FIRE FIGHTER'S GUIDE

1.   SILENCE BELLS / ACKNOWLEDGING ALARMS
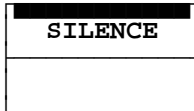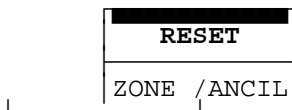
SILENCE

Press "SILENCE" key once.
- Flashing "ALM" LEDs -> STEADY
- **Any new alarm will cause the bells to ring again and the appropriate zone alarm LED to flash.**

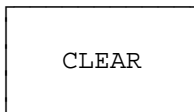## 2.   ISOLATE "ALL" ZONES IN ALARM
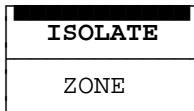
ISOLATE
ZONE

Press "ISOLATE" key once.
- Flashing "ALM" LEDs -> STEADY
- Alarm Zones "ISO" LEDs -> STEADY

3.   RESET "ALL" ZONES IN ALARM
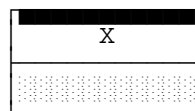
RESET
ZONE /ANCIL

Press "RESET" key once.
- Flashing/Steady "ALM" LEDs -> OFF
- **Any new alarm will cause the bells to ring again and the appropriate zone alarm LED to flash.**

3.   ISOLATE (DE-ISOLATE) A "SELECTED" ALARM ZONE

CLEAR

Press "CLEAR" key once.

X		X		X
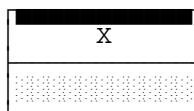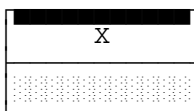
Enter Zone Number

"1" to "528"
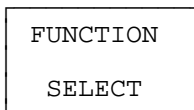
FUNCTION
SELECT

Press "FUNCTION SELECT" key once.
- Selected zone "ALM", "FLT" & "ISO" LEDs will be flashing rapidly.
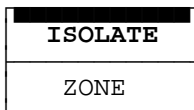
ISOLATE
ZONE

Press "ISOLATE" key once.

- Amber "ISO" LED is turned ON, or OFF.

- CALL SERVICE COMPANY FOR FALSE ALARMS.

4.   RING SILENCED BELLS

To ring silenced bells "ISOLATE" and then "DE-ISOLATE" a zone in ALARM, as described above.

VIGILANT

Fire and Evacuation Systems

F4000

OPERATOR'S MANUAL

F4000 PRODUCT MANUAL
VOLUME 1

Document Number: LT0057

Issue .... 2;   20 August 1992

-- A P P R O V A L S --

AUSTRALIAN STANDARDS AS1603.4 1987 (Incl. Amdt 1 & 2):
- **SSL Certificate of Compliance Number 131**
- **SSL Register of Accredited Products Number 398**
  (Fire Protection Equipment)

The F4000 Fire Indicator Panel is manufactured for and distributed by:

Grinnell Supply Sales
21-25 Mitchell Road
Brookvale
NSW 2100
AUSTRALIA

Phone : (02) 905-7833

A division of
Grinnell Asia Pacific Pty. Limited
A.C.N. 003 905 093

INSTALLATION DETAILS

For your reference please complete the following information on the
F4000 Fire Indicator Panel supplied.

F4000 FIP SUPPLIED BY	
F4000 FIP INSTALLATION LOCATION	
CONTRACT/JOB NUMBER	
F4000 SERIAL NUMBER	
F4000 SYSTEM AS INSTALLED DRAWING NUMBER	Issue:
F4000 SYSTEM PARAMETERS DRAWING NUMBER	Issue:
Date Panel Manufactured	
Date Panel Installed	
Date Panel Commissioned	
Maintenance Company	
Telephone	B.H. A.H.
Service Contact	
Site Contact or Registered User (include title)	
Company / Address	
Telephone	B.H.

TABLE OF CONTENTS

TABLE OF CONTENTS

GRINNELL SUPPLY SALES
END USER LIABILITY DISCLAIMER

The F4000 Fire Indicator Panel provides a configuration programming facility, which may be accessed via a programming terminal using a password.

Because this programming facility allows the user to define in detail the operation of the F4000 System which is being customised, changes may be made by the user that prevent this installation from meeting statutory requirements.

GRINNELL SUPPLY SALES therefore cannot accept any responsibility as to the suitability of the functions generated by the user using this programming facility.

AMENDMENTS

ISSUE	AMENDMENT	DATE	COMMENTS	ECN
		01/06/90	Original (697-010)	
1		06/03/92	Edited and Retitled LT0057 for Vigilant	
2		20/08/92	Revised for Software Version 1.2 Onwards	

Chapter 1
INTRODUCTION

1.1   SCOPE

The F4000 Fire Alarm System is very powerful and packed with many
features. In spite of this, it is very user friendly and intuitive to
use.

The front panel provides a basic guide to use of the Keypad functions
and therefore, reference to this manual is rarely required for the
experienced fire industry person.

This manual has been written to cover every aspect of the panel's
operation and would normally be consulted for reference purposes only,
or when there are abnormal situations.

For the less experienced user, start by reading the chapter on "System
Description".

The building owner's representative responsible for the fire alarm
system should be fully aware of what is contained in this manual.

NOTE: Some Keypad operating sequences may be too fast for the
                 system to respond, and a Key Error Tone will be heard. This
                 "SYSTEM BUSY" signal mainly occurs after Resetting.

The Manual is structured into the following chapters:

Chapter 1:   **Introduction**: A introduction to this manual, other F4000
             Product manuals and the standards relating to fire alarms.

Chapter 2:   **System Description**; A description of the F4000 system
             features and functions.

Chapter 3:   **Specifications**; A summary of F4000 system specifications.

Chapter 4:   **Interpreting the Display**; A description of display
             indications.

Chapter 5:   **Operating Instructions - Brigade Functions**; A detailed
             description of the operation and function of keys for FIRE
             FIGHTER'S USE provided on the F4000 Master FIP and RZDU.
             ("SILENCE", "RESET", and "ISOLATE").

Chapter 6:   **Operating Instructions - System Functions**; A detailed
             description of the operation and function of keys provided
             on the F4000 FIP and RZDU for system testing. For example,
             System Test, Lamp (LED) Test, System Fault Reset, Bell Test,
             Bell Isolate.

Chapter 7:   **Operating Instructions - Zone Functions**; A detailed
             description of the operation and function of keys provided
             on the F4000 Master FIP for ZONE tests and functions.

Chapter 8: **<u>Placing Into Operation</u>;**   A description of how to place a correctly aligned and adjusted system into operation. Also included is a System Commissioning Checklist.

Chapter 9: **<u>Maintenance and Trouble-Shooting</u>;**   A guide on system maintenance procedures and trouble-shooting.

Appendix A: **<u>Compatible Actuating Devices</u>;**   A list of compatible actuating devices and detectors for the F4000 FIP.

Appendix B: **<u>Compatible Batteries</u>;**   A list of compatible batteries.

1.2	ATTACHMENTS

A FIRE FIGHTER'S GUIDE is fixed inside the front cover for quick reference in emergencies.

Your installation company should install the following documents inside the panel:

(a)   An "AS INSTALLED" fire detection system diagram and/or summary, describing the installed layout of your F4000 System.

(b)   Other "AS INSTALLED" information, such as System configuration parameters.

(c)   A Maintenance Log-Book.

1.3   ASSOCIATED DOCUMENTATION

1.3.1   PRODUCT RELATED

The following F4000 product manuals are available:

Volume 1, F4000 Operator's Manual, provides a complete guide to the operation and maintenance of the F4000 FIP and RZDU panels, according to Australian Standards AS1603 Part 4. This manual is provided as standard with F4000 FIP panels.

Volume 2, F4000 Technical Manual, provides complete technical details on the F4000 system and Hardware/Software components, according to Australian Standards AS1603 Part 4, for servicing purposes.

Volume 3, F4000 Engineering Manual, provides complete design details for correctly engineering the F4000 system to meet customer and standard specifications.

Volume 4, F4000 Installation Manual, provides complete details for correctly installing and placing into operation the F4000 system.

Volume 5, F4000 Programming Manual, provides details for correctly programming the F4000 system to meet the system engineering specifications.

Volume 6, F4000 AAR Technical & Engineering Manuals, Volume 6-1 provides Technical details on the AAR and Addressible Devices, and Volume 6-2 provides Engineering Design information for correctly engineering the AAR loop.

1.3.2   STANDARDS RELATED

This manual makes reference to the following Australian Standards:

AS1603.4   Automatic Fire Detection and Alarm Systems
             Part 4 - Control and Indicating Equipment

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

AS1851.8   Maintenance of Fire Protection Equipment
             Part 8 - Automatic Fire Detection and Alarm Systems.

1.4   GLOSSARY OF TERMINOLOGY

The following abbreviations and terminology are used in this manual:

AAR	Analog Addressible Responder
AC	Alternating Current
ACZ	Ancillary Control Zone
ADR	Advanced Detector Responder unit
"ALM"	Display abbreviation for ALARM
ARR	Advanced Relay (and Detector) Responder (ADR + RRM)
AS	Ancillary Supervision
AVF	Alarm Verification, or check alarm.
AZC	Alarm Zone Circuit, commonly referred to as "Detection Zone"
AZF	Alarm Zone Facility, commonly referred to as "GROUP"
CIE	Control and Indicating Equipment
DC	Direct Current
EEPROM	Electrically Erasable Programmable Read Only Memory
EOL	End Of Line device
EPROM	(U.V.) Erasable PROM
Evacuation Device	Sounder to advise building occupants to leave
F	Flashing LED indicator
FIP	Fire Indicator Panel
FIRE CONTROL STATION	Fire Brigade which receives the FIP alarm signals.
"FLT"	Display abbreviation for FAULT
FRC	Flat Ribbon Cable
FSZ	Flowswitch Zone
GLOBAL	A function that may affect more than one zone.
IOR	Input Output Responder
"ISO"	Display abbreviation for ISOLATED
LED	Light Emitting diode (Visual Indicator)
MAF	Master Alarm Facility
Mapping	Programming AZCs to turn on certain outputs
MCP	Manual Call Point (break glass switch)
O/C	Open Circuit
PCB	Printed Circuit Board
PROM	Programmable Read-Only Memory
PSU	Power Supply Unit
RAM	Random Access Memory
RF	Rapid Flashing LED indicator
RRM	Responder Relay Module
RZDU	Remote Zone Display Unit
S/C	Short Circuit
SF	Slow Flashing LED indicator
VB	Abbreviation for Battery Backed Voltage.
VNB	Abbreviation for Non Battery Backed Voltage.
Zone	Fire searchable area of building

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Chapter 2
SYSTEM DESCRIPTION

2.1   SYSTEM COMPONENTS

2.1.1   OVERVIEW

The F4000 is a fire detection system designed to cover a wide range of
applications. It performs the functions of the Control and Indicating
Equipment (CIE), as specified by the Australian Standard AS1603.4 for
Automatic Fire Detection and Alarm Systems.

Figure 2.1 shows a block diagram of the F4000 System.

The F4000 Fire Alarm System consists of the following main components:

(a)   A Fire Indicator Panel (FIP) and

(b)   A number of "Responders" located around a Communications Loop.
       These Responders, selected from a range of different types,
       provide the interface between the various detection devices and
       the F4000 system.

2.1.2   F4000 FIRE INDICATOR PANEL (FIP)

The F4000 FIP is the heart of the F4000 system. It is microprocessor
based and is the MASTER display, operator control and Brigade Interface
unit of the system.

Specifically, its functions are:

(a)   To constantly communicate with all Responders via the
       communications loop, to retrieve data from them, to transmit
       commands to them, and to monitor their integrity at all times.

(b)   To process the data obtained from the Responders and to generate
       displays and annunciations as specified by AS1603.4 and any
       additional requests as entered by the operator.
       This includes:

       i)   Up-dating the zone status LEDs to show the ALARM, FAULT and
              ISOLATED conditions.

       ii)   Controlling the relays that signal the Brigade.

       iii)   Controlling the relays used to drive auxiliary system
              devices such as bells, door holders etc.

       iv)   Controlling remote points by sending control data via the
              communications loop to Responders fitted with output
              devices.

Figure 2.1 F4000 System Block Diagram

```
 *** │ ZONE 1       *** │ ZONE 17      *** │ ZONE 33
 ***                ***                ***
 ***                ***                ***
 ***                ***                ***
 ***                ***                ***
 ***                ***                ***
 ***                ***                ***
 ***                ***                ***
 ***                ***                ***
 ***                ***                ***
 ***                ***                ***
 ***                ***                ***
 ***                ***                ***
 ***                ***                ***
 ***                ***                ***
 *** │ ZONE 16      *** │ ZONE 32      *** │ ZONE 48
```
                                                                    O

Operating Guides   System Status LEDs   Keypad

┌─────────────────┐   \// Vigilant
│   ZONE   │ *
│   FUNCTIONS   │ *
└─────────────────┘ *   ▬▬ ▬▬ ▬▬   ▬▬
                    *   ▬▬ ▬▬ ▬▬   ▬▬
┌─────────────────┐ *   ▬▬ ▬▬ ▬▬   ▬▬
│   SYSTEM   │ *   ▬▬ ▬▬ ▬▬   ▬▬
│   FUNCTIONS   │ *
└─────────────────┘ *
                    *
┌─────────────────┐ *   ═══ F4000 ═══
│ BRIGADE FUNCTIONS│ *
└─────────────────┘

                    ┌──────────┐
                    │   FIRE   │
                    ├──────┬───┤
                    │BREAK │   │
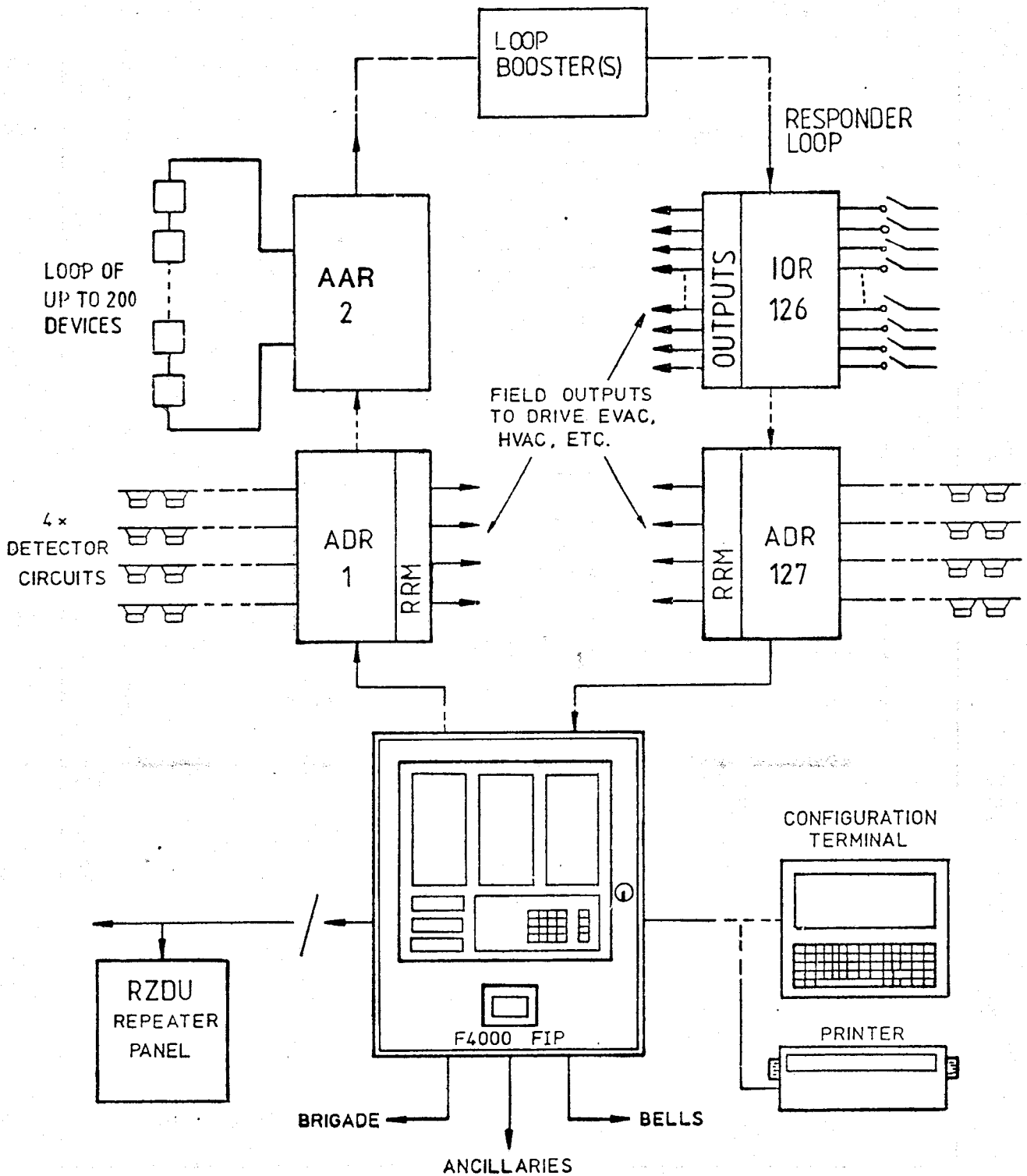   │GLASS │   │
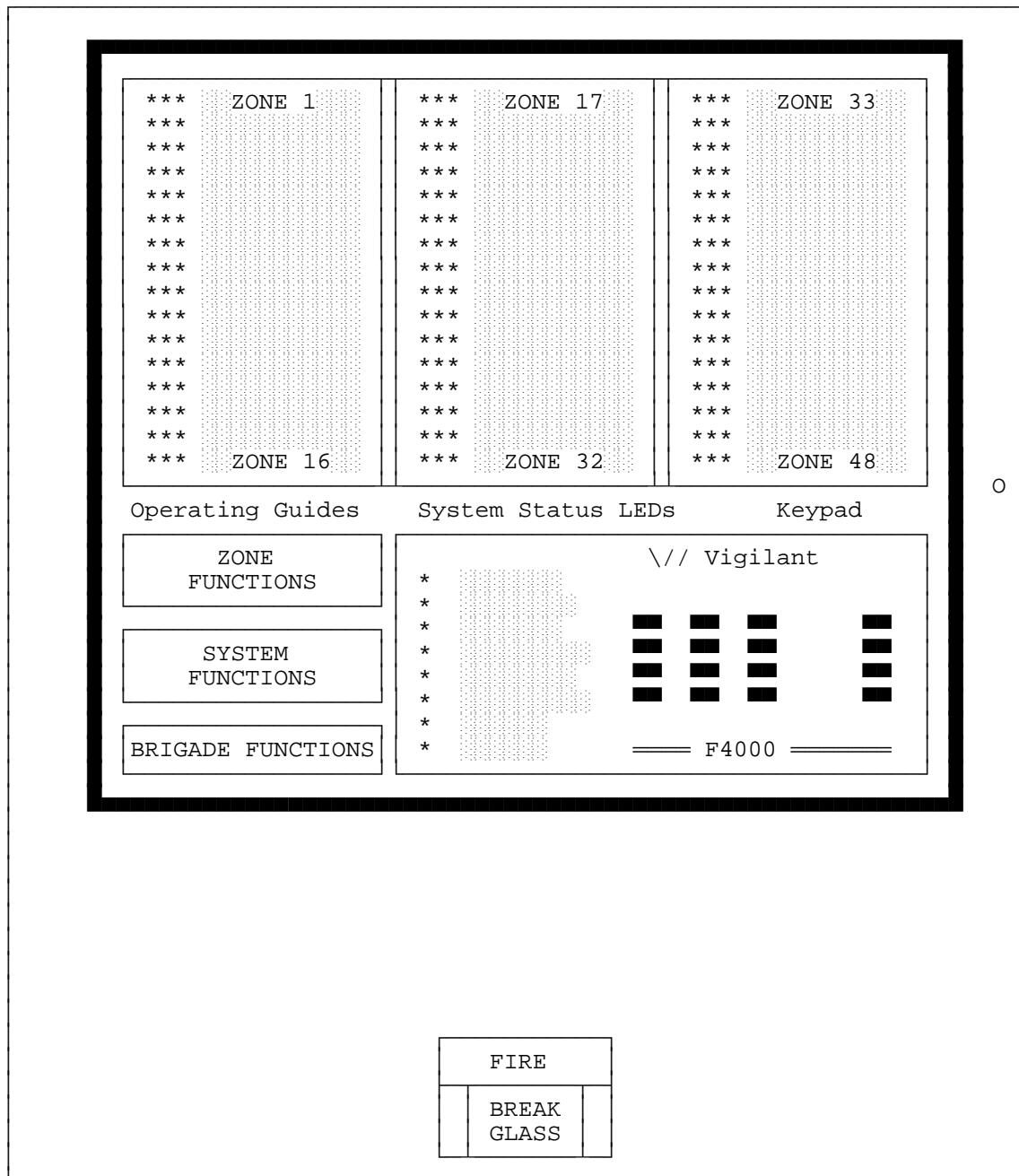   └──────┴───┘

Figure 2.2 F4000 Fire Indicator Panel

(c)   To provide a simplified operator/Brigade interface that allows
       personnel to easily control the day to day operation of the panel
       (eg: to silence alarms, test zones, isolate zones, etc).

(d)   To monitor its own integrity and annunciate internal fault
       conditions.

(e)   To provide a means of entering or modifying configuration data or
       "SYSTEM DATABASE" from a Programming Terminal. This defines what
       the specific F4000 system consists of and how it should respond to
       inputs and control outputs.

A front panel view of the F4000 FIP is shown in Figure 2.2.

2.1.3   RESPONDERS

The Responders are located around the protected premises and provide the
interface between the detection devices and the F4000 System. They are
low power devices, deriving their power from the 4 core communications
loop that runs from the FIP, through each Responder, and back to the FIP
again. The F4000 System can monitor and control a maximum of 127
Responders.

It is this loop system that makes the F4000 System so adaptable since
larger systems are implemented simply by extending the loop and adding
more Responders in the appropriate places.

To the "Operator" and "Fire Brigade", the Responders are "transparent"
in that they simply serve as data concentration points and have no
operator features themselves.

2.1.3.1   ADVANCED DETECTOR RESPONDER (ADR)

The ADR is the standard alarm zone circuit processing unit of the F4000
system. ADRs are therefore usually located near the zone circuit(s) they
monitor.

Up to four (4) Alarm Zone Circuits may be connected to each ADR to
monitor the approved compatible actuating devices wired on the circuit.

The ADR may be upgraded to an "Advanced Relay (Detector) Responder"
(ARR), with the addition of a plug-in Responder Relay Module (RRM).
This adds four (4) relay outputs to the inputs provided on each ADR.
Each relay can be programmed to operate on specific input conditions.
Alternatively the relay may be configured to belong to an ANCILLARY
CONTROL ZONE, so that operated, isolated and fault indications map be
shown at the F4000 FIP.

2.1.3.2   ANALOG ADDRESSIBLE RESPONDER (AAR)

The Analog Addressable Responder (AAR) allows up to 200 analog
addressable devices to be connected on a loop of its own. These devices
may be analog addressable smoke detectors or addressable device units
(ADU) that provide specific input and output facilities. The addressable
devices may be mapped to zones in the same way that ADR circuits are.

2.1.3.3   INPUT OUTPUT RESPONDER (IOR)

The Input/Output Responder (IOR) provides up to 32 digital inputs and up
to 32 digital (or relay) outputs depending on its setup and the
termination boards attached to it. Logically, the IOR "looks like" up to
8 ADRs (or ARR) to the FIP. The IOR is ideal for when a large number of
switched inputs or outputs are required at the same location.

2.1.4   F4000 COMMUNICATION LOOP

The F4000 "COMMUNICATIONS LOOP" is a 4 core loop that runs from the FIP,
through each Responder and back to the FIP again. The loop powers the
responders, and allows the FIP to receive the circuit status from the
responders and control their outputs.

The 4 wires of the communications loop are:

        (a)   Responder Power - 24V DC
        (b)   0 Volt Common
        (c)   Communications Path 1
        (d)   Communications Path 2

The loop structure is such that it provides a very high degree of
immunity against fault conditions. A short circuit between any two wires
or an open circuit in any wire is detected and isolated so that the FIP
is still able to power and communicate with all Responders.

2.1.5   REMOTE ZONE DISPLAY UNIT (RZDU)

The F4000 system may include up to eight (8) Remote Zone Display Units
(RZDUs), to provide repeater indicator panels at strategic points in
large premises. (I.e. provide zone mimicking of the master FIP at other
parts of the protected building.)

Physically the RZDU is identical to a standard F4000 FIP, however only
'System' and 'Fire Brigade' functions are available via the keyboard.
(i.e. No individual zone or ancillary control functions are available.)

Programming of the RZDU allows it to display only a selected range of
the zones shown at the FIP. This could allow, for example, an RZDU on
each floor of the building to show only those zones on that floor.

2.1.6   COLOUR GRAPHICS TERMINALS

The F4000 System supports the addition of colour graphics display and
control terminals (CG4000) on the RZDU communication bus.

These units can be programmed to show graphical displays on zone alarm
or fault conditions. The operator can use function keys or the optional
tone screen to generate Silence, Reset and Isolate commands to the FIP
and thus have remote control of the brigade functions. The CG4000 will
run on an IBM AT or compatible computer.

2.1.7   LOGGING PRINTER

A serial printer may be connected to the F4000 Master FIP to provide a
log of all events and operator actions.

The printout includes the date, time, circuit/zone and the event type.
Each Zone can also be programmed with a unique text name of up to 30
characters. This will be printed out on each zone event or command. An
internal history buffer will keep the first 75 events after every Reset
command. This can be printed out to reconstruct portions of the log if
necessary.

2.1.8   PROGRAMMING/DIAGNOSTIC TERMINAL

The F4000 FIP also provides for the connection of a "PROGRAMMING/
DIAGNOSTIC TERMINAL", usually a personal computer to configure the F4000
system and provide service diagnostic functions.

This is a temporary system component, and is ONLY required by the
installer during commissioning, or service.

In normal system operation this could be replaced by the logging printer
for recording events and operation of controls.

**   PLEASE NOTE   **

If your building or occupancy requirements change, then the F4000 FIP
may require reprogramming, so please consult your installation or
maintenance company.

2.2   FIP and RZDU DISPLAYS

Figures 2.3 and 2.4 show the front panel layout for the F4000 FIP and
F4000 RZDU panels respectively.

The F4000 FIP and RZDU panels provide indications for:

     (a)   Zone Status; and
     (b)   System Status.

The ZONE STATUS INDICATORS display the status of each alarm zone,
whether an Alarm Zone Circuit (AZC) or an Ancillary Control Zone (ACZ).
Each zone has the following three (3) indicators, and a space for
installation dependent text, which is used to identify the zone number
and description.

     (a)   Red alarm "ALM" LED
     (b)   Amber fault "FLT" LED
     (c)   Amber isolated "ISO" LED.

The minimum display of an F4000 FIP or RZDU panel is one display card
which is capable of displaying the status of up to 16 zones. Two
further display cards can be added in the centre and right hand
positions, for systems requiring up to 48 zones. For larger systems
extender cabinets are used to display an additional 96 zones each.
Alternatively the F4000 may be supplied in a rack cabinet configuration,
which provides up to 64 zones in each 7U module.

The SYSTEM STATUS INDICATORS are a column of 8 LEDs beside the keypad,
that display the System Status information. The function of each LED is
described alongside, namely from top down:

     (a)   Mains ON
     (b)   Steady - Charger HI/LO : Flashing - Battery FLT
     (c)   System Fault
     (d)   System Func/Test
     (e)   Bells Isolated
     (f)   Ancil Ø Isolated
     (g)   Ancil Ø Fault
     (h)   Master Alarm

The LED indicators may be either:

     (a)   Unlit (OFF); or
     (b)   Slow Flashing (SF), every 2 seconds; or
     (c)   Flashing (F), every half a second; or
     (d)   Rapid Flashing (RF), 10 times per second; or
     (e)   Steady (ON).

In normal operation all LEDs are OFF, with the exception of the green
"MAINS ON" LED indicator which is ON. An internal sounder (buzzer) is
used to alert the operator to certain conditions.
A detailed description of all indications is contained in Chapter 4;
"Interpreting the Display".
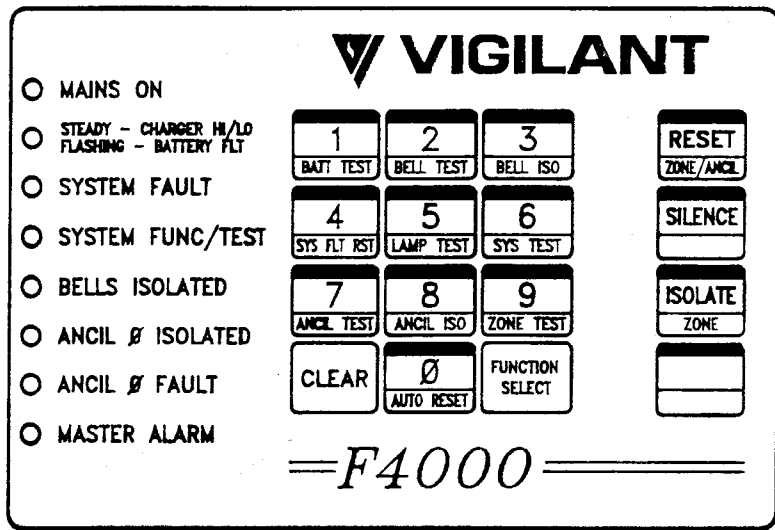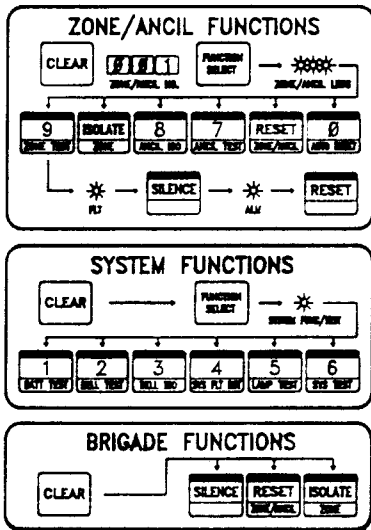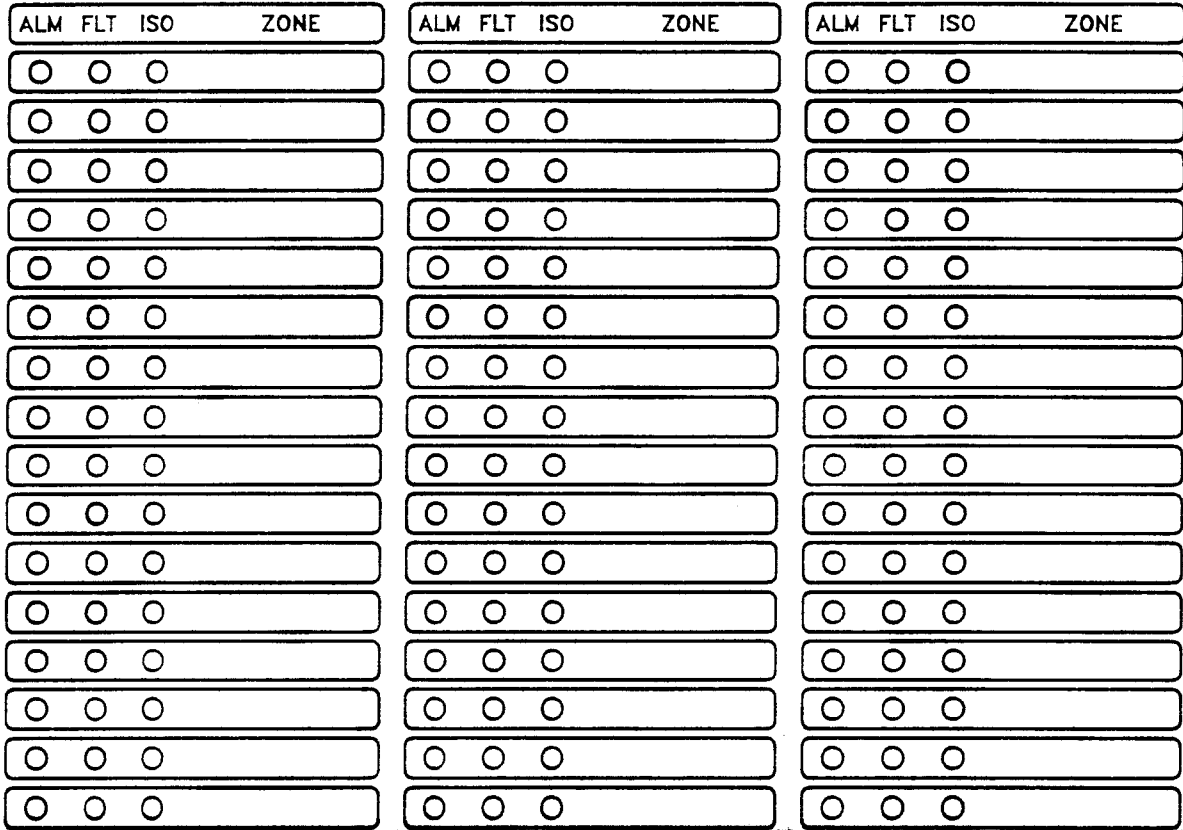
Figure 2.3   F4000 FIP Display

ALM	FLT	ISO	ZONE
O	O	O	
O	O	O	
O	O	O	
O	O	O	
O	O	O	
O	O	O	
O	O	O	
O	O	O	
O	O	O	
O	O	O	
O	O	O	
O	O	O	
O	O	O	
O	O	O	
O	O	O	
O	O	O	

RZDU FUNCTIONS

CLEAR
RESET — CLEAR BATTERY TEST FAIL
SILENCE — SILENCE LOCAL FAULT
POSITION SELECT — SENSOR FUNC/TEST
BATT TEST | SYS FLT RST | LAMP TEST | RZDU TEST

BRIGADE FUNCTIONS

CLEAR — SILENCE | RESET | ISOLATE

▼ VIGILANT

O MAINS ON
O STEADY – CHARGER HI/LO FLASHING – BATTERY FLT
O SYSTEM FAULT
O SYSTEM FUNC/TEST
O BELLS ISOLATED
O ANCIL Ø ISOLATED
O ANCIL Ø FAULT
O MASTER ALARM

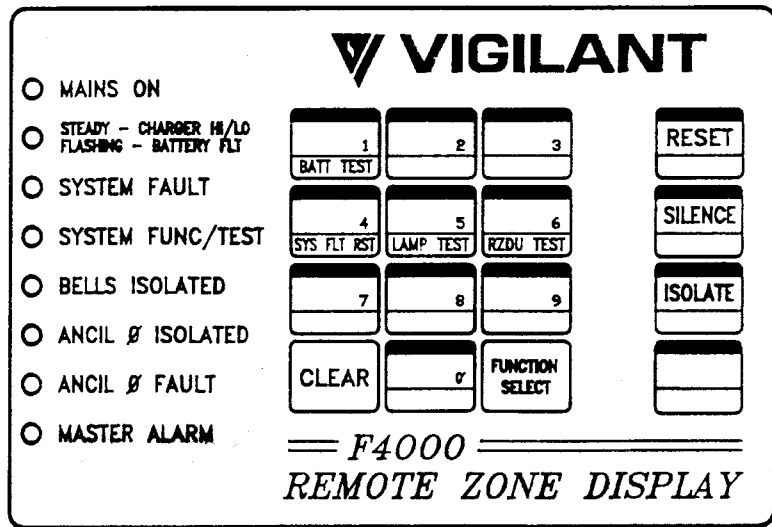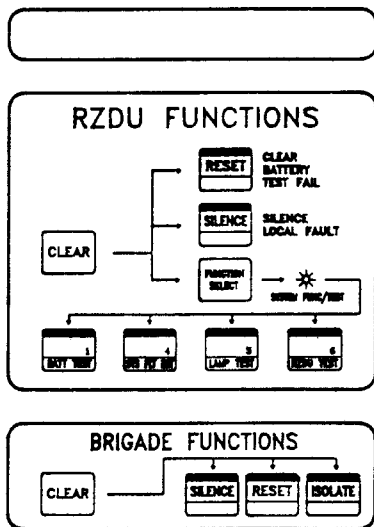| 1 BATT TEST | 2 | 3 | RESET |
4 SYS FLT RST	5 LAMP TEST	6 RZDU TEST	SILENCE
7	8	9	ISOLATE
CLEAR	0	FUNCTION SELECT	

=== F4000 ===
REMOTE ZONE DISPLAY

Figure 2.4 F4000 RZDU Display

2.3   FIP and RZDU KEYPAD INTRODUCTION

The front panel of the F4000 FIP and each RZDU provides a basic guide to use of the Keypad. Figures 2.5 and 2.6 show the keypads for the F4000 FIP and RZDU panels respectively.

The keypads are divided into two sections, namely:

(a)   "BRIGADE FUNCTIONS: A 3 key section, in which the three most basic and often used keys (RESET, SILENCE, ISOLATE) are grouped together for easy identification by Brigade personnel.

(b)   "FUNCTION KEYS":   A 12 key section, which is used to handle more detailed controls such as testing, isolating, resetting of specific zones or system functions.

NOTE: For RZDU panels individual zone functions are not available.

The two keyboard sections are not, however, entirely independent and some functions require use of both keypad sections. The key sequence diagram to the left of the keypad summarises the 3 types of keypad operations possible.

If the key press is valid the sounder will give a short beep whenever a key is pressed.

If the keypress is invalid a longer duration error beep will sound to draw attention to certain illegal key presses. Press CLEAR and try the command again.

For more details on specific operating instructions refer to Chapters 5, 6, and 7, for "Brigade", "System" and "Zone" functions respectively.

1	2	3		RESET
BATT TEST	BELL TEST	BELL ISO		ZONE /ANCIL
4	5	6		SILENCE
SYS FLT RST	LAMP TEST	SYS TEST		
1	2	3		ISOLATE
ANCIL TEST	ANCIL ISO	ZONE TEST		ZONE
CLEAR	0	FUNCTION		SPARE
	AUTO RESET	SELECT		
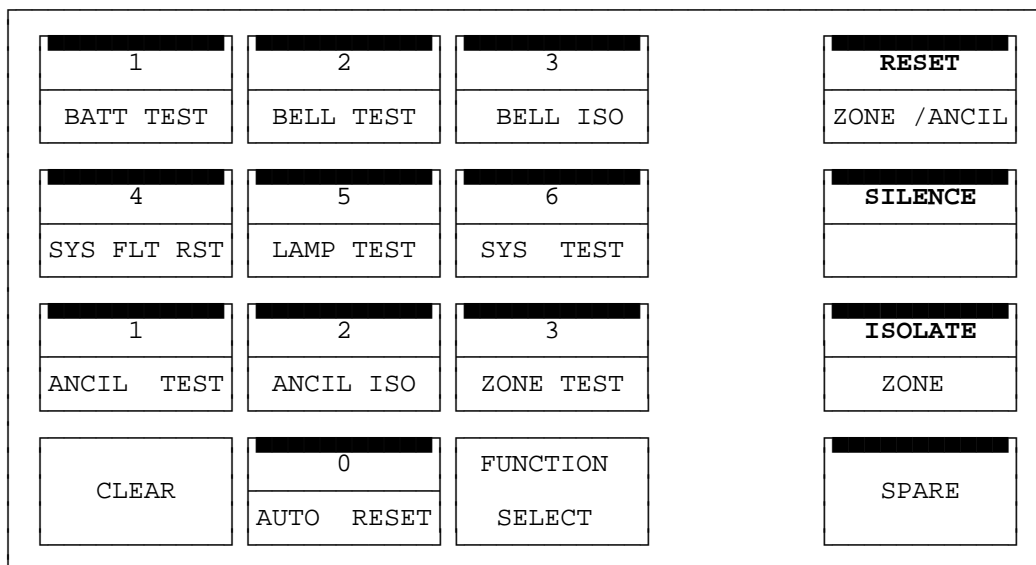
Figure 2.5 F4000 FIP Keypad Layout

1	2	3		RESET
BATT TEST				
4	5	6		SILENCE
SYS FLT RST	LAMP TEST	RZDU TEST		
7	8	9		ISOLATE
CLEAR	0	FUNCTION		
		SELECT		

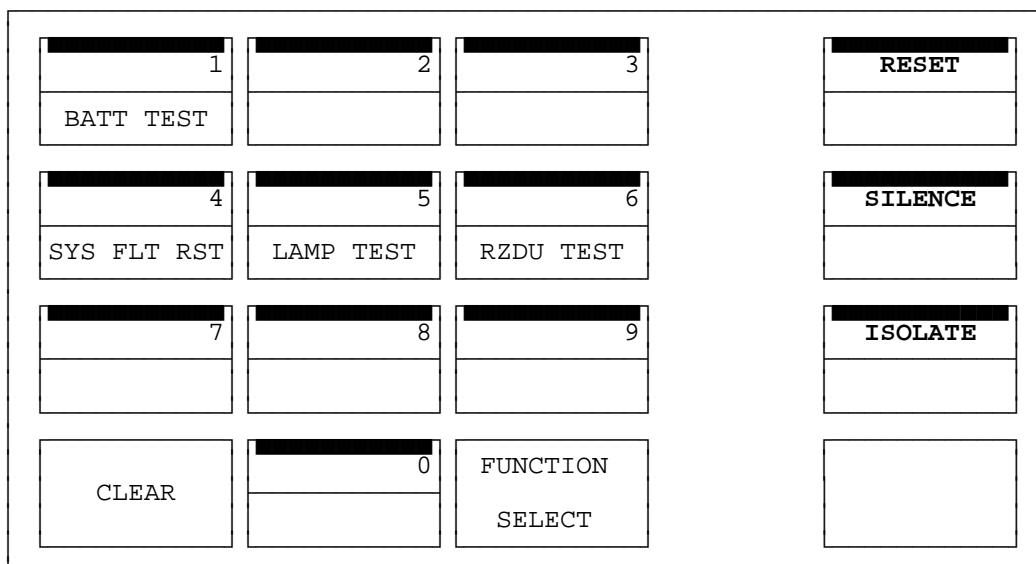**Figure 2.6** F4000 RZDU Keypad Layout

2.3.1   SPECIAL KEY FUNCTIONS

There are two special keys:

2.3.1.1   "CLEAR"

This key is used to abort any partially entered key sequence.

If you make a mistake with a keypad entry or change your mind, pressing CLEAR will abort any partially entered key sequence.

Press this key at the beginning of all key sequences, to separate any old entries from new ones.

2.3.1.2   "FUNCTION SELECT"

This key is used to select a second function, which may be any one of the following:

MASTER FIP	RZDU
Battery Test	Battery Test
System Test	RZDU Test
Lamp (LED) Test	Lamp (LED) Test
System Fault Reset	RZDU Fault Reset
Local Bell Test	
Local Bell Isolate or De-Isolate	
Ancillary Zone Test	
Ancillary Zone Isolate or De-Isolate	
Zone Test	
Zone Isolate or De-Isolate	
Zone or Ancillary Reset	
Zone Auto-Reset Test Mode	

The panel will automatically abort a key entry sequence if it is not completed in 30 seconds. A long "BEEP" is given to indicate keypad timeout.

Completing a key sequence normally results in an appropriate indicator coming on steady or flashing to give visual verification. For longer key sequences there may also be some visual feedback using appropriate indicators to confirm that a particular point in the entry process has been reached.

In particular, zone specific commands will fast flash all 3 zone LEDs when the "Function Select" key is pressed.

2.3.2   BRIGADE FUNCTIONS

The three most common brigade functions that can be carried out are
"Reset", "Silence" and "Isolate".

```
                  ┌──────────┬──────────┬──────────┐
┌──────────────┐  │       ┌──────────┐ ┌──────────┐ ┌──────────┐
│              │  │       │ ████████ │ │ ████████ │ │ ████████ │
│    CLEAR     │──┘       │  RESET   │ │ SILENCE  │ │ ISOLATE  │
│              │          ├──────────┤ ├──────────┤ ├──────────┤
│              │          │ZONE/ANCIL│ │          │ │  ZONE    │
└──────────────┘          └──────────┘ └──────────┘ └──────────┘
```
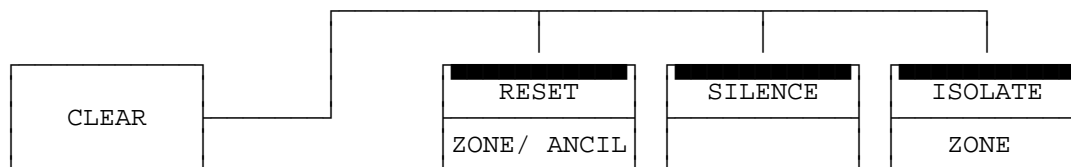
(a)   SILENCE: Most events detected by the system cause the panel's
internal buzzer to be activated. Events which are
installer-configured to operate the BELL relay also
cause the bells to ring.

Pressing SILENCE causes both audible alarms to turn
off and simultaneously acknowledges the event. If
Alarms and Faults co-exist, the first press of
"SILENCE" will silence the alarm bells, while the
second will silence the internal fault sounder.

(b)   RESET: Pressing RESET silences all audible alarms and
attempts to reset any zones in alarm. The result of
resetting the activated detectors is shown by the zone
alarm indicators. If after the reset sequence a zone
is still in alarm it will be treated as a new alarm
condition and will re-illuminate its ALARM indicator
and re-enable the audible alarms.

If the reset returns the activated detector to normal
then the ALARM indicator remains OFF.

Pressing RESET on its own has no effect on FAULT or
ISOLATE indicators. Because it turns off the
indicators that show the source of the alarms, RESET
should be used cautiously, generally only by Brigade
personnel at the end of their fire fighting procedure.

(c)   ISOLATE: Pressing ISOLATE not only silences the audible alarms
but also causes any zones currently in the alarm state
to be isolated. Subsequent operation of this key does
not cause the zones to de-isolate but will isolate any
new zones that have since gone into alarm. Zones
isolated in this way have to be de-isolated
individually using the ZONE ISOLATE facility.

2.3.3   SYSTEM FUNCTIONS

The sequence of key entries for the possible System Functions is shown below and on the F4000 MASTER and RZDU displays.

CLEAR		FUNCTION SELECT	

1	2	3	4	5	6
BATT TEST	BELL TEST	BELL ISO	SYSFLTRST	LAMP TEST	SYS TEST
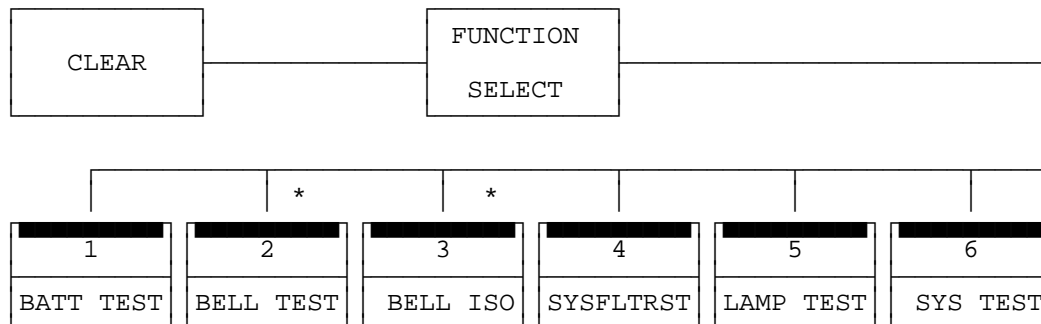
NOTE: * These functions are not available on the RZDU.

The "FUNCTION SELECT" key is used to select the function written on each key, as opposed to the numeric option - the "SYSTEM FUNC/TEST" indicator flashes rapidly (RF) to show when the keypad is in the "FUNCTION SELECT" mode.

2.3.4   ZONE FUNCTIONS

Zone functions allow individual zones to be isolated, reset and tested and can only be used on the F4000 Master FIP Keypad.

The sequence of key entries for the possible zone functions is shown below and is also shown on the F4000 FIP display.

CLEAR	->	#	#	#	->	FUNCTION SELECT

9	ISOLATE	7	8	RESET	0
ZONE TEST	ZONE	ANCL TEST	ANCIL ISO	ZONE/ANCL	AUTORESET
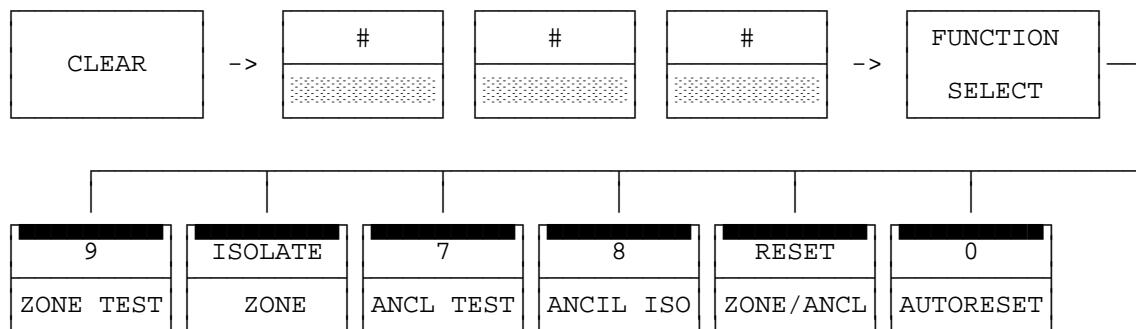
In concept this key entry sequence is identical to that of the SYSTEM FUNCTIONS except that the operator must specify a zone number using the numeric keys, and the FIP gives visual verification of the selected zone by flashing (F) the three zone indicators.

LEADING ZEROS (0) ARE NOT REQUIRED ON ZONES LESS THAN 100 (eg 001).

2.4   AUDIBLE TONES

Any requirement for operator intervention is signalled by the sounding
of the FIP's internal buzzer. The buzzer can be activated in a number
of different modes, each of which gives some indication as to the type
of event that has occurred. The internal sounder provides the following
audible tones in order of decreasing priority:

(a)   ZONE / SYSTEM FAULT   -   Steady Tone

A continuous tone indicates that an un-isolated zone has gone into
FAULT, or a system fault has been detected.

(b)   PANEL FAULT   -   Slow Pulsing Tone

A "beep pause beep pause" tone, indicates specific types of panel
faults, please call service.

(c)   ZONE ALARM   -   Fast Pulsing Tone

A fast two beep tone, indicates that an un-isolated MAF mapped zone has
gone into ALARM.

(d)   TEST FAIL   -   Fast Pulsing Pause Tone

A 4 fast beeps then pause tone indicates that a zone test has failed.

(e)   KEYPAD "INPUT ERROR"   -   Long single beep

(f)   KEYPAD "KEY ACCEPT"   -   Short single beep

Chapter 3

SYSTEM SPECIFICATIONS

3.1   SYSTEM CAPACITY

Input Circuits	– Up to 508
Circuit Detector Load (MAX)	– 2.5 mA for Active EOL – 120 μA for Passive 39K EOL
Display Zones	– Up to 528
Input to Zone Map	– Freely Programmable
Control Outputs	– Up to 508 plus ANCIL Ø
Maximum Responders	– 127
Remote Display Units	– Up to 8
Maximum Zones per Unit	– 48 in Main FIP and RZDU – 96 in Extender Cabinets
Other Inputs	– Supervised MCP on cabinet
FIP Relays	– Master Alarm (MAF) (2 OFF), Fault, Standby, Isolate, Bells, Ancillary
Relay Ratings	– FIP: 2A at 30 VDC RRM: 1A at 30 VDC
Serial Port	– Programmer Terminal/Printer
Serial Port Protocol	– XON/OFF 300,1200,9600 baud
Other ports	– RZDU and Spare.
Port Protection	– All to AS1603.4 1987 Admt 1 & 2
Communications Loop	– 4 Wire (24 VDC, 0 VDC, TX, RX) – O/C and S/C Fault Tolerant
Alarm Response Time	– 3.8 seconds MAX (127 Responders)
History Log	– 75 events
Printer Buffer	– 50 events
Mimic Driver	– ALARM LEDs

3.2   PHYSICAL

3.2.1   FIP, EXTENDERS, RZDUs

Cabinet Size   - 680 mm(H) x 470 mm(W) x 167 mm(D)
                                                    + 20 mm MCP

Cabinet Material   - 1.6 mm Mild steel

Cabinet Finish   - Baked Epoxy painted

Cabinet Colour   - Cream Wrinkle BFF998 CW

Mounting   - Wall mount (4 Holes)

Access   - Outer door left hinged (L003 key locked)
                          - Inner door right hinged. (fastened)

Shipping Weight   - 19 kg (not including batteries)

Cabinet IP Rating   - IP51

3.2.2   RESPONDER UNITS

Size   - 240 mm(H) x 180 mm(W) x 50 mm(D)

Material   - 1.0 mm Mild steel

Finish   - Galvanised

Mounting   - Surface/Wall mount

Access   - Cover by Screws

Shipping Weight   - 1.5 kg (not including RRM)

IP Rating   - IP51

3.3 ELECTRICAL

Mains	- 240 VAC +6% -10%, 50 Hz, 150W
Internal Battery	- 24 VOLT, Sealed lead-acid. - Up to 24 Ampere Hour
Internal Charger (+VB)	- 27.3 VDC (nominal at 20 °C) Regulated
Non Battery Backed Supply	- 27.9 VDC (nominal at 20 °C) (+VNB)
Temperature Compensation	- -36 mV per Degree C
Supervision	- Charger High/Low & Battery Low/Fail
Battery Test	- 1.2 Amp load (standard)
Maximum Load	- 2.5 Amps - 7.5 Amps with 2 additional PSUs configured as Master-Slave-Slave.
Operating Voltage	- 21.1 to 28.2 VDC
Quiescent Panel Current	- 100 mA (FIP)
Zone Circuit Voltage	- 20 VDC nominal
Circuit Alarm Current	- 5 to 8.6 mA
Alarm LED Boost	- 20 VDC at 40 ms pulse via 470 Ohm
AC Secondary Fuse F1	- 5.0 Amp
+VB Fuse F2	- 1.6 Amp
Bell Fuse F3	- 1.6 Amp
+VNB Fuse F4	- 1.6 Amp
Operating Temperature	- -5 °C to 45 °C
Humidity	- 10% to 90% RH non-condensing

3.4 INDICATORS

Zone LEDs   - Red: ALARM
                                  - Amber: FAULT, ISOLATE

System LEDs   - Green: MAINS ON
                                  - Red: MASTER ALARM
                                  - Amber: SYSTEM FAULT, BELL ISOLATE,
                                            SYSTEM TEST, ANCIL Ø
                                            ISOLATE/FAULT,
                                            Charger/Battery FAULT

Sounder   - Keypress, & key error
                                  - Pulsing ALARM / Steady FAULT

Diagnostic LEDs   - Watchdog (FIP and RZDU)
(Main Board / Amber)   - Display Fault (FIP and RZDU)
                                  - RZDU Fault (FIP and RZDU)
                                  - Loop Fault (FIP only)
                                  - Software Fault (FIP only)
                                  - Polled (Green / RZDU only)
                                  - Scan Fail (RZDU only)

Responders   - Status LED

3.5 KEYPAD CONTROLS

Keypad Type   - 16 key keypad

Zone Functions   - Alarm and Fault Test
(FIP ONLY)   - Isolate (Global or selected)
                                  - Reset (Global or selected)
                                  - Auto-Reset Test Mode

Ancillary Functions   - Test, Isolate, Reset
(FIP ONLY)

System Functions   - Battery Test, Lamp Test
(FIP and RZDU)   - System Test (RZDU Test)
                                  - System Fault Reset
                                  - Bell Test, Bell Isolate (FIP only)

Brigade Functions   - Reset zones in alarm
                                  - Isolate zones in alarm
                                  - Silence alarms then faults

3.6   PROGRAMMING

The following functions can be programmed using a programming terminal.

System Commands	- Time and Date set
	- Save/Download Database
	- Start/Stop processing
	- Re-Initialise
	- Data shift (memory expand)
Query	- Programmed Parameters (All or selected)
	- History Log
	- Interrogate
	- Help
	- Diagnostics
System Configuration	- Circuit to zone mapping
	- Number of Displays / RZDUs
	- MCP zone mapping
	- Reserve memory
	- Ancil Ø supervision enable
	- Autotest time/dates/enable
	- Global Flowswitch Delay
	- System Name
Responder Configuration	- Type ADR, ARR, AAR or IOR
	- Relay supervision
Circuit Configuration	- Normal
	- AVF
	- Aircon 30
	- Aircon 60
	- Flowswitch 0, 15, 30, or 60
	- MCP bypass
	- Circuit Disable
Zone Configuration	- Normal - Alarm Zone (AZC)
	- Ancillary Control Zone (ACZ)
	- Dual Hit
	- FlowSwitch (FSZ)
	- Latching/Tracking
	- MAF/Indication only
	- FSZ testing relay
ACZ Output Logic	- Boolean AND, OR, NOT
	- Variables (128)
	- Timers (64), Stretch and delay
AAR LOOP	- Loop Configuration
	- Addressable Device Types
	- Alarm and Pre-Alarm Sensitivity

Chapter 4

INTERPRETING THE DISPLAY

4.1   RESPONDING TO ALARMS

WHEN ANY ZONE RED "ALM" LED INDICATOR IS FLASHING PERFORM THE FOLLOWING
OPERATIONS:

STEP 1   **DO NOT PRESS "SILENCE", "RESET" OR "ISOLATE" KEYS ON THE
             PANEL** until the Fire Brigade arrives.

STEP 2   INVESTIGATE THE ALARM (if possible by Fire Safety Crew), and
             implement appropriate fire control and extinguishing
             measures.
             The **FIRE SEARCH AREA** will be indicated by a red flashing
             "ALM" LED indicator(s) adjacent to the location description
             of the alarm zone(s).

STEP 3   Evacuate the area if necessary.

STEP 4   **ADVISE THE FIRE CONTROL STATION** of both fires and false
             alarms.

STEP 5   **KEEP A MEMBER OF THE FIRE SAFETY CREW ON STANDBY** to direct
             fire fighters to the source(s) of alarm and inform them of
             measures already taken.

STEP 6   **RECORD ALL EVENTS IN THE LOG BOOK PROVIDED.**

**   PLEASE   NOTE   **

The above procedure should only be executed by a trained fire officer,
and may need to be modified in accordance with any special conditions
applying to your F4000 FIP installation.

4.2   DEALING WITH FAULTS

4.2.1   WHAT IS A FAULT ?

A fault is any situation which prevents the panel from correctly performing its functions. Possible faults include defects in external wiring or power feed to the detectors, faulty detectors, component failures, faulty charger and low battery voltage.

In normal operation the only lit LED indicator should be the green "MAINS ON". All other active indicators should be reported and promptly investigated.

4.2.2   RESPONDING TO FAULT SIGNALS

The fault sounder will operate (steady) if any external fault condition exists. If any 'off normal' condition shows up on the panel, apply the basic trouble-shooting guidelines described in Chapter 9, then call your maintenance company.

The "SILENCE" key may be pressed in order to stop the panel's fault sounder until a service technician arrives.

**   PLEASE   NOTE   **

(a)   Subsequent faults on the system will operate the fault sounder again.

(b)   RECORD ALL EVENTS IN THE LOG BOOK PROVIDED.

4.3   ZONE INDICATORS

4.3.1   ZONE ALARM ("ALM") LED INDICATOR

A RED indicator per zone that is interpreted as:

(a)   OFF   -   For AZC; The normal, non-alarm state

               -    For ACZ; The normal, non operated state.

(b)   ON   -   For AZC; Indicates the alarm condition has been
                      acknowledged and if the zone is non-latching that the
                      alarm condition still exists.

              -    For ACZ; Indicates that the Ancillary Control Zone
                      has been activated.

(c)   F   -   For AZC; Indicates a new, yet to be acknowledged,
                     alarm has developed or failure of self test e.g.
                     unexpected alarm in the zone.

(d)   RF   -   Zone has been "FUNCTION SELECTED".
                      Note all 3 zone indicators flash.

NOTE: OFF   =   LED unlit.
             SF   =   LED flashing slowly (every 2 seconds).
             F   =   LED flashing (every half a second).
             RF   =   LED flashing rapidly (10 times per second).
             ON   =   LED steady.

4.3.2   ZONE FAULT ("FLT") LED INDICATOR

An Amber indicator per zone that is interpreted as:

(a) OFF   -   The normal state.

(b) ON   -   Indicates a FAULT condition has developed in that
                zone.

           -    For AZC;   A detector line fault

           -    For ACZ;   A Ancillary Supervision fault.

(c) F   -   Encountered during a SYSTEM TEST, to indicate that the
                particular zone failed its test sequence.

(d) RF   -   Zone has been "FUNCTION SELECTED".
                Note all 3 zone indicators flash.

4.3.3   ZONE ISOLATED ("ISO") LED INDICATOR

An Amber indicator per zone that is interpreted as:

(a) OFF   -   The normal state; indicates that the zone is not
                isolated and that any alarm or fault conditions
                detected on that zone will generate Brigade signals,
                bell operation, and ancillary device operation as
                configured for that zone.

(b) ON   -   Indicates that the zone is isolated. Alarm and fault
                conditions will still be displayed but will not
                initiate any control or annunciation functions.

(c) F   -   Indicates that the zone is in "AUTO-RESET" mode.

(d) RF   -   Zone has been "FUNCTION SELECTED".
                Note all 3 zone indicators flash.

4.4   SYSTEM INDICATORS

4.4.1   "MAINS ON" LED INDICATOR

A Green indicator interpreted as:

(a)   ON   -   The normal condition indicating mains power is present

(b)   OFF   -   An abnormal condition indicating that the mains supply
                 to the FIP has been interrupted.

                 Possible reasons are:

                 i.   The MAINS ON/OFF switch on the FIP Power Supply
                       module is turned OFF.

                 ii.   Fuse F1 on 1901-2 Power Supply Printed Circuit
                       board is blown.

                 iii. The overload protection device on the
                       switchboard has tripped.

                 iv.   FIP Power Supply fault.

4.4.2   "STEADY - CHARGER HI/LO;
FLASHING - BATTERY FAULT" LED INDICATOR

An Amber indicator that is interpreted as:

(a)   OFF   -   The normal condition, indicating that the FIP's
                 standby battery supply and its associated charger are
                 both normal, if the mains supply is on.

(b)   ON   -   The charging circuitry is not working correctly or is
                 wrongly set up. Note that a mains failure is not
                 deemed to be a fault of the charger itself and does
                 not cause the indicator to come on: OR;

            -    A BATTERY TEST command is in progress.

(c)   F   -   The battery is in a poor state of charge. This may be
                 normal, for example after extended operation of the
                 system in a mains failure condition, or may be
                 abnormal, indicating a battery or charger fault: OR;

            -    The previously requested BATTERY TEST has been
                 performed and failed.

                 Note: A successful BATTERY TEST will return the
                       indicator to its normal OFF state.

4.4.3   "SYSTEM FAULT" LED INDICATOR

An Amber indicator that is interpreted as:

(a)   OFF   -   The normal condition, indicating that the system is
                  fully operational.

(b)   ON   -   Indicates that a system fault (as opposed to a zone
                  fault) has been detected.

                  The fault may either be detected spontaneously, or as
                  a result of a manually or automatically initiated
                  SYSTEM TEST.

                  If the latter, the SYSTEM TEST indicator will also be
                  flashing. If not, then check the indicators located on
                  the main printed circuit board (PCB) to determine the
                  nature of the fault (i.e. DISPLAY FAULT, RZDU FAULT,
                  LOOP FAULT or SOFTWARE FAULT).

                  Note: More detailed diagnostics are only available via
                        an event logging printer or programming terminal

(c)   RF   -   A zone or Global Reset command is in progress. When
                  the rapid flashing finishes other commands may be
                  entered.

(d)   SF   -   The database is being downloaded to an Analog
                  Addressible Responder (AAR). Only when this is
                  complete is the system fully operational.

4.4.4   "SYSTEM FUNC / TEST" LED INDICATOR

An Amber indicator interpreted as:

(a)   OFF   -   The normal state.

(b)   ON   -   Indicates that a SYSTEM TEST, or an "AUTOMATIC DAILY
                  TEST" is in progress.   The automatic daily test
                  occurs every day (execpt Saturady and Sunday) at 9:00
                  am, unless otherwised programmed.

(c)   SF   -   Indicates that a ZONE TEST is in progress.

(d)   F   -   Indicates that a manually or automatically initiated
                  SYSTEM TEST has failed.

(e)   RF   -   Indicates that the "FUNCTION SELECT" key has been
                  pressed without any preceding zone number and that the
                  panel is waiting for a command key to be pressed.

             -    WITH PAUSES: Indicates that the system is
                               RE-INITIALISING.

4.4.5   "BELLS ISOLATED" LED INDICATOR

An Amber indicator that is interpreted as:

(a)   OFF   -   Indicates that the alarm bells are currently enabled
                   i.e. will sound in the event of an alarm.

(b)   ON   -   Indicates that the alarm bells are currently isolated,
                   i.e. will NOT sound in the event of an alarm. Usually
                   this is only used for test purposes.

4.4.6   "ANCIL Ø ISOLATED" LED INDICATOR

An Amber indicator that is interpreted as:

(a)   OFF   -   Indicates that the 'ANCILLARY' relay is currently
                   enabled and will control the devices connected to it
                   according to the programmed control strategy.

(b)   ON   -   Indicates that the ANCILLARY relay is isolated, i.e.
                   will NOT operate any connected devices.

(c)   RF   -   "ANCILLARY Ø" has been selected at the keypad.
                   (Both "ANCIL Ø ISOLATED" and "ANCIL Ø FAULT" LED
                   flashing).

4.4.7   "ANCIL Ø FAULT" LED INDICATOR

An Amber indicator that is interpreted as:

(a)   OFF   -   The normal state, indicating that the ancillary
                   devices are still connected (if supervised).

(b)   ON   -   Indicates either that the wiring to the ancillary
                   devices is faulty, or that the ancillary relay failed
                   to change state when commanded.

(c)   RF   -   "ANCILLARY Ø" has been selected at the keypad.
                   (Both "ANCIL Ø ISOLATED" and "ANCIL Ø FAULT" LED
                   flashing).

4.4.8   "MASTER ALARM" LED INDICATOR

A Red indicator interpreted as:

(a)   OFF   -   The normal state

(b)   ON   -   One or more of the zones mapped to the MAF have gone
                  into alarm.

            -     Master Alarm output activated.

4.5	LED PHASING

For systems with a large number of LED Display Boards, the power
requirements can become very high if too many LEDS are on at the same
time. To reduce the power requirements, F4000 is able to phase the
displaying of information on the LEDS.

Every 2 seconds F4000 calculates the number of LEDS on steady or
flashing for all Display Boards, but excludes Relay Driver Boards. If
this number rises above 255 then phasing starts. If it then falls below
249 phasing stops.

Once phasing has started, then only 6 consecutive boards display their
LED data at the same time. All other LEDS on Display Boards are turned
off. Every second, the lowest number board of the 6 boards is turned off
and the one next higher than the 6 is enabled to turn on its LEDS. In
this way the 6 display "window" is rotated around all of the Display
Boards. If phasing is not enabled then all Display Boards show their
LEDs all the time.

TIME	BOARD NUMBER								
	1	2	3	4	5	6	7	8	9
1		X	X	X	X	X	X		
2			X	X	X	X	X	X	
3				X	X	X	X	X	X
4	X				X	X	X	X	X
5	X	X				X	X	X	X
6	X	X	X				X	X	X
7	X	X	X	X				X	X
8	X	X	X	X	X				X
9	X	X	X	X	X	X			

X = LEDS ON

Figure 4.1 Phasing Of Display Boards

Chapter 5
OPERATING INSTRUCTIONS
– BRIGADE FUNCTIONS

5.1   RESET ZONES IN ALARM

5.1.1   FUNCTION

In "Global Mode" (no zone selected), pressing the "RESET" key performs the following functions:

(a)   RESETS all circuits mapped to zones(s) that are in ALARM and NOT ISOLATED.

(b)   Silences the alarm sounder and the local bells.

(c)   Aborts any System Test or Zone Test.

5.1.2   OPERATING SEQUENCE

CLEAR	Press "CLEAR" key once.
	- Only required to clear any partially entered key sequence.
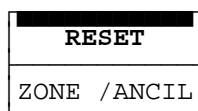
RESET ZONE /ANCIL	Press "RESET" key once.
	- All non-isolated zones in alarm will be reset.
	- All flashing or acknowledged (steady) red alarm indicators will be turned OFF.
	- Local Bells, if any, will be silenced.
	- Sounder will be silenced, if pulsing alarm tone.
	- The SYSTEM FAULT indicator will rapid flash until the RESET command is completed.

NOTES:

(a)   If the ALARM condition on the zone circuits has not been cleared, then the zone alarm indicators and Local Bells will be re-activated.

(b)   Global "RESET" does not affect Zone or Ancillary Zone fault indications. Refer to the "Zone / Ancillary Reset" section in Chapter 7; "Operating Instructions - Zone Functions".

(c)   Global "RESET" has no affect on "ISOLATED" zones or zones in "AUTO-RESET" mode.

5.2   SILENCE ZONES IN ALARM OR FAULT

5.2.1   FUNCTION

In "Global Mode" (no zone selected), pressing the "SILENCE" key performs the following functions:

(a)   FOR ALARM CONDITIONS:

> Acknowledges all ALARMS shown on the panel;
> > - Flashing ALARM indications are turned steady.
>
> Silences the pulsing alarm sounder and Local Bells.

(b)   FOR FAULT CONDITIONS:

> Silences the steady tone fault sounder, after Silencing ALARMS.

5.2.2   OPERATING SEQUENCE

```
┌──────────────┐
│              │
│    CLEAR     │
│              │
└──────────────┘
```

Press "CLEAR" key once.

-       Only required to clear any partially entered key sequence.

```
┌──────────────┐
│▄▄▄▄▄▄▄▄▄▄▄▄▄▄│
│   SILENCE    │
├──────────────┤
│              │
└──────────────┘
```
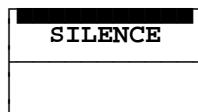
Press "SILENCE" key once.

(a)   FOR ALARM CONDITIONS:

-       ALL flashing red "ALM" LED indicators will go steady. (ZONES ACKNOWLEDGED)
-       Local bells (if any) will be silenced.
-       Sounder will be silenced, if in pulsing alarm tone.

b)   For FAULT conditions:

-       Sounder will be silenced, if in steady fault tone, ONLY AFTER ALARMS HAVE FIRST BEEN SILENCED.

NOTES:

(a)   Subsequent non-isolated zone "ALARMS" or "FAULTS" on the system will re-operate the indications, sounder and local bells, as appropriate.

(b)   If an unsilenced FAULT condition exists, the sounder will continue to indicate fault, as it overrides the pulsing alarm tone.

5.3   ISOLATE ZONES IN ALARM

5.3.1   FUNCTION

In "Global Mode" (no zone selected), pressing the "ISOLATE" key performs the following functions:

(a)   ISOLATES all zones in ALARM (new or acknowledged).

(b)   Silences the pulsing tone alarm sounder and Local Bells.

5.3.2   OPERATING SEQUENCE

CLEAR	Press "CLEAR" key once.
	- Only required to clear any partially entered key sequence.

ISOLATE ZONE /ANCIL	Press "ISOLATE" key once.
	- ALL zones in the alarm state will be isolated - shown by the corresponding amber "ISO" LED indicator turning ON.
	- ALL flashing red "ALM" LED indicators will go steady.
	- Local bells (if any) will be silenced.
	- Sounder will be silenced, if in pulsing alarm tone.

NOTES:

(a)   Subsequent non-isolated zone "ALARMS" on the system will re-operate alarm indications, alarm sound and local bells.

(b)   Subsequent non-isolated zone "FAULTS" on the system will operate fault indications and steady fault sounder.

(c)   To DE-ISOLATE ALARM ZONES, the zone must be first selected. Refer to "Zone Isolating / De-Isolating" section in Chapter 7 "Operating Instructions - Zone Functions".

Chapter 6
OPERATING INSTRUCTIONS
- SYSTEM FUNCTIONS

6.1   BATTERY TEST

6.1.1   FUNCTION

To initiate a test on the standby battery supply by applying a test load for one minute.

6.1.2   OPERATING SEQUENCE

CLEAR	Press "CLEAR" key once.
	- Only required to clear any partially entered key sequence.

FUNCTION SELECT	Press "FUNCTION SELECT" key once.
	- "SYSTEM FUNC/TEST" LED indicator will be flashing rapidly.

1
BATT TEST

Press "BATT TEST (1)" key once.

- The "CHARGER HI/LO : BATTERY FLT" and "SYSTEM FUNC/TEST" LED indicators will turn ON to indicate a battery test is in progress.

- If after application of the test load for one minute, the battery voltage is still within specification, then the test will terminate and the "CHARGER HI/LO : BATTERY FLT" LED indicator will turn OFF.

    However, if during the test a battery low is detected, the test will terminate and the "CHARGER HI/LO : BATTERY FLT" LED indicator will flash.

- The "SYSTEM FUNC/TEST" LED indicator will turn OFF at the end of the test or on test failure.

6.1.3   TEST ABORT

RESET
ZONE/ ANCIL

Pressing the "RESET" or "SILENCE" keys at any point will terminate the BATTERY TEST.

- "CHARGER HI/LO : BATTERY FLT" LED indicator will turn OFF.

6.1.4   **NOTES**

(a)   "CHARGER HI/LO : BATTERY FLT" LED indicator will flash for
               the rest of the 1 minute test period if the battery test
               fails.

(b)   Pressing the "RESET" key will turn OFF the "CHARGER HI/LO :
               BATTERY FLT" LED indicator if it is flashing.

(c)   If the battery test failed, perform another "Battery Test"
               after 24 hours. If the battery test fails again please call
               your service company.

(d)   It is not possible to initiate a Battery Test until FOUR (4)
               minutes after the end of a previously passed battery test.
               A KEY ERROR tone will be sounded.

(e)   There is a 1:4 (Failure to Next Test) INHIBIT time ratio.
               For example: If the test fails after 30 seconds, it is
                                 not possible to initiate another Battery
                                 Test until after 2 minutes (4 x 30
                                 seconds).

(f)   Pressing the "RESET" or "SILENCE" keys at any time
               terminates the Battery Test.

6.2   BELL TEST

6.2.1   FUNCTION

VALID FOR: F4000 FIP ONLY.

To operate the Bell Output for a period of five (5) seconds.

6.2.2   OPERATING SEQUENCE

CLEAR	Press "CLEAR" key once.
	- Only required to clear any partially entered key sequence.
FUNCTION SELECT	Press "FUNCTION SELECT" key once.
	- "SYSTEM FUNC/TEST" LED indicator will be rapid flashing.
2 BELL TEST	Press "BELL TEST (2)" key once.
	- Bell Output is turned ON for 5 seconds.

6.2.3   NOTES

(a)   Local Bells will be turned on for the 5 second "BELL TEST" even if the BELLS are ISOLATED.

(b)   Pressing "RESET" key will not terminate a Bell Test.

6.3   BELL ISOLATE or DE-ISOLATE

6.3.1   FUNCTIONS

VALID FOR: F4000 FIP ONLY

To change the isolation state of the local bells, either from de-
isolated to isolated, for test purposes, or visa-versa on completion of
tests.

6.3.2   OPERATING SEQUENCE

CLEAR	Press "CLEAR" key once. - Only required to clear any partially entered key sequence.
FUNCTION SELECT	Press "FUNCTION SELECT" key once. - "SYSTEM FUNC/TEST" LED indicator will be flashing rapidly.
3 BELL ISO	Press "BELL ISO (3)" key once. - If the amber "BELLS ISOLATED" LED indicator was OFF, it will now be turned ON, to indicate the local alarm bells are isolated. - If the amber "BELLS ISOLATED" LED indicator was ON, it will now be turned OFF, to indicate the local alarm bells are de-isolated.

6.4   LAMP (LED) TEST

6.4.1   FUNCTION

VALID FOR: F4000 FIP and RZDU PANELS.

To momentarily turn all indicators on to visually inspect that they are
working correctly.

6.4.2   OPERATING SEQUENCE

CLEAR	Press "CLEAR" key once.
	- Only required to clear any partially entered key sequence
FUNCTION SELECT	Press "FUNCTION SELECT" key once.
	- "SYSTEM FUNC/TEST" LED indicator will be flashing rapidly.
5 **LAMP TEST**	Press "LAMP TEST (5)" key once.

-       The eight System Status indicators are turned
        ON.

-       Each bank of 16 Zone Indicators are then
        successively turned on and off.

-       Visually check that every indicator is turned ON
        at some stage during this process.

-       If any LED indicator does not light when the
        rest of the bank is, please call service.

-       Pressing any key will stop the Lamp Test.

NOTE:

Any boards configured to be Relay Driver Boards and not Display Boards
will not be tested during the Lamp Test.

6.5   SYSTEM TEST

6.5.1   FUNCTION

VALID FOR: F4000 FIP and RZDU PANELS.

The System Test checks the integrity of the system hardware and software.

For the F4000 Master FIP the test also applies simulated alarm and fault conditions to each circuit to check that the conditions are detected and processed correctly.

On an RZDU panel this is called an "RZDU TEST" and only tests that RZDU.

6.5.2   OPERATING SEQUENCE

CLEAR	Press "CLEAR" key once.
	- Only required to clear any partially entered key sequence.

FUNCTION SELECT	Press "FUNCTION SELECT" key once. - "SYSTEM FUNC/TEST" LED indicator will be flashing rapidly.

6 SYS TEST	Press "SYS TEST (6)" or "RZDU TEST (6)" key once. - The "SYSTEM TEST" LED indicator is turned ON, to indicate a system test is currently in progress. - The "BELLS ISOLATED" and "ANCIL 0 ISOLATED" LED indicators are also turned ON to indicate that the BELLS output and ANCIL 0 relay output have been automatically isolated. - The Master Alarm Facility is also automatically isolated, however this is not indicated.

6.5.3   **TEST OPERATION**

The System Test operates as follows:

6.5.3.1   <u>MEMORY TEST</u>:

A test of the EPROM, RAM and EEPROM components of each microprocessor
system is initiated.

If this test fails the buzzer sounds its test fail cadence and the
SYSTEM FAULT indicator comes ON. The SYSTEM FUNC/TEST indicator will
change from steady to fast flashing. Pressing SILENCE silences the
buzzer but the indicators do NOT turn OFF until the completion of a
successful memory test.

6.5.3.2   <u>FAULT AND ALARM TEST</u>: (From F4000 FIP only)

The system test applies "FAULT" and "ALARM" test signals to all enabled
responder inputs. The TEST is deemed complete when all Responders
report that their tests have passed.

The test fails either if all Responders do not complete their tests
within a certain time, or if at any time any of the tested circuits go
into the incorrect state. If a failure is detected this is annunciated
by the test fail cadence on the buzzer, a flashing FLT indicator on the
failed zone, and a flashing "SYSTEM FUNC/TEST" indicator. This suspends
the test.

- Press SILENCE or RESET to silence the buzzer and turn the flashing FLT
indicators OFF. This aborts the test. The Flashing "SYSTEM FUNC/TEST"
indicator remains and can only be turned off by a successful re-test.

If there is a test failure on a circuit input then the "FLT" LED
indicator for the zone comes on if the applied test alarm or test fault
signals were NOT detected; or the "ALM" and "FLT" LED indicators come on
if there are any unexpected alarms or faults respectively.

The ideal response to a system test is no zone indicators ON rather than
all indicators on.

If the system includes Analog Addressable Responders (AARs), a
successfull test can take up to 2.5 minutes, otherwise about 1 minute is
required.

6.5.4   TEST ABORT

RESET
ZONE/ ANCIL

Pressing the "RESET" key during the test terminates the SYSTEM TEST.

-       The "SYSTEM FUNC/TEST" LED indicator is turned OFF unless there has been any failures.

Detection of an ALARM condition which seems unrelated to the applied test alarm (ie possibly a genuine alarm) holds the test at the affected Responder and causes the ALM and FLT indicators to flash for the zone in alarm, along with the FLT indicators for zones mapped to by the circuit under test on the same responder.

However, since it is not established that it is a genuine alarm no MAF/ANCIL/BELL or other mapped outputs will be activated. Pressing SILENCE or RESET takes the FIP out of test mode, turning off the ALM indicator and buzzer if the alarm is no longer present. The system reverts to normal mode. If the alarm is still present, this will be detected and annunciated in the normal way.

The "SYSTEM FUNC/TEST" indicator is left flashing, refer note (c).

Detection of FAULT conditions which are unrelated to the applied test fault conditions are treated similarly, except that just the fault indicator of the suspect zone, and the zones mapped to by the circuit under test on the same responder, come on flashing.

If the circuit under test is not mapped to a displayed zone, only the Service company can determine the circuit failure from the internal log.

If the circuit under test is not mapped to a zone at all, then the test is not terminated by a failure but indicated at the end of the test by the buzzer and flashing "SYSTEM FUNC/TEST" indicator. Again the circuit failure can be determined from the internal log.

6.5.5   NOTES

(a)   System Test is not possible if any unacknowledged alarm or fault exists; or if an automatic test sequence, battery test, zone test or auto-reset zone test is in progress. ADR S/W earlier than Version V1.04 will fail the test if any circuit is in alarm or fault at the start of the test.

(b)   System Test bypasses any programmed time delays.

(c)   If there is a test failure the "SYSTEM FUNC/TEST" indicator is left flashing until a successful test is performed. However, this cannot be done until the alarm or fault that terminated the test is cleared. Refer note (a) above.

6.6   SYSTEM FAULT RESET

6.6.1   FUNCTION

VALID FOR: **F4000 FIP and RZDU PANELS**

To reset, if possible, the latched internal diagnostic indicators
mounted on the Main Board.

These indicators are summarised on the front display as "SYSTEM FAULT".

6.6.2   OPERATING SEQUENCE

|	
CLEAR	Press "CLEAR" key once. - Only required to clear any partially entered key sequence.
FUNCTION SELECT	Press "FUNCTION SELECT" key once. - "SYSTEM FUNC/TEST" LED indicator will be flashing rapidly.
4 SYS FLT RST	Press "SYS FLT RST (4)" key once. - The "WATCHDOG", "DISPLAY FAULT", and "SOFTWARE FAULT" LED indicators (on the Main Board) latch, to assist service personnel during trouble shooting. - If the fault condition no longer exists 'SYS FLT RST' clears the fault indicator.

6.6.3   NOTES

(a)   System Fault Reset should only be performed by Service Technicians or authorised fire safety personnel.

(b)   System Fault Reset should only be performed after the indicators on the Main Board have been viewed and noted.

Chapter 7
OPERATING INSTRUCTIONS
- ZONE FUNCTIONS

7.1   ZONE TEST

7.1.1   FUNCTION

VALID FOR: F4000 FIP ONLY

To test the circuit inputs of a selected alarm zone and send test alarm
signals to the Brigade. Two tests are performed:

      (a)   A true fault simulation test
      (b)   A true alarm simulation test.

WARNING: This test performs a true zone test, time delays operate,
and all outputs operate, including MASTER ALARM OUTPUT.

7.1.2   OPERATING SEQUENCE

OPTION: To prevent mapped outputs from operating "ISOLATE" the zone
first.

    -    Refer to "Zone Isolate or De-Isolating" section.

CLEAR	Press "CLEAR" key once. - Only required to clear any partially entered key sequence.

X	X	X	Enter Zone Number "1" to "528"
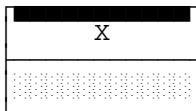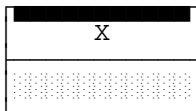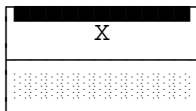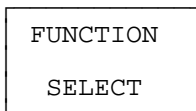
FUNCTION SELECT	Press "FUNCTION SELECT" key once. - The Zone "ALM", "FLT" and "ISO" LED indicators will be flashing rapidly.
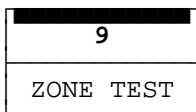
9 ZONE TEST	Press "ZONE TEST (9)" key once. - The "SYSTEM FUNC/TEST" LED indicator will be flashing slowly. - A test fault signal is applied to all circuits mapped to that zone.

- Once all the circuits have gone into the fault state, the FAULT indicator and fault sounder are turned on, if that zone is not isolated.

- If any circuit is not found to enter the FAULT state in response to the test signal the test fails, the "FAULT" indicator stays OFF and the buzzer sounds its "TEST FAIL" cadence.
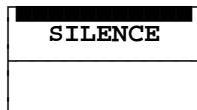
SILENCE

Press "SILENCE" key once.

- The fault sounder is silenced.

- The Fault indicator is turned OFF for non-latching zones.

- The test fault condition is removed and a test alarm condition is applied to the zone circuits.

- Once all circuits have gone into alarm the "ALARM" indicator flashes and the alarm sounder is turned on, unless the zone is isolated.

- If all the circuits do not enter the ALARM state in response to the applied test ALARM signal the zone "ALARM" indicator remains OFF and the buzzer sounds its "TEST FAIL" cadence.
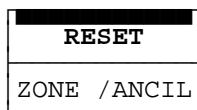
RESET
ZONE /ANCIL

Press "RESET : ZONE /ANCIL" key once.

- The alarm is silenced.

- The Alarm and Fault indicators are turned OFF.

- The zone under test is reset and the test is terminated.

7.1.3   EXIT ZONE TEST
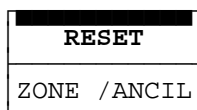
RESET
ZONE /ANCIL

Press the "RESET : ZONE /ANCIL" key at any time to abort the ZONE TEST function.

- Zone circuits under test are reset and returned to normal.

7.1.4   EXIT TEST - LEAVE IN FAULT

After the zone is in FAULT, double press the "SILENCE" key.

- The amber "FLT" LED indicator will remain ON, for latching zones only.

- To continue to alarm test re-enter the zone test command.

- To clear the fault reset the zone.

7.1.5   EXIT ALARM TEST - LEAVE IN ALARM

After the zone is in ALARM, press the "SILENCE" key once.

- The red "ALM" LED indicator will remain ON, for latching zones only.

- To clear the alarm, select the zone and reset.

7.1.6   NOTES

(a)   An Alarm detected on the zone under test when one is not expected (eg during the FAULT test) is processed normally and the test aborted. Similarly faults during the ALARM test activate the fault sounder and terminate the test.

(b)   During the zone test sequence any other zones to which the tested circuits are mapped behave as they would normally under the given FAULT and ALARM conditions.

(c)   All alarm processing delays (AVF sequences, etc) are still active so the alarm response time may be up to 60 seconds, depending on the circuit type.

(d)   An AVF delay sequence initiated by a zone test continues as it normally would when the zone test is terminated by the SILENCE key. That is, a re-test of the same zone within 120 sec will give an instant alarm.

(e)   The test condition is automatically removed from the circuits after 120 seconds.

(f)   Alarms on any non-isolated zones other than that under test terminate the test and removes all test signals. The alarm is then treated normally.

(h)   On Flow Switch Zones the test relay will operate for 2 minutes if no alarm is received, causing the test to fail.

(i)   It is not possible to start a zone test if there is an un-acknowledged alarm or fault present; or there is an Auto, System, Battery, Zone or Auto-Reset Test in progress.
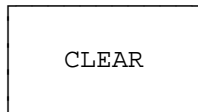
7.2   ZONE ISOLATE or DE-ISOLATE

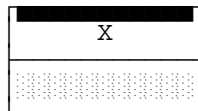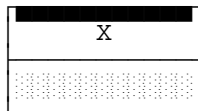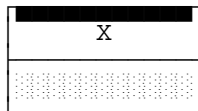### 7.2.1   FUNCTION

VALID FOR: F4000 FIP ONLY.

To isolate or de-isolate a selected zone.
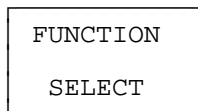
7.2.2   OPERATING SEQUENCE

CLEAR	Press "CLEAR" key once. - Only required to clear any partially entered key sequence.

X	X	X	Enter Zone Number "1" to "528"

FUNCTION SELECT	Press "FUNCTION SELECT" key once. - Selected zone "ALM", "FLT" and "ISO" LED indicators will be flashing rapidly.
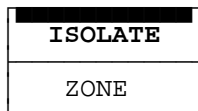
ISOLATE ZONE	Press "ISOLATE" key once. - If the amber "ISO" LED indicator was OFF, it will be turned ON to indicate the zone is isolated. - If the amber "ISO" LED indicator was ON, it will now be turned OFF to indicate the zone is de-isolated.

7.2.3   **NOTES**

(a)   The isolated zone(s) will register and indicate alarm and
               faults but are prevented from operating system outputs.

(b)   If the zone is in Auto-Reset mode, a zone isolate command
               will exit Auto-Reset mode and isolate the zone.

(c)   Any fault indication is unaffected by Zone Isolate/
               De-Isolate.

(d)   An un-silenced alarm indication will go steady on isolate
               and any alarm will become unsilenced on De-Isolate.

(e)   Leading zeros on zone numbers are not required.

7.3　　　　　ANCILLARY TEST

7.3.1　　FUNCTION
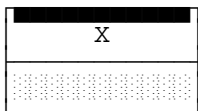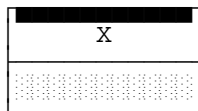
VALID FOR:　　**F4000 FIP ONLY.**

To test the operation of the "ANCIL Ø" relay or any ANCILLARY CONTROL ZONE, if configured.

7.3.2　　OPERATING SEQUENCE

CLEAR	Press "CLEAR" key once.
	- 　　Only required to clear any partially entered key sequence.

X	X	X	Enter ACZ Zone Number
			"Ø" to "528"
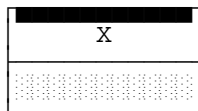
FUNCTION SELECT	Press "FUNCTION SELECT" key once.
	- 　　For ACZ from 1 to 528, the selected ACZ "ALM", "FLT" and "ISO" LED indicators will be flashing rapidly.
	- 　　For ACZ = Ø, the "ANCIL Ø ISOLATED" and "ANCIL Ø FAULT" LED indicators will be flashing rapidly.
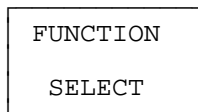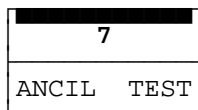
7 ANCIL TEST	Press "ANCIL TEST (7)" key once.
	- 　　The selected ancillary control zone is automatically isolated during this test, as indicated by the ACZ "ISO" indicator, or the "ANCIL Ø ISOLATE" indicator.
	- 　　The actual outputs are not operated unless the zone is de-isolated within the next 30 seconds.

7.3.3   TEST OPERATION

The ancillary is ACTIVATED for 30 seconds, as indicated by the ACZ's "ALM" indicator.

The actual outputs however, do not operate unless the ACZ is de-isolated during this period, in which case the outputs operate for 5 seconds, after which the test terminates.

On completion of the test the ancillary control zone returns to its pre-test isolate state.

7.3.4   EXIT TEST

RESET
ZONE /ANCIL

Press the "RESET : ZONE/ANCIL" key once, to abort the test at any time.

OR

SILENCE

Press the "SILENCE" key once, to abort the test at any time.

7.3.5   NOTES

(a)   An attempt to test an already operated ACZ results in an error beep and no test is initiated.

(b)   If an alarm or fault condition occurs during an output test, the test is immediately terminated.

(c)   It is possible to test only one ACZ at a time. (Note that one ACZ may include more than one relay, depending on the number of relays mapped to that zone).

(d)   Leading zeros on zone numbers are not required.

(e)   If no zone number is entered then it is assumed that "ANCIL 0" is to be tested.

(f)   An Ancillary Test cannot be started if there is an un-acknowledged alarm or fault present; or if an Auto, System, Battery, Zone or Auto Reset Test is in progress.

7.4   ANCILLARY ZONE ISOLATE / DE-ISOLATE

7.4.1   FUNCTION

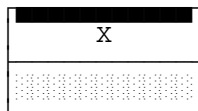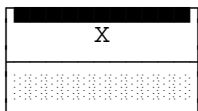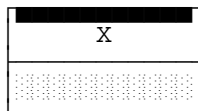**VALID FOR:**   **F4000 FIP ONLY.**

To allow isolation or de-isolation of the "ANCIL 0" output, or any
ancillary control zone (ACZ), if configured.

7.4.2   OPERATING SEQUENCE

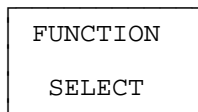| CLEAR	Press "CLEAR" key once.

-      Only required to clear any partially entered key
       sequence.

X	X	X	Enter ACZ Zone Number

"0" to "528"

FUNCTION SELECT	Press "FUNCTION SELECT" key once.

-      For ACZ from 1 to 528, the selected ACZ
       "ALM", "FLT" and "ISO" LED indicators will be
       flashing rapidly.

-      For ACZ = 0, "ANCIL 0 ISOLATED" and "ANCIL 0
       FAULT" LED indicators will be flashing rapidly.

8 ANCIL ISO	Press "ANCIL ISO (8)" key once.

-      If the amber "ANCIL ISO" indicator was OFF, it
       will now be ON, and the Ancillary Output is
       isolated.

-      If the amber "ANCIL ISO" indicator was ON, it
       will now be OFF, and the Ancillary Output is de-
       isolated.

7.5 ZONE OR ANCILLARY RESET

7.5.1 FUNCTION

VALID FOR: F4000 FIP ONLY.

With a Zone selected pressing the "RESET" key performs the following functions:
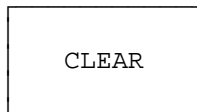
(a)   For Alarm Zone Circuits:

- Resets all circuits mapped to the selected zone.
- Clears ALARM and FAULT conditions and indications.
- Silences the alarm and fault sounder, if no other alarms or faults exist.
- Removes the Zone from Zone Test.
- Returns the zone from Auto-Reset mode to normal.

(b)   For Ancillary Control Zones:

- Resets any latched "FAULT" indicator associated with the selected ancillary control zone.

7.5.2 OPERATING SEQUENCE

| CLEAR | Press "CLEAR" key once. |

- Only required to clear any partially entered key sequence.

| X | X | X | Enter Zone Number |

"Ø" to "528"
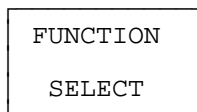
| FUNCTION SELECT | Press "FUNCTION SELECT" key once. |

- For Zones (AZC & ACZ), the selected zone "ALM", "FLT" and "ISO" LED indicators will be flashing rapidly.

- For ACZ Ø, the "ANCIL Ø ISOLATED" and "ANCIL Ø FAULT" LED indicators will be flashing rapidly.

| **RESET** |
| ZONE /ANCIL |

Press "RESET : ZONE/ANCIL" key once.

-       Any red alarm indicators that were steady
        or flashing will be turned OFF and the alarm
        circuit(s) reset.

-       Any amber fault indicators that were showing
        will be turned OFF.

7.5.3   NOTES

(a)   If any circuit is still in alarm or fault, then after the
            circuit input delay the zone will return to that state.

(b)   If the amber fault indicator reappears, then isolate the
            zone and call service.

(c)   Leading zeros on zone numbers are not required.

7.6	AUTO-RESET MODE

7.6.1   FUNCTION

VALID FOR: F4000 FIP ONLY.

Allows testing of all detectors on an Alarm Zone Circuit without the
need for a second person resetting alarms at the FIP.

Auto-Reset mode isolates the zone from outputs, and automatically resets
detectors in alarm on the AZC being tested.

When in Auto-Reset mode, the alarm bell will operate for 2 seconds when
the zone goes into the alarm condition unless the bells output is
isolated or the zone is not mapped (programmed) to operate the bells.

WARNING: If a circuit is mapped to two or more zones, then it
                   is necessary to isolate the other zones or ancillary
                   control zones, otherwise alarms or outputs could be
                   inadvertently activated.

7.6.2   OPERATING SEQUENCE
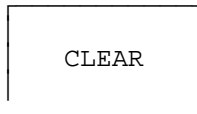
CLEAR

Press "CLEAR" key once.

-       Only required to clear any partially entered key
                   sequence.

X	X	X

Enter Zone Number

"1" to "528"

FUNCTION
SELECT

Press "FUNCTION SELECT" key once.

-       The selected zone "ALM", "FLT" and "ISO" LED
        indicators will be flashing rapidly.

Ø
AUTO RESET
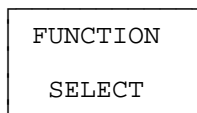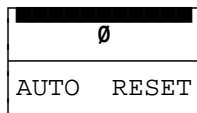
Press "AUTO RESET (Ø)" key once.

-       Zones in auto-reset will be indicated by
        a FLASHING "ISO" LED indicator.

-       Detectors on the Alarm Zone Circuits are now
        ready for "IN-SITU TESTING".

7.6.3   TEST OPERATION

While in the AUTO RESET mode the zone is automatically isolated from all mapped outputs except the alarm bell which operates for 2 seconds when the zone goes into alarm (unless the bells output is isolated, or the zone is not configured to operate the bells).
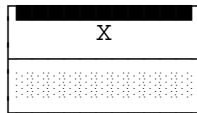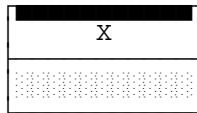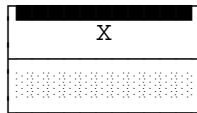
On operation of a detector and after the 2 second transient suppression delay the zone circuit will go into the alarm condition and stay in that condition for 8 seconds to allow the detector LED to be checked. The detector circuit is then reset for 15 seconds to allow smoke or heat to clear.

To assist with identification of the detectors that are wired to particular alarm zones the zone alarm indicators latch in this mode of operation, flashing when an alarm condition is present on the circuit and steady on the removal of the alarm condition.

If a fault occurs on a zone in Auto-Reset mode then the Fault LED latches on steady until the end of auto-reset mode, even if the zone is programmed as non-latching.

Resetting or Isolating the zone will cancel the auto-reset mode.

7.6.4   EXIT TEST

WARNING:

A detector on the zone may have gone into an permanent alarm. e.g. a fusible link heat detector excessively exposed to heat during the test.

Before resetting the zone, wait for approximately 20 seconds and ensure that the ALARM LED is STEADY. If it is flashing during this period, "ISOLATE" the zone and investigate for faulty detectors.
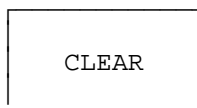
CLEAR	Press "CLEAR" key once.
	- Only required to clear any partially entered key sequence.

X	X	X	Enter Zone Number
			"1" to "528"

FUNCTION SELECT	Press "FUNCTION SELECT" key once.
	- The selected zone "ALM", "FLT" and "ISO" LED indicators will be flashing rapidly.

```
┌─────────────────┐
│█████████████████│
│     RESET       │
├─────────────────┤
│  ZONE /ANCIL    │
└─────────────────┘
```
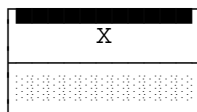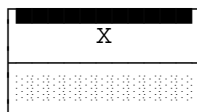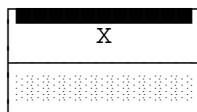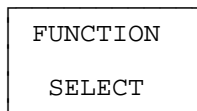
Press "RESET : ZONE/ANCIL" key once.

-       The zone will be removed from "AUTO-RESET" mode,
        and will reset those zone circuits under test
        that are not mapped to by other zones under
        test.

OR

```
┌─────────────────┐
│█████████████████│
│    ISOLATE      │
├─────────────────┤
│      ZONE       │
└─────────────────┘
```

Press the "ISOLATE" key once to isolate the zone
under test.

-       The zone will be removed from "AUTO-RESET" mode
        and isolated, irrespective of the alarm state
        and the isolate state before the test was
        started.

7.6.5   NOTES

(a)   Mutiple zones can be set to "AUTO-RESET" mode at the same
            time.

(b)   Zones set to "AUTO-RESET" mode are not effected by the
            pressing of "TEST" or "SILENCE" keys. A KEY ERROR tone will
            be sounded.

(c)   "AUTO-RESET" mode cannot be entered if there is any Zone,
            Ancillary, Auto, System, or Battery Test in progress.

(d)   If any zone is in "AUTO-RESET" mode then it is not possible
            to perform a Zone, Ancillary, System or Battery Test.

(e)   All programmed input time delays (e.g. alarm verification)
            are overridden to allow the basic operation of the detectors
            to be easily tested.

(f)   The internal sounder is not operated by a zone in "AUTO-
            RESET" mode.

(g)   A zone in "AUTO-RESET" mode will automatically return to
            normal operation after ONE HOUR from the last alarm
            received. However no reset signal is applied to the alarm
            zone circuits.

(h)   To exit the "AUTO-RESET" Mode, select the zone and press
            "RESET" or "ISOLATE" keys. The isolate key should be used
            if the alarm LED is still flashing, as the zone will not
            reset.

(i)   Global "RESET" or "ISOLATE" keys and resetting of zones not
            under test, will not affect any of the zones or circuits in
            Auto-Reset mode.

Chapter 8

PLACING INTO OPERATION

8.1   GENERAL

This chapter describes the correct procedure to place into operation a
correctly aligned and adjusted F4000 FIP and F4000 RZDU.

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

The FIP's main components are shown in Figure 8.1, which shows an F4000
FIP interior view with both its outer and inner doors hinged open. The
main components are:

(a)   MAINS POWER SUPPLY/BATTERY CHARGER:

A modular unit capable of supplying power to run the FIP, attached
Responders, auxiliary devices, and to charge standby batteries as
required by AS1603.4.

(b)   MAIN CONTROL BOARD

Contains all the FIP processing power and interfaces to all system
inputs and outputs, for example:

i.   Communication links to the Responders, RZDUs, programming
       terminal, etc.
ii.   Output status data to the FIP indicators, relays to signal
       the Brigade, start bells, control ANCIL 0 relay, etc.
iii.   Inputs from the FIP keypad.

(c)   KEY BOARD

Provides a 16 key keypad for operator / Brigade control of the
FIP, plus 8 LEDs indicating the state of selected common and
supervisory outputs (eg - MAINS ON, SYSTEM FAULT, etc.)

(d)   DISPLAY BOARD

A module used to display the ALARM, FAULT and ISOLATE conditions
of up to 16 zones. An FIP can house up to three 16 zone Display
Boards. Systems of more than 48 zones can be easily accommodated
by adding further Display Boards in F4000 extender panels. The
F4000 can also be assembled in 19" rack cabinets, in which case 64
zones can be displayed per 7U module and the total number of zones
per cabinet will depend on the cabinet size. The ALARM, FAULT and
ISOLATED conditions of each zone are indicated by separate LED
indicators.

Figure 8.1 **F4000 FIP Internal View**

8.2   MAINS ISOLATE SWITCH

To switch the F4000 FIP or RZDU panels ON or OFF, first open the front
protective door and the inner display door.

The "MAINS ISOLATE SWITCH" is located at the top left hand side of the
cabinet rear, to the left of the mains transformer.

This switch controls the mains power supply to the panel, including the
battery charger.

The normal position of this switch is ON, and it should only be turned
OFF (ie MAINS ISOLATED), when testing that the FIP will run on batteries
or by maintenance personnel.

NOTE: **The Battery is not disconnected by the "MAINS ISOLATE
SWITCH".**

8.3   POWER UP

To place a correctly installed F4000 FIP into operation perform the
following steps:

STEP 1   Ensure that the Mains Isolate Switch is OFF.

STEP 2   Ensure that 240 VAC is available to the panel from the mains
distribution switchboard.

STEP 3   Turn the Mains Isolate Switch ON.

STEP 4   Check that the keyboard green "MAINS ON" LED indicator is
illuminated and all other LED indicators are OFF.

STEP 5   Perform a System Test.

STEP 6   Install Batteries.

STEP 7   Perform a Battery Test.

-          If Battery fails; check battery connections; if
battery flat, leave for 24 hours and retest.

8.4   COMMISSIONING CHECKLIST

The following commissioning checklist should be copied and completed
upon commissioning of the F4000 FIP and F4000 RZDU. It should be placed
with other System Configuration Information.

8.4.1   CABINET

A)   Cabinet colour - Standard Cream Wrinkle (BFF 998 CW) .... ☐

                 - Other: _____ ☐

B)   Cabinet undamaged (Paint OK) .... ☐

C)   Doors aligned OK .... ☐

D)   Windows undamaged and fitted correctly .... ☐

E)   MCP fitted and undamaged .... ☐

F)   Cabinet Door locks firmly .... ☐

G)   Key Lock - 003 Type .... ☐

               - Other: Specify _____ ☐

H)   Two Keys Supplied .... ☐

I)   Cabinet Sealed - To dust level only (check top entries) .... ☐

               - To other: Specify _____ ☐

J)   Display Window undamaged and fitted correctly .... ☐

8.4.2   POWER SUPPLY

A)   Number of Power Supplies Fitted (1 to 3) .... ☐

B)   - If more than 1, Configuration Master/Slave/Slave OK ...... ☐

C)   Mains Wired correctly, Cover secured .... ☐

D)   "Mains Isolate Switch" and "Mains Earth" labels fitted ..... ☐

E)   Mains Earth wired correctly and securely fitted .... ☐

F)   AC Fuse F1; Fitted and Rated at 5.0 A .... ☐

G)   +VBF Fuse F2; Fitted and Rated at 1.6 A .... ☐

H)   Bells Fuse F3; Fitted and Rated at 1.6 A .... ☐

I)   +VNBF Fuse F4; Fitted and Rated at 1.6 A .... ☐

J) Mains Voltage Level - 240 VAC +6% -10%	VAC
K) Charger Voltage at Batt + (27.25 - 27.35 VDC)	VDC
- (20°C NOM, with batteries disconnected)	
L) Quiescent Panel Current (FROM BATTERY)	A
M) Panel ALARM current (TWO ZONES, FROM BATTERY).......	A
N) Battery Fitted - Type _____: Rating	AH

8.4.3   MAIN BAORD

A)   Fitted correctly and securely on standoffs .... ☐

B)   Main PSU Loom fitted correctly .... ☐

C)   PSU Monitor FRC Loom fitted correctly .... ☐

D)   Display Board FRC Loom fitted correctly .... ☐

E)   Keyboard FRC Loom fitted correctly .... ☐

F)   MCP wires fitted to J18 (MCP) .... ☐

G)   Microswitch wires fitted to J40 (Inner Door) .... ☐

H)   If fitted, Outer Door switch wired to J41 .... ☐

I)   Earth wires fitted correctly (2 off) .... ☐

8.4.4   DISPLAY(S) / KEYBOARD

A)   Total Number of Display Boards : _____ fitted OK..... ☐

B)   Display LEDs aligned OK and all intensities similar .... ☐

C)   Indicators hard against display window .... ☐

D)   FRC connectors secure .... ☐

E)   "Last Board Link" in place .... ☐

F)   Zone Indentification Label fitted behind display .... ☐

G)   Unused display windows masked with paper .... ☐

H)   System Status LEDs on Keyboard aligned OK .... ☐

I)   Command Key Label/Mylar undamaged and fitted correctly ..... ☐

J)   Keypad Operation OK .... ☐

8.4.5   OPERATION

A)   Normal Operation - Only "MAINS ON" LED ON .... ☐

B)   System Test OK .... ☐

C)   Battery Test OK .... ☐

D)   Display Test OK .... ☐

E)   Bell Test OK .... ☐

F)   MCP Programmed to Zone 1; Other: _____ OK .... ☐

G)   "ALM" LED on MCP Zone flashes & pulsed tone sounder .... ☐

H)   Local Bells Operated .... ☐

I)   Bell Isolate function and indication OK .... ☐

J)   Sounder operates on alarm & fault OK .... ☐

K)   "RESET" clears ALARM condition OK .... ☐

L)   Standby, Fault, Isolate, Alarm Relays operate OK .... ☐

8.4.6   **INSTALLATION CHECKLIST**

A)   All detectors listed in Appendix A .... ☐

B)   Number of detectors per circuit not exceeded .... ☐

C)   Detectors suitable for environment installed in .... ☐

D)   Detectors and FIP located according to standards .... ☐

E)   Measure and Record AZC alarm & fault voltages .... ☐

F)   Open and Short circuit each EOL - fault & alarm as approp? . ☐

G)   Zone test all AZC .... ☐

H)   Switch on/off AC 5 times - No false alarms .... ☐

I)   All detectors generate alarm on correct zone .... ☐

J)   All MCPs generate alarm on correct zone .... ☐

K)   All Ancillary Control Zone outputs tested .... ☐

L)   MAF test to Fire Control Station .... ☐

M)   All zones labelled according to location / function .... ☐

8.4.7   **FINAL CHECK**

A)   As Installed Information Drawings Provided .... ☐

B)   As Installed Configuration Parameters provided .... ☐

C)   Installation Information completed on
     page ii of Operator's Manual .... ☐

D)   Presentation (Interior neat, clean) .... ☐

E)   Vigilant Rating Label completed .... ☐

F)   System Configuration Manual provided .... ☐

G)   Operator's Manual Provided (STANDARD) .... ☐

H)   Technical Manual Provided (OPTIONAL) .... ☐

I)   Log Book Provided (Commissioning Details Entered) .... ☐

J)   Copy of this check list Completed .... ☐

K)   Panel Serial Number .... _____

L)   Main Board Serial Number .... _____

M)   PSU PCB Serial Number .... _____

N)   Keyboard Serial Number .... _____

O)   Display Board(s) Serial Number(s) .... _____
                                                         _____
                                                         _____

COMMISSIONING CHECKLIST COMPLETE   =>   PASSED

-    Date of Test: _____

-    Name of Tester: _____

-    Signature: _____

-    Owner Respresentative: _____

-    Signature: _____

8.4.8   **FAULT LIST**

_____

_____

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Chapter 9

SYSTEM MAINTENANCE

and TROUBLE SHOOTING

9.1   SYSTEM MAINTENANCE

The F4000 System is designed for high reliability and minimum maintenance. However, in order to comply with the requirements of AS1851.8, the owner/occupier (or a nominated representative) must carry out system tests on a regular basis.

9.1.1   WEEKLY TESTING

The recommended procedure for weekly testing is:

STEP 1:   Advise the local Fire Control Station, if required, that you are about to undertake a routine test of the fire system. Inform all building occupants that the fire bells will be tested.

STEP 2:   Perform a System Test.

STEP 3:   Test ONE alarm zone.

                  – Verify that: (a)   Bells are Operated.
                                    (b)   Alarm Signal is received by the Fire Control Station.

STEP 4:   Perform a Battery Test.

STEP 5:   Record the results of these tests in the Log Book.

STEP 6:   Inform the local Fire Control Station and all others concerned that the test is concluded.

9.1.2   MONTHLY TESTING

In addition to the Weekly Testing described above, perform the following
monthly tests:

STEP 1:   Test each zone in turn for alarm and fault.

STEP 2:   Test outputs and audible alarms.

STEP 3:   Perform a LED Test.

STEP 4:   Visually inspect the cabinet and panel to ensure it is
               clean, operable and intact. Inspect the dust seal, and
               ensure that it is undamaged.

STEP 5:   Record the results of these tests in the Log Book.

STEP 6:   Inform local Fire Control Station and all others concerned
               that the test is concluded.

NOTE: If there are Sub-Indicator Panels, RZDUs, Mimics, Repeater
               Panels, etc; these also require testing and inspecting.

9.1.3   ANNUAL TESTING

Australian Standard AS1851.8 requires that all fire detection and alarm
systems be thoroughly tested each year by a competent maintenance
company.

The service company should ensure that the performance of the procedure
set out in AS1851.8 is witnessed by the owner of the F4000 System
installation, or their authorised agent.

9.1.4   SYSTEM REPAIR

If the F4000 System develops a fault condition which cannot be solved by
following Basic Trouble-Shooting, please call your maintenance company.

It is strongly advised that "ON SITE" repair of the F4000 boards or
responder units should not be done.

Replace any suspected faulty boards/modules.

9.2   TROUBLE-SHOOTING

9.2.1   PRELIMINARY INVESTIGATIONS

To prevent unnecessary service calls, or in the event of a genuine call, to save time and provide the service company with accurate data the owner/occupier can carry out the following checks before requesting service:

a)   UNWANTED ALARMS: Make a note of the affected zone(s). It will also be helpful if you record the time of the unwanted alarm.

b)   FAULTS: If the fault sounder operates, make a note of all indicators alight at the time. Press the "SILENCE" key to silence the fault sounder if necessary.

Table 9.1 gives a summary of typical fault conditions, reasons, and suggested actions to be taken.

9.2.2   PREVENTION OF FALSE ALARMS

All fire detection systems rely on their ability to identify atmospheric or environmental changes brought about by the presence of fire. They employ various types of sensors to monitor specific conditions. These devices signal a warning when an abnormal condition exists, indicating either the actual presence of a fire or the immediate likelihood of an outbreak.

Detectors monitor a number of phenomenon, which include smoke, heat, flame, pressure, or the presence of combustion products such as gases. However, some or all of these conditions may appear in different locations when there is no fire present. For example:

(a)   **HEAT SOURCES**; The sudden increase in local temperature when a furnace door is opened can trigger heat sensors.

(b)   **DRAUGHTS**; Wind-induced surges of steam or dust can cause smoke detectors to generate an alarm signal.

(c)   **ENVIRONMENT CHANGES**; Changes to wall partitions, Air-Duct position or air velocity can cause detectors to be forced into continuous alarm.

(d)   **UNUSUAL ACTIVITIES**; Portable welding units can activate flame detectors, while spray-painting 'drift' can trigger smoke detectors.

It is therefore highly recommended that the service company be notified of any proposed physical, environmental or occupancy changes.

TABLE 9.1
Trouble-Shooting

CONDITION	REASON	ACTION
"MAINS ON" LED OFF	MAINS SWITCH OFF REPORTED POWER BLACKOUT	Turn Mains Switch ON Check that LED turns ON when power is restored
	ACCIDENTAL TRIPPED CIRCUIT BREAKER	Reset Circuit Breaker & check "MAINS ON" LED
	NONE OF ABOVE	CALL SERVICE COMPANY
LED STEADY – "CHARGER HI/LO"	CHARGER VOLTAGE HIGH - Damage to Battery Possible	CALL SERVICE COMPANY
	CHARGER VOLTAGE LOW - Battery will not charge correctly	
LED FLASHING – "BATTERY FLT"	BATTERY DISCONNECTED	Re-connect Battery leads
	BATTERY CHARGE LOW	Check Again in 24 Hours
	BATTERY MALFUNCTION	CALL SERVICE COMPANY
"SYSTEM FAULT" LED ON	WATCHDOG DISPLAY FAULT SOFTWARE FAULT on FIP RZDU FAULT on FIP LOOP FAULT on FIP SCAN FAIL on RZDU	CALL SERVICE COMPANY
"ANCIL Ø FAULT" LED STEADY OR ANCIL CONTROL ZONE IN FAULT - Cannot clear on reset	Ancillary Output Circuit is open circuited	Check Load Device Check Terminal Wiring Check External Wiring
	Ancillary Relay faulty or shorted	CALL SERVICE COMPANY
ZONE IN FAULT - Cannot clear on zone reset	FAULTY DETECTOR FAULTY EOL WIRING FAULT	CALL SERVICE COMPANY

NOTES

APPENDIX A

A.1 ADR ACTUATING DEVICE COMPATIBILITY

The following detectors, as well as hard contact devices, are compatible with the F4000 System ADVANCED DETECTOR RESPONDER. The maximum number of detectors per circuit is indicated by the columns 4mA, P, R and IS, for the 4mA ADR (FP0523 with EOL002Z), 2.5mA ADR (FP0472 with EOL002Z), 39K OHM resistive end of line device and Intrinsically Safe applications, respectively.

Table I
OLSEN Detector Range

DETECTORS CERTIFIED WITH F4000 FIP (SSL #131)		MAX NO.			
Type	Description	4mA	P	R	IS
B111B	Beam type Smoke Detector (See note 7)	40	40	40	0
B21B	Beam type Smoke Detector	1	1	0	0
C23B *&	Ionization Smoke Detector	40	25	1	0
C23BEx *	Ionization Smoke Detector (IS)	40	25	1	20
C24B	Ionization Smoke Detector	40	40	1	0
C29B	Ionization Smoke Detector	40	40	2	0
C29BEx	Ionization Smoke Detector (IS)	40	40	2	40
C75B	Ionization Smoke Detector	40	40	4	0
FW81B	Heat Detector Cable FW68, FW105 (IS)	1	1	1	1
P24B	Photoelectric Smoke Detector	40	25	1	0
P29B	Photoelectric Smoke Detector	32	20	1	0
P61B *	Photoelectric Smoke Detector (Rev J)	40	10	0	0
P75B	Photoelectric Smoke Detector	40	40	1	0
P76B	Photoelectric Smoke Detector Non-Latching	18	12	1	0
R23B &	InfraRed Flame Detector	30	19	0	0
R24B	Dual Spectrum Infrared Flame Detector	13	3	0	0
R24BEx +	Dual Spectrum Infrared Flame Detector (IS)	13	3	0	5(1)

**Table I
OLSEN Detector Range
(Continued)**

DETECTORS CERTIFIED WITH F4000 FIP (SSL #131)		MAX NO.			
Type	Description	4mA	P	R	IS
T54B +	Probe Type E Heat Detector (IS or Flameproof)	40	40	40	40
T56B	Heat Detector Types A, B, C, D (IS with Z55 Base)	40	40	40	40
V41B	Ultraviolet Flame Detector (Notes 4,7,8)	40	40	40	0
V42B	Ultraviolet Flame Detector (Flameproof - Note 9)	40	40	40	40

**Table II
HOCHIKI Detector Range**

DETECTORS CERTIFIED WITH F4000 FIP (SSL #131)		MAX No.		
Type	Description	4mA	P	R
DCA-B-60R	Heat Detector Type A	40	40	40
DCA-B-90R	Heat Detector Type C	40	40	40
DFE-60B	(DFB-60B) Heat Detector Type B	40	40	40
DFE-90D	(DFB-90D) Heat Detector Type D	40	40	40
SIF-A	Ionization Smoke Detector	40	40	4
SIH-AM	Ionization Smoke Detector	40	40	4
SLK-A	Photoelectric Smoke Detector	40	40	1
SLG-AM	Photoelectric Smoke Detector	40	40	1
HF-24A	Ultraviolet Flame Detector	3	3	0

Table III
OTHER Detectors

DETECTORS			MAX No.	
Type	Description	SSL#	P	R

Note: Please enter SSL Certificate number for new approved
            detectors.

ADR ACTUATING DEVICE COMPATIBILITY
NOTES

---

1)   The maximum number of detectors per AZF/AZC allowed by the
         standard is 40.

2)   Those detectors shown in brackets have the same characteristics as
         the current models.

3)   For use in **INTRINSICALLY SAFE AREAS**, detectors must be used in
         conjunction with intrinsically safe, approved and compatible
         adaptors.

4)   Detectors indicated by a **"+"**, which are used in **HOSTILE CLIMATIC
         ENVIRONMENTS**, may be directly connected to the panel, if they are
         not required to be intrinsically safe.

5)   Detectors indicated by a **"*"**, are not current models and should
         not be used for new installations.

6)   Detectors indicated by a **"&"**, normally use an incandescent lamp
         which will have a low intensity when used with this panel.

         The lamp can be replaced with an LED kit.

7)   The B111B beam and V41B/V42B flame detectors require power from
         the fused +24 VDC supply.

8)   Hard Contact device resistance must be less than 215 Ohms (i.e.
         reduce line voltage to less than 1.85 volts), to bypass AVF, if it
         is selected.

A.2 AAR ACTUATING DEVICE COMPATIBILITY

Device Type	Max. No Per Line	Max No. Per Loop
C71A/C72A	40	200
P71A/P72A	40	200
ADU002	40	200
ADU003A	40	200
ADU004A	40	40
ADU006	40	40

The actual maximum number of devices and types per line/loop depends on
the mixture of types, cable type and cable length. Refer to the F4000
Product Manual Volume 6-2, AAR Engineering Manual for further
information.

APPENDIX B

COMPATIBLE BATTERIES

The following series of batteries are compatible with the F4000 FIP:

(a)   Sonnenschien A200 series   Up to 20 AH

(b)   Sonnenschien A300 series   Up to 9.5 AH

(c)   Power-Sonic PS12 series   Up to 24 AH

(d)   Yuasa NP Series   Up to 24 AH

Note: The Amp Hours (AH) indicated are the maximum size that can
                 be fitted in the main cabinet. Larger batteries may encroach
                 on Brigade Interface Units.