Simplex

EMERGENCY WARNING and INTERCOMMUNICATION SYSTEM (EWIS)

Type 4100

INSTALLATION MANUAL

VOLUME 2 of 3

GLOSSARY OF STANDARD TERMS

The following abbreviations are used throughout this manual:

ACF	Ancillary Control Facility
AZF	Alarm Zone Facility
CPU	Central Processing Unit
E²PROM	Electrically Erasable Programmable Read Only Memory
EPROM	Erasable Programmable Read Only Memory
FIP	Fire Indicating Panel
IC	Integrated Circuit
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MCU	MicroController Unit
N.O.	Normally Open Relay contact
N.C.	Normally closed Relay contact
PCB	Printed Circuit Board
PSU	Power Supply Unit
RAM	Random Access Memory
ROM	Read Only Memory

MANUFACTURERS DETAILS

APPROVALS: AUSTRALIAN STANDARD AS2220.1 (1989)
SSL CERTIFICATE OF COMPLIANCE NUMBER xxx

The 4100 Evacuation Panel is manufactured by:

Simplex International Time Equipment Pty Ltd
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Notice: The contents of this document are subject to change without notice.

AMENDMENTS TO 4100 INSTALLATION MANUAL

ISSUE	SECTION/PAGES AMENDED	DATE AMENDED	COMMENTS	ECN No.
1.0	New Manual	March 1998	Original - File: ewisins	

RELATED DOCUMENTATION

This manual is part of a three volume set relating to the 4100 EWIS Option. The following lists the documentation relating to the 4100 EWIS Option.

Volume 1   4100 EWIS - Operator Manual.
This manual describes the operating procedures for a typical 4100 EWIS Option. 4100 EWIS Operator Manual
Part No/Document No: 4100-M010

Volume 2   4100 EWIS - Installation Manual.
This manual describes the procedures for installing and commissioning typical 4100 EWIS Option. 4100 EWIS Installation Manual
Part No/Document No: 4100-M011

Volume 3   4100 EWIS - Technical Manual.
This manual contains technical descriptions of the various components of typical 4100 EWIS Panel. 4100 EWIS Technical Manual
Part No/Document No: 4100-M012

STANDARDS ASSOCIATION OF AUSTRALIA

This manual makes reference to the following Australian Standards:

AS2220   Emergency warning and intercommunications systems in buildings.
Part 1 and 2 (1989)

AS1670   Automatic Fire Detection and Alarm Systems -
System Design, Installation and Commissioning

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PANEL DETAILS

panel sticker

4100 Panel supplied by	
Installation location	
Contract/Job Number	
As installed EWIS System drawing number	
Panel Installation date	
Panel Commissioned date	
Maintenance Company	
Telephone	
Service Contact	

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1. INTRODUCTION

This manual provides information for the personnel engaged in the installing, commissioning and maintenance of the 4100 EWIS and is to be used in conjunction with the 4100 Operators Manual.

It is assumed that users of this manual are:

>   a) Familiar with the operation of the 4100 EWIS Panel.

>   b) Trained to install and service microprocessor based EWIS and fire alarm equipment.

NOTES:

>   A. Indexes for the **4100 Field Wiring Diagram** are found on the first page of the document.

>   B. All wiring must be in accordance with local codes.

>   C. A page entitled "GENERAL WIRING PRECAUTIONS" is included in the **4100 Field Wiring Diagram**.

If possible, proceed through the installation process in the sequence that follows.

1.1   UNPACKING INVENTORY AND INSPECTION

Carefully check packing prior to unpacking goods for any external transit damage. Unpack the goods and check the goods both externally and internally for any loose or damaged components or any problems which may effect the appearance, installation or operation of the goods.

Ensure all wiring harnesses are secure, all plugs are correctly fitted into their sockets, each circuit board is secure, and that all fixings and earth studs are tight.

If a plug-in type circuit board or ribbon connector becomes dislodged in transit, replace it in is socket and ensure that it is correctly mated.

If any damage has occurred you are to contact Simplex.

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* * * IMPORTANT * * *

The contractor **IS NOT** responsible for inventorying or installing daughter cards, or for interconnecting panel components.

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*   All cartons that contain daughter cards are to be opened, inventoried, and installed by Simplex personnel.

- In addition to the envelope that contained this publication and the material listed in the Packaging Information section of the *Factory Documentation*, supplied material includes an envelope labelled *System Hardware*, as shown in Figure 1.

<div align="center">

SYSTEM HARDWARE

OPEN CAREFULLY

</div>
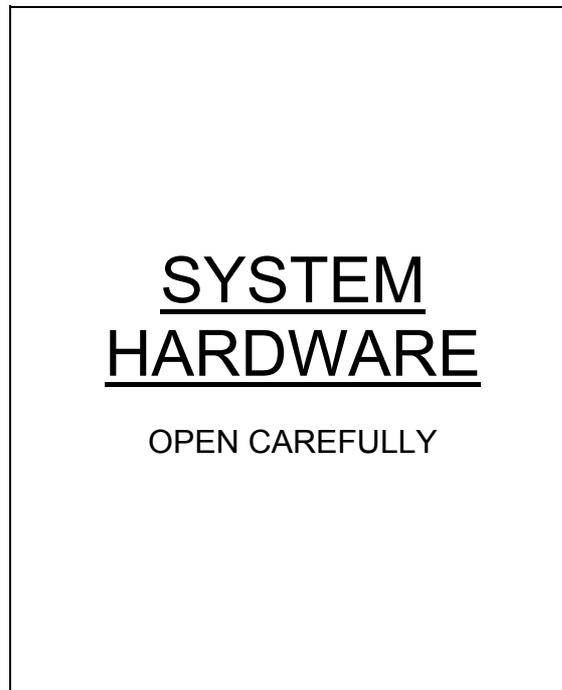
S.Simplex SIMPLEX TIME RECORDER CO.
GARDNER, MA 01441 U.S.A.

570210-A

Figure 1 System Hardware Envelope Label

1.2 ANTI STATIC PRECAUTIONS

To prevent damage to panel components please ensure prior to touching or handling any of the wiring or printed circuit boards within the EWIS that you are correctly earthed. The recommended method for personnel earthing is to use an anti static wrist strap and a flexible lead. Fit the wrist strap to yourself and attach the flexible lead to the cabinet earth bolt located inside the top of the cabinet.

Printed circuit boards removed from the EWIS should be immediately placed in the anti static bags provided.

1.3 WORKING ON THE SYSTEM

To prevent damage to panel components please ensure prior to unplugging any connector, connecting or disconnecting any wiring, removing or replacing any module or board, that both the mains and batteries have been isolated. Batteries can be isolated by unplugging the battery interconnection harness.

2. INSTALLATION PROCEDURE

2.1 CABINET INSTALLATION

The 4100 EWIS system cabinet should be mounted such that all indicators and controls are not less than 750 mm and not more than 1850 mm from the floor level.

2.1.1 Surface Mount

For surface mount, 4 bolts secure the Back Box cabinet or screws through predrilled 12 mm holes on the rear of the cabinet.

2.1.2 Recess Mount

For a recess mounting of the Back Box cabinet allow a cut out equal to the size of the cabinet plus 10mm all round clearance.

2.2 CARD INSTALLATION

The following instructions provide a systematic method for installing system printed circuit boards (or cards) in a 4100 EWIS system if these are not already installed.

STEP #   **ACTION**

☐ 1.   Open each system card box and remove the system cards from the container.

☐ 2.   Install the master control card.

☐ 3.   Install the RS-232/2120 Communications Card or the RS-485 Network Interface Card.

☐ 4.   Install the daughter cards.

☐ 5.   Verify all cabling and wiring harness connections. Refer to Simplex field wiring Diagram (Part No. 841-731).

☐ 6.   Verify all system wiring is terminated at specified terminal locations as specified by Simplex Field Wiring Diagram (Part No. 841-731)

☐ 7.   Perform a complete system test of all installed devices.

☐ 8.   Install and secure the retainer panel on the back box.

☐ 9.   Mount the door on the back box.

☐ 10.　　Close and lock the panel door.

All system electronics shipments include a small cardboard box (or boxes) containing the system cards. Each box is marked as shown in Figure 2

<div style="border:1px solid black; text-align:center;">

**-CAUTION-
INSTALLER**

**THIS PACKAGE CONTAINS
CRITICAL COMPONETS
FOR INSTALLATION INTO ,
AND OERATION OF,
THIS UNIT**

</div>

Figure 2 System Card Box Label

Install the system cards in the system electronic bays after installation of the back box and completion of the system field wiring.

To install the system cards, perform the following procedure:-

1. **Make sure that the system ground wire is attached to the green lug screw in the back box.**

2. Inventory the contents of the system card box(es) on a flat surface.

   - Open the system card box(es) and remove the cards.
   - Refer to the factory documentation that accompanies the shipment.

3. Carefully install the Master Controller Card in the left hand slot on the Master Motherboard, located in the CPU bay (See Figure 3.)

4. **4100 Panels:** Carefully install the RS-232/2120 Communication Card (if Supplied) in the right hand slot on the Master Motherboard (See Figure 3).

5. **4120 Network Panels:** Carefully install the RS-485 Network Interface Card in the right hand slot on the Master Motherboard (See Figure 3).

MASTER
CONTROLLER   LEFT-HAND SLOT
BOARD

MASTER MOTHERBOARD

DAUGHTER CARD MOTHERBOARD

RIGHT-HAND SLOT

DAUGHTER CARD

CPU ELECTRONICS BAY

BACK BOX
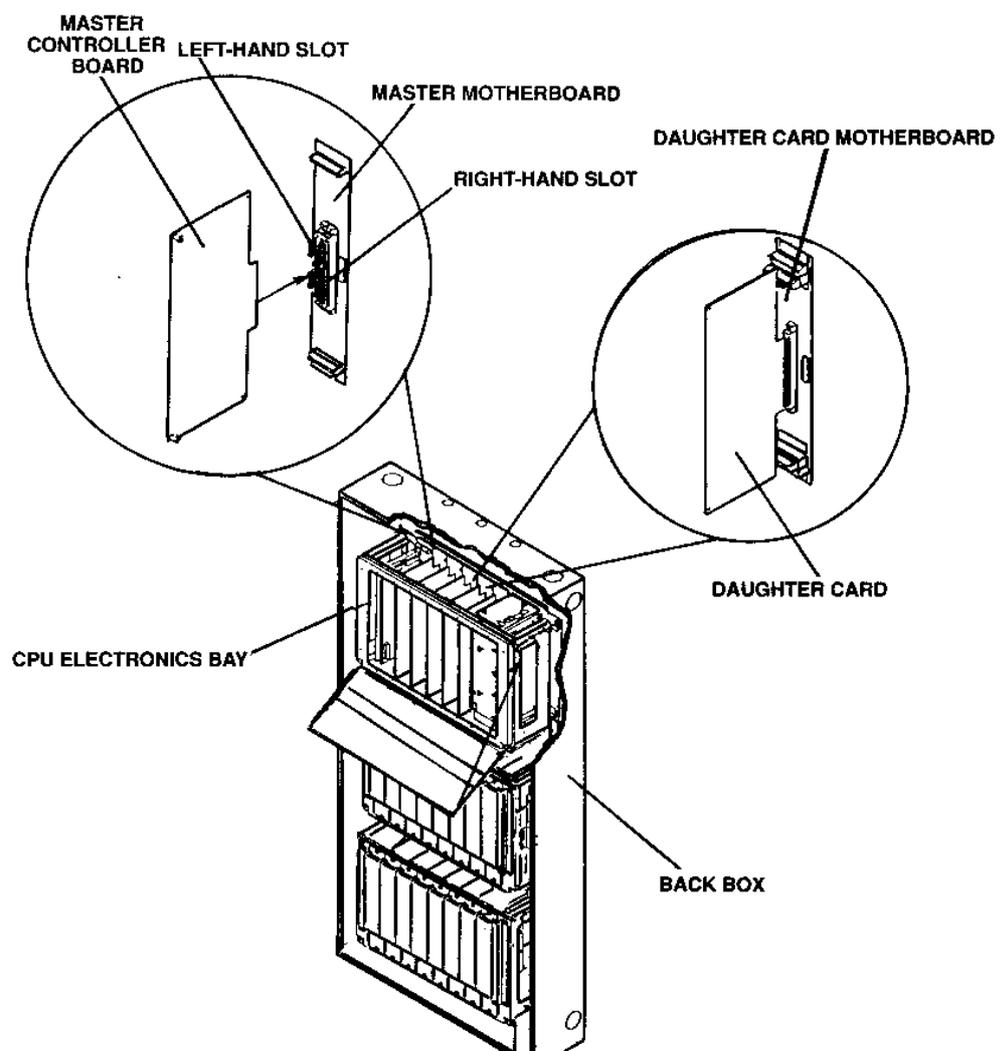
Figure 3 Installing the System Cards

6. Carefully install each daughter Card into its proper slot on its motherboard (See Figure 3.), making certain that the preset configuration of the daughter card address switch, SW1, matches the daughter card address label (located next to the daughter card's motherboard).

    •   The relationship between Address Switch SW1 and the card address label is shown in Figure 4.
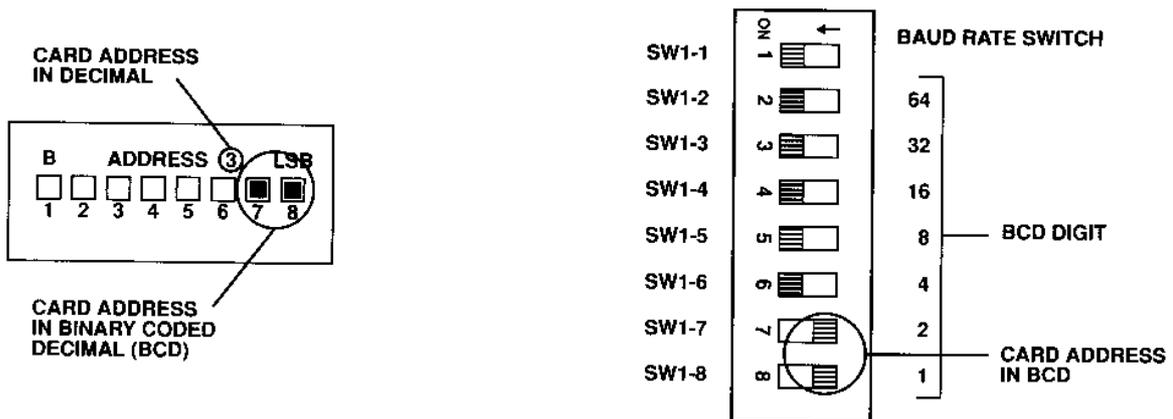
Figure 4 Card Address Label and Address Switch

    •   The location of Address Switch SW1 on a typical daughter card is shown in Figure 5.

CARD NAME AND PART NUMBER

CARD ADDRESS SWITCH SW1
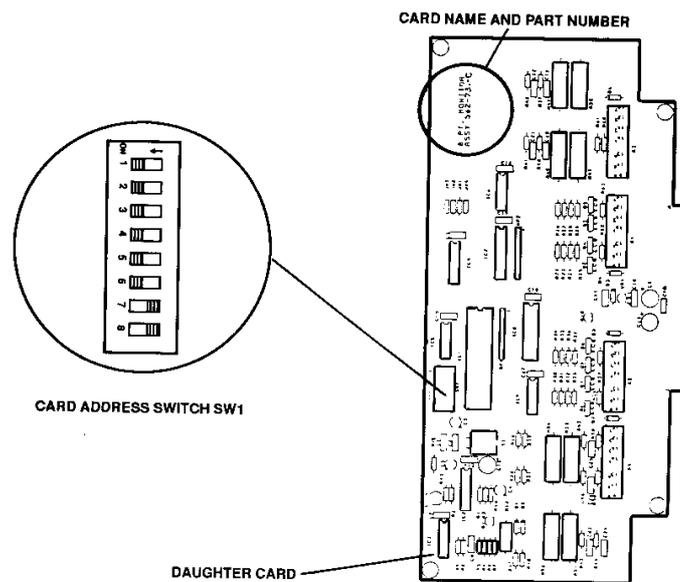
DAUGHTER CARD

Figure 5 Location of Address Switch SW1 on a Typical 4100 Daughter Card

7. Make certain that all cables and wiring harness are connected in original locations as shipped from the factory.

- Refer to Simplex Field Wiring Diagram (Part No. 841-731).

8. Make certain that all system wiring is terminated at specified terminal locations as specified in the Simplex Field Wiring Diagram (Part No. 841-731).

9. Perform a complete system test of all installed devices.

10. Install the retainer panel on the back box with the retainer clips at the top of the back box (See Figure 6).

RETAINER ASSEMBLY   RETAINER CLIPS

BACK BOX

RETAINER SCREW
(No. 6 SCREW)

RETAINER SCREWS
(No. 6 SCREW)

RETAINER SCREW
(No. 6 SCREW)
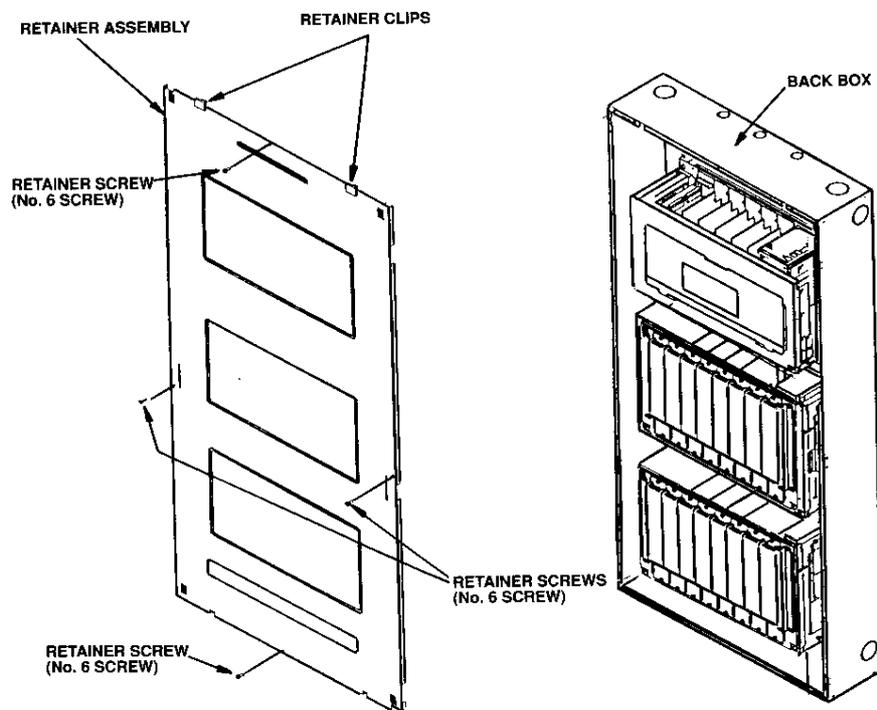
Figure 6 Installing the Retainer Panel

11. Secure the retainer panel using the retainer panel holding screws provided.

12. Remove the panel door from the door box.

13. Mount the door on the back box using the following procedure (See Figure 7).

    a) Lift and place the front door assembly bottom pin into back box hinge hole.
    b) Lift and slide top bolt pin up and across to lower bolt pin.
    c) Move front door assembly into place.
    d) Lift top bolt pin up into locating hole, and slide bolt pin across to drop bolt pin into holding plate.
    e) The door is now mounted onto the back box.

Slide
Bolt
Hinge

BACK BOX

PANEL DOOR ASSEMBLY

DOOR LOCK

BACK BOX HINGES

e 1.0
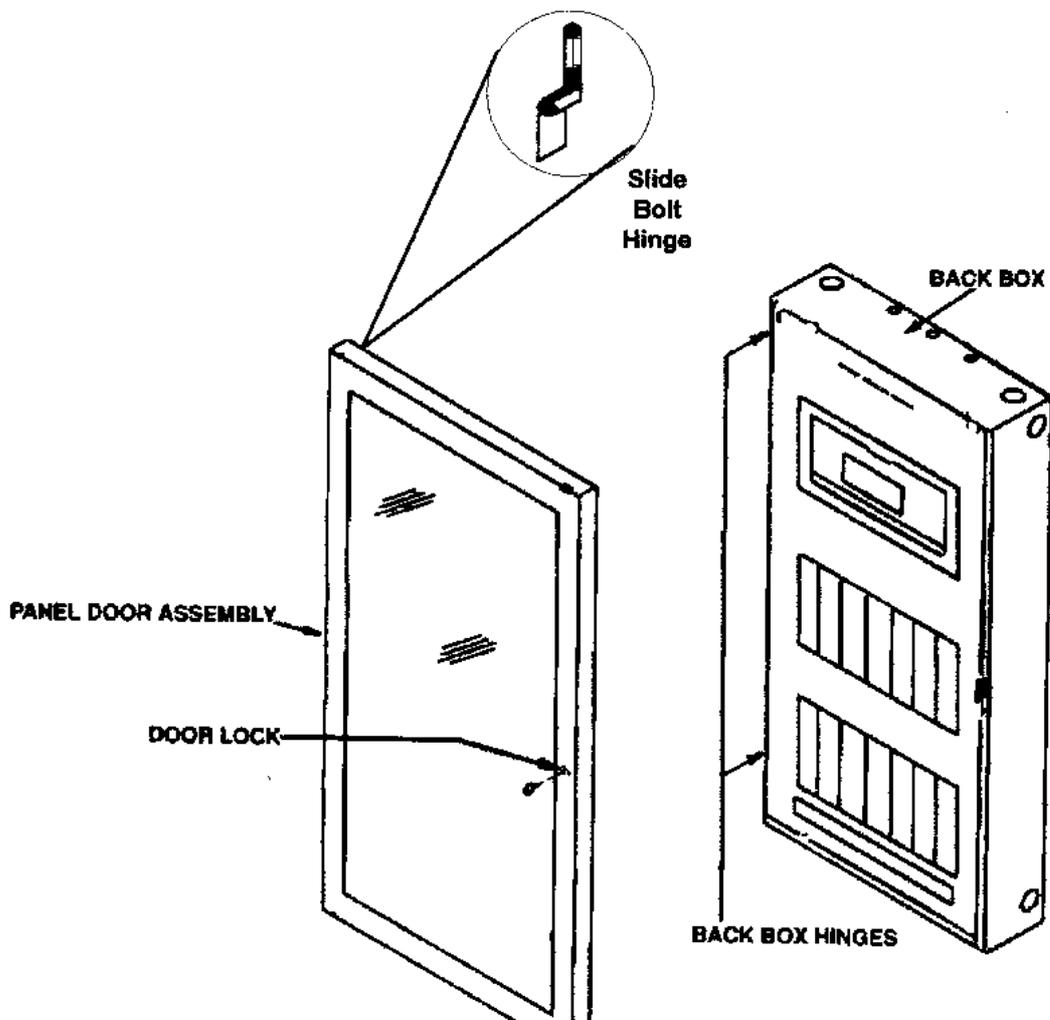
Figure 7 Mounting the door on the Back Box

14. Close and lock the panel door.

2.3   INSTALL AND TAG ALL SYSTEM WIRING.

- See the *SYSTEM POINT SUMMARY* Report (Table 7) and the appropriate page in the *4100 Field Wiring Diagram* (841-731).

2.4   INSTALL THE PERIPHERAL DEVICES AND E.O.L. RESISTORS.

- See Section 3 Field Terminations for details of terminating peripheral devices.
- See the Point Type column in the SYSTEM POINT SUMMARY Report for device type.

NOTES:

A. The **748-200 System Hardware** envelope contains the required resistors.

- 3.3K (monitor zone) resistors are colour coded orange, orange, red (and have a gold tolerance band); 10K (Notification appliance [signal] circuit) resistors are colour coded brown, black, orange (and also have a gold tolerance band).

- Resistors other than those described above will be used by the Simplex Technical Representative (T.R.) during installation checkout.

B. Wire peripherals in accordance with the appropriate **4100 Field Wiring Diagram (841-731).**

C. Use a small screwdriver or ball point pen to set device address switches.

D. After setting the device address, mark the device's address label (Figure 9) to agree with the address switches.
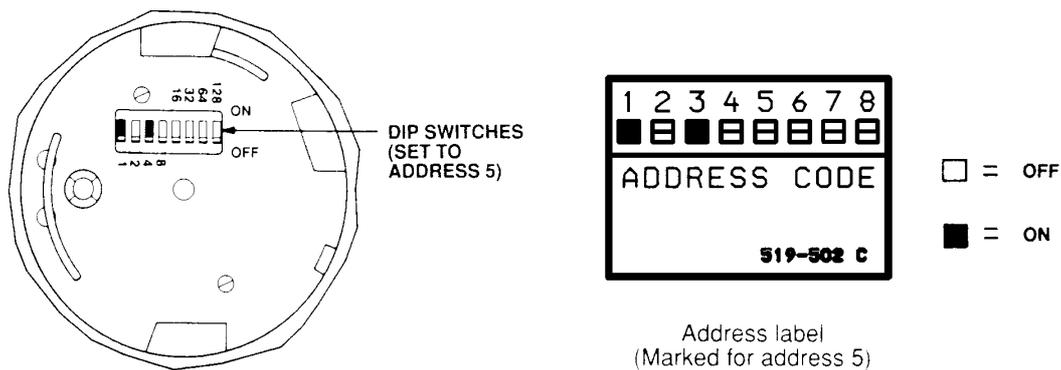
**Figure 8 Location of DIP Switches   Figure 9 Device Address Label
on Typical Device**

2.5   BAY DOOR OPTION.

See Figure 10

a. (If applicable) Mark the top of the ribbon cable. Then pull the cable straight out of its connector.

b. Remove the hair-pin cotter pins (item 1) from the upper clevis pins (item 2). Then push the clevis pins inward and lower the door.

c. Free the lower end of the retainer cable (item 3) by removing the screw and washer (items 4 and 5).

d. Remove the hair-pin cotter pins (item 6) from the lower clevis pins (item 7). Then push the clevis pins inward and remove the door.

e. Store the door and its hardware in a safe, clean and dry place until all wires are terminated in the 4100 panel.

RIBBON CABLE
(MARK TOP)
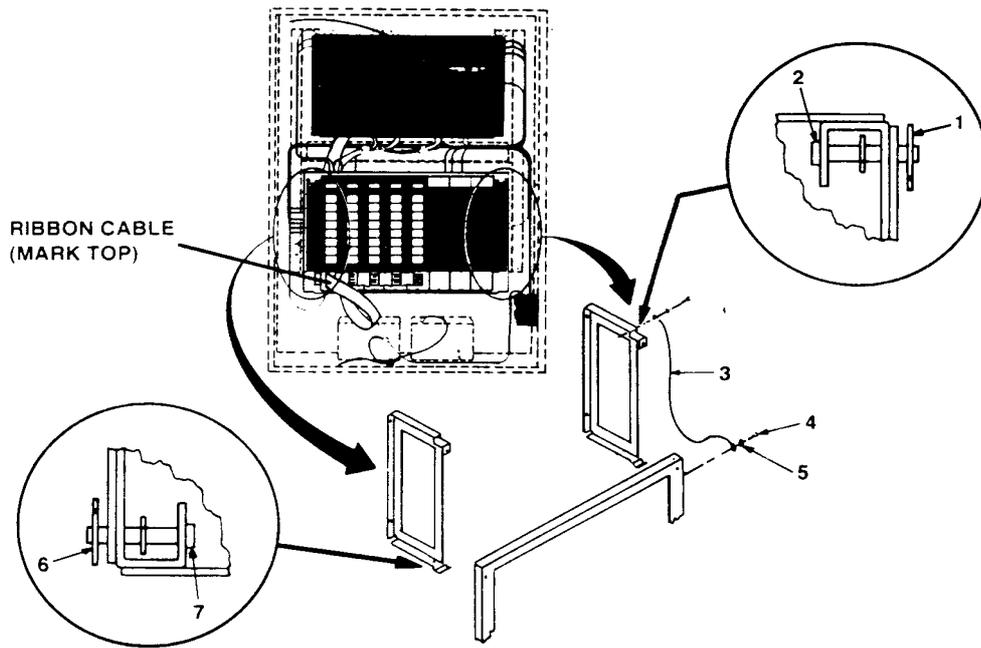
Figure 10 Removing the Option Bay Door

2.6 CHECK AND TERMINATE ALL ZONES

NOTES:

A.   Use the **CARD SUMMARY BY LOCATION** Report (Table 6) to determine the location of the motherboard on which each specific circuit terminates.

  - A stick-on "ADDRESS" label on each motherboard identifies that board's number.

B.   The above report is found within the computer printout portion of the **Factory Documentation**.

C.   Use the terminal identifiers to find specific terminals.

  - See Figure 11(Custom Terminal Wiring Identifiers) for typical custom terminal wiring identifiers.

D.   Check each circuit for voltages, shorts or opens as follows:

  1.   With the meter set on **300VAC**, read the voltage across the circuit.

    - Meter must read 0 volts.

  2.   With the meter set on 60VDC, read the voltage across the circuit again (this time in both directions).

    - Meter must read 0 volts.

  3.   With the meter set on **OHMS x 10** and its (+) and (–) leads connected to the circuit's (+) and (–) wires respectively, check resistance.

    - Readings must compare favourably with those shown in Table 1.

    - If reading indicates an open in a circuit that includes a smoke detector, make sure the detector head(s) are properly mounted and seated.

    – Circuits always read "open" (infinity) if detector power is absent and separately-powered devices (four-wire smoke detectors) are involved.

E.   Connect the wires to their terminals.

Circuit Type	*Meter Reading*

Style B   **(formerly Class B) Initiating Device (Zone) Circuit**

From zone + to zone – (each zone)	3.3K ohms
From zone + to ground	Infinity
From zone – to ground	Infinity

Style D   **(formerly Class A) Initiating Device (Zone) Circuit**

From zone + to zone – (each zone)	Infinity
From zone + to ground	Infinity
From zone – to ground	Infinity
From zone + OUT to + IN	Less than 50 ohms
From zone – OUT to – IN	Less than 50 ohms

Style Y   **(formerly Class B) Notification Appliance Circuit (each signal circuit)**

From + to ground	Infinity
From – to ground	Infinity
Resistance across circuit	
In one direction	10K ohms
In opposite direction	Less than 200 ohms

Style Z   **(formerly Class A) Notification Appliance Circuit (each signal circuit)**

From + to ground	Infinity
From – to ground	Infinity
From + OUT to + IN	Less than 50 ohms
From – OUT to – IN	Less than 50 ohms
Resistance across circuit	
In one direction	Infinity
In opposite direction	Less than 200 ohms

Shielding

Shield to ground	Infinity
Shield to –	Infinity
Shield to +	Infinity

Table 1 Acceptable Zone and Signal Circuit Meter Readings

2.7   COMPLETE INSTALLATION PROCEDURE

A.   Check and terminate all remaining circuits (AC Power, AUX, FB etc.).

B.   Dress the panel wiring

- Use the tie wraps in the system hardware envelope to neatly dress the panel wiring.

C.   Install the option bay door.

D.   Call your local Simplex Branch Office (listed in the Yellow Pages) to install the printed circuit boards and test the system.

> **ONLY SIMPLEX REPRESENTATIVES ARE AUTHORISED TO APPLY
> AC OR BATTERY POWER TO THE 4100 EWIS SYSTEM.**

2.8   INSTALLATION CHECKLIST FOR SIMPLEX TECHNICAL REPRESENTATIVE

Step   **Procedure**   **Page**

☐   1.   Use the Packing List in the "Layout" pages to verify   1
                 delivery/availability of all required system hardware. This
                 includes the printed circuit boards.

☐   2.   Unlock, then open the panel door. Remove the retainer by   3
                 removing the top and bottom screws, then squeeze and
                 pull the two black plastic tabs located on the upper part of
                 the retainer. Lift the retainer from the back box.

☐   3.   Visually inspect the 4100 system. Verify that all wiring is   3
                 connected to the panel, to include the unified ground.

☐   4.   Use a volt/ohmmeter to check system wiring. This   3
                 includes all wiring to the panel, local and remote
                 annunciators, etc. Check the AC power input to the power
                 supply. Repair required circuits prior to powering up the
                 system.

☐   5.   Check jumpers, switches, capacitors and resistors on all   3
                 system printed circuit boards. Match the address label on
                 the motherboard to the address label on the daughter
                 board, then install each daughter board.

☐   6.   Install all wiring harnesses and cables (except battery).   9
                 This includes auxiliary relay and signal cables.

☐   7.   Apply power to the system.   60

                 • If the system is trouble-free, perform "System Test   68
                    Procedures".

                 • If the system displays abnormal conditions, perform   70
                    troubleshooting procedures.

2.8.1 Visual Inspection

A visual inspection of the panel should be performed prior to installation of printed circuit boards, as they obstruct the view of panel terminations when installed. Visually inspect for the following:

(a)   Neat terminations within the panel.

(b)   System wiring is complete and unused circuits are terminated.

(c)   Terminations are tight.

(d)   Ribbon cables from CPU board are properly installed (both ends).

(e)   Battery cable is connected to the battery test facility P9 of the power master supply or P1 of an expansion power supply.

(f)   Green ground screw is connected to a unified building ground.

(h)   Inspect local and remote annunciators connections.

(i)   Verify that system is clean and free from wire clippings.

(j)   Switches are in the proper position (toggle switches are down).

(k)   Verify that the configuration chip, and revision shown in the main menu, match the Programmer's Report then check the following:

(i)   File name   (8 digits - example: 809005A)
(ii)   Order number   (X digits - example: XXXXXX)
(iii)   Revision number   (3 digits - example: 006)
(iv)   Date   (9 digits - example: 07-JUL-88)

2.8.2 Install Printed Circuit Boards

There are several types of motherboards and printed circuit boards for the 4100 system. Each printed circuit board must be plugged into its proper motherboard for power and communications with the CPU.

Each 4100 printed circuit board has an 8 bit DIP switch (SW1) which is used to set its address and communication baud rate. Verify each address and baud rate prior to installation of each board. The system may contain up to 119 printed circuit cards (each has its own address). The CPU board is always address 0. Each printed circuit board address is a binary address which corresponds with a Custom Terminal Wiring Identifier (white label) on its motherboard, daughterboard and the Programmer's Report.
Match the address label on the motherboard to the address label on the daughterboard, then install each daughterboard. Table 3 (page 26) shows a binary switch setting table which may be used to determine binary address and baud rate.

Dip switch positions 2 through 8 are used for addressing, while dip switch position 1 is used for baud rates selection.

Check switch settings, jumpers and resistors on each printed circuit board prior to installation.

Use the Custom Terminal Wiring Identifiers (same address on motherboard and daughterboard), Layout pages and the Programmer's Report to determine proper address and placement for each printed circuit board. The dip switch on each board has been set to its correct binary address at the factory. This binary address corresponds with a Custom Terminal Wiring Identifier (label) on each motherboard. Match the address on the daughter card with the address label on the motherboard, then insert the card. See Figure 6 (Card Detail Report) for card address example and Figure 18 for an example of a Custom Terminal Wiring Identifier (address 5 for card #5 is shown).

Install the printed circuit boards from left to right, and from top to bottom.

TOP
ZN9 ZN10 ZN11 ZN12
+   -+   -+   -+   -

+   -+   -+   -+   -
ZN13 ZN14 ZN15 ZN16
BOTTOM

ZONES

TOP
SIG1 SIG2 SIG3 SHLD
-    +-   +-   +-   +

-    +-   +-   +-   +
SIG4 SIG5 SIG6 SHLD
BOTTOM

CLASS "B" SIGNALS

TOP
SPM1 SPM2 SPM3
-    +-   +-   +

+   -+   -+   -+   -
CNT1 CNT2 CNT3 CNT4
BOTTOM

LED SWITCH
CONTROLLER

TOP
DRIVERS
  2   4   6   8
1   3   5   7

9   11   13   15
  10   12   14   16
DRIVERS

PM1 PM2 PM3 PWR IN
+   -+   -+   -+   -

17   19   21   23
  18   20   22   23
DRIVERS
BOTTOM

24 POINTS I/O'S

TOP
AUX 3A AUX 3B FB3
NC C NO NC C NO - +

NC C NO NC C NO - +
AUX 4A AUX 4B FB4

AUX 6A AUX 6B 6B
NC C NO NC C NO - +

NC C NO NC C NO + -
AUX 5A AUX 5B FB5
BOTTOM

AUXILIARY RELAY/
FEEDBACKS

TOP
COMM A   COMM B
+   +   -   -   +   +   -   -

EXTERNAL
COMMUNICATIONS
(SERIAL BUS)

COMM   2120-1
+   +   -   -

2120 COMMS

XMIT RTS RCV CTS GND O O O
PRINTER PORT 1

RS232 PORT

TOP
MAPNET CHANNEL 1
        CLASS B   CLASS A
S   +   -   S   +   -

MAPNET II BOARD

TOP
B
1
2
3
4   ADDRESS 5
5
6
7
8   LSB

PRINTED CIRCUIT
BOARDS
ADDRESS 5

Figure 11 Custom Terminal Wiring Identifiers

1	2	3	4	5	6	7	8
	MSB						LSB

Side View of Dip Switch

```
   ┌─┐        ┌─┐
 ┌─┘ │      ┌─┘ │
 └───┘      └───┘
  ON         OFF
```

SW-1	**SW1-2**	**SW1-3**	**SW1-4**	**SW1-5**	**SW1-6**	**SW1-7**	**SW1-8**		
	CPU MODULE IS ALWAYS ADDRESS 0						CPU	=	ADDRESS 0
U	ON	ON	ON	ON	ON	ON	OFF	=	ADDRESS 1
S	ON	ON	ON	ON	ON	OFF	ON	=	ADDRESS 2
E	ON	ON	ON	ON	ON	OFF	OFF	=	ADDRESS 3
D	ON	ON	ON	ON	OFF	ON	ON	=	ADDRESS 4
	ON	ON	ON	ON	OFF	ON	OFF	=	ADDRESS 5
F	ON	ON	ON	ON	OFF	OFF	ON	=	ADDRESS 6
O	ON	ON	ON	ON	OFF	OFF	OFF	=	ADDRESS 7
R	ON	ON	ON	OFF	ON	ON	ON	=	ADDRESS 8
	ON	ON	ON	OFF	ON	ON	OFF	=	ADDRESS 9
B	ON	ON	ON	OFF	ON	OFF	ON	=	ADDRESS 10
A	ON	ON	ON	OFF	ON	OFF	ON	=	ADDRESS 11
U	ON	ON	ON	OFF	OFF	ON	ON	=	ADDRESS 12
D	ON	ON	ON	OFF	OFF	ON	OFF	=	ADDRESS 13
	ON	ON	ON	OFF	OFF	OFF	ON	=	ADDRESS 14
R	ON	ON	ON	OFF	OFF	OFF	OFF	=	ADDRESS 15
A	ON	ON	OFF	ON	ON	ON	ON	=	ADDRESS 16
T	ON	ON	OFF	ON	ON	ON	OFF	=	ADDRESS 17
E	ON	ON	OFF	ON	ON	OFF	ON	=	ADDRESS 18

CONTINUES TO A BINARY 119

ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	=	ADDRESS 119

Table 2 Printed Circuit Board Addresses

DIP SWITCH SW1									
ADDRESS AND BAUD RATE SELECT									
SWITCH POSITION	#1	#2	#3	#4	#5	#6	#7	#8	
	BRS	**MSB**						**LSB**	
BRS = BAUD RATE SELECT 0-9600 baud (INTERNAL/REMOTE)									
ON = 0 OFF = 1									

Table 3 All Expansion Cards

PLUGGABLE RESISTOR SETTINGS			
DRIVE #	RESISTOR #	INPUT	OUTPUT
1	20	2K .5W	20 OHM 1W
2	21	2K .5W	20 OHM 1W
3	22	2K .5W	20 OHM 1W
4	23	2K .5W	20 OHM 1W
5	24	2K .5W	20 OHM 1W
6	25	2K .5W	20 OHM 1W
7	26	2K .5W	20 OHM 1W
8	27	2K .5W	20 OHM 1W
9	28	2K .5W	20 OHM 1W
10	29	2K .5W	20 OHM 1W
11	30	2K .5W	20 OHM 1W
12	31	2K .5W	20 OHM 1W
13	32	2K .5W	20 OHM 1W
14	33	2K .5W	20 OHM 1W
15	34	2K .5W	20 OHM 1W
16	35	2K .5W	20 OHM 1W
17	36	2K .5W	20 OHM 1W
18	37	2K .5W	20 OHM 1W
19	38	2K .5W	20 OHM 1W
20	39	2K .5W	20 OHM 1W
21	40	2K .5W	20 OHM 1W
22	41	2K .5W	20 OHM 1W
23	42	2K .5W	20 OHM 1W
24	43	2K .5W	20 OHM 1W

For Input Contact Monitors   For Relays LED/Lamps

Table 4 24 Point Graphic I/O Card Pluggable Resistors

NOTE: Systems are shipped from the factory with 3.3K OHM resistors. Use 3.3K OHM resistors for contact monitors and 20 OHM resistors for RELAY or LED/lamp outputs.

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3. FIELD TERMINATIONS

This section describes procedures to successfully install and terminate all field equipment that is to be terminated to the 4100 EWIS System.

3.1 SPEAKER LINE TERMINATIONS
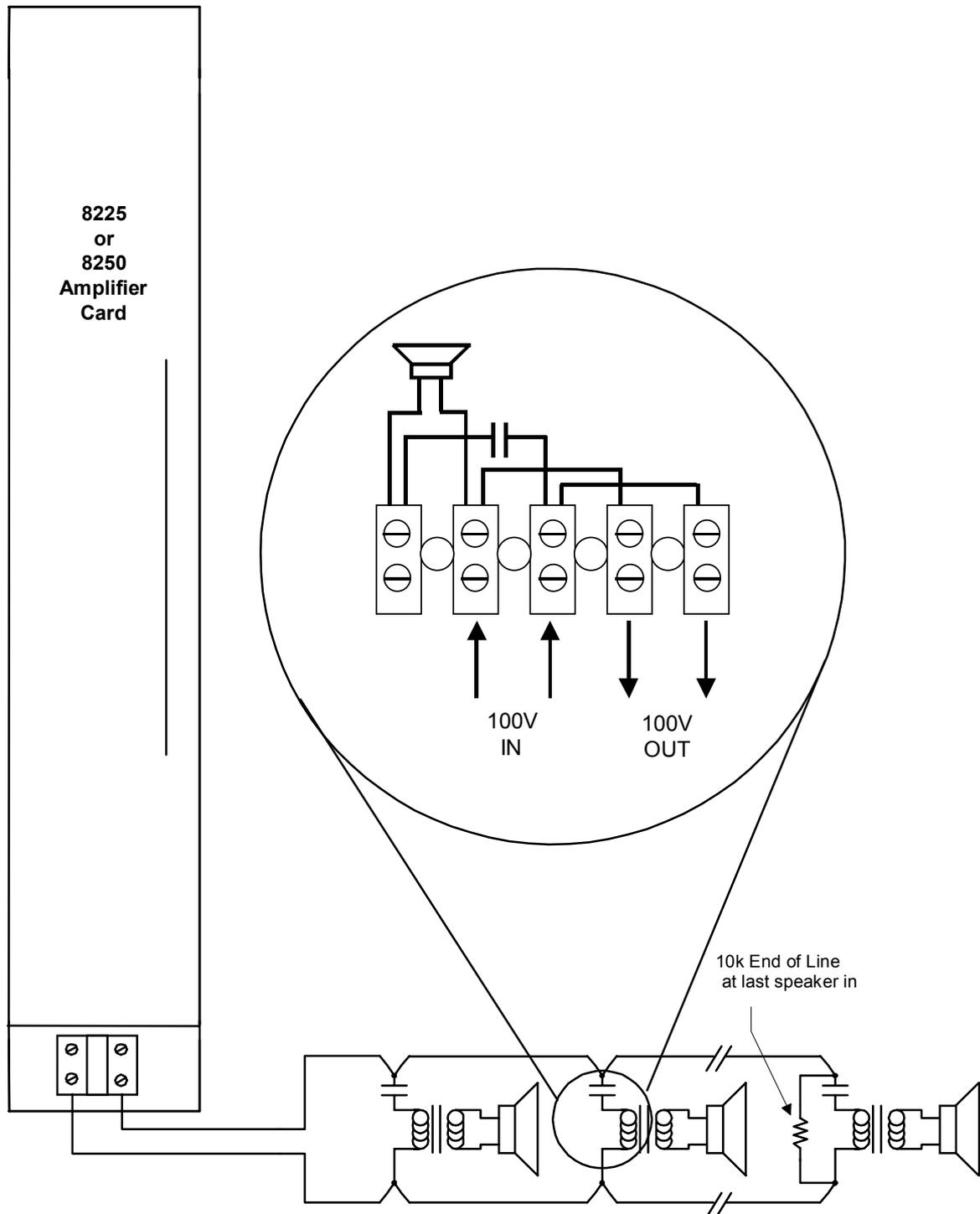
Figure 12 Amplifier Card Terminations for Speakers

Speaker lines are terminated in the 8225 or 8250 Amplifier card.

Only one Zone can be terminated on each Amplifier card, speakers can be wired in parallel, and terminated with a 10k End of Line Resistor.

The terminating connections are located at the bottom of the front panel on the amplifier card (See

Figure 12).

Speakers are terminated across the 100v output line as shown in

Figure 12.

Wiring to the speaker lines is supervised via a 10k end of line resistor placed across the last speaker in each zone.

The capacitor fly lead is connected to the transformer primary winding. Select either 0.5 W, 1 W, 2 W, or 5 W terminal for the required power output for the speaker.

3.2 EMERGENCY ALARM INITIATING DEVICES TERMINATIONS
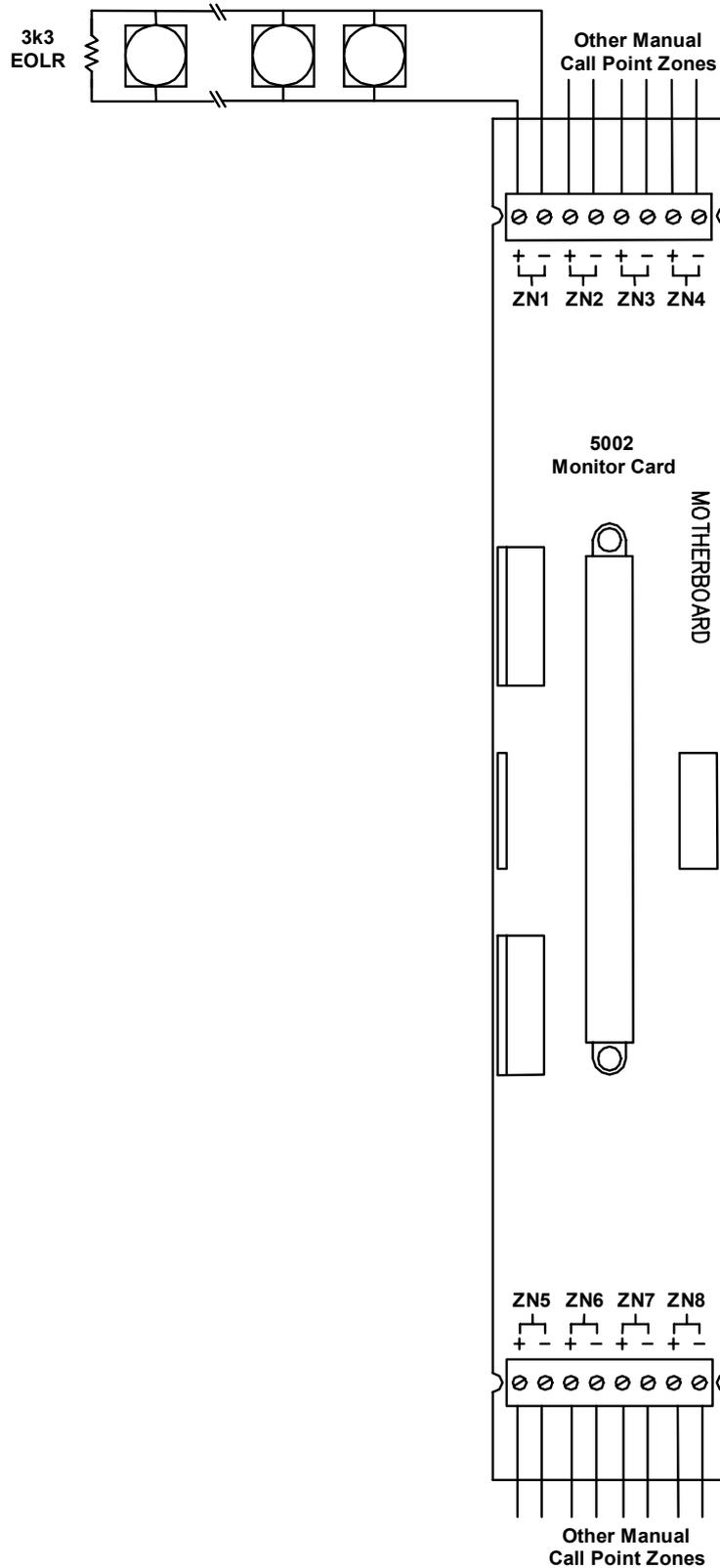
Figure 13 Monitor Card Terminations for Manual Call Points

Manual Call Points are terminated in the 4100-5002 monitor card.

There are 8 zones per card and are labelled ZN1 to ZN8 (See

Figure 13).

One Zone can terminate many Manual Call Points, but they must be wired in parallel, and terminated with a 3k3 End of Line Resistor across the last manual call point.

The terminating connections are located at the Top and Bottom of the motherboard.

3.3   FIRE INDICATOR PANEL EWIS TRIP TERMINATIONS
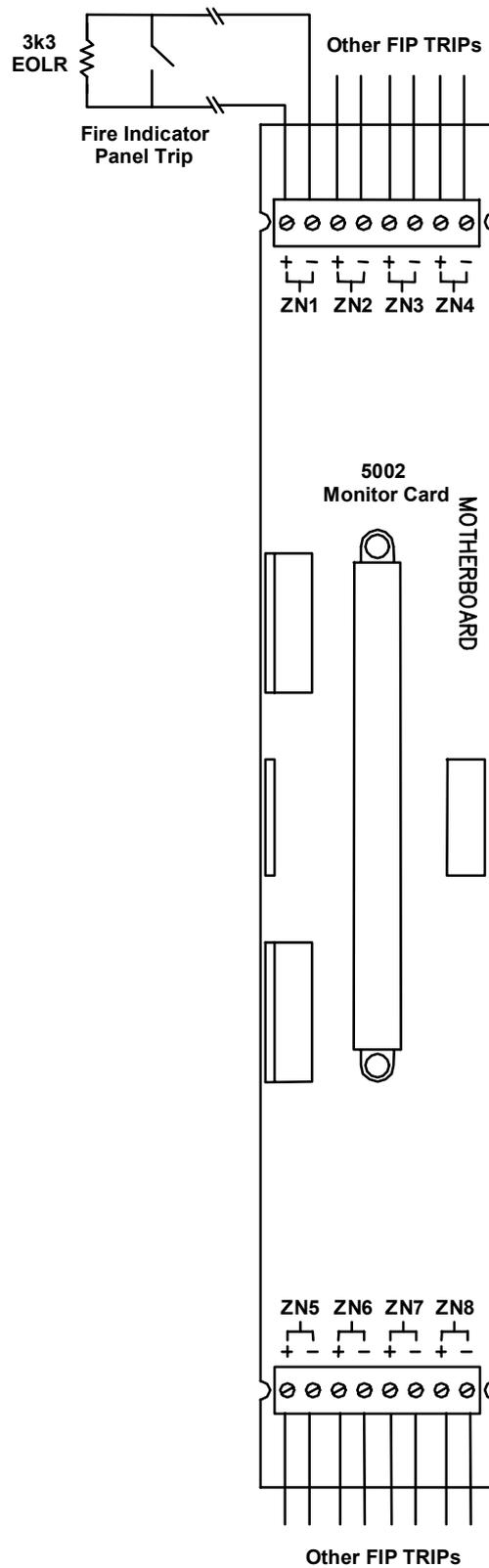
Figure 14 Monitor Card Terminations for FIP trips

The Fire Indicator Panel Trip can be terminated in the 4100-5002-monitor card.

There are 8 Input zones per card and are labelled ZN1 to ZN8 (See

Figure 14).

Each input zone monitors a set of Normally Open Contacts located in the Fire Indicator Panel and is terminated with a 3K3 End Of Line Resistor.

One of the monitor card terminations can be used.

The terminating connections are located at the Top and Bottom of the motherboard.

3.4   VISUAL ALARM DEVICE LINE TERMINATIONS
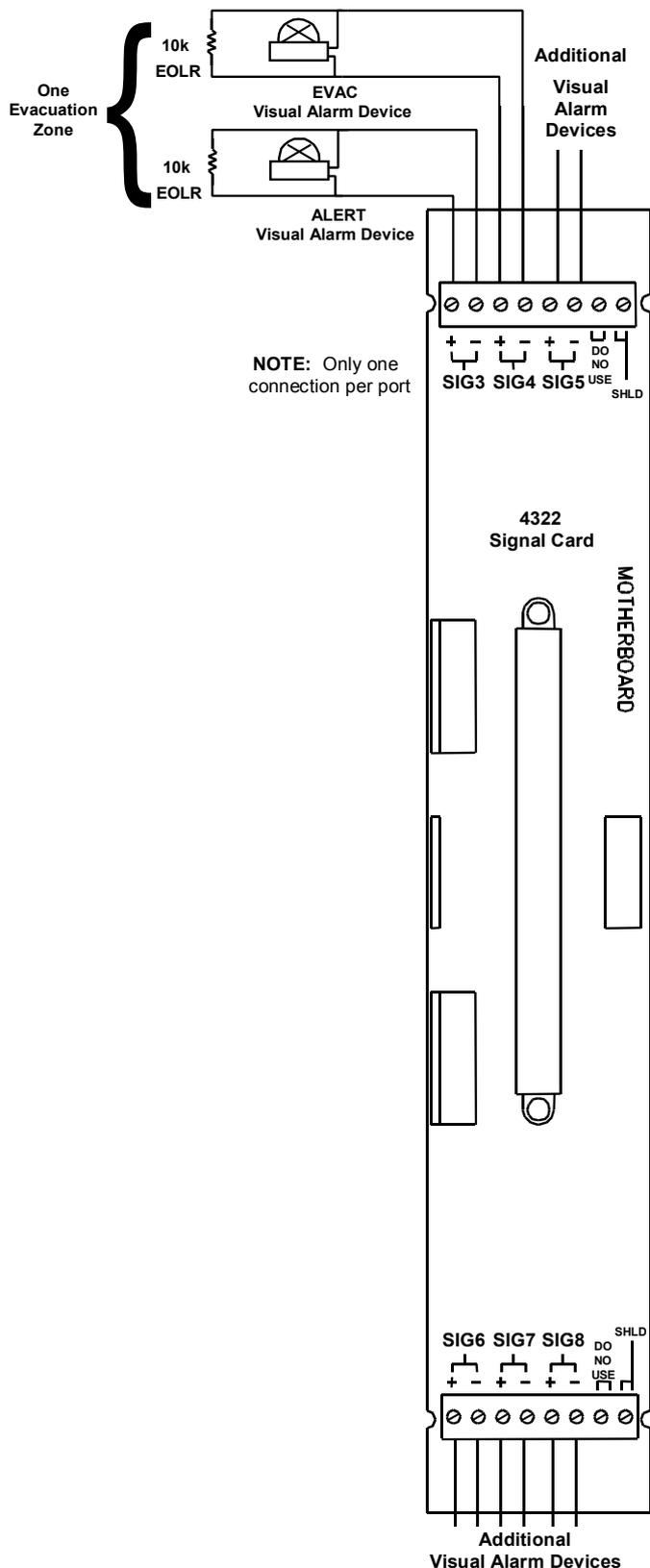
Figure 15 Signal Card Terminations for Visual Alarms Devices

Visual Alarm Devices are terminated in the 4100-4322-signal card.

There are 6 signal ports per card and are labelled SIGx to SIGx. Where x corresponds to a signal port number.

Visual Alarm Devices are terminated on each port of the signal card.

For each Evacuation Zone, two signal ports are assigned.

1. For the Alert Strobe(s)
2. For Evacuation Strobe(s)

Each Visual Alarm Device must terminated with a 10k End of Line Resistor.

The terminating connections are located at the Top and Bottom of the motherboard.

Each port can source up to 2 Amps at 24 VDC for driving strobes.

If driving a number of strobes, ensure that the correct size cable is used to minimise voltage drop on the unit.

3.5 WIP LINE TERMINATIONS
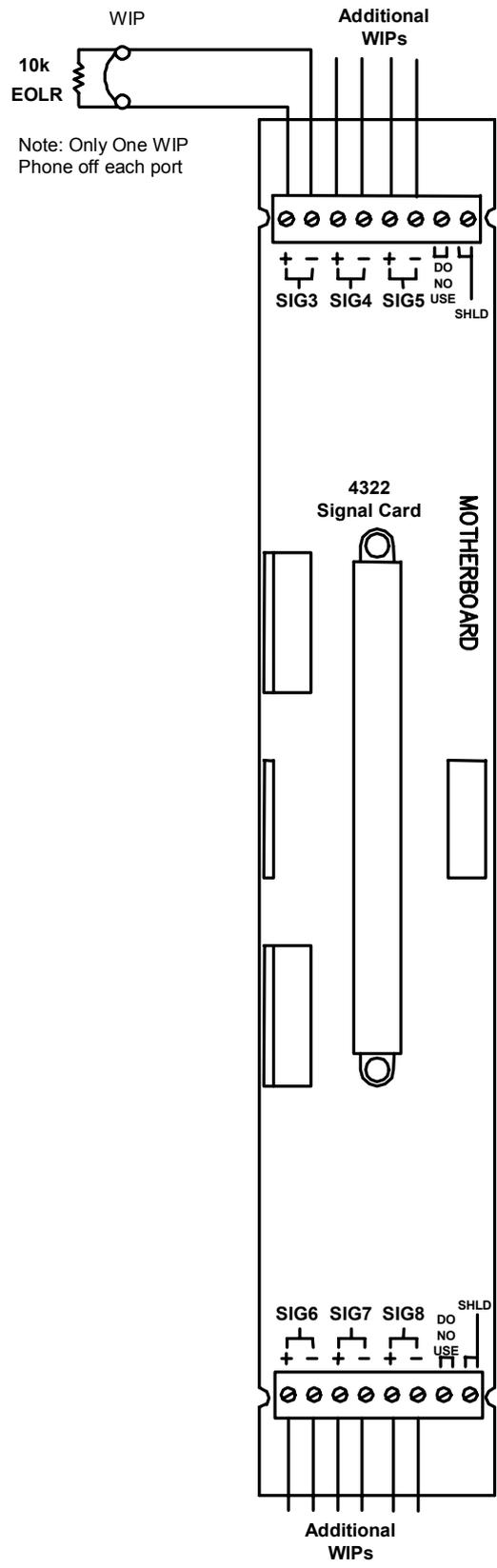
Figure 16 Signal Card Terminations for WIPs

WIP Devices are terminated in the 4100-4322-signal card.

There are 6 ports per card and are label SIG3 to SIG8. The cable shields should be connected in the termination labelled `SHLD` (See

Figure 16).

Only One WIP phone can be terminated on each port of the signal card. These phones must be Simplex WIP phones Part Number: - 2084-9106.

The last Each WIP phone in each zone must terminated with a 10k End of Line Resistor.

The terminating connections are located at the Top and Bottom of the motherboard.

3.6 P.A. MICROPHONE TERMINATIONS
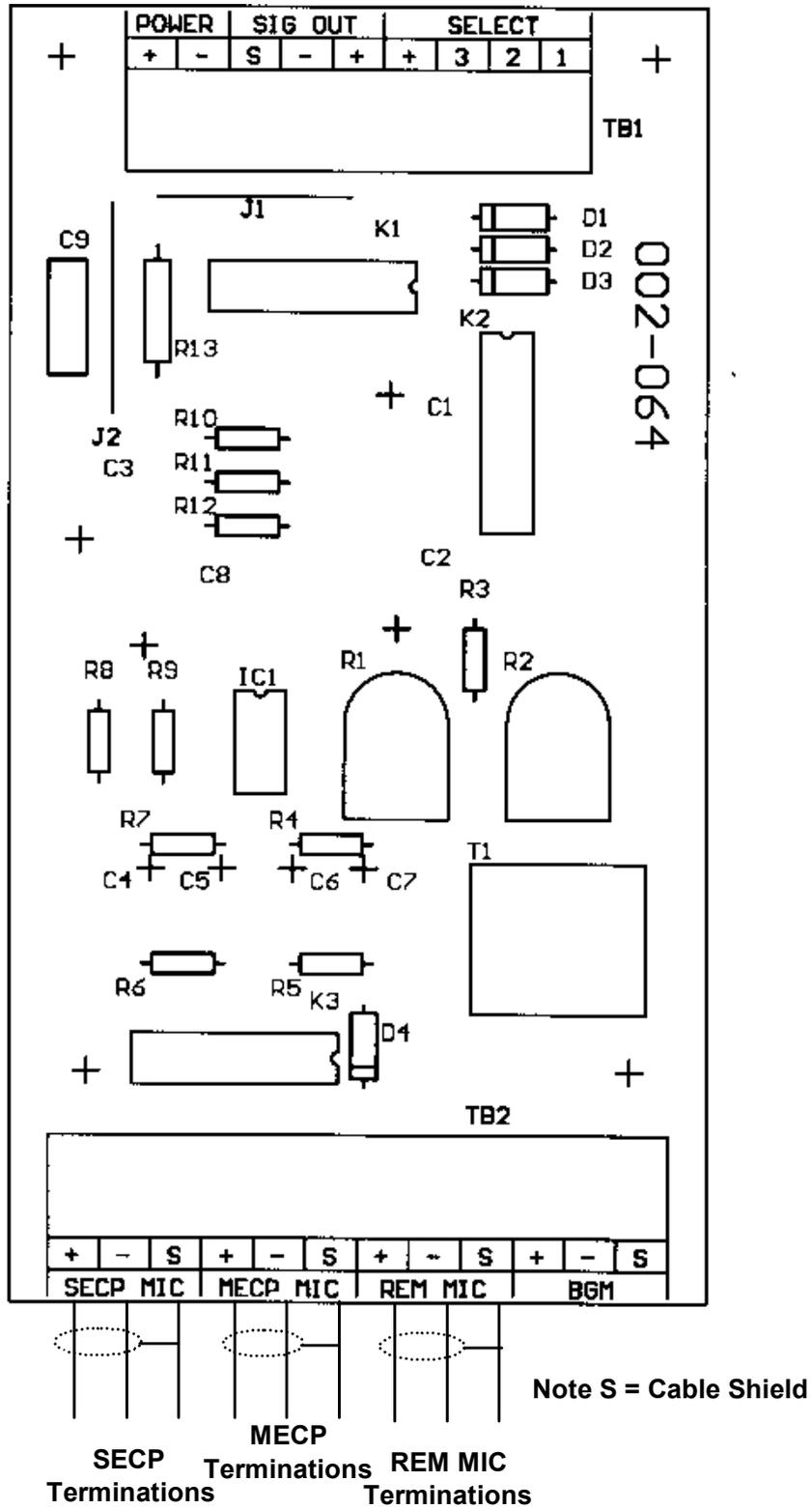
Figure 17 Pre Amplifier Board Terminations for PA

The P.A Microphone is terminated on the pre amplifier card.

The pre amplifier card is used to terminate the Master Emergency Control Point Microphone, the Secondary Emergency Control Point Microphone, and remote microphone.

The terminating connections are located at the bottom of the pre amplifier board (See

Figure 17)

3.7 BACKGROUND MUSIC TERMINATIONS
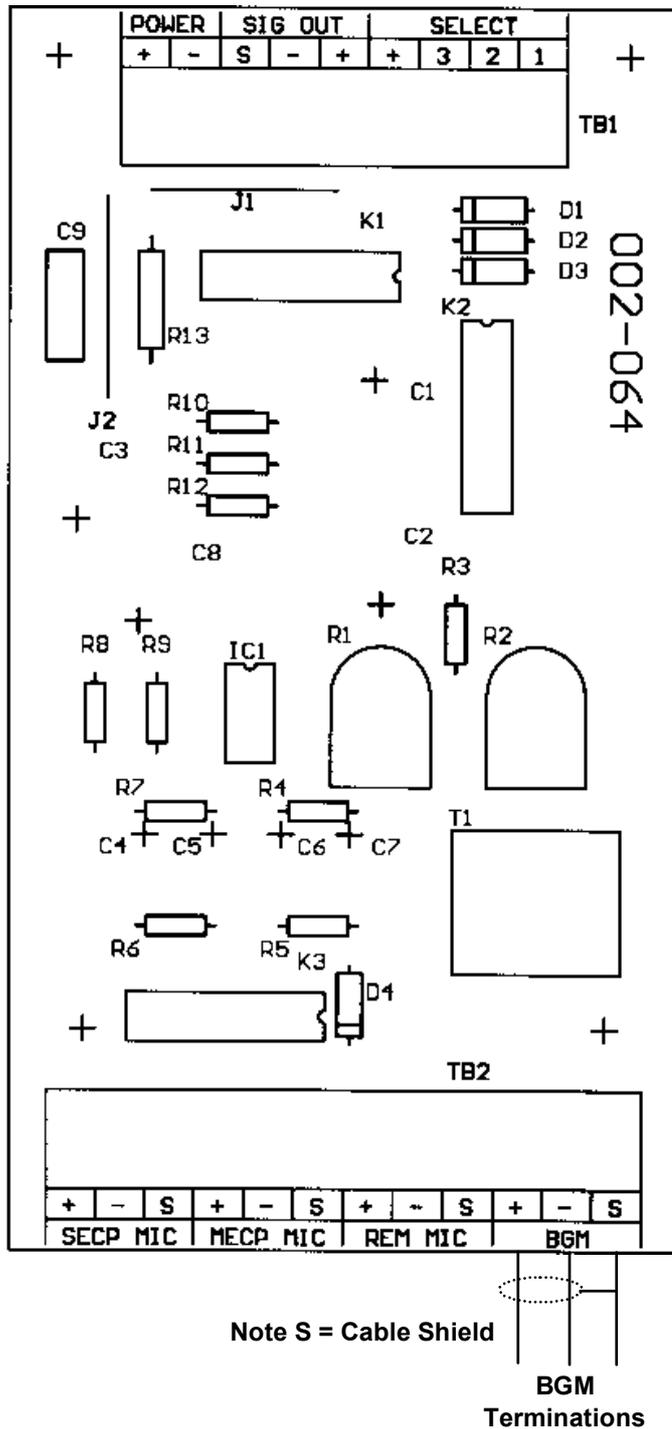
Figure 18 Pre Amplifier Board Terminations for BGM

The Background Music input is terminated on the pre amplifier card.

The terminating connections are located at the bottom of the pre amplifier board (See

Figure 18)

3.8   NETWORK WIP PHONE TERMINATION

The Network Master WIP phone is terminated on the Master Phone Assembly 4100-0205.

The Network Master WIP Phone is the start and finish of the WIP Phone Network. The WIP Phone Network leaves the master Node from port P3 and is looped through each slave node and returns to the master node on port P4. (See

F
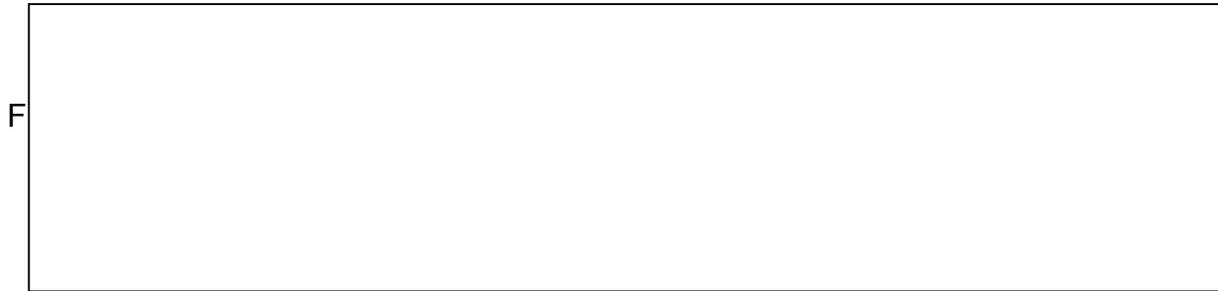
Figure 19 Master WIP Phone Network

3.8.1 Network WIP Phone Termination – Master Node

The WIP Master Phone is terminated on connector P6. Only use approved master phone part number 2084-9106.

The next node in the network is terminated on connector P4.

The last node in the network is terminated on connector P3.
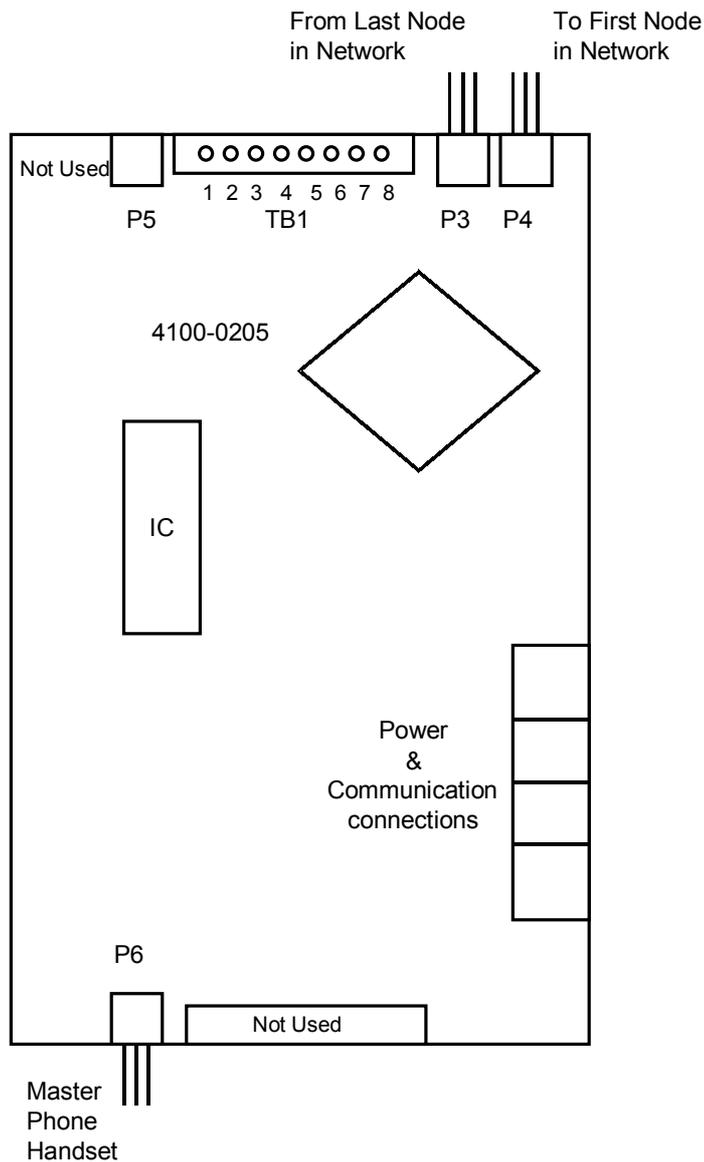
Figure 20 WIP Network Master Node Phone Terminations

The Master Phone Handset terminations are on terminals labelled 1 & 2.

The positive line on terminal 1 and the negative line on terminal 2.

3.8.2 Network WIP Phone Termination – Slave Node

The WIP Master Phone is terminated on connector P6. Only use approved master phone part number 2084-9106.

The network connections for slave node WIP Phones in the WIP Phone network are terminated on terminal block TB1 termination 7,8.

The cabling from the previous node and the next node in the network are terminated together. See

Figure 21

From Previous Node in Network   To Next Node in Network

Not Used   1 2 3 4 5 6 7 8

P5   TB1   P3   P4

4100-0205
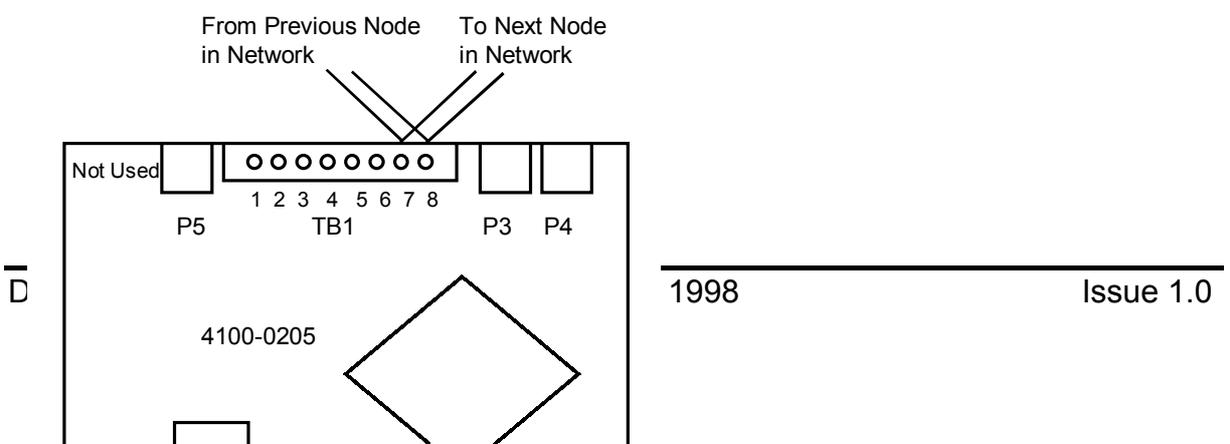
Figure 21 WIP Network Slave Node Phone Terminations

The Master Phone Handset terminations are on terminals labelled 1 & 2.

The positive line on terminal 1 and the negative line on terminal 2.

3.9   SECP TERMINATION

SECP terminations are site configuration dependent and will be designated at time of system configuration.

4   PROGRAMMERS REPORT

The Programmer's Report is used to identify peripheral connections within the panel and specifies system operational data.

The 13 sections within the Programmer's Report are shown in Tables 5 through 17, and explained in each section.

4.1   GENERAL INFORMATION

This section contains branch office required information. It details branch personnel involved with the system, system power data, agency, and software information. The software revision must match the system CFIG chip label for proper operation of the LCD display.

```
-------------------------------------------------------------------------------
XYZ BUILDING                       GENERAL INFORMATION                  Page   1
2796 node:1 rev:6                                      14:41:55, WED, 25-MAR-98
-------------------------------------------------------------------------------
4100 Fire Alarm System                                                  GENERAL
Simplex Time Recorder Co.                                                   INFO

Node Number: 1
System Type: 4100+

          Job Filename :  2796
             Job Title :  XYZ BUILDING
          Order Number :
              Customer :
      Customer Contact :
            Contractor :
           Salesperson :
         Branch Number :
       Branch Location :
         Programmed by :

       Agency Approval :  NONE
         NFPA Standard :  NONE
     Standby Generator? :  NO
Hours of Standby Battery :

Comments :
         :


               Job Rev : 6
             Built Rev : 6
            Built Date : 17-Mar-98 15:22


                        Current    As Built
                        -------    --------
        Programmer Rev : 7.03       7.03
   System Defaults Rev : 79         79
  Database (DBF) Format : 80         80
           CFIG Format : 0          0
```

Table 5 GENERAL INFORMATION REPORT

4.2   CARD SUMMARY BY LOCATION

The Card Summary by Location shows the number of cards within the system. This page should be used to verify delivery of system cards from the factory. It also shows a decimal card number which is the address for that printed circuit board. Addresses 3 and 9 are shown below on Custom Terminal Wiring Identifiers.

```
--------------------------------------------------------------------------------
XYZ BUILDING                    CARD SUMMARY BY LOCATION                Page   3
2796 node:1 rev:6                                       14:41:55, WED, 25-MAR-98
--------------------------------------------------------------------------------
                                                                           CARD
CARD LOCATION LISTING:                                                  LOCATION

LOCAL CONTROLLER UNIT:

    DAUGHTER CARDS:

        Card     Card Type                                   Zone Range
        -----    ---------------------------------------     -----------------
          0      (7003) 4100+ Master Controller
          1      (3003) 8 Pt, 3 Amp Relay w/ Feedback        AUX3-10
          2      (0304) Remote Unit Interface (RUI)          RUI 1
          3      (5002) 8 Zn Class B Monitor (IDC) w/Sup     ZN1-8
          4      (5002) 8 Zn Class B Monitor (IDC) w/Sup     ZN9-16
          5      (6005) Power Supply/Charger
          8      (5002) 8 Zn Class B Monitor (IDC) w/Sup     ZN17-24
          9      (5002) 8 Zn Class B Monitor (IDC) w/Sup     ZN25-32
         10      (5002) 8 Zn Class B Monitor (IDC) w/Sup     ZN33-40
         11      (5002) 8 Zn Class B Monitor (IDC) w/Sup     ZN41-48
         12      (5002) 8 Zn Class B Monitor (IDC) w/Sup     ZN49-56
         13      (5002) 8 Zn Class B Monitor (IDC) w/Sup     ZN57-64
         15      (0205) Phone Card
         19      (4332) 3 Input Class A Signal w/Sup         SIG3-8
         20      (4332) 3 Input Class A Signal w/Sup         SIG9-14
         21      (4332) 3 Input Class A Signal w/Sup         SIG15-20
         22      (4332) 3 Input Class A Signal w/Sup         SIG21-26
         23      (4332) 3 Input Class A Signal w/Sup         SIG27-32

    ANNUNCIATORS:

Annun Card     Card Type                                   Zone Range
----- -----    ---------------------------------------     -----------------
  0     0      64 LED / 64 Sw Controller
        6      (0301) 64 LED / 64 Sw Controller
        7      (0301) 64 LED / 64 Sw Controller
       14      (0301) 64 LED / 64 Sw Controller
       16      (0301) 64 LED / 64 Sw Controller
       17      (0301) 64 LED / 64 Sw Controller
       18      (0301) 64 LED / 64 Sw Controller


REMOTE UNIT INTERFACE 1 (RUI 1):

Type Unit  Card   Card Type                                Zone Range
--------- ----   ---------------------------------------  -----------------
Ann    1    24    (0302) 24 Pt Graphic Interface           IO1-24
Ann    1    26    (0302) 24 Pt Graphic Interface           IO25-48
Ann    1    27    (0302) 24 Pt Graphic Interface           IO49-72
Ann    1    25    (6005) Power Supply/Charger
```

Table 6 CARD SUMMARY BY LOCATION REPORT

4.3   SYSTEM POINT SUMMARY

The System Point Summary is of primary importance to the installer.   Simplex personnel must provide this information prior to installation. Call your local Simplex branch office, which is listed in the Yellow Pages, and request this information be provided.   This is used in conjunction with the Layout pages, to determine wiring terminations and the information shown below.

4.3.1 Zone Name

Zone names reference the custom label to specific points for actual customer wiring. They include monitor zones (ZNx), signals (SIGx), auxiliary relays (AUXx), 24 point I/O (PMx) and feedback (FBx) numbers. Zones, signals, relays, feedbacks, etc., are shown in numerical sequence.

4.3.2 Address

Each printed circuit board requires a unique address.   Address 0 identifies the master termination module. Up to 119 addresses, one per printed circuit board, may be used in a system.   Addresses may or may not be in sequential order, but the report always starts with address 0.   Two address labels are used for each mother/daughter board combination. The mother board will have its unique address label next to the PC board connector.   The daughter board will have an identical label.

4.3.3 Custom Label

The custom label identifies a location within the building or area, and contains additional information concerning each circuit. Also included with the custom label is the corresponding zone name. This ties the custom label to a zone name and allows the installer to identify where field wires are terminated, according to zone name.

Examples:	1ST FLOOR SOUTH WING WIP	SIGNAL 2
	3RD FLOOR EAST WING ALERT STROBES	SIGNAL 40

4.3.4 Point Type

This is the type of device (indicating appliance, initiating device, relays, etc.) connected to each circuit.   Each device type is abbreviated.   An operational description may also be included in the abbreviation.

Example:	AHUM (Air Handling Unit Monitor)
	PRI (Primary Elevator Capture)

The installer should use the System Point Summary when marking wires to the 4100 panel. These markings should include zones (ZNx+, ZNx--), signals (SIGx), etc., for each circuit within the system.   Marking each wire in this matter will facilitate termination and checking of the wiring in the 4100 panel.

NOTE: The SYSTEM POINT SUMMARY Report is found within the computer printout portion of the **Factory Documentation.**

```
--------------------------------------------------------------------------------XYZ
BUILDING                    SYSTEM POINT SUMMARY                Page   62796 node:1
rev:6                                           14:41:55, WED, 25-MAR-98
--------------------------------------------------------------------------------
                                                               POINT SUMMARY
System Point Summary (ascending by zone name):                      ZONE

                                                  Device   Point   PNIS
          Zone Name Custom Label                  Type     Type    Code
          --------- ------------------------------------- ------- ------- -----------
          SIG31     SIGNAL CARD 23 CIRCUIT SIG31                  PHONE
          SIG32     SIGNAL CARD 23 CIRCUIT SIG32                  PHONE
          AUX3      BATTERY TEST OUTPUT    AUX3                   RELAY
          AUX4      SYSTEM FAULT          AUX4                    RELAY
          AUX5      BRIGADE ALARM 1       AUX5                    RELAY
          AUX6      BRIGADE ALARM 2       AUX6                    RELAY
          AUX7      GFA OUTPUT 1          AUX7                    RELAY
          AUX8      GFA OUTPUT 2          AUX8                    RELAY
          AUX9      FIRE ALARM BELL       AUX9                    RELAY
          AUX10     SPARE                 AUX10                   RELAY
          FB3       ***** DOOR SWITCH *****  FEEDBACK PT FB3      ONOFF
          FB4       AUX RELAY CARD 4 FEEDBACK PT FB4              ONOFF
          FB5       AUX RELAY CARD 4 FEEDBACK PT FB5              ONOFF
          FB6       AUX RELAY CARD 4 FEEDBACK PT FB6              ONOFF
          FB7       AUX RELAY CARD 4 FEEDBACK PT FB7              ONOFF
          FB8       AUX RELAY CARD 4 FEEDBACK PT FB8              ONOFF
          FB9       AUX RELAY CARD 4 FEEDBACK PT FB9              ONOFF
          FB10      FIP MCP          FEEDBACK PT FB10             ONOFF
          IO1       AMPLIFIER #1 HAS FAILED                       TSWITCH
          IO2       AMPLIFIER #1 ALERT                            RELAY
          IO3       AMPLIFIER #1 EVAC                             RELAY
          IO4       AMPLIFIER #1 P.A.                             RELAY
          IO5       AMPLIFIER #2 HAS FAILED                       TSWITCH
          IO6       AMPLIFIER #2 ALERT                            RELAY
          IO7       AMPLIFIER #2 EVAC                             RELAY
          IO8       AMPLIFIER #2 P.A.                             RELAY
          IO9       AMPLIFIER #3 HAS FAILED                       TSWITCH
          IO10      AMPLIFIER #3 ALERT                            RELAY
          IO11      AMPLIFIER #3 EVAC                             RELAY
          IO12      AMPLIFIER #3 P.A.                             RELAY
          IO13      AMPLIFIER #4 HAS FAILED                       TSWITCH
          IO14      AMPLIFIER #4 ALERT                            RELAY
          IO15      AMPLIFIER #4 EVAC                             RELAY
          IO16      AMPLIFIER #4 P.A.                             RELAY
          IO17      UNUSED                                        USWITCH
          IO18      UNUSED                                        USWITCH
          IO19      UNUSED                                        USWITCH
          IO20      UNUSED                                        USWITCH
          IO21      UNUSED                                        USWITCH
          IO22      UNUSED                                        USWITCH
          IO23      UNUSED                                        USWITCH
          IO24      UNUSED                                        USWITCH
          IO25      AMPLIFIER #5 HAS FAILED                       TSWITCH
          IO26      AMPLIFIER #5 ALERT                            RELAY
          IO27      AMPLIFIER #5 EVAC                             RELAY
          IO28      AMPLIFIER #5 P.A.                             RELAY
```

Table 7 SYSTEM POINT SUMMARY REPORT

NOTES:
A. Custom label information tells you where the circuit goes.
B. At both ends of each circuit, tag wires with zone name and polarity (in cases where polarity applies).
   - For example, SIG 3+ and SIG 3-.

4.4 SYSTEM OPTION SUMMARY

The System Options Summary lists all standard system operations. Enabled operations are shown with the word "YES".

```
--------------------------------------------------------------------------------
XYZ BUILDING                  SYSTEM OPERATION                       Page   2
2796 node:1 rev:6                                        14:41:55, WED, 25-MAR-98
--------------------------------------------------------------------------------
                                                                     OPTIONS
                                                                     SUMMARY


Standard System Operations    Enabled?   Settings
-------------------------      --------   ------------------------------------
  Alarm Silence Inhibit.......   NO
  Time Limit Signal Control...   NO
  System Trouble Reminder.....   NO
  Dedicated Waterflow Signals.   NO
  Sprinkler Supv. Operation...   NO
  Alarm Verification Setup....   NO
  Individual Acknowledge .....   NO        GLOBAL
  Elevator Recall Operation...   NO
  Non-Steady Audible Evac Sig.   NO
  Non-Steady Visual  Evac Sig.   NO
  Door Holder Operation.......   NO

Expanded System Operations    Enabled?   Settings
-------------------------      --------   ------------------------------------
  24-Hr Time/Date Format......   NO        12 HOUR
  Coding Group Configuration..   NO
  Audio Coding Configuration..   NO
  Audio Option Configuration..   NO
  Walk Test by Group..........   NO
  Non-General Alarm Operation.   NO
  Pre-Programmed User Lists...   YES       *
  Temperature in Centigrade...   NO        FAHRENHEIT
  Default Local Mode..........   YES
  Paging Channel Selection....   NO


Other Selections              Enabled?   Settings
-------------------------      --------   ------------------------------------
  Access Levels                            *
  Non-Default Passcodes          NO
  City Connect                              Form 'C' Dry Contact
  Custom Control                 YES       Program: 3, 4, 5, 7

 * Operation ENABLED. See Options Detail Report for full description.
```

Table 8 SYSTEM OPTIONS SUMMARY

4.5   UNIT DETAIL REPORT

The Unit Detail Report shows detailed information regarding each printed circuit board as well as software cards (pseudos) in the system.   Custom information is shown for each type of card, such as card number, card address (binary), circuits on the card, circuit types, custom labels, and coding information, if applicable.

```
--------------------------------------------------------------------------------
XYZ BUILDING                     UNIT DETAIL REPORT                   Page  62
2796 node:1 rev:6                                        14:41:55, WED, 25-MAR-98
--------------------------------------------------------------------------------
UNIT No:  0                                                          UNIT  0
CARD  No:   0 (base)                                                    0-4
64 LED / 64 Sw Controller


                                        CONTROL PANEL LED/SWITCH ANNUNCIATOR 0

UNIT COMPOSITION:

Card No  Card Type                                  Display Card Point Usage
-------  ----------------------------------------   ------------------------
      0  64 LED / 64 Sw Controller                     0 LEDs /   0 SWs
      6  (0301) 64 LED / 64 Sw Controller             64 LEDs /  32 SWs
      7  (0301) 64 LED / 64 Sw Controller             64 LEDs /  40 SWs
     14  (0301) 64 LED / 64 Sw Controller             64 LEDs /  40 SWs
     16  (0301) 64 LED / 64 Sw Controller             64 LEDs /  40 SWs
     17  (0301) 64 LED / 64 Sw Controller             64 LEDs /  32 SWs
     18  (0301) 64 LED / 64 Sw Controller              0 LEDs /   0 SWs
      1  (3003) 8 Pt, 3 Amp Relay w/ Feedback         N/A
      2  (0304) Remote Unit Interface (RUI)           N/A
      3  (5002) 8 Zn Class B Monitor (IDC) w/Sup      N/A
      4  (5002) 8 Zn Class B Monitor (IDC) w/Sup      N/A
      5  (6005) Power Supply/Charger                  N/A
      8  (5002) 8 Zn Class B Monitor (IDC) w/Sup      N/A
      9  (5002) 8 Zn Class B Monitor (IDC) w/Sup      N/A
     10  (5002) 8 Zn Class B Monitor (IDC) w/Sup      N/A
     11  (5002) 8 Zn Class B Monitor (IDC) w/Sup      N/A
     12  (5002) 8 Zn Class B Monitor (IDC) w/Sup      N/A
     13  (5002) 8 Zn Class B Monitor (IDC) w/Sup      N/A
     19  (4332) 3 Input Class A Signal w/Sup          N/A
     20  (4332) 3 Input Class A Signal w/Sup          N/A
     21  (4332) 3 Input Class A Signal w/Sup          N/A
     22  (4332) 3 Input Class A Signal w/Sup          N/A
     23  (4332) 3 Input Class A Signal w/Sup          N/A

NOTE: Card 0, Annun 0 = Master Controller slot 4
```

Table 9 UNIT DETAIL REPORT

4.6 ANNUNCIATOR REPORT

The Local Annunciator Report is shown first (if applicable), followed by the Remote Annunciator Report (if applicable). The first page of these reports shows the controller/card number, position, and the type of display cards selected. The next pages will show the point, switch mode, reference address, reference custom label, and the reference type. A typical Local Annunciator Report is shown in Figure 7.

```
--------------------------------------------------------------------------
XYZ BUILDING 1                  CARD DETAIL REPORT                Page  11
909015J node:1 rev:1                                04:39:17, WED, 14-MAY-97
--------------------------------------------------------------------------
CARD  No:   5                                                         LED/SW
(0301) 64 LED / 64 Sw Controller                                       CARD
UNIT No:  0                                                              5


addr 00000101
sw1  12345678


CONTROLLER CARD CONFIGURATION DETAIL:

Controller
 Card No        Display Card       Display Card Type
----------      ------------       ----------------------------
    5                1             L403 - 8 Momen Sw/8 Red LED
                     2             L405 - 8 Momen Sw/16 Red-Yel LED
                     3             L405 - 8 Momen Sw/16 Red-Yel LED
                     4             L405 - 8 Momen Sw/16 Red-Yel LED
                     5             0409 - Blank Display Card
                     6             0409 - Blank Display Card
                     7             0409 - Blank Display Card
                     8             0102 - Battery Meters (amp/volt)
                     9             0409 - Blank Display Card
                    10             0409 - Blank Display Card
                    11             0409 - Blank Display Card
                    12             0409 - Blank Display Card
                    13             0409 - Blank Display Card
                    14             0409 - Blank Display Card
                    15             0409 - Blank Display Card
                    16             0409 - Blank Display Card
```

Table 10 LOCAL ANNUNCIATOR REPORT

4.7 DIGITAL PSEUDO POINT SUMMARY

The Digital Pseudo Point Summary shows all digital pseudo points within the system. It also identifies the custom labels, and pseudo type for each digital pseudo point within the system.

```
--------------------------------------------------------------------------------
XYZ BUILDING              DIGITAL PSEUDO POINT SUMMARY              Page  20
2796 node:1 rev:6                                      14:41:55, WED, 25-MAR-98
--------------------------------------------------------------------------------
CARD  No: 132                                             DIGITAL SUMMARY
256 Point Digital Pseudo                                   P1024 - P1075


  Point      Custom Label                                Type       PNIS Codes
  -------    ----------------------------------------    --------   -----------
   P1024     KEYSWITCH - AUTO                            UTILITY
   P1025     E.W.S KEYSWITCH IN MANUAL POSITION          TROUBLE
   P1026     E.W.S KEYSWITCH IN ISOLATE POSITION         SUPERV
   P1027     KEYSWITCH - AUTO LED                        UTILITY
   P1028     ALL ALERT - MANUAL                          UTILITY
   P1029     ALL EVAC  - MANUAL                          UTILITY
   P1030     ALL P.A.  - MANUAL                          UTILITY
   P1031     ALL CANCEL - MANUAL                         UTILITY
   P1033     ALL ALERT LED                               UTILITY
   P1034     ALL EVAC LED                                UTILITY
   P1035     ALL P.A. LED                                UTILITY
   P1036     ENABLE CASCADE OPERATION                    UTILITY
   P1037     ALL CALL - RING THE PHONES                  UTILITY
   P1038     ALL CALL - TALK TO ALL PHONES               UTILITY
   P1040     AMP 1 FAULT LED                             UTILITY
   P1041     AMP 2 FAULT LED                             UTILITY
   P1042     AMP 3 FAULT LED                             UTILITY
   P1043     AMP 4 FAULT LED                             UTILITY
   P1044     AMP 5 FAULT LED                             UTILITY
   P1045     AMP 6 FAULT LED                             UTILITY
   P1046     AMP 7 FAULT LED                             UTILITY
   P1047     AMP 8 FAULT LED                             UTILITY
   P1048     AMP 9 FAULT LED                             UTILITY
   P1049     AMP 10 FAULT LED                            UTILITY
   P1050     AMP 11 FAULT LED                            UTILITY
   P1051     AMP 12 FAULT LED                            UTILITY
   P1052     AMP 13 FAULT LED                            UTILITY
   P1053     AMP 14 FAULT LED                            UTILITY
   P1054     AMP 15 FAULT LED                            UTILITY
   P1055     AMP 16 FAULT LED                            UTILITY
   P1060     SPEAKER LINE SHORTED - AMP #1 DISABLED      TROUBLE
   P1061     SPEAKER LINE OPEN CIRCUIT - AMPLIFIER #1    TROUBLE
   P1062     SPEAKER LINE SHORTED - AMP #2 DISABLED      TROUBLE
   P1063     SPEAKER LINE OPEN CIRCUIT - AMPLIFIER #2    TROUBLE
   P1064     SPEAKER LINE SHORTED - AMP #3 DISABLED      TROUBLE
   P1065     SPEAKER LINE OPEN CIRCUIT - AMPLIFIER #3    TROUBLE
   P1066     SPEAKER LINE SHORTED - AMP #4 DISABLED      TROUBLE
   P1067     SPEAKER LINE OPEN CIRCUIT - AMPLIFIER #4    TROUBLE
   P1068     SPEAKER LINE SHORTED - AMP #5 DISABLED      TROUBLE
   P1069     SPEAKER LINE OPEN CIRCUIT - AMPLIFIER #5    TROUBLE
   P1070     SPEAKER LINE SHORTED - AMP #6 DISABLED      TROUBLE
   P1071     SPEAKER LINE OPEN CIRCUIT - AMPLIFIER #6    TROUBLE
   P1072     SPEAKER LINE SHORTED - AMP #7 DISABLED      TROUBLE
   P1073     SPEAKER LINE OPEN CIRCUIT - AMPLIFIER #7    TROUBLE
   P1074     SPEAKER LINE SHORTED - AMP #8 DISABLED      TROUBLE
   P1075     SPEAKER LINE OPEN CIRCUIT - AMPLIFIER #8    TROUBLE
```

Table 11 DIGITAL PSEUDO POINT SUMMARY

4.8 ANALOG PSEUDO POINT SUMMARY

The Analog Pseudo Point Summary shows all analog pseudo points within the system. It also identifies the custom labels and pseudo type for each analog pseudo point within the system.

```
-------------------------------------------------------------------------
XYZ BIULDING              ANALOG PSEUDO POINT SUMMARY          Page  28
2796 node:1 rev:6                              14:41:55, WED, 25-MAR-98
-------------------------------------------------------------------------
CARD  No: 145                                             ANALOG SUMMARY
256 Point Analog Pseudo                                     A256 - A283


   Point      Custom Label                            Type
   -------    ----------------------------------------  ---------
   A257       CUSTOM CONTROL - TIMER                   TIMER
   A258       CUSTOM CONTROL - TIMER                   TIMER
   A259       CUSTOM CONTROL - TIMER                   TIMER
   A260       CUSTOM CONTROL - TIMER                   TIMER
   A261       CUSTOM CONTROL - TIMER                   TIMER
   A262       CUSTOM CONTROL - TIMER                   TIMER
   A263       CUSTOM CONTROL - TIMER                   TIMER
   A264       RESET MESSAGE TIMER 1                    TIMER
   A265       RESET MESSAGE TIMER 2                    TIMER
   A266       RESET MESSAGE TIMER 3                    TIMER
   A267       ALERT/EVAC CHANGEOVER VALUE              ANALOG
   A268       ZN 1 AL/EV TIMER                         TIMER
   A269       ZN 2 AL/EV TIMER                         TIMER
   A270       ZN 3 AL/EV TIMER                         TIMER
   A271       ZN 4 AL/EV TIMER                         TIMER
   A272       ZN 5 AL/EV TIMER                         TIMER
   A273       ZN 6 AL/EV TIMER                         TIMER
   A274       ZN 7 AL/EV TIMER                         TIMER
   A275       ZN 8 AL/EV TIMER                         TIMER
   A276       ZN 9 AL/EV TIMER                         TIMER
   A277       ZN 10 AL/EV TIMER                        TIMER
   A278       ZN 11 AL/EV TIMER                        TIMER
   A279       ZN 12 AL/EV TIMER                        TIMER
   A280       ZN 13 AL/EV TIMER                        TIMER
   A281       ZN 14 AL/EV TIMER                        TIMER
   A282       ZN 15 AL/EV TIMER                        TIMER
   A283       ZN 16 AL/EV TIMER                        TIMER
```

Table 12 ANALOG PSEUDO POINT SUMMARY

4.9   Point List Summary

The Point List Summary identifies the number of pseudo lists within the system. These lists are in numerical sequence, contain a description, and identify the number of points within each list.

```
--------------------------------------------------------------------------------
XYZ BUILDING                   POINT LIST SUMMARY                    Page   31
2796 node:1 rev:6                                       14:41:55, WED, 25-MAR-98
--------------------------------------------------------------------------------
CARD  No: 160                                                        POINT LIST
256 Point List Pseudo                                               L86 - L145

                                                                     continued


         List Name  Description                               Points
         ---------  ----------------------------------------  ------
             L86    RESTART MESSAGE AFTER MIKE - VTG 2         EMPTY
             L87    AHU RELAYS ON  - ON FIRE ALARM            EMPTY
             L88    AHU RELAYS OFF - ON FIRE ALARM            EMPTY
             L89    AHU RELAYS OFF - ON SYSTEM RESET          EMPTY
             L90    ALL SPEAKERS - NON EDITABLE                EMPTY
             L91    AUDIO CODING GROUP 1 - SIGNAL CIRCUITS    EMPTY
             L92    AUDIO CODING GROUP 2 - SIGNAL CIRCUITS    EMPTY
             L93    PHONE CIRCUITS                             30
             L94    REMOTE MASTER PHONE CIRCUITS               EMPTY
             L95    SATELLITE PHONES - SCC 4100 ON/OFF        EMPTY
             L96    SATELLITE PHONES - SCC 4100 NORMAL/SHORT  EMPTY
             L97    SATELLITE PHONES - SCC 4100 ON/OFF RMPH   EMPTY
             L98    SWITCH POWER SUPPLY AMPS TO BATTERY        2
             L99    SWITCH POWER SUPPLY AMPS TO BKGRND MUSIC   2
             L100   POINTS TO EXCLUDE FROM AUTOMAP             EMPTY
             L101   RESET POWER SUPPLY AMPS                    2
             L102   LISTS TO AUTO-GENERATE EXTERNAL POINTS     21
             L103   EXTERNAL DETECTOR RESET PSEUDO             EMPTY
             L104   EXTERNAL SYSTEM RESET PSEUDO               EMPTY
             L105   EXTERNAL DETECTOR/SYSTEM RESET PSEUDO      EMPTY
             L106   EXTERNAL SIGNAL SILENCE PSEUDO             EMPTY
             L107   ENTER LOCAL MODE ON DATA NOT AVAILABLE     EMPTY
             L108   EXTERNAL SPEAKERS AND SPEAKER LISTS        EMPTY
             L109   ALARM SILENCED LED CONTROL                 EMPTY
             L112   EXTERNAL PRIORITY 2 RESET PSEUDOS          EMPTY
             L128   BRIGADE ALARM 1 LIST (PFA)                 EMPTY
             L129   BRIGADE ALARM 2 LIST (VMD)                 EMPTY
             L130   AMP 1 FIRE TRIP LIST                       1
             L131   AMP 2 FIRE TRIP LIST                       1
             L132   AMP 3 FIRE TRIP LIST                       1
             L133   AMP 4 FIRE TRIP LIST                       1
             L134   AMP 5 FIRE TRIP LIST                       1
             L135   AMP 6 FIRE TRIP LIST                       1
             L136   AMP 7 FIRE TRIP LIST                       1
             L137   AMP 8 FIRE TRIP LIST                       1
             L138   AMP 9 FIRE TRIP LIST                       1
             L139   AMP 10 FIRE TRIP LIST                      1
             L140   AMP 11 FIRE TRIP LIST                      1
             L141   AMP 12 FIRE TRIP LIST                      1
             L142   AMP 13 FIRE TRIP LIST                      1
             L143   AMP 14 FIRE TRIP LIST                      1
             L144   AMP 15 FIRE TRIP LIST                      1
             L145   AMP 16 FIRE TRIP LIST                      1

        NOTE: * Indicates Auto List Generation disabled for system list.
```

Table 13 POINT LIST SUMMARY

4.10 POINT LIST DETAIL

The Point List Detail identifies each list (with points identified) within the Point List Summary. It shows the list number, points within the list, custom point labels, and type of device connected to the circuit.

```
--------------------------------------------------------------------------------
XYZ BUILDING                       POINT LIST DETAIL                  Page   32
2796 node:1 rev:6                                         14:41:55, WED, 25-MAR-98
--------------------------------------------------------------------------------
CARD  No: 160    L18                                              POINT LIST
256 Point List Pseudo
LIST  No:  18                                                             L18
                                                                    continued
Description: GENERAL FIRE ALARM MONITOR ZONES


                                                       Device  Point
Point        Custom Point Label                        Type    Type
-----------  -------------------------------------     ------- -------
ZN1          MONITOR CARD 3 ZONE NUMBER 1              MONB    FIRE
ZN2          MONITOR CARD 3 ZONE NUMBER 2              MONB    FIRE
ZN3          MONITOR CARD 3 ZONE NUMBER 3              MONB    FIRE
ZN4          MONITOR CARD 3 ZONE NUMBER 4              MONB    FIRE
ZN5          MONITOR CARD 3 ZONE NUMBER 5              MONB    FIRE
ZN6          MONITOR CARD 3 ZONE NUMBER 6              MONB    FIRE
ZN7          MONITOR CARD 3 ZONE NUMBER 7              MONB    FIRE
ZN8          MONITOR CARD 3 ZONE NUMBER 8              MONB    FIRE
ZN9          MONITOR CARD 4 ZONE NUMBER 9              MONB    FIRE
ZN10         MONITOR CARD 4 ZONE NUMBER 10             MONB    FIRE
ZN11         MONITOR CARD 4 ZONE NUMBER 11             MONB    FIRE
ZN12         MONITOR CARD 4 ZONE NUMBER 12             MONB    FIRE
ZN13         MONITOR CARD 4 ZONE NUMBER 13             MONB    FIRE
ZN14         MONITOR CARD 4 ZONE NUMBER 14             MONB    FIRE
ZN15         MONITOR CARD 4 ZONE NUMBER 15             MONB    FIRE
ZN16         MONITOR CARD 4 ZONE NUMBER 16             MONB    FIRE
ZN17         MONITOR CARD 8 ZONE NUMBER 17             MONB    FIRE
ZN18         MONITOR CARD 8 ZONE NUMBER 18             MONB    FIRE
ZN19         MONITOR CARD 8 ZONE NUMBER 19             MONB    FIRE
ZN20         MONITOR CARD 8 ZONE NUMBER 20             MONB    FIRE
ZN21         MONITOR CARD 8 ZONE NUMBER 21             MONB    FIRE
ZN22         MONITOR CARD 8 ZONE NUMBER 22             MONB    FIRE
ZN23         MONITOR CARD 8 ZONE NUMBER 23             MONB    FIRE
ZN24         MONITOR CARD 8 ZONE NUMBER 24             MONB    FIRE
ZN25         MONITOR CARD 9 ZONE NUMBER 25             MONB    FIRE
ZN26         MONITOR CARD 9 ZONE NUMBER 26             MONB    FIRE
ZN27         MONITOR CARD 9 ZONE NUMBER 27             MONB    FIRE
ZN28         MONITOR CARD 9 ZONE NUMBER 28             MONB    FIRE
ZN29         MONITOR CARD 9 ZONE NUMBER 29             MONB    FIRE
ZN30         MONITOR CARD 9 ZONE NUMBER 30             MONB    FIRE
ZN31         MONITOR CARD 9 ZONE NUMBER 31             MONB    FIRE
ZN32         MONITOR CARD 9 ZONE NUMBER 32             MONB    FIRE
ZN33         MONITOR CARD 10 ZONE NUMBER 33            MONB    FIRE
ZN34         MONITOR CARD 10 ZONE NUMBER 34            MONB    FIRE
ZN35         MONITOR CARD 10 ZONE NUMBER 35            MONB    FIRE
ZN36         MONITOR CARD 10 ZONE NUMBER 36            MONB    FIRE
ZN37         MONITOR CARD 10 ZONE NUMBER 37            MONB    FIRE
ZN38         MONITOR CARD 10 ZONE NUMBER 38            MONB    FIRE
ZN39         MONITOR CARD 10 ZONE NUMBER 39            MONB    FIRE
ZN40         MONITOR CARD 10 ZONE NUMBER 40            MONB    FIRE
ZN41         MONITOR CARD 11 ZONE NUMBER 41            MONB    FIRE
ZN42         MONITOR CARD 11 ZONE NUMBER 42            MONB    FIRE
```

Table 14 POINT LIST DETAIL

4.11 OPTIONS DETAIL REPORT

The Options Detail Report specifies the options selected for the system. Also included in this report is a list of the passcode assignment levels for the various system functions.

```
--------------------------------------------------------------------------------
XYZ BUILDING                    OPTIONS DETAIL REPORT                  Page  99
2796 node:1 rev:6                                   14:41:55, WED, 25-MAR-98
--------------------------------------------------------------------------------
                                                                       OPTIONS
                                                                     PASSCODES

                                             Protection
           Display Function                  Level
           ----------------------------------- ----------
           Alarm Silence                     1
           System Reset                      1
           Change Time and Date              1
           Panel Control Key 1               1
           Panel Control Key 2               1
           Panel Control Key 3               1
           Panel Control Key 4               1
           Panel Control Key 5               1
           ON/OFF/AUTO Keys                  1
           ARM/DISARM Keys                   1
           Change TrueAlarm Sensitivities    3
           DISABLE/ENABLE Keys               3
           Clear Trouble Log                 3
           Clear Alarm Log                   3
           Enter/exit Walk Test mode         3
           Clear Alarm Verification tallies  3
           * Fire Alarm Acknowledge          1
           * Priority 2 Acknowledge          1
           * Supervisory Acknowledge         1
           * Trouble Acknowledge             1
           * Alarm List/Display Time         1
           * Change Point Status             4
           * Run Diagnostics                 4
           * Display Diagnostics             3
           * Remote Download                 4
           * Display Idle Time               4
           * Memory Access                   4

           NOTE: * Indicates protected functions not on order sheet.


                                             PROTECTION SCALE
                                               Level 1 - Lo
                                               Level 4 - Hi
```

Table 15 OPTIONS DETAIL REPORT

4.12 NETWORK INTERFACE REPORT

The Network Interface Report specifies the network points associated with the node and identifies them as either Public Points or External Points (points referenced from other nodes).

```
--------------------------------------------------------------------------------
XYZ BUILDING 1            NETWORK INTERFACE REPORT                    Page 154
909015J node:1 rev:1                              5:20:54, THU, 08-MAY-97
--------------------------------------------------------------------------------

 Network Node            :     1
 Network Filename        :   SXNET
 Master Timekeeper       :     YES
 Annunciate Missing Node :     YES


            Point           Device  Point
  Pt  Typ   Name            Type    Type     Custom Label
 ---- ---   -----------     ------- -------  -------------------------------------

    1 PUB   1:1             COMNTBL TROUBLE  COMMON TROUBLE POINT FOR NODE: 1
    2 PUB   P210            DIGITAL UTILITY  NETWORK DETECTOR RESET
    3 PUB   P211            DIGITAL UTILITY  NETWORK SYSTEM RESET
    4 PUB   P212            DIGITAL UTILITY  DETECTOR/SYSTEM RESET
    5 PUB   P217            DIGITAL UTILITY  NETWORK SIGNAL SILENCE
    6 PUB   P132            DIGITAL TROUBLE  ANALOG SENSOR ALMOST DIRTY LOG ENABLE
    7 PUB   P134            DIGITAL TROUBLE  CLEAR ANALOG SENSOR PEAK VALUE
    8 PUB   P214            DIGITAL TROUBLE  CLEAR VERIFICATION TALLIES
    9 PUB   P187            DIGITAL UTILITY  VTG & AMPLIFIER TROUBLE DISABLE
   10 PUB   P47             DIGITAL UTILITY  SIGNALS/VISUALS ACTIVE
   11 PUB   P85             DIGITAL UTILITY  VTG 1 - ACTIVE
   12 PUB   P220            DIGITAL UTILITY  NETWORK PRIORITY 2 RESET
   13 PUB   P221            DIGITAL UTILITY  SIGNALS ACTIVE - OFF ON SILENCE
   14 PUB   P204            DIGITAL UTILITY  SIGNALS SILENCED
  256 EXT   2:1             COMNTBL TROUBLE  COMMON TROUBLE POINT FOR NODE: 2
  512 EXT   2:P601          DIGITAL UTILITY  M1-1 ALARM
  513 EXT   2:P602          DIGITAL UTILITY  M1-2 ALARM
  514 EXT   2:P603          DIGITAL UTILITY  M1-3 ALARM
  515 EXT   2:P604          DIGITAL UTILITY  M1-4 ALARM
  516 EXT   2:P605          DIGITAL UTILITY  M1-5 ALARM
  517 EXT   2:P606          DIGITAL UTILITY  M1-6 ALARM
  518 EXT   2:P607          DIGITAL UTILITY  M1-7 ALARM
  519 EXT   2:P608          DIGITAL UTILITY  M1-8 ALARM
  520 EXT   2:P609          DIGITAL UTILITY  M1-9 ALARM
  521 EXT   2:P610          DIGITAL UTILITY  M1-10 ALARM
  522 EXT   2:P611          DIGITAL UTILITY  M1-11 ALARM
  523 EXT   2:P612          DIGITAL UTILITY  M1-12 ALARM
  524 EXT   2:P613          DIGITAL UTILITY  M1-13 ALARM
  525 EXT   2:P614          DIGITAL UTILITY  M1-14 ALARM
  526 EXT   2:P615          DIGITAL UTILITY  M1-15 ALARM
  527 EXT   2:P616          DIGITAL UTILITY  M1-16 ALARM
  528 EXT   2:P617          DIGITAL UTILITY  M1-17 ALARM
  529 EXT   2:P618          DIGITAL UTILITY  M1-18 ALARM
  530 EXT   2:P619          DIGITAL UTILITY  M1-19 ALARM
  531 EXT   2:P620          DIGITAL UTILITY  M1-20 ALARM
  532 EXT   2:P621          DIGITAL UTILITY  M1-21 ALARM
  533 EXT   2:P622          DIGITAL UTILITY  M1-22 ALARM
```

Table 16 NETWORK INTERFACE REPORT

4.13 CUSTOM CONTROL EQUATION LISTING

The Custom Control Equation Listing displays the line by line Custom Control equations for the system.

```
--------------------------------------------------------------------------------
XYZ BUILDING              CUSTOM CONTROL EQUATION LISTING            Page 156
2796 node:1 rev:6                                        14:41:55, WED, 25-MAR-98
--------------------------------------------------------------------------------
                                                                CUSTOM CONTROL
                                                                   EQU DETAIL

Program: 7                                                          Program: 7


Label: AUTO LED                                                    Equation 1

   COMMENTS:
   INPUTS:
     OR the ON state of:
       P1024          UTILITY       KEYSWITCH - AUTO
       P2             UTILITY       FRONT PANEL LAMPTEST CONTROL (ANNUNC. 0)
       P1027          UTILITY       KEYSWITCH - AUTO LED
   OUTPUTS:
     TRACK points ON pri=9,9
       16-152         UTILITY       Ann 0 Pt 152 LED/SW Spec Output
   END:

Label: ALERT/EVAC DELAY - NORMAL - 10 MINS                        Equation 2

   COMMENTS:
     AS 2220.1 STATES THE DELAY BETWEEN ALERT AND EVAC MUST NOT EXCEED 10
     MINUTES
   INPUTS:
     NOT the ON state of:
       P5             UTILITY       SET SERVICE PSEUDO VALUES
   OUTPUTS:
     SET to value 600 (Secs) the analogs:
       A267           ANALOG        ALERT/EVAC CHANGEOVER VALUE
   END:

Label: ALERT/EVAC DELAY - SERVICE - 15 SECS                       Equation 3

   COMMENTS:
   INPUTS:
     The ON state of:
       P5             UTILITY       SET SERVICE PSEUDO VALUES
   OUTPUTS:
     SET to value 15 (Secs) the analogs:
       A267           ANALOG        ALERT/EVAC CHANGEOVER VALUE
   END:

Label: * ENABLE alert/evac/cascade OPERATION *                    Equation 4

   COMMENTS:
   INPUTS:
     The ON state of:
       A34            TIMER         SYSTEM STARTUP PULSE TIMER
   OUTPUTS:
     HOLD points ON pri=9,9
       P1036          UTILITY       ENABLE CASCADE OPERATION
```

Table 17 CUSTOM CONTROL EQUATION LISTING

5. PLACING SYSTEM INTO OPERATION

Before undertaking any activities inspect the interior visually and check that all panel equipment is securely mounted, and that all cables are connected at the appropriate points.

5.1   POWER UP PROCEDURES

When power is first applied to the panel, or when the processor has been reset, the system will self-test the integrity of its memory and verify proper card installation. At the end of the self-test, the system will display "SYSTEM STARTUP IN PROGRESS" followed by at least two fault conditions (battery and time and date). After the battery is connected and the time and date has been entered, the system should then display the message "SYSTEM IS NORMAL" along with the time and date.

Notes:

(i)   When a printed circuit board is not properly inserted, the system will display a fault condition.

(ii)   When a printed circuit board is inserted, but configured incorrectly or not defined in software, the system will display a fault condition, normal operation will be suspended for that card until the fault has been corrected.

(iii) Other failures will cause a message to be displayed to the operator, may cause the system to become inoperative and the tone alert to sound continuously.
Refer Appendix A for a list of Fault Messages and likely causes and rectification

To power up the 4100 system, perform the following steps:

(a)   Ensure that the mains isolate switch is OFF <u>and batteries are disconnected</u>. Ensure that 240V AC supply is connected to the panel from the mains distribution board.

(b)   Turn the panel mains isolate switch ON. When the green Power LED turns on (after approximately 30 seconds), <u>connect the batteries.</u>

(c)   Acknowledge all abnormal conditions by pressing the appropriate "ACK" (Alarm and Fault) pushbutton(s). Press the "ACK" pushbutton to review all abnormal conditions within each list.   Once all abnormal conditions are cleared, press the "CLR" key.

(d)   Set the correct time and date. The system should then display "SYSTEM IS NORMAL" followed by the time and date.

(e)   Repair/restore all abnormal conditions. (refer Appendix A - Trouble shooting Procedures)

6. OUTPUT LEVEL ADJUSTMENTS

6.1 SPEAKER VOLUME ADJUSTMENT
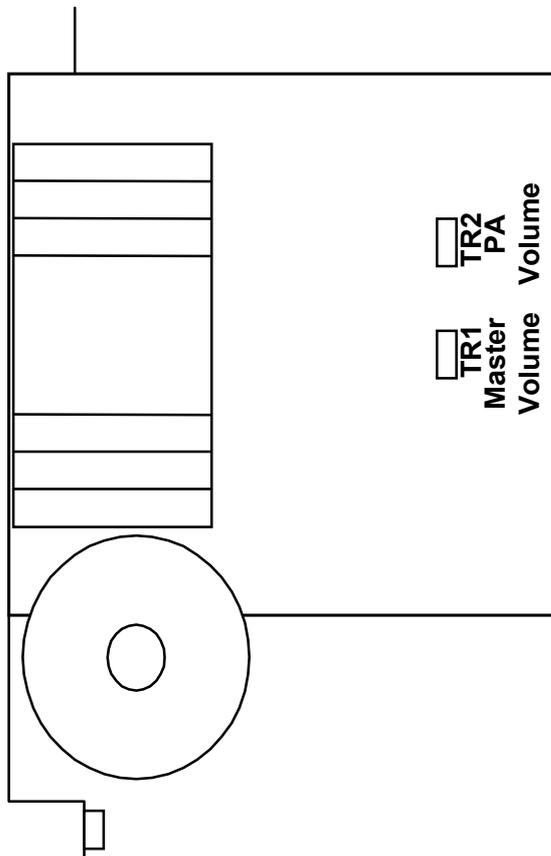
Speaker volume can be adjusted, using the variable resistors located on the Amplifier card.

To adjust the Speaker volume:-

(a) Locate **TR1 Master Volume** variable resister on the **Amplifier board 8225 or 8250.** (See Figure 22

(b) Use a screwdriver to adjust variable resistor to required output level.

- Turn the variable resistor clockwise to increase volume.
- Turn the variable resistor anti-clockwise to decrease volume.

Figure 22 Amplifier Card Adjustments for Speaker Adjustments

6.2   PA VOLUME ADJUSTMENT
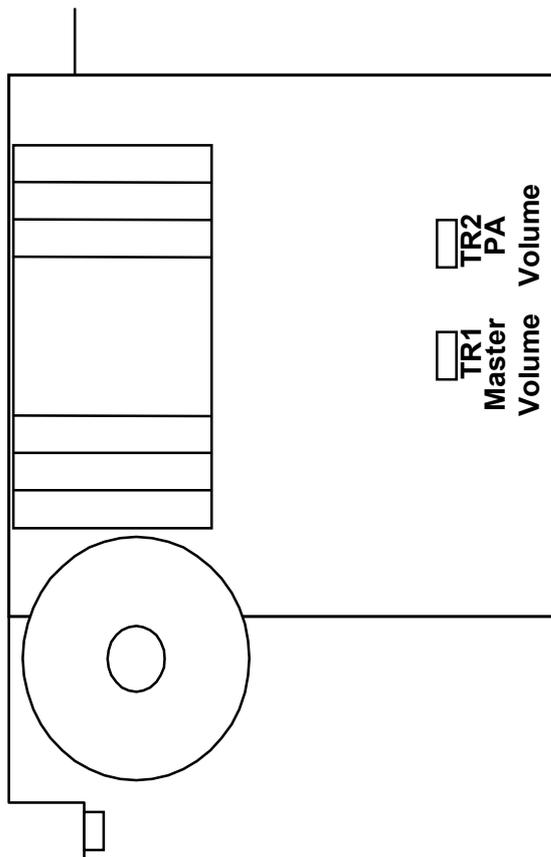
PA volume can be adjusted, using the variable resistor located on the Amplifier card.

To adjust the Speaker volume:-

(a)   Locate **TR2 PA Volume** variable resister on the **Amplifier board 8225 or 8250.** (See Figure 23)

(b)   Use a screwdriver to adjust variable resistor to required output level.

- Turn the variable resistor clockwise to increase volume.
- Turn the variable resistor anti-clockwise to decrease volume.

Figure 23 Amplifier Card Adjustments for PA Adjustments

6.3   SPEECH MICROPHONE LEVEL ADJUSTMENT

Note: There is no adjustment for the MECP microphone or the SECP microphone
levels.
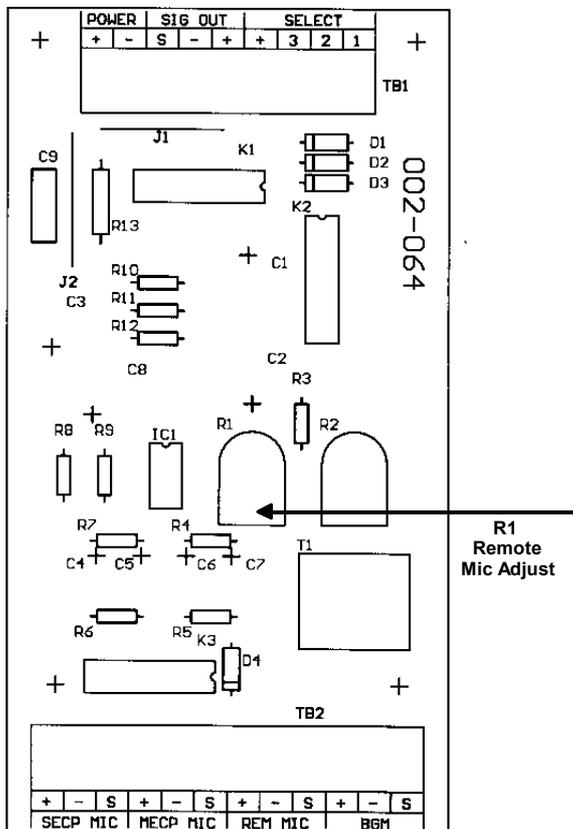
There is an adjustment facility available for a remote microphone if fitted.

To adjust the remote microphone:-

(a)   Locate R1 variable resister on the pre-amplifier board 002 – 064. (See Figure 24)

(b)   Use a screwdriver to adjust variable resistor to required output level.

- Turn the variable resistor clockwise to increase volume.
- Turn the variable resistor anti-clockwise to decrease volume.

Figure 24 Speech Adjustment

6.4 BACKGROUND MUSIC ADJUSTMENT
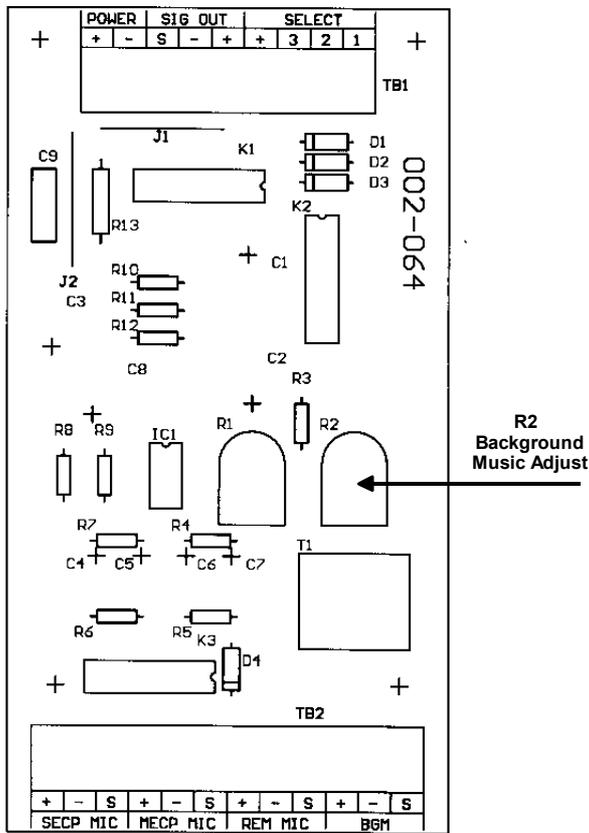
To adjust the background Music (BGM) output levels:-

(a) Locate R2 variable resister on the pre-amplifier board 002 – 064. (See Figure 25)

(b) Use a screwdriver to adjust variable resistor to required output level.

- Turn the variable resistor clockwise to increase volume.
- Turn the variable resistor anti-clockwise to decrease volume.

Figure 25 BGM Adjustment

7   COMMISSIONING THE SYSTEM

7.1   COMMISSIONING CHECK LIST

JOB NAME:

JOB NUMBER: ....

PANEL SERIAL NUMBER: ....

Please place a tick in the space provided if check is correct. If not please give details.

Panel Check List	Y	N
Cabinet undamaged (no paint chips, door aligned)	☐	☐
Power Point fitted and wired correctly.	☐	☐
All cabinet earths wired correctly and securely fitted	☐	☐
Battery Capacity	_____	
All Print Circuit Boards securely fitted	☐	☐
Identification Label Completed	☐	☐

Power Up	Y	N
Charger output voltage at BATT +27.6VDC (@ 20 deg)	☐	☐
Quiescent panel current from battery (Mains Isolated)	_____	
Lamp Test OK	☐	☐
Display LEDs aligned and all intensities similar	☐	☐
Function keys aligned and operate easily	☐	☐

Manual Mode Test – Each Zone   Y   N

Alert Tone OK .... ☐   ☐

Evac Tone OK .... ☐   ☐

PA Speech OK .... ☐   ☐

Visual Output OK .... ☐   ☐

Fault Modes Operating Correctly .... ☐   ☐

    - WIP Lines - O/C & S/C .... ☐   ☐

    - Speaker lines - O/C & S/C .... ☐   ☐

    - Strobe lines - O/C & S/C .... ☐   ☐

    - FIB lines - O/C .... ☐   ☐

    - BGA lines - O/C .... ☐   ☐

Auto Mode Test   Y   N

Time delays operate as programmed.................................... ☐   ☐

Passed 24 hour burn-in period .... ☐   ☐

TEST COMPLETED, passed Q/A check................................ ☐   ☐

Name of Tester ....

Signature..

Date of Test...

7.2   BATTERY/BATTERY CHARGER DETAILS

(a)   Battery type and capacity   _____

(b)   Float charge voltage   _____

(c)   Terminal volts   _____

(d)   Discharge rate   _____

(e)   Date battery installed   _____

       Replacement date   _____

(f)   Maximum discharge current @ 1.5 hour rate   _____

(g)   Full load current of system   _____

(h)   Rated output current of battery charger(s)   _____

7.3 SYSTEM TEST PROCEDURES

Note: These procedures should be followed when the system is first installed, during periodic tests, or as required by local code. Check local codes to determine how frequently your system should be tested. Always inform appropriate personnel that you will be testing the system (city Fire Brigade, customer, etc.).

7.4 LAMP TEST

The lamp test pushbutton on the control panel is used to determine local lamp failures within the system. Only lamps on the 4100 control panel will illuminate along with the five function and acknowledge LEDs. All segments on the LCD will also change. Perform the following procedures to determine lamp failure:

(a)   Press the "LAMP TEST" pushbutton.

All LEDs should illuminate (lamps should stay illuminated as long as the pushbutton is depressed). Holding the Lamp Test pushbutton in for more than three seconds will test the piezo.

(b)   Perform an individual lamp test on all remote annunciators, to include the 24 point I/Os, RCUs, SCUs and LED/switch modules.

(c)   Remove and replace defective lamp(s).

Note: The serial annunciator lamps/LEDs will not illuminate during the lamp test.

7.5 REMOUNTING RETAINER

(a)   Install the retainer assembly onto the back box assembly utilising the two bottom hook-tabs and secure it by using two plastic squeeze release tabs located on the upper centre of the retainer assembly.

(b)   Install two screws to secure the retainer assembly, one at the top centre of the retainer assembly and the other at the bottom centre of the retainer assembly.

Note: The two screws must be installed to ensure proper ESD (electro-static discharge) protection.

(c)   Close and lock the door assembly.

8. APPENDIX A – TROUBLE SHOOTING PROCEDURE

8.1 GENERAL TROUBLESHOOTING INFORMATION

Before troubleshooting the system, notify the customer and monitoring facility that you are repairing the system and may trip an alarm. Local codes may require notification of additional personnel, therefore check local codes for these requirements.

Tools required are a multimeter, side cutting pliers, IC removal/insertion tool (optional) and two sizes of screwdriver to accomplish these procedures. It is also recommended that Field Wiring Diagrams be used as required.

8.2 TROUBLESHOOTING CHART

The "Voltage Chart" shown on the following page contains voltage readings for various motherboard terminals and connectors and is to be used as required. Do not take voltage readings on the system printed circuit board IC's.

When troubleshooting the 4100 system, check the obvious things first. These are the LEDs, toggle switches, dip switch settings, power, clipped jumpers, resistors, city jumpers and wiring to include contractor installed field wiring, all of which are located in the fire alarm panel. Perform a visual inspection of the panel.

The following indications should be observed on the fire alarm panel.

(i)   Normal LED indications.

   (a) Green "Power" LED is illuminated.

   (b) All other LEDs are OFF.

Note: If the green power LED is not illuminated, check the AC input voltage.

(ii)   Toggle switches are in the down (normal) position.

(iii)   Fuses are good and are the correct values.

(iv)   Ensure dipswitches are properly set.

(v)   Field wiring is correct (see Field Wiring Diagrams).

(vi)   Correct jumpers and resistors are clipped.

(vii)   Ribbon cables are properly installed.
If the alphanumeric display shows an abnormal indication on a module, troubleshoot that circuit/printed circuit board first. Check the return field wiring to that printed

circuit board to ensure proper voltage and signals are present. If these signals and voltages are incorrect, the printed circuit board is probably defective.

If the visual inspection of the panel was normal, and the voltages are correct, the next step in sectionalisation is to test the return field wires from the peripheral devices. This is the next section to troubleshoot because proper voltage terminals are accessible which allows these checks to be made quickly. Check for incorrect voltage or signal with voltmeter. If an incorrect reading is observed, you know the defective printed circuit board is the one you are testing.

If the voltage and signals are correct on the return field wiring, the next step is to localise the trouble by swapping printed circuit boards of the same type. Perform the following procedure to swap printed circuit boards:

1.   Disconnect battery power.

2.   Turn system power OFF (AC).

3.   Remove the suspected printed circuit board from the motherboard.

4.   Remove a printed circuit board of the same type from the system (when available) or from branch stock.

5.   Set the "good" printed circuit board address to match the white "address label" on the motherboard (where the "bad" printed circuit card was located). If a printed circuit board is swapped from within the system, set the "bad" printed circuit board address to match the white "address label" on the motherboard (where the "good" printed circuit board was located).

6.   Install both printed circuit boards ("good" and "bad").

7.   Apply AC power to the system.

8.   Apply DC power to the system.

9.   "ACK" all abnormal conditions.

If the visual indications change, the problem is in the "bad" printed circuit board. If the symptoms do not change, check inputs and outputs from the now "good" printed circuit board.

Voltages and signals on the terminals should match the Voltage Chart shown below. Note the voltages given in the chart are with reference to the negative (-) of the 24V power Supply. When field wiring is removed, remove and mark one wire at a time. Ensure that the wiring is properly replaced to prevent additional fault indications. Use the Voltage Chart as required.

	Positive Terminal	Negative Terminal	
	28 VDC	3 VDC	Normal Circuit

MONITOR CIRCUIT	28 VDC	6-18 VDC	Current Limited Alarm
	28 VDC	28 VDC	Short Circuit Alarm
	28 VDC	0 VDC	Open Circuit
SIGNAL CIRCUIT	7 VDC	28 VDC	Normal Circuit
	28 VDC	0 VDC	Alarm Condition
	0 VDC	28 VDC	Open Circuit
	16 VDC	28 VDC	Installed Reverse Polarity
SUPERVISED ANNUNCIATOR	28 VDC	25 VDC	Normal Circuit
	28 VDC	0 VDC Pulsing	Alarm Condition
	0 VDC	0 VDC	Lost Annunciation Common
	28 VDC	0 VDC	Open Circuit

Figure 26 Voltage Chart

10. Verify the ground status of the system by connecting the negative (black) lead of a voltmeter to the Earth Ground and connect the positive (red) lead of the voltmeter to the positive (+) terminal of the 24V DC supply and check for the following readings:

Voltage Reading	Circuit Status
12-14V DC	Normal
6-12V DC	Partial Negative Ground
15-21V DC	Partial Positive Ground

8.3   GENERAL SYSTEM FAULTS

FAULT / STATUS	POSSIBLE CAUSE	SOLUTION
Mains ON indicator is OFF	• Mains at Distribution board is OFF. • Mains Switch is OFF. • Mains Fuse Blown.	• Turn Power ON. • Turn Mains Switch ON. • Replace Fuse 8 Amp.
System on Batteries	• Mains at Distribution board is OFF. • Mains Power Failure. • Mains Switch off. • Mains Fuse Blown.	• Turn Power ON, check for mains on indicator when power is returned. • Turn Mains Switch ON. • Replace Fuse 8 Amp.
Charger Fault	• Mains Fail. • High volts: Charger output volts above 28.5 volts. • Low volts: Charger output volts below 24.5 volts. • Batteries fault: Voltage below 24.5 volts • Batteries Disconnected	• Reference mains on indicator, and System on batteries. Fault status. • Replace Power Supply. • Replace Power Supply. • Replace Batteries • Connected Batteries

FAULT / STATUS	POSSIBLE CAUSE	SOLUTION
Communication Fault	• Section of the RS 485 loop faulty or disconnected from module.	• Check section and termination, or field wiring. • Check internal comms connections. • Ensure all modules are plugged in. Ensure modules are installed in correct order.
System Fault	• Module or CPU within entire system faulty	• Identify MECP or SECP display module or CPU fault. Ref module fault or CPU fault instructions.
Module Fault	• Faulty Module	• Replace Module
EWIS Zone Fault in Amplifier / Speaker.	• Speaker cabling fault. • Short or Open circuit cable. • No EOL resistor. • No DC isolation capacitor fitted (incorrect speaker type). Amplifier Faulty • Faulty amplifier • Blown fuse.	• Check as instructed in installation manual. • Fit 10k EOL resistor. • Fitted capacitors or change speaker. • Replace amplifier. • Replace fuse. 5 amp 3AG.

FAULT / STATUS	POSSIBLE CAUSE	SOLUTION
EWIS Zone fault Visual	• Visual cable fault. • Fuse blown on signal card.	• Check cabling and connections. • Replace fuse. 2 amp 3AG.
EWIS Zone fault Alarm system.	• Alarm system cabling fault. • Open circuit cable to alarm. • No EOL resistor at alarm system.	• Check cabling and connections. • Install 3k3 resistor at alarm system end of cable.
EIS Zone fault	• WIP cabling fault. • Fuse blown on signal card.	• Check cabling and connections. • Replace 2 amp fuse.

9. APPENDIX B - EWIS 4100 FAULT MESSAGES

9.1 CARD TROUBLES

If the LCD displays ... ***Wrong Card   Abnormal***

❍ 1st Line Shows Card Expected at this Address.

   Reprogram System or Insert Proper Daughter Card.

If the LCD displays ... ***Extra Card   Abnormal***

❍ A Daughter Card is/was installed but not Programmed.

   Reprogram System or Remove Extra Daughter Card.

✴ Warm Start is Necessary to Clear this Trouble Condition. Press the CPU
   Reset Switch located on the Master Controller Board.

If the LCD displays ... ***Card Missing/Failed***

❍ Identify Card from LCD.

❍ Is Communication Trouble LED illuminated on Card ?

❍ Check Dipswitch Setting with Programmer's Report.

❍ Check for 8VDC & 24VDC at Motherboard Harness P3.

❍ Check for Serial Comm at Motherboard Harness P2.

✴ If ALL Daughter Cards Report Missing/Failed Check Serial Comm fuse on
   Master Controller Board (F6).

☞ If this Trouble only Occurs upon Alarm, Alarm Silence or System Reset it may be
   Caused by Unsuppressed Relays, Door Magnets, High Current Loads, etc.

9.2   BATTERY TROUBLES

If the LCD displays ... *Master Battery Backup Status is Trouble*

❍   Check connector P9 on Master Power Supply.

❍   Check that Batteries Terminals are Connected.

❍   Check Fuse(s) in the Battery Harness.

❍   Check for Charger Output at Battery Harness Terminals with the Batteries Disconnected.

❍   Measure Battery voltage with Terminals from Harness Disconnected.   (>18 VDC)

❍   Test Batteries under load for 1 minutes. (>23 VDC)

9.3   EARTH GROUNDS

If the LCD displays ... *Master Earth Status is Trouble*

❍   Is Ground on Positive/Negative side of Power Supply ?

❍   If a Positive Ground ... Remove half of the Motherboards.

Isolated to a Row ... Remove half of the Daughter cards.

❍   If a Negative Ground ... Check Power, and Shields.

❍   Ground could be Internal to the Control Panels.

9.4   ANNUNCIATOR TROUBLES

If the LCD displays ...

>   ***Card X, Led (Switch) Display Slot X***
>   ***Card Defined But Not Inserted***

❍   Annunciator Display Card Programmed in Software but not connected via the
       Ribbon Cable.

If the LCD displays ...

>   ***Card X, Led (Switch) Display Slot X***
>   ***Card Not Defined But Inserted***

❍   Annunciator Display Card not Programmed in Software but connected via the
       Ribbon Cable.

✳   Check ribbon cable or Verify Annunciator Programming.

9.5   4100 LCD DISPLAY FAULT MESSAGES TABLE

IF THE LCD DISPLAYS	POSSIBLE CAUSE	SOLUTION
OPEN CIRCUIT FAULT SPEAKER LINE	• Speaker cabling fault. • Open circuit cable. • No EOL resistor. • No DC isolation capacitor fitted (incorrect speaker type).	• Check as instructed in installation manual. • Fit 10k EOL resistor. • Fitted capacitors or change speaker.
SHORT CIRCUIT FAULT SPEAKER LINE WITH AMPLIFIER OFF	• Speaker cabling fault. • Short circuit cable. • No EOL resistor. • No DC isolation capacitor fitted, (incorrect speaker type).	• Check as instructed in installation manual. • Fit 10k EOL resistor. • Fitted capacitors or change speaker.
AMPLIFIER FAILURE	• Faulty amplifier • Blown fuse. • Faulty Ribbon Cable.	• Replace amplifier. • Replace fuse. 5 amp 3AG. • Replace Ribbon Cable.
OPEN CIRCUIT WIP LINE	• Speaker cabling fault. • Open circuit cable. • No EOL resistor.	• Check as instructed in installation manual. • Fit 10k EOL resistor.
SHORT CIRCUIT WIP LINE	• Speaker cabling fault. • Open circuit cable. • No EOL resistor.	• Check as instructed in installation manual. • Fit 10k EOL resistor.
OPEN CIRCUIT BGA INPUTS	• Cabling fault. • Open circuit cable. • No EOL resistor.	• Check as instructed in installation manual. • Fit 3k3 EOL resistor.

IF THE LCD DISPLAYS	POSSIBLE CAUSE	SOLUTION
CARD XX POWER SUPPLY / CHARGER *AC VOLTAGE ABNORMAL*	• Mains at Distribution board is OFF. • Mains Switch is OFF. • Mains Fuse Blown.	• Turn Power ON. • Turn Mains Switch ON. • Replace Fuse 8 Amp.
CARD XX SWITCHED TO BATTERIES	• Mains at Distribution board is OFF. • Mains Power Failure. • Mains Switch off. • Mains Fuse Blown.	• Turn Power ON, check for mains on indicator when power is returned. • Turn Mains Switch ON. • Replace Fuse 8 Amp.
BATTERY LOW *BATTERY DISCHARGED* *BATTERY CHARGER CAPACITY XX*	• Mains Fail. • High volts: Charger output volts above 28.5 volts. • Low volts: Charger output volts below 24.5 volts. • Batteries fault: Voltage below 24.5 volts • Batteries Disconnected	• Reference mains on indicator, and System on batteries. Fault status. • Replace Power Supply. • Replace Power Supply. • Replace Batteries • Connected Batteries

IF THE LCD DISPLAYS	POSSIBLE CAUSE	SOLUTION
NETWORK HAS FAILED *NETWORK GROUND FAILED* *NETWORK IS OPERATING IN DEGRADED STATE *7*	• Section of the RS 485 loop faulty or disconnected from module.	• Check section and termination, or field wiring. • Check internal comms connections. • Ensure all modules are plugged in. Ensure modules are installed in correct order.

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10. APPENDIX C LIST OF INSTALLED EQUIPMENT

Evacuation Zone	Fire Zone	Loud Speaker			Amplifier		Visible Signals		WIPs
		Qty	Power Tap	Total Load	Qty	Total Rating	A	E	Qty
1									
2									
3									
4									
5									
6									
7									
8									
9									
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34									
35									
36									
37									
38									
39									
40									

Evacuation Zone	Fire Zone	Loud Speaker			Amplifier		Visible Signals		WIPs
		Qty	Power Tap	Total Load	Qty	Total Rating	A	E	Qty
41									
42									
43									
44									
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