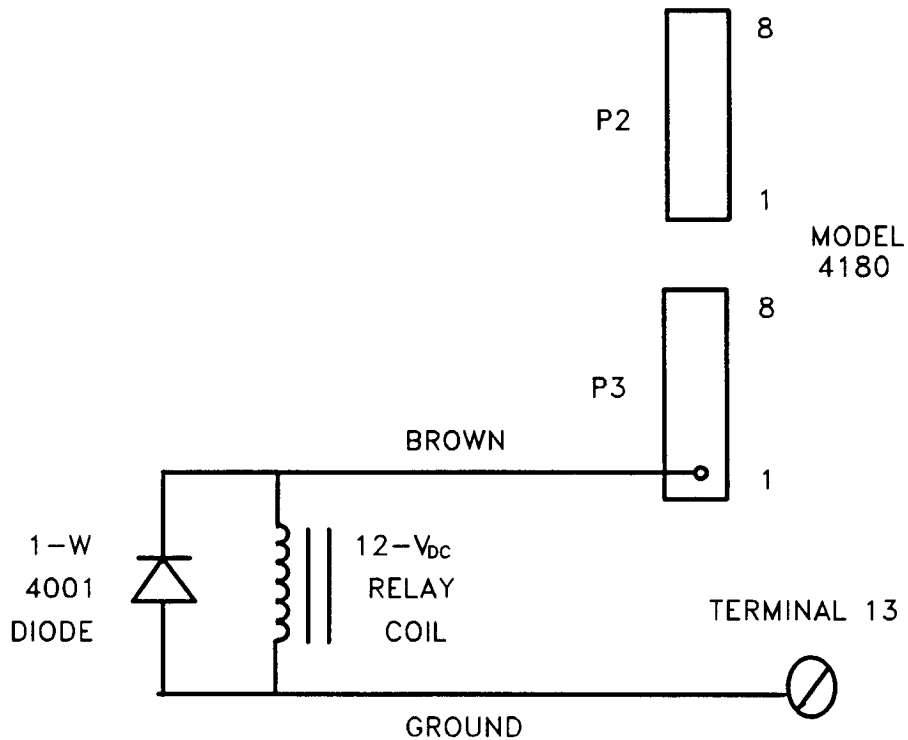


FIGURE 10.3A: WIRING THE MODEL 4180 STATUS DISPLAY MODULE (TYPICAL WIRING—ONE OF 16 SHOWN)

11 TELEPHONE LINE WIRING

The Model 2750 communicates to the central station over the same telephone line already installed at the protected premises. You should connect the 2750 to the phone line using an RJ31X type phone jack. The telephone company will install an RJ31X jack upon request. The Model 7860 connecting cord will mate to the RJ31X and can be wired into the 2750 as shown in figure 11A.

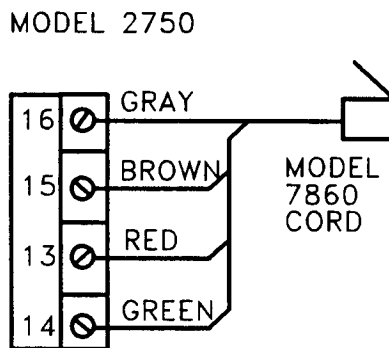


FIGURE 11A: WIRING THE 2750 TO THE TELEPHONE LINE

12 MODEL 7368 INTERCOM/TWO-WAY AUDIO MODULE

A system consisting of the Model 2750 and one Model 7368 Intercom Module allows up to 4 Model 4212 keystations to talk and listen in to a Model 7381 Front Door Intercom Station. The 7368 also provides bidirectional audio communication with the central station.

NOTE: The intercom cannot be used to talk/listen to other keystations.

Model 7368 wiring and operation are summarized in sections 12.1 and 12.2. For more detailed information, see the Model 7368 Instruction Manual (P/N 150339).

12.1 MODEL 7368 WIRING

Figure 12.1A shows how to wire the Model 7368.

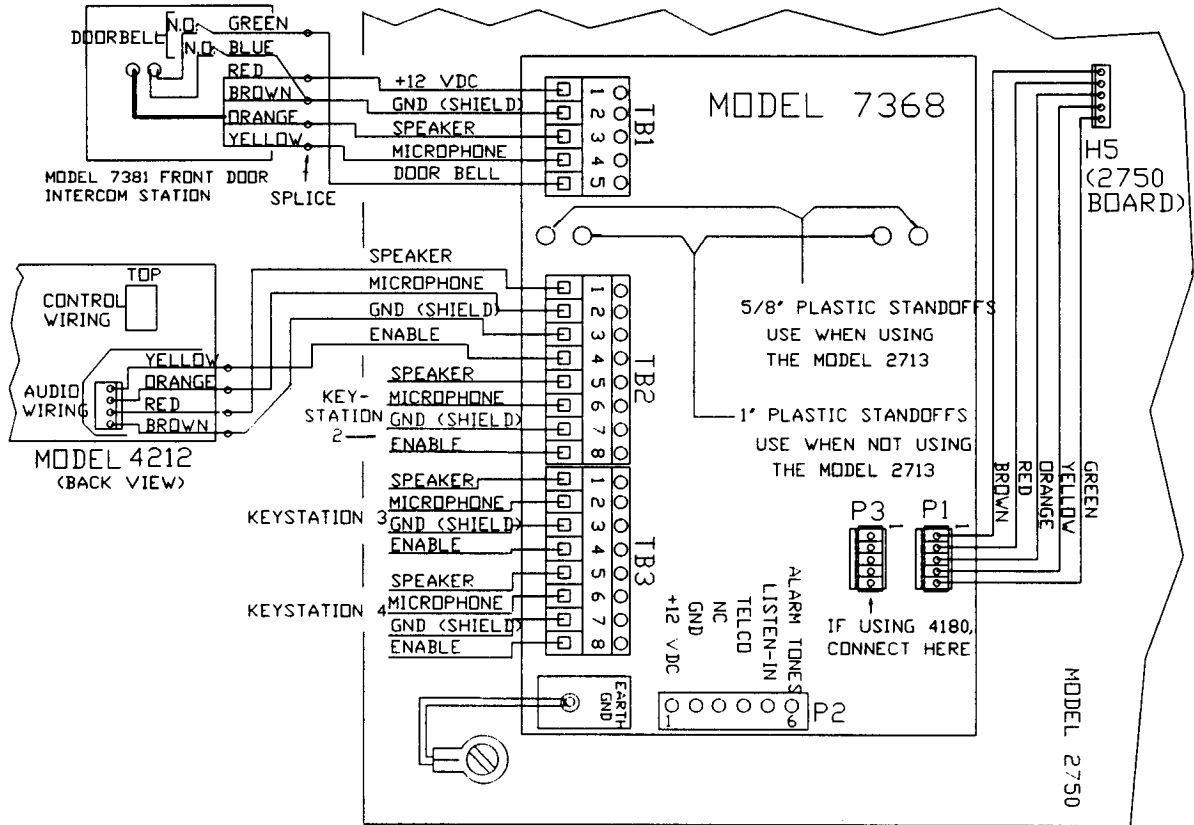


FIGURE 12.1A: WIRING THE MODEL 7368 INTERCOM/TWO-WAY AUDIO MODULE

12.2 MODEL 7368 OPERATION

To talk to someone at the front door, press the **Ⓜ** key. Release the key to listen. Thirty seconds after the last time you listen, the Listen function will automatically shut off. If you want to listen again, you must repeat the procedure.

The Model 7368 also provides hands-free, two-way audio communication with the central station. After the communicator has transmitted its report and is acknowledged by the central station receiver, the 7368 is activated automatically. The Model 7368 amplifies any sound in the protected area and transmits it to the central station. The 7368's two-way audio capability allows the central station operator to talk to the person in the protected area.

13 EEPROM

The Model 2750 provides a very wide variety of features that may be selected for use depending on your needs. These features are selected and then programmed into an EEPROM (Electrically Erasable Programmable Read Only Memory) chip. The control panel comes with a factory programmed EEPROM as described below. Refer to section 2.3 for UL programming requirements.

13.1 FACTORY PROGRAMMED OPTIONS

To facilitate testing and use without a programmer, each 2750 is shipped with an EEPROM that has been preprogrammed with the following features:

13.1.1 PREPROGRAMMED CONTROL OPTIONS

The intrusion zones have been programmed as described below:

- Zone 1: Delayed, Chime, Bypassable (Shutable) and Fast Response.
- Zone 2: Delayed, Chime, Bypassable and Fast Response.
- Zone 3: Interior, Bypassable and Fast Response.
- Zone 4: Interior and Bypassable.
- Zone 5: All options are programmed as NO.
- Zone 6: 24-Hour, Bypassable and Report Delayed.

The following options have been selected:

- | | |
|--------------------------|--------------------------------|
| Interior Switch Disabled | Display Silent |
| Auto Interior Alarm | Relay 1 Timed |
| Auto Interior Disarm | Relay 2 Timed |
| Silent Emergency Alarm | Swinger Bypass = 1 (1 hour) |
| Swinger Bypass (Shunt) | Exit Delay = 3 (45 seconds) |
| Interior Followers | Entry Delay = 2 (30 seconds) |
| Duress | Report Delay = 1 (5 seconds) |
| Dialer | Auto Shutdown = 5 (5 minutes) |
| Shutdown/Fire | Relay Duration = 2 (2 seconds) |

The access codes have been programmed as follows:

- Maintenance Code (Code 0; Passcode) = 1234
- Code 1 = 2222
- Code 2 = 3333
- Code 3 = 4444
- Code 4 = 5555
- Code 5 = 6666

13.1.2 PREPROGRAMMED DIALER OPTIONS

The reporting codes are factory programmed as listed below:

- Fire Code = 1
- Emergency Code = 3
- Intrusion Code and Panic Code = 2
- Trouble Code = 7
- Restore Code = 5
- Closing Code = 4
- Opening Code = 9
- Test/Cancel Code = 5
- Duress Code = 0

Values programmed for Low AC Hours and # Rings are:

- Low AC Hours = 1 (1 hour)
- # Rings = 2 (2750 answers after 2 rings when downloading computer calls.)

The following options have been selected:

- Fail Output
- Ring Enable
- Computer

Account #1 options have been programmed as described below:

Reporting options:

Report Alarms #1
Report Restore #1
Report Op Reset #1
Report Test

Account #1 = 2750
Attempts #1 = 12
Format #1 = SIA8
Listen In Time #1 = 0 seconds
Touchtone Only #1 has been selected.
Rotary Only #1 has not been selected.
DEMO mode has not been selected.
Listen To #1 is programmed as All Reports.

Account #2 options have been programmed as follows:

(None of the reporting options described under account #1 has been selected for account #2.)

Account #2 = 2750 (same as account #1)
Attempts #2 = 12
Format #2 = FSK81
Listen In Time #2 = 0 seconds
Touchtone Only #2 has not been selected.
Rotary Only #2 has been selected.
DEMO mode has not been selected.
Listen To #2 is programmed as All Reports.

The Computer options have been programmed as described below:

Computer account # = 2222
Touchtone Only has been selected.
Rotary Only has not been selected.
DEMO mode has not been selected.
Phone #1 has been programmed as 566-5170.
Phone #2 has been programmed as 566-3750.
The Computer Phone # has been programmed as 566-1010.

13.2 CHANGING THE OPTIONS

To "customize" installation, the EEPROM chip is programmed with either a Model 5520 Desk Top Programmer or Model 5540 Downloading Software, as explained in section 16. The EEPROM chip is an 8-pin integrated circuit chip that can be reprogrammed up to 1000 times. Therefore, if you need to change or add an option you simply reprogram the EEPROM. Up to 6 user access codes can be programmed into the system directly from any digital keystation in the system. Access codes can be changed or added by the user from the digital keystation.

For specific information regarding features and options refer to the following sections:

- * Reporting Formats (section 14)
- * Control Options (section 15.1)
- * Dialer Options (section 15.2)
- * User Access Codes (section 15.1.4)

14 REPORTING FORMATS

The Silent Knight Model 2750 can transmit information in 8 different formats. The type of format you select is determined by the type of receiver used at the central station. The 8 formats are:

- * **Silent Knight 3/1** - Old format, transmits a 3-digit account number and a 1-digit alarm code that acknowledges at 1400 Hz.
- * **Sescoa 3/1** - Old format, transmits a 3-digit account number and a 1-digit alarm code that acknowledges at 2300 Hz.
- * **Silent Knight 4/2** - Silent Knight tone burst format, transmits a 4-digit account number and a 2-digit alarm code.
- * **Silent Knight FSK** - High speed, single-round format for use with the Model 9000 and 8510/8520 receivers. 4-digit account number and 2-digit alarm code.
- * **SIA8 and SIA20** - Security Industry Association (formerly Security Equipment Industry Association) standard.
- * **BFSK14 and BFSK23** - High-speed, single-round, 3-digit account Radionics format.

The tables in the following subsections show the digits that are transmitted for each event reported by the 2750 dialer, and the message that is printed out by the central station's Model 9000 receiver. A separate table is shown for each format.

Additional information about these formats can be found in section 15.2.13.

Underwriters Laboratories has determined the 2750 to be compatible with the following Listed digital alarm communicator receivers and formats shown in table 14 - I.

TABLE 14 - I: RECEIVERS AND FORMATS COMPATIBLE WITH THE MODEL 2750

RECEIVER	FORMAT
Silent Knight Model 9000	SIA, FSK2, FSK1, SK4+2, BFSK14, BFSK23
Silent Knight Model 8510/8520	FSK1, SK4+2
Radionics 6000/6500	BFSK1, BFSK2
FBI CP220	SK4+2, BFSK1, BFSK2
Osborne, Hoffman Quickalert!	SK4+2

14.1 SILENT KNIGHT 3/1 AND SESCOA 3/1 FORMATS

These formats transmit a 3-digit account number and a single-digit alarm code. These formats will greatly limit the information that can be reported. To avoid confusion at the central station, a standard alarm digit format should be chosen. During programming, you select which alarm digits will be reported for different events. You can choose not to report restores or not to use zone numbers that might be duplicated by a supervisory transmission.

The second column of table 14.1 - I shows the programming step number in which each digit is programmed (see the Dialer Options EEPROM coding form in section 16.2.6). The third column indicates that the 9000 prints only the digit (X) that has been programmed for that event--not an English message.

NOTE: When using the 3/1 formats, many of the reporting capabilities are lost because of the limited number of codes that can be sent.

TABLE 14.1 - I: 9000 PRINTOUT FOR SILENT KNIGHT AND SESCOA 3/1 FORMATS

2750 DIALER	DIALER OPTION PROGRAMMING STEP #	9000 PRINTOUT
ALARM 1-6	3	X
RESTORE 1-6	6	X
SHUNT 1-6	5	X
SHUNT RESTORE 1-6	6	X
OPEN 0-5	8	X
CLOSE 0-5	7	X
AC LOST	5	X
AC RESTORE	6	X
BATT TROUBLE	5	X
BATT RESTORE	6	X
FIRE ALARM	1	X
FIRE PANIC	1	X
FIRE TROUBLE	5	X
FIRE ALARM RESTORE	6	X
FIRE TROUBLE RESTORE	6	X
EMERGENCY ALARM	2	X
EMERGENCY PANIC	2	X
EMERGENCY ALARM RESTORE	6	X
PANIC ALARM	4	X
DURESS	10	X
TEST	9	X
CANCEL 0-5	9	X
CONTROLLER TROUBLE 1	5	X
CONTROLLER RESTORE 1	6	X
DATA LOST	9	X
TRANSMITTER BATTERY TROUBLE	5	X
TRANSMITTER BATTERY RESTORE	6	X

AS PROGRAMMED

14.2 SILENT KNIGHT FSK AND 4/2 FORMATS

The Silent Knight FSK and Silent Knight 4/2 formats transmit a 4-digit account number and a 2-digit alarm code. When an event is reported in either of these two formats, the dialer transmits the two digits shown in the second column. The 9000 can be programmed to print either the two digits or the English message shown in the third column of table 14.2 - I.

TABLE 14.2 - I: 9000 PRINTOUT FOR SILENT KNIGHT FSK AND 4/2 FORMATS

2750 DIALER	DIGITS TRANSMITTED	9000 PRINTOUT
ALARM 1-6	11-16	ALARM 11 - ALARM 16
RESTORE 1-6	21-26	ALARM RESTORE 11-16
SHUNT 1-6	51-56	SHUNT 11 - SHUNT 16
SHUNT RESTORE 1-6	21-26	ALARM RESTORE 11-16
OPEN 0-5	90-95	OPEN ID 00 - OPEN ID 05
CLOSE 0-5	40-45	CLOSE ID 00 - CLOSE ID 05
AC LOST	60	AC TROUBLE
AC RESTORE	70	AC RESTORE
BATTERY TROUBLE	69	LOW BATTERY
BATTERY RESTORE	79	BATTERY RESTORE
FIRE ALARM	02	ALARM 02
FIRE PANIC	02	ALARM 02
FIRE TROUBLE	62	TROUBLE 02
FIRE ALARM RESTORE	72	RESTORE 02
FIRE TROUBLE RESTORE	72	RESTORE 02
EMERGENCY ALARM	03	ALARM 03
EMERGENCY PANIC	03	ALARM 03
EMERGENCY ALARM RESTORE	73	RESTORE 03
PANIC ALARM	00	PANIC ALARM
DURESS	09	HOLDUP ALARM
MANUAL TEST	30	TEST
CANCEL 0-5	38	CANCEL
CONTROLLER TROUBLE 1	33	EXPANSION TROUBLE
CONTROLLER RESTORE 1	37	EXPANSION RESTORE
DATA LOST	39	DATA LOST
TRANSMITTER BATTERY TROUBLE	33	EXPANSION TROUBLE
TRANSMITTER BATTERY RESTORE	37	EXPANSION RESTORE

14.3 RADIONICS BFSK

In this format, the 2750 transmits, in English, the event description shown in the first column of table 14.3 - I. At the central station, the 9000 receiver prints the English message shown in the second column.

TABLE 14.3 - I: 9000 PRINTOUT FOR RADIONICS BFSK FORMAT

2750 DIALER	9000 PRINTOUT
ALARM 1-6 RESTORE 1-6 SHUNT 1-6 SHUNT RESTORE 1-6 OPEN 0-5 CLOSE 0-5 AC LOST AC RESTORE BATT TROUBLE BATT RESTORE FIRE ALARM FIRE PANIC FIRE TROUBLE FIRE ALARM RESTORE FIRE TROUBLE RESTORE EMERGENCY ALARM EMERGENCY PANIC EMERGENCY ALARM RESTORE PANIC ALARM DURESS TEST CANCEL 0-5 CONTROLLER TROUBLE 1 CONTROLLER RESTORE 1 DATA LOST TRANSMITTER BATTERY TROUBLE TRANSMITTER BATTERY RESTORE	ALARM 01 - ALARM 06 RESTORE 01 - RESTORE 06 TROUBLE 01-06/FORCE ARMED RESTORE 01 -RESTORE 06 OPEN ID 00 - OPEN ID 05 CLOSE ID 00 - CLOSE ID 05 TROUBLE 00 RESTORE 00 TROUBLE 09 RESTORE 09 ALARM 07 ALARM 07 TROUBLE 07 RESTORE 07 RESTORE 07 ALARM 08 ALARM 08 RESTORE 08 ALARM ALARM 09 RESTORE 0E CANCEL 00 - CANCEL 05 TROUBLE 0D RESTORE 0D TROUBLE 0E TROUBLE 0D RESTORE 0D

14.4 SIA8 AND SIA20

In these formats, the 2750 transmits the English description shown in the first column of table 14.4 - I. At the central station, the 9000 receiver prints the English message shown in the second column.

TABLE 14.4 - I: 9000 PRINTOUT FOR SIA8 AND SIA20 FORMATS

2750 DIALER	9000 PRINTOUT
ALARM 1-6 RESTORE 1-6 SHUNT 1-6 SHUNT RESTORE 1-6 OPEN 0-5 CLOSE 0-5 AC LOST AC RESTORE BATT TROUBLE BATT RESTORE FIRE ALARM FIRE PANIC FIRE TROUBLE FIRE ALARM RESTORE FIRE TROUBLE RESTORE EMERGENCY ALARM EMERGENCY PANIC EMERGENCY ALARM RESTORE PANIC ALARM DURESS TEST CANCEL 0-5 CONTROLLER TROUBLE 1 CONTROLLER RESTORE 1 DATA LOST TRANSMITTER BATTERY TROUBLE TRANSMITTER BATTERY RESTORE	BURGLARY ALARM 1-6 BURGLARY RESTORE 1-6 BURGLARY SHUNTED 1-6 BURGLARY SHUNT RESTORE 1-6 OPEN ID 0 - OPEN ID 5 CLOSE ID 0 - CLOSE ID 5 AC TROUBLE 0 AC RESTORE 0 LOW BATTERY 0 BATTERY RESTORE 0 FIRE ALARM 7 FIRE ALARM 81 FIRE TROUBLE 7 FIRE ALARM RESTORE 7 FIRE TROUBLE RESTORE 7 MEDICAL ALARM 8 MEDICAL ALARM 82 MEDICAL ALARM RESTORE 8 PANIC ALARM 83 HOLDUP ALARM 9 MANUAL TEST 0-5 OPEN - RESET ID 0-5 EXPANSION TROUBLE 1 EXPANSION RESTORE 1 DATA LOST 0 TRANSMITTER BATTERY TROUBLE 0 TRANSMITTER BATTERY RESTORE 0

15 OPTIONS DESCRIPTIONS

15.1 CONTROL OPTIONS

NOTE: *The subheading for each option shows how the description appears on the LCD of the 5520 Desk Top Programmer.*

15.1.1 ZONE OPTIONS (applies to the 6 intrusion zones)

15.1.1.1 24 HOUR

This option causes the zone to be active at all times, regardless of the status of the **ARMED** LED.

NOTE: *If you program a zone as both 24HR and **BYPASSABLE**, it is recommended that you **enable REPORT BYPASS** for either line 1 or line 2 (see section 15.2.10), to ensure that violations and restorals of the zone are reported correctly.*

15.1.1.2 DELAYED

A zone programmed as **DELAYED** will allow a period of time between the input that sets off an alarm (opening a door, for example) and the activation of the bell or siren. This allows the user to arm the system, then leave the building without setting off an alarm. If the system is not disarmed before the end of the entry time, an intrusion alarm will be activated. If the **NO DELAY** LED is on, all delays are ignored and the activation of a delayed input will cause an immediate alarm. If a delayed zone input is still active at the moment the exit delay elapses, an alarm will be activated.

Activating a delayed zone after the exit time will cause the speaker to emit an entry delay tone for the duration of the entry delay.

The duration of the delay can be programmed via the Exit/Entry Delay option described in section 15.1.2.

15.1.1.3 INTERIOR

When this option is selected, the zone can function as an Interior zone--that is, an alarm is activated by the presence of someone **inside** the zone (e.g., moving around in a room), as distinguished from a **perimeter** zone, in which the alarm is activated by someone **entering** the zone (e.g., opening a door or window).

NOTE: *A zone selected as Interior will be enabled/disabled by the **CHIME/INTER** key.*

15.1.1.4 SILENT

If a zone is programmed as **Silent**, a report will be sent to the dialer if the zone is violated, but no alarm will sound. If the **DISPLAY SILENT ZONES** option is selected, the report will be visually annunciated.

15.1.1.5 CHIME

This option determines whether or not a chime will sound when the zone is activated. The **CHIME** function works only when the system is *disarmed*.

15.1.1.6 BYPASSABLE

If a zone is programmed as **BYPASSABLE**, it is possible to use the keystation to tell the zone not to generate alarms and reports if the zone is violated.

NOTE: *Selecting this option does **NOT** bypass the zone. It simply makes it **possible** to bypass it using the keystation.*

15.1.1.7 FAST RESPONSE

The normal time it takes for a zone to respond to a violation is 100 ms. If you select the **FAST RESPONSE** option, the zone will respond in 30 ms. The normal response time (100 ms) is recommended, unless a fast response time is absolutely necessary, as in the case of breaking-glass detectors. The **fire** zone always responds in the normal length of time. The **emergency** zone always responds in 300 ms.

15.1.1.8 REPORT DELAYED

This option delays the reporting of an alarm activation to the dialer, to allow the user more time to reset a false alarm. The alarm sounds immediately, unless an entry delay time has been programmed (see section 15.1.3.3).

15.1.2 SYSTEM OPTIONS

15.1.2.1 INT SW. DISABLED (INTERIOR SWITCH DISABLED WHEN ARMED)

When this option is selected, the **CHIME/INTER** key will be disabled (that is, it will *not* be possible to change the status of the **CHIME/INTERIOR LED** by pressing the **CHIME/INTER** key) after the user has armed the system and the exit delay time has expired. When this option is *not* selected, the **CHIME/INTER** key always functions. This option prevents unauthorized users from changing the status of the **CHIME/INTERIOR** function.

NOTE: The capability to change the status of the CHIME/INTERIOR LED during the exit delay was added to the Model 9309 control chip at revision F. In revisions E and earlier, the status of the CHIME/INTERIOR LED will NOT change if the CHIME/INTER key is pressed during the exit delay, when the INT. SW. DISABLED option has been selected.

15.1.2.2 AUTO INT ALARM (AUTOMATIC INTERIOR WITH BURGLAR ALARM)

When this option is selected, an alarm in any zone will cause the **CHIME/INTERIOR LED** to come on (if it was off before the alarm), which means zones programmed as Interior will now function as Interior zones, as if you'd enabled them from the keystation (see section 15.1.1.3).

15.1.2.3 AUTO INT DISARM (AUTOMATIC INTERIOR OFF WHEN DISARMING)

Selecting this option causes the Interior function to be disabled automatically (as if you'd disabled it from the keystation) when the system is disarmed. The **CHIME/INTERIOR LED** will turn off.

15.1.2.4 AUTO INT ARM (AUTOMATIC INTERIOR ON WHEN ARMING)

If this option is selected, then when the system is armed, all zones that have been programmed as Interior will automatically be enabled (as if you'd pressed the **CHIME/INTER** key), and the **CHIME/INTERIOR LED** will turn on.

15.1.2.5 SILENT EMR ALARM (SILENT EMERGENCY ALARM)

This option causes the Emergency alarms from both the **PANIC** button and the Emergency input to be silent. The alarm will still be reported to the dialer.

15.1.2.6 SILENT POL ALARM (SILENT POLICE ALARM)

This feature causes a silent alarm to be generated by the **POLICE** panic button.

15.1.2.7 SWINGER BYPASS

When this option is selected, 4 consecutive activations of the same alarm input within the programmed time period (see section 15.1.3.1) will cause that zone to be force bypassed. A report that it has been bypassed will be sent to the dialer.

15.1.2.8 DEFAULT ARM

The **DEFAULT ARM** option is designed to be used in situations in which the user may fail to remember to activate the **CHIME/INTERIOR** and **NO DELAY** functions when arming the system.

When this option is selected, the 2750 sets the status of the **CHIME/INTERIOR** and **NO DELAY** LEDs automatically. This is done at the end of the exit delay and is dependent upon the use or non-use of a delayed door during the exit delay. The **DEFAULT ARM** option is used in conjunction with the **AWAY** option (section 15.1.2.9), the **HOME** option (section 15.1.2.10) and the **AUTO INT ARM** option (section 15.1.2.4).

15.1.2.9 AWAY (Exit Door Used)

If (after the exit delay expires and an exit door has been used) you wish to have the **CHIME/INTERIOR LED** (ON) and the **NO DELAY LED** (OFF), select YES for this option and YES for **AUTO INT ARM** (section 15.1.2.4).

If (after the exit delay expires and an exit door has been used) you wish to have the **CHIME/INTERIOR LED** (OFF), select NO for this option.

15.1.2.10 HOME

If (after the exit delay expires and an exit door has NOT been used) you wish to have the **CHIME/INTERIOR LED** (OFF) and the **NO DELAY LED** (ON), select NO for this option.

If (after the exit delay expires and an exit door has NOT been used) you wish to have the **CHIME/INTERIOR** and **NO DELAY** LEDs (ON), select YES for this option and YES for the **AUTO INT ARM** option (see section 15.1.2.4).

15.1.2.11 SPKR DIALER FAIL (EXTERNAL SPEAKER OFF UNLESS DIALER FAILS)

When this option is selected, the external speaker/bell will not sound during an alarm *unless* the dialer fails to communicate to the central station in the programmed number of tries (see section 15.2.12). This option does not affect the internal speaker output.

NOTE: If this option is used, the FAIL OUTPUT ENABLE option (see section 15.2.4) must be selected.

15.1.2.12 INT FOLLOWERS (INTERIOR FOLLOWERS)

This option allows the user to pass through interior sensors, such as motion detectors, without causing an alarm during entry and exit.

When YES is selected, zones that have been programmed as both Interior and No Delay (Instant) become delayed automatically during exit. At the end of the Exit Delay, they will automatically revert to Instant.

At the end of the Exit Delay, if an Exterior Delayed zone is violated before the Interior zone, the Interior zones will automatically become Delayed for the duration of the entry or exit delay.

15.1.2.13 DURESS

If this option is selected, and a user presses **(0)** followed by an access code, a silent Duress report will be sent to the dialer. There will be no audible alarm or visible display at the keystations. This feature works when arming, disarming or resetting an alarm.

15.1.2.14 DIALER (NO REPORTS TO DIALER)

When NO is selected, no alarm or status information will be sent to the dialer. A "local only" system would be programmed this way.

15.1.2.15 SHUTDOWN /FIRE (RESET/SHUTDOWN ALL EXCEPT FIRE)

This option causes an automatic alarm reset or shutdown (silencing of the speakers if the alarm cannot be reset) at the end of the programmed Reset/Shutdown time. This feature affects all alarms except Fire.

15.1.2.16 SHUTDOWN ALL (RESET/SHUTDOWN ALL)

This option automatically resets or shuts down all alarms, including Fire, at the end of the programmed Reset/Shutdown time.

15.1.2.17 DISPLAY SILENT (DISPLAY ZONES SELECTED AS SILENT)

This feature causes the appropriate ZONE or ALARM LED to come on when a Silent zone is violated. However, no LED comes on during a Duress alarm.

15.1.2.18 CODE 2 CONTROL (CODE 2 CONTROLLED BY USER CODE)

When this option is selected, codes 2, 3, 4 and 5 cannot arm or disarm the system unless the CODE 2 LED is on. This LED cannot be turned off or on once the system is armed. It turns off automatically when the system is disarmed using the code 1 access code.

NOTE: If the Model 9309 revision F control chip is used, only codes 4 and 5 are affected by the CODE 2 feature.

15.1.2.19 SMK POWER RESET (SMOKE POWER RESET 3 OR 6 SECONDS)

If you select this option, the smoke detector power will be removed for 6 seconds when a Fire alarm is being reset from the keystation. If this option is not selected, smoke detector power will be removed for 3 seconds.

15.1.2.20 CODE 5 ARM ONLY (ACCESS CODE 5 CAN ARM ONLY)

This feature prevents access code 5 (and the Mechanical Key) from disarming the system or resetting alarms. This feature might be used if the homeowner wants an individual such as a babysitter to be able to arm the system upon leaving the house, but not be able to disarm the system.

15.1.3 TIMERS

The following options control the operating timers for the options described above.

15.1.3.1 SWINGER BYPASS

This timer controls the minimum time for the SWINGER BYPASS option. The range is 1-15 hours, in increments of 1 hour.

15.1.3.2 EXIT DELAY

The Exit Time is selected in increments of 15 seconds, in the range of 15-225 seconds.

15.1.3.3 ENTRY DELAY

The Entry Delay Time is programmed in increments of 15 seconds, in the range of 15-225 seconds.

15.1.3.4 REPORT DELAY

The delay before an alarm is reported to the central station ranges from 5 to 75 seconds, in increments of 5 seconds.

15.1.3.5 AUTO SHUTDOWN

The length of time an alarm will be on before an attempt to reset or an audible shutdown occurs ranges from 1 to 15 minutes, programmed in increments of 1 minute.

15.1.4 ACCESS CODES

There can be up to 6 access codes in the system, each 4 digits long. The access codes have different levels of control, depending on the type of code and the programming of various options.

When assigning access codes, it is advisable to make them as different from one another as possible, to prevent users from discovering each others' codes.

NOTE: *If you have programmed the system to use the Duress alarm, NEVER start or end an access code with the digit "0". This is the Duress digit, and could accidentally cause false Duress alarms.*

15.1.4.1 CODE 0 (MAINTENANCE CODE)

The maintenance code allows unrestricted operation of the system, including arming and disarming the system, resetting alarms and reprogramming the EEPROM. This code is also used as the passcode to the 5520 Desk Top Programmer and the 5540 Downloading Software. To prevent unauthorized reprogramming, this code is kept secret by the installing dealer, and is not given to users.

NOTE 1: *Use of the maintenance code to disarm the system will cause an Open report to the central station even if the dialer is not programmed to report openings.*

NOTE 2: *When programming code 0, be sure to program the number correctly and keep a record of it. There is a \$25 charge for every panel returned to Silent Knight for code 0 reprogramming.*

15.1.4.2 CODE 1 (MAIN USER CODE)

The Main User code can be used to arm and disarm the system, reset alarms and reprogram its own secret code.

15.1.4.3 CODES 2 THROUGH 4

These codes will function like code 1, *unless* the CODE 2 CONTROL option (see section 15.1.2.18) has been selected. If this option *has* been selected, these codes will function only if the CODE 2 LED is on.

15.1.4.4 CODE 5

Code 5 will work the same way as codes 2-4 *unless* the CODE 5 ARM ONLY option (see section 15.1.2.20) has been selected. If this option *has* been selected, code 5 can arm the system, but cannot disarm, reset alarms, or perform any other functions.

15.1.5 MISCELLANEOUS CONTROL OPTIONS

15.1.5.1 ACCESS CODE REQ

If this option is selected, an access code must always be used before the relay(s) on the Model 2713 Keypad/Relay Module will activate. If this option is not selected, an access code is required only when the system is armed.

15.1.5.2 RELAY 1 TIMED

If this option is selected, Door Relay #1 of the Model 2713 Keypad/Relay Module will be a momentary output. If not selected, it will be continuous.

15.1.5.3 RELAY 2 TIMED

If this option is selected, Door Relay #2 of the Model 2713 Keypad/Relay Module will be a momentary output. If not selected, it will be continuous.

15.1.5.4 FAST RESTORE (REPORT RESTORE ON MOMENTARY INPUTS)

This feature causes the 2750 to report a Restore immediately after reporting an alarm, if the zone input is restored to normal (for example, a door triggered an alarm when it was opened, and now it has been shut again) before

the report of the alarm has been sent to the central station and acknowledged (kissed-off). If the zone is restored after kiss-off, the Restore will be reported at the Reset/Shutdown Time that has been selected for that option during programming.

15.1.5.5 RELAY DURATION (IF TIMED)

If either the RELAY 1 TIMED or the RELAY 2 TIMED option above is selected, then the time the relay will be active can be programmed in increments of 1 second, in the range of 1 to 15 seconds.

15.2 DIALER OPTIONS (5520 AND 5540 ONLY)

15.2.1 CODES REPORTED FOR 3/1 FORMAT

For each type of alarm or other event, select a digit from 0 through 9 to identify that particular event to the receiver. The letters A-E may also be used if the receiver is capable of receiving them.

TABLE 15.2.1 - I: REPORTING CODES

EVENT	Digits
FIRE CODE	0-9, A, B, C, D, E
EMER CODE	0-9, A, B, C, D, E
INTRU CODE (Intrusion code)	0-9, A, B, C, D, E
PANIC (EMER panic button)	0-9, A, B, C, D, E
TROUBLE CODE (Fire trouble)	0-9, A, B, C, D, E
RESTORE CODE	0-9, A, B, C, D, E
CLOSING CODE	0-9, A, B, C, D, E
OPENING CODE	0-9, A, B, C, D, E
TEST/CANCEL CODE	0-9, A, B, C, D, E
DURESS CODE	0-9, A, B, C, D, E

NOTE: When using the 3/1 formats, much of the reporting abilities of the 2750 are lost because you are limited to 1 digit to report an event.

15.2.2 LOW AC HOURS

This option allows you to select the number of hours that the AC power must be removed from the panel before the power loss is reported to the central station. If AC power is restored and lost again during this time period, the system will reset the time to 0 and start counting again. A maximum of 15 hours may be selected.

NOTE: If you select 0 for this option, there will be no delay--the AC POWER light will go off and the power loss will be reported as soon as the power loss is detected (takes approximately 60 seconds).

15.2.3 # RINGS

If the downloading software (Model 5540) is to be used, this option determines the number of times the phone line will ring before the 2750 will answer the call. The allowable number of rings ranges from 2 to 15. If you select fewer than 2 rings, the 2750 will answer on the second ring.

NOTE 1: If you wish to download, you must select the RING ENABLE and COMPUTER options described below.

NOTE 2: To prevent unauthorized persons from calling the system, the 2750 is designed not to answer the phone if the time between rings is longer than 7 seconds.

15.2.4 FAIL OUTPUT ENABLE

If you select this option, the DIALER FAILED LED will come on after the programmed number of attempts to dial (see section 15.2.12) have been made without reaching the central station. The external speaker will also sound, if the system is in alarm and you have selected the Control option SPKR DIALER FAIL (see section 15.1.2.11).

15.2.5 RING ENABLE

This option enables the ring detector. If you wish to call the 2750 from the computer, this option must be selected, along with the # RINGS option.

15.2.6 ZONE 6 REPORT AS UNDEFINED

If this option is selected, any alarm, restore, bypass, or bypass restore that occurs in zone 6 (a Burglary zone) will be reported as an "Undefined" alarm, restore, etc., rather than as a "Burglary" alarm, restore, etc.

15.2.7 MUST REPORT TO PHONE #2

This option applies only to reports that have been programmed to report to both phone #1 and phone #2 (see section 15.2.10). If the MUST REPORT TO PHONE #2 option is **NOT** selected, each of these reports will automatically go to phone #1. The *only* time the report will go to phone #2 is if phone #1 is unavailable. As soon as phone #1 is clear, the report will also go to phone #1.

If the MUST REPORT TO PHONE #2 option *is* selected, all reports that have been programmed to go to both phone #1 and phone #2 *will* go to both phone numbers, even if the dialer was able to report to phone #1 initially.

15.2.8 COMPUTER

If the downloading computer is to be used for programming and status changing, you must select the COMPUTER option.

15.2.9 GROUND START

Select this option if your phone lines require the use of a "ground start" relay. The 2750 adds 2.5 seconds of ground start delay before looking for a dial tone.

15.2.10 REPORTS BY PHONE NUMBER

Each of the following types of reports can be sent to either phone #1 or phone #2 or to both.

REPORT ALARMS

The types of alarms that are reported are Burglary (zones 1-6), Fire (activated by input from a smoke detector), Fire Panic (activated by pressing the **FIRE** button on the keystation), Emergency (Medical), Emergency Panic (activated by pressing the **EMER** button), Panic (activated by pressing the **POLICE** key on the Model 4210 and 4212 keystations or by simultaneously pressing the two **☐** **☐** keys on the Model 4211 keystations) and Holdup (Duress).

REPORT TROUBLE

The 2750 reports AC Trouble, Battery Trouble, Fire Trouble, Expansion Trouble (Controller failure) and Transmitter Battery Trouble.

REPORT BYPASS

The system reports which of zones 1-6 have been bypassed for Burglary.

REPORT RESTORE

The 2750 reports Restores of Burglary and Burglary Bypass conditions in zones 1-6; Restores of AC and Battery power losses; Restores of Fire Alarm and Trouble conditions; Restores of Emergency Alarm conditions; and Expansion (Controller) Restores. The system does not report Restores for alarms activated from the panic buttons.

NOTE: When the REPORT RESTORE option is selected for either phone line #1 or phone line #2, neither the trouble restores nor the bypass restores will report to that line unless the associated condition (REPORT TROUBLE, REPORT BYPASS) is selected. The alarm restores will always report regardless of whether the REPORT ALARM option has been selected.

REPORT CANCEL/OPEN RESET

When this option is selected, the dialer sends a report whenever anyone uses an access code (codes 0-5) to reset an alarm.

NOTE: Openings (Disarming), Closings (Arming) and Open/Resets (disarming the system and resetting an alarm) by code 0 (the maintenance code) are always reported to phone #1 with account #1, whether or not this option or the REPORT OPEN/CLOSE option have been selected.

REPORT OPEN/CLOSE

The 2750 reports Openings and Closings by access codes 0-5.

REPORT TEST

Manual tests are reported by access codes 0-5.

15.2.11 ACCOUNT #1

When programming this option, enter an account number of the appropriate length, depending on the reporting format to be used. The SIA format accepts account numbers up to 6 digits in length. If the format requires shorter account numbers (for example, 3/1 or 4/2), enter leading 0's before you enter the account number, so that all 6 places are filled and the account number occupies the rightmost position.

15.2.12 ATTEMPTS #1

Indicate the number of times each phone will try to dial the central station before the **DIALER FAILED** LED comes on. The minimum number of attempts is 1; the maximum is 15.

Normally the dialer will switch back and forth between phone numbers after each attempt. If a different number of tries has been programmed on each number, the **DIALER FAILED** LED will light after all the attempts have been used up for the phone number programmed with the lowest number of attempts. However, the dialer will continue to try to report on the remaining number until it has made as many attempts as have been programmed for that number.

15.2.13 FORMAT #1

This is the reporting format to be used on each phone. Use the arrow keys to select the format.

SIA8 - Security Industry Association (formerly the Security Equipment Industry Association) standard. Used with Model 9000 Digital Alarm Receivers with a 9004 or 9004I SIA line card.

FSK81 - Silent Knight FSK format used with the Model 8520 and Model 9000 receivers. Uses a 4-digit account number.

SK4/2 - 20 pps pulsed-tone format used with the Model 8520 receiver. Uses a 4-digit account number.

BFSK14 - Format used with the Model 9000 and other receivers that can receive BFSK and send a 1400-Hz acknowledgment tone. Uses a 3-digit account number.

BFSK23 - Format used with the Model 9000 and other receivers that can receive BFSK and send a 2300-Hz acknowledgment tone. Uses a 3-digit account number.

SIA20 - Security Industry Association standard. Used with Model 9000 receivers with a 9004I SIA line card and a 9200 CPU card, Revision E.

3/1 14 - Used with older Silent Knight, Ademco or SESCOA receivers that send a 1400-Hz acknowledgment tone. The Model 9000 receiver also accepts this format.

3/1 23 - Used with older SESCOA or other receivers that send a 23-Hz acknowledgment tone. The Model 9000 receiver also accepts this format.

NOTE: The SIA formats are the preferred formats for the 2750, and are required if using the computer download feature.

15.2.14 LISTEN IN TIME

If the Model 7368 Listen In Module is to be used, program the length of time the central station operator can listen in to what is going on in a particular zone. If this option is to be used, the minimum length of Listen In time is 20 seconds; the maximum is 255 seconds. (To disable this option, select 0.) Entering any number from 1 to 19 will cause the Listen In function to default to 20 seconds.

If an alarm or other event occurs during the Listen In time, the 2750 hangs up and calls back to report the alarm.

15.2.15 TOUCH-TONE ONLY PHONE #1

Select this option if you want calls to phone #1 to be dialed in Touch-Tone^R only (not rotary).

NOTE: If you select NO for this option and NO for the ROTARY ONLY PHONE #1 option (see section 15.2.16), the 2750 will alternate between Touch-Tone^R and rotary dialing until it has either communicated with the central station or used up the programmed number of attempts (see section 15.2.12).

15.2.16 ROTARY ONLY PHONE #1

Select this option if you want calls to phone #1 to be dialed in rotary only.

NOTE: If you select NO to this option and NO to the TOUCH-TONE ONLY PHONE #1 option (see section 15.2.15), the 2750 will alternate between Touch-Tone^R and rotary dialing until it has either communicated with the central station or used up the programmed number of attempts (see section 15.2.12).

15.2.17 LISTEN TO #1

If the Model 7368 Listen In Module is to be used, this option determines whether the central station will be able to Listen In to all types of reports or just alarm and test reports on this account number.

NOTE: For descriptions of options 15.2.18 through 15.2.22, see sections 15.2.12 through 15.2.17 above.

15.2.18 ATTEMPTS #2

See section 15.2.12.

15.2.19 FORMAT #2

See section 15.2.13.

15.2.20 TOUCH-TONE ONLY PHONE #2

Select this option if you want calls to phone #1 to be dialed in Touch-Tone^R only (not rotary).

NOTE: If you select NO for this option and NO for the ROTARY ONLY PHONE #2 option (see section 15.2.21), the 2750 will alternate between Touch-Tone^R and rotary dialing until it has either communicated with the central station or used up the programmed number of attempts (see section 15.2.18).

15.2.21 ROTARY ONLY PHONE #2

Select this option if you want calls to phone #2 to be dialed in rotary only.

NOTE: If you select NO to this option and NO to the TOUCH-TONE ONLY PHONE #2 option (see section 15.2.20), the 2750 will alternate between Touch-Tone^R and rotary dialing until it has either communicated with the central station or used up the programmed number of attempts (see section 15.2.12).

15.2.22 LISTEN TO #2

See section 15.2.17.

15.2.23 DEMO MODE

The DEMO mode makes it possible to demonstrate the 2750's reporting features to a customer without tying up phone lines. To use the DEMO Mode, the 9000 receiver must have a 9103 Direct Line Card and a 1-K Ω resistor between the tip and ring, and a SIA format must be selected. Once these requirements are met, connect the 2750 directly to a receiver and use "F-F-F-F-F-F-F-F-F-F-F-F-F-F-F-F" (16 digits) as a dummy phone number to demonstrate the reporting features.

15.2.24 COMPUTER account #

Program the account number you want to use when reporting to the downloading computer.

15.2.25 TOUCHTONE ONLY

Select this option if you want the 2750 to dial the computer using Touch-Tone^R dialing.

15.2.26 ROTARY ONLY

Select this option if you want the 2750 to dial the computer using rotary dialing.

15.2.27 TELEPHONE NUMBERS

Three 16-digit phone numbers can be programmed. Enter **(A)** for a pause, **(B)** for "**", **(C)** for "#" and **(D)** to look for a second dial tone. The first two phone numbers (phone #1 and phone #2) are for reporting alarms; the third (computer phone #) is for downloading.

16 PROGRAMMING

16.1 USING THE MODEL 5520 DESK TOP PROGRAMMER

NOTE: To program the 2750 with the Model 5520 programmer, you must have Software Revision 890906. The software update can be ordered from Silent Knight Technical Service, 800-328-0103 or 612-493-6455.

16.1.1 REMOVING THE EEPROM FROM THE 2750

CAUTION: Observe the following precautions when handling the EEPROM:

1. Touch a grounded surface before touching the EEPROM. Handling the EEPROM without first discharging any static electricity from your person will cause damage to the device.
2. Turn the DC power switch OFF before removing or inserting the EEPROM. Failure to do so will damage the device.
3. When inserting the EEPROM, check that all 8 pins are seated, that the device is properly oriented (see figure 3A), with the notch pointing to the right on the 2750 circuit board, and that all 8 pins are in the socket (not shifted right or left).

With the DC power off and after discharging yourself, remove the EEPROM from its socket in the 2750 by gently prying up first one side then the other, using a small screwdriver or the chip puller provided with the 5520.

Insert the EEPROM into the programming socket of the 5520 and turn on power to the programmer.

16.1.2 MODEL 5520 PROGRAMMING PROCEDURE

Before you begin programming, you may wish to complete the Control and Dialer options coding forms in section 16.3.

The instructions below give you an overview of the 5520 programming procedure. Figure 16.1.2A shows the 5520's menu structure. For more specific information, see the Model 5520 operation manual (P/N 150479).

NOTE: Before the factory-programmed options can be reprogrammed, the program must be loaded from the 2750, as described in section 16.1.2.1.

16.1.2.1 GETTING STARTED

When you first turn on the programmer, the display will show the programmer's software revision and model number.

Press **ENTER**. A model number for one of Silent Knight's systems will appear. If it is not 2750, use the arrow keys to go backward or forward until the display shows **2750**. Press **ENTER** again.

The display will read **LOAD**. Press **ENTER**.

When the display reads **PASSCODE**, key in your **access code**, then press **ENTER**. (The preprogrammed maintenance code is 1234.)

The display will read **EDIT**. Press **ENTER**, then use the arrow keys to select **CONTROL** or **DIALER**, depending on which set of options you wish to program. Press **ENTER**.

16.1.2.2 REPROGRAMMING THE OPTIONS

Now the programmer will display the first option and the preprogrammed data for that option. If you don't want to change this option, press **MENU SKIP** to go to the next option. If you do want to change an option, key in the new data--**Y** for YES or **N** for NO, or numbers if required--then press **ENTER**. The programmer will advance to the next option.

If you want to return to a previous step, press **SHIFT** and the backward arrow key until you reach the desired step.

While you are programming the options for zones 1-6 (part of the Control options), you can go to whatever zone you want to reprogram by pressing **SHIFT** **STEP**, then the **step number**.

16.1.2.3 LEAVING THE PROGRAM

Once you have reprogrammed the options you want, you can leave the program at any point. Press **SHIFT** **MENU SKIP**.

The programmer will display **CONTROL** or **DIALER**, depending on which set of options you are programming. Press **SHIFT** **MENU SKIP** again.

The display will read **EDIT**. Use the arrow keys to go to the word **SAVE**. Press **ENTER** to save the data onto the EEPROM.

The programmer will display **PASS** to indicate that the data was saved. If the displays shows **FAIL**, repeat the programming procedure, making sure you are following it correctly. If the display shows **FAIL** again, the chip is defective. Replace it and try again.

After the EEPROM is programmed, remove it from the 5520 and reinsert it in its socket on the 2750 (see **CAUTION** in section 16.1.1)

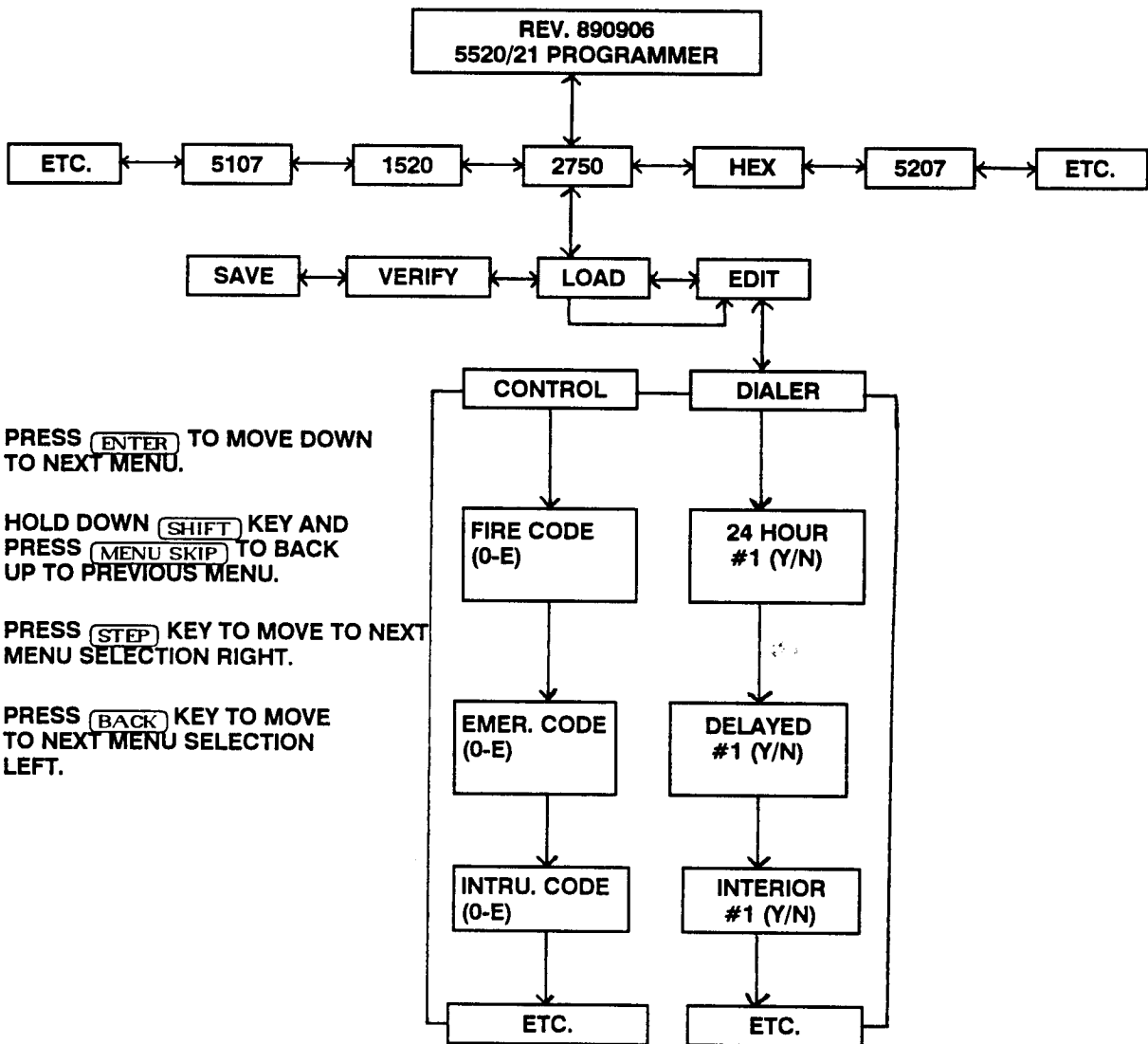


FIGURE 16.1.2A: MODEL 5520 PROGRAMMING FLOWCHART

16.2 PROGRAMMING WITH THE MODEL 5540 DOWNLOADING SOFTWARE

The instructions below give you an overview of the 5540 programming procedure. For more specific information, see the Model 5540 operation manual (P/N 150497).

NOTE: Software Revision 890731 or later is required for downloading.

16.2.1 GETTING STARTED

Enter the word **PANEL** at the DOS prompt. (If you have just powered up the computer, enter the word **MODEM** first.) Then enter your user name and password when the prompts direct you to do so.

On the **Panel Interface** menu, select **(E)** to program the 2750.

The **2750 Panel** menu will appear. If you want to reprogram any of the options, select **(A)**.

16.2.2 REPROGRAMMING THE OPTIONS

On the *Edit account* menu, select the type of options you wish to program. The Dialer Options and accounts together correspond to the Dialer Options that you program with the 5520 Desk Top Programmer. The Zones and System Options correspond to the Control Options that you program with the 5520.

When you finish programming the options on one of these menus, press **(Esc)** to get back to the *Edit account* menu, then choose another set of options to program. After you have reprogrammed all the options you wish to change, press **(Esc)** again. Then follow the screen prompts to download the new data.

16.2.3 DOWNLOADING THE DATA

After you have entered the subscriber's phone number, the number will appear on the screen, followed by the message **"Press ESC to Terminate, Waiting for Answer..."**

Several seconds will elapse before the call goes through and the screen indicates that downloading is taking place.

If the 9308 revision E dialer chip and 5540 revision 900630 downloading software (or later revisions) are used, it is possible for the 5540 to disconnect a house phone or answering machine if a person or machine answers the phone before the 2750, during a download attempt.

The disconnection happens automatically, with no intervention from the download operator. When the 5540 finishes dialing, it begins outputting tones. When the 2750 detects the tones, it activates the line seizure relay and disconnects the answering machine and/or house phones.

16.2.4 PRINTING THE OPTIONS

To print data from a particular options menu, go to the menu and press **(F3)**.

16.2.5 VERIFYING THE SELECTIONS

To make sure the correct data has been downloaded to the subscriber's 2750, you may wish to have the 2750 send the data back (upload) so you can review it.

On the **2750 Panel** menu, select **(E)**. Then follow the prompts to upload the data from the 2750 to your computer. To view the uploaded data, select **(B)** on the **2750 Panel** menu. To save the uploaded data, select **(C)**.

CAUTION: Before editing or modifying an upload, you must SAVE it.

16.2.6 LEAVING THE PROGRAM

To exit the Model 5540 downloading program, press **(Esc)** repeatedly until you see the prompt that asks if you want to leave the program.

16.3 EEPROM CODING FORMS (5520 AND 5540 ONLY)

The EEPROM coding forms that start on the next page can be used with the Model 5520 Desk Top Programmer or the Model 5540 Downloading Software.

MODEL 2750 CONTROL OPTIONS CODING FORM

See section 15.1 for descriptions of the Control options.

NOTE: If you are programming the Control options from the keystation, do not use this EEPROM coding form. Use the one in section 16.5.

ZONE OPTIONS

For each zone, circle the options you wish to select.

ZONE 1	ZONE 2	ZONE 3
24-HOUR DELAYED INTERIOR SILENT CHIME BYPASSABLE FAST RESPONSE REPORT DELAYED	24-HOUR DELAYED INTERIOR SILENT CHIME BYPASSABLE FAST RESPONSE REPORT DELAYED	24-HOUR DELAYED INTERIOR SILENT CHIME BYPASSABLE FAST RESPONSE REPORT DELAYED

ZONE 4	ZONE 5	ZONE 6
24-HOUR DELAYED INTERIOR SILENT CHIME BYPASSABLE FAST RESPONSE REPORT DELAYED	24-HOUR DELAYED INTERIOR SILENT CHIME BYPASSABLE FAST RESPONSE REPORT DELAYED	24-HOUR DELAYED INTERIOR SILENT CHIME BYPASSABLE FAST RESPONSE REPORT DELAYED

SYSTEM OPTIONS

Circle the system options you wish to select.

INT SW DISABLED AUTO INT ALARM AUTO INT DISARM AUTO INT ARM SILENT EMR ALARM SILENT POL ALARM SWINGER BYPASS DEFAULT ARM AWAY HOME	SPKR DIALER FAIL INT FOLLOWERS DURESS DIALER SHUTDOWN /FIRE SHUTDOWN ALL DISPLAY SILENT CODE 2 CONTROL SMK POW RESET CODE 5 ARM ONLY
---	---

For the following options, write the numbers you wish to program in the blanks provided.

SWINGER BYPASS	__	(1-15) Hours
EXIT DELAY	__	(1-15) X 15 Sec.
ENTRY DELAY	__	(1-15) X 15 Sec.
REPORT DELAY	__	(1-15) X 5 Sec.
AUTO SHUTDOWN	__	(1-15) Minutes

MODEL 2750 CONTROL OPTIONS CODING FORM

(Continued on back)

Circle each of the following options you wish to select.

ACCESS CODE REQ
RELAY 1 TIMED
RELAY 2 TIMED
FAST RESTORE

In the blank provided, write the length of time you want the relay to remain closed.

RELAY DURATION <u> </u> <u> </u> (1-15) Seconds
--

ACCESS CODES

Write the secret codes you wish to assign in the blanks below.

MAINTENANCE CODE	_____ (PASS CODE)
CODE 1	_____
CODE 2	_____
CODE 3	_____
CODE 4	_____
CODE 5	_____

MODEL 2750 CONTROL OPTIONS CODING FORM

MODEL 2750 DIALER OPTIONS CODING FORM

See section 15.2 for descriptions of the Dialer options.

In the first set of options, circle the digit you wish to represent each event when it is reported to the central station.

FIRE CODE	0 1 2 3 4 5 6 7 8 9 A B C D E
EMERGENCY CODE	0 1 2 3 4 5 6 7 8 9 A B C D E
INTRUSION CODE	0 1 2 3 4 5 6 7 8 9 A B C D E
PANIC CODE	0 1 2 3 4 5 6 7 8 9 A B C D E
TROUBLE CODE	0 1 2 3 4 5 6 7 8 9 A B C D E
RESTORE CODE	0 1 2 3 4 5 6 7 8 9 A B C D E
CLOSING CODE	0 1 2 3 4 5 6 7 8 9 A B C D E
OPENING CODE	0 1 2 3 4 5 6 7 8 9 A B C D E
TEST/CANCEL CODE	0 1 2 3 4 5 6 7 8 9 A B C D E
DURESS CODE	0 1 2 3 4 5 6 7 8 9 A B C D E

For the following options, write the numbers you wish to program in the blanks provided.

LOW AC HOURS	__ __ (0-15) [0 = IMMEDIATE REPORT]
# RINGS	__ __ (0-15) [0 = NO RING DETECTION]

Circle the options below that you wish to select.

FAIL OUTPUT
RING ENABLE
ZONE 6 UNDEF'D
MUST REPORT #2
COMPUTER
GROUND START

Circle the events you want reported to each phone line.

PHONE LINE #1	PHONE LINE #2
REPORT ALARMS #1	REPORT ALARMS #2
REPORT TROUBLE #1	REPORT TROUBLE #2
REPORT BYPASS #1	REPORT BYPASS #2
REPORT RESTORE #1	REPORT RESTORE #2
REPORT OP RESET #1	REPORT OP RESET #2
REPORT OP/CL #1	REPORT OP/CL #2
REPORT TEST #1	REPORT TEST #2

MODEL 2750 DIALER OPTIONS CODING FORM

(Continued on back)

Circle or fill in the events you want to program for each account number.

ACCOUNT #1

ACCOUNT #2

ACCOUNT #1 _____
ATTEMPTS #1 __ __ (1-15)
FORMAT #1 (circle one): SIA8 FSK81 SK4/2 BFSK14 BFSK23 SIA20 3/1 14 3/1 23
LISTEN IN TIME #1 _____ Seconds (20-255)
TOUCHTONE ONLY #1
ROTARY ONLY #1
LISTEN TO #1
DEMO MODE

ACCOUNT #2 _____
ATTEMPTS #2 __ __ (1-15)
FORMAT #2 (circle one): SIA8 FSK81 SK4/2 BFSK14 BFSK23 SIA20 3/1 14 3/1 23
LISTEN IN TIME #2 _____ Seconds (20-255)
TOUCHTONE ONLY #2
ROTARY ONLY #2
LISTEN TO #2
DEMO MODE

Enter phone numbers for PHONE #1, PHONE #2 and the COMPUTER PHONE #. (A) = pause, (B) = *, (C) = "#". Enter (D) to look for a second dial tone.

PHONE #1 _____
PHONE #2 _____

COMPUTER PHONE # _____

MODEL 2750 DIALER OPTIONS CODING FORM

16.4 PROGRAMMING WITH THE KEYSTATION (CONTROL OPTIONS ONLY)

The programmer or downloading software are recommended for most programming situations, because they are easier to use. However, it is possible to program the Control options using the keystations, and there may be times when it will come in handy to do so.

NOTE: Dialer options can NOT be reprogrammed from the keystation.

16.4.1 REPROGRAMMING ALL CONTROL OPTIONS

Before you begin reprogramming, complete the EEPROM coding form in section 16.5. Once you have done so, follow the procedure below:

NOTE: In the REPROGRAMMING Mode, if the 2750 does not see a new keystroke within 1 minute of the last entry, it will automatically reprogram itself with the old data in the EEPROM and then arm.

1. Enter the REPROGRAM mode by pressing **Ⓞ** **TEST**, then the maintenance code (code 0). The PROGRAM LED will begin flashing.
2. Key in the number of the step you want to reprogram. If the step number is a single digit, enter a leading zero first. The ZONE LEDs that represent that step will light.

These LEDs will not correspond to the numbers printed on the keystation. During keystation programming, the LEDs that light are determined by the keystation's memory structure.

The ZONE LEDs 1-5 actually correspond to binary-weighted hexadecimal values. Table 16.4.1 - I shows the values represented by each LED.

TABLE 16.4.1 - I: LED HEXADECIMAL VALUES

ZONE LED	HEXADECIMAL VALUE
1	1
2	2
3	4
4	8
5	16 (HEX 10)

Table 16.4.1 - II below show which LEDs light at each step, to help you verify which step you are programming.

TABLE 16.4.1 - II: LEDs THAT LIGHT AT EACH STEP

STEP #	LEDs
01	1
02	2
03	1,2
04	3
05	1,3
06	2,3
07	1,2,3
08	4

STEP #	LEDs
09	1,4
10	2,4
11	1,2,4
12	3,4
13	1,3,4
14	2,3,4
15	1,2,3,4
16	5

STEP #	LEDs
17	1,5
18	2,5
19	1,2,5
20	3,5
21	1,3,5
22	2,3,5
23	1,2,3,5
24	4,5

3. For each step, enter the 4 digits you have written in the box (2 digits under each column). The program will advance to the next step.

When you reach step 13, enter the 4 digits for access code 0. Then key in the digits for codes 1-5.

4. After you have entered the data for the last step, the system will automatically exit the REPROGRAM Mode. If you wish to exit at any other point in the program, press **TEST**.

EXAMPLE 1: To reprogram the options for zone 6 (step 6) and for interior operation:

1. Enter the REPROGRAMMING mode by pressing **Ⓞ** **TEST**, then code 0.
2. Enter **Ⓞ** **Ⓞ** (the step for programming zone 6 options).
3. Key in the new data for zone 6.
4. The program advances to step 7 (LEDs 1, 2 and 3 come on).

5. Enter new data for interior operation.
6. The program advances to step 8 (LED 4 comes on).
7. Exit the REPROGRAMMING mode by pressing **TEST**.

EXAMPLE 2: To change an option in zone 2 and reprogram access code 1, you must enter and exit the REPROGRAM mode for each change, because these steps are not consecutive.

16.4.2 REPROGRAMMING ACCESS CODES ONLY

Access codes can be reprogrammed individually, without going through all of the Control options.

16.4.2.1 REPROGRAMMING THE MAINTENANCE CODE (CODE 0)

1. Press **6 TEST**.
2. Key in the existing maintenance code. The **PROGRAM** LED will start flashing.
3. Press **1 3**, the first step number for programming the maintenance code (see the access code section of the EEPROM coding form/Keystation below). The **PROGRAM** LED will stop flashing and will remain on steadily.
4. Key in the new maintenance code. If you wish, you can reprogram the other 5 user codes at this point by continuing to key in the secret codes you wish to assign to them.
5. Press **TEST**. The **PROGRAM** LED will turn off.

16.4.2.2 REPROGRAMMING CODES 1 THROUGH 5

1. Press **6 TEST**.
2. Key in the code you wish to change. The **PROGRAM** LED will light.
3. Key in the new code. The **PROGRAM** LED will go off, showing that reprogramming is complete.
4. To change another code, repeat steps 1-3.

16.4.2.3 REPROGRAMMING CODES 2 THROUGH 5 WITHOUT KNOWING SECRET CODES (CODE 1 ONLY)

In installations with 2750 PC board **revision E or later**, the main user (code 1) can change secret codes 2, 3, 4 or 5 **without** knowing what the previous secret codes were.

To do this, follow the procedure below:

1. Press **6 TEST**.
2. Key in the 4-digit **main user code** (code 1).
3. Press **TEST**.
4. Press the digit **2**, **3**, **4**, or **5**, to indicate whether you want to change code 2, code 3, code 4 or code 5.
5. Key in the new 4-digit secret code.

NOTE 1: *This feature can **NOT** be used to change the main user's secret code (code 1). (Any attempt to enter the digit **1** at step 4 will cause the system will **exit** from this procedure.) If you wish to change code 1, you must follow the directions in section 16.4.2.2.*

NOTE 2: *Be sure to note the revision level in the user manual at each installation, so the customer knows whether or not this feature is available.*

16.5 CONTROL OPTIONS CODING FORM (KEYSTATION)

The options coding form on the next page may be used when programming control options with the keystation.

MODEL 2750 EEPROM CODING FORM/KEYSTATION (CONTROL OPT. ONLY)

Circle the number beside each option you wish to select. Then add the numbers in each column and enter the total in the blanks. (If a total has only one digit, enter a leading zero.)

For the timer options, which call for numbers of seconds or minutes, circle the single-digit number (1, 2, 4 or 8) beside the desired time length.

STEP 1 - ZONE 1

24 HOUR	1	CHIME	1
DELAYED	2	BYPASSABLE	2
INTERIOR	4	FAST RESPONSE	4
SILENT	8	DELAYED REPORT	8
--		--	

STEP 2 - ZONE 2

24 HOUR	1	CHIME	1
DELAYED	2	BYPASSABLE	2
INTERIOR	4	FAST RESPONSE	4
SILENT	8	DELAYED REPORT	8
--		--	

STEP 3 - ZONE 3

24 HOUR	1	CHIME	1
DELAYED	2	BYPASSABLE	2
INTERIOR	4	FAST RESPONSE	4
SILENT	8	DELAYED REPORT	8
--		--	

STEP 4 - ZONE 4

24 HOUR	1	CHIME	1
DELAYED	2	BYPASSABLE	2
INTERIOR	4	FAST RESPONSE	4
SILENT	8	DELAYED REPORT	8
--		--	

STEP 5 - ZONE 5

24 HOUR	1	CHIME	1
DELAYED	2	BYPASSABLE	2
INTERIOR	4	FAST RESPONSE	4
SILENT	8	DELAYED REPORT	8
--		--	

STEP 6 - ZONE 6

24 HOUR	1	CHIME	1
DELAYED	2	BYPASSABLE	2
INTERIOR	4	FAST RESPONSE	4
SILENT	8	DELAYED REPORT	8
--		--	

STEP 7 - SYSTEM

INT SW DISABLED	1	SILENT EMR ALARM	1
AUTO INT ALARM	2	SILENT POL ALARM	2
AUTO INT DISARM	4	SWINGER BYPASS	4
AUTO INT ARM	8	DEFAULT ARM	8
--		--	

STEP 8 - SYSTEM

AWAY	1	DURESS	1
HOME	2	DIALER	2
SPKR DIALER FAIL	4	SHUTDOWN/FIRE	4
INT FOLLOWERS	8	SHUTDOWN ALL	8
--		--	

MODEL 2750 EEPROM CODING FORM/KEYSTATION (CONTROL OPT. ONLY)

Continued on back

STEP 9 - SYSTEM/TIMER

DISPLAY SILENT	1				1
CODE 2 CONTROL	2		SWINGER BYPASS		2
SMK POW RESET (6 SEC.)	4		(HOURS)		4
CODE 5 ARM ONLY	8				8

STEP 10 - TIMERS

	15	1		15	1
EXIT DELAY	30	2	ENTRY DELAY	30	2
(SECONDS)	60	4	(SECONDS)	60	4
	120	8		120	8

STEP 11 - TIMERS

	5	1			1
REPORT DELAY	10	2	AUTO SHUTDOWN		2
(SECONDS)	20	4	(MINUTES)		4
	40	8			8

STEP 12 - DOOR OUTPUTS

ACCESS CODE REQ	1				1
RELAY #1 TIMED	2		RELAY DURATION		2
RELAY #2 TIMED	4		(SECONDS)		4
(NOT USED)	8				8

STEP 13 - ACCESS CODES

CODE 0
(MAINT. CODE) _____

CODE 1 _____

CODE 2 _____

CODE 3 _____

CODE 4 _____

CODE 5 _____

MODEL 2750 EEPROM CODING FORM/KEYSTATION (CONTROL OPT. ONLY)

17 KEYSTATION OPERATION

Keystations are used to control the system functions, and contain the system status lights and built-in speaker for audible indications.

17.1 KEYSTATION LEDs

- ZONE LEDs -** LED OFF denotes a normal condition.
LED ON indicates a NOT READY zone.
LED FLASHING
--Indicates a BYPASSED zone if the **(BYPASS)** key has been pressed.
--Shows that a zone was/is in alarm if the **(ALARM MEM)** key has been pressed.
- READY LED -** LED OFF indicates that the system is armed or one or more zones are NOT READY to be armed.
LED ON shows that the system is disarmed and all zones are either good or BYPASSED.
LED FLASHING means that the system is reporting.
- ARMED LED -** LED OFF indicates that the controlled zones (i.e, NOT the 24-hour zones) are disarmed.
LED ON means the controlled zones are armed.
LED FLASHING indicates that the system was or still is in alarm.
- CHIME/INTERIOR LED -** Toggled by **(CHIME/INTER)** key.
- SYSTEM ARMED -** LED OFF shows that the Interior zones are disabled.
LED ON means the Interior zones are enabled.
- SYSTEM DISARMED -** LED OFF indicates that the Door Chime feature is disabled.
LED ON shows that the Door Chime feature is enabled. An open or closed sensor in a perimeter zone programmed to chime will cause a chime at the keystation.
- NO DELAY LED -** LED OFF shows that time-delayed entries and exits are in effect.
LED ON indicates that zones that were initially programmed for time delayed entries and exits will activate alarms instantly.
- BYPASS LED -** LED OFF means that every zone will activate an alarm if violated.
LED ON indicates that one or more zones have been bypassed, and will not activate an alarm if violated.
- CODE 2 LED** LED OFF shows that codes 2, 3, 4 and 5 cannot be used.
LED ON means that the CODE 2 CONTROL option has been selected and the **(CODE 2)** key has been pressed, enabling codes 2, 3, 4 and 5 to arm and disarm the system.
- PROGRAM LED** LED ON means that a new access code is being programmed (see section 16.4.2).
LED FLASHING indicates that the PROGRAMMING mode has been entered from the keystation, and the first programming step number has not yet been keyed in (see section 16.4.1).
- POWER LED -** LED OFF indicates that the AC power has been removed and the battery is providing standby power. (The LED goes off approximately 60 seconds after the power loss is detected.)
NOTE: The power loss will be reported to the central station after the programmed number of LOW AC HOURS have passed (see section 15.2.2).
LED ON shows that sufficient AC power is being supplied to the system.
LED FLASHING means the battery is low.
- EMERGENCY LED -** LED ON indicates that an emergency alarm has been activated.
- FIRE LED -** LED ON shows that the fire alarm has been activated.
LED FLASHING indicates that a trouble condition in the fire zone has been silenced.

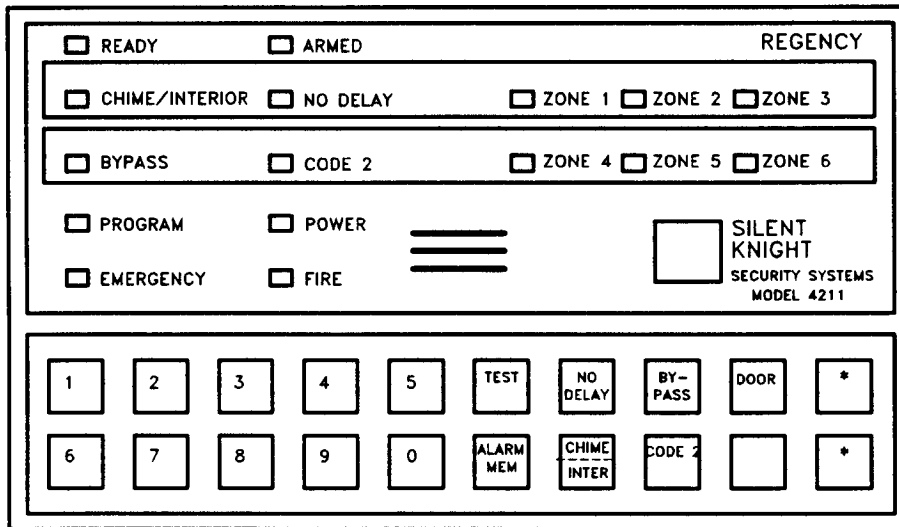


FIGURE 17A: MODEL 4211 KEYSTATION

17.2 BUILT-IN SPEAKER

The keystation's built-in speaker gives audible indications of alarms and troubles, and entry/exit warning tones. The speaker is also used for the optional Intercom feature (see section 12). The audible indications are described below:

- FIRE ALARM - A high-volume, high-pitch intermittent tone. A fire will cause the speaker to sound a one-second beep every 10 seconds.
- EMERGENCY ALARM - A high-volume, intermittent tone.
- INTRUSION ALARM - A high-volume, alternating high/low pitch constant tone.
- FIRE TROUBLE CONDITION - A low-volume, high-pitch tone that sounds for one second every 10 seconds.
- ENTRY TONE - One beep every 2 seconds during the delay time.
- DOOR CHIME - Low volume, high-to-low pitch tone similar to a doorbell. Sounds once each time a Perimeter zone sensor is opened or closed.

17.3 KEYSWITCHES

- TEST** - Used to test the dialer, enter and exit the REPROGRAM and WALK TEST Modes and enter the DIAL UP FOR DOWNLOAD Mode.
- NO DELAY** - Toggles between INSTANT and DELAYED status for zones that have been programmed for exit and entry delay.
- BYPASS** - Used to bypass (shunt) and unbypass zones and display zones that have already been bypassed.
- FIRE** - (4210 and 4212) Generates a Fire alarm when held down for at least 1 second.
- EMER** - (4210 and 4212) Generates a Medical Emergency alarm when held down for at least 1 second.
- POLICE** - (4210 and 4212) Activates a Panic alarm when held down for at least 1 second.
- * *** - (4211 only) Activates a Panic alarm when held down for at least 1 second.

- [#]** - (4210 and 4212) On the 4212, used with the Model 7368 Intercom/Two-Way Audio Module to talk and listen to someone at the Model 7381 Front Door Intercom Station. (Press to talk, release to listen.) On the 4210, the **[#]** key is nonfunctional.

NOTE: The Model 2750 is not UL Listed for commercial applications.

- [ALARM MEM]** - Displays zones that were in alarm since the last arming. In the WALK TEST Mode, displays zones that were tested.
- [CHIME/INTER]** - When system is ARMED, toggles the door chime on and off. **This key will not work if the option to DISABLE THE CHIME/INTERIOR SWITCH WHEN ARMED has been selected in programming.**
When the system is DISARMED, this key enables and disables the interior zones.
- [CODE 2]** - (4210 and 4212) Allows access codes 2-5 to be used to arm and disarm the system, if the CODE 2 CONTROL option has been selected during programming (see section 15.1.2.18).
- [DOOR]** - (4211 only) Controls the activation of the 2 relays on the Model 2713 Keypad/Relay Module (see section 15.1.5).

17.4 KEYSTATION TEST FUNCTIONS

The various test modes are described below. Test modes can only be accessed when the system is disarmed. To access a TEST Mode, press the digit assigned to it (see table 17.4 - I below), then the **[TEST]** key, followed by code 0 or code 1. The system will always power up in the SET TIME Mode.

To return to the NORMAL OPERATING mode from a test mode, press the **[MUTE]** key twice.

TABLE 17.4 - I: TEST MODES

TEST MODE	PRESS DIGIT	PRESS KEY	ENTER CODE
DIALER TEST	1	[TEST]	####
WALK TEST	2	[TEST]	####
DIALER RESET	3	[TEST]	####
REQUEST DOWNLOAD	4	[TEST]	####
NOT USED	5	---	---
CONTROL PROGRAMMING	6	[TEST]	#### (CODE 0 ONLY)

DIALER TEST

When the DIALER TEST mode is accessed, the 2750 will send a "Dialer Test" to the central station receiver. To activate a Dialer Test, press digit **1**, then the **[TEST]** key, followed by a valid access code that can be used to arm the system.

WALK TEST

The WALK TEST mode disables alarm reporting, allowing the installer to test all of the zones. A 2-second alarm will be sounded with each zone violation.

Each violation will be stored by the 2750 and can be viewed at the keystation by pressing the **[ALARM MEM]** key.

WARNING: During a WALK TEST, the system will NOT respond to real fire alarms.

DIALER RESET

The dialer will abort any calls in progress.

REQUEST DOWNLOAD

This mode causes the dialer to request downloading from a computer installed with Model 5540/41 Downloading Software.

CONTROL PROGRAMMING

The CONTROL PROGRAMMING mode is available only to the maintenance code (code 0). Control options may be changed using this mode (see section 16.4). Dialer options can only be programmed/changed using a Silent Knight Model 5520/21 programmer or by downloading.

18 SYSTEM OPERATION

System operating instructions that are not covered elsewhere in this manual are briefly described in the following paragraphs. A detailed description of system operation is found in the 2750 operation manual (P/N 150533).

1. **When power is applied**, the 2750 will:
 - a. Request EEPROM data from the Dialer.
 - b. Program itself with the EEPROM data.
 - c. Automatically bypass any intrusion zones that are NOT READY (e.g., a door that has been left open).
 - d. Arm the system.
 - e. Report any zones that were bypassed.
2. **To Arm the System** - Enter your **access code**.
3. **To Disarm the System** - Enter your **access code**.
4. **To Bypass or Unbypass a Zone** - Press the **zone number** you wish to bypass/unbypass. Press the **[BYPASS]** key. The **ZONE LED** will blink for approximately 2 seconds.

To see which zones are bypassed at any time, press **[BYPASS]**. The bypassed zones will blink for 2 seconds.
5. **To Silence a Fire Trouble** - Enter your **access code**. Once the trouble condition has been corrected, the appropriate **ZONE LED** and **TROUBLE SILENT LED** will turn off.
6. **To Manually Activate Fire, Emergency or Police Alarm** - Press the **[FIRE]** or **[EMER]** key and hold it down for 1 FULL SECOND.

NOTE: The system must be disarmed to test.
7. **To Activate Duress when Disarming** - Press the **[0]** key. Enter your **access code**.
8. **To Enter PROGRAM Mode** - Press **[6]** **[TEST]**
9. **To Test the Communicator** - Press **[1]** **[TEST]**, followed by an **access code**. The dialer will call the central station and report the test code (see the tables in section 14) followed by the user code. When the dialer begins dialing, the **READY LED** will start flashing, then stop when the call is complete.
10. **To Perform a Walk Test** - Press **[2]** **[TEST]**, followed by an **access code**. The **CHIME/INTERIOR LED** will start to flash. While in the WALK TEST Mode, tripping any zone will cause the chime tone to sound and will turn on the appropriate **ZONE LED**. Alarms will not be sent to the dialer. To view the zones that have been tested, press the **[ALARM MEM]** key. To exit the WALK TEST Mode, press **[TEST]**

19 TRANSIENT VOLTAGE PROTECTION

19.1 TYPES OF PROTECTION

The Model 2750 Control Panel is protected from transient voltage damage due to lightning or static electricity in three ways.

1. Metal-oxide varistors between each input/output and earth ground.
2. Fast acting zener diode protection between each zone input and earth ground.
3. Circuit board layout that isolates vulnerable components from known transient sources.

19.2 EARTH GROUND

The key to any good transient voltage protection plan is making the proper earth ground connection to all protection devices. Failure to use all of the recommended protection devices will jeopardize the effectiveness of the protection plan.

Finding a good earth ground is always the first step. Connecting to a water pipe may not always provide an earth ground. Check for PVC (plastic) pipe. Electrical ground may not be at a true earth ground potential. Old and/or poor ground connections in the electrical system may allow electrical ground to float at some potential above earth ground. Be observant when selecting your ground source. When in doubt, a grounding rod should be driven into moist earth and used as the earth ground source.

2750 EARTH GROUND CONNECTION

Connect the Green wire attached to the 2750 circuit board to earth ground.

19.3 BATTERY TESTING

The Model 6712 Rechargeable Backup Battery is tested by the Model 2750 every 10 minutes. If the battery voltage drops below 10.2 V during the test, a low-battery signal is sent to the central station if the system is programmed to report trouble conditions.

20 HOUSEHOLD EVACUATION PLANNING

It is vital for each household to have an evacuation plan in the event of a fire. Fire is the third cause of accidental death. This is due to the fact that the time between when a fire starts and the time that it can become deadly can be as little as 1 to 2 minutes. The main emphasis on an evacuation plan should be RAPID ESCAPE. Once a plan has been established, it should be practiced on a regular basis so that each household member will know exactly what to do if a fire should occur.

1. Since most deaths occur while a family is sleeping, make sure that each family member knows where the nearest exit to his or her bedroom is.
2. Instruct family members to feel any closed doors BEFORE opening them. If the door is warm, DO NOT open the door. When this situation occurs it may be necessary to exit through a bedroom window.
3. Thick smoke usually accompanies a fire. It is a good idea to have a flashlight in good working order nearby. When moving through the smoke, stay as close as possible to the ground.
4. A good escape plan should include a meeting place outside of the building so that all family members can be accounted for.
5. Keep in mind that personal belongings can be replaced but family members cannot. When a fire is detected, get out of the house as soon as possible and let the fire department put out the fire.

21 POST-INSTALLATION TEST

Because of the flexibility of the 2750 system, many combinations of operation and reaction to sensor activity may occur. It is important that every desired feature be fully tested, i.e., time factors, loop responses, audible functions etc.

All questions concerning system programming and operation should be directed to Silent Knight Technical Service Department, Telephone 1-800-328-0103. Any errors or omissions in this manual should also be reported to Silent Knight Technical Service. Your suggestions and advice on product application are always welcome.

22 MODEL 2750 TROUBLESHOOTING GUIDE

This section allows the service person to verify proper (nominal) voltage on input and output terminals when the system is configured as indicated. Compare the voltages (V_{DC}) you read with the ones listed in table 22 - I on the next page, to help determine failures. Set your voltmeter on the appropriate range selection. Connect the minus (black) lead of the voltmeter to terminal 7 (ground). Probe with the positive (red) lead of the meter. (Be careful not to short circuit terminals with the meter lead.)

TABLE 22 - I: TERMINAL VOLTAGES

TERMINAL #	TERMINAL DESIGNATION	NOMINAL V_{DC} READING
1	16.5 V _{AC} , 60 Hz, (40 VA)	
2	16.5 V _{AC} , 60 Hz	
3	External Speaker Power +21 V _{DC}	21
4	External Speaker/Bell Driver	0
5	Accessory Power +12 V _{DC}	9 - 14
6	Ground	0
7	Accessory Power +12 V _{DC}	9 - 14
8	Serial Out (Keystations)	6 - 8
9	Serial In (Keystations)	6 - 8
10	Ground	0.046
11	Internal Speaker Driver	0.1
12	Answer	5.5
13	Telephone Company Line (RING)	-48
14	Telephone Company Line (TIP)	0
15	House Phones (TIP)	0
16	House Phones (RING)	-48
17	Zone 1 In	3.8
18	Zone 1 Out	12
19	Zone 2 In	3.8
20	Zone 2 Out	12
21	Zone 3 In	3.8
22	Zone 3 Out	12
23	Zone 4 In	3.8
24	Zone 4 Out	12
25	Zone 5 In	3.8
26	Zone 5 Out	12
27	Zone 6 In	3.8
28	Zone 6 Out	12
29	Emergency In	3.8
30	Emergency Out	12
31	Fire In	3.8
32	Smoke Detector Ground	0
33	Smoke Detector +12 V _{DC}	9 - 14

Index

- AC power transformer, 4
- ACCESS CODE REQUIRED, 33
- access codes, 33
- accessories, 2, 11
- accessory current draws, 9
- accessory power, 1
- ACCOUNT #1, 36
- annunciation, 19
- answering machine bypass, 40
- arm/disarm codes, 1
- arming the system, 31, 32, 52
- ATTEMPTS #1, 36
- ATTEMPTS #2, 37
- AUTO INT ALARM, 31
- AUTO SHUTDOWN, 33
- AUTOMATIC INTERIOR WHEN ARMING, 31

- backup battery, 4
- battery, 4, 9
- battery charger, 1
- battery discharge curve, 9
- battery testing, 53
- bell, 1, 19
- block diagram, 10
- BYPASS, 52
- bypass (shunt), 49
- Bypassable zone, 30

- Chime zone, 30
- code 0, 33
- code 1, 33
- Code 2 function, 1, 32, 49
- code 5, 32
- Code 5, 33
- codes, 34
- codes 2-4, 33
- COMPUTER, 35
- COMPUTER ACCOUNT #, 37
- connectors, 8
- control options, 23, 30, 45
- control panel, 4
- CONTROL PROGRAMMING Mode, 51
- current ratings, 6, 9

- DC alarm bell, 19
- DC power switch, 1, 4
- DEFAULT ARM, 31
- default arming options, 1
- Delay, 32
- Delayed zone, 30
- DEMO MODE, 37
- DIALER (NO REPORTS), 32
- dialer options, 23, 34
- DIALER RESET Mode, 51
- dialer test function, 2
- DIALER TEST Mode, 51
- DISPLAY SILENT, 32
- door chime, 1
- downloading, 1
- downloading SW, 4, 12, 24, 33, 34, 40, 51
- dual-speaker driver, 1
- duress, 20, 23, 32, 33, 35, 52

- earth ground, 53
- EEPROM, 2, 4, 23, 52
- EEPROM coding form (Control), 41, 42
- EEPROM coding form (Dialer), 43, 44
- EEPROM coding form (keystation), 47

- EEPROM programming--UL, 3
- emergency zone, 1
- end-of-line resistors, 15
- entry delay, 32
- entry warning tone, 1
- exit/entry delays, 1
- exit delay, 32
- exit door, 1
- EXT SPKR OFF UNLESS DIALER FAILS, 2, 32
- external siren output, 19
- external speaker, 1, 19, 32

- factory programmed features, 23
- FAIL OUTPUT ENABLE, 34
- FAST RESPONSE, 33
- Fast Response zone, 30
- FCC requirements, 3
- features, 1
- fire trouble, 52
- fire zone, 1
- FORMAT #1, 36
- FORMAT #2, 37
- fuses, 4, 7

- GROUND START, 35

- household evacuation, 53
- HOME/AWAY default arming option, 1, 31

- induced noise, 10
- initiating devices, 11
- installation, 11
- instant, 49
- intercom, 1 - 3, 8, 12, 36
- INTERIOR FOLLOWERS, 32
- interior function, 1, 30 - 32, 45, 49, 51
- INTERIOR SWITCH DISABLED, 31
- Interior zone, 30
- intrusion zones, 1

- keystation--commercial, 2
- keystation--residential, 2
- keystation--residential/intercom, 2
- keystation installation, 12
- keystation operation, 49
- keystation programming, 45
- keystations, 1
- keyswitch/relay module, 1 - 3, 8, 14, 33, 51
- keyswitches, 50

- LEDs, 49
- listen-in function, 1, 2, 8, 36, 37
- LISTEN IN TIME, 36
- LISTEN TO #1, 37
- LISTEN TO #2, 37
- local alarm memory, 2
- local annunciation, 19
- location selection, 11
- LOW AC HOURS, 34

- Main User Code, 33
- Maintenance Code, 33
- manual activation, 52
- manual overview, 1
- mechanical keyswitch, 14
- mechanical mounting, 11
- Model 1521 Supervised RF Receiver, 2

- Model 1521 Supv. RF Rec., 18
- Model 2210/4210 Residential Keystation, 2
- Model 2211/4211 Commercial Keystation, 2
- Model 2212/4212 Keystation/Intercom, 2
- Model 2713 Keysw./Rel. Mod., 1 - 3, 8, 14, 33, 51
- Model 4180 Status Displ. Mod., 20
- Model 4180 Status Display Module, 2
- Model 5520 Desk Top Prog., 4, 8, 12, 24, 30, 33, 34, 38, 39, 40, 51
- Model 5520 programming flowchart, 39
- Model 5540 Downloading SW, 4, 12, 24, 33, 34, 40, 51
- Model 6912 Rechargeable Battery, 2
- Model 7368 Intercom/Listen-In/Talk Back, 2, 3, 8, 12, 36, 37
- Model 7380 Speaker/Microphone, 2
- Model 9220 Transformer, 2
- MUST REP TO PHONE #2, 35

- no delay, 49
- no delay function, 1
- no ext.sprkr/bell unless dialer fails, 2

- open/close reporting, 1
- operation, 52

- panic buttons, 1
- power, 4, 12, 34, 52
- power supply, 1
- power transformer, 11
- preconnection requirements, 3
- programmer, 4, 8, 12, 24, 30, 33, 38, 39, 40, 51
- programming, 38
- programming flowchart, 39

- rechargeable battery, 2, 12, 53
- RELAY 1 TIMED, 33
- RELAY 2 TIMED, 33
- RELAY DURATION, 34
- REPORT ALARMS, 35
- REPORT BYPASS, 35
- REPORT CANCEL/OPEN RESET, 35
- REPORT DELAY, 33
- REPORT OPEN/CLOSE, 35
- REPORT RESTORE, 35
- REPORT TEST, 35
- REPORT TROUBLE, 35
- reporting codes, 34
- reporting formats, 1, 25, 28, 29, 34
- REPORTS BY PHONE NUMBER, 35
- reprogramming, 24, 38, 40, 45
- REQUEST DOWNLOAD Mode, 51
- RF receiver, 1, 2, 18
- RING ENABLE, 34
- RINGS (#), 34
- ROTARY ONLY, 37
- ROTARY ONLY PHONE #1, 36
- ROTARY ONLY PHONE #2, 37

- serial to parallel status display, 2
- shunt (bypass), 27
- SHUTDOWN/FIRE, 32
- SHUTDOWN ALL, 32
- SIA format, 1
- SILENT EMERGENCY ALARM, 31

SILENT POLICE ALARM, 31
Silent zone, 30
siren, 19
smoke detector, 1, 2, 17
SMOKE POWER RESET, 32
speaker, 12, 19
speaker, keystation, 50
Speaker/Microphone, 2
SPKR DIALER FAIL, 32
status display module, 2, 20
supervised intrusion zone, 16
SWINGER BYPASS, 31
SWINGER BYPASS (timer), 32
switched smoke det. output, 1
system options, 31

telephone line wiring, 21
telephone requirements, 3
TELEPHONE NUMBERS, 37
terminal voltages, 53
test, 52
test after installation, 53
test modes (keystation), 51
Timers, 32
TOUCH-TONE ONLY PHONE #1, 36
TOUCH-TONE ONLY PHONE #2, 37
TOUCHTONE ONLY, 37
transformer, 2, 4, 11
transient protection, 2, 52
troubleshooting, 53
twenty-four hour zone, 15, 17, 30
two-number dialing, 1

UL requirements, 3

walk test, 52
walk test function, 2
WALK TEST Mode, 51
watchdog circuit, 2
wiring diagram, 7
wiring precautions, 10

ZONE 6 REPORT AS UNDEFINED, 35
zone configuration example, 17
zone inputs and outputs, 1
zone operation, 15
zone options, 30
zone wiring, 15
zones, 1