



LTI ULTRALYTE 1000 LASER Speed MEASUREMENT DEVICE AND RANGER DVD SYSTEM

Operations Manual 2010

Version 1.14.3
January 2010

Tele-Traffic (UK) Limited • LaserTec Centre • C2 Harris Road
Warwick • CV34 5JU

Tel No. 01926 407272 • Fax No. 01926 407977
Email.tt@teletraffic.co.uk • www.teletrafficuk.com

Table of Contents

Section 1 System Description

Component Parts Pages 6-8

Section 2 System Application

How the System works Pages 10-11

Section 3 Operators Instructions

Modules Page 13
Assembly Procedures Page 14
Display Control Unit Pages 15
Display Control Unit Adjustments Pages 16-61

Section 4 Concept II DVD Recorder

Description Page 63
Operation Pages 64-73
Adjusting the Camera Settings Pages 73-77

TELE-TRAFFIC (UK) LIMITED

LTI 20.20 ULTRALYTE 1000 LASER SPEED MEASUREMENT DEVICE

AND

RANGER DVD RECORDING SYSTEM

The Ranger system is a customer configured speed detection and enforcement system for use in the tripod mounted mobile attended mode. For the core of the system it utilises a Type Approved **LTI 20.20 UltraLyte 1000 Laser** speed detection device and a Type Approved **Tele-Traffic** Display Control Unit. The remainder is tailored to the user's requirements.

The system retains all the flexibility and benefits of the narrow beam laser detection approach, whilst providing instant pictures at the scene if required and data capture capable of being processed historically. The medium used is DVD +R technology which offers greater flexibility for evidence gathering in speed enforcement.

The system continues to be uncomplicated in operation but does require some operator skill. Once mastered it will provide pictorial evidence of speeding offences at ranges between 20 & 400m dependent upon the lens configuration.

TELE-TRAFFIC (UK) Ltd provides support in both training and technical matters. If you require any assistance please do not hesitate to contact us at:-

LaserTec Centre,
C2 Harris Road,
Warwick CV34 5JU
Tel. No. 01926 407272
Fax No. 01926 407977
Email: tt@teletraffic.co.uk
www.teletrafficuk.com

IMPORTANT!

THESE INSTRUCTIONS SHOULD BE READ IN CONJUNCTION WITH THE OPERATORS MANUAL FOR THE APPROPRIATE LTI LASER SPEED MEASURING UNIT.

NOTHING IN THESE INSTRUCTIONS SHOULD BE SEEN AS CONFLICTING WITH THAT MANUAL.

The contents of this manual including the DVD disc remain the property of Tele-Traffic UK Ltd and are subject to Copyright

SECTION 1

SYSTEM DESCRIPTION

CONTENTS:

Component Parts

Ranger DVD System Component Parts.



Ranger Base unit



Ranger camera and laser unit.

The **Ranger** DVD speed detection system is built around the **LTI UltraLyte 1000 Laser** an approved measuring device. There are however a number of changes to the equipment and procedures within the system with which you must now become acquainted with.

What follows is a brief description of the function of each piece of equipment in your particular configuration and these will vary dependent upon customer requirements.

1. **THE LASER.**

LTI 20.20 UltraLyte 1000 Speed Measurement Devices

This is a recent Type approved hand held laser which we intend to introduce to the Ranger unit. Existing Operators may require additional training to use this type of device.

2. **DISPLAY CONTROL UNIT (DCU)**

The **Display Control Unit (or DCU)** is the vital piece of equipment that links the live pictures obtained by the Camera to the data provided by the **Laser**. Additionally it generates the data and cross hairs that appear on the video picture.

It allows the Operator to set a threshold speed limit below which speed enforcement is not required.

Having captured the data it will mark the DVD recorded images both visibly and invisibly in a format that is recoverable.

The Operator has the ability to locate the displayed data anywhere on the screen and to move and adjust the cross hairs for size and shape.

For each transaction the DCU conducts a sixteen bit check sum with the **LTI 20.20 UltraLyte 1000 Laser** to verify the data before it is displayed and should verification not take place for any reason the unit will display an appropriate error message.

3. **VIDEO CAMERA**

The choice of Video Camera depends largely on the requirement for the particular application. A high resolution Camera for high definition and picture quality has been integrated into the system.

4. **LENS**

Once again the choice of Lens is a matter for customer requirements and the operational environment in which it is intended to be used. The equipment is capable of being used with a variety of Lenses and there is no reason why Operators cannot have a range of Lenses available for different scenarios.

5. **DVD RECORDER/MONITOR**

The system uses a high grade DVD +R slot drive recorder is configured to **PAL/VHS** for optimum performance. The touch screen monitor is mounted in the lid of the base unit.

6. **POWER SUPPLY**

The equipment has an internal rechargeable battery system fitted in the base unit as standard. The base unit will periodically need to be connected to a 240 volt A/C outlet in order to recharge the internal cells.

7. **EQUIPMENT CARRYING CASES**

The **Ranger Base unit** which includes the screen, battery and D.V.D. recorder is fitted into a self contained Peli-Case and cannot be removed by the operator. The slightly larger Peli-case is for the **Camera/Laser unit**.

8. **CABLES**

There is a light weight umbilical cable which connects the base unit to the camera unit. The cable transfers the data and video signal from the Camera and Laser unit to the D.C.U. and the DVD recorder in the base. It also provides the 12 volt power from the internal batteries in the base to the camera unit.

9. **TRIPOD**

The equipment can be operated from a Tripod fitted with the appropriate fluid head.

10. **TAPELOGGER**

Here there is a change to the previous Concept, the tape logger works automatically within this system to facilitate data transfer to the Event Reader in the back office procedures.

11. **TELE-TRAFFIC EVENT READER (Back Office Data Download)**

Once the Offence has been captured and the data stored on the disc the Offences can now be processed by the Central Ticket Office. The recorded D.V.D. is placed in a suitable D.V.D. player and the video and data evidence is passed through an Event Reader or Software Virtual Event Reader (Startraq System Only) which identifies the time, date and recorded details each offence. This system is capable of automatically downloading data into all recognised computer generating ticket systems.

SECTION 2

SYSTEM APPLICATION

How the System works.

RANGER DVD SYSTEM APPLICATION

Having identified each element of the Ranger DVD System the explanation of how it integrates together can be seen below.

The Operator needs to be familiar with the **LTI 20.20 UltraLyte 1000 Laser** fitted within the system and aware of all of its functions. Nothing has changed in that respect and additionally the skills acquired in operational practise remain the same.

The **Red Dot** or **Other reticule** within the sighting scope should be the operator's **only** targeting method and the checks and evidential requirements of this function are identical when used with DVD recording equipment. The **LTI 20.20 UltraLyte 1000 Laser** has a power saving feature that turns off the reticule in the sighting scope after 20 seconds. To reticule can be reinstated by pressing the laser trigger. When the SIGHT has reappeared the laser is ready for the next measurement cycle.

The data from the **LTI 20.20 UltraLyte 1000 Laser** is transferred through the serial port and appears on the Ranger monitor display.

The **Camera** will give a picture by means of a standard video signal to whatever equipment it is connected. (The technical term is 1 volt peak to peak).

When working together the **LTI 20.20 UltraLyte 1000 Laser** and the **Camera** will provide data and signals to the **Display Control Unit (DCU)**.

The **Display Control Unit** will firstly perform a 16 bit check sum between itself and the **LTI 20.20 UltraLyte 1000 Laser** to ensure that the data that it is receiving has not been corrupted in transmission by any external source. Should this check not be satisfactory then an error message (**BAD CRC or RS232**) will be generated.

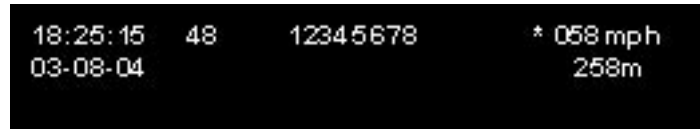
If this check is satisfactory then the data from the **LTI 20.20 UltraLyte 1000 Laser** is inserted by the **Display Control Unit** onto the video signal both visibly and also invisibly in the form of data marks which are buried in the D.V.D disc.

The **Display Control Unit** will also examine the speed data provided from the **LTI 20.20 UltraLyte 1000 Laser** and check it against the threshold speed set by the Operator. If the checked speed is in excess of the set threshold speed a further data mark is inserted both visibly and invisibly.

Having merged all this information the **Display Control Unit** provides a composite video signal to the **DVD Recorder** and then to the **Monitor**.

Below is an example of how the data appears on the screen.

TIME, DATE, FRAME (F/R) or FIELD (F/L) SITE (or OFFICER'S REFERENCE)
SPEED and RANGE TO TARGET



18:25:15 48 12345678 * 058 mph
03-08-04 258m

The time 18:25:15 in this example is followed by two small letters. If these letters show F/R the DVD recorder will record from 25 frames per second and the video will show the relevant frame number.

However the default setting is the F/L option, this means that the DVD will record 50 fields per second. A simple explanation of this is that the system uses the space between the frames to create another image creating twice as many images on the same recorded second.

If the target vehicle is above the set threshold speed then an asterisk * will also appear on the left of the speed data.

The position of the data on the Screen can be controlled by the Operator.

At the same time, the data is inserted on the DVD Disk and appears at the very top of the screen and resembles a bar code.

This completes the sequence of events at the scene but as suggested above it is possible to analyse the DVD disk in the back office situation. This process uses the **Event Reader or Virtual Event Reader** in conjunction with a **Printer** and means that when the video signal is played a search is automatically conducted for data over the threshold speed and a Video Print produced. This can be an unattended operation.

Data can be downloaded simultaneously into a Computer for administrative purposes.

In addition to the asterisk there is another symbol that appears only in the record mode. Situated in the bottom left corner of the screen there is a hash mark (#) feature which when pressed on screen allows the operator to mark an event.

(An example of this might be if the operator has set the threshold limit to enforce for cars and sees another type of vehicle exceeding the permitted speed limit for that class of vehicle the Operator can mark the event and still obtain a speed reading which can be downloaded and identified later. Other examples might be No seat belt or using a mobile phone whilst driving.)

SECTION 3

OPERATOR INSTRUCTIONS

CONTENTS:

Modules
Assembly Procedure
Display Control Unit Controls
Display Control Unit Adjustments

RANGER DVD SYSTEM

OPERATOR INSTRUCTIONS

Your Ranger system comprises the following modules. Check that you have them available.

1. The **LTI 20.20 UltraLyte 1000 Laser** with Colour Video Camera, adjustable camera platform, Lens and Mount Unit.
2. A Base Unit with a Touch Screen Command System, Colour Video Monitor/Viewer, with a slot drive integrated DVD + R Recorder, an external charging connector, a volt meter and control switches.
3. An umbilical cable.
4. A mains power cable for recharging the internal batteries.
5. Tripod or supported Fluid Head mount.

ASSEMBLY PROCEDURE

1. Mount the **LTI 20.20 UltraLyte 1000 Laser** and camera assembly on the tripod using the mounting plate provided.
2. The standard lens will be the Nikon 80-400mm and will be already fixed to the camera. Other lenses can be fitted and detached if the lens is smaller than a Sigma 135-400mm.
3. Connect the Umbilical cable to the underside of the camera/laser assembly using the appropriate connector. Note that two connectors are of different sizes. Now connect the remaining connector into the base unit monitor/DVD assembly.
4. Switch “**on**” the Ranger system Recorder/Monitor/Camera by using the switch on the base unit. There is a small delay while the system checks itself and then the display touch screen becomes active and two small block displays appear showing the letters ‘**DVD**’ & ‘**DCU**’
5. When the unit is first powered on it will clear all **previous data** stored in the logger.
6. A 20 second timer will be displayed on the screen and start counting down, this is to allow the DVD to go through its self check mode & become available for use. This period also allows the system to stabilize.
7. After this is complete the system will check its RS232 link to the DVD & then the DVD’s ROM version. Providing both these pass the system will progress to the next step, if not a fail message will be displayed & the system will lock out.
8. The system will now proceed in to its user state.

YOU MAY NOW BEGIN YOUR OPERATIONAL CHECKS AND SET UP PROCEDURES

- (a) Carry out the Scope '**red dot**' alignment checks in accordance with the appropriate **LTI 20.20 UltraLyte 1000 Laser** manual.
- (b) Check that the '**red dot**' in the Scope is approximately in the centre of the picture provided by the Camera and adjust the Camera platform if necessary by using the adjuster controls on the side (horizontal) and underneath (vertical).

Ensure that the Camera Lens is set to give a clear picture at the required focal length before adjustment of camera position. Aim the Laser '**red dot**' at a suitable static target. (The distance to the target should be at the end of the visible Licence Plate recognition distance.) **This is Lens dependent.**

- (c) Check that the **crosshair** display on the Monitor is in the favoured or centre position. If not, adjust accordingly.

The **DCU, Video Camera** and **LTI 20.20 UltraLyte 1000 Laser** *should not be powered from a vehicle power supply* as stipulated in Section 6.2.2 of the Laser Handbook (Second Edition) Publication 27/92.

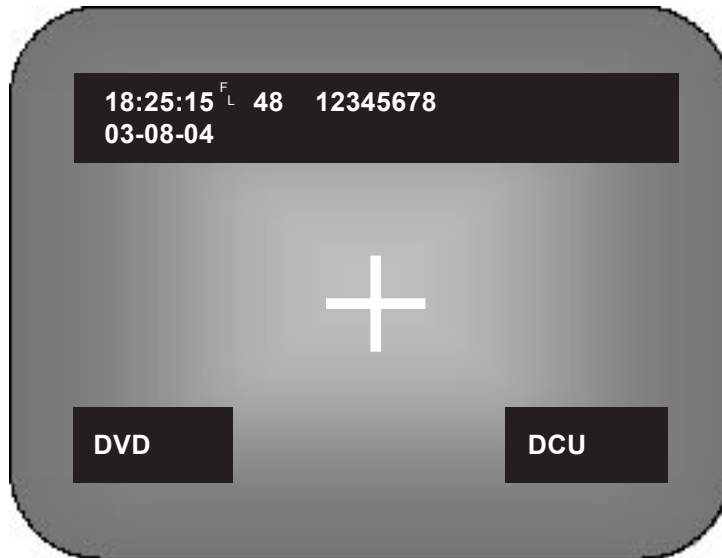
- (d) **FINALLY:** Carry out any additional operational checks required by the current Association of Chief Police Officers (Code of Practice) or Enforcement guidelines.

N.B.

If this equipment is used outside the United Kingdom ALL relevant codes and procedures should be adhered to for the country concerned.

9. **On Start-up all previous data will be cleared from the data log.**

Once the data log has been cleared the main screen is then displayed as shown below. The user will now be prompted with 2 options on the bottom of the screen **DVD** and **DCU**.



Ranger DVD system ready/default start up screen

ADJUSTING THE DISPLAY CONTROL UNIT

The **Ranger** DVD captures live video (via the camera) then overlays a text display from the D.C.U. before recording it to a +R D.V.D. disk. The whole system is controlled by the Operator inputting commands via a from a touch panel mounted within the monitor screen.

The system is designed when the power is switched on to run through a series of internal self checks which are indicated on the viewing monitor should any fail.

When the unit is in user mode after passing its self checks the operator will navigate via the menu system to the DCU (display control unit) and set required parameters e.g. date, time, user number, site number and speed thresholds.

By pressing the DCU Option the user will gain access to the DCU setup controls, press **ENTER** and this will give the user access to the DCU setup menu.

This menu is navigated by using the **UP, DOWN, LEFT, RIGHT & ENTER** on screen buttons.

Finally to exit this menu press the **EXIT** button to return to the **DVD & DCU** menu options.

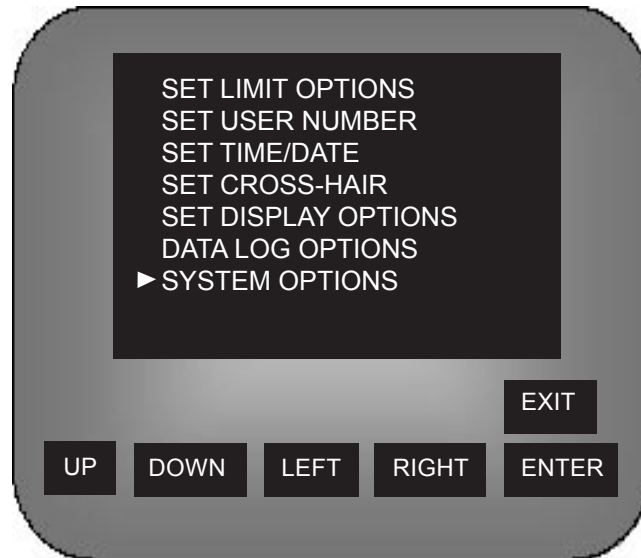
This is a major change from the previous unit **ALL** controls are now accessed through an on screen touch menu.

Entering and navigating the DCU menu

Press the DCU Option.

The DCU menu allows complete access to all the system control functions.

On entering the main menu, the following menu will be displayed.



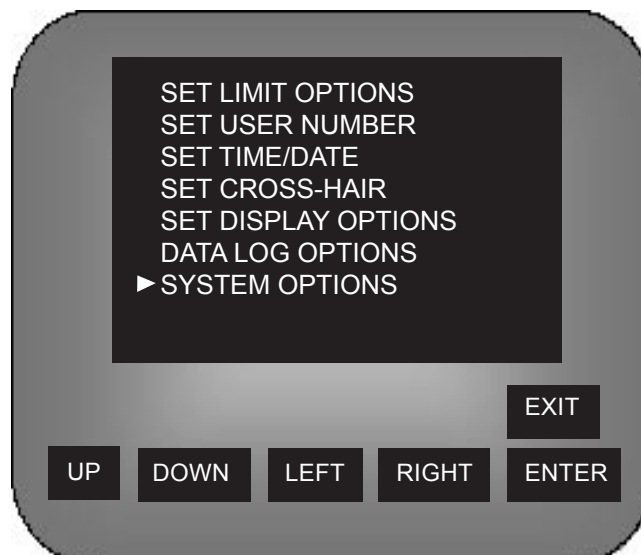
Use the 'Up' and 'Down Options' to change the highlighted selection within a menu. Use the 'Enter Option' to enter a highlighted sub-menu or control function selection.

Setting the Speed Enforcement Threshold

To set the Speed Enforcement Threshold, follow the steps below.

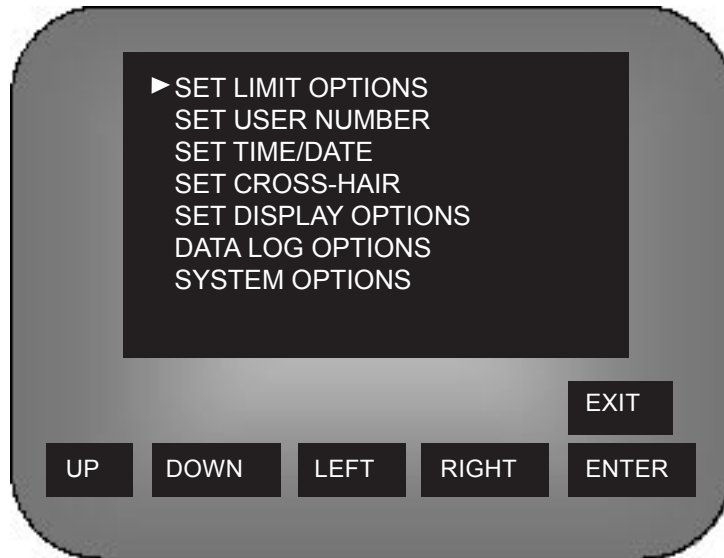
1. **Enter the DCU menu by pressing symbol on screen.**

On entering the main menu, the following menu will be displayed.



2. Highlight the 'SET LIMIT OPTIONS' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET LIMIT OPTIONS' selection as shown below.



3. Enter the 'SET LIMIT OPTIONS' menu

With the 'SET LIMIT OPTIONS' selection highlighted, press the 'Enter Option' to enter the 'SET LIMIT OPTIONS' menu. On entering the 'SET LIMIT OPTIONS' menu, the following menu will be displayed.



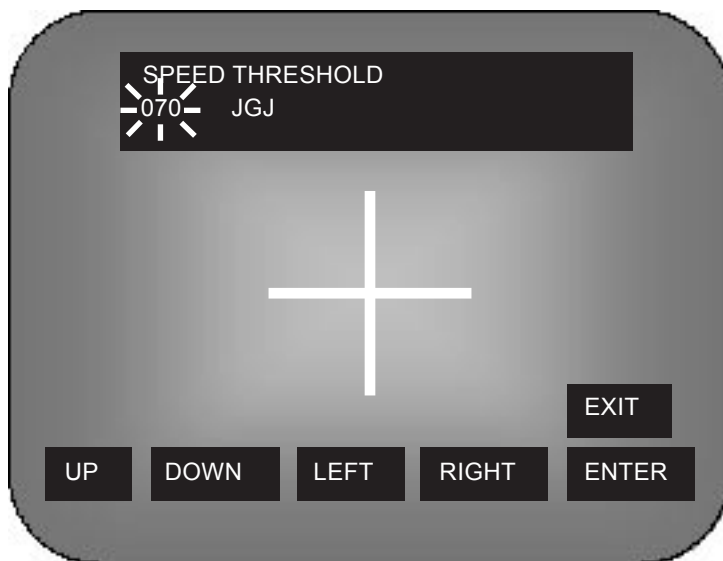
4. Highlight the 'SET SPEED THRESHOLD' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET SPEED THRESHOLD' selection as shown below.



5. Entering the 'SET SPEED THRESHOLD' control function

With the 'SET SPEED THRESHOLD' selection highlighted, press the 'Enter Option' to enter the 'SET SPEED THRESHOLD' control function. On entering the 'SET SPEED THRESHOLD' control function, the following screen will be displayed. The adjustable speed limit will be flashing.



6. Adjusting the speed limit in the 'SET SPEED THRESHOLD' control function

Use the 'Up Option' to increment the speed limit or use the 'Down Option' decrement the speed limit. The speed enforcement threshold can be set at any whole number between 000 and 255.

The alpha code to the right of the speed limit will change in accordance to changes made to the speed limit. When the desired speed limit has been chosen and is showing, press the 'Enter Option' to save the change and return to the 'SET LIMIT OPTIONS' menu.

Note: The Operator should set this value to **one unit lower** than the speed he or she intends to enforce at!

Setting the speed timeout

To set the speed timeout, follow the steps below.

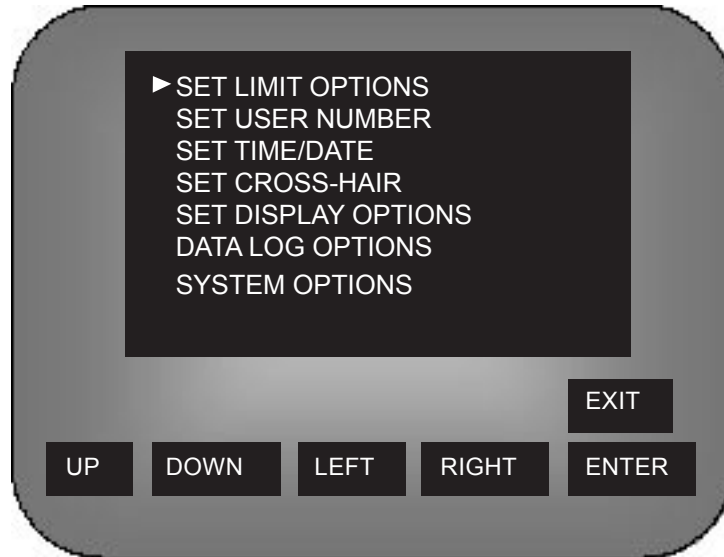
1. Enter the DCU menu by pressing symbol on screen

On entering the main menu, the following menu will be displayed.



2. Highlight the 'SET LIMIT OPTIONS' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET LIMIT OPTIONS' selection as shown below.



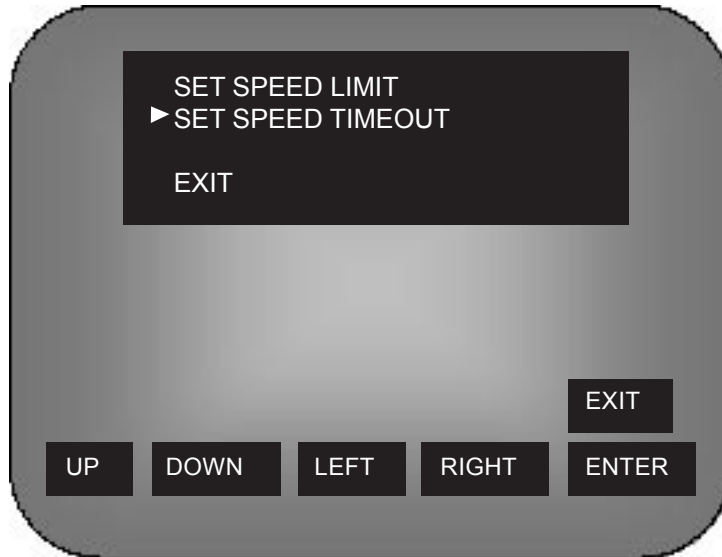
3. Enter the 'SET LIMIT OPTIONS' menu

With the 'SET LIMIT OPTIONS' selection highlighted, press the 'Enter Option' to enter the 'SET LIMIT OPTIONS' menu. On entering the 'SET LIMIT OPTIONS' menu, the following menu will be displayed.



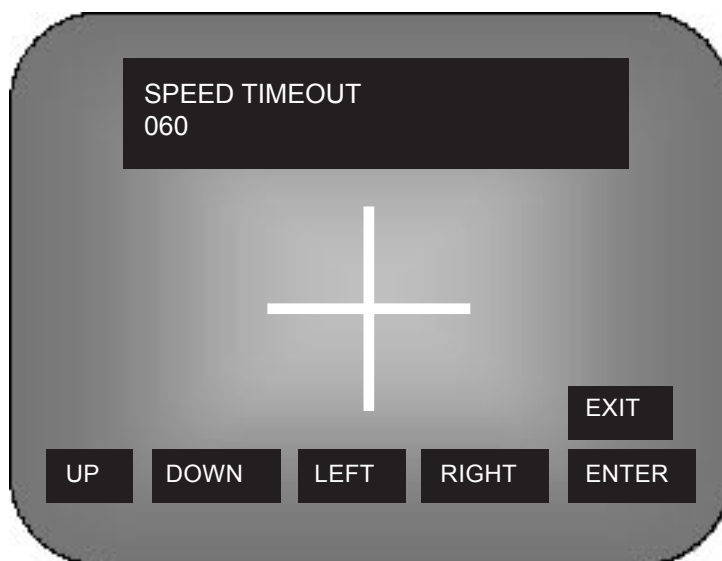
4. Highlight the 'SET SPEED TIMEOUT' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET SPEED TIMEOUT' selection as shown below.



5. Entering the 'SET SPEED TIMEOUT' control function

With the 'SET SPEED TIMEOUT' selection highlighted, press the 'Enter Option' to enter the 'SET SPEED TIMEOUT' control function. On entering the 'SET SPEED TIMEOUT' control function, the following screen will be displayed. The adjustable speed timeout will be flashing.



6. Adjusting the speed limit in the 'SET SPEED TIMEOUT' control function

Use the 'Up Option' to increment the speed limit or use the 'Down Option' to decrement the speed timeout. The speed timeout can be set at any whole number between 001 and 250. When the desired speed timeout has been chosen and is showing, press the 'Enter Option' to save the change and return to the 'SET LIMIT OPTIONS' menu.

Note: The Manufacturers Recommended setting for this value is 060

This function controls and adjusts the time the information messages from the laser, such as E01, E02 and E03 will still appear on the screen.

Setting the user number

To set the user number, follow the steps below.

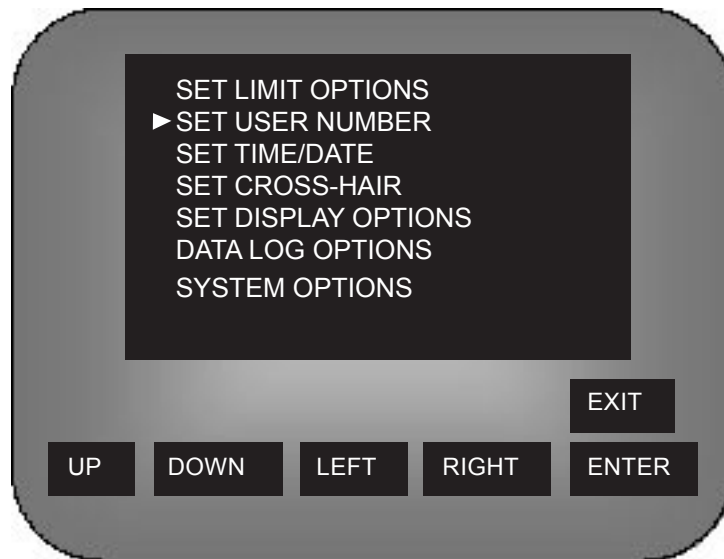
1. Enter the DCU menu by pressing the symbol on screen.

On entering the main menu, the following menu will be displayed.



2. Highlight the 'SET USER NUMBER' selection

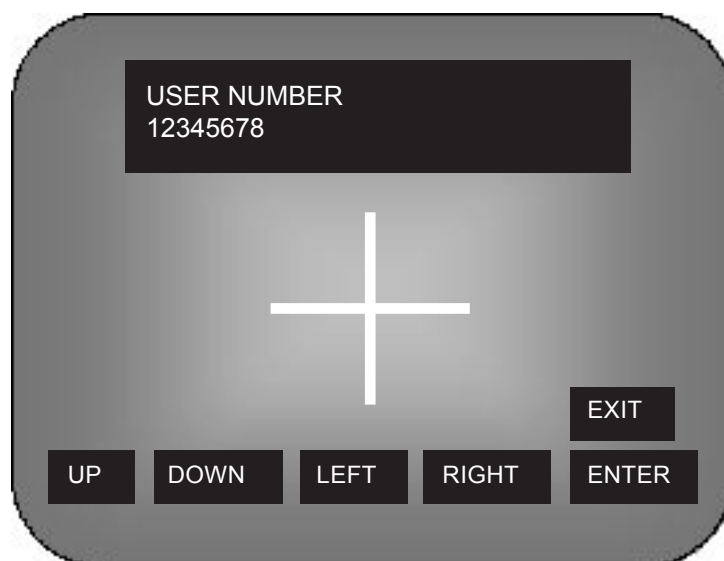
Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET USER NUMBER' selection as shown below.



3. Entering the 'SET USER NUMBER' control function

With the 'SET USER NUMBER' selection highlighted, press the 'Enter Option' to enter the 'SET USER NUMBER' control function.

On entering the 'SET USER NUMBER' control function, the following screen will be displayed. The left-most character of the adjustable 8 character user number will be flashing.



4. Adjusting the user number in the 'SET USER NUMBER' control function

Use the 'Up Option' to increment the flashing user number character or use the 'Down Option' to decrement the flashing user number character. The user number characters can be set at any whole number between 0 and 9, any upper case letter between A and Z, or a space.

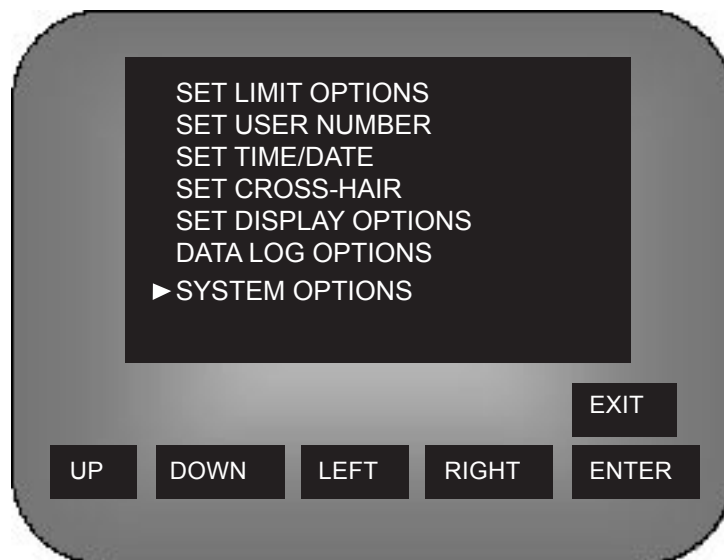
Use the 'Left Option' and 'Right Option' to select a different character of the user number to be changed. When the desired user number has been chosen and is showing, press the 'Enter Option' to save the changes and return to the main menu.

Setting the time and date

To set the time and date, follow the steps below.

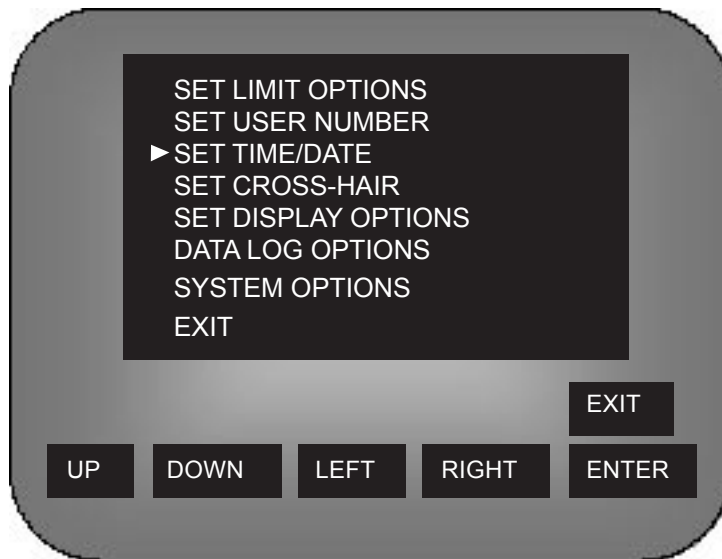
1. Enter the DCU menu by pressing the symbol on screen.

On entering the main menu, the following menu will be displayed.



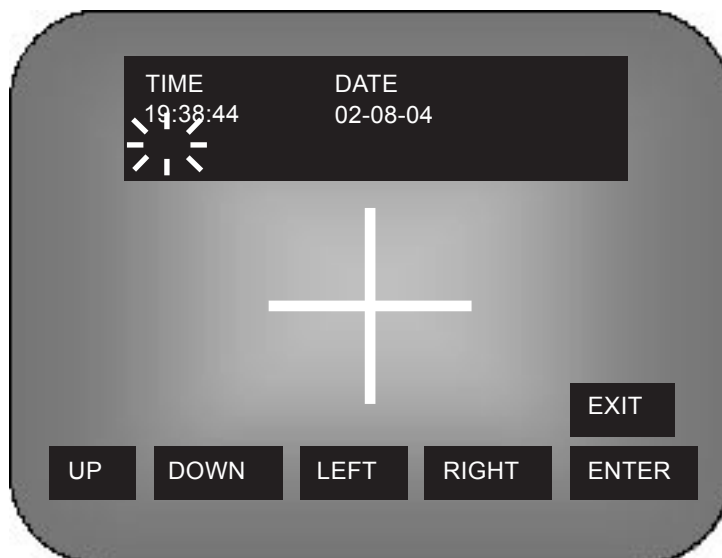
2. Highlight the 'SET TIME/DATE' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET TIME/DATE' selection as shown below.



3. Entering the 'SET TIME/DATE' control function

With the 'SET TIME/DATE' selection highlighted, press the 'Enter Option' to enter the 'SET TIME/DATE' control function. On entering the 'SET TIME/DATE' control function, the following screen will be displayed. The hours of the adjustable time and date settings will be flashing.



4. Adjusting the time/date in the 'SET TIME/DATE' control function

Use the 'Up Option' to increment the flashing time/date component or use the 'Down Option' to decrement the flashing time/date component. Use the 'Left Option' and 'Right Option' to select a time/date component to be changed.

When the desired time/date has been chosen and is showing, press the 'Enter Option' to save the changes and return to the main menu.

N.B. Please note that while you are in this screen function the internal clock is not running as its ready to be set manually. Therefore it will not recommence until you exit the DCU menu. So if you intend to enter any other information in the DCU exit all screens to the default start up before you do so.

Setting the cross-hair position

To set the cross-hair position, follow the steps below.

1. Enter the DCU menu by pressing the symbol on screen.

On entering the main menu, the following menu will be displayed.



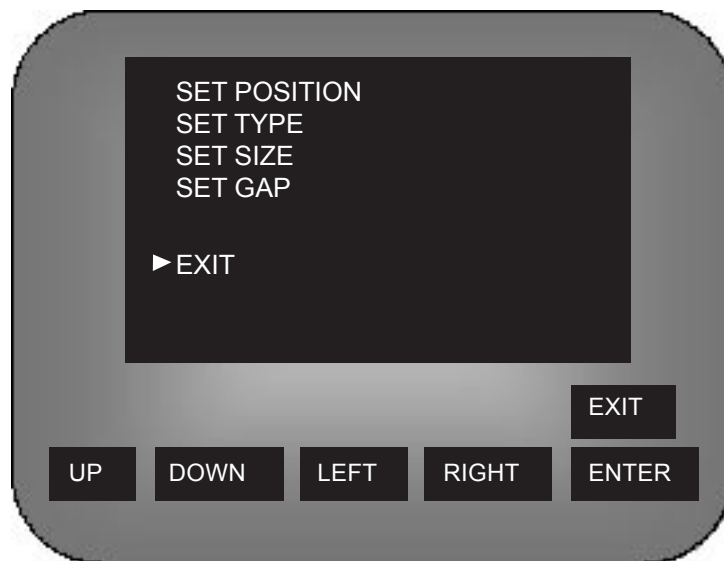
2. Highlight the 'SET CROSS-HAIR' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET CROSS-HAIR' selection as shown below.



3. Enter the 'SET CROSS-HAIR' menu

With the 'SET CROSS-HAIR' selection highlighted, press the 'Enter Option' to enter the 'SET CROSS-HAIR' menu. On entering the 'SET CROSS-HAIR' menu, the following menu will be displayed.



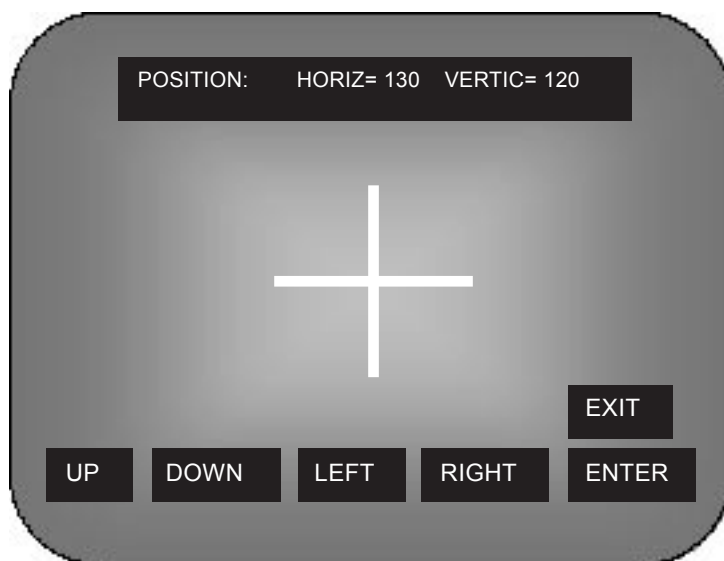
4. Highlight the 'SET POSITION' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET POSITION' selection as shown below.



5. Entering the 'SET POSITION' control function

With the 'SET POSITION' selection highlighted, press the 'Enter Option' to enter the 'SET POSITION' control function. On entering the 'SET POSITION' control function, the following screen will be displayed.



6. Adjusting the cross-hair position in the 'SET POSITION' control function

Use the 'Up Option' to move the cross-hair up, use the 'Down Option' to move the cross-hair down, use the 'Left Option' to move the cross-hair left and use the 'Right Option' to move the cross-hair right. The horizontal and vertical co-ordinates are shown as values at the top of the screen.

The horizontal co-ordinate can be any whole number between 000 and 255, and the vertical co-ordinate can be any whole number between 000 and 233.

When the desired cross-hair position has been chosen and is showing, press the 'Enter Option' to save the changes and return to the 'SET CROSS-HAIR' menu.

Setting the cross-hair type

To set the cross-hair type, follow the steps below.

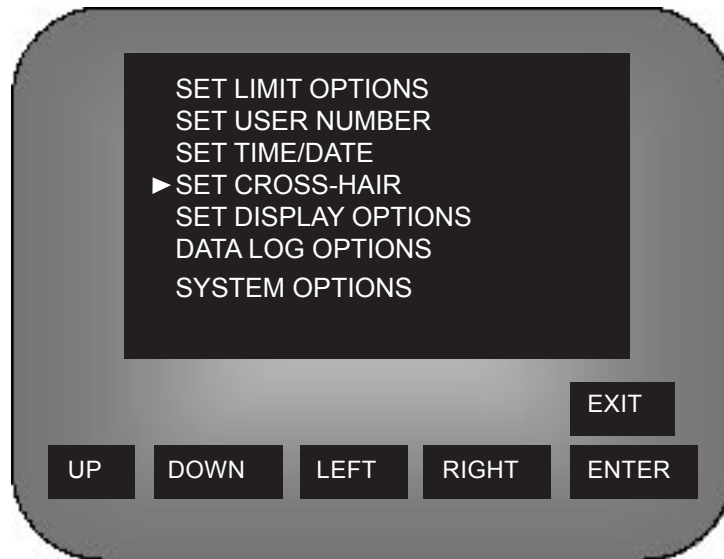
1. Enter the DCU menu by pressing the symbol on screen.

On entering the main menu, the following menu will be displayed.



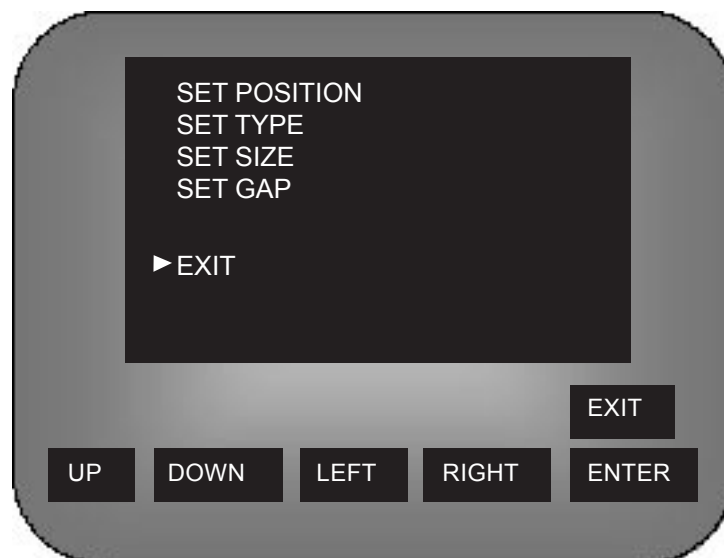
2. Highlight the 'SET CROSS-HAIR' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET CROSS-HAIR' selection as shown below.



3. Enter the 'SET CROSS-HAIR' menu

With the 'SET CROSS-HAIR' selection highlighted, press the 'Enter Option' to enter the 'SET CROSS-HAIR' menu. On entering the 'SET CROSS-HAIR' menu, the following menu will be displayed.



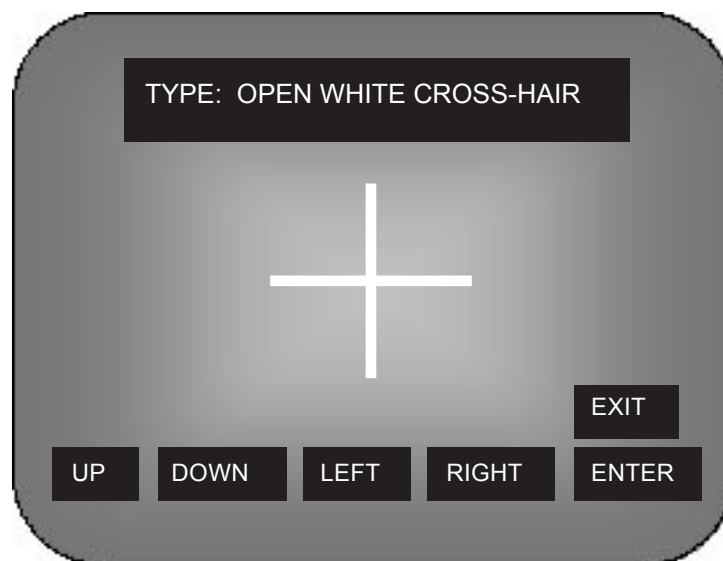
4. Highlight the 'SET TYPE' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET TYPE' selection as shown below



5. Entering the 'SET TYPE' control function

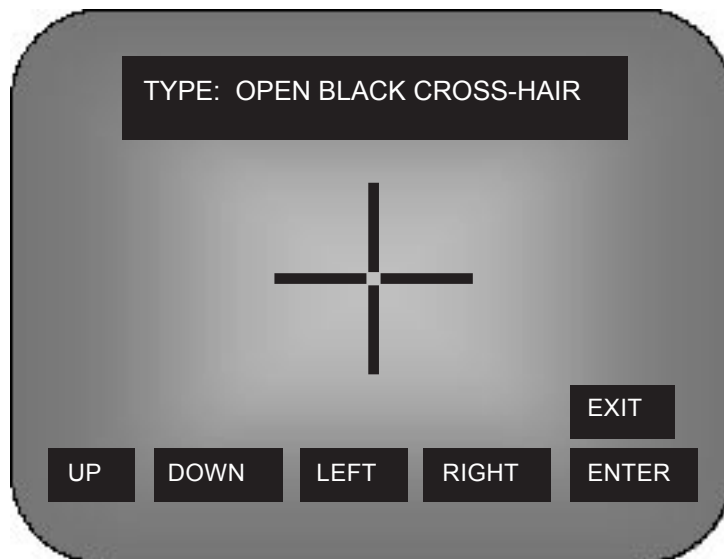
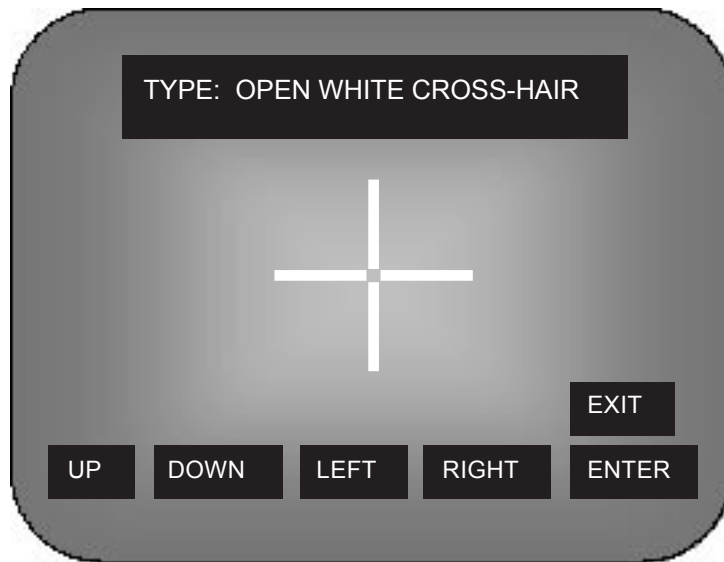
With the 'SET TYPE' selection highlighted, press the 'Enter Option' to enter the 'SET TYPE' control function. On entering the 'SET TYPE' control function, the following screen will be displayed.

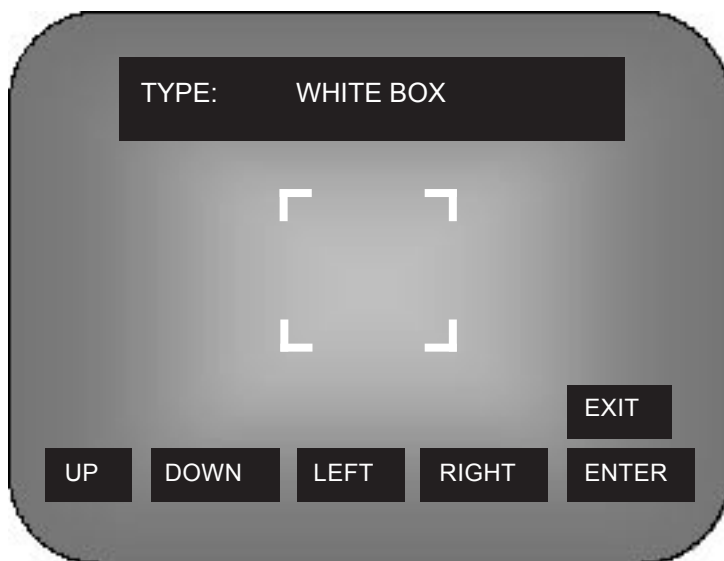
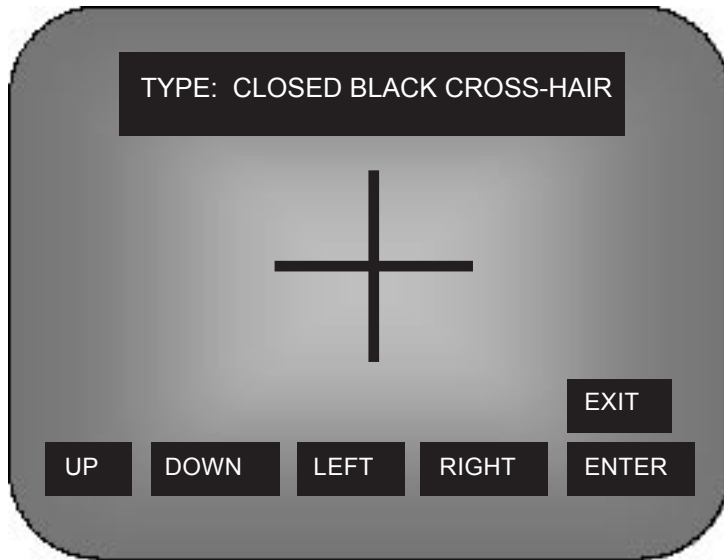
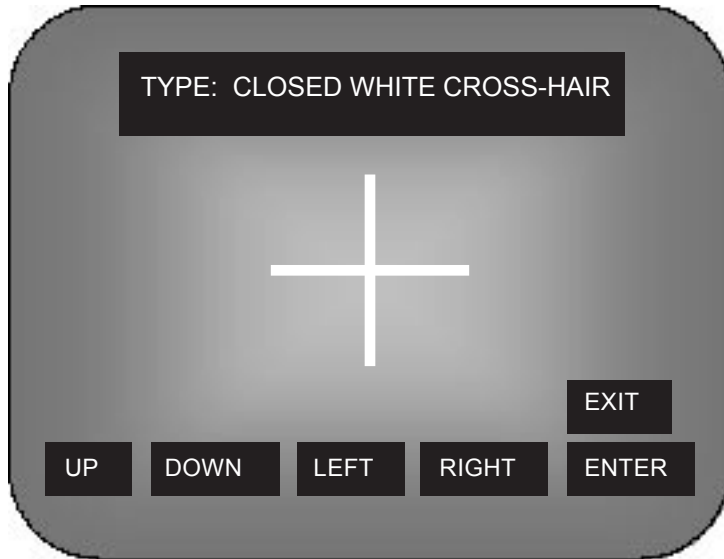


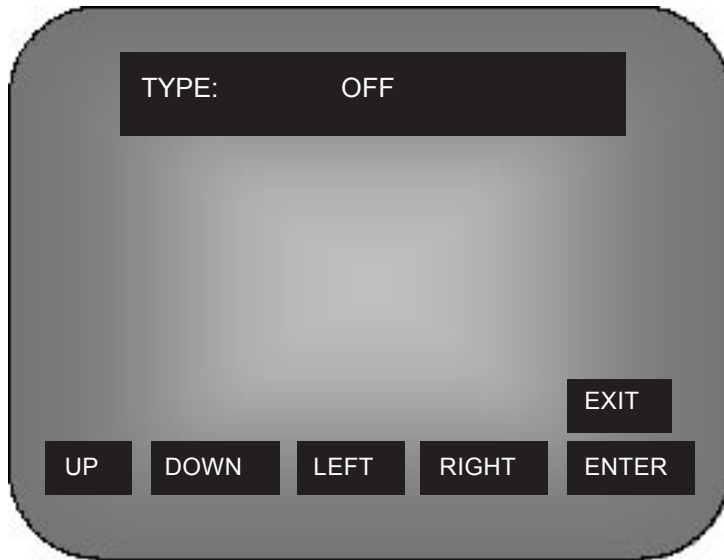
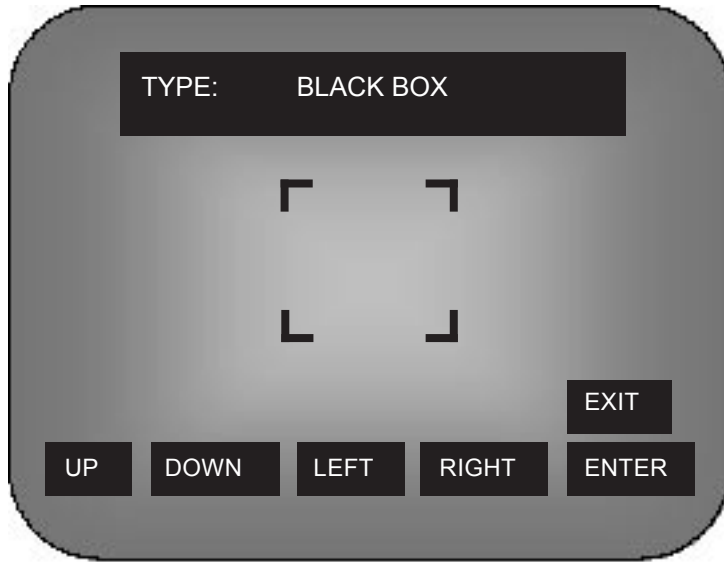
6. Adjusting the cross-hair type in the 'SET TYPE' control function

Use the 'Up Option' or use the 'Down Option' to change the cross-hair type. The cross-hair type name is shown at the top of the screen. When the desired cross-hair type has been chosen and is showing, press the 'Enter Option' to save the change and return to the 'SET CROSS-HAIR' menu.

The available cross-hair types are shown below:-





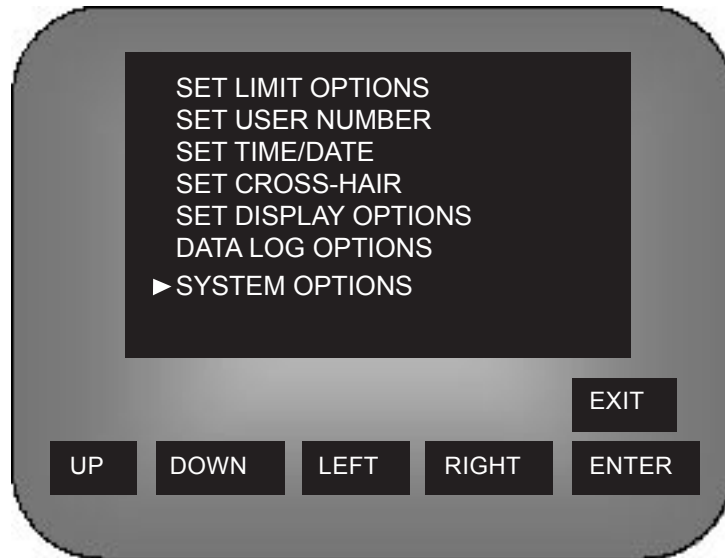


Setting the cross-hair size

To set the cross-hair size, follow the steps below.

1. Enter the DCU menu by pressing the symbol on screen.

On entering the main menu, the following menu will be displayed.



2. Highlight the 'SET CROSS-HAIR' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET CROSS-HAIR' selection as shown below.



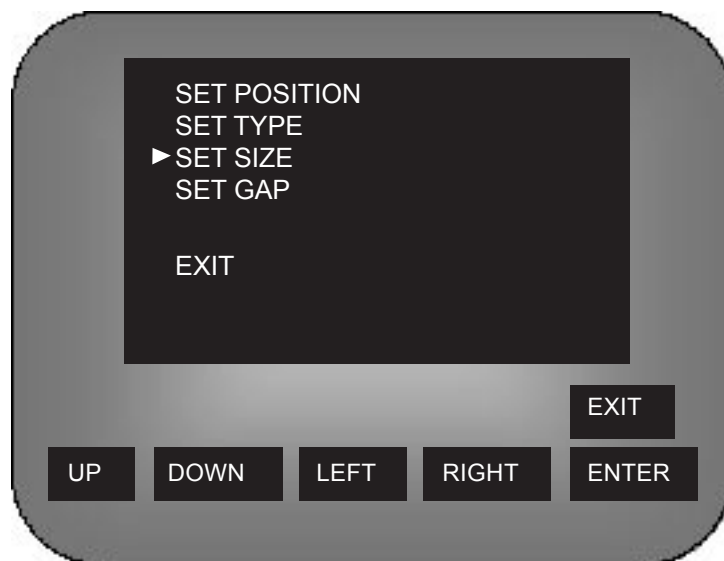
3. Enter the 'SET CROSS-HAIR' menu

With the 'SET CROSS-HAIR' selection highlighted, press the 'Enter Option' to enter the 'SET CROSS-HAIR' menu. On entering the 'SET CROSS-HAIR' menu, the following menu will be displayed.



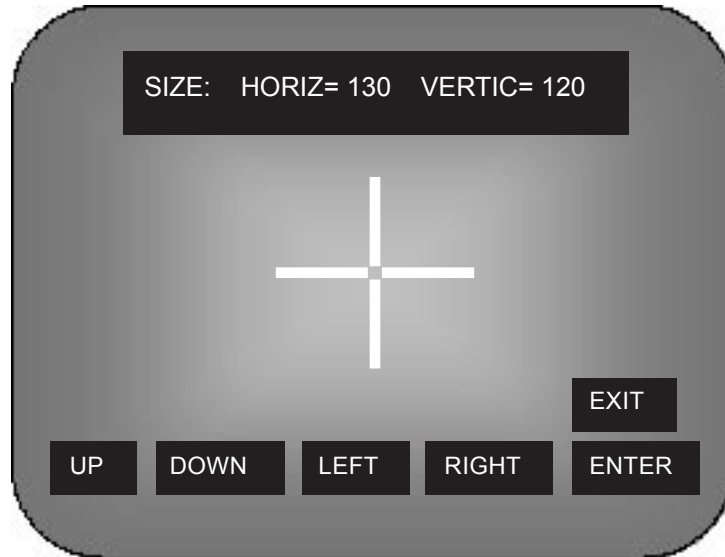
4. Highlight the 'SET SIZE' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET SIZE' selection as shown below.



5. Entering the 'SET SIZE' control function

With the 'SET SIZE' selection highlighted, press the 'Enter Option' to enter the 'SET SIZE' control function. On entering the 'SET SIZE' control function, the following screen will be displayed.



6. Adjusting the cross-hair size in the 'SET SIZE' control function

Use the 'Up Option' to increment the cross-hair vertical bar size, use the 'Down Option' to decrement the cross-hair vertical bar size, use the 'Left Option' to increment the cross-hair horizontal bar size and use the 'Right Option' to decrement the cross-hair horizontal bar size. The horizontal and vertical sizes are shown as values at the top of the screen.

The horizontal size can be any whole number between 000 and 255, and the vertical size can be any whole number between 000 and 233. When the desired cross-hair size has been chosen and is showing, press the 'Enter Option' to save the changes and return to the 'SET CROSS-HAIR' menu.

Setting the cross-hair Gap size

To set the cross-hair gap size, follow the steps below.

1. Enter the DCU menu by pressing the symbol on screen.

On entering the main menu, the following menu will be displayed.



2. Highlight the 'SET CROSS-HAIR' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET CROSS-HAIR' selection as shown below.



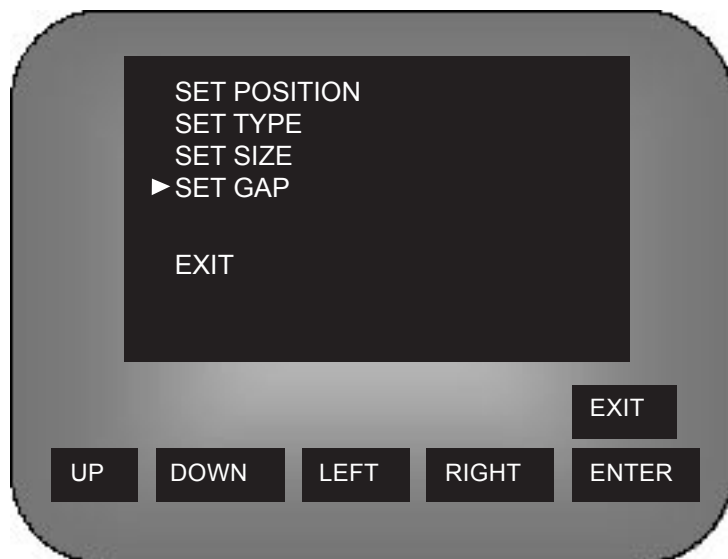
3. Enter the 'SET CROSS-HAIR' menu

With the 'SET CROSS-HAIR' selection highlighted, press the 'Enter Option' to enter the 'SET CROSS-HAIR' menu. On entering the 'SET CROSS-HAIR' menu, the following menu will be displayed.



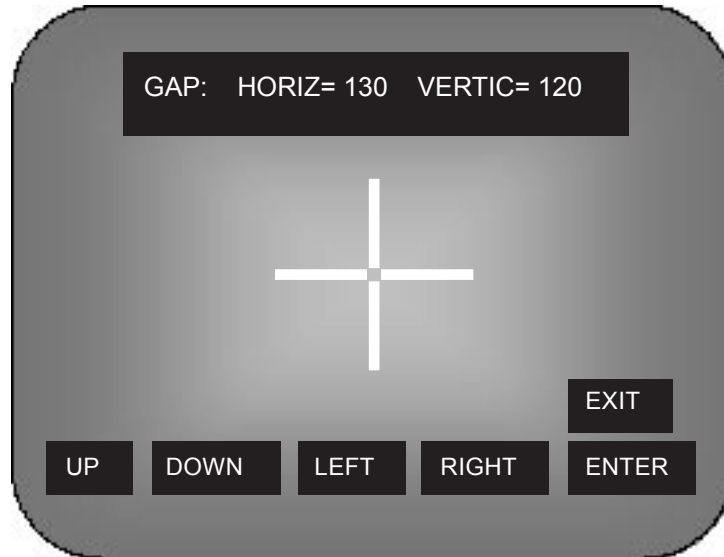
4. Highlight the 'SET GAP' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET GAP' selection as shown below.



5. Entering the 'SET GAP' control function

With the 'SET GAP' selection highlighted, press the 'Enter Option' to enter the 'SET GAP' control function. On entering the 'SET GAP' control function, the following screen will be displayed.



6. Adjusting the cross-hair size in the 'SET GAP' control function

Use the 'Up Option' to increment the cross-hair vertical gap size, use the 'Down Option' to decrement the cross-hair vertical gap size, use the 'Left Option' to increment the cross-hair horizontal gap size and use the 'Right Option' to decrement the cross-hair horizontal gap size. The horizontal and vertical gap sizes are shown as values at the top of the screen.

The horizontal gap size can be any whole number between 000 and 255, and the vertical gap size can be any whole number between 000 and 116. When the desired cross-hair gap size has been chosen and is showing, press the 'Enter Option' to save the changes and return to the 'SET CROSS-HAIR' menu.

Setting the display position

To set the display position, follow the steps below.

1. **Enter the DCU menu by pressing the symbol on screen.**

On entering the main menu, the following menu will be displayed.



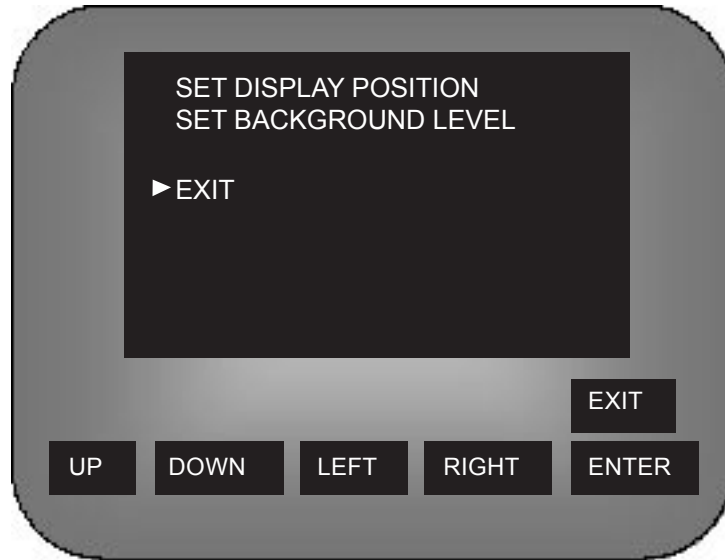
2. **Highlight the 'SET DISPLAY OPTIONS' selection**

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET DISPLAY OPTIONS' selection as shown below.



3. Enter the 'SET DISPLAY OPTIONS' menu

With the 'SET DISPLAY OPTIONS' selection highlighted, press the 'Enter Option' to enter the 'SET DISPLAY OPTIONS' menu. On entering the 'SET DISPLAY OPTIONS' menu, the following menu will be displayed.



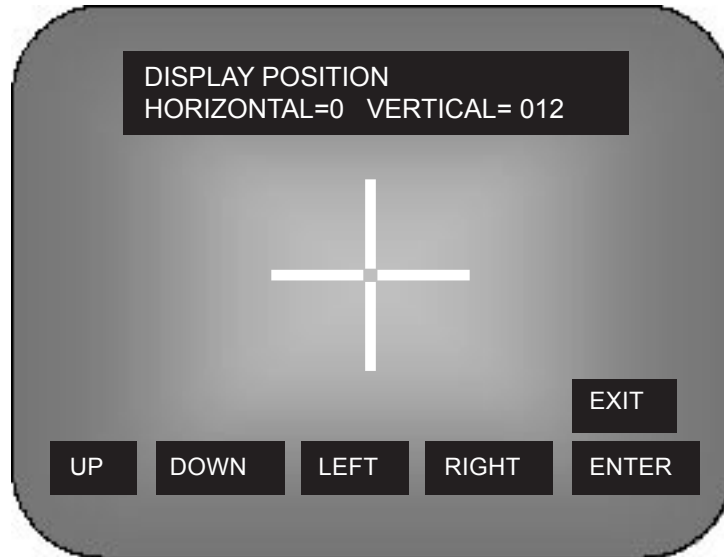
4. Highlight the 'SET DISPLAY POSITION' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET DISPLAY POSITION' selection as shown below.



5. Entering the 'SET DISPLAY POSITION' control function

With the 'SET DISPLAY POSITION' selection highlighted, press the 'Enter Option' to enter the 'SET DISPLAY POSITION' control function. On entering the 'SET DISPLAY POSITION' control function, the following screen will be displayed.



6. Adjusting the display position in the 'SET DISPLAY POSITION' control function

Use the 'Up Option' to move the display position up, use the 'Down Option' to move the display position down, use the 'Left Option' to move the display position left and use the 'Right Option' to move the display position right. The horizontal and vertical display position co-ordinates are shown as values at the top of the screen.

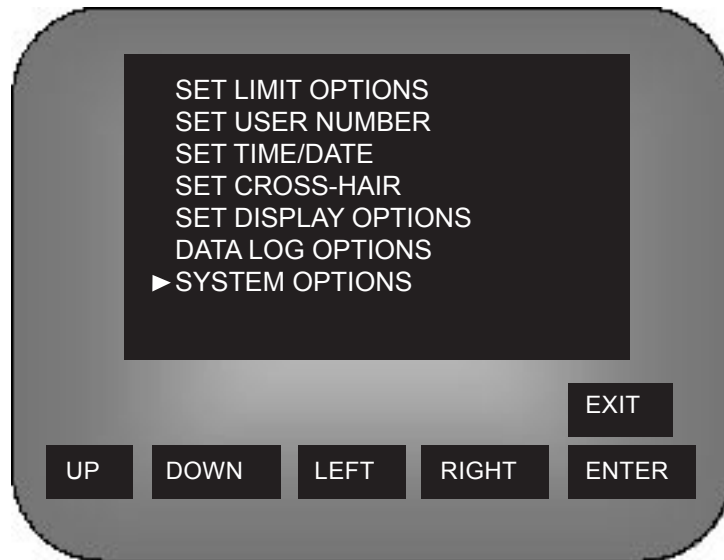
The horizontal co-ordinate can be any whole number between 0 and 7, and the vertical co-ordinate can be any whole number between 000 and 210. When the desired display position has been chosen and is showing, press the 'Enter Option' to save the changes and return to the 'SET DISPLAY OPTIONS' menu.

Setting the background level

To set the background level, follow the steps below.

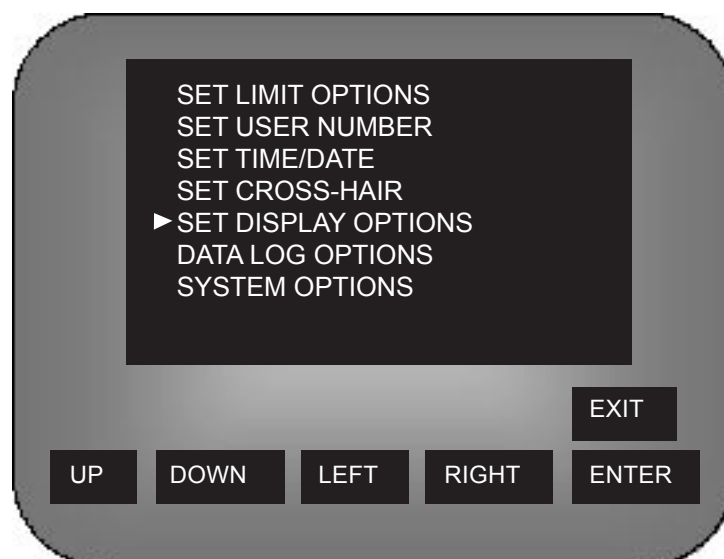
1. Enter the DCU menu by pressing the symbol on screen.

On entering the main menu, the following menu will be displayed.



2. Highlight the 'SET DISPLAY OPTIONS' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET DISPLAY OPTIONS' selection as shown below.



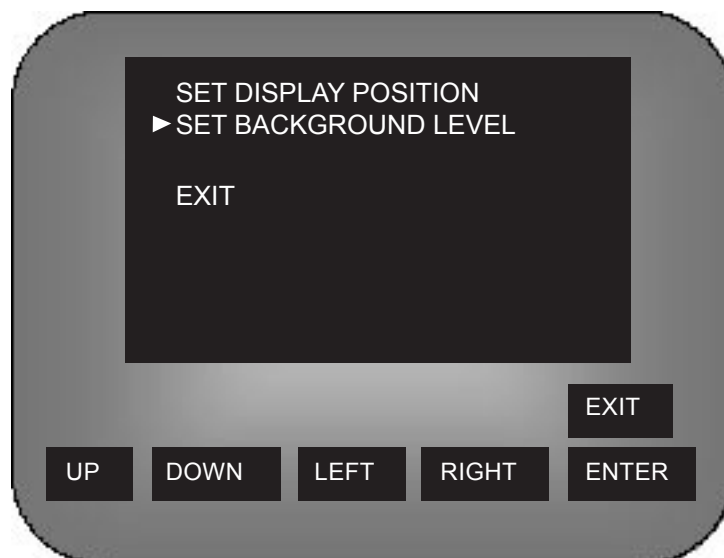
3. Enter the 'SET DISPLAY OPTIONS' menu

With the 'SET DISPLAY OPTIONS' selection highlighted, press the 'Enter Option' to enter the 'SET DISPLAY OPTIONS' menu. On entering the 'SET DISPLAY OPTIONS' menu, the following menu will be displayed.



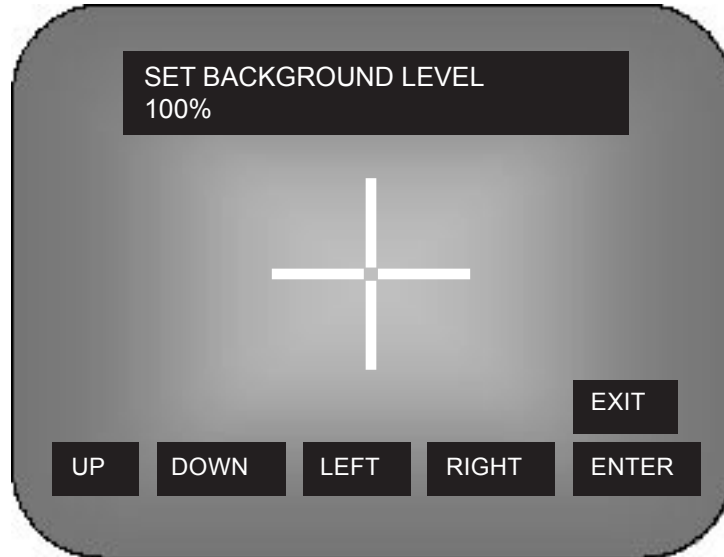
4. Highlight the 'SET BACKGROUND LEVEL' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SET BACKGROUND LEVEL' selection as shown below.



5. Entering the 'SET BACKGROUND LEVEL' control function

With the 'SET BACKGROUND LEVEL' selection highlighted, press the 'Enter Option' to enter the 'SET BACKGROUND LEVEL' control function. On entering the 'SET BACKGROUND LEVEL' control function, the following screen will be displayed.



6. Adjusting the background level in the 'SET BACKGROUND LEVEL' control function

Use the 'Up Option' to increment the background level, use the 'Down Option' to decrement the background level. The background level is shown as a percentage value in the display box.

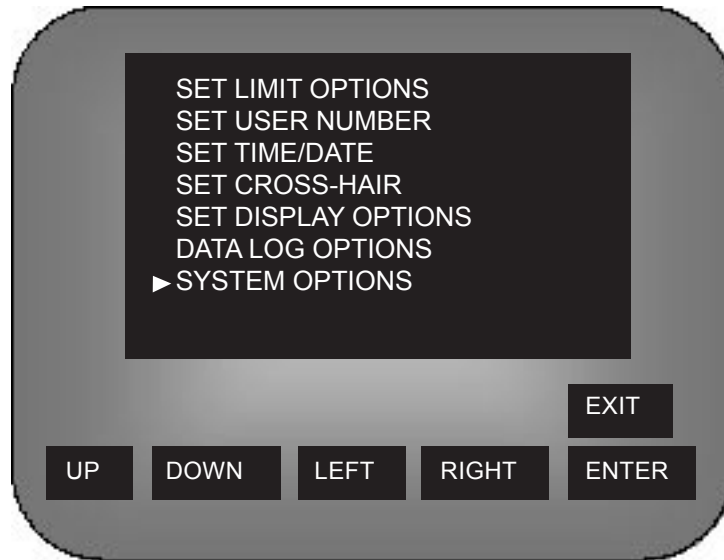
The background level can be any whole number as a percentage between 1% and 100%. 1% is transparent and 100% is black. When the desired background level has been chosen and is showing, press the 'Enter Option' to save the changes and return to the 'SET DISPLAY OPTIONS' menu.

Viewing the data log

To view the data log, follow the steps below.

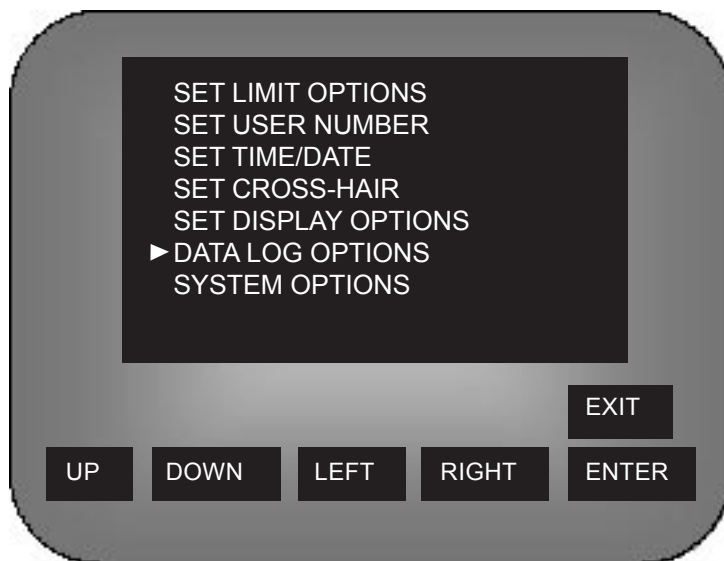
1. Enter the DCU menu by pressing the symbol on screen.

On entering the main menu, the following menu will be displayed.



2. Highlight the 'DATA LOG OPTIONS' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'DATA LOG OPTIONS' selection as shown below.



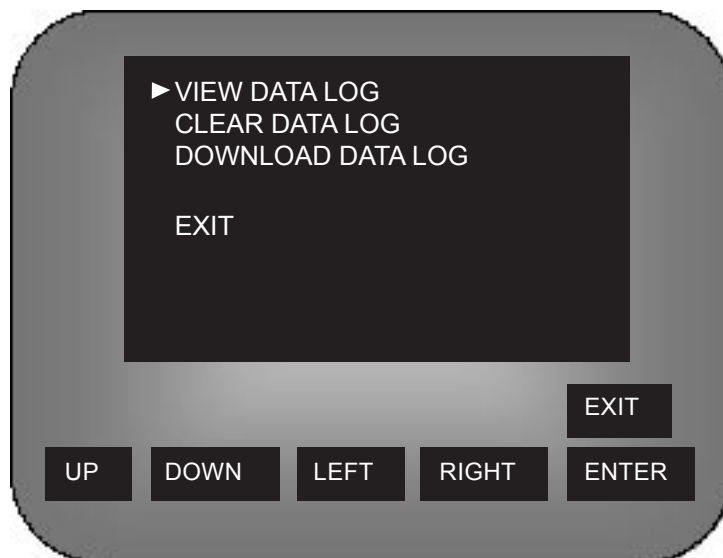
3. Enter the 'DATA LOG OPTIONS' menu

With the 'DATA LOG OPTIONS' selection highlighted, press the 'Enter Option' to enter the 'DATA LOG OPTIONS' menu. On entering the 'DATA LOG OPTIONS' menu, the following menu will be displayed.



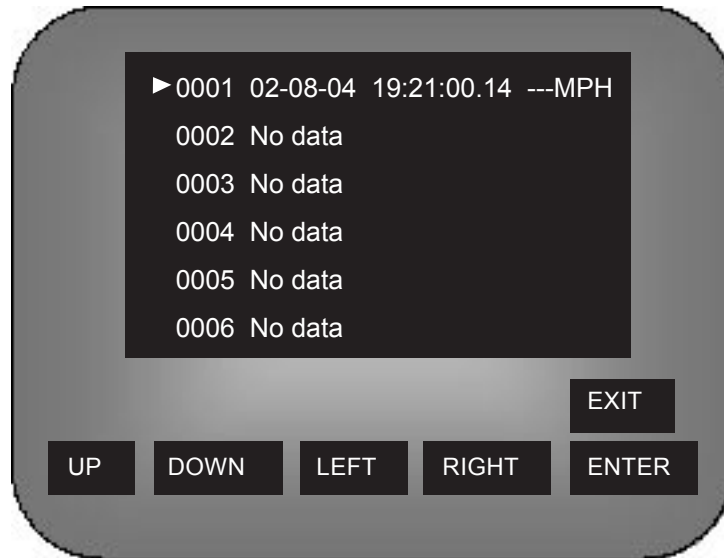
4. Highlight the 'VIEW DATA LOG' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'VIEW DATA LOG' selection as shown below.



5. Entering the 'VIEW DATA LOG' control function

With the 'VIEW DATA LOG' selection highlighted, press the 'Enter Option' to enter the 'VIEW DATA LOG' control function. On entering the 'VIEW DATA LOG' control function, the following screen or similar screen will be displayed. The selection arrow will be flashing at data log entry 0001.



6. Navigating the data log in the 'VIEW DATA LOG' control function

Use the 'Up Option' to move the selection arrow up by one data log entry, use the 'Down Option' to move the selection arrow up by one data log entry, use the 'Right Option' to move the data log view down a page at a time, and use the 'Left Option' to move the data log view up a page at a time.

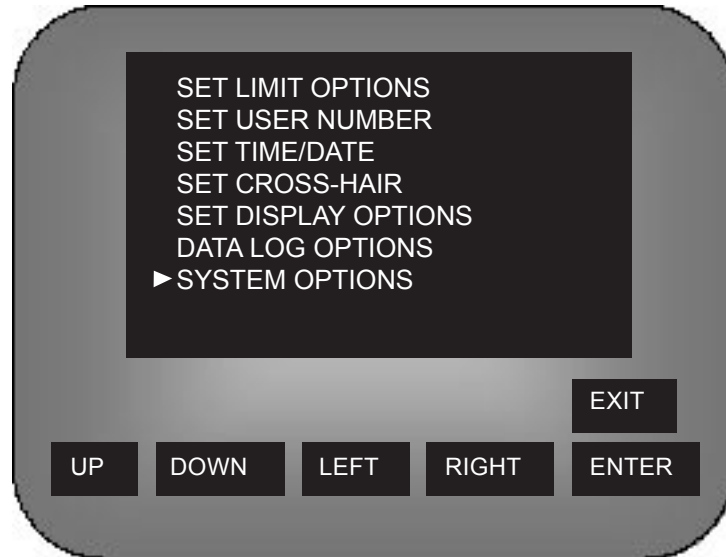
When viewing of the data log is no longer required, press the 'Enter Option' to exit the data log and return to the 'DATA LOG OPTIONS' menu.

Clearing the data log

To clear the data log, follow the steps below.

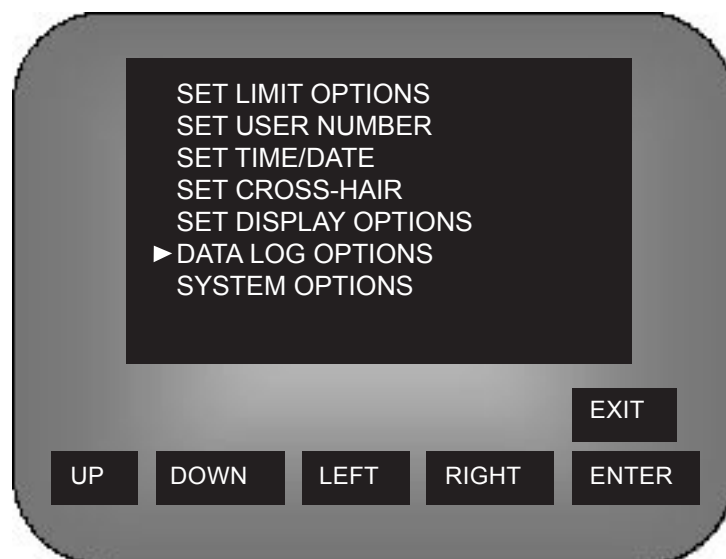
1. Enter the DCU menu by pressing the symbol on screen.

On entering the main menu, the following menu will be displayed.



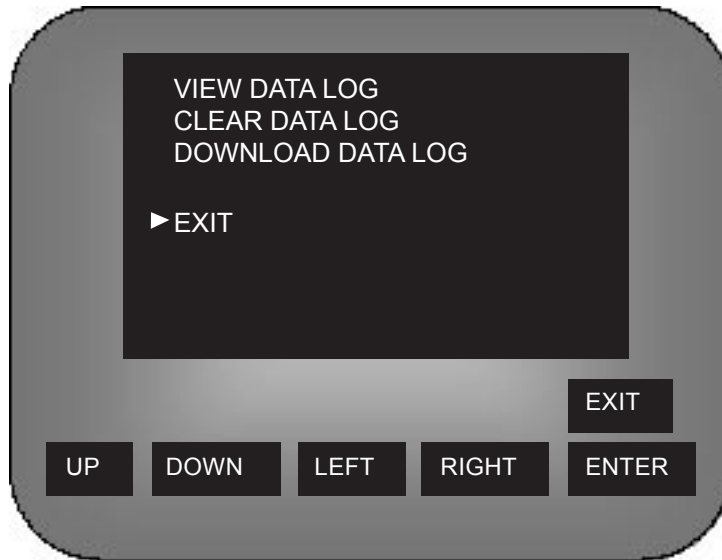
2. Highlight the 'DATA LOG OPTIONS' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'DATA LOG OPTIONS' selection as shown below.



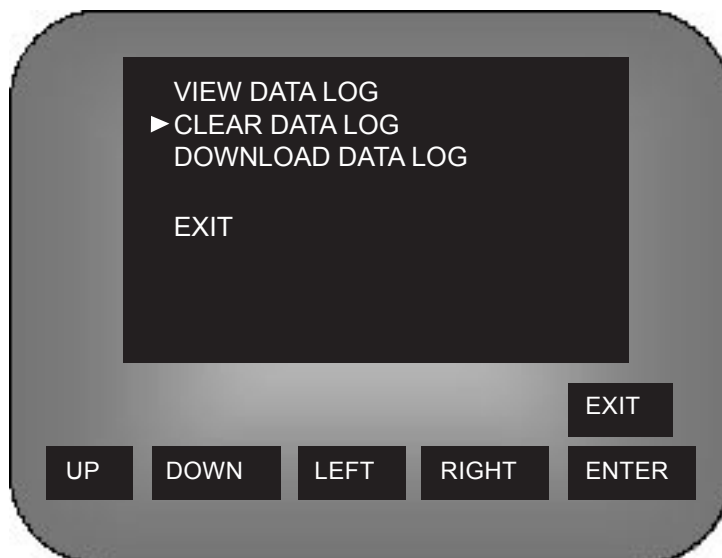
3. Enter the 'DATA LOG OPTIONS' menu

With the 'DATA LOG OPTIONS' selection highlighted, press the 'Enter Option' to enter the 'DATA LOG OPTIONS' menu. On entering the 'DATA LOG OPTIONS' menu, the following menu will be displayed.



4. Highlight the 'CLEAR DATA LOG' selection

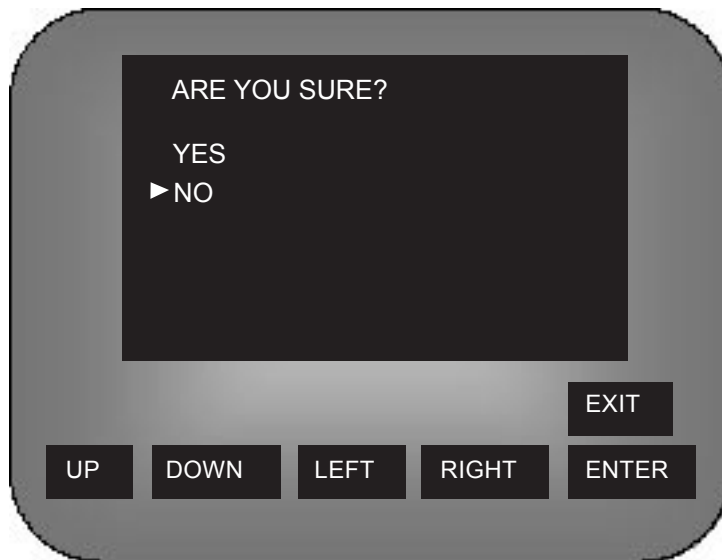
Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'CLEAR DATA LOG' selection as shown below.



5. Entering the 'CLEAR DATA LOG' control function

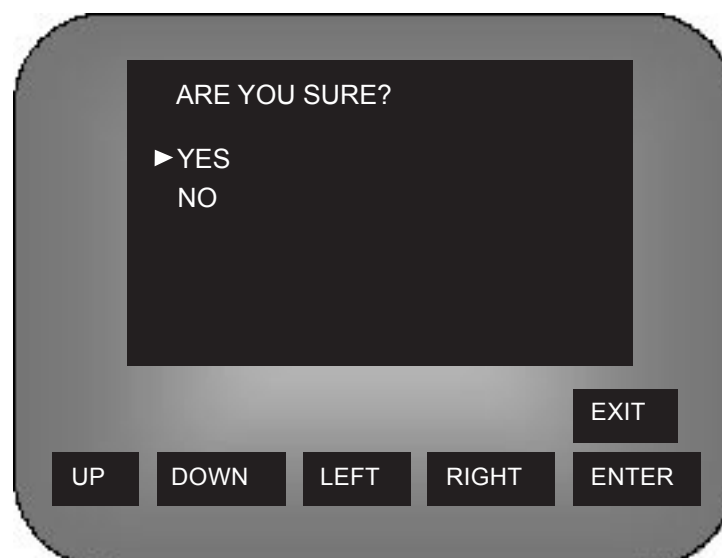
With the 'CLEAR DATA LOG' selection highlighted, press the 'Enter Option' to enter the 'CLEAR DATA LOG' control function. On entering the 'CLEAR DATA LOG' control function, the following prompt screen will be displayed.

At this point if you do not wish to clear the data log, press the 'Enter Option' with 'NO' highlighted and you will return to the main menu screen. If you do wish to clear the data log then proceed to step 6.

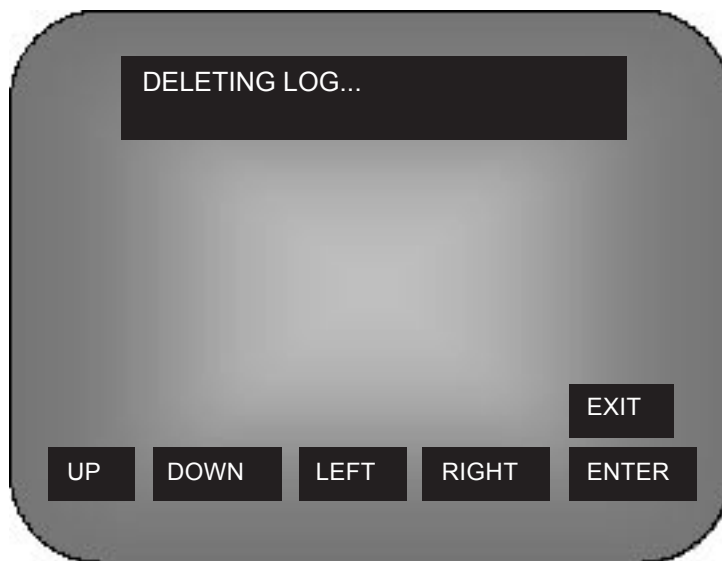


6. Highlighting the 'YES' option to clear the data log

To clear the data log, highlight yes by pressing the 'Up Option', so that the following screen is displayed.



With 'YES' highlighted, press the 'Enter Option', and the data log will start to be cleared. Whilst the data log is being cleared the following message is displayed.



Please note:- The above operation can only be used prior to setting the DVD recording system in operation. Whilst the system is in recording mode this operation is automatically controlled by on board computer programs and you will not be able to gain access.

Once the data log has been cleared the main menu screen is then displayed as shown below.

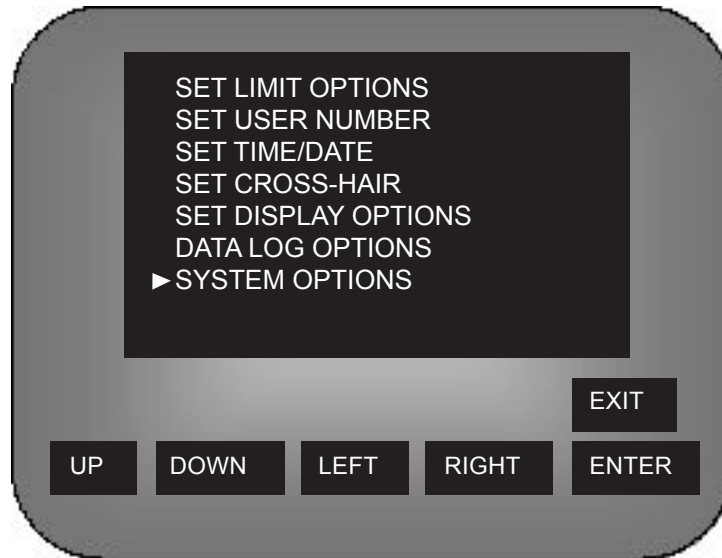


Downloading the data log

To download the data log, follow the steps below.

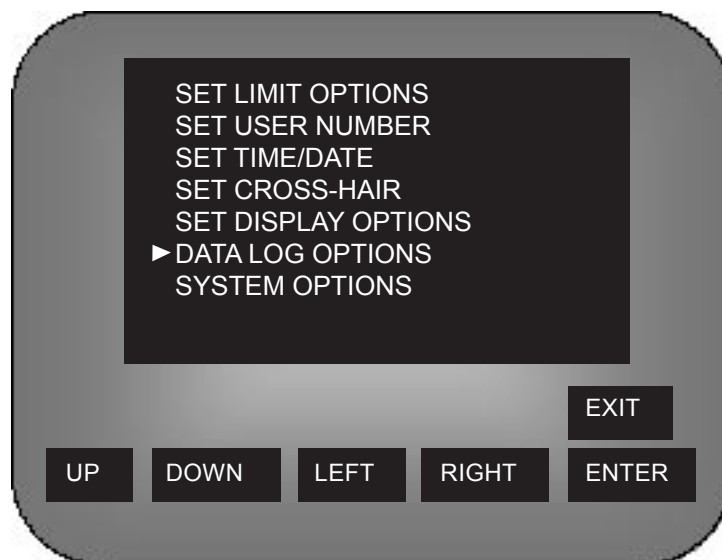
1. Enter the DCU menu by pressing the symbol on screen.

On entering the main menu, the following menu will be displayed.



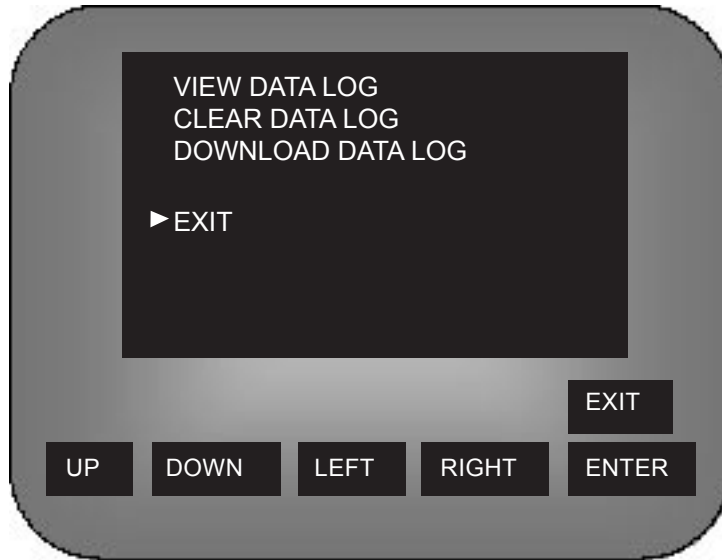
2. Highlight the 'DATA LOG OPTIONS' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'DATA LOG OPTIONS' selection as shown below.



3. Enter the 'DATA LOG OPTIONS' menu

With the 'DATA LOG OPTIONS' selection highlighted, press the 'Enter Option' to enter the 'DATA LOG OPTIONS' menu. On entering the 'DATA LOG OPTIONS' menu, the following menu will be displayed.



4. Highlight the 'DOWNLOAD DATA LOG' selection

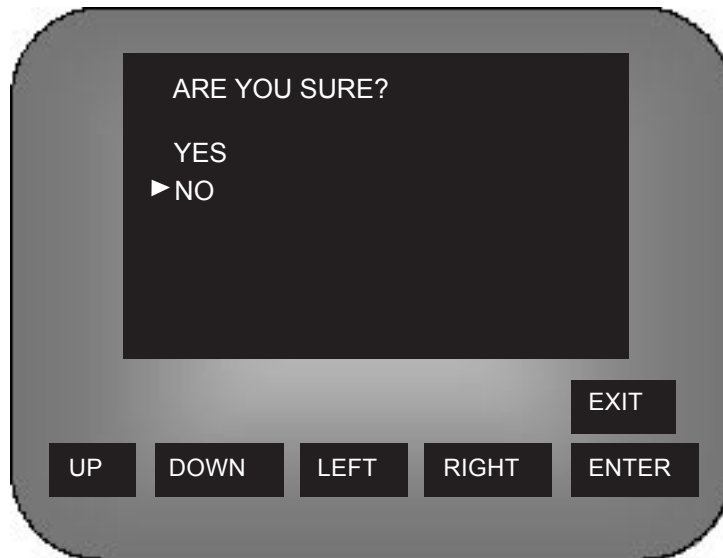
Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'DOWNLOAD DATA LOG' selection as shown below.



5. Entering the 'DOWNLOAD DATA LOG' control function

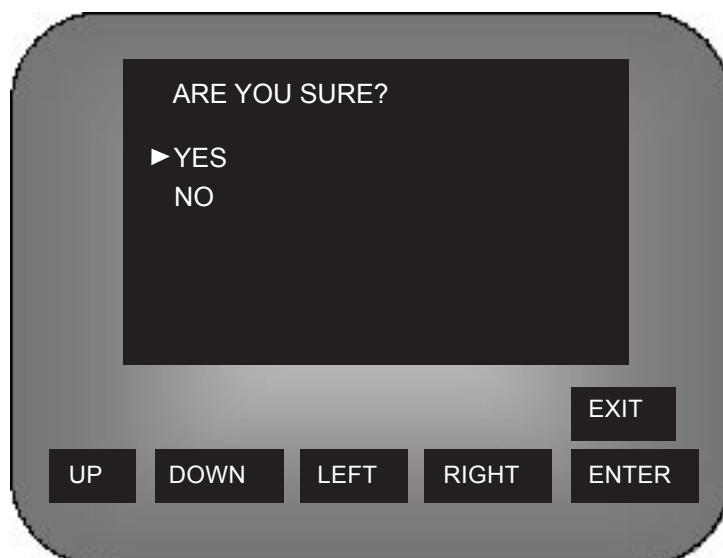
With the 'DOWNLOAD DATA LOG' selection highlighted, press the 'Enter Option' to enter the 'DOWNLOAD DATA LOG' control function. On entering the 'DOWNLOAD DATA LOG' control function, the following prompt screen will be displayed.

At this point if you do not wish to download the data log, press the 'Enter Option' with 'NO' highlighted and you will return to the main menu screen. If you do wish to download the data log then proceed to step 6.

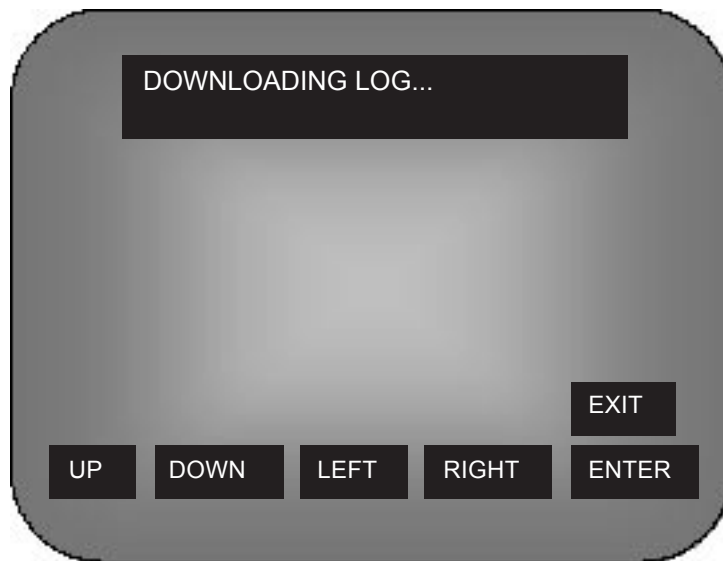


6. Highlighting the 'YES' option to download the data log

To download the data log, highlight yes by pressing the 'Up Option', so that the following screen is displayed.

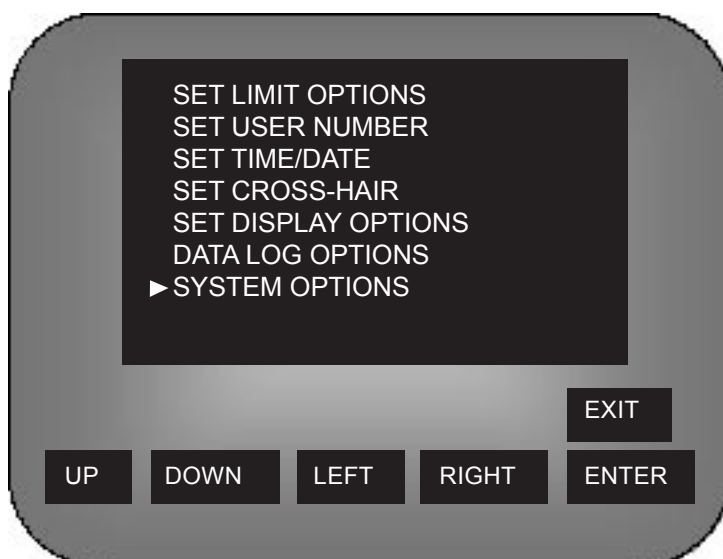


With 'YES' highlighted, press the 'Enter Option', and the data log will start to be downloaded. Whilst the data log is being downloaded the following message is displayed.



Once the data log has been downloaded the main menu screen is then displayed as shown below.

Please note:- *The above operation can only be used prior to setting the DVD recording system in operation. Whilst the system is in recording mode this operation is automatically controlled by on board computer programs and you will not be able to gain access.*

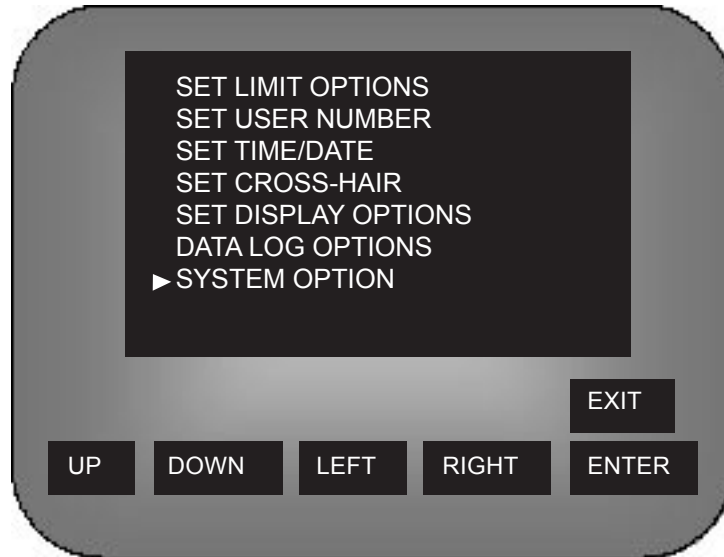


Viewing the DCU system status page

To view the DCU system status page, follow the steps below.

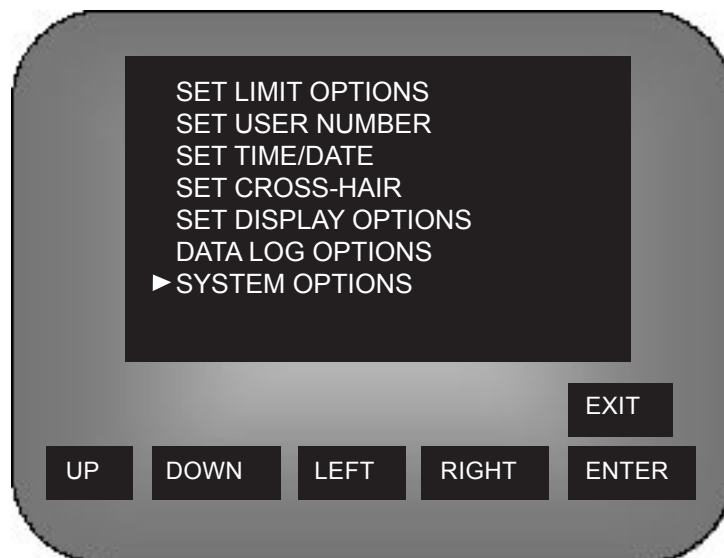
1. Enter the DCU menu by pressing the symbol on screen.

On entering the main menu, the following menu will be displayed.



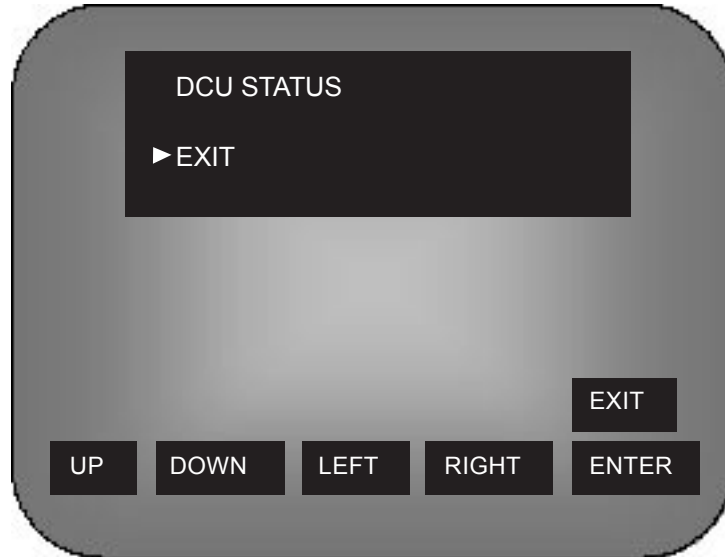
2. Highlight the 'SYSTEM OPTIONS' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'SYSTEM OPTIONS' selection as shown below.



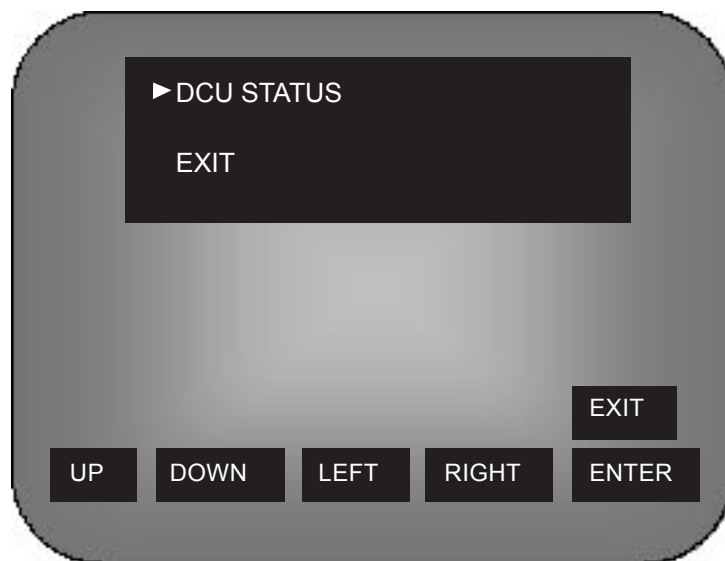
3. Enter the 'SYSTEM OPTIONS' menu

With the 'SYSTEM OPTIONS' selection highlighted, press the 'Enter Option' to enter the 'SYSTEM OPTIONS' menu. On entering the 'SYSTEM OPTIONS' menu, the following menu will be displayed.



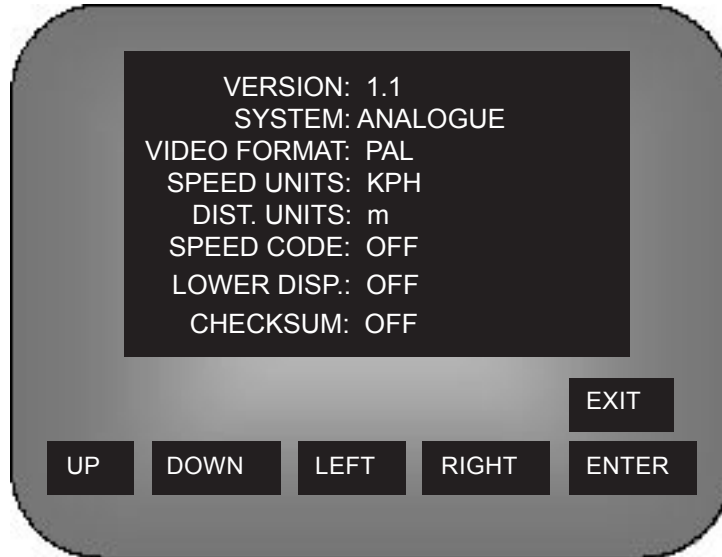
4. Highlight the 'DCU STATUS' selection

Use the 'Up Option' or 'Down Option' to move the selection arrow to highlight the 'DCU STATUS' selection as shown below.



5. Entering the 'DCU STATUS' view function

With the 'DCU STATUS' selection highlighted, press the 'Enter Option' to enter the 'DCU STATUS' view function. On entering the 'DCU STATUS' view function, the following table or variation will be displayed.



Please note:- The above operation can only be used prior to setting the DVD recording system in operation. Whilst the system is in recording mode this operation is automatically controlled by on board computer programs and you will not be able to gain access.

Table Field Title	Variations	Description
VERSION	Any number (#.#)	System Software Version Number
SYSTEM	ANALOGUE / DIGITAL	Type of recording media ANALOGUE = VCR DIGITAL = Hard Disk
VIDEO FORMAT	PAL / NTSC	System Video Format – Input – Camera Output - Monitor
SPEED UNITS	KPH / MPH	Units that speed values are displayed as.
DIST. UNITS	m / f (metres / feet)	Units that distance values are displayed as.
SPEED CODE	ON / OFF	Three digit alpha speed code display on or off
LOWER DISP.	ON / OFF	Speed capture bottom line display on or off
CHECKSUM	ON / OFF	Speed capture checksum verification on / off

6. Exiting the 'DCU STATUS' view function

Press the 'Enter Option' to exit the DCU system status page and return to the 'SYSTEM OPTIONS' menu.

SECTION 4

RANGER DVD RECORDER

CONTENTS:

Description
Operation

Description

The **Ranger** system now incorporates a Slot drive high grade **DVD +R** which is controlled and loaded via the on-screen touch menu.

When entering the DVD menu the user can only load one **BLANK** DVD +R disk per session, Via the MEDIA menu.

The system RECORD Option can only be pressed **once** per recording session. If the user presses the RECORD Option a second time they are prompted that the disk has been previously recorded on. This is to prevent the system being stopped and moved to another site and recording re-commenced.

So each enforcement period is a single DVD +R recording session?

Once the DVD +R disk has been recorded on and stopped the only options available is to eject the disc in the EJECT mode if EJECT is selected the disk will be finalized so no further recording can be made and then it will be automatically ejected from the system.

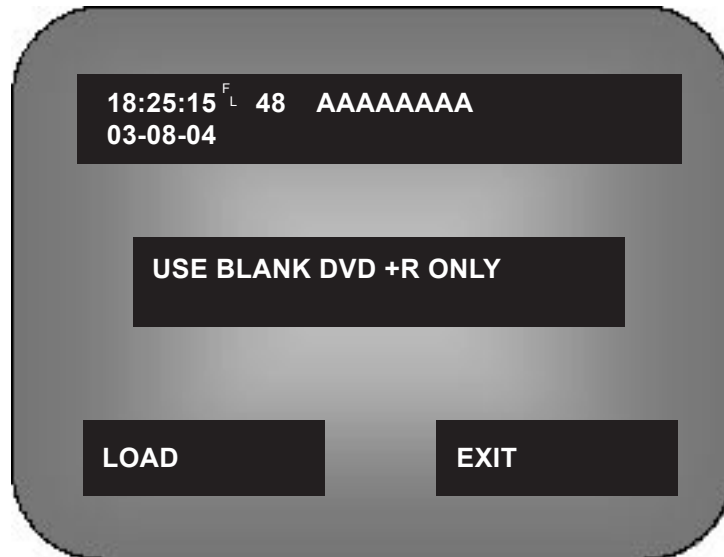
After the disk has been ejected from the system it is now in WORM format (Write Once Read Many) and can be viewed by any desk top PC or Laptop with a DVD +R compatible drive fitted.

Recording time per DVD disk can be set to **ONE**, **TWO** or **FOUR** hours depending on compression. This will be factory set and will generally be set to **TWO** hours.

Procedure for operating the DVD recorder

1. Entering the DVD Menu by pressing the DVD symbol on screen.

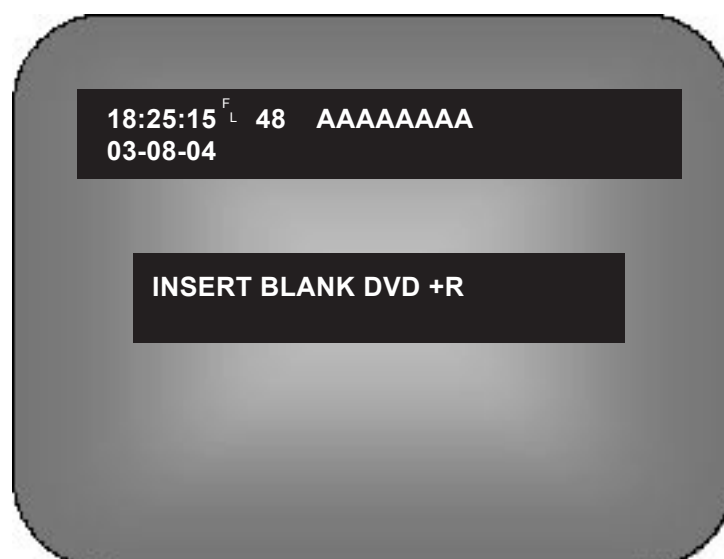
On entering the main menu, the following message will be displayed.



When the DVD Option is pressed, it opens the sub-menu and LOAD and EXIT options appear at the bottom of the Screen.

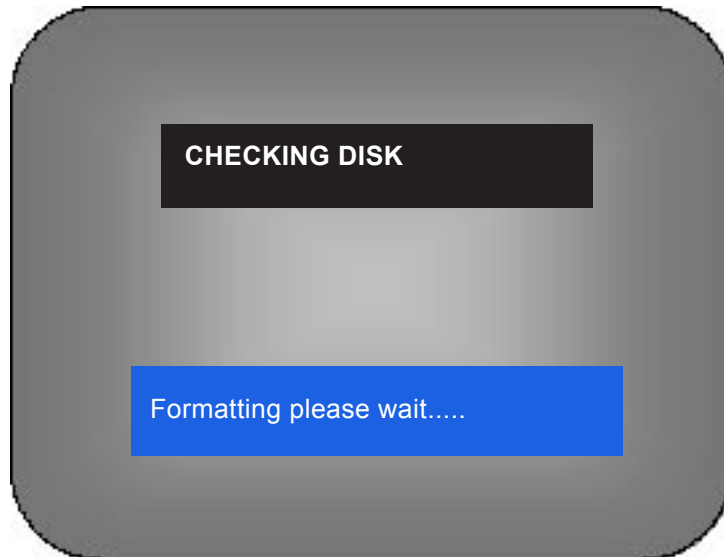
2. Loading a DVD + R Disc ready for recording.

By pressing the LOAD Option' the system moves onto the next menu and the following message will appear as shown below. At this stage you **must comply** with the instruction as the DVD is waiting for the disk before it can execute any other command. Only as a LAST RESORT can you opt out by turning off the system.

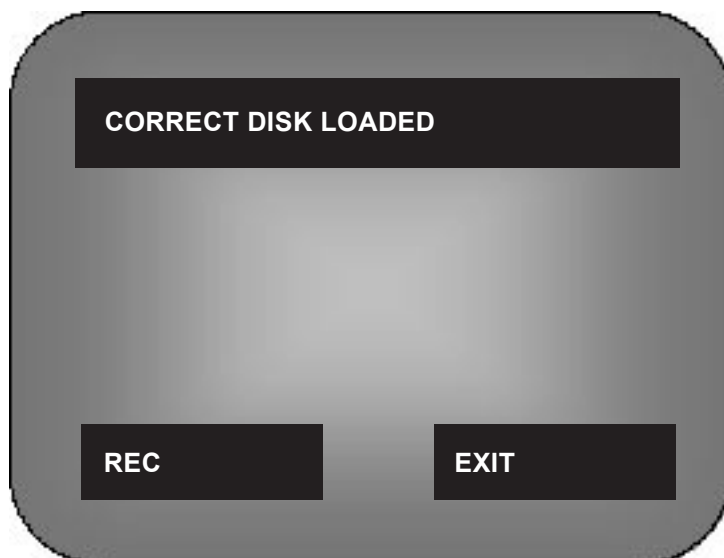


3. Entering the DVD into the recorder.

Now place the blank +R DVD disk into the slot drive. It **MUST BE LOADED** with the printed side (the top) away from the eject button and operation light on the DVD slot drive. AFTER a brief wait the following message will appear on the screen. In the top right corner of the machine a separate blue message box will appear for a short time telling you the status of the operation. This is normal.



Once the formatting process has been completed the screen below will appear.



The Exit Option will always take the Operator back one level of Menu's

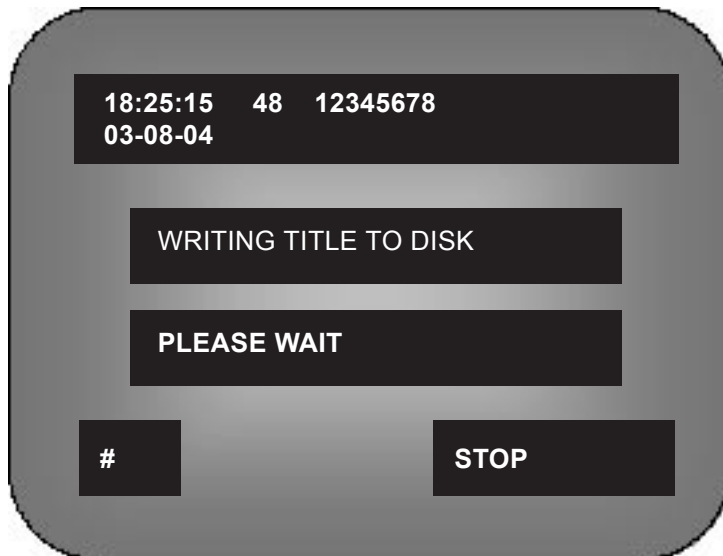
N.B. If you load a pre-recorded DVD + R disk into the system when the recorder checks the disc it will be automatically REJECTED.

4. Beginning a RECORDING.

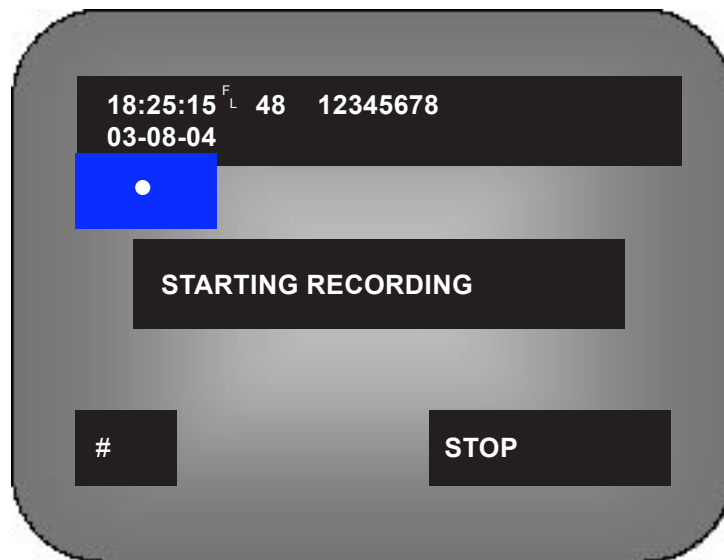
By pressing the 'EXIT Option' from the previous menu (having inserted a BLANK disk) the following message will appear on the screen and the disk will be ejected. You then arrive back at the start-up screen.



However if you select the REC Option you enter the DVD recording mode. Once this Option is pressed a further screen seen below is displayed.



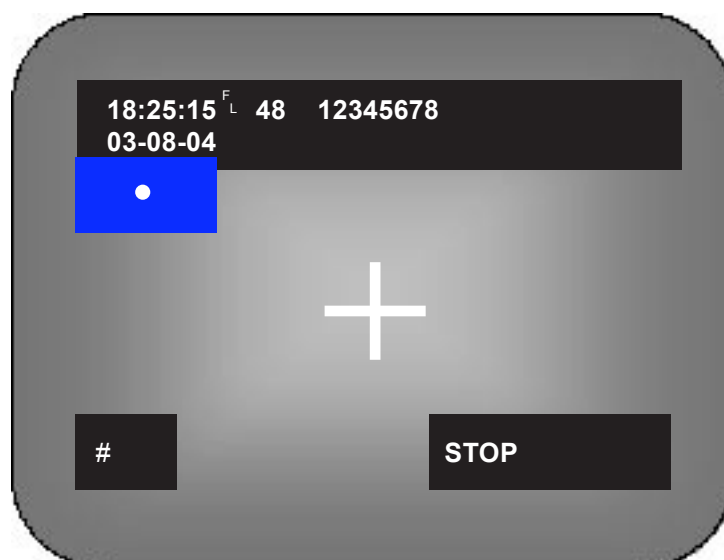
Followed by:-



A brief message from the DVD recorder appears on the screen to acknowledge the command and a blue oblong with a white dot appears in the upper left of the screen. This does not appear in the recording and is a visual reference only for the operator to inform them that recording is taking place.

N.B: As soon as the recording begins the system will title the DVD disk with a time and date as well as the 8 digit alphanumeric code from the DCU entry.

A further screen will now appear as shown below. The lower symbols shown will NOT appear on the final recording and are an Overlay control menu only.



5. Event marker.

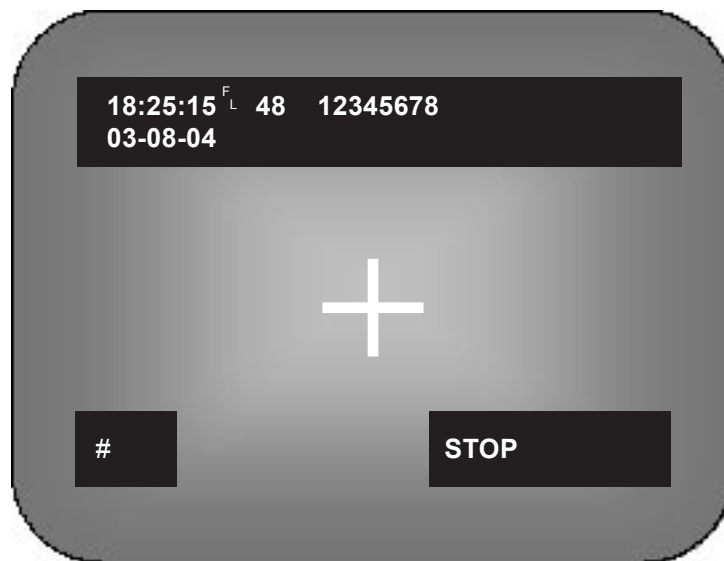
The Event marker symbol # appears in the bottom left of the display. If the operator observes an event such as a crime in progress or a traffic offence such as driving whilst using a mobile phone or no seat belt, they can mark the event for later action by pressing the # Option.

This will mark the DVD 'live video recording' for 8 seconds.

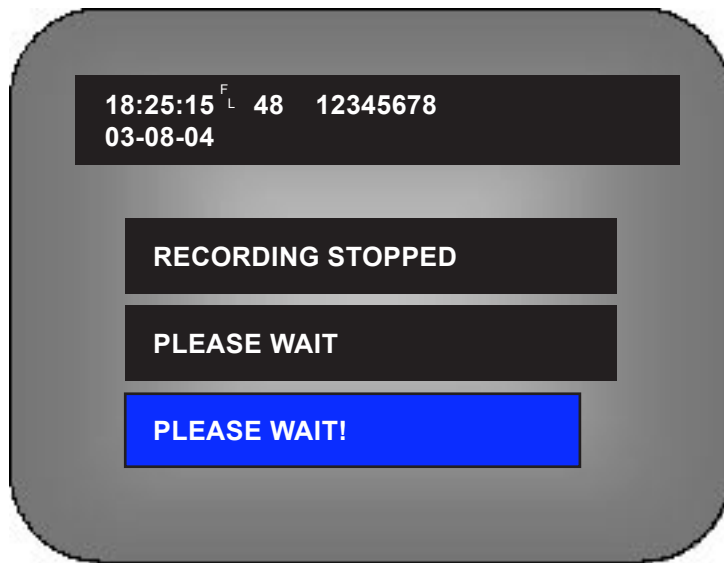
N.B. THIS MARKER WILL NOT INTERFERE WITH THE MEASUREMENT DATA FROM THE LASER. IT PLACES A REFERENCE POINT ON THE DISK FOR LATER VIEWING AND ACTION.

5. Ending the RECORDING session.

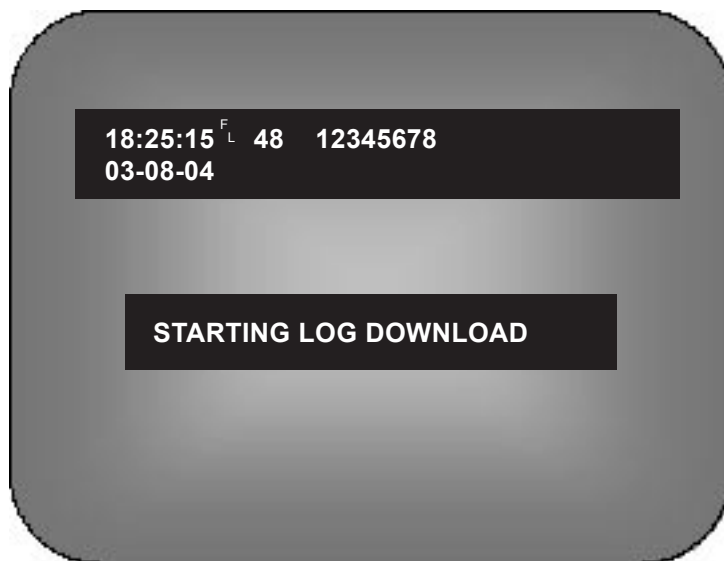
When the Operator decides to end the recording session they should press the STOP Option on-screen. This will through a sequence of events AUTOMATICALLY causes the data log to be dumped or transferred onto the DVD disc and the session is then closed and stopped.



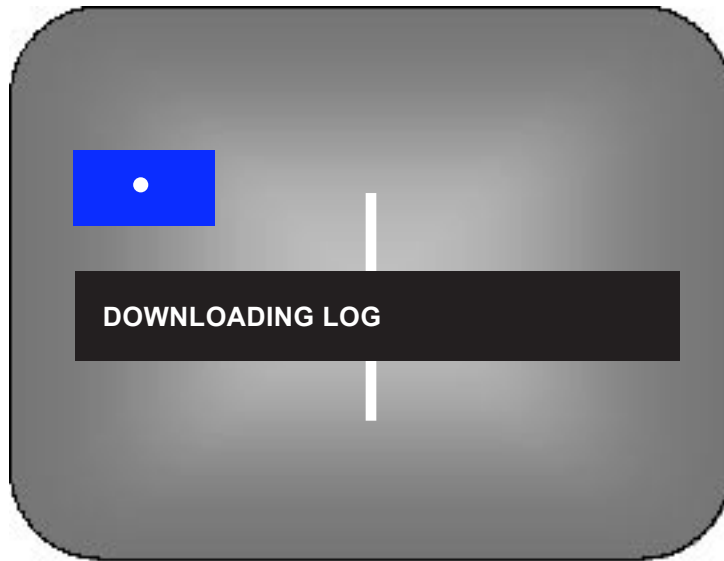
When the STOP is pressed this screen will appear.



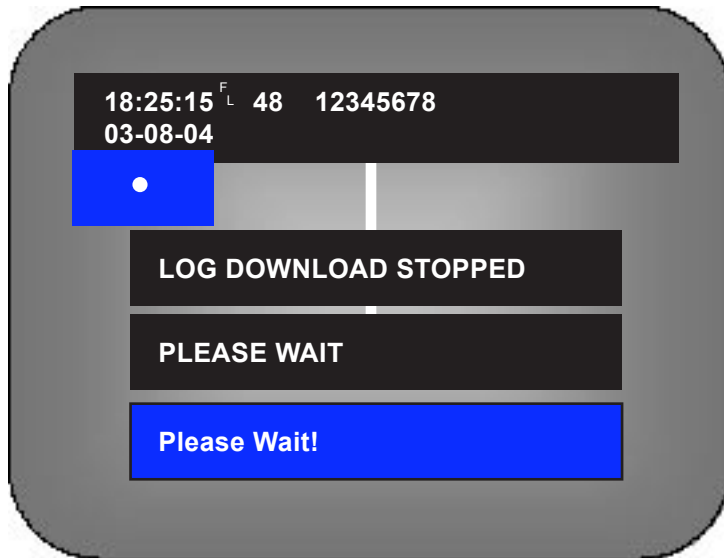
Followed by:-



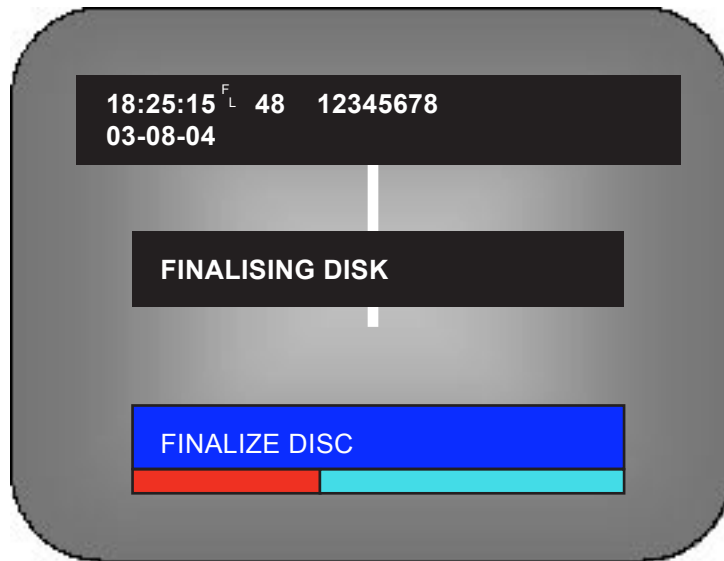
And then:-



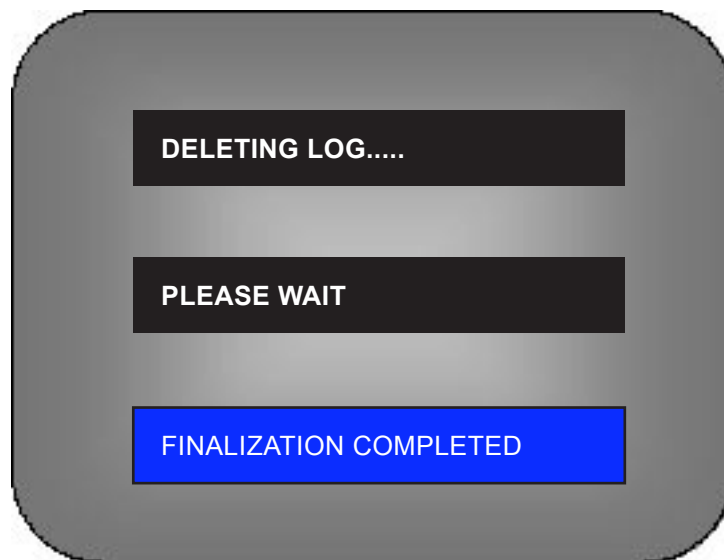
Followed by:-



And then:-

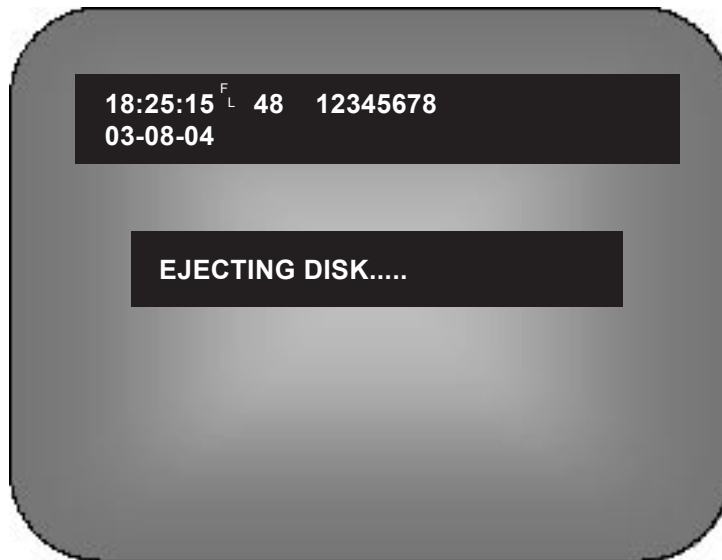


Once the red line indicator has reached the end of the box the following screen will appear.



The deleting of the log will take a few seconds. Be patient!

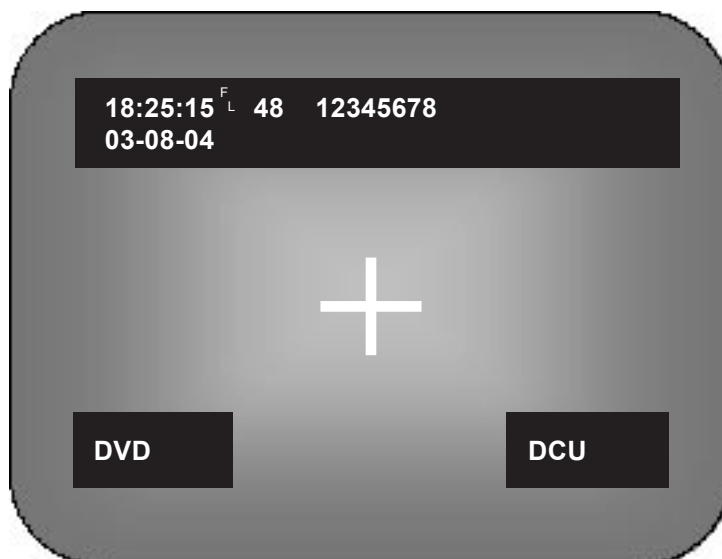
As soon as this process has been completed the below screen will appear.



Within a few seconds of the message appearing on the screen the DVD disk will eject from the drive. Local evidential procedures should then apply and the disk be secured.

The disc has been WORM finalised at this stage and when removed **CAN** be viewed on a PC or Laptop.

The system will then display the below screen ready to begin another session or the unit can be turned off.



7. Interruptions to the power supply.

Should the power supply be interrupted or the battery fail during a recording session the system will automatically go through the start up procedure when the power is reconnected.

However the DVD will detect that there is a disk loaded and part recorded. The system will automatically treat this as a recorded disk and eject it for security reasons. The log within the D.C.U. will be deleted on start up and deleting log will appear on screen.

Because of the security within the system it will not allow pre-recorded disks to be reinserted in order to be finalised and the disk cannot be used in this format.

Local administration procedure should be applied.

Adjusting the Camera Settings

Operating the Sony camera

Both the Tele Traffic Concept II and Rangers systems are fitted with a Sony Video Camera which allow the recording of live video images throughout the enforcement session.

Even with the advancement in technology there are few cameras that are able to operate in all light conditions without having to change some of the settings.

We control the light entering the camera by applying adjustments to the lens in the form of turning the aperture ring. More light is allowed to enter the camera when we turn this ring to a lower setting such as f4.5 and less light when we turn the ring to f16.

This method of controlling the amount of light entering the camera is relatively straightforward providing the exposure within the camera is set correctly at the beginning of the enforcement session for the lighting conditions at that time. They can vary considerably throughout the day even minute to minute with a change in the weather.

1. To access the Exposure settings on the Camera.

On the left side of the camera housing you will find a black keypad that looked like figure 1 below.

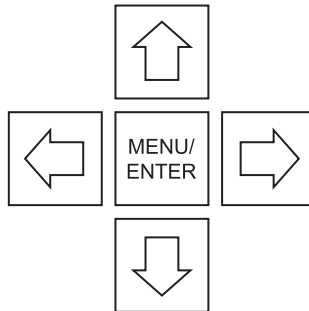


Figure 1.

Press and hold the MENU/ENTER key in the centre of the Keypad for two seconds.

The below menu will appear on your screen.

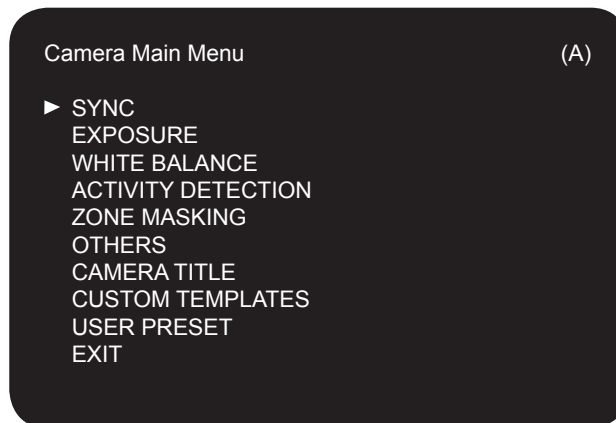


Figure 2.

MOST OF THE ABOVE INTERNAL MENU OPTIONS ARE IN ACTIVE AS THEY DO NOT APPLY TO THIS TYPE OF APPLICATION OR ARE FACTORY SET.

Press the down arrow on the keypad to move the cursor down to the EXPOSURE SETTING.

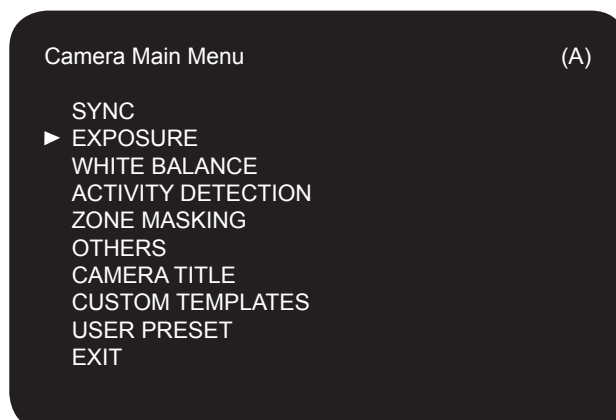


Figure 3.

2. To access the Exposure setting.

Press and hold the MENU/ENTER key in the centre of the Keypad and the below screen will appear.

This is the ONLY sub menu you will need to enter to adjust the camera for ALL lighting conditions.

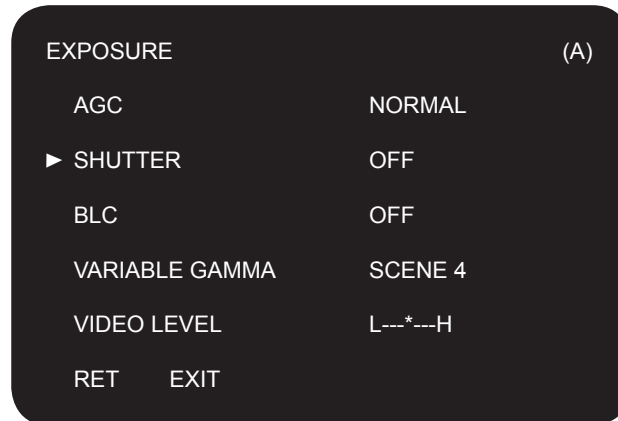


Figure 4.

The key section within this sub menu is the SHUTTER option.

Press the down arrow on the keypad to move the cursor down to the SHUTTER SETTING.

By using the forward and back arrows on the keypad you can now alter the types of SHUTTER settings from OFF to CCD –IRIS or MANUAL.

For dull days and low light situations you will find that leaving the SHUTTER switched OFF will allow you to gain a better image.

3. Changing the SHUTTER setting.

For bright days or where the sun is directly into the camera change the SHUTTER setting to MANUAL by using the front and back keys on the keypad.

When the MANUAL option is selected it will add another sub routine to the screen as seen below.

Move the cursor down to the SPEED option by using the down arrow on the keypad. This will allow you to change the SHUTTER speed or EXPOSURE of the camera. A value will appear from 1/60 to 1/100000 of a second.

You will find that by selecting 1/500, 1/1000 and 1/2000 but he forward and back arrows on the keypad and watching the screen, you will be able to select the appropriate SHUTTER speed for the lighting conditions.

Select 1/500 for lower light conditions, 1/1000 for standard daylight and 1/2000 for the brightest of days.

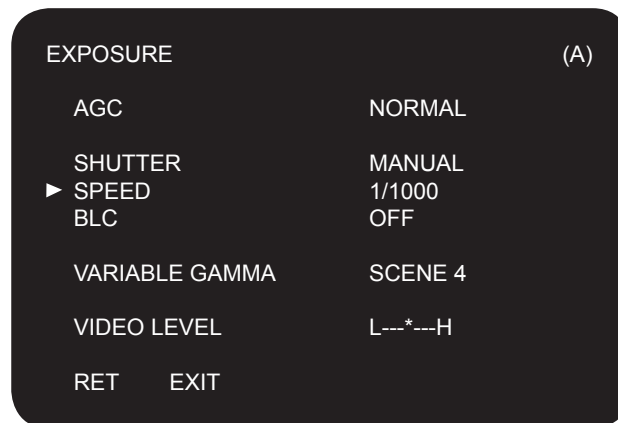


Figure 5.

4. Exiting the camera set up menu.

Once the appropriate value has been selected move the Cursor down to RET by using the down arrow on the keypad. If you press MENU/ENTER now it will take you back to the original start menu at Figure 2.

However if you now use the front and back arrows to move the cursor to the EXIT option and press MENU/ENTER it will remove the camera set up program from the screen ready for operation.

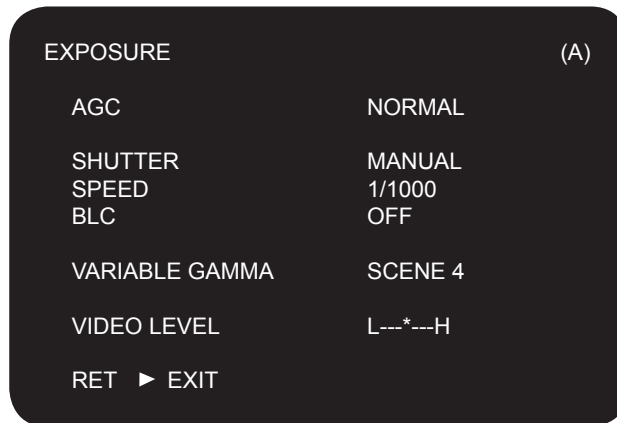


Figure 6.

The settings you have applied will be saved until the next time you enter the Menu.

5. Brief description of other items on the EXPOSURE sub menu.

Each category on the left of the above screen has a number of variable sub-routines that could affect the quality of the video produced.

- (a) The AGC or Automatic Gain Control should ALWAYS be set to NORMAL. This adjusts the gain automatically to the brightness of the subject.
- (b) The SHUTTER is the only item that should be changed DO NOT USE THE CCD-IRIS option, as you do not have the correct lens fitted for this automated function. Select either OFF or MANUAL as outlined above.
- (c) The BLC, which should be turned OFF, refers to Backlight Compensation tries to change the exposure to compensate for the light behind the object targeted. **Do not use** this option, as it will adversely affect the brightness of the image.
- (d) The VARIABLE GAMMA adjusts the picture compensation mode. The options are OFF, SCENE 1, SCENE 2, SCENE 3, and SCENE 4. Scene 4 is the default setting as this outputs the signal from the camera linearly without any gamma compensation. This is the best output for BACK OFFICE PROCESSING and image analysis.
- (e) The VIDEO LEVEL controls the strength of the video feed within the unit and SHOULD ALWAYS be set to the central position.