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OPERATOR HANDBOOK

ALERT - EMERGENCY TELEPHONE SYSTEM

THIS DOCUMENT IS ELECTRONICALLY HELD AND APPROVED

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1. INTRODUCTION

1.1 Purpose

This handbook describes the facilities provided by the ALERT telephone system at Operator level. It is intended to be a user manual and reference document.

1.2 Scope

This document covers the general operation of the ALERT telephone system. The configuration of the ALERT system will determine which sections of the Handbook are relevant.

1.3 Related Documents

Introducing Microsoft® Windows® 95.

1.4 Issue State

<u>Pages</u>	<u>Current Issue</u>	<u>Type</u>	<u>Part ID</u>
i to iii	04.00	AMW	667/HB/26255/000
1 to 30	04.00	AMW	667/HB/26255/000

1.5 Abbreviations

ALERT	Advanced Low power Emergency Roadside Telephone system
PC	Personal Computer

2. HOW TO USE THIS HANDBOOK

2.1 General

The prime objective of the emergency telephone system is to provide a secure and reliable communication link between motorists and instation Operators to report accidents, breakdowns or other problems on the highway.

The instation equipment provides the Operator interface to the roadside phones. The PC provides all the necessary data and indications to the Operator and provides the input to control the system. It can also interface to a fibre optic system (where fitted). Each Operator position is equipped with a headset for conversing with motorists, the PC that displays information about the calls and allows the Operator to control the calls, and a line interface that performs all the communications with the outstation telephones. The instation is also equipped with a printer for hard copies of events, fault and call reports, and a tape-recorder to record conversations.

The Operator has control of all calls to and from the instation. All operation is by straightforward (normally single action) menu driven mouse control.

The main body of this manual is intended for the first time user, based around images of the actual screens that are seen by the Operator. The messages, buttons and menus that appear on the screen and which are repeated in the text of this document are shown in **bold**. Section 3 describes the layout of the screen and where the Operator should find all the functions of the system. The way the system has been set up may mean that some options are security controlled and not available to all users. The system administrator will have further details. Section 5 describes the telephone communication functions in detail as they are used by the Operator.

Note: Some installations provide the Operator with a handset instead of a headset. In those circumstances, where headset is referred to in this manual, read handset.

2.2 Reinstallation of system software

Appendix A is provided as first line maintenance if the system fails. However, it must be remembered that whatever caused the system to fail may have corrupted data. If the instructions contained in Appendix A have been followed and there is still a problem, contact the system maintainer.

3. THE OPERATOR POSITION

The Operator position consists of the PC (including mouse and keyboard) and the headset. The headset is initially inactive and only becomes active when a call is connected. If the tape recorder is to be used to record conversations with motorists, it must be switched on and ready to record, including having a tape in place. If necessary, refer to the tape manufacturer's handbook for set-up instructions. The following description assumes that the PC is already switched on and within the Windows® environment. If the machine does not seem to be in this state please refer to Appendix A. The printer must also be switched on and ready to print.

Each instation may have one or two Operator positions connected to it. The standard configuration is one PC per instation, with a soundcard to transmit messages to motorists who try to call in while the Operator is busy on another call. This configuration is described in this Handbook.

Please note that due to the speed of operation of this system, there is a delay between the function chosen and the response by the computer, e.g. there is a short delay between answering a call and actually being able to speak to the caller.

3.1 The Operator Screen

This is a wholly Windows® based system. It is operated by the standard point and click method with the mouse, i.e. items are selected with the mouse and then the mouse button can be used to choose from highlighted options. Menu options are selected with the right hand mouse button, boxes and buttons are operated by clicking the left hand mouse button. A user unfamiliar with this method of operation should refer to the manual "*Introducing Microsoft® Windows® 95*". Note: All the windows that are part of the ALERT system are similar to standard Windows®, and can be moved around the screen to the most convenient position for the Operator. To do this click on the blue bar at the top of the window and drag it to the desired position.

Once the PC is within the Windows® environment and the application is running, a map similar to the example shown in Figure 1 is displayed.

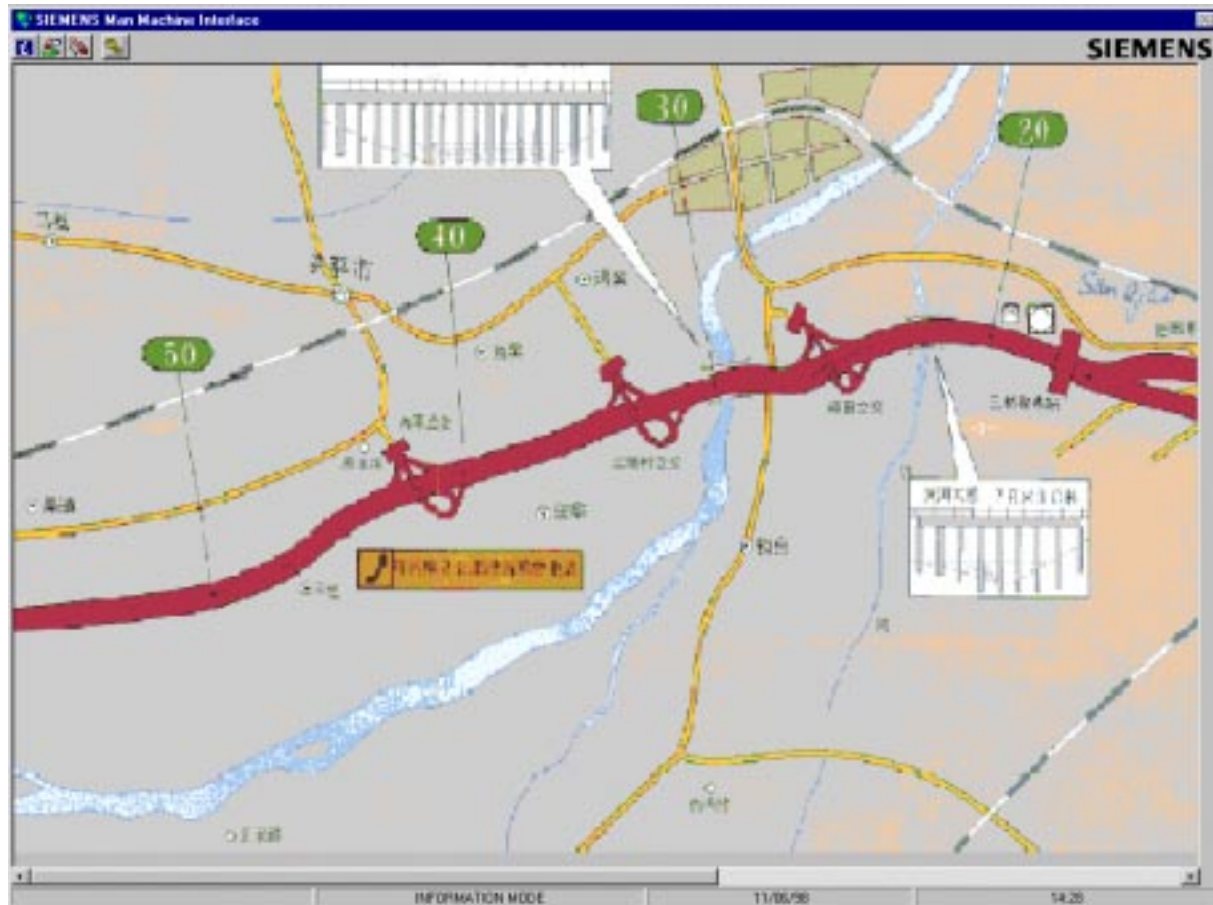


Figure 1 - Initial View

Click at any point on the map and a small window appears asking you to log in. Enter your user name in the first field and use the "Tab" key to move the cursor to the **Password** field. Enter your password and select **OK**.

Figure 2 - Login Window

During normal operation the majority of the screen is occupied by the map depicting the road as seen below. Once the Operator has logged in, this map shows the positions of the phones along the road. The top of the screen is occupied by pull down menus and icons, described in Sections 3.5 to 3.8.2.

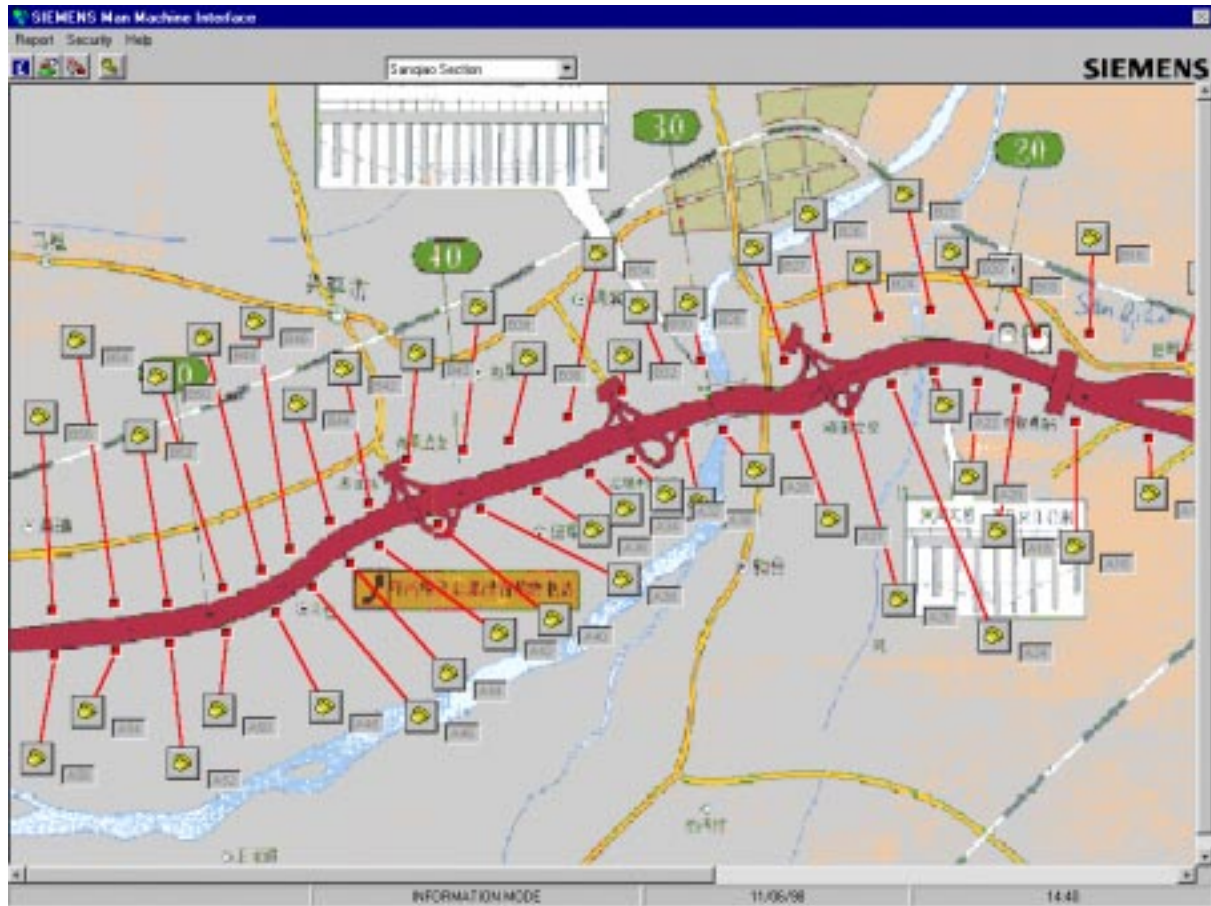


Figure 3 - Map showing Phones

The Operator Console window, as shown in Figure 4, appears on top of the map.

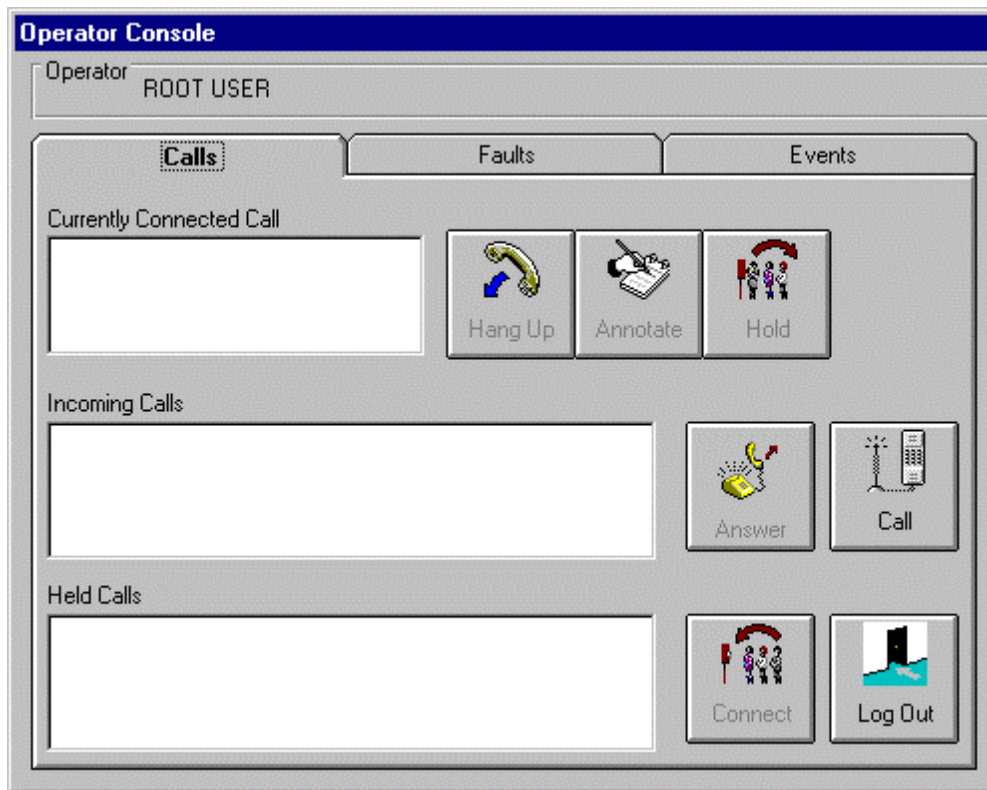


Figure 4 - Operator Console Window

3.2 The Map

The map shows the road under control and the phones along it. Each phone has a unique number, shown adjacent to the phone icon on the map. Where the map is larger than the screen size it can be scrolled by using the scroll bars on the right hand side and the bottom of the map area. The bar can be clicked to progress the map or the block within the bar can be dragged and dropped in the way that standard Windows® bars operate.

The phone icon has a menu associated with it. Select the phone with the right hand mouse button and the menu shown right appears.

From this menu you can select **Call**, **Answer**, **Test**, and **Cancel** by pointing to the item with the mouse and clicking the left-hand button once.

Selecting **Call** opens the Calls History window and makes the call to the selected phone. Once the connection is made, i.e. the phone is answered at the outpost, the call appears in **Currently Connected Call** at the Operator Console.

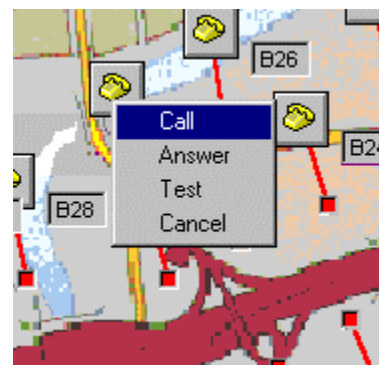


Figure 5 - Phone Icon Menu

When a call is received at the instation, selecting **Answer** from the map menu connects caller and Operator on the headset and the call appears in **Currently Connected Call** at the Operator Console.

Cancel may be used to hang up a connected call. If the **Calls History** window is active on screen, this option is not available.

The **Call**, **Answer** and **Cancel** functions are also available within the Operator Console and are described in detail in Section 5. The normal method of operation is through the Operator Console. The manual **Test** function is only available through the map menu, although regular automatic testing is carried out on all phones. See Section 3.3.

Where there is more than one map to an instation, a map section menu at the top of the screen allows the Operator to select which map to view from the list. The drop down menu allows the Operator to select the other sections of the road. See Figure 6.

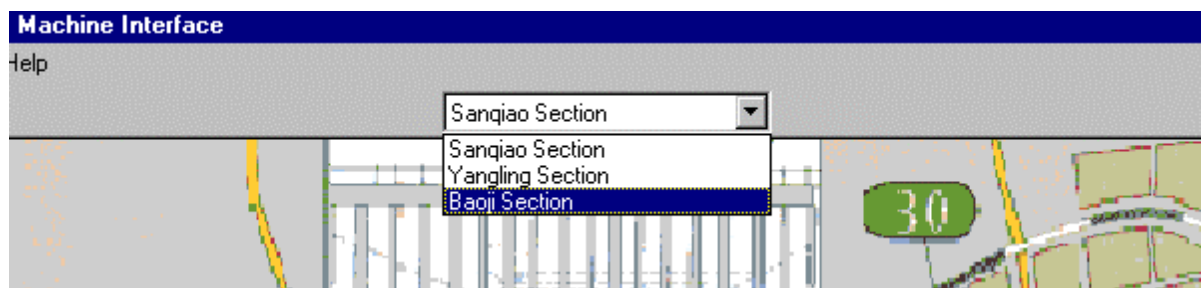


Figure 6 - Map Section Menu

3.3 Manual Test and Faults

By selecting a particular phone icon and clicking on the right hand mouse button the phone menu appears. From this menu select **Test** with the left hand button. The selected phones text flashes and shows **Testing**. If the phone changes status as a result of the test, the information is added to the **Faults** list (Section 3.9.1) and fault data is printed. This fault data is annotated as being Operator generated. If the phone remains in the same state as before, no record is kept of the manual test.

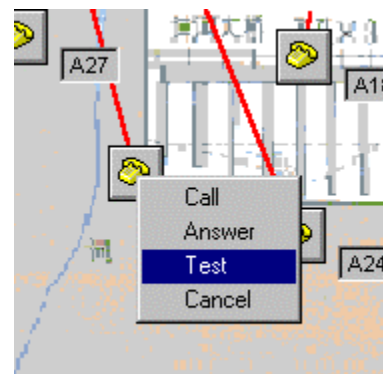


Figure 7 - Manual Test

All faults in the system can also be viewed by selecting the **Faults** tab in the Operator Console. See Section 3.9.1 and Figure 17.

3.4 Logout

The **Logout** button on the Operator Console returns the Operator to the initial state (Figure 1).

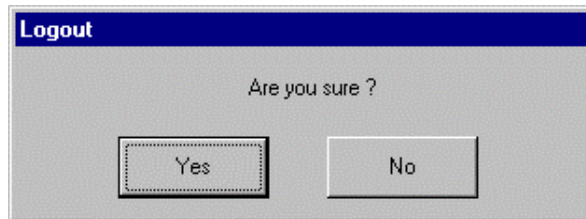


Figure 8 - Logout

The system asks for confirmation, as shown in

Figure 8, before logging out. Trying to log out while a call is still connected or held generates a warning message. Clear all calls and then try again.

Once the Operator has logged out, the system is still running, but no actions may be taken until a user has successfully logged back in.

3.5 Mode Keys

The mode keys are placed at the top left-hand corner of the screen and should be clicked to be actioned. The current mode is shown at the foot of the screen, as seen in Figure 3.



Information mode. This is the standard operating mode that the Operator is automatically placed in when logged in. Unless otherwise indicated, the Operator Handbook assumes that the Operator is in Information mode.



Add mode. This mode is provided so that new phones can be placed onto the map. This function adds a new phone to the database and should therefore be used with caution.



Move mode. This mode works in conjunction with add mode and allows the newly placed phone to be moved in relation to the road.



Update Database. This mode should be used when a new phone has been added or moved. Selecting this icon automatically carries out a background update of the database.

3.6 Security

The **Security** drop down menu allows the user to select either **Add User**, **Change Password** or **Delete User** function.

3.6.1 Add User

Figure 9 - Add User Window

To add a new user to the database, enter the full name, the user name, the password and password verification and access level in the appropriate spaces. Access Levels can be set to 0, 1 or 2. Level 2 gives the user access to all the menus (supervisors usually have Level 2 access). Level 0 and 1 hide the Add User and Delete User menus (operators usually have these access rights). Use the "Tab" key to move from one area of the screen to the next. Confirm the entry by selecting **OK**. Clicking on **Cancel** closes the window without saving any entry.

3.6.2 Change Password

Figure 10 - Change Password Window

This function allows the current user to change their password. Enter the current password, and then the new password twice where indicated. Use the "Tab" key to move from one area of the screen to the next. Confirm the entry by selecting **OK**.

To change the password for another user, first log out of the system and log in again as the user whose password is to be changed. Then proceed as described above.

3.6.3 Delete User

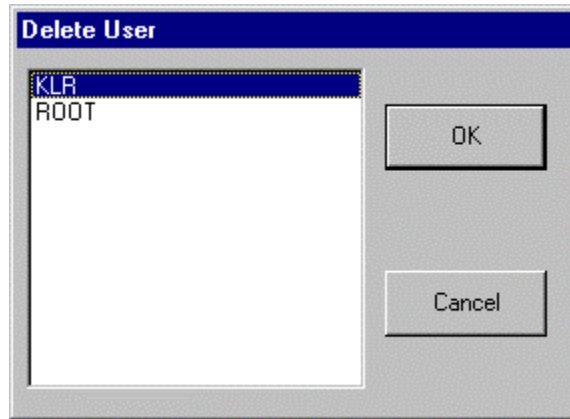


Figure 11 - Delete User Window

If the user that is logged in has access to this function it will allow the current user to delete another users logon. Select the user you wish to delete and confirm your choice by selecting **OK**. The function will not allow you to delete the entry you are logged in as. Clicking on **Cancel** closes the window without deleting any entry.

3.7 Reports

The Report drop down menu allows the user to produce a report covering the required period. Select **Daily**, **Weekly**, **Monthly** or **Annually** from the list. A daily report covers the day from 00:00:01 to the current time. Weekly, monthly and annual reports take data from the current week, month or year up to the date and time the report is compiled.

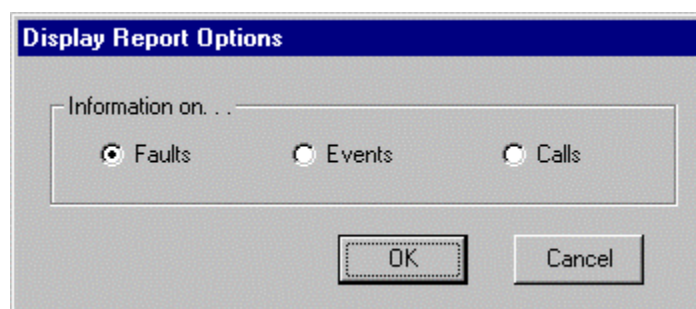


Figure 12 - Report Options Window

The report may be for **Faults**, **Events** or **Calls** as described below. Once the period to be covered and type of report are chosen, the report is compiled and appears on screen after a short delay. If the window containing the report is too small to view the data, drag it to size. If the report generated is over certain number of records, the report is split into pages, which can

be scrolled through (backwards and forwards) using the **Previous Page** or **Next Page** buttons. A page may be printed by selecting the **Print Page** button. The report may be printed by selecting the **Print Report** button. Select **Cancel** to close the window.

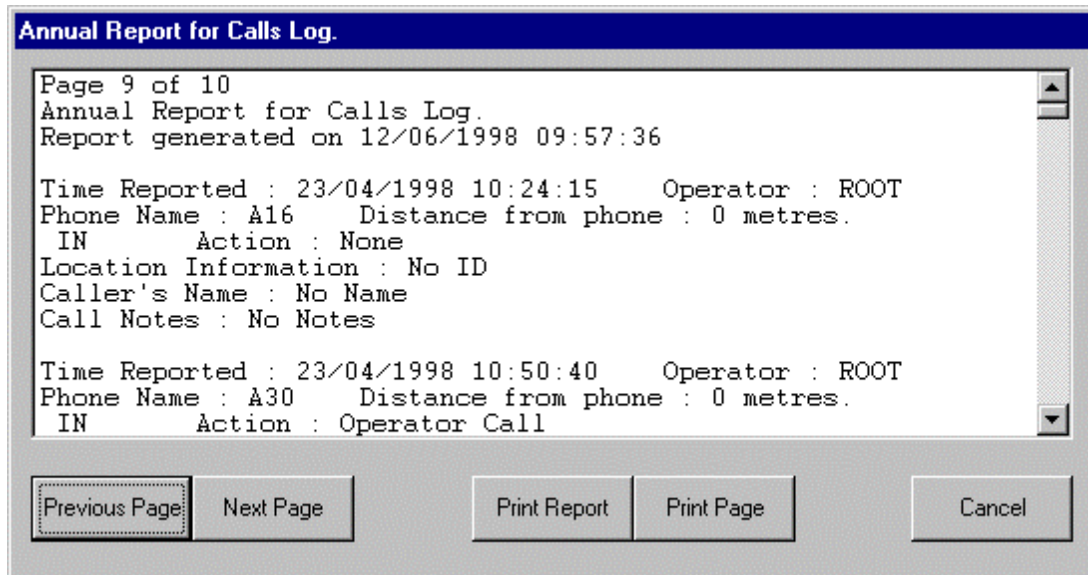


Figure 13 - Report Window

3.7.1 Fault Reports

This report shows the dates, times and ID of phones where a fault was reported, whether system generated or Operator requested, with the fault codes, and fault clearances. These details are also given in the Event Report.

3.7.2 Event Reports

This report provides a System Log of all activity on the system, including the faults that appear in the Fault Report described above, and call activity shown in the Call Report described below. Events listed in this report include system re-starts, Operators logging in and out of the system, activities relating to a call from recognition by the system to disconnection and faults and fault clearances for all phones.

3.7.3 Call Reports

This report provides a simple list of calls to and from each phone with the date and time the call was instigated, Operator name, call type, the phone ID and any information added to the Call Annotation screen.

3.8 Help

3.8.1 About ALERT

This view only screen shows details of the version of ALERT on the system.

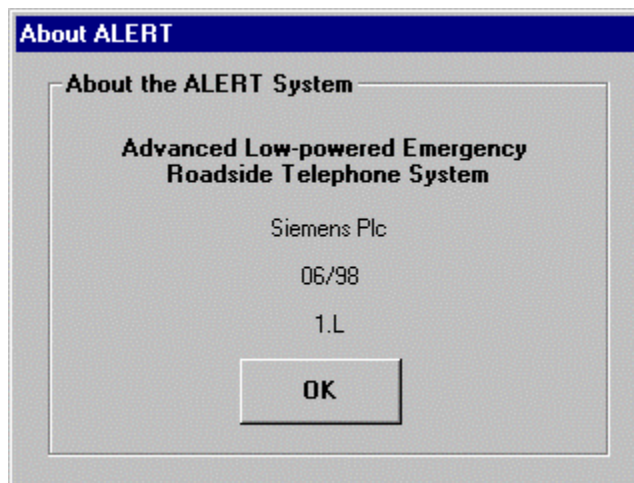


Figure 14 - About ALERT

3.8.2 Help

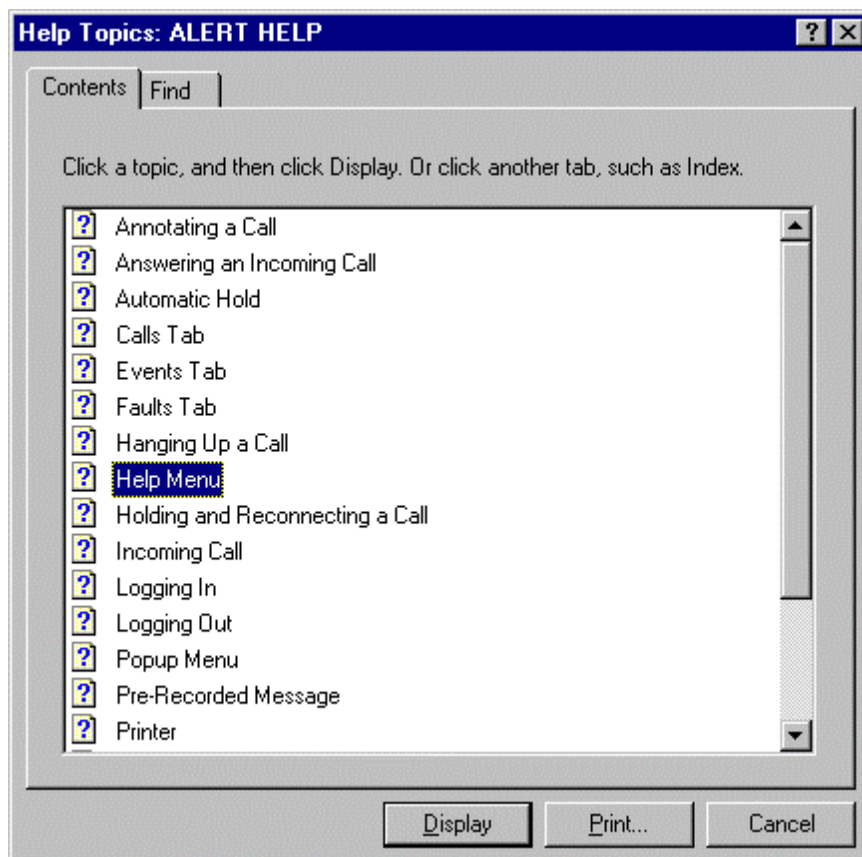


Figure 15 - Help Topics

The **Help** menu shows an alphabetically arranged list of subjects on which help is available. Click on the topic and then **Display** to display the help text.

To find help on a particular subject, click on the **Find** tab and enter text in the box. If help is available on the entry, it is displayed.

Press the **Print** button to print the contents of the displayed page.

3.9 Operator Console

The Operator Console is where most of the system's operations are activated. At the top of this window the currently logged in Operator's name is displayed. The Console can be in one of three modes: **Calls**, **Faults** and **Events**. These are selected by clicking one of the tabs as shown in Figure 16.

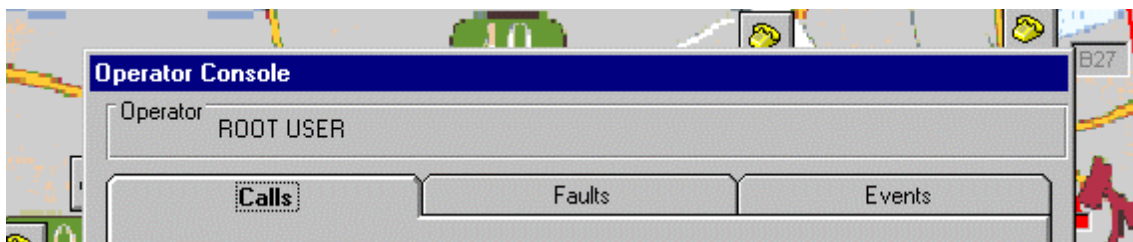


Figure 16 - Operator Console Modes

3.9.1 Faults

Faults displays the faults currently in the system with the most recent at the end of the list (Figure 17).

To generate a Fault Report, see section 3.7.1.

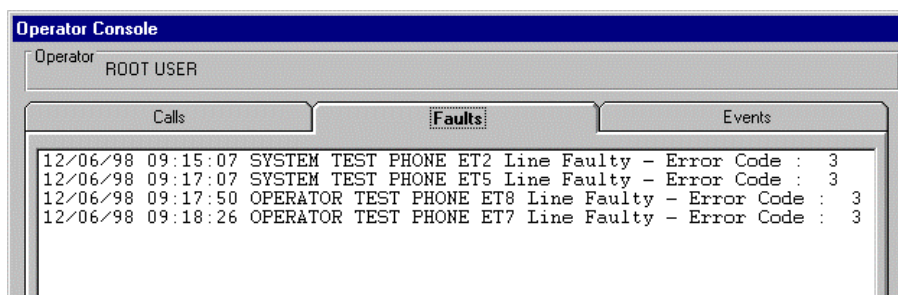


Figure 17 - Faults Mode

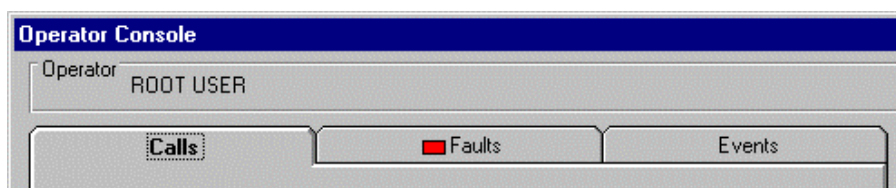


Figure 18 - Fault Indicator

If the Operator is in **Calls** or **Events**, a red box appears on the **Faults** tab when a new fault is detected by the system.

A test signal is directed down the line at regular intervals. If a fault or fault clearance is detected an error code is generated and the details appear in the Faults area of the Operator Console with the note **SYSTEM TEST**.

If a manual test (Section 3.3) detects a fault or fault clearance the details are also added to the **Faults** list with the note **OPERATOR TEST**.

The main error codes are described in Appendix B.

The only Operator action possible as a result of the error codes above is where a line fault is indicated by Error Code 1, 2 or 3. Check the phone line connections with the instation and then carry out a manual test on the phone. If the fault clears no further action is necessary.

If the line fault is still indicated, or any other fault is shown, call the maintenance engineer.

3.9.2 Events

Events lists the historical events of the system, such as times of conversations, with the most recent at the bottom. See example in

Operator Console		
Operator ROOT USER		
Calls	Faults	Events
12/06/98 09:21:15	IN	Phone ET1 At K1+513
12/06/98 09:21:33	ANSWERED	Phone ET1 At K1+513
12/06/98 09:21:39	CANCELLED	Phone ET1 At K1+513
12/06/98 09:23:15	IN	Phone ET4 At K7+558
12/06/98 09:23:27	ANSWERED	Phone ET4 At K7+558
12/06/98 09:23:38	CANCELLED	Phone ET4 At K7+558

Figure 19.

To run an Events Report, see section 3.7.2.

Figure 19 - Events Mode

3.9.3 Calls

Calls is the standard mode that the Operator uses. The call mode has a number of buttons as shown below.

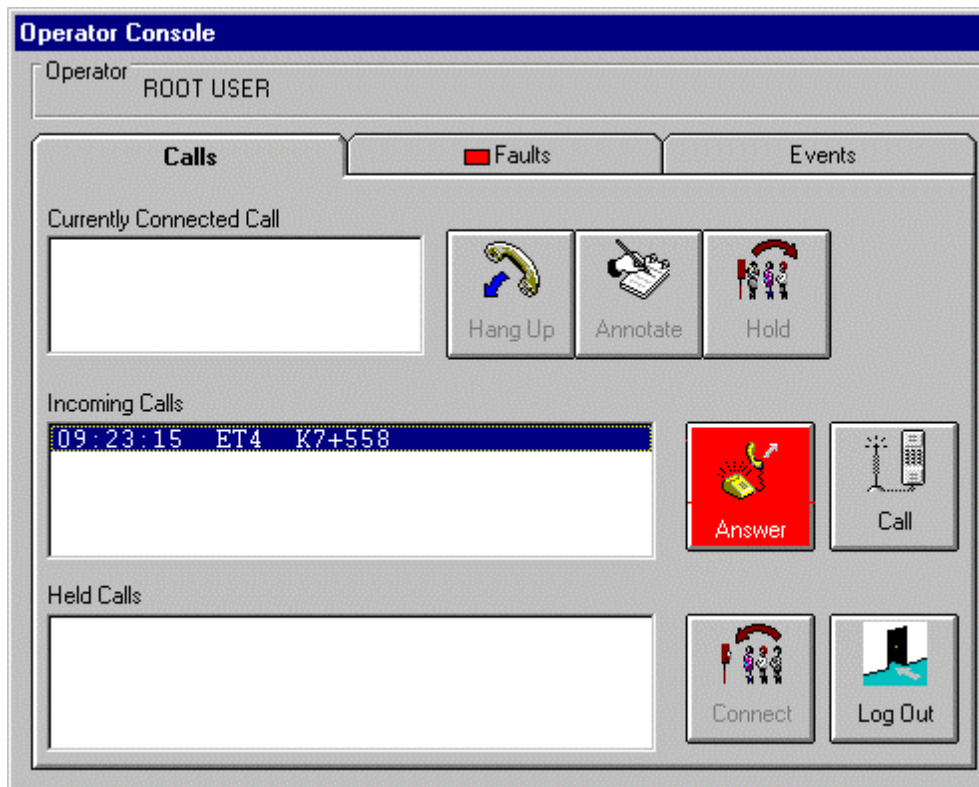


Figure 20 - Calls Mode

An incoming call is listed in the **Incoming Calls** box (see Figure 20). To answer a call it must be highlighted in the **Incoming Calls** box; the first call is automatically highlighted. Select the **Answer** button. This moves the call to the **Currently Connected Call** box. The Operator is connected to the caller through the headset after a short delay.

To put a caller on hold, select the **Hold** button. See Section 5.5 for a description of the Hold function. To take a caller off hold the call has to be selected in the **Held Calls** box. If there are a number of calls on hold, only one is highlighted. This call is reconnected first (unless the order of reconnection is changed by selecting another call within the box) by pressing the **Connect** button. To disconnect a call it needs to be the **Currently Connected Call** i.e. not on hold, then the **Hang up** button is pressed.

Where the Operator is dealing with a currently connected call and an incoming call is detected, the incoming caller hears a message to indicate that the call will be answered as soon as possible.

3.9.3.1 Call Annotation

The annotation function is for the Operator to add notes to the currently connected call, so that the information is noted for future reference. By pressing the **Annotate** button a new window appears (see below) in which the details of the phone call are automatically entered. **Incident #** is not in use for this version of the software.

The **Operator**, **Reported** and **Location** details are taken from the **Calls** window.

Action contains a drop down menu from which to select the action to be taken as a result of the call.

The remainder of the window contains free text boxes in which the Operator can type additional information. Details entered here are included in Call Reports. See Section 3.7.3. The Operator can also print out the **Call Annotation** window by selecting the print icon on the right-hand side of the window. Pressing the **Cancel** button returns the Operator to the Operator Console without saving any entry in the window. To save the details and close the window, press the **OK** button.

The screenshot shows a software window titled "Call Annotation". It contains several input fields and buttons:

- Incident #:** A text box containing the number "28".
- Operator:** A text box containing the text "ROOT".
- Reported:** A text box containing the date and time "12/06/98 09:27:58".
- Location:** A text box containing "K1+513".
- Distance to incident from phone:** A text box containing "0" followed by "m.".
- Additional Information:** An empty text box.
- Call Details:** A section containing a "Caller's Name" text box and an "Action" dropdown menu currently set to "Call Ambulance".
- Call Notes:** A large empty text area for notes.
- Buttons:** On the right side, there are three buttons: "OK", "Cancel", and a "Print" button with a printer icon.

Figure 21 - Call Annotation Window

3.9.3.2 Transfer

Where there is more than one instation to a system, one of the instations can be the controller (higher instation), whilst the other instations act as slave instations (lower instations). This arrangement allows transfer of all the telephones from the selected lower instation to the higher instation. Transfer or cancellation of transfer can only be initiated at the Lower Instations using the attached ALERT Transfer Box.



Figure 22 - Transfer Message Window

If the switch is changed from Lower Instation Control to Higher Instation Control and the criteria below is met, transfer of the section should be completed successfully. A message box will fill the screen informing the operator that transfer has been completed, and will stay on the screen until cancellation of transfer has been completed successfully. If transfer does not complete the Pending LED will light up, and the Lower Instation will remain in control until the transfer can complete.

Using one of the following sets of criteria, transfer can be completed successfully...

1) On the ALERT Transfer Box check that...

- The Higher Instation is available (Higher Instation OK LED is lit)
- AND the Lower Instation does not have a call (Line Clear LED is lit)
- AND the switch is set to Higher Instation control

OR

2) On the ALERT Transfer Box check that...

- The Higher Instation is available (Higher Instation OK LED is lit)
- AND the Lower Instation is not available (Lower Instation OK LED is not lit)
- AND the switch is set to Higher Instation control

If the switch is changed from Higher Instation Control to Lower Instation Control and the criteria below is met, cancellation of transfer for the section should be completed successfully. If the user clicks on the map, a login window will appear, for the user to log on. If the operator enters valid data, and the criteria below is met, cancellation of transfer should be completed successfully and the map and phones should re-appear at the Lower Instation. If the cancellation of transfer does not complete the Pending LED will light up, and the Higher Instation will remain in control until the cancellation of transfer can complete.

Using one of the following sets of criteria, cancellation of transfer can be completed successfully...

1) On the ALERT Transfer Box check that...

- The Higher Instation is available (Higher Instation OK LED is lit)
- AND the Higher Instation does not have a call (Line Clear LED is lit)
- AND the Lower Instation is available (Lower Instation OK LED is lit)
- AND the switch is set to Lower Instation control

OR

2) On the ALERT Transfer Box check that...

- The Higher Instation is not available (Higher Instation OK LED is not lit)
- AND the Lower Instation is available (Lower Instation OK LED is lit)
- AND the switch is set to Lower Instation control

3.9.3.3 Calls History

The Operator can initiate a call (ring out) to a phone by selecting the **Call** button. Pressing the **Call** button activates the **Calls History** window, which allows the Operator to call one of the phones listed. Any **Currently Connected Call** is placed on **Hold**.

The **Calls History** window (see right) shows the latest call from each phone into the instation. This list is arranged in historical order, with the latest at the end of the list. To call out, highlight the relevant phone from the list and press the **Call** button. The Operator can cancel the call before it is answered by pressing the **Cancel Call** button. The **Close** button closes the window.

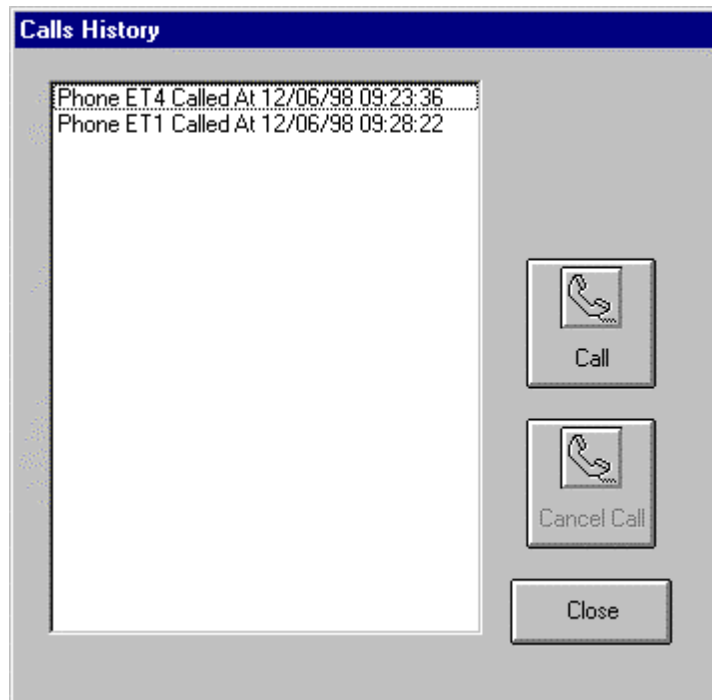


Figure 23 - Calls History Window

To call a phone that is not in the list i.e. it has not phoned in to the instation, first make sure that the **Calls History** window is closed. Select the relevant phone icon from the map (as described in section 3.2) to activate the hidden menu. From the menu select **Call**, which activates the **Calls History** window and makes the call.

3.10 Keyboard

The keyboard is only used where text is to be entered, e.g. the Call Annotation window. The system is mainly based upon mouse usage.

3.11 Cursor Controls

The arrow keys can be used to move between pull down menus for the selection of functions.

3.12 Printing

The printer automatically prints out every event that takes place on the system, e.g. when Operators log on and off, and when a phone call is cancelled or hung-up. Any operator or background test also generates printed fault data if the tested phone changes status as a result of the test, i.e. a previously faulty phone becomes OK, or a working phone is found to be faulty. Notes entered in the Call Annotation window may also be printed if required. See Figure 21.

To print periodic reports, follow the instructions contained in Section 3.7 to generate a report, and then select either the **Print Page** or **Print Report** option while the report is on screen.

4. TRAINING

There is no on-line training facility available for the ALERT emergency telephone system.

5. TELEPHONE OPERATION

This section describes the normal use of the system by the Operator. Due to the speed of operation of this system, there is a short delay between the function chosen and the response by the computer, e.g. there is a short delay between answering a call and actually being able to speak to the caller.

5.1 Answering a Call

When a motorist initiates a call by lifting the handset or pressing the call button at the roadside phone, the computer identifies the new call. On the screen the specific phone text flashes and is identified as an **Incoming Call**. The **Answer** button on the Operator Console also flashes.

If there is a **Currently Connected Call** already, the caller hears a message until the Operator takes the new call.

If an incoming call has not been answered after about 90 seconds, the phone times out and the caller no longer hears the ringing tone. The Answer button continues to flash at the Operator Console; to respond to the call the Operator clicks the Answer button. The phone then starts to ring.

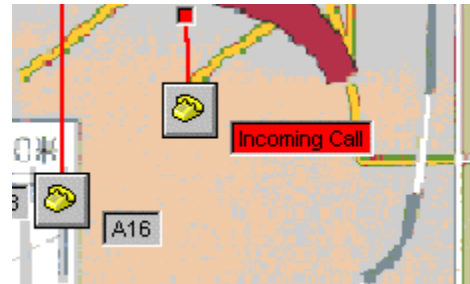


Figure 24 - Phone Icon Information - Incoming Call



To accept the call press the **Answer** button.

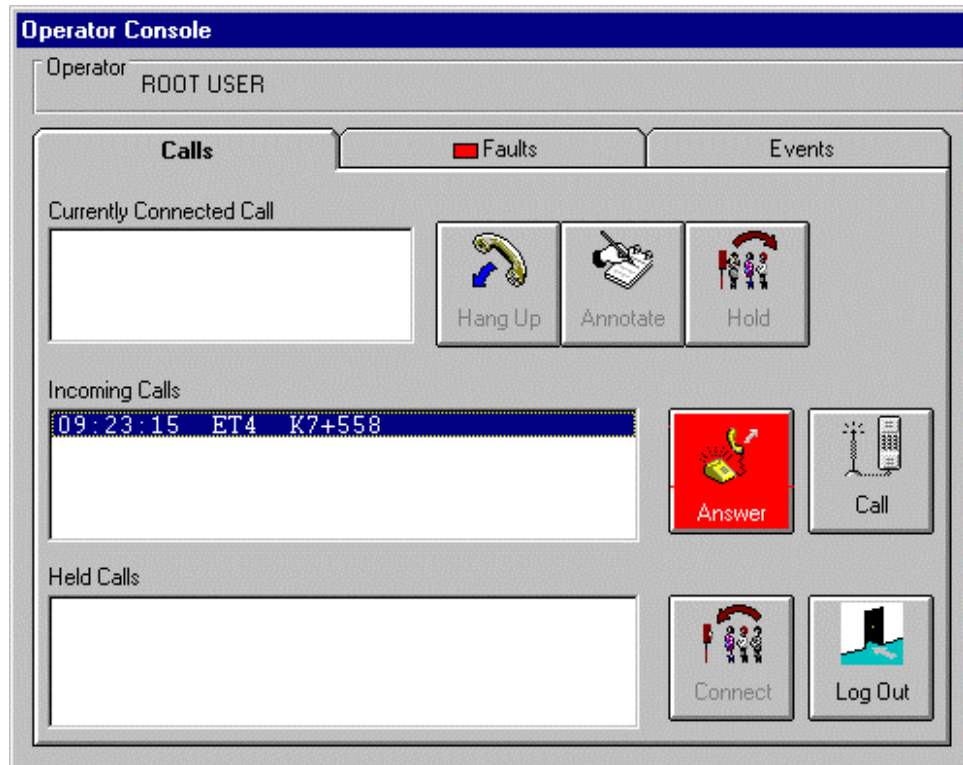


Figure 25 - Incoming Call on Operator Console

The Operator can also answer this call by selecting the phone with the right hand mouse button so that the pop up menu appears. From this menu select **Answer**. Then proceed as described below.

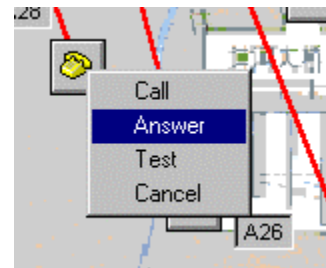


Figure 26 - Phone Icon Menu - Answer

The call information moves from the **Incoming Call** box to the **Currently Connected Call** box. The Operator is now connected to the caller on the headset.

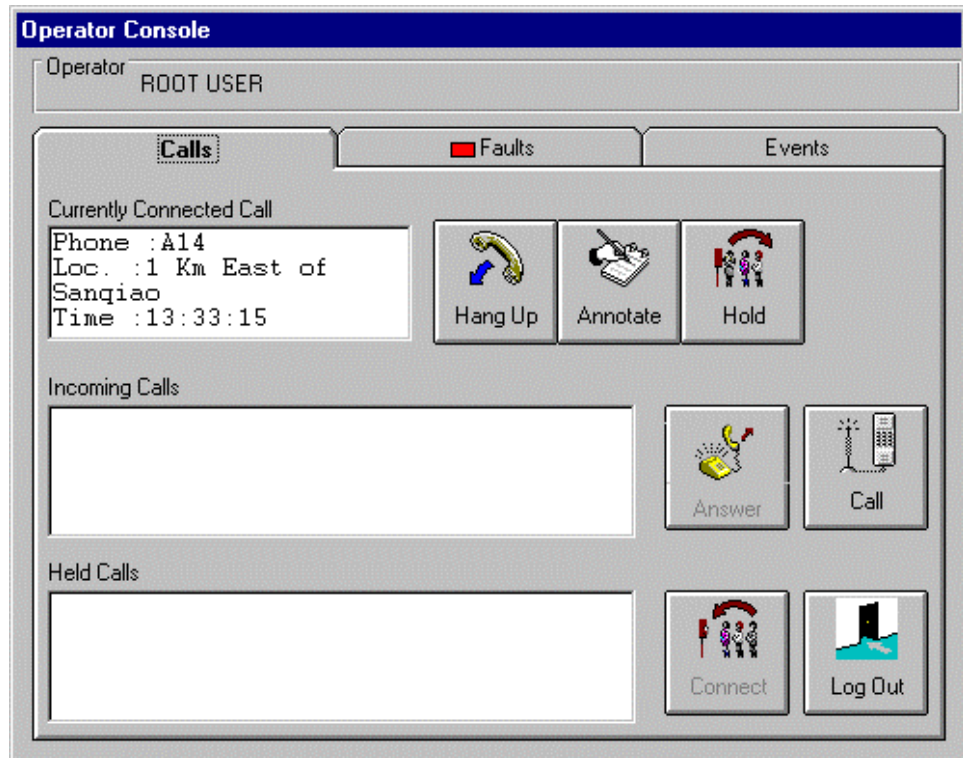
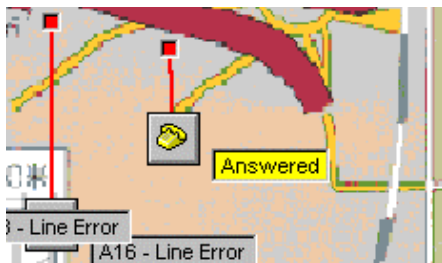


Figure 27 - Connected Call on Operator Console



The phone icon on the map now shows **Answered**.

Figure 28 - Phone Icon Information - Answered Call

Built in to the system is a **Call Timeout** so that any call connected for longer than the specified time is asked if the Operator wishes to resume the call (see below). Note: The call timeout refers to the call that has been connected the longest, which **may not** be the currently connected call. Select **Yes** to keep the connection, or **No** to hang up the call. This time period is configurable by the system maintainer.

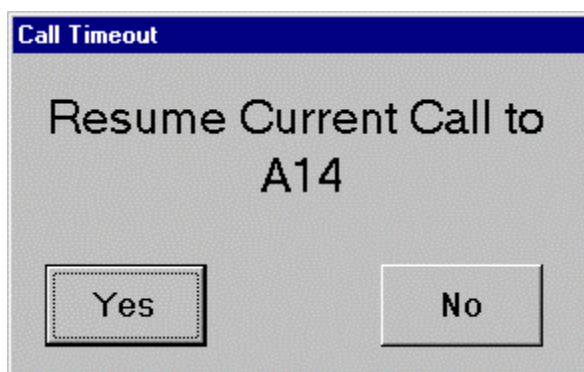
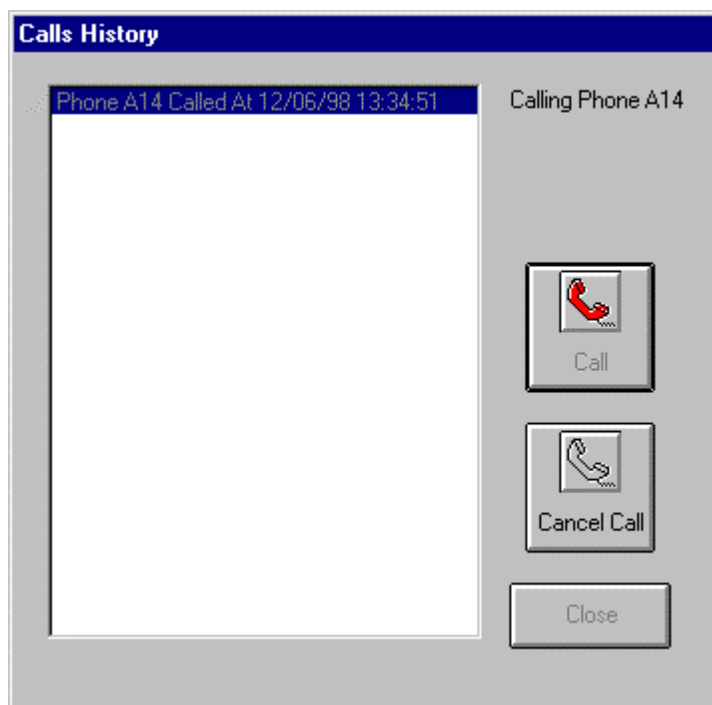


Figure 29 - Resume Current Call Message Box

5.2 Making a Call



The Operator can call any telephone on the road by selecting the **Call** button (below) from the Console. This shows the **Calls History** (left) for the system and also has a **Call** button that allows the Operator to call the phone.

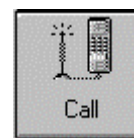


Figure 30 - Calling Out from the Calls History Box

The **Calls History** window normally displays details of the most recent call from each phone. From the list highlight the phone to be called and select the **Call** button.

The Operator can also select the required phone on the map with the right hand mouse button so that the pop up menu appears, as shown on the right. From this menu select **Call**. The **Calls History** window appears with the selected phone details entered and the call is made.

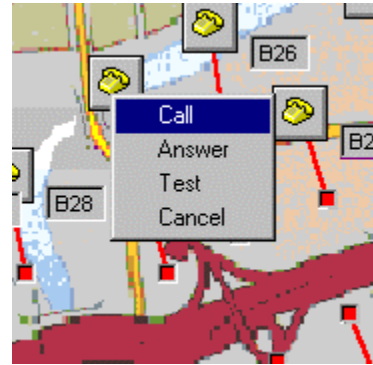


Figure 31 - Phone Icon Menu - Call

5.3 Cancelling a Call

The **Calls History** window has a **Cancel** option. An outgoing call can only be cancelled before it is answered. Once a connection is made, the call must be cleared as described in Section 5.4.

5.4 Clearing a Call



When the call is finished the Operator must use the **Hang Up** function to clear the call. This only clears the current call. The call must be displayed in the **Currently Connected Call** box to be hung up. It does not clear any held calls.

The Operator can also select the required phone on the map with the right hand mouse button so that the pop up menu appears, as shown on the right. From this menu select **Cancel**. This will clear the current call.

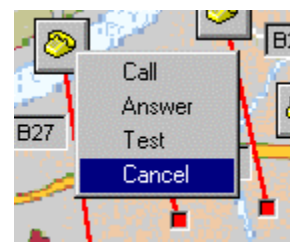


Figure 32 - Phone Icon Menu - Cancel

Another way of disconnecting a call is to select **No** when the **Call Timeout** window is displayed. See Figure 29. This call does not need to be the **Currently Connected Call** to be hung up.

5.5 Holding a Call

Putting a call on hold means that the phone connection with the Instation is still established, but caller and Operator cannot communicate with each other. The motorist hears a tone to let him know that the call is not finished. While a call is held the Operator is free to deal with other calls. When a call is taken off hold, the motorist and Operator are re-connected.

An instance where **Hold** may need to be used is where an **Incoming Call** needs to be answered and the Operator is already dealing with a **Currently Connected Call**. The Operator should tell the motorist that the call is to be placed on Hold.

The Operator can hold the call in progress at any time by using the **Hold** button.



The call is now displayed in the **Held Calls** box.

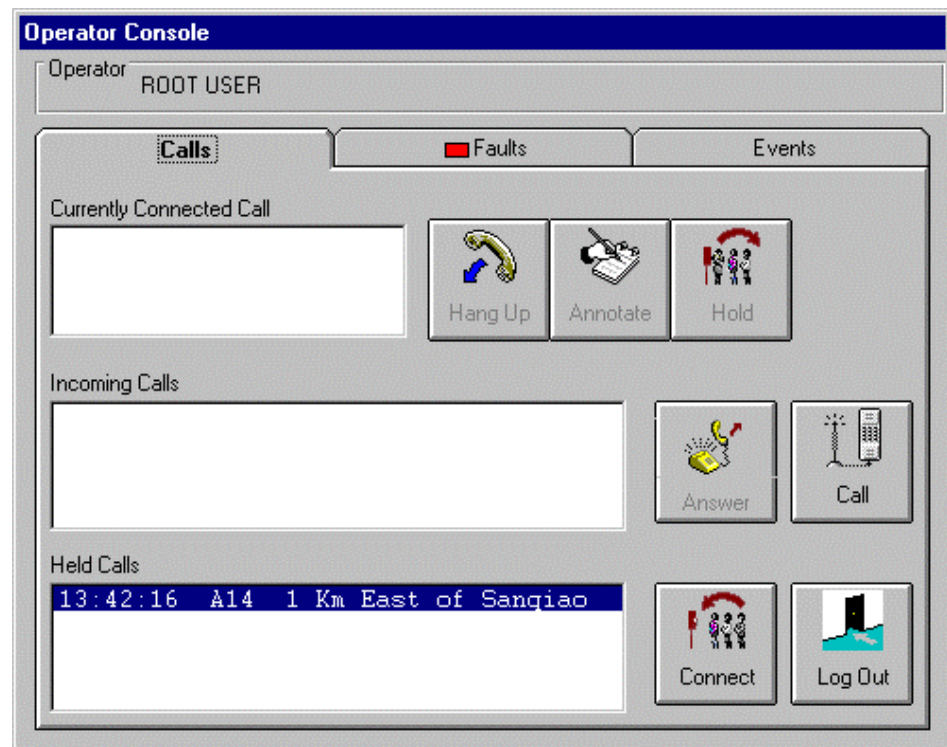


Figure 33 - Held Call on Operator Console



Figure 34 - Phone Icon Information - Held Call

If the Operator chooses to **Answer** an incoming call when there is already a **Currently Connected Call**, the computer automatically holds the current call and its details move to the **Held Calls** box.

The new call details move to the **Currently Connected Call** Box.

The phone icon now shows the original call as Held.

5.6 Retrieving a Held Call

To reconnect to a call within the **Held Calls** box, first make sure that the call is highlighted by clicking on the text in the **Held Calls** box. Then select the **Connect** button. This moves the call from the **Held Calls** box to the **Currently Connected Call** box and the Operator and caller are reconnected on the headset.



If there is a **Currently Connected Call** and the Operator reconnects a call that is on hold, then the **Currently Connected Call** automatically goes onto hold.

5.7 Annotating a Call

By clicking on the **Annotate** button a free text window appears (see Section 3.9.3.1 and **Figure 21**). The Operator can now type in notes about the current call, including the distance from the phone to the incident being reported, the caller's name and any further information required. The **Action** drop down menu enables the Operator to choose from a list of actions being taken as a result of the call.



Appendix A Reinstallation of system software

This section is provided so that in the unlikely event of failure of the system it can be recovered. If it is not possible to follow the instructions exactly, because the system shows discrepancies with the following instructions and replies, notify the maintenance organisation immediately as there may have been some lower level corruption of the system.

Case A.1

If the Operator has a problem with the system, the Operator's actions should be:

1. Logout of the ALERT Telephone system (Section 3.4).
2. Switch the PC off.
3. Ensure that all cables going to the back of the PC are securely in place.
4. Switch the PC back on again.
5. This last action automatically starts up the ALERT application, and presents the Operator with the map as shown in **Figure 1**. Login in the usual way.

If there is still a fault in the system, please check that the above actions have been completed correctly. Then check all cable connections into the PC and the Instation Line Interface box.

If these checks have been completed satisfactorily and there is no known fault in any other part of the system, then the problem is likely to be a lower level data corruption. In this case, notify the system maintainer.

Appendix B Error Codes

The codes are made up as follows:

- 1 fault on line 1
- 2 fault on line 2
- 4 battery is faulty on line 1
- 8 DC voltage is low on line 1
- 16 Cross-Talk
- 32 battery is faulty on line 2
- 64 DC voltage is low on line 2.
- 128 Cross-Talk

Examples of how the **Error Codes** are built up:

Example 1.

If **Error Code 1** is displayed, this shows there is a fault on Line 1(1).

If **Error Code 2** is displayed, this shows there is a fault on Line 2(2).

If **Error Code 3** is displayed, this shows there is a fault on Line 1 and Line 2 (1 and 2).

Example 2.

If **Error Code 13** is displayed, this shows there is a fault on Line 1(1), a battery fault on Line 1(4) and DC voltage is low on Line 1(8).

Example 3.

If **Error Code 98** is displayed, this shows there is a fault on Line 2(2), a battery fault on Line 2(32) and DC voltage is low on Line 2(64).

Example 4.

If **Error Code 29** is displayed, this shows cross talk on Line 1(16), with DC voltage is low on Line 1(8), battery is faulty on Line 1(4) and a fault on Line 1(1).

Example 5.

If **Error Code 226** is displayed, this shows cross talk on Line 2(128), with DC voltage is low on Line 2(64), battery is faulty on Line 2(32) and a fault on Line 2(2).