9500
Installation and User Guide
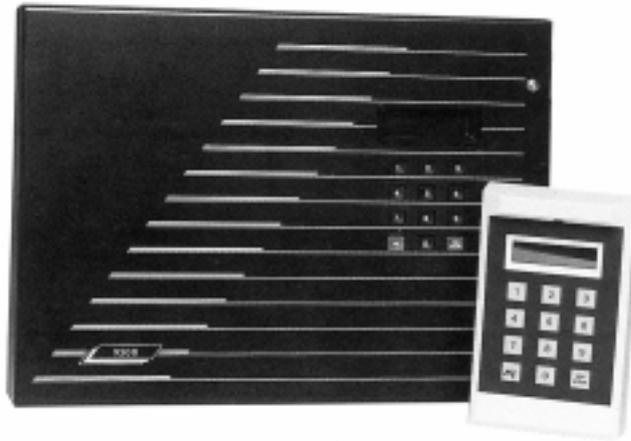
Compatible Equipment

9525	Remote Keypad
9505	LIM
9507	LIM + PSU
9508	Shunt LIM (4 zones)
9509	Shunt LIM Controller
9510	EOL LIM (3 Zones)
9585	Engineers Printer (Centronics)
9589	Printer lead (Centronics)
9590	Hardware Mimic System
9597	Computer Mimic System

Introduction

The 9500 Series System is a fully programmable, microprocessor controlled, electronic intruder alarm system designed to meet the security requirements of medium to large industrial and commercial premises.

The system operates on the "Multiplex" principle using four main data highways (or branches) from the main control panel. Each branch comprises a minimum 4-core cable, (6-core where keypads are included in branch), which may be up to 2km (2000 metres) in length and may accommodate a combination of up to 16 Line Interface Modules (LIMs), Remote Keypads and Isolation LIMs.

Figure 1. System Configuration

Each Line Interface Module has five double-pole circuits which can individually be programmed to any one of six circuit types and can feature any or all

of the seven circuit attributes, (Attributes do not apply to P.A., Technical Alarm or 24 hour circuits).

The main control panel is provided with outputs suitable for connection to a printer or a completely programmed mimic diagram system. The system will accept a plug-in digital communicator (fast format only) or a direct-line interface, which can also be used to connect the Series 9500 to "Red Care" or "ABC" (Alarms by Carrier).

Technical Specification

Zones	0-320.
Display	32 Character "Supertwist" LCD.
Expansion	By line interface modules of up to 5 circuits per LIM.
BS 4737	Full Specification.
Log	450+ events (Date andTime).
Panel Siren	No.
Internal Siren	9040 4 max.
Dimensions Panel	h x w x d 290 x 400 x 10mm.
Dimensions Keypad	h x w x d 180 x 110 x 40mm.
Weight	Panel 4.6 Kg, Keypad 500g.
Battery	6 Ah.
Communicator	
Output	Plug-on STU/ 9058/9056 by using the 9578. Signalling Conversion Interface.
Plug-on Interface	9576, 9576-01.
Outputs	Bell relay contacts, Strobe relay contacts.

Quiescent Current Ratings

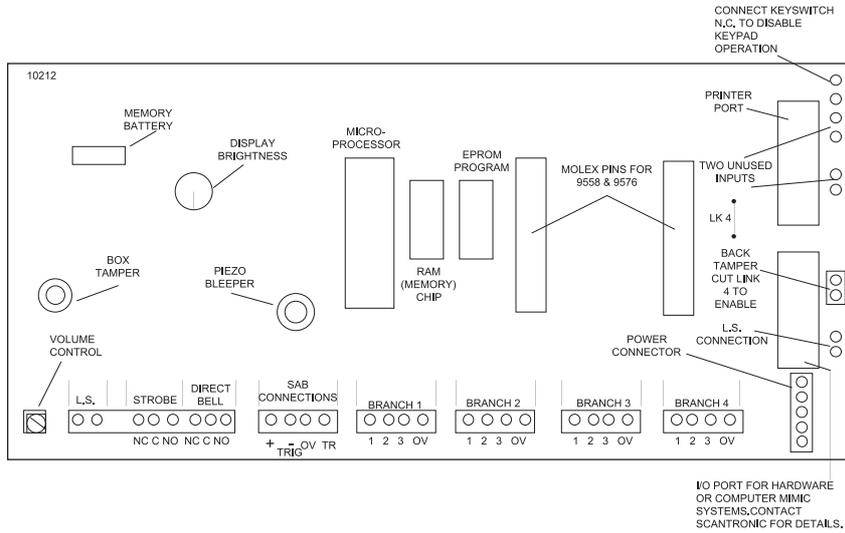|	
12 Volt Power	Quiescent: Panel 165mA, Keypad 50mA.
12 Volt AUX Output	Not available unless detector power. requirement less than 150 mA.
9500 Control Panel	165mA.
9558 Communicator	10mA.
9525 Remote Keypad	50mA.
9505 Standard LIM	10mA.
9506 Bare LIM	10mA.
9510 End Of Line LIM	10mA.
9508 Shunt LIM	10mA.
9509 Controller	12mA.

Wiring

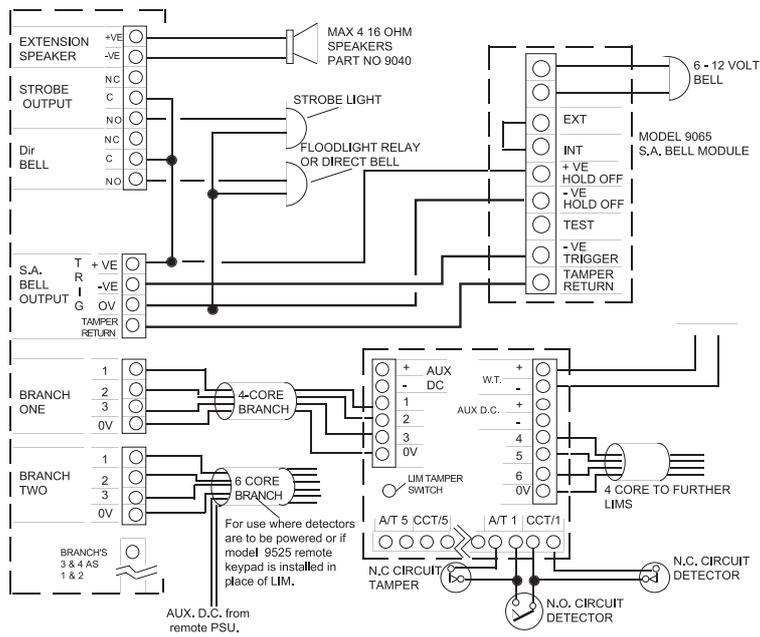

Figure 2. Main PCB Layout

Figure 3. Main PCB Connections
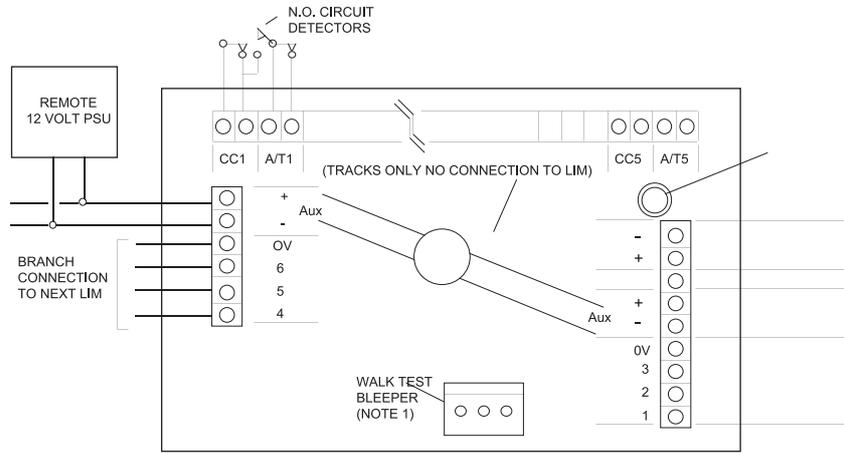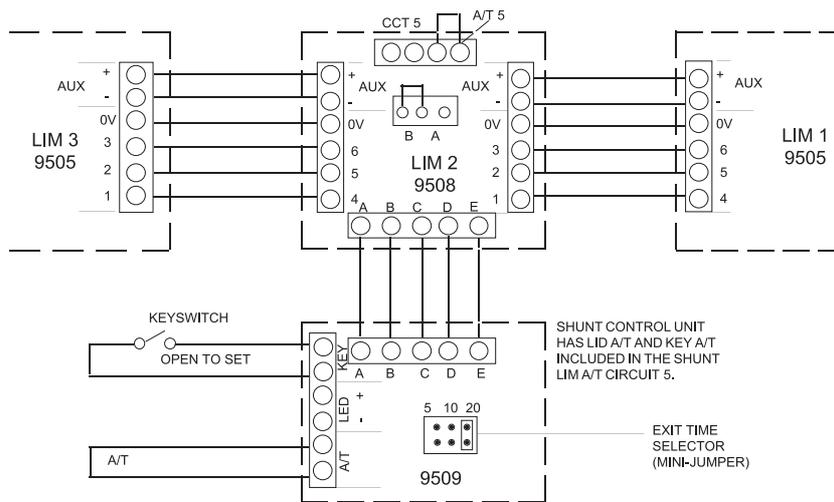
Figure 4. Standard LIM PCB

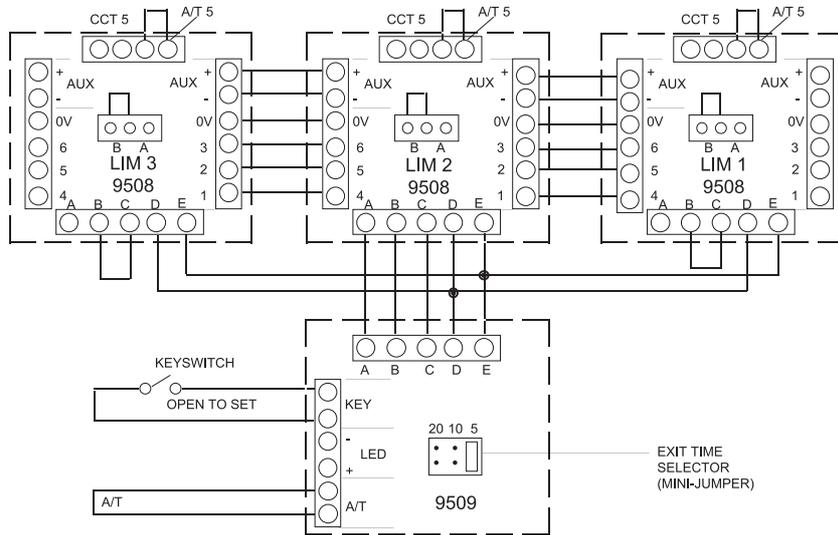Figure 5. Connection of Shunt LIM as Single Shunt

Figure 6. Connection of Shunt LIM as Multiple Shunt
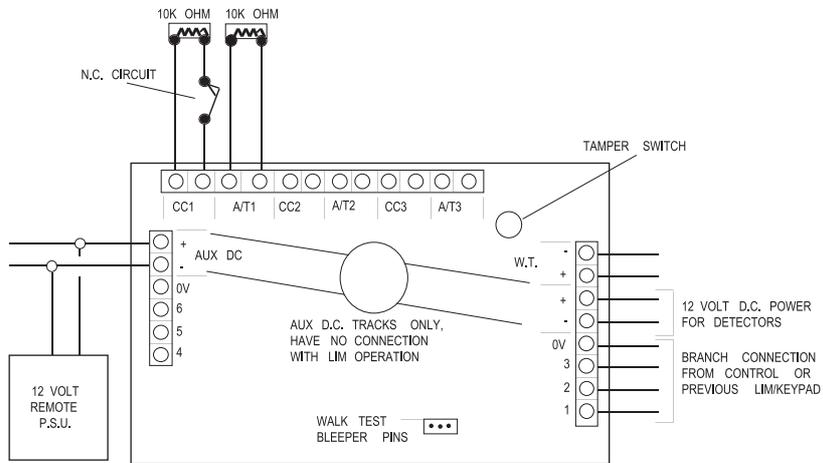
Figure 7. Connection of End of Line Resistor LIM
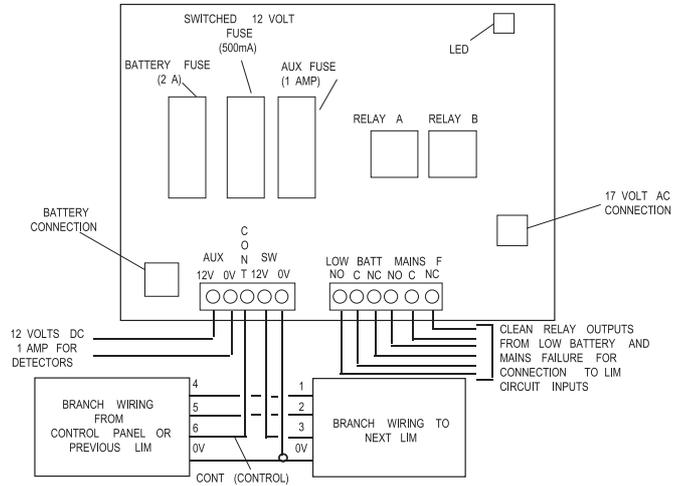
Figure 8. Remote PSU/LIM Layout and Connections
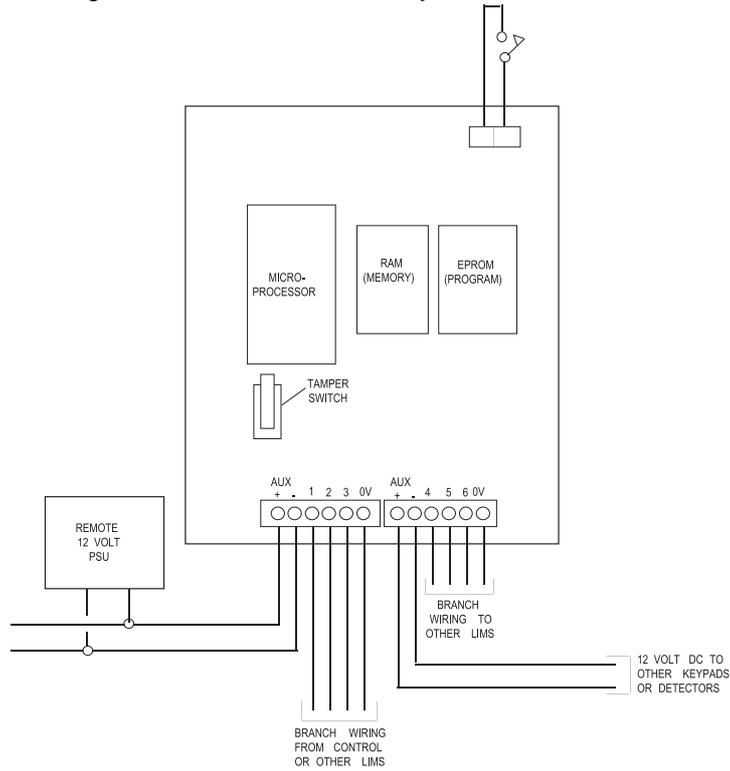
Figure 9. Remote Keypad Connections
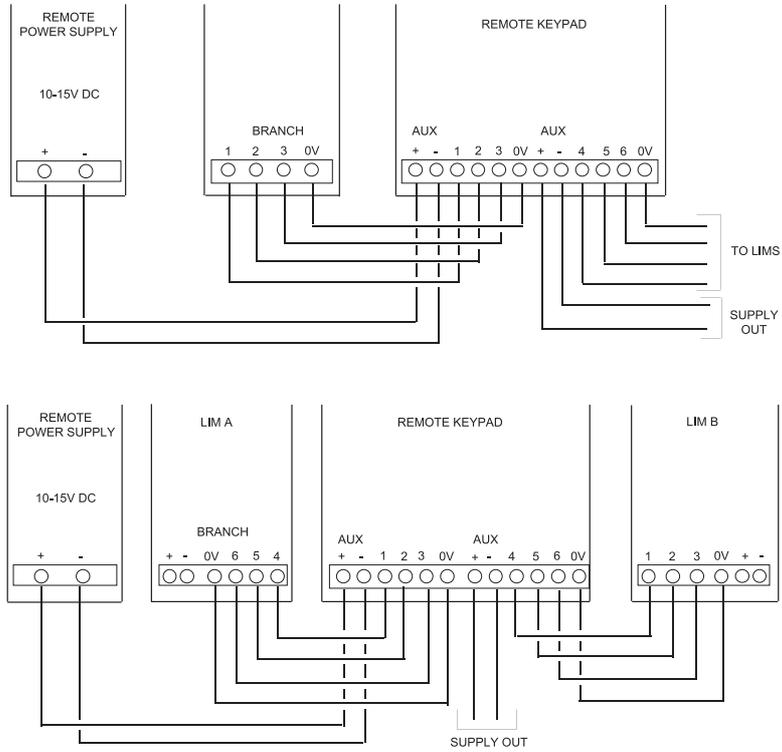
Figure 10. Wiring the Remote Keypad(s) to the Branch Loops
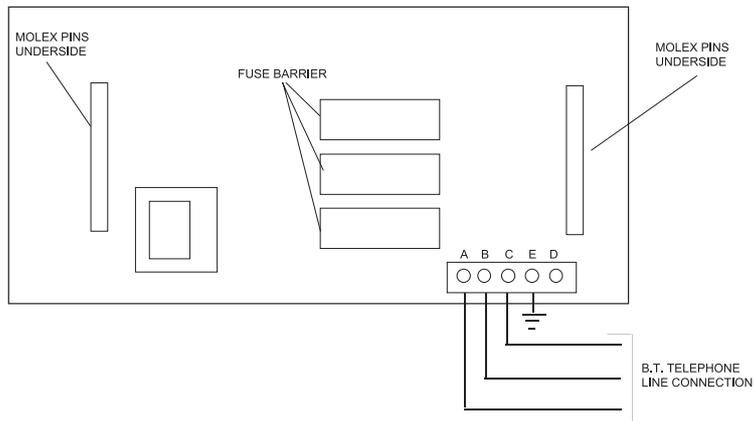
Figure 11. 9558 Communicator Layout and Connections

+VE IF LINE FAULT — LINE FAULT
2
3 SPARE
4
NO
C   PA
NC
NO
C   TECHNICAL
NC
CLEAN RELAY
S.P.C.O. OUTPUTS
2 AMPS - 24V
NO
C   INTRUDER
NC
+12V
NO
C   OPEN/CLOSE
NC
RELAY (LOAD)
LOW BATTERY
TROUBLE
CLOSE
OPEN COLLECTOR OUTPUTS
NORMAL OUTPUT IS
+12V GOING TO 0V
OPEN
INTRUDER
PA
TECH   INV
+ST
+12V   NORM
0V
OPEN COLLECTOR OUTPUT SELECTOR NORMALLY ACTIVE OR DE-ACTIVE
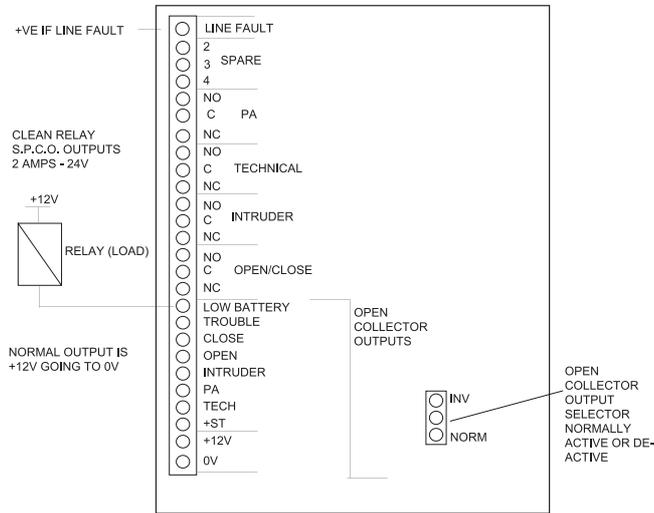
Figure 12. 9576 Interface Layout

+VE IF LINE FAULT — REMOTE RESET
LINE FAULT
3 SPARE
4
NO
C   PA
NC
NO
C   TECHNICAL
NC
CLEAN RELAY
S.P.C.O. OUTPUTS
2 AMPS - 24V
NO
C   INTRUDER
NC
+12V
NO
C   OPEN/CLOSE
NC
RELAY (LOAD)
NO
C   DAYTIME TAMPER
NC
TROUBLE
LOW BATT
DT TAMP   OPEN COLLECTOR OUTPUTS
NORMAL OUTPUT IS
+12V GOING TO 0V
OPEN
INTRUDER
PA
TECH   INV
+ST
+12V   NORM
0V
OPEN COLLECTOR OUTPUT SELECTOR NORMALLY ACTIVE OR DE-ACTIVE
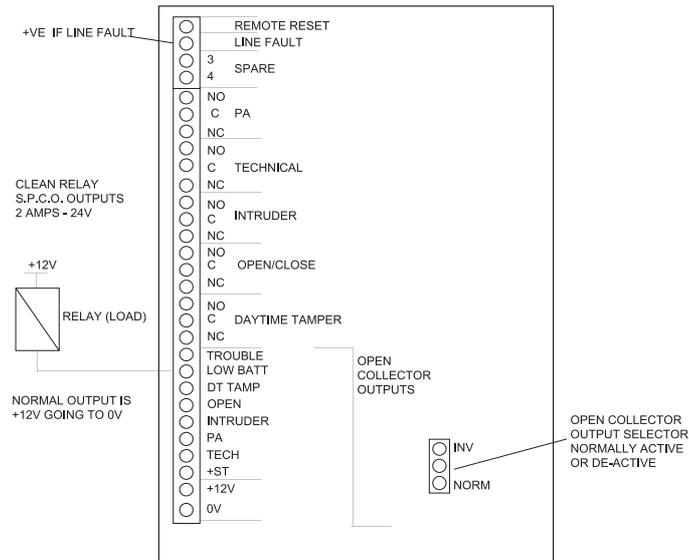
Figure 13. 9576-01 Interface Board Layout

Programming

Initial Start Up

Check that all LIM box tampers are closed. Make sure that the Bell and Strobe is not connected to the main 9500 PCB. Link out any circuits that are nnot used.

When powering up the panel for the first time:

1. Close the control panel lid and connect the mains supply.

    The display shows: <SYSTEM RESET>
    12:00 16 OCT 90

    Alternating with: 12:00 16 OCT 90
    Status : Alarm

2. Key in 4567 + Enter.

    The display shows: Display
    customer log?

3. Press No.

    The display shows: <SYSTEM RESET>
    12:00 16 OCT 90

    Alternating with: 16 OCT 12:00:00
    CALL ENGINEER

4. Key in 7890 + Enter.

    The display shows: Ver 4.20
    14 FEB 1991

    Followed by: Do you want
    engineer reset?

Note: Whenever you enter engineer mode, the software version number and its date will be displayed. Make a note of this number, as it will be useful when contacting the Scantronic Product Support Department with any queries.

5. Press No.

    The display shows: Do you want
    test functions?

6. Press No.

    The display shows: Do you want
    reports?

7. Press No.

    The display shows: Do you want to
    program the system?

8. Open the control panel lid.

9.   Press Yes.

You are now in Engineering Mode.

Defaults

The default Manager 1 Code is 4567 followed by 'Enter'.
The default Engineer Code is 7890 followed by 'Enter'.
All circuits are set to Normal Alarm, and not allocated any specific function.

Engineering Program Commands

While programming the system, the control unit shows a series of questions on the keypad display. Answer the questions by pressing Yes or No on the keypad. When you respond to a question the control unit will display further questions in order to lead you through the programming sequence.

In the first stages of programming the system there are a set of numbered entry points that let you go directly to a specific area of programming. These numbers are shown in the following table:

Command	Keypad display
1	Review system configuration?
2	Review panel controls?
3	Change engineer access code?
4	Review communications?
5	Change site location number?
6	Do you want to set the clock?
7	Do you want test functions?
8	Do you want reports?
9	Do you want engineer reset?

When programming the system for the first time, no circuits are allocated to specific functions. On entering a function the system asks for a circuit number. Each circuit has a unique four-digit identification number, made up of the branch, LIM and circuit number as follows:

1st digit	Branch number (1, 2, 3 or 4).
2nd and 3rd digit	LIM number (01 to 16). LIMs are numbered in sequence for each branch. The first LIM on the branch is 01.
4th digit	Circuit number (1 to 5).

If you return to a function the display shows the first circuit number of those you have already programmed. To keep that circuit press "Yes".

If you want to return a circuit to default programming, call it to the display, key in "0000". The system removes that circuit from the display.

The next four pages show the programming commands in more detail.

```
                            ( START )
        (1)          ┌─────────────────┐
                     │ REVIEW SYSTEM   │───< NO >──────────────────────────────────────( TO B )
                     │ CONFIGURATION?  │
                     └─────────────────┘
                             │ YES
                             ▼
        ┌─────────────────┐       ┌─────────────────┐              ┌─────────────┐
        │ REVIEW BRANCH   │─< NO >│ REVIEW CIRCUIT  │              │ REVIEW      │
        │ CONFIGURATION?  │       │ CONFIGURATION?  │              │ SHUNT LIMS? │
        └─────────────────┘       └─────────────────┘              └─────────────┘
                 │ YES                    │ YES                           │ NO
                 ▼                        ▼                               ▼
        ┌─────────────────┐       ┌─────────────────┐              ┌─────────────────┐
        │ INITIALISING... │       │ PERSONAL ATTACK │              │ REVIEW GROUP    │
        │                 │       │ CIRCUIT = ?     │              │ ISOLATION       │
        └─────────────────┘       └─────────────────┘              │ CIRCUITS?       │
                                                                   └─────────────────┘
                                  ┌─────────────────┐                     │ NO
                                  │ FINAL EXIT      │                     ▼
              OR                  │ CIRCUIT         │              ┌─────────────────┐
                                  │ FULL AND PART SET│             │ REVIEW CIRCUIT  │─< NO >
                                  │ FULL SET ONLY   │              │ ATTRIBUTES?     │
                                  │ PART SET ONLY   │              └─────────────────┘
                                  └─────────────────┘                     │ YES
                                                                          ▼
        ┌─────────────────┐       ┌─────────────────┐              ┌─────────────────┐
        │ WARNING CHANGED │       │ TECHNICAL ALARM │              │ DOUBLE KNOCK    │
        │ LIM TOTALS      │       │ CIRCUIT = ?     │              │ CIRCUIT?=       │
        └─────────────────┘       └─────────────────┘              └─────────────────┘

        ┌─────────────────┐       ┌─────────────────┐              ┌─────────────────┐
        │ LIM BRANCH 4 WAS│─< YES>│ 24 HOUR TAMPER  │              │ BEAM PAIR       │
        │ 1 IS 0 OK?      │       │ CIRCUIT = ?     │              │ CIRCUIT?=       │
        └─────────────────┘       └─────────────────┘              └─────────────────┘

        Check system wiring.      ┌─────────────────┐              ┌─────────────────┐
                                  │ LOCK SET        │              │ 14 DAY TEST     │
                                  │ CIRCUIT = ?     │              │ CIRCUIT?=       │
                                  └─────────────────┘              └─────────────────┘

                                  ┌─────────────────┐              ┌─────────────────┐
                                  │ EXIT TERMINATE  │              │ ENTRY ROUTE     │
                                  │ CIRCUIT = ?     │              │ CIRCUIT?=       │
                                  └─────────────────┘              └─────────────────┘

                                                                   ┌─────────────────┐
                                                                   │ OMIT ALLOWED    │
                                                                   │ CIRCUIT?=       │
                                                                   └─────────────────┘

                                                                   ┌─────────────────┐
                                                                   │ CHIME           │
                                                                   │ CIRCUIT?=       │
                                                                   └─────────────────┘

                                                                   ┌─────────────────┐
                                                                   │ PART SET        │
                                                                   │ CIRCUIT?=       │
                                                                   └─────────────────┘
                                                                          │ NO
```
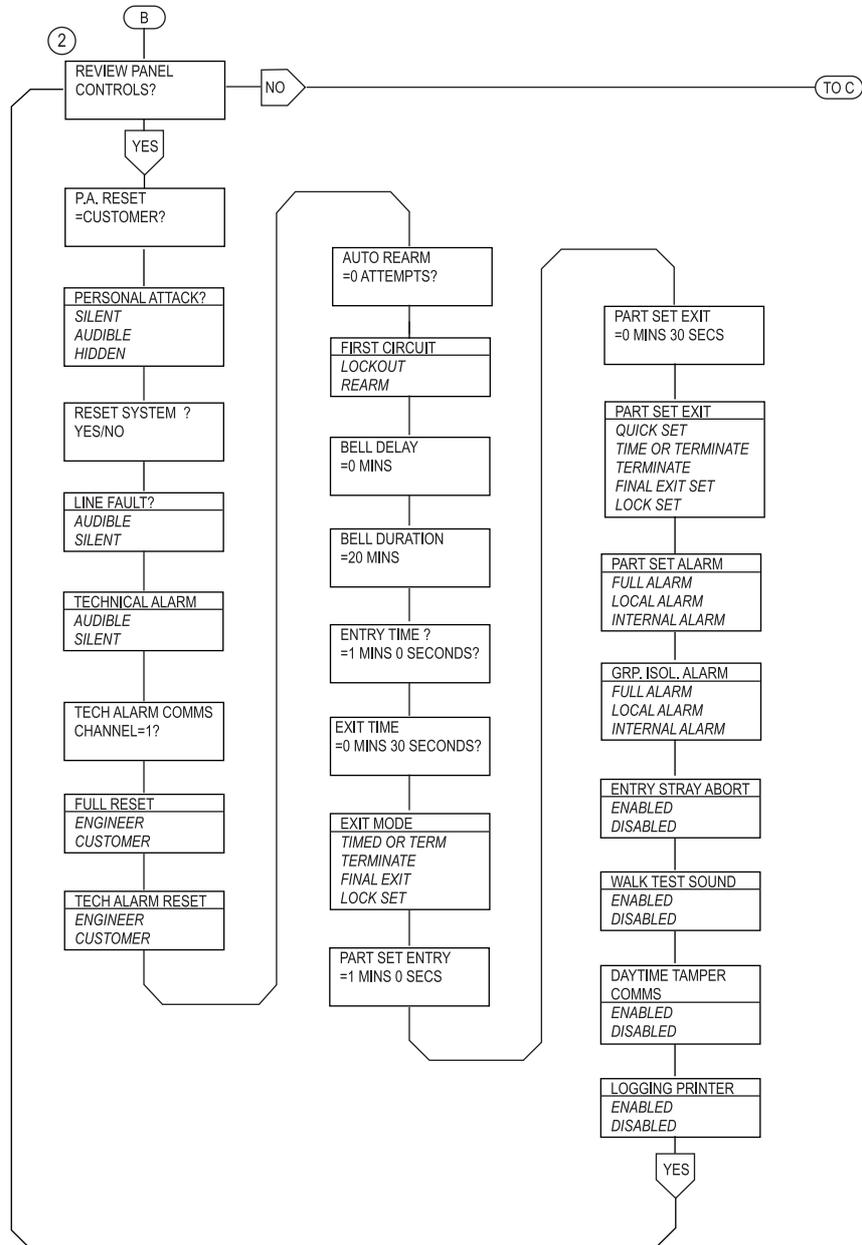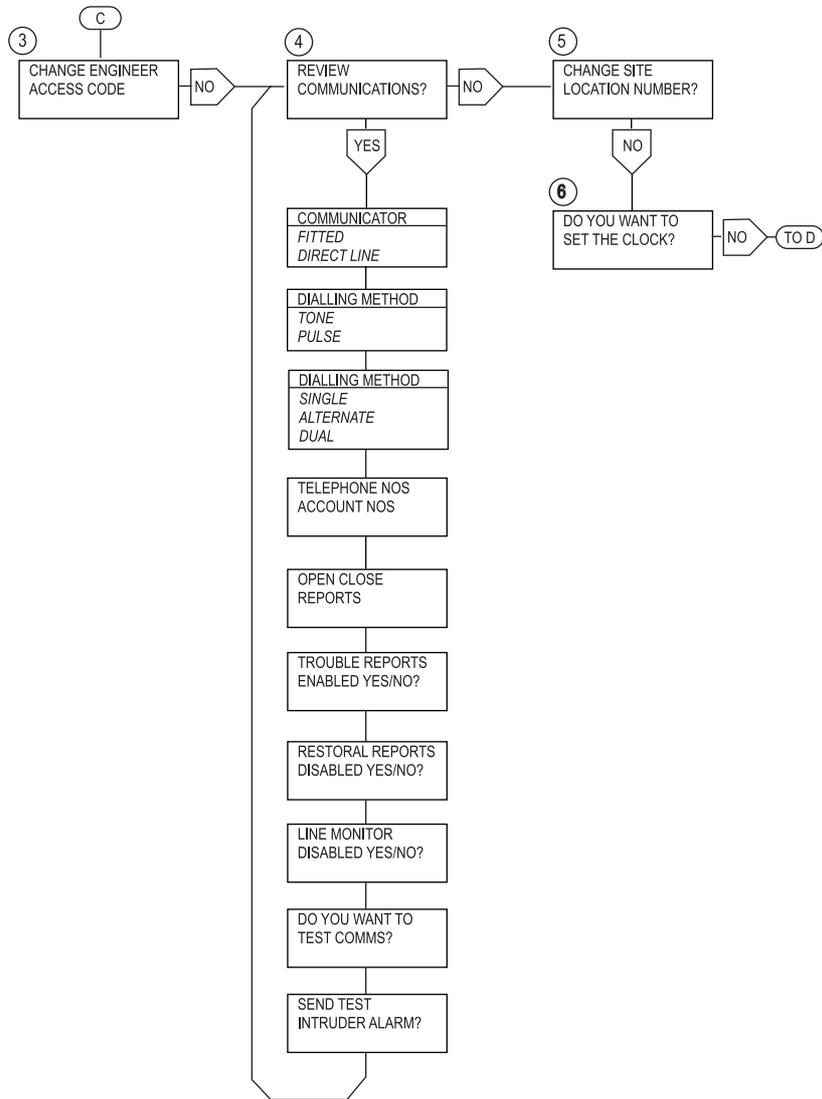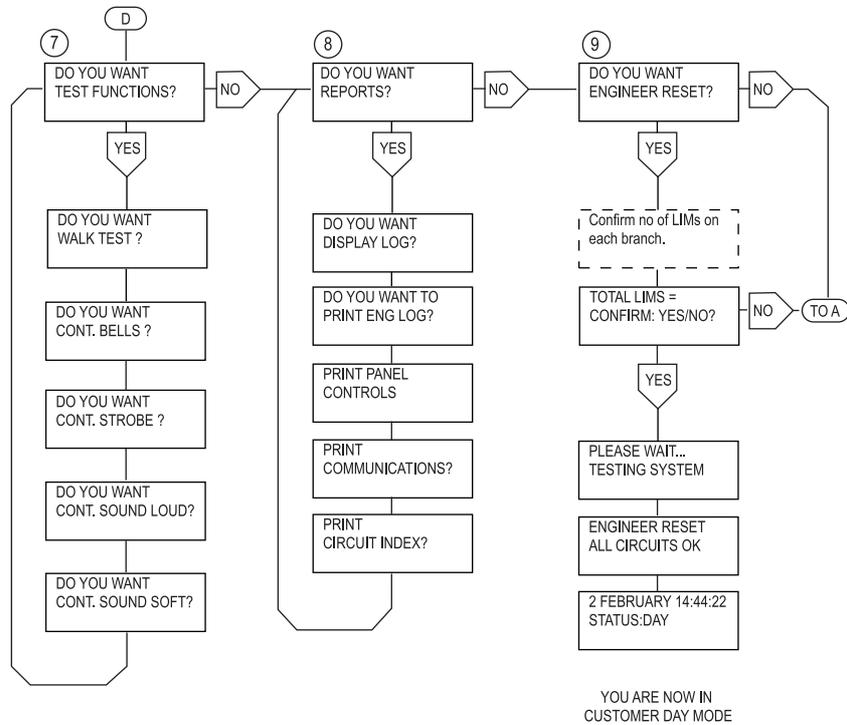
(2)   (B)

REVIEW PANEL
CONTROLS? ──── NO ────────────────────────────────────── TO C

YES

P.A. RESET
=CUSTOMER?

PERSONAL ATTACK?
SILENT
AUDIBLE
HIDDEN

RESET SYSTEM ?
YES/NO

LINE FAULT?
AUDIBLE
SILENT

TECHNICAL ALARM
AUDIBLE
SILENT

TECH ALARM COMMS
CHANNEL=1?

FULL RESET
ENGINEER
CUSTOMER

TECH ALARM RESET
ENGINEER
CUSTOMER

AUTO REARM
=0 ATTEMPTS?

FIRST CIRCUIT
LOCKOUT
REARM

BELL DELAY
=0 MINS

BELL DURATION
=20 MINS

ENTRY TIME ?
=1 MINS 0 SECONDS?

EXIT TIME
=0 MINS 30 SECONDS?

EXIT MODE
TIMED OR TERM
TERMINATE
FINAL EXIT
LOCK SET

PART SET ENTRY
=1 MINS 0 SECS

PART SET EXIT
=0 MINS 30 SECS

PART SET EXIT
QUICK SET
TIME OR TERMINATE
TERMINATE
FINAL EXIT SET
LOCK SET

PART SET ALARM
FULL ALARM
LOCAL ALARM
INTERNAL ALARM

GRP. ISOL. ALARM
FULL ALARM
LOCAL ALARM
INTERNAL ALARM

ENTRY STRAY ABORT
ENABLED
DISABLED

WALK TEST SOUND
ENABLED
DISABLED

DAYTIME TAMPER
COMMS
ENABLED
DISABLED

LOGGING PRINTER
ENABLED
DISABLED

YES

③ Ⓒ

③ CHANGE ENGINEER
ACCESS CODE

NO

④ REVIEW
COMMUNICATIONS?

NO

⑤ CHANGE SITE
LOCATION NUMBER?

YES

NO

COMMUNICATOR
FITTED
DIRECT LINE

⑥ DO YOU WANT TO
SET THE CLOCK?

NO

TO D

DIALLING METHOD
TONE
PULSE

DIALLING METHOD
SINGLE
ALTERNATE
DUAL

TELEPHONE NOS
ACCOUNT NOS

OPEN CLOSE
REPORTS

TROUBLE REPORTS
ENABLED YES/NO?

RESTORAL REPORTS
DISABLED YES/NO?

LINE MONITOR
DISABLED YES/NO?

DO YOU WANT TO
TEST COMMS?

SEND TEST
INTRUDER ALARM?

```
        D
   7 ○                    8 ○                           9 ○
 ┌─────────────┐        ┌─────────────┐              ┌─────────────┐
 │ DO YOU WANT │  NO    │ DO YOU WANT │   NO         │ DO YOU WANT │  NO
 │ TEST FUNCTIONS? ├───▷ │ REPORTS?    ├─────────────│ ENGINEER RESET? ├───▷
 └─────────────┘        └─────────────┘              └─────────────┘
       │ YES                 │ YES                        │ YES
       ▽                     ▽                            ▽
 ┌─────────────┐        ┌─────────────┐           ┌─ ─ ─ ─ ─ ─ ─ ┐
 │ DO YOU WANT │        │ DO YOU WANT │           │ Confirm no of LIMs on │
 │ WALK TEST ? │        │ DISPLAY LOG?│           │ each branch.  │
 └─────────────┘        └─────────────┘           └─ ─ ─ ─ ─ ─ ─ ┘
       │                     │                            │
 ┌─────────────┐        ┌─────────────┐           ┌─────────────┐
 │ DO YOU WANT │        │ DO YOU WANT TO │        │ TOTAL LIMS = │  NO
 │ CONT. BELLS ?│       │ PRINT ENG LOG? │        │ CONFIRM: YES/NO? ├───▷ TO A
 └─────────────┘        └─────────────┘           └─────────────┘
       │                     │                            │ YES
 ┌─────────────┐        ┌─────────────┐                   ▽
 │ DO YOU WANT │        │ PRINT PANEL │           ┌─────────────┐
 │ CONT. STROBE ?│      │ CONTROLS    │           │ PLEASE WAIT... │
 └─────────────┘        └─────────────┘           │ TESTING SYSTEM │
       │                     │                    └─────────────┘
 ┌─────────────┐        ┌─────────────┐                  │
 │ DO YOU WANT │        │ PRINT       │           ┌─────────────┐
 │ CONT. SOUND LOUD?│   │ COMMUNICATIONS? │       │ ENGINEER RESET │
 └─────────────┘        └─────────────┘           │ ALL CIRCUITS OK │
       │                     │                    └─────────────┘
 ┌─────────────┐        ┌─────────────┐                  │
 │ DO YOU WANT │        │ PRINT       │           ┌─────────────┐
 │ CONT. SOUND SOFT?│   │ CIRCUIT INDEX? │        │ 2 FEBRUARY 14:44:22 │
 └─────────────┘        └─────────────┘           │ STATUS:DAY  │
                                                  └─────────────┘

                                                   YOU ARE NOW IN
                                                  CUSTOMER DAY MODE
```

Leaving Engineering Mode

Before leaving Engineering Mode, check that the Bell, Strobe, all detectors, tampers etc., are connected. Also check that the 6.Ah standby battery is connected and all lids are closed on LIMs, keypads and main control panel.

If your system is fitted with remote signalling, check that it is programmed for 'Engineer Reset', and proceed as follows:

      The display shows: Do you want to engineer reset?

1.   Press Yes

      The display shows: Branch 1 No of LIMs=5

      Followed by: Branch 2 No of LIMs=7

      Followed by: Branch 3 No of Lims=8

Followed by:	Branch 4 No of LIMs=6
Followed by:	Total LIMs=26 confirm: yes/no

2. EITHER Press No

The display shows: Review system configuration

Check for system wiring faults, LIM failures etc.

See "Branch Configuration"

3. OR Press Yes

The display shows:	Please wait... testing system
Followed by:	Engineer reset all circuits OK
Followed by:	26 July 07:46:37 Status:day

You are now in customer day mode.

Re-entering Engineering Mode

1. Key in 7890 + Enter.

The display shows:	Ver 4.20 14 FEB 1991
Followed by:	Do you want engineer reset?

2. Press No.

The display shows: Do you want test functions?

3. Press No.

The display shows: Do you want reports?

4. Press No.

The display shows: Do you want to program the system?

5. Open the control panel lid.
6. Press Yes.

You are now in Engineering Mode.

Note:

1. If the system is in operation and has to be powered down (battery & mains) for servicing, when powering up, the battery must be connected first.This will

prevent any problems of high current being drawn which could damage the control panel.
2. The Engineer Reset, Test Functions and Reports can be selected without opening the control panel lid.

Refreshing The System

If the system requires all the programmed information to be deleted and returned to the factory de-faults, it is possible to refresh the system in the following way.

1.   Completely power down the control panel.
2.   Remove the RAM chip, which is located on the main PCB and is the centre of the three large chips.
3.   Replace the chip and Power up the control panel. Reset the system and continue to re-programme as required.

9500 LOG EVENTS

Access engineer	
Tamp. panel keys	Excess key presses
Fault tel line	Telephone line fault (line missing)
Fault tel comm	Telephone communication failure (e.g., no reply)
Fault mains	A.C. Power failure
Fault battery	
Fault aux supply	Aux. 12v DC fuse blown
Fault all power	Total power failure
Engineer reset	
Customer reset	
Set proc started	Set procedure started
Walk test	System walk test
Viewed ENG log	Viewed engineers log
MGR 24-hr omit	Manager omitted 24-hour circuits (list follows)
-R-tamper-panel-	Restore panel tamper
-R-tamper-bell-	Restore bell tamper
—R-tel-line—	Restore telephone line
-Mains- restored-	

Aux-pwr-restored	AUX DC Power power restored
Entry by keypad	Entry initiated at panel keypad
CUST WALK TEST	
ENG WALK TEST	
Changed location	Site location code changed
Online print off	
Fault direct line	Direct line fault input tripped
Set proc aborted	Setting procedure terminated
Snd/bll/strb tst	Sounder bell and strobe tested
Printed ENG log	
No option selctd	
Reset branches	
Viewed CST log	
Tamper panel	
Tamper bell	
Printed codes	
Access codes	Manager modified or printed access codes
Groups isolated	Always followed by a list of groups isolated
Exit fault	
Date/time change	(date/time is old time)
New Date/time	(date/time is new time)
Personal attack	
Tamp. alarm ####	#### represents a circuit number
24-hr-alarm ####	
Alarm PA ####	
Tech alarm ####	
Tamp. FE ####	
Omit ####	
24-hr tamp. ####	
Tamper LIM ####	
Omit 24-hr ####	
WT tamper panel	Walk test panel tamper (engineer walk test only, printer only)
WT tamper bell	Walk test bell tamper (engineer walk test only, printer only)

WT tamper ####	Walk test (engineer walk test only, printer only)
WT PA cct ####	Walk test (engineer walk test only, printer only)
WT PA tamp ####	Walk test (engineer walk test only, printer only)
WT FE cct ####	Walk test (engineer walk test only, printer only)
WT FE tamp ####	Walk test (engineer walk test only, printer only)
Wt tech cct ####	Walk test (engineer walk test only, printer only)
WT tech tamp ####	Walk test (engineer walk test only, printer only)
Wt 24hr cct ####	Walk test (engineer walk test only, printer only)
WT 24hr tmp ####	Walk test (engineer walk test only, printer only)
WT Ex Tr cct ####	Walk test (engineer walk test only, printer only)
WT Ex Tr tmp ####	Walk test (engineer walk test only, printer only)
WT LkSt ####	Walk test (engineer walk test only, printer only)
WT LIM tmp ####	Walk test (engineer walk test only, printer only)
WT circuit ####	Walk test
-R-circuit ####	Restore circuit ####
-R-tamper- ####	Restore tamper ####
-R-PA-cct- ####	Restore personal attack circuit ####
-R-PA-tmp- ####	Restore personal attack tamper ####
-R-FE-cct- ####	Restore final exit circuit ####
-R-FE-tamp- ####	Restore final exit tamper ####
-R-Tech-cct- ####	Restore technical alarm circuit ####
-R-Tech-tamp- ####	Restore technical alarm tamper ####
-R-24hr-cct ####	Restore 24 hour circuit ####
-R-24hr-tamp ####	Restore 24 hour tamper ####
-R-ExTr-cct- ####	Restore exit terminate circuit ####
-R-ExTr-tamp- ####	Restore exit terminate tamper ####
-R-LkSt-cct- ####	Restore lock set circuit ####
-R-LkSt-tamp- ####	Restore lock set tamper ####
-R-LIM-tamper ####	Restore LIM tamper ####
—FE —cct—####	Violation of final exit circuit ####
-R-DKnk-cct- ####	Restore double knock circuit ####
-Tech tamper ####	Violation of technical alarm tamper ####
-ExTr tamper ####	Violation exit terminate tamper ####

-LkSt tamper ####	Violation of lock set tamper ####
Entry by FE ####	Entry via final exit door ####
Entry by RKP ####	Entry at RKP
DKnock cct -####	Violation of double knock circuit #### (not an alarm event)
Tamper RKP ####	Violation of rkp ### back tamper, or excess presses at RKP
Alarm ####	
Tamper ####	
Alarm #### (test)	Circuit violation of circuit #### currently under test
-R-RKP-tamper-####	Restore RKP ### back tamper
OPR ## deleted	Operator deleted from system
Duress deleted	Duress code deleted from system
MGR ## deleted	Manager deleted from system (not applicable to Manager 1)
Specific LIM ###	Walk test of a LIM ### (engineer walk test)
Entry alarm keys	Entry alarm following entry initiated at panel keypad
Part Set	System part set
Omit 24hr grp ##	Omission of 24 hour groups
Access manager ##	
Tamper branch #	Failure of branch communications or branch wiring fault
Alarm entry ####	Entry alarm following entry at final entry circuit ####
Invalid log code	Invalid entry found in log
Open	Return from full set status
Day	Return from part set status
Close	System set
B#L=$$ B$ L=$$	Log of LIMs found on each branch (eg B1 L=10 B2 L=7)
OPR ## changed	Operator code changed
Duress changed	Duress code changed
MGR ## changed	Manager code changed
ENG code changed	Engineer code changed
LIM ### No reply	LIM failed to make a valid response on three attempts

LIM ### shunted

Restore branch

The following are software diagnostic messages which should appear in the log very rarely. They all indicate that a fault has occurred, which has caused the microprocessor to reset. The system will operate correctly following this reset.

Fault watchdog

Fault software

Fault stack

Fault comm stop

Fault power/wdog

Fault stack top

The following messages are logged when the panel is powered up for the first time, and in normal operation should never again appear in the log.

Fault checksum   (High security data has been corrupted. Defaults have been loaded)

<SYSTEM RESET>   (The system has reset, and is running on default parameters)

User Commands

ACCESS CODE SPECIFICATION

1 - Master manager code (manager number 1)

49 - Manager codes   (manager numbers 2 to 50)

49 - Operator codes   (operators 1 to 49)

1- Cleaner code   (operator number 0)

1 - Duress code   (operator 99 in log events memory)

1 - Engineer code   This can only be used with the system in Status Day.

Any access code can be any mixture of numbers between 4 and 8 digits

The standard factory default codes are:-

Manager 1 code = 4567 followed by "ENTER"

Engineer code = 7890 followed by "ENTER"

All other codes are undefined.

Cleaner Code Operation

The Cleaner Code can ONLY arm the system. If when using this code to arm the system and a fault occurs on exit, then the cleaner can return the system to DAY status. However, if the system has set then this code will NOT disarm the system.

The Master Manager Code (Manager No.1) is the only code which can change other manager codes. It can also change and delete both manager and operator codes and PRINT OUT actual access codes.

The normal manager codes can change operator codes and print the engineer log. Along with the master manager, they have control of the group isolation facility

The duress code when entered will disarm the system and trigger a silent personal attack signal to the alarm company central station.

The operator codes can arm and disarm the system. They also give the user access to the customer log and various test functions.