

# 1990/24. Field manual for the Toshiba laptop computer with Version 2.02 software (Revision 1).

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## INTRODUCTION

The Toshiba laptop computer is used to interrogate the Unidata data loggers in the field. This means that data stored in the loggers can be retrieved (unloaded), displayed, and the logger re-initialised (loaded) to continue collecting data. The data can then be brought back to the office for further examination. Simple procedures have been devised to perform these tasks.

Examples from the installation ROB1 are used throughout this instruction manual.

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# 1. WHAT TO TAKE INTO THE FIELD

- 1.1 A triangular-headed key to open the front cover of a Unidata enclosure.
- 1.2 Spare Unidata data logger(s) (see figure 1.1). The number of spare loggers you need depends on the number of installations you are to service:  
 for 2 sites..... 1 logger brick  
 4 sites ..... 2 logger bricks
- 1.3 The Unidata data logger battery tester.
- 1.4 The Toshiba laptop computer. This will have attached to its rear panel a short connecting cable. Two diskettes labelled **LOGGER 1** and **LOGGER 2**. **LOGGER 1** diskette is placed in the upper drive and **LOGGER 2** diskette is placed in the Lower drive. Figure 1.2 illustrates various features of the laptop computer.
- 1.5 The power transformer to charge the laptop computer overnight or to operate the computer from 240 volt ac power supply.
- 1.6 A thermos of tea.

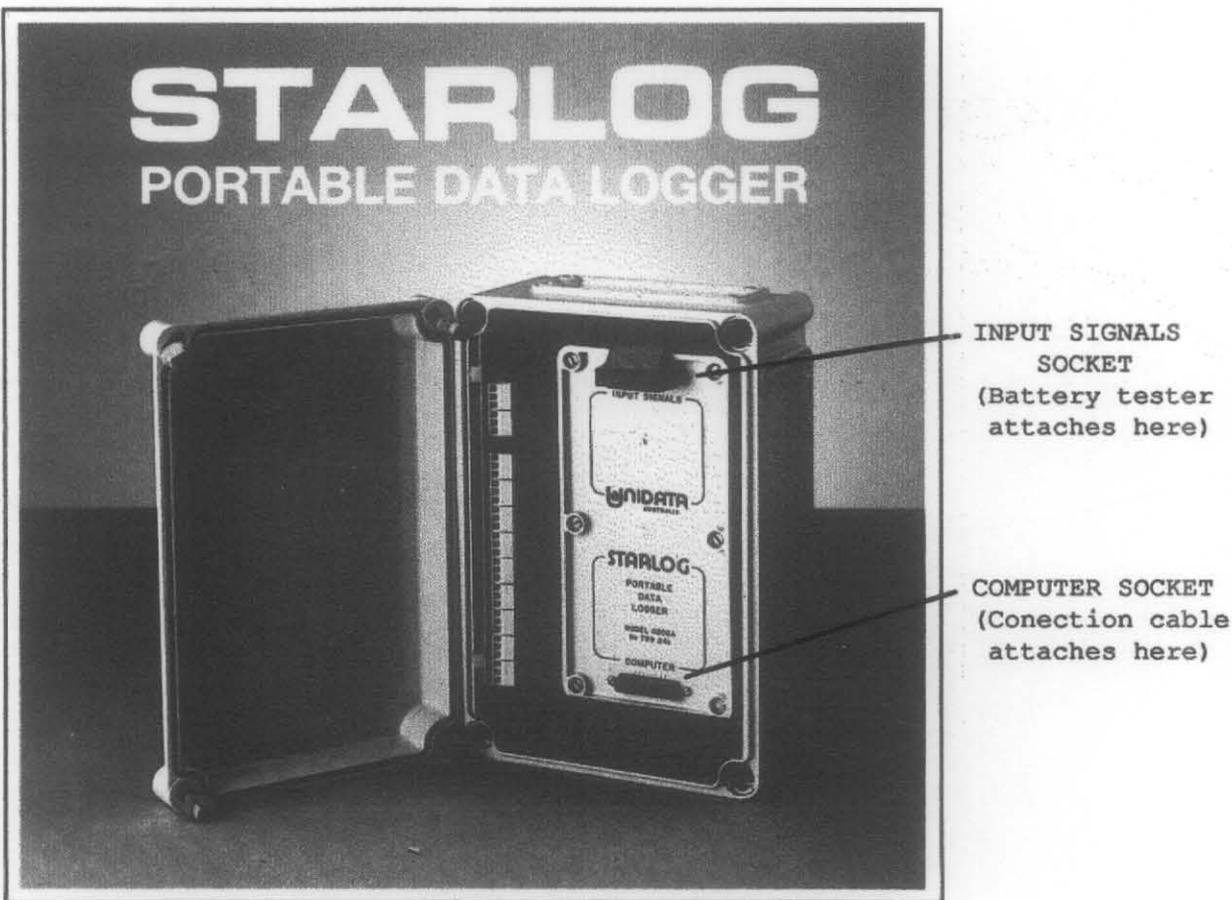


Figure 1.1.

A Unidata data logger (brick) with a Unidata field enclosure.

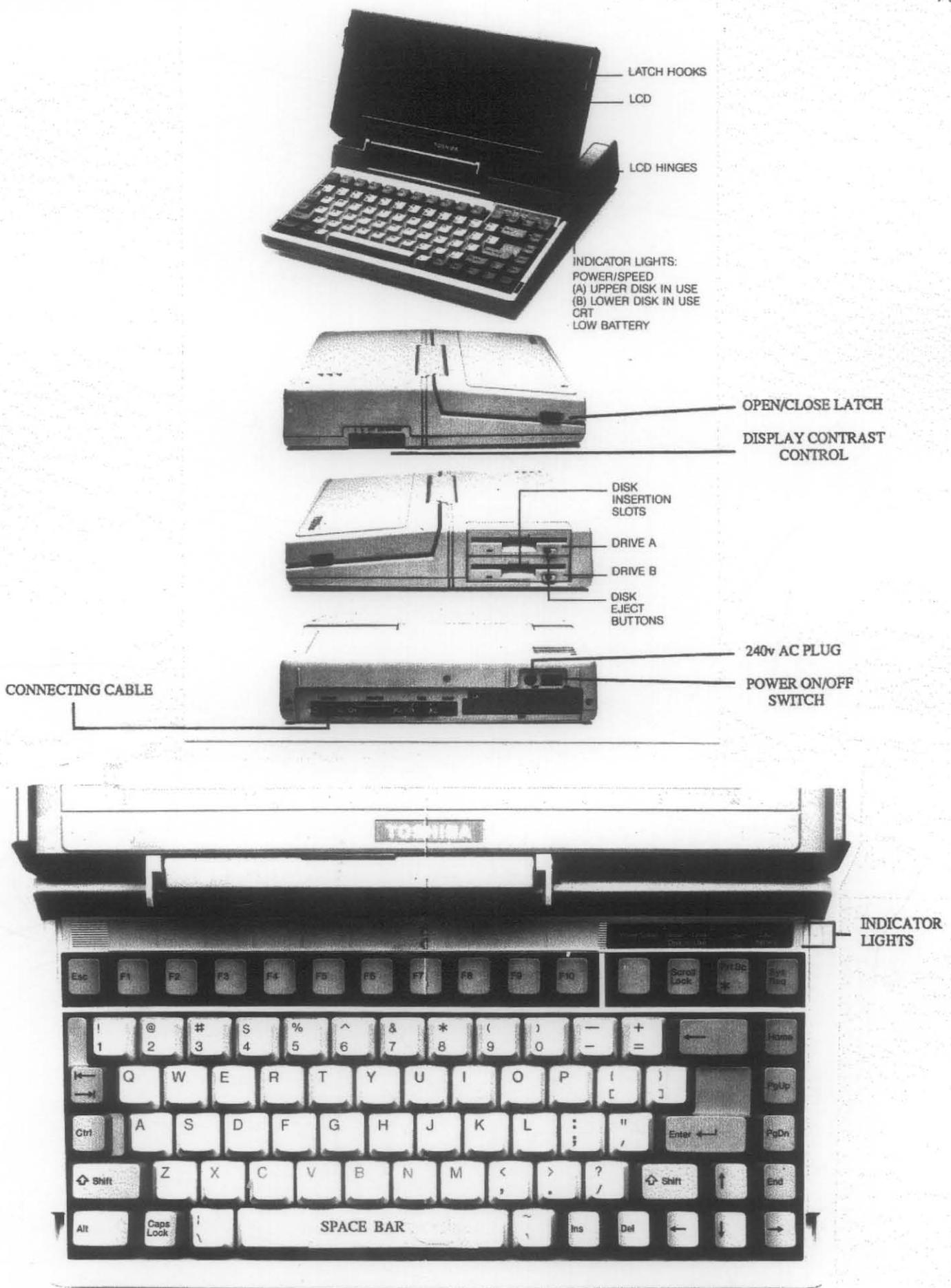


Figure 1.2.

Diagram showing the location of various components of the Toshiba laptop computer.

## 2. UNLOADING A LOGGER

- 2.1 Using the triangular headed key, remove the front cover from the Unidata enclosure.
- 2.2 Unplug the data logger - it looks like a grey brick - and remove it from the installation.
- 2.3 Take the brick to your vehicle. This is done to protect it and the computer from the elements and possible accidental damage. It is also more convenient since the short connecting cable can easily become disconnected at the field installation.
- 2.4 Plug the battery tester into the plug labelled INPUT SIGNALS on the brick. Make a note of the reading that appears on the voltage tester. The voltage should read more than 6.5 on the scale. If it doesn't, replace the brick with the spare one. Do not continue any further but refer to the instructions on LOADING A LOGGER ONLY (section 4.). Return the brick to the office for interrogation.

If the voltage reading is OK then proceed from section 2.5.

- 2.5 Open the lid of the laptop by sliding the latches on either side of the computer forward (refer to fig. 1.2 for their location). Turn on the power to the computer (the switch is located on the left rear panel as shown on fig. 1.2). The computer will make a few noises then display a screen as in Figure 2.1. If a display does not appear but there has been some activity, adjust the display contrast control on the left side of the computer (see fig. 1.2 for its location) until a display appears. Read the screen display.

- 2.6 The prompt  
INSTALLATION >\_

should appear at the bottom of the screen.

- 2.7a To view the data at the installation site, type the name of the installation exactly as it is written on the front of the brick. Follow the name by a space (press the space bar - its location is shown on fig. 1.2) and then type the word display. The screen should be similar to Figure 2.1a. Proceed to section 2.8.
- 2.7b To just store the data from the brick onto the computer and re-load the brick to continue logging, type the name of the installation exactly as it is written on the front of the brick. The screen should be similar to Figure 2.1b.

**UNIDATA LOGGER UPDATE**

You have the option of processing a data logger with or without seeing a display of the results.

To process a logger,

1. Type in the name of the INSTALLATION (exactly as marked on the logger).

[To optionally see the results type a space and the word 'display' (in lower case letters) after the installation name].

2. Press the 'ENTER' key to proceed with the request.

To VIEW (at any time) the last data set processed from a logger,

1. Type 'display' followed by a space then the name of the INSTALLATION (exactly as marked on the logger).
2. Press the the 'ENTER' key to proceed with the request.

Enter your selection now

Installation >

**Figure 2.1.**

*Initial screen display when the Toshiba laptop computer is turned on.*

Enter your selection now

Installation > rob1 display

**Figure 2.1a.**

*Keyboard entry to unload a logger, display the results and re-load the logger for continued logging. To process this request press the ENTER key.*

```

Enter your selection now

Installation >rob1

Figure 2.1b.

Keyboard entry to unload a logger and re-load it for continued logging without seeing a display of the results. To process this request press the ENTER key.

```

- 2.8 Press the key marked ENTER (refer to fig. 1.2 for its location) to proceed with your request.
- 2.9 You will then be instructed to 'connect logger now' (as in Figure 2.2). Connect the cable which is already attached to the rear of the laptop into the plug labelled COMPUTER on the brick. When this is done press any key (we recommend the ENTER key) to proceed.

```

*****
* connect logger now *
*****

Press any key when ready ...

Figure 2.2.

Screen display instruction to connect the logger. When this is done we recommend that you press the ENTER key.

```

- 2.10 A new screen will appear displaying the progress of the unload. An unsuccessful unload will be indicated by a display such as in Figure 2.3a. A successful unload will present a display such as in Figure 2.3b. In either case, the warning shown in Figure 2.3c will be displayed.

```
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Preparing to unload data from ROB1

checking cycle time of 5 seconds
*** Timeout on input ***

Getting buffer information
*** Timeout on input ***
*** Timeout on input ***
*** Timeout on input ***
```

**Figure 2.3a.**

*Screen display showing the results of an unsuccessful unload of data.*

```
PDLIO Version 1.8

Preparing to unload data from ROB1

checking cycle time of 5 seconds

Getting buffer information

Unloading buffer, <xxxx> bytes long
Unloading header info

Unload complete
```

**Figure 2.3b.**

*Screen display showing the results of a successful unload of data.*

\*\*\*\*\*  
\* WARNING \*  
\*\*\*\*\*

If a \*\*\* Timeout on input \*\*\* error has occurred you must exit from the program immediately. To do this press the 'CTRL' and 'SCROLL LOCK' keys together . At the subsequent 'Terminate batch job (Y/N)?' prompt respond with a 'y' . Check the cable connections and start again .

If there is no \*\*\* Timeout on input \*\*\* error then simply press any key when ready...

Figure 2.3c

*After either a succesful or unsuccessful unload of data, this warning is displayed to allow you to exit from the program if the incorrect installation name was entered, or if a \*\*\*Timeout on input\*\*\* error eventuated. If no errors are detected we recommend that you press the ENTER key to continue.*

2.11 It is imperative that the warning not be ignored. If a \*\*\*Timeout on input\*\*\* error arises it is VERY IMPORTANT that you EXIT from the program IMMEDIATELY. Data stored in the logger will be DESTROYED if the program is allowed to continue. To exit from the program at this stage, press the CTRL and SCROLL LOCK keys together (refer to Figure 1.2 for their location). At the subsequent prompt, the response to exit is Y. You must refer to Section 2.20 if a \*\*\*Timeout on input\*\*\* error has occurred.

2.12 If there is no \*\*\*Timeout on input\*\*\* error, then the unload was successful. A useful check on whether data is being unloaded is to watch the LEDs marked A and B above the keyboard (its location is on shown Figure 1.2). If this glows red, data is being written to a diskette.

If you did not request a display of the data then continue from Section 2.15, otherwise refer to the next section.

2.13 When a display of the data has been requested, a fresh screen such as in Figure 2.4 will appear. This is followed after a short delay by a further screen which indicates that the data is being tabulated for display. The data will eventually be displayed, a screen full at a time (see Figure 2.5 for an example). When you have viewed the screen, press any key (we recommend the ENTER key) to display the next screen. DO NOT RUSH!!! If there is a delay between successive screens please be patient and do not continue to press a key. If you continue to press a key, the following screens will be rapidly scrolled through without giving you the chance to view them.

DISPLAY LAST LOGGER DUMP

SCHEME IS ROB1

Figure 2.4

When a display of the data has been requested, this screen will be displayed identifying the name of the scheme (installation).

Example:

Scheme DEMO - Water level and rainfall, data from 12:00 14/04/87 to 12:00 15/06/87

Time		Depth m	Tot rain mm
12:00	14/04/87	7.02	0.0
15:00	14/04/87	7.02	0.0
18:00	14/04/87	7.06	0.0
21:00	14/04/87	7.06	0.4
00:00	15/04/87	7.10	2.6
03:00	15/04/87	7.06	0.2
06:00	15/04/87	7.10	0.0
09:00	15/04/87	7.10	0.8
12:00	15/04/87	7.14	1.2
etc.			
06:00	15/06/87	9.48	0.2
09:00	15/06/87	9.52	0.0
12:00	15/06/87	9.52	0.0

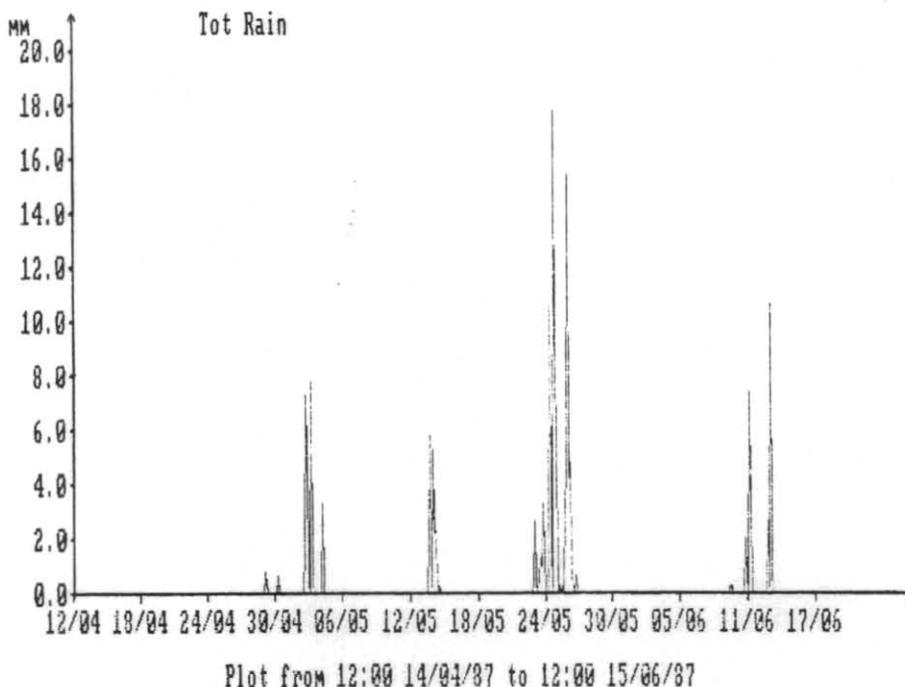


Figure 2.5

A sample of output when the display option has been selected.

- 2.14 After the numerical data has been displayed, the first graph (see Figure 2.6 for an example) will be shown. After examining the graph it is necessary to press the ENTER key to show the next one (if it exists). There is no prompt to do this.
- 2.15 After a successful unload (and optional display of the data), the brick needs to be reloaded to continue logging. The screen shown in Figure 2.7 will be displayed. This gives a final chance to exit from the program if for any reason you suspect that the unload was not successful, or if you accidentally typed in the wrong installation name. To exit, press the CTRL and SCROLL LOCK keys together (refer to Figure 1.2 for their locations). At the subsequent prompt, the response to exit is E. Proceed to Section 2.20 for further instructions.

If the unload was successful, simply hit any key (we recommend the ENTER key) to continue. Remember that doing this destroys the data contained in the brick by overwriting it with new instructions.

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Preparing to reload program into ROB1

Data stored in the logger is deleted during this process. If the unload has not been successful then exit from this program immediately by pressing the 'CTRL' and 'SCROLL LOCK' keys together.

At the subsequent prompt - the response to exit is 'E'.

If the unload was successful or you are initialising the spare logger, simply:

Hit a key to continue:-

**Figure 2.7**

*This screen provides a final opportunity to exit from the program in the event that the wrong installation name has been used, if a \*\*\*Timeout on input\*\*\* error has occurred and you continued accidentally, or if you suspect that the unload was not successful. If you wish to continue and not exit from the program, we recommend that you hit the ENTER key.*

- 2.16 An attempt will be made to load the brick for further logging. If the load is not successful, the display will be as in Figure 2.7a. In this event proceed from Section 2.21.

If the load was successful, then a display as in Figure 2.7b will be shown and you will be asked to disconnect the cable to the brick as in Figure 2.7c.

PDLIO Version 1.8

Preparing to reload program into ROB1

Data stored in the logger is deleted during this process. If the unload has not been successful then exit from this program immediately by pressing the 'CTRL' and 'SCROLL LOCK' keys together.

At the subsequent prompt - the response to exit is 'E'.

If the unload was successful or you are initialising the spare logger, simply:-

Hit a key to continue

Checking cycle time of 5 seconds

\*\*\*Timeout on input\*\*\*

Loading logger program .....

\*\*\*Timeout on input\*\*\*

\*\*\*Timeout on input\*\*\*

\*\*\*Timeout on input\*\*\*

**Figure 2.7a**

*If for some reason, probably because the cable connecting the logger to the computer is not properly seated, the logger cannot be reloaded, this display will appear.*

PDLIO Version 1.8

Preparing to reload program into ROB1

Data stored in the logger is deleted during this process. If the unload has not been successful then exit from this program immediately by pressing the 'CTRL' and 'SCROLL LOCK' keys together.

At the subsequent prompt - the response to exit is 'E'.

If the unload was successful or you are initialising the spare logger, simply:-

Hit a key to continue

Checking cycle time of 5 seconds

Loading logger program.....

Set logger time to 15:09 21/06/88

**Figure 2.7b**

*If the reload of the data logger was successful, the display will be similar to the above.*

```
*****
*          LOAD FINISHED, LOGGER CAN BE DISCONNECTED NOW          *
*****
```

Press any key to continue....

**Figure 2.7c**

*After a succesful reload of the data logger, this screen will be redisplayed. We recommend that you press the ENTER key to continue.*

2.17 The screen will return to the initial display (fig. 2.1) and be requesting the name of a new installation. If there is another installation then proceed from Section 2.6. Otherwise turn the power off to the computer and close the lid.

2.18 Replace the brick in its enclosure and secure the front cover.

- 2.19 Have a cuppa because you've done well. Bypass these next 2 steps.
- 2.20 If you accidentally type the wrong installation name, or if a \*\*\*Timeout on input\*\*\* error has occurred, you MUST EXIT from the program as indicated on the screen. If you do not, the data in the brick will be DESTROYED. The error may be caused by several things so check:
  - 1. That the cable is securely connected to the computer and to the plug labelled COMPUTER on the brick. If the cable was not securely connected, remedy this and proceed from step 2.6.
  - 2. That the brick battery voltage is above 6.5. To do this connect the battery tester to the plug labelled INPUT SIGNALS.  
  
If the meter is reading below 6.5, retain the original brick and return it to the office for some tlc. Replace the original brick with the spare one. The spare brick will need to be loaded with the logger instructions so proceed to section 4.  
  
If the meter reading is above 6.5 then proceed from section 2.6 and try once more. If it does not work this time, retain the original brick and return it to the office for some tlc. Replace the original brick with the spare one and proceed to section 4.
- 2.21 If a \*\*\*Timeout on input\*\*\* error occurs during the load process, check the cable connections and proceed from Section 2.6.

### 3. DISPLAY DATA ONLY

If the computer is already turned on then proceed to Section 3.2, otherwise commence at Section 3.1.

- 3.1 Open the lid of the laptop by sliding the latches on either side of the computer forward (refer to Figure 1.2 for their location). Turn on the power to the computer (the switch is located on the left rear panel as shown on Figure 1.2). The computer will make a few noises then display a screen as in Figure 3.1. If a display does not appear but there has been some activity, adjust the display contrast control on the left side of the computer (see Figure 1.2 for its location) until a display appears. Read the screen display.

#### UNIDATA LOGGER UPDATE

You have the option of processing a data logger with or without seeing a display of the results.

To process a logger;

1. Type in the name of the INSTALLATION (exactly as marked on the logger).

(To optionally see the results type a space and the word 'display' (in lower case letters) after the installation name).

2. Press the 'ENTER' key to proceed with the request.

To VIEW (at any time) the last data set processed from a logger,

1. type 'display' followed by a space then the name of the INSTALLATION (exactly as marked on the logger).

2. Press the the 'ENTER' key to proceed with the request.

Enter your selection now

Installation >

**Figure 3.1**

*Initial screen display when the Toshiba laptop computer is turned on.*

- 3.2 The prompt

```
INSTALLATION >_
```

should appear at the bottom of the screen.

- 3.3 Type the word display then press the space bar (refer to Figure 1.2 for its location) and then type the name of the installation (exactly as it was written on the brick). The screen should be similar to Figure 3.1a

Enter your selection now

Installation >display rob1

**Figure 3.1a**

*Keyboard entry to view a display of the last data retrieved from a logger. To process this request press the ENTER key*

- 3.4 Press the key marked ENTER (refer to Figure 1.2 for its location) to proceed with your request.
- 3.5 A screen such as in Figure 3.2 will appear. This is followed after a short delay by a further screen which indicates that the data is being tabulated for display. The data will eventually be displayed, a screen full at a time (see Figure 3.3 for an example). When you have viewed the screen, press any key (we recommend the ENTER key) to display the next screen. DO NOT RUSH!!! If there is a delay between successive screens please be patient and do not continue to press a key. If you continue to press a key, the following screens will be rapidly scrolled through without giving you the chance to view them.

DISPLAY LAST LOGGER DUMP

SCHEME IS ROB1

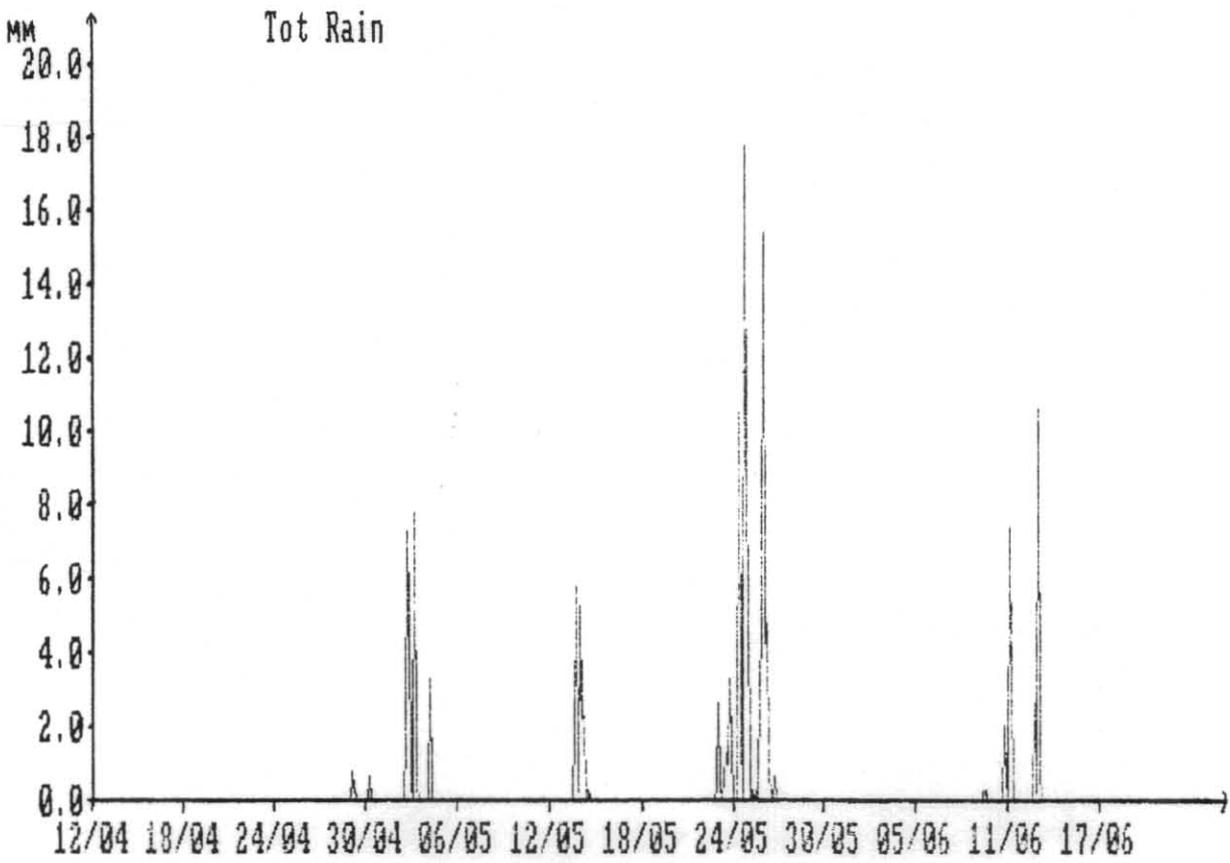
**Figure 3.2**

*When a display of the data has been requested, this screen will be displayed identifying the name of the scheme (installation).*

Example: -

Scheme DEMO - Water level and rainfall, data from 12:00 14/04/87 to 12:00 15/06/87

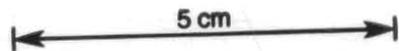
Time	Depth m	Tot rain mm
12:00	14/04/87	7.02
15:00	14/04/87	7.02
18:00	14/04/87	7.06
21:00	14/04/87	7.06
00:00	15/04/87	7.10
03:00	15/04/87	7.06
06:00	15/04/87	7.10
09:00	15/04/87	7.10
12:00	15/04/87	7.14
etc.		
06:00	15/06/87	9.48
09:00	15/06/87	9.52
12:00	15/06/87	9.52



Plot from 12:00 14/04/87 to 12:00 15/06/87

Figure 3.3

A sample of output when the display option has been selected.



- 3.6 After the numerical data has been displayed, the first graph (an example is shown in Figure 3.4 ) will be shown after a short delay. After examining the graph it is necessary to press the ENTER key to show the next one (if it exists). There is no prompt to do this.
- 3.7 After the last graph has been displayed, you will be returned to the initial display as in Figure 3.1. Repeat the process from Section 3.2 for any other installation you desire.
- 3.8 When you have finished, turn the power off to the computer and close the lid.
- 3.9 Have a few beers.

#### 4. LOADING A LOGGER ONLY

This option should only be used to load the spare (replacement) brick with logging instructions. If the computer is turned on then proceed to Section 4.2, otherwise commence at Section 4.1.

4.1 Open the lid of the laptop by sliding the latches on either side of the computer forward (refer to Figure 1.2 for their location). Turn on the power to the computer (the switch is located on the left rear panel as shown on Figure 1.2). The computer will make a few noises then display a screen as in Figure 4.1. If a display does not appear but there has been some activity, adjust the display contrast control on the left side of the computer (see Figure 1.2 for its location) until a display appears. Read the screen display.

4.2 The prompt

```
INSTALLATION >_
```

should appear at the bottom of the screen.

4.3 Type the name of the installation (exactly as it is written on the brick) then press the space bar (refer to Figure 1.2 for its location) then type the word LOAD. The screen should be similar to Figure 4.1a.

#### UNIDATA LOGGER UPDATE

You have the option of processing a data logger with or without seeing a display of the results.

To process a logger,

1. Type in the name of the INSTALLATION (exactly as marked on the logger).

(To optionally see the results type a space and the word 'display' (in lower case letters) after the installation name).

2. Press the 'ENTER' key to proceed with the request.

To VIEW (at any time) the last data set processed from a logger,

1. Type 'display' followed by a space then the name of the INSTALLATION (exactly as marked on the logger).

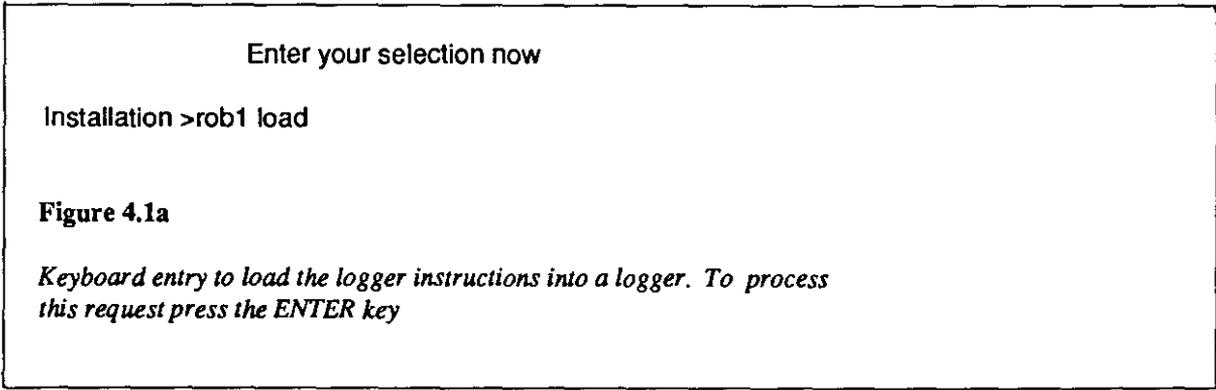
2. Press the the 'ENTER' key to proceed with the request.

Enter your selection now

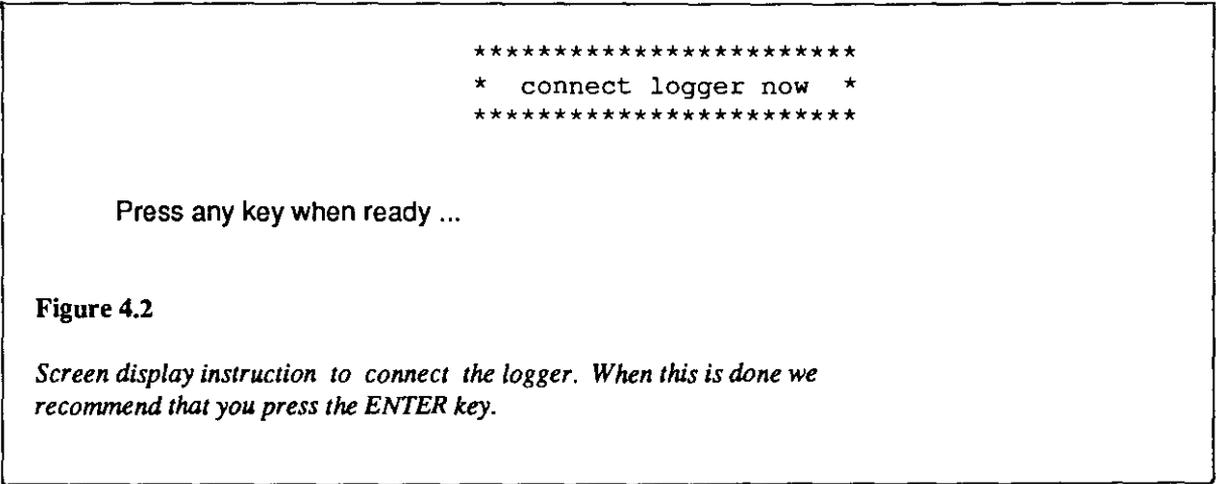
Installation >

Figure 4.1

*Initial screen display when the Toshiba laptop computer is turned on.*



- 4.4 Press the key marked ENTER (refer to Figure 1.2 for its location) to proceed with your request.
- 4.5 You will then be instructed to 'connect logger now' (as in Figure 4.2). Connect the cable which is already attached to the rear of the laptop into the plug labelled COMPUTER on the brick. When this is done press any key (we recommend the ENTER key) to proceed.



- 4.6 An attempt will be made to load the brick for further logging. If the load is not successful, the display will be as in Figure 4.3a. In this event check the cable connections and proceed from Section 4.2.

If the load was successful, then a display as in Figure 4.3b will be displayed and you will be asked to disconnect the cable to the brick as in Figure 4.3c.

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Preparing to reload program into ROB1

Data stored in the logger is deleted during this process. If the unload has not been successful then exit from this program immediately by pressing the 'CTRL' and 'SCROLL LOCK' keys together.

At the subsequent prompt - the response to exit is 'E'.

If the unload was successful or you are initialising the spare logger, simply:-

Hit a key to continue

**Figure 4.3a**

*This screen provides an opportunity to exit from the program in the event that the wrong installation name has been used, or if a \*\*\*Timeout on input\*\*\* error has occurred. If you wish to continue and not exit from the program, we recommend that you hit the ENTER key.*

PDLIO Version 1.8

Preparing to reload program into ROB1

Data stored in the logger is deleted during this process. If the unload has not been successful then exit from this program immediately by pressing the 'CTRL' and 'SCROLL LOCK' keys together.

At the subsequent prompt - the response to exit is 'E'.

If the unload was successful or you are initialising the spare logger, simply:-

Hit a key to continue

Checking cycle time of 5 seconds

\*\*\*Timeout on input\*\*\*

Loading logger program .....

\*\*\*Timeout on input\*\*\*

\*\*\*Timeout on input\*\*\*

\*\*\*Timeout on input\*\*\*

**Figure 4.3a**

*If for some reason, probably because the cable connecting the logger to the computer is not properly seated, the logger cannot be reloaded, this display will appear.*

PDLIO Version 1.8

Preparing to reload program into ROB1

Data stored in the logger is deleted during this process. If the unload has not been successful then exit from this program immediately by pressing the 'CTRL' and 'SCROLL LOCK' keys together.

At the subsequent prompt - the response to exit is 'E'.

If the unload was successful or you are initialising the spare logger, simply:-

Hit a key to continue

Checking cycle time of 5 seconds

Loading logger program.....

Set logger time to 15:09 21/06/88

**Figure 4.3b**

*If the reload of the data logger was successful, the display will be similar to the above.*

```
*****
*      LOAD FINISHED,  LOGGER CAN BE DISCONNECTED NOW      *
*****
```

Press any key to continue....

**Figure 4.3c**

*After a succesful reload of the data logger, this screen will be displayed. We recommend that you press the ENTER key to continue.*

4.6 Press the ENTER key to continue. The screen will return to the initial display (Figure 4.1) and be requesting the name of a new installation. If there is another installation then proceed from Section 2.6. In the event that you need to only load another logger, proceed from Section 4.2. Otherwise turn the power off to the computer and close the lid.

- 4.7 If you have had to load the spare logger, label it with one of the spare labels which exactly matches the name of the installation.
- 4.8 Retain the original brick and return it to the office for some tlc. Place the loaded spare brick in the enclosure and secure the front cover.
- 4.9 Have a cuppa because you've done well.

## 5. PROBLEMS THAT MIGHT BE ENCOUNTERED

### 5.1 Time out on input :

- Causes. a: Cables incorrectly connected  
 b: Low battery voltage in logger.

- Remedy. a: Reconnect cables. Use the battery tester to see that batteries are above required voltage.  
 b: Change logger for spare and see Section 4 on RELOADING ONLY.

### 5.2 Flat battery on computer. The internal battery in the computer will loose its charge, especially when writing to diskettes. A low battery light will glow when the batteries are low (see Figure 1.2 for this indicator light). It is advised that you connect the 240 volt ac power transformer to the computer overnight. The computer should be switched off for the re-charge to occur.

[18 October 1990]