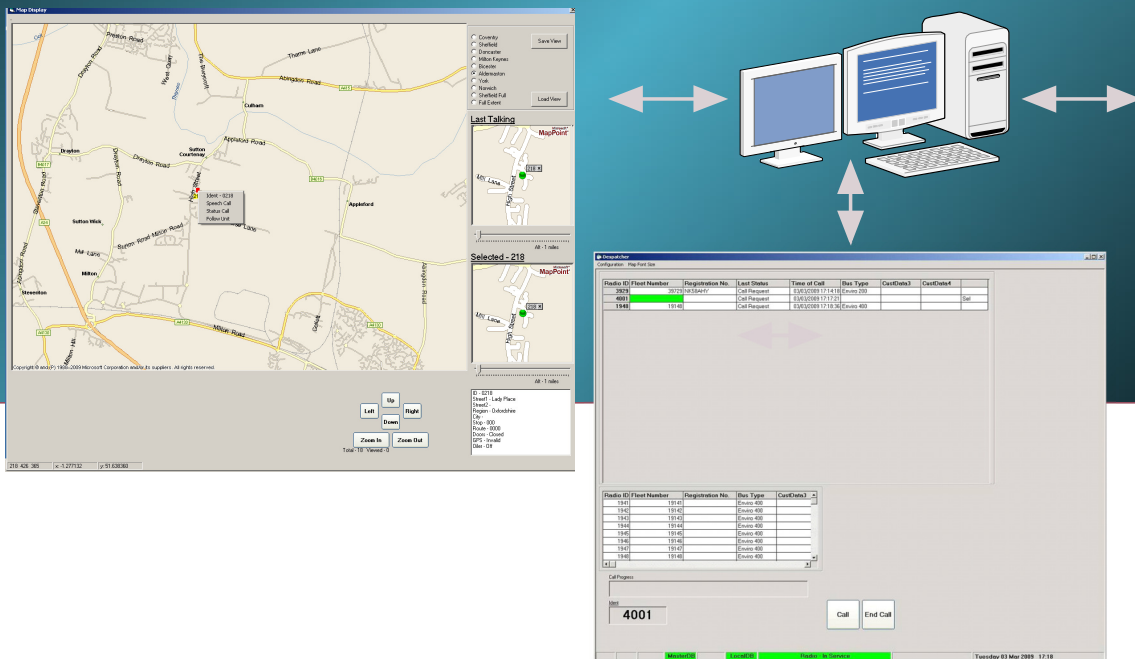


Keynet- Computer Aided Despatcher - Voice+AVL Version Operator Manual



Versatile Fleet Management Tool for Voice and Data Communications plus Asset Tracking

- Single Client or sophisticated multiple position operation with shared data base
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1. INTRODUCTION

The new Radio Systems Voice Despatcher has been tailored, where possible, to meet the requirements of a range of users. It provides the additional functionality offered by the Keynet II system with access to many operational features that are inherently available in the MPT1327 trunked system design. The main difference from the early versions is the provision of sounds to draw attention to incoming calls as well as sounds to indicate that the operator has performed a function.

The package is valid for radio, landline, LAN, WAN, ADSL or most industry standard forms of connectivity.

2. OPERATIONAL OVERVIEW

Operation is achieved using a standard desk top PC with either keyboard entry with assigned keys or by using the mouse to control these functions. The assigned keys are listed in the table provided later in this document. The appearance of the Voice Despatcher has been kept as simple as possible, but takes full advantage of the Keynet II Trunked system features.

3. VOICE FEATURES

Received audio from mobiles and portable radios is provided through desk top loudspeakers with adjustable volume. These are connected to the standard audio output ports at the back of the PC.

Transmitted audio is provided from a desk top microphone with a muting switch. The transmitted audio is processed through an automatic gain controlled amplifier (VOGAD) unit to allow for the variation in operator voice levels therefore maintaining a relatively constant modulation voice level.

Alternatively, when used with a radio Despatcher, the normal fist microphone or an adapted desk-top microphone may be used directly connected to the voice radio.

4. VOICE DESPATCHER OPERATION

4.1 Voice Calls

The Despatcher Operator Screen (**Fig.1**) is the opening screen and used for day-to-day communications control. Call management may be performed by using the keyboard or the mouse depending upon the preference of the operator. The mouse icon can be used to set up calls from the Despatcher screen.

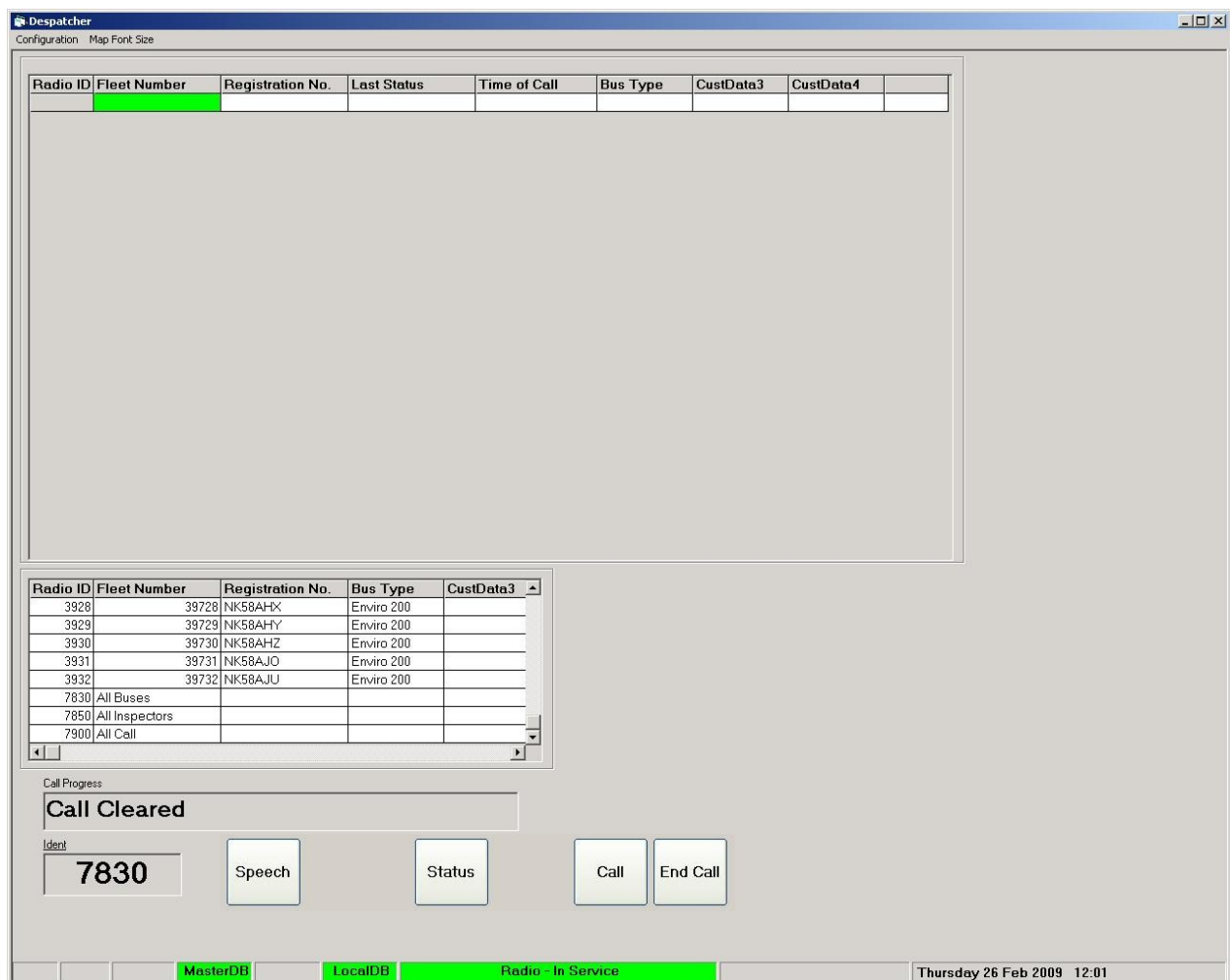


Fig. 1. Opening Screenshot of the Keynet PC Despatcher System

4.1.1 Incoming Calls that have been initiated by drivers come in via Status messages as “Call Requests” and immediately appear at the top of the call stack box at the top of the screen. The details about the call are visible in the table and it is possible, where more than one call is waiting, for the operator to select calls in any order they may feel appropriate from the list.

4.1.2 **Incoming Call Selection** may be made using the Up/Down arrow keys to select the call from the call stack followed by pressing the **F1** function key. Alternatively the operator may use the mouse to control the screen icon on to the desired caller in the Call stack (**Fig.2**). After selection, at pressing the **F1** key the Ident will be copied to the **Outgoing Call** area at the bottom of the screen in the “**Ident**” box and the call will be set up with the caller. Similarly this action can be performed by placing the mouse icon on the “**Call**” box and clicking the left hand mouse button. Successful establishment of the call will be indicated by the word “**Connected**” being displayed in the “**Call Progress**” dialogue box. The Operator will then be able press the PTT switch on the microphone and commence speaking with the caller.

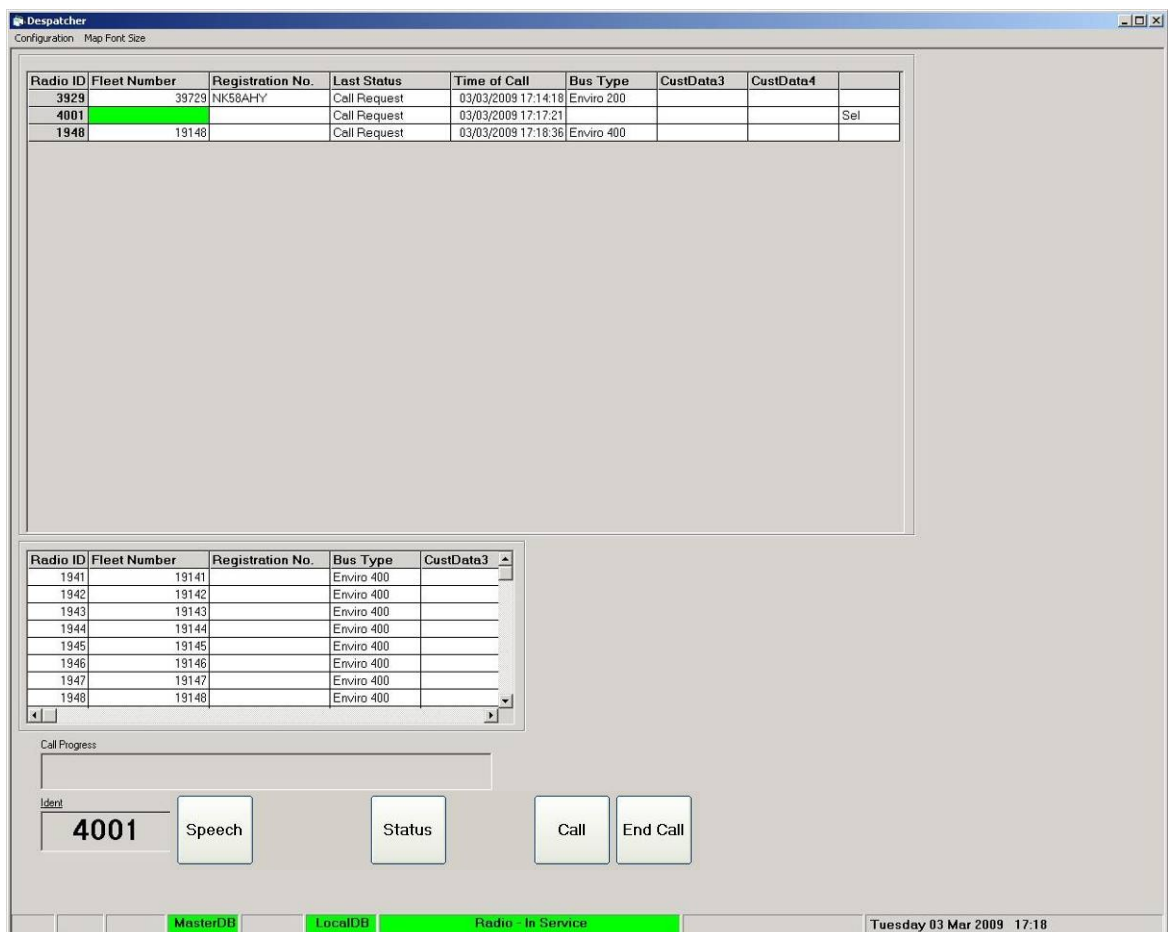


Fig. 2. Call Stack appearance

- 4.1.3 **Call Time** is indicated at the bottom of the Despatcher screen to the left of the date text box as a count down time in seconds whilst a call is in progress. The start time is dependent upon the system setting for the time-out period that will limit the maximum call length. If the timer is set to 120 seconds the time will decrement from 120 downward.

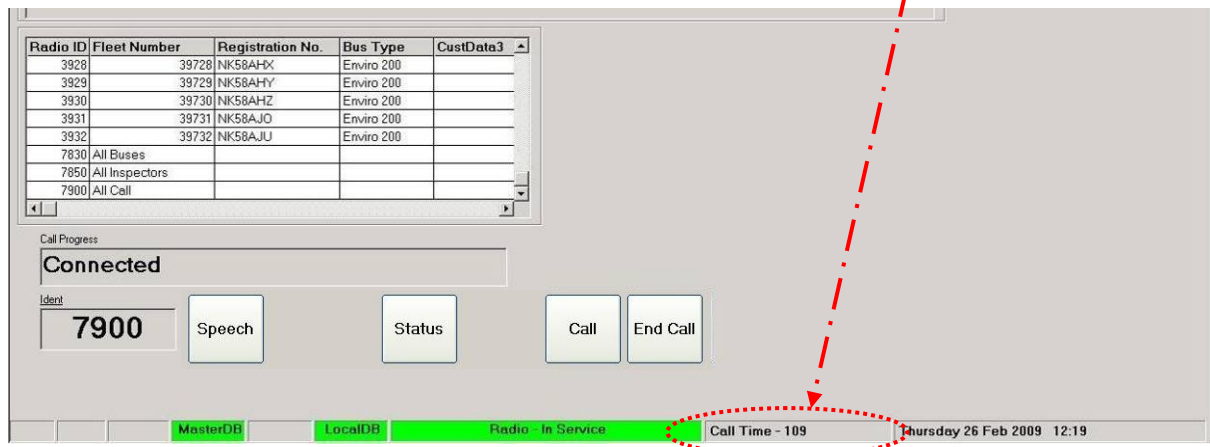


Fig. 3. Call Timer and Call “Connected”

- 4.1.4 **Outgoing Speech Calls** can be initiated by the Operator using either:
- 4.1.4.1 Using the **F1** function key to set up the call with the call at the top of the stack, (most recent call request)
 - 4.1.4.2 Selecting from the Incoming Call stack using the mouse, then using the **Call Button**.
 - 4.1.4.3 By direct number entry into the Outgoing Call **Ident** text box, then using the **Call Button** to set the call up,
 - 4.1.4.4 From the **“Look-up List”** above the “Call Progress” text box by selecting the radio Ident using the mouse icon and scroll-down bar, then the pressing the **Call Button** to set the call up.

4.1.5 Call Clearance

For voice calls set up using the **Voice Despatcher** screen, call clearance is achieved by pressing the **F8** function key or by placing the mouse icon over the “**End Call**” box and clicking the left hand mouse button. Successful disconnection of the call is indicated by the word “**Call Cleared**” being displayed in the “**Call Progress**” box (**Fig. 4**).

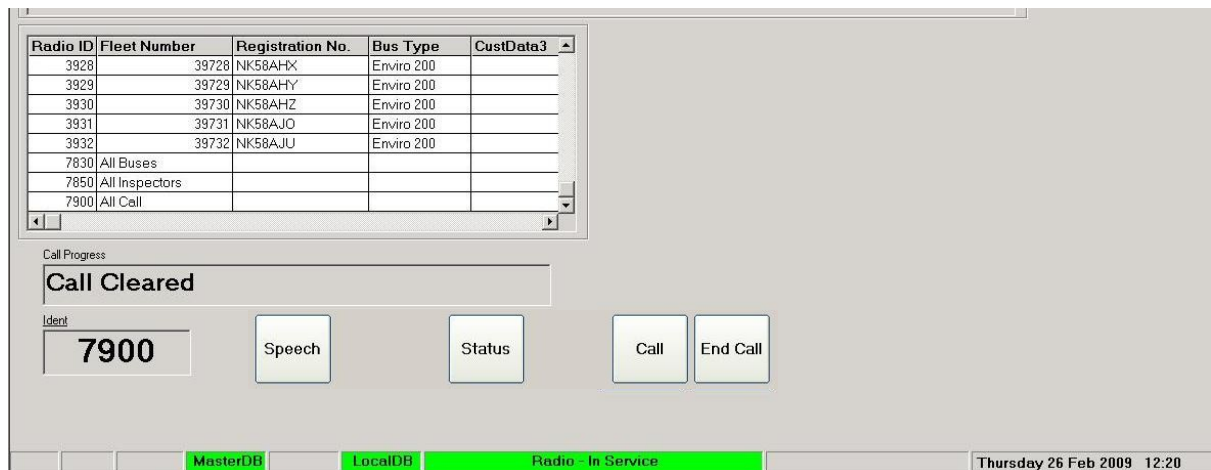


Fig. 4. “Call Cleared” indication

4.1.6 **Call Ident** is always a 4-digit number using 0's ahead for any lesser number to make up the 4-digit field and can be of:-

- 4.1.6.1 an **individual vehicle radio**.
- 4.1.6.2 an **individual Inspector**.
- 4.1.6.3 a **Group Ident** to a specified group of vehicles and/or Inspectors.
- 4.1.6.4 a **Global Ident** to all vehicles and inspectors logged on to the system at the time of the call.

- 4.1.7 **Group and Global Ident** information is held in the database in the PC. The number can be entered manually into the Ident box before using the **Call Button** to transmit the message to a **Group** or make a **Global** call.

These numbers in the 79xx or 78xx series are also selectable from the “Outgoing Call” list where they will be found by scrolling to the bottom of the list.

Fig. 5 below shows a Group call in progress to Group ID 7900. Other Group numbers are held in the look-up listing, for example 7830 “All Buses” and 7850 “All Inspectors” are assigned and useable.

The screenshot displays the software interface for a group call. At the top, a table lists available radio IDs and their details:

Radio ID	Fleet Number	Registration No.	Bus Type	CustData3
3928	39728	NK58AHX	Enviro 200	
3929	39729	NK58AHY	Enviro 200	
3930	39730	NK58AHZ	Enviro 200	
3931	39731	NK58AJ0	Enviro 200	
3932	39732	NK58AJU	Enviro 200	
7830	All Buses			
7850	All Inspectors			
7900	All Call			

Below the table, the 'Call Progress' section shows the status 'Connected'. The 'Ident' box contains the number '7900'. To the right of the 'Ident' box are four buttons: 'Speech', 'Status', 'Call', and 'End Call'. At the bottom of the interface, a status bar displays 'MasterDB', 'LocalDB', 'Radio In Service', 'Call Time - 109', and 'Thursday 26 Feb 2009 12:19'.

Fig. 5. Group Call to 7900 in progress

4.1.8 **Emergency Speech Calls** incoming to the Despatcher operator will result in a large, white dialogue box opening containing the word **“Alarm”** in large red letters. There will be an audible alarm that continues until the Emergency call is selected using the mouse or cursor buttons.

The Emergency call will also be displayed at the top of the **Call Stack** with the word Emergency in the **“Last Status”** column and it will remain at the top of the call stack until it is actually cleared from the screen.

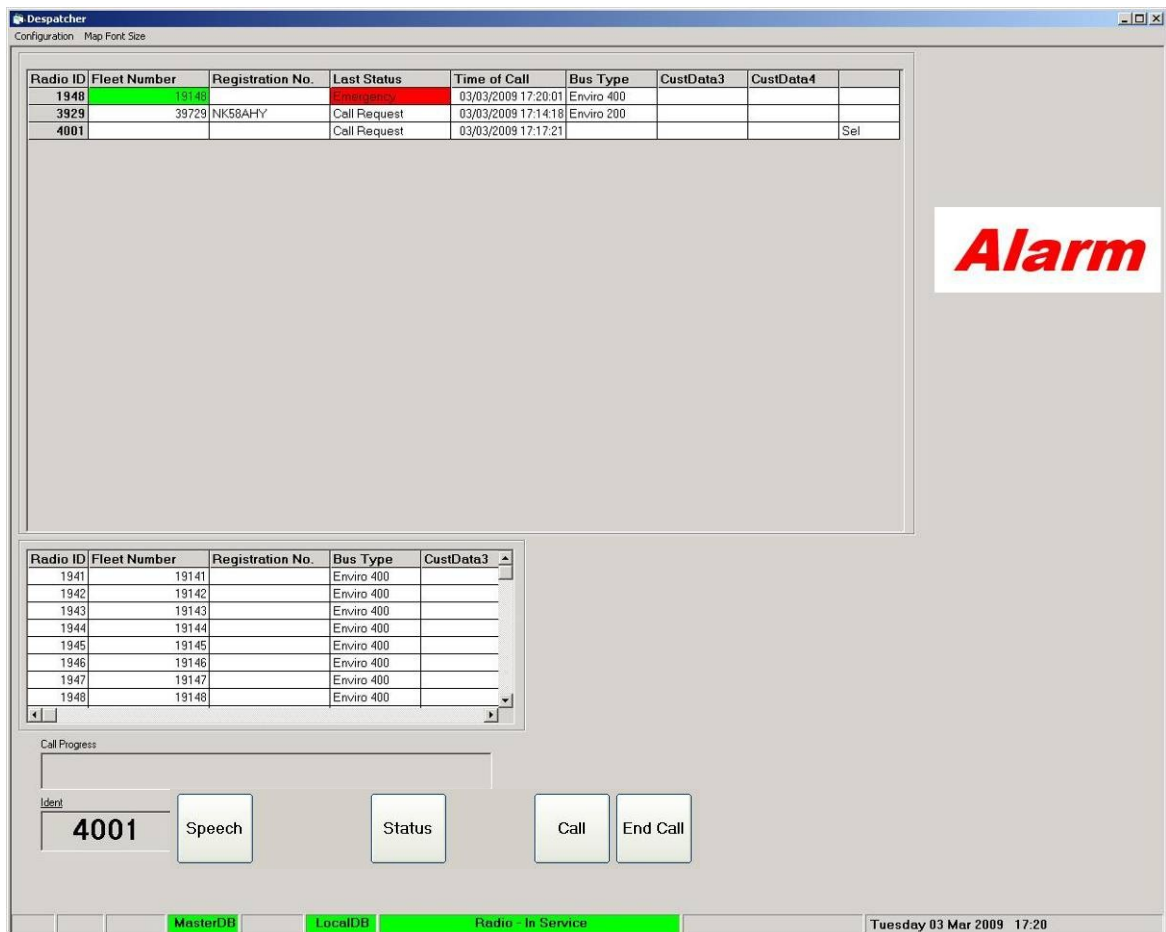


Fig. 6 Emergency Incoming Call – “Alarm”

To delete an Emergency call from the stack, first select it and then press **F10**. If an Emergency call is selected and then subsequently deselected without being called or cleared, the Alarm sound will not restart but it will be left in position in the stack.

4.1.8.1 Silent Microphone Operation

Silent Microphone operation is a function provided within the vehicle radios to enable the Despatcher Operator to listen to any activity in the cab after an Emergency call has been initiated by that vehicle's driver.

Where a vehicle has been fitted with an Emergency Call red button, pressing this will initiate an Emergency Speech request to the Control Despatcher. The destination of this request message is pre-programmed in the vehicle radio.

On receipt of the Emergency Speech request the PC Despatcher displays a white screen with red text "Alarm", and the alarm sounds from the loudspeaker.

Direct speech call set-up by the mobile to the Control Despatcher is not allowed, but there is a message sent to the vehicle radio that a request has been received, but there is no indication either audible or visible at the vehicle radio.

When the operator selects the Alarm call, this action automatically stops the alarm sounding from the Despatcher PC, but does not initiate a return Emergency Speech call to the vehicle. There are two ways to initiate contact with this vehicle:

- a) Pressing the F1 key will connect to the vehicle radio to start a two-way speech call. The PC mouse may also be used to select the Call button.
- b) Using PC mouse and selecting the Status button will bring up the Status message list. By selecting Status 27 message and pressing Call will connect to the vehicle radio. **(See Fig. 7 on next page)**

At this point a traffic channel on the radio system is commandeered, closing any conversation that may have been taking place on that channel if it was busy at that time.

Once the Alarm call has been selected by the controller using a Status 27 call, the vehicle radio automatically transmits for 15 seconds once the call has been set-up. As the vehicle microphone is live during the periods of transmission the Controller can hear what is happening in the cab of the vehicle.

After the 15 second period of transmit the vehicle radio switches back to receive giving the controller an opportunity to speak to the driver if this is considered safe and necessary. After a further 15 seconds the vehicle radio will revert back to transmit.

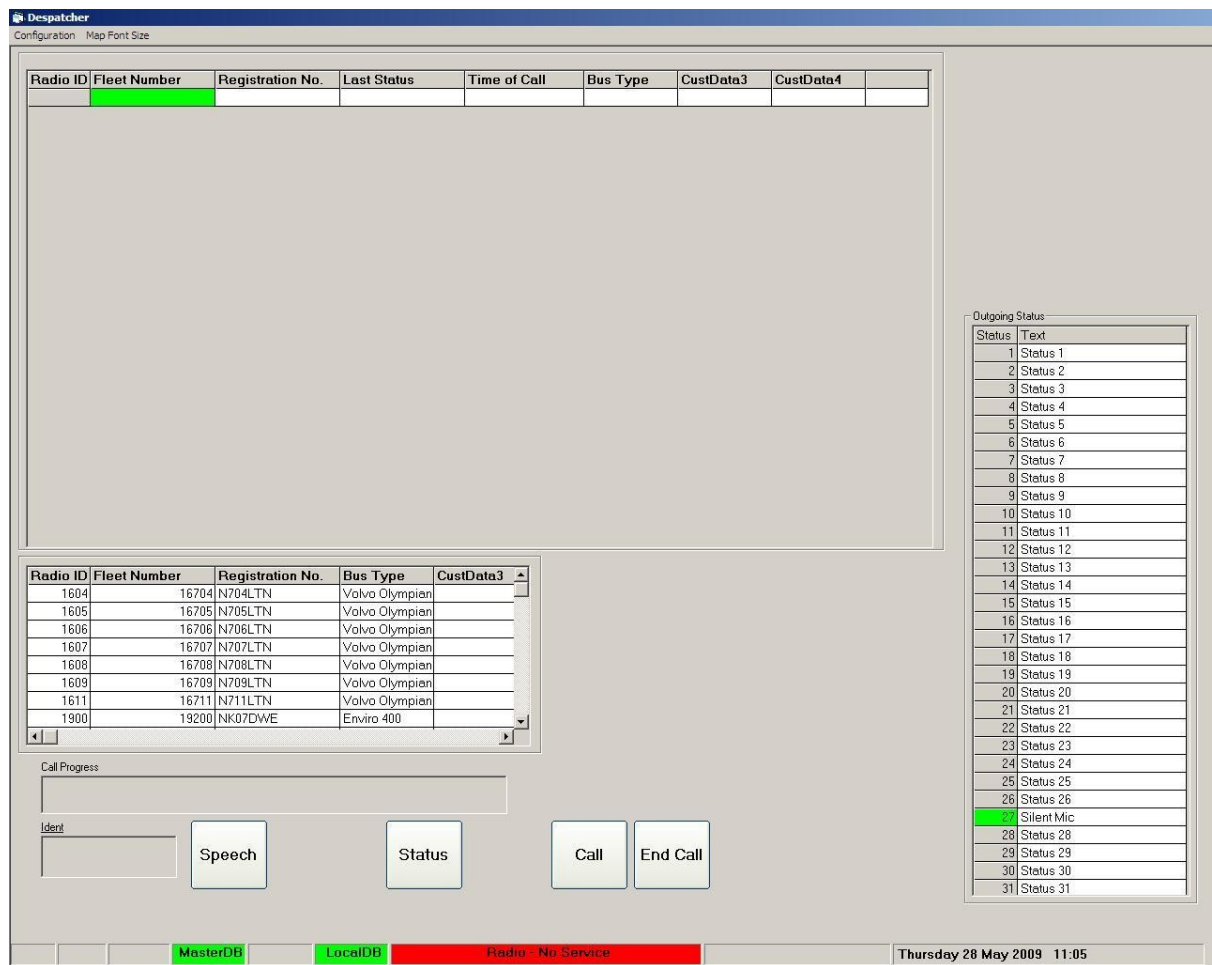


Fig. 7 Outgoing Status Messages –Selection column

During this type of operation there is no indication visible or audible that the radio is active that may compromise the driver.

This alternating transmit/receive operation will continue until:

- The call timer reaches the end of the 4½ minutes timeout period, or
- The driver presses the PTT switch. At this action the radio will return to normal transmit and receive speech call operation, or
- The supply power to the vehicle radio has been removed or interrupted.

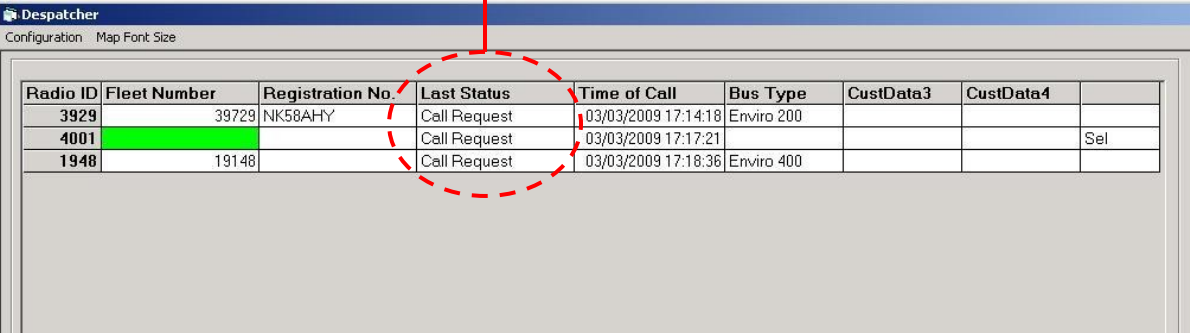
Once the Emergency call has been cleared the radio will return to normal operation.

4.1.9 **Call Stack Deletion** is achieved by placing the mouse icon over the call to be cleared and clicking the LH mouse key. Using the **F10** function key will remove the individual call information line. If the mouse icon is placed over the bottom most, oldest call record, and selected for deletion, as the **F10** key is pressed successively then each of the oldest calls will be progressively deleted from the stack from bottom upward. Multiple call deletion from Call Stack is not possible.

All call information is permanently retained in the Call Record day log in the database and this is not affected by the call stack deletion process.

4.2 Status Messages

4.2.1 **Incoming Status Message from the Buses or Inspectors** are displayed in the “**Incoming Calls**” stack under the heading “**Last Status**” – (See Fig. 6). Any necessary response will be at the discretion of the Despatcher operator.



Radio ID	Fleet Number	Registration No.	Last Status	Time of Call	Bus Type	CustData3	CustData4	
3929	39729	NK58AHY	Call Request	03/03/2009 17:14:18	Enviro 200			
4001			Call Request	03/03/2009 17:17:21				Sel
1948	19148		Call Request	03/03/2009 17:18:36	Enviro 400			

Fig. 8 Incoming Call Stack – “Last Status” column

4.3 Screen Appearances

4.3.1 Radio Despatcher Operator Screen (Fig 7)

Fig 7 shows the operator screen which the first screen to open when the Despatcher Program is opened on the PC. This screen gives access to all the functions provided in the system and the default opening window is for Voice Call operation.

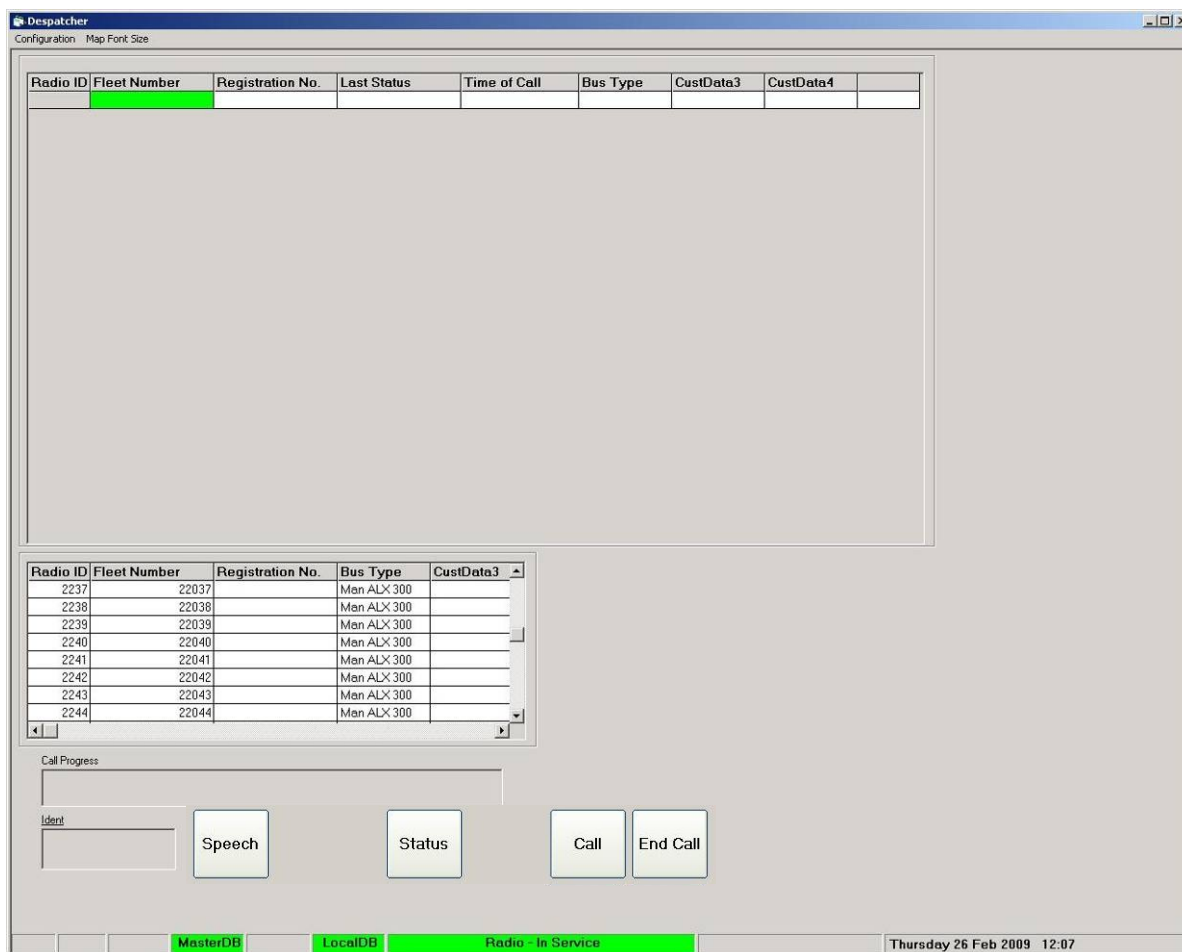


Fig. 9 Radio Despatcher Screen

4.3.2 Manual Ident Entry

By clicking the mouse with its icon in the Ident text window an ident can be typed in from the keyboard. To connect to that radio merely requires using the mouse to click on the “Call” button. “**Waiting**” will appear in the Call Progress box and this will change to “**Connected**” once the call is established.

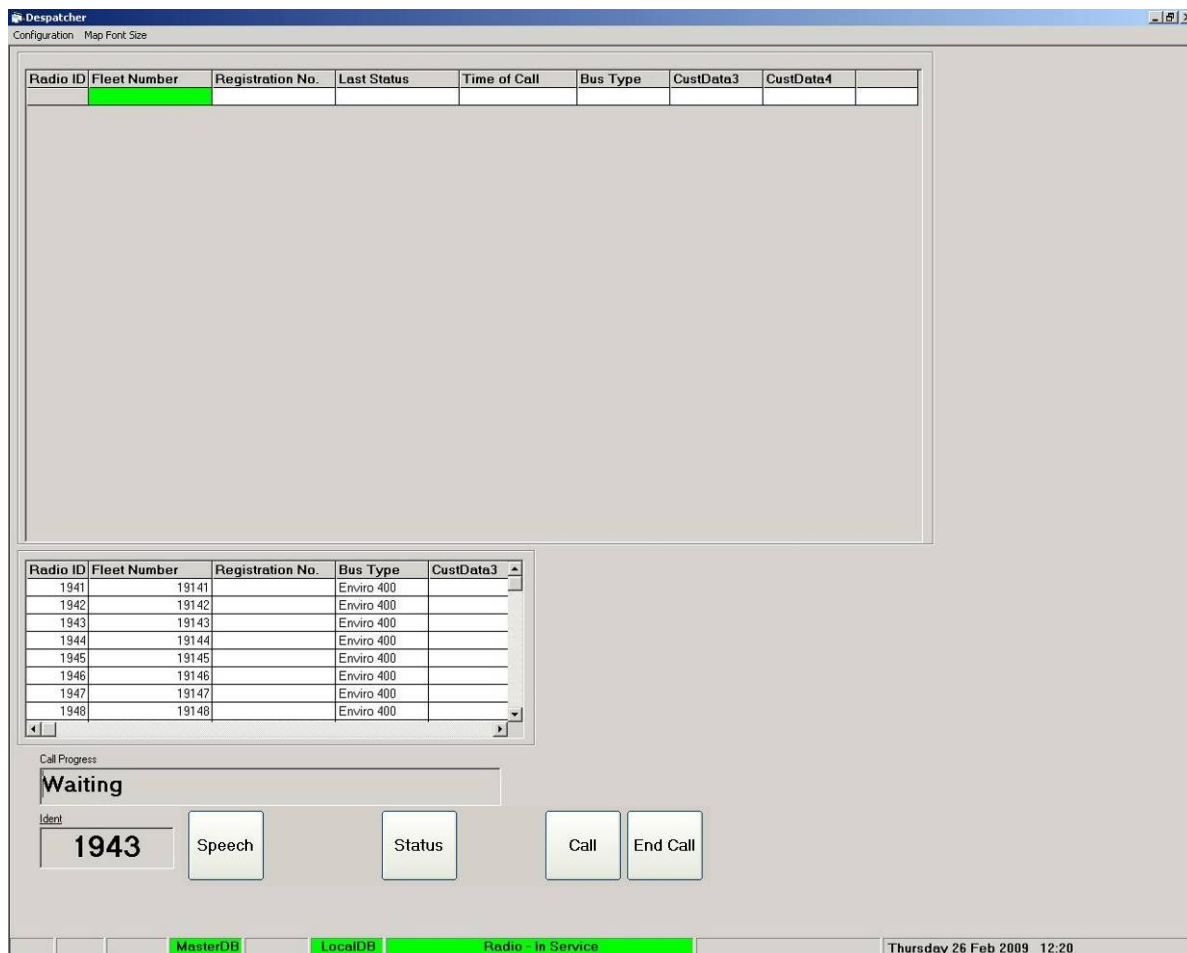


Fig. 10 Radio Despatcher Screen – Manual Ident Entry

4.3.3 Failure to Connect Indications

In the event that the mobile is out of radio range of the system or switched off then the call will fail resulting in either of the following screens, Figs. 9 and 10:

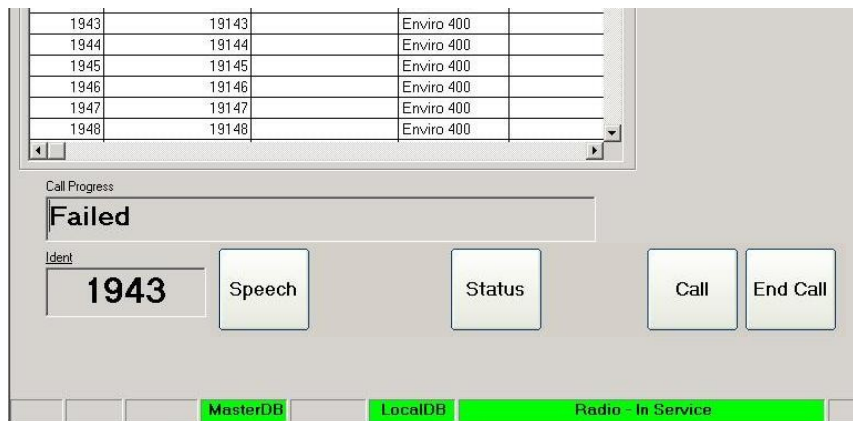


Fig. 11 Radio Despatcher Screen – Failed to Connect

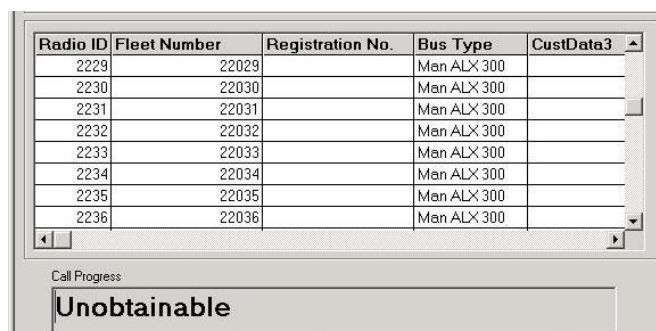


Fig. 12 Radio Despatcher Screen – Unobtainable

5. Keynet Despatcher Keyboard Assignments

F1	Connect key for latest entry at the top of the Call Stack and EMERGENCY Calls.
F2	Not Assigned.
F3	Not Assigned.
F4	Not Assigned.
F5	Not Assigned.
F6	Not Assigned.
F7	Not Assigned.
F8	Clears a connected call.
F9	Not Assigned.
F10	Deletes an entry from the call stack.
Numerical Keys	<p>The default state of numerical keys on the keyboard is to enter numbers into the Ident box.</p> <p>Note that all keyboard shortcuts can also be entered using the mouse to activate the Call and End Call buttons</p>

6. MAPPING SCREEN

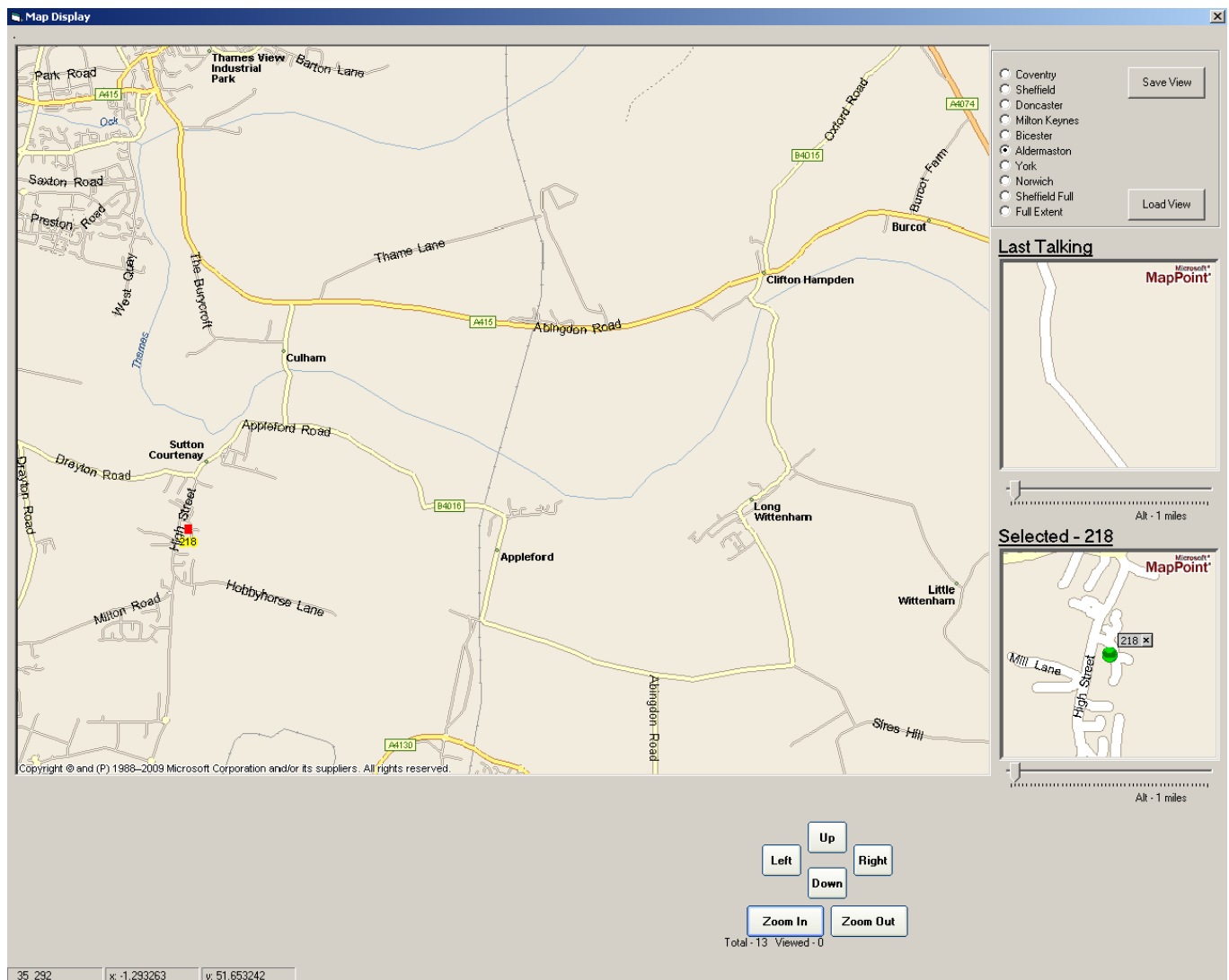


FIG. 13

6.1 General Principles

Keynet can be configured in a variety of ways specified by individual end users to provide vehicle and asset tracking in addition to voice communications or in some cases vehicle and asset tracking only.

GPS technology is used in much the same way as a SatNav to determine location but rather than GPS data being used to plot locations within a vehicle, Keynet sends the data back to a central point where it is processed and then distributed to provide vehicle and asset locations on despatcher PC mapping screens.

Parts of an end user's specifications will dictate rates at which data is sent back to the central location, how it is processed and how data is distributed. Parameters such as these are configurable by Engineers within the system and despatcher software, however some configuration elements are available to individual despatcher operators and these, together with operating details are described in this section of the manual.



The process described below will change the label and map display to Aldermaston.

6.4 Setting a Preset Map View

- Adjust the map to the required view (of Aldermaston), using the buttons as described above.
- Select one of the preset views to change in the top right box, in this case Liverpool
- Click on “Save View.”
- An additional “Enter Name and Confirm” button will appear with a box to type in the new view name.
- Enter a suitable description for the view, (Aldermaston).

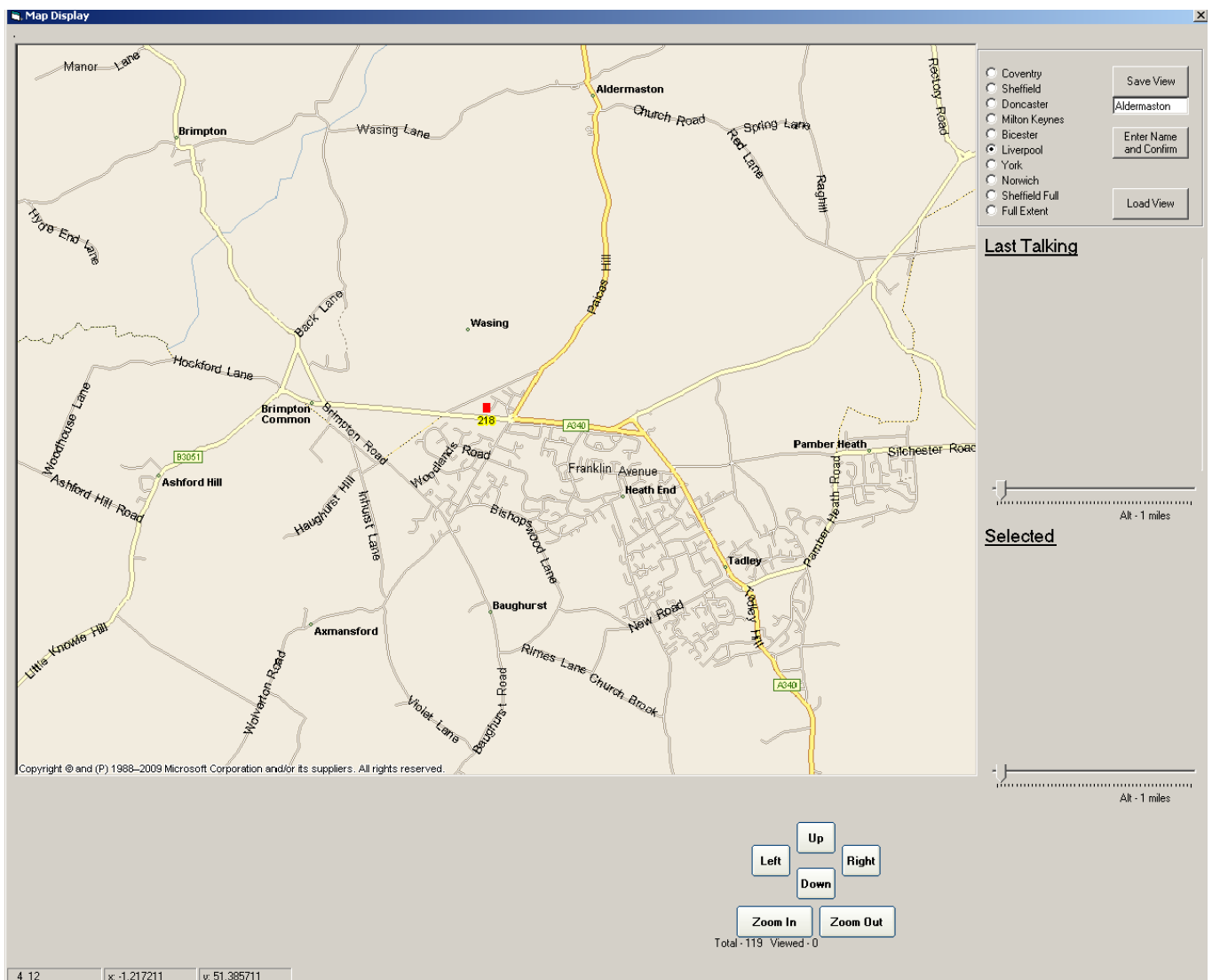


FIG. 15

- Click on the “Enter Name and Confirm” button. The selected view label will change to the newly entered text, (Aldermaston). In addition, Fig.16 shows the cursor hovering over ID0218, which opens the Selected box to display ID218’s position.

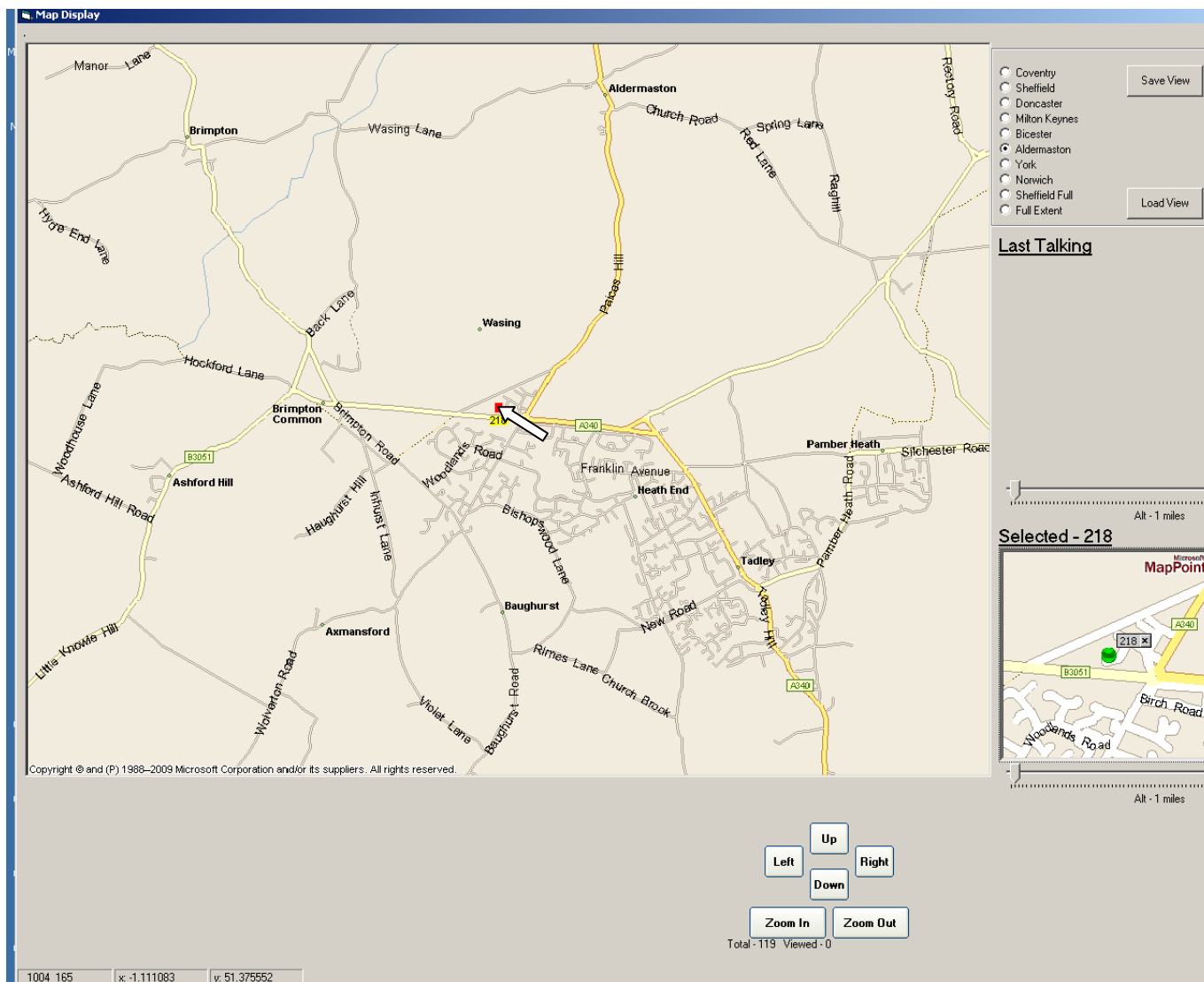


FIG. 16

6.5 Selecting a Preset Map View

A preset Map View can be shown by selecting another view in the top left box and clicking on the “Load View” button. In this case if York were to be selected, the map would centre on what was set as the York preset map view.

Each dispatcher position has its own set of preset views even if one of a number of dispatchers sharing the same database.

6.6 Vehicles Displayed on the Map

Vehicles and in some cases their status are displayed on the map as icons. These icons are prescribed in the system specifications and are not operator configurable. A list of icons and their meanings is generally issued to operators as an addendum to this manual.

Given the above, vehicles will automatically be displayed on the main map screen as pre-programmed icons and their positions updated with the most recently received GPS data.

Another specification parameter is for additional features that can be available to operators for each vehicle or asset displayed on the main map. To access this information, the cursor is placed over the relevant icon and the right mouse button clicked. A drop down box appears. Fig.17.

See below for a description of the Last Talking box that has appeared.

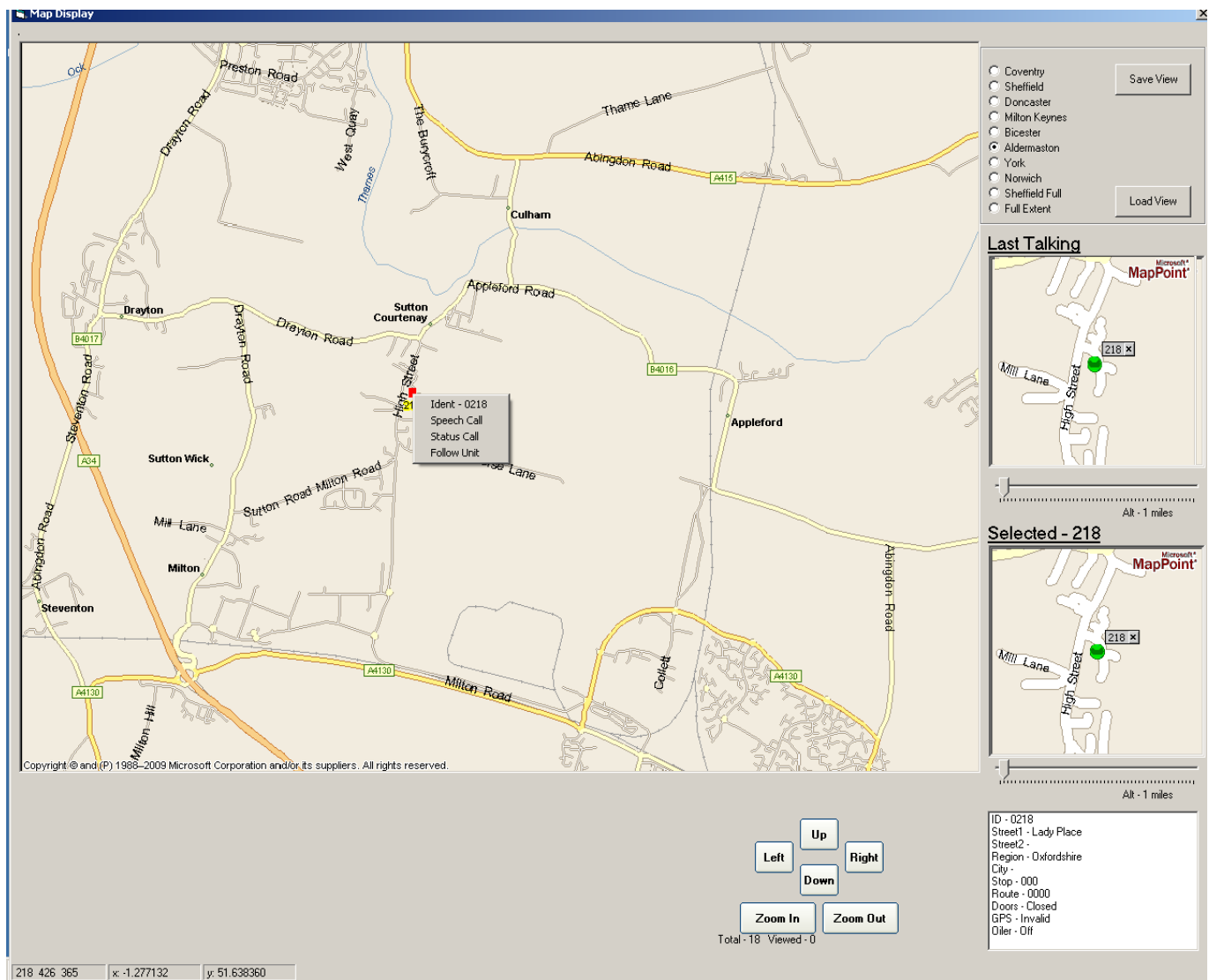


FIG. 17

6.7 The Icon Drop Down Box

The first line in the box gives the radio 4 digit ID

The next line has the option to make a speech call from the mapping display. To make a speech call the cursor is placed over Speech Call and the right mouse button pressed. Call progress is then as described in the voice despatcher section of the manual.

Similarly if outgoing Status calls are enabled and in use, the cursor is placed over Status Call in the box and the right mouse button pressed. Call progress is then as described in the voice despatcher section of the manual.

The last line in the box, Follow Unit, is used to track a particular vehicle or asset. By right clicking over this, the mapping performance changes. In normal mode the map is static and vehicles moving towards the edges will eventually go off the display if it is not adjusted. In the Follow Unit mode the selected vehicle will stay approximately within the centre of the map and instead of the vehicle moving the map moves.

6.8 The Selected Box

If a unit is selected, as with ID 0218 in Figs.16 & 17 above, the bottom right Selected box will show the selected vehicle position. The slider under the box is the zoom control calibrated in kilometers above the earth.

6.9 The Last Talking Box

If a vehicle is making a voice transmission back to a despatcher, it will be displayed in the Last Talking box in its current position, whilst transmitting. The slider under the box is the zoom control calibrated in kilometers above the earth. Fig. 17 illustrates the action with ID 0218 shown transmitting.

This is particularly useful for Group calls. As any Group member can participate in a Group call without revealing their identities verbally, this tool shows their radio ID and position in Real Time.

6.10 Text Box

This is not configurable by the operator. If enabled, the bottom right hand box displays the selected vehicle information in text form.

6.11 Cursor and Mouse Actions Summary for Map Screen

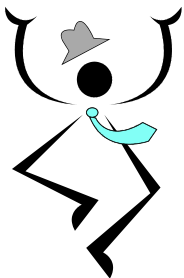
- Adjust main map view to include point of interest, place cursor over point of interest and right click. The map moves and centres on the point of interest.
- Hover cursor over vehicle icon. The map sector with the vehicle icon in the centre is displayed in the Selected box. Fig.16 illustrates.
- Hover over vehicle icon and right click. A drop down box of features available for that vehicle from the mapping display appears. Fig. 17 illustrates

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Keynet Voice + AVL Computer Aided Despatcher – Operator Manual

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