



THIS SERVICE MANUAL IS ISSUED IN ADOBE ACROBAT FORMAT FOR EASE OF VIEWING AND DISTRIBUTING AND CAN BE VIEWED AND PRINTED AS REQUIRED.

A LIST OF CHAPTERS IS SHOWN ON THE LEFT HAND SIDE OF THE SCREEN. CLICKING ON AN ARROW WILL DISPLAY THE CONTENTS OF THE CHAPTER. TO VIEW THE REQUIRED CHAPTER OR SECTION, CLICK ON THE TEXT OF THE REQUIRED HEADING.

THE LIST CAN BE HIDDEN BY CLICKING THE LEFT ICON ON THE TOOLBAR AND WILL BE DISPLAYED BY CLICKING ON THE SECOND TO LEFT ICON.

TO MOVE THROUGH THE MANUAL, USE THE SCROLLBAR OR THE SINGLE ARROWS IN THE TOOLBAR (PAGE UP AND PAGE DOWN). THE DOUBLE ARROWS ON THE TOOLBAR MOVE TO THE FIRST AND LAST PAGES.

THE PAGE CAN BE ZOOMED IN BY CLICKING ON THE MAGNIFYING GLASS IN THE TOOLBAR. THIS TOOL WILL ALSO ZOOM OUT (e.g. WHEN VIEWING CIRCUIT DIAGRAMS) IF THE CTRL KEY IS PRESSED WHEN CLICKING ON THE PAGE.

THE PAGE WILL BE EXPANDED IF THE RIGHT PAGE LAYOUT ICON IS CLICKED JUST TO THE LEFT OF THE SEARCH BINOCULARS ICON. THE FULL PAGE WILL BE DISPLAYED IF THE MIDDLE PAGE ICON IS CLICKED.

SOME OF THE TEXT IN THE MANUAL IS COLOURED:- CLICKING ON BLUE TEXT WILL MOVE TO A LOCATION IN THE SAME CHAPTER AND CLICKING ON RED TEXT WILL MOVE TO A LOCATION IN A DIFFERENT CHAPTER.

TO RETURN TO THE ORIGINAL POSITION AFTER MOVING THROUGH A LINK, CLICK THE RIGHT MOUSE BUTTON THEN SELECT GO BACK.

THIS PROCEDURE WILL ALWAYS MOVE BACK THROUGH THE SCREENS EVEN THOUGH A LINK WAS NOT USED.



RCONTROL FOR WINDOWS

DATA ANALYSIS SOFTWARE

USER MANUAL

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NOTICE

This Manual or Spec Sheet was provided through our web site to assist Customers who purchased equipment through W. D. Turner Company, Inc.

Please do not operate, repair or modify equipment without proper training. Our company provides on-site calibrations, repairs and training. Please contact our office for free quotes or more information.

Please use this Manual or Spec Sheet at your own risk. We welcome inquires about this equipment. Telephone and email technical support is provided free for our customers.

You are invited to visit our web site at:

www.wdturner.com

Thank you for considering our products and services!

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1.0 INTRODUCTION

Welcome to RCONTROL FOR WINDOWS Data Analysis Software. Over the past few years there has been a dramatic increase in the use of materials testing systems caused by the ever growing need for quality. RCONTROL FOR WINDOWS software is an extremely powerful extension to Lloyd Instruments Materials Testing system and have been designed to meet the needs of the Quality Assurance Department, Production Control or, even, the Research Engineer.

RCONTROL FOR WINDOWS is designed to work under Microsoft Windows Version 3.XX and uses the capabilities of Windows to enhance its functions. RCONTROL FOR WINDOWS software acquires, records, analyses, stores and prints test data with minimum skill or manual effort. The data produced from RCONTROL FOR WINDOWS can be manipulated in a variety of forms to give professional documentation/reports.

RCONTROL FOR WINDOWS has been designed to allow a variety of specialised testing procedures to be undertaken. The software is a multi-stage control program which can be configured by the user to meet a particular testing requirement. It can perform both standard load tests and advanced functions such as cycling, constant load and constant load rate. This makes it particularly suitable for use by research engineers. The tests may be performed by at a constant crosshead speed or at a speed determined by the software to achieve the required testing condition.

The crosshead may change direction and speed during a test and the end of test condition can be user defined as the sample break or determined by other conditions specified by the operator. The graphs can comprise standard load/extension data or show more specialised information including load, extension or time. The graph axes will be drawn in different positions depending on the type of test required and the way the data is to be displayed. The origin of the graph can be from the bottom left corner, half way up the left axis, or in the centre of the screen.

1.0 INTRODUCTION

The software automatically calculate the four most commonly required test results. It can also calculate many other results when the required formulae are entered into the test set-up. The additional post test cursor facility allows load, extension or time to be measured at any point on the graph. The software can be used for batch testing and can calculate the means and standard deviations of up to fifty samples. The test results are displayed either together with the graph or in a separate data table.

RCONTROL FOR WINDOWS is an extremely powerful control package for your Lloyd Instruments materials testing system. It has been designed to meet the needs of the research engineer and the quality assurance department and to undertake many other general applications.

Over the past few years there has been a dramatic increase in the use of materials testing systems caused by the ever growing need for higher quality. Improved quality comes from the many standards which are now in force throughout the world. RCONTROL FOR WINDOWS has the capacity to adapt very quickly to these standards. It has been designed to allow users to create their own test setups and report so that samples may be tested to a wider standard. The combination of RCONTROL FOR WINDOWS and a Lloyd Instruments materials testing machine gives unparalleled flexibility.

RCONTROL FOR WINDOWS acquires, records, analyses, stores and prints test data automatically. It removes the guesswork from graph interpretation and performs calculations such as stress, area under the curve, load at break etc. in seconds. In fact, this software can be tailored by the user entering formulae and logical expressions to determine the test profile and results that are provided in the test report.

1.0 INTRODUCTION

Lloyd Instruments also offers other software packages including data analysis programs which can be used for more general testing and for specific tests such as textiles, paper etc. Lloyd Instruments software packages will run on most IBM AT compatible computers fitted with a hard disk drive.

1.1

LICENCE AGREEMENT

The software is supplied on 3.5 inch floppy disks in IBM format. Each set of 2 disks has its own serial number which is quoted on the Licence Agreement which you receive with your disk. Please read the Licence Agreement and return the registration form to Lloyd Instruments or your local Agent. This number should be used in all correspondence concerning this software.

2.0 GETTING STARTED

2.1

UNPACKING YOUR SOFTWARE

In this pack you should find the following items:

- 1 off Manual
- 2 off 3.5 inch floppy disk

If any of these items are missing, please contact Lloyd Instruments immediately.

3.0 SYSTEM REQUIREMENTS

RCONTROL FOR WINDOWS runs under Microsoft Windows Version 3.XX. The minimum hardware requirements for this package are as follows:

- IBM 386 Compatible computer or better with minimum 30 Megabyte hard disk
- 4 Megabytes RAM
- High Density Floppy Disk Drive 3.5 inch
- Asynchronous communications adapter (RS232) 16550 UART.
- Parallel Printer Port
- VGA or SVGA Video Adaptor

Optional Accessories as follows:

- Printer
- Second Asynchronous communications adapter

3.1

CARE OF DISKS

The disk supplied to you is the Master Copy of RCONTROL FOR WINDOWS and is software protected. Whilst a backup of this disk can be made, the original Master Disk must be used whenever installing or de-installing the RCONTROL FOR WINDOWS software. Please ensure you keep your Master Disk in a safe place as it will be required if you change your hardware.

The backup will not contain the copy protection, and as such should only be used to hold a copy of files required by the program.

4.0 INSTALLATION

RCONTROL FOR WINDOWS is supplied on two floppy disks. The first contains the RCONTROL FOR WINDOWS program and the second contains a CONSOLE, a driver for your type of machine. Both of these disks have to be installed separately.

RCONTROL FOR WINDOWS and the console can be easily installed following the procedure outlined below.

4.1

Windows 3.XX

Ensure that Windows is running, and that no other programs are running. This includes any toolbars that you may have (E.G. Microsoft Office, Lotus Smart Centre etc.)

Insert the relevant disk in the 3.5" Floppy disk drive (Usually called A:).

In Windows, select File from the Program Manager Menu, and select run from this pull-down menu.

In the command Line box, **type A:\INSTALL.EXE** (or B:\INSTALL.EXE if your PC has twin floppies with the 3.5 drive as drive B) and click on the OK Button.

The Installation Program will then ask you into which directory you wish to install the software. RCONTROL FOR WINDOWS must be installed on a hard disk drive and the default setting would be as follows:

C:\WINRCON

Select the OK option to use the default directory or, alternatively, insert the new directory required.

The Installation Program will then copy the appropriate files including the software protection onto the selected drive of your hard disk. A message will be given when the installation is complete and the OK button can be selected to return to Windows.

4.0 INSTALLATION

A new window will have been created for the RCONTROL FOR WINDOWS software and the program can now be run from the appropriate icon. In the window can be seen two icons, one for the main RCONTROL FOR WINDOWS software and another which brings up a Console, the function of this explained later.

4.2

Windows 95

Place the relevant disk in the 3.5" Floppy drive (usually called A:).

Click the Start Button, and Select the Run option.

In the Open: field, **type A:\INSTALL.EXE** (or B:\INSTALL.EXE if your PC has twin floppies with the 3.5 drive as drive B), and click OK.

The Installation Program will then ask you onto which directory you wish to install the software. RCONTROL FOR WINDOWS must be installed on a hard disk drive and the default setting would be as follows:

C:\WINRCON

Select the OK option to use the default directory or, alternatively, insert the new directory required.

The Installation Program will then copy the appropriate files including the software protection onto the selected drive of your hard disk. A message will be given when the installation is complete and the OK button can be selected to return to Windows.

4.0 INSTALLATION

A new group will have been created for the RCONTROL FOR WINDOWS software and the program can now be run from the appropriate icon (This group can also be accessed from the task bar under the programs sub-menu). In the group can be seen two icons, one for the main RCONTROL FOR WINDOWS software and another which brings up a Console, the function of this explained later.

4.3

DE-INSTALLATION

RCONTROL FOR WINDOWS is copy protected using a software "token". This must be moved back onto the original disk in order to fully de-install the program. This can be easily performed by the following procedure.

Windows 3.xx

Exit windows completely so that you are in DOS.

Place the original diskette in the 3.5" Floppy drive (usually called A:)

Change the directory to the directory in which RCONTROL FOR WINDOWS was installed. (If you need further information on how to do this , please refer to your DOS Manual supplied with your computer).

Type **A:\CCMOVE C: A:** Followed by the Enter/Return key

This will move the token to the floppy disk, and will allow the software to be installed again from this disk. Please note that the software on the hard drive will not run without this token.

Windows 95

Click on the Start Button. Select **Programs** from the menu, and then click the MS-DOS Prompt icon in the sub-menu.

4.0 INSTALLATION

Change the directory to the directory in which RCONTROL FOR WINDOWS is located (help for this can be found in the help file under "MS-DOS Window, Displaying Help for MS-DOS Commands).

Insert the original diskette in the 3.5" Floppy drive (usually A:).

Type **A:\CCMOVE C: A:** followed by the Enter/Return key. (or click OK)

This will move the token to the floppy disk, and will allow the software to installed again from this disk. Please note that the software on the hard drive will not run without this token.

4.4 REINSTALLATION

In order to reinstall the software you will first need to de-install and then install as outlined above.

4.5 UPGRADING YOUR SOFTWARE

If at any time you upgrade your software, it is best to install the software in the same directory, and mark on the old disk that this is no longer valid.

Any de-installation of upgraded software must be made with the upgrade floppy disk.

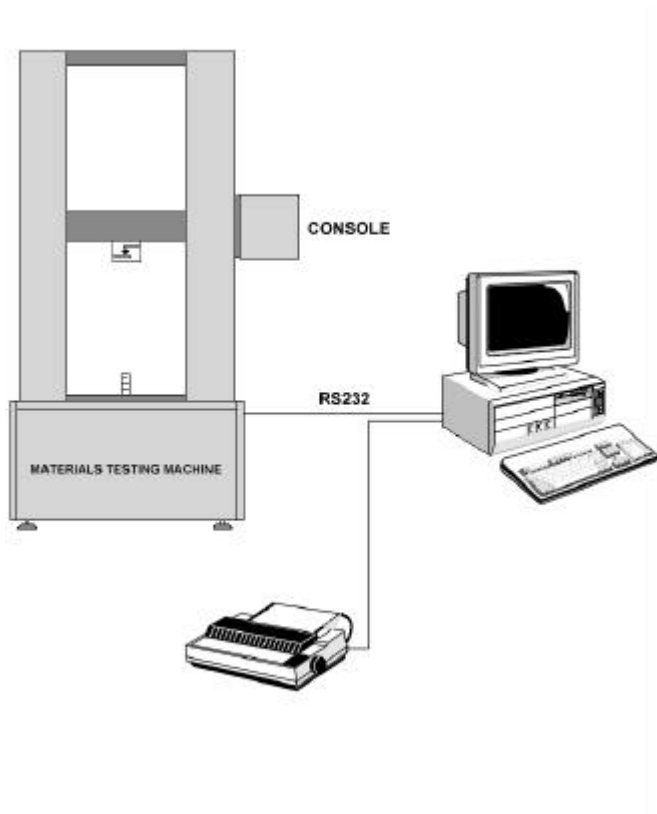
4.6 TRANSFERRING SOFTWARE TO A NEW COMPUTER.

If at any time you wish to transfer you software to a new computer, the software must first be de-installed to the original disk. If you have upgraded you software at any time, then this upgrade disk is the one to which you must de-install the software.

De-installation is performed as outlined above. Once de-installation is complete, then you can install the software, as outlined above, on the new computer.

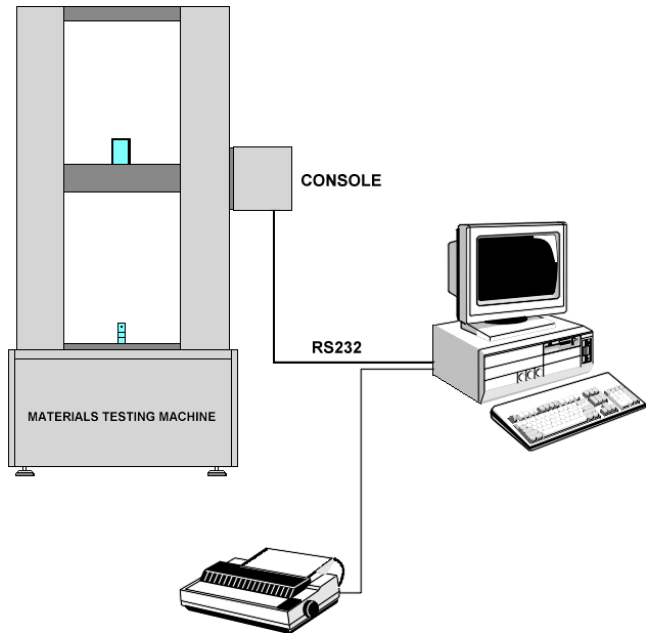
5.0 CONNECTION OF COMPUTER TO MATERIALS TESTING MACHINE

A connection of the computer to the materials testing machine will depend on the type of machine used. The following diagrams illustrate the relevant connections required. After the connections are completed, turn your Material Testing Machine and your computer ON.



LR Series/LRX

5.0 CONNECTION OF COMPUTER TO MATERIALS TESTING MACHINE



L Series

6.0 SOFTWARE OPERATION

6.1 Starting the Program

Windows 3.xx

You can start RCONTROL FOR WINDOWS immediately at any time from the Windows Program Manager. The sequence is as follows:

1. If Windows has not been started, type **WIN** at the command prompt (C:\), and press enter.
2. If the RCONTROL FOR WINDOWS software group Window is not already open in the Program Manager window, choose the RCONTROL FOR WINDOWS Group icon.
3. In the RCONTROL FOR WINDOWS Group Window, first choose the Console icon. The Console will appear greyed out.
4. Go to your Material Testing Machine and select the REMOTE option on the control panel. The RCONTROL FOR WINDOWS Console buttons will pop up and the green light in the bottom right corner will come on. If any tests or test set ups are to be run or modified the Console must be running. RCONTROL FOR WINDOWS communications or test parameters can not be altered without the Console running. The Console must be started first.
5. Next in the RCONTROL FOR WINDOWS Group Window, choose the RCONTROL FOR WINDOWS software icon to start the program. Your Material Testing Machine is now under the control of RCONTROL FOR WINDOWS.

6.0 SOFTWARE OPERATION

Windows 95

You can start RCONTROL FOR WINDOWS by following the instructions below.

1. If Windows 95 is not running because to the computer being started in a 'command prompt only' situation (for more information on this please refer to your Windows 95 manual), type **WIN** at the command prompt (C:\), and press enter. If you are running Windows 95 but are in an MSDOS Prompt then you can return to Windows 95 by typing 'exit' at any time.
2. Having now returned to Windows 95, click on the Start button located on the task bar at the bottom of the screen.
3. Move on to the word Programs. You will then see another menu from which you will select 'Materials Testing'.
4. A menu will appear of all the materials testing software that you have installed. Click on the program called 'Console'. The console will then appear greyed out.
5. Go to your Materials Testing Machine and select the REMOTE option on the control panel. The RCONTROL FOR WINDOWS Console Buttons will pop up and green light in the bottom right corner will come on. If any tests or test set-ups are to be run or modified then the Console must be running. RCONTROL FOR WINDOWS communications or test parameters can not be altered without the Console running. The Console must be started first.
6. Going back to the task bar in Windows 95 select the program labelled 'Lloyd WinRCon' to start the program. Your Materials Testing Machine is now under the control of RCONTROL FOR WINDOWS.

6.0 SOFTWARE OPERATION

6.2

The RCONTROL FOR WINDOWS Console

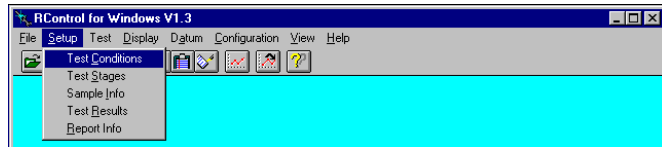
The RCONTROL FOR WINDOWS Console can be used in a similar manner to the machine control panel/console when the green light is on. The buttons on the RCONTROL FOR WINDOWS Console can be pushed using your mouse left hand button.

CAUTION When using the remote RCONTROL FOR WINDOWS Console great care should be taken to ensure that nobody is working on or near the machine moving parts or grips. At all times when operating the machine from the remote computer a clear field of view must be maintained between the computer operator and the Material Testing Machine.

6.3

Getting Around in the Menus

The Menus listed at the top of the RCONTROL FOR WINDOWS software contain commands you will use to control how RCONTROL FOR WINDOWS works. It is recommended that a MOUSE is used to access these menus.

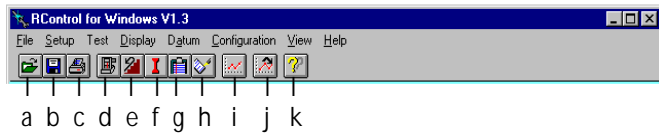


6.0 SOFTWARE OPERATION

6.4

Getting Around in the Toolbar

Below the Menu options there is a toolbar for frequently used options. The toolbar provides buttons you can click with a MOUSE for quick access to the common commands. Listed below are the functions of the toolbar.



- | | |
|-----------------------------|-------------------------------------|
| a) Open test set-up file | g) Edit result formula |
| b) Save test set-up file | h) Set report headings |
| c) Printer set-up | i) Perform Test |
| d) Edit the test conditions | j) Display previously saved results |
| e) Edit test stages | k) Start Windows Help |
| f) Edit the sample detail | |

7.0 LEARNING MORE ABOUT MICROSOFT WINDOWS

If you are new to Microsoft Windows, see the Microsoft Windows Manual (or online help in the Windows Program Manager) for basic information. It is advisable to view the introductory tutorial by choosing Windows Tutorial from the Program Manager help menu.

There is also available Help in Windows 95 in the form of tutorials and basic information. To learn how to access this please read your Windows 95 User Manual.

8.0 GETTING HELP WHEN YOU NEED IT

In addition to this manual, RCONTROL FOR WINDOWS also provides full online help facilities. Whenever you are in one of the main menus you can access this help information by either clicking the help control box, or by pressing F1. You will see instructions and explanations, or an index of topics you can choose from. The topic in help is similar to a page in a book. If you press F1 when a message or warning is displayed on your screen you will get information on how to proceed.

You can use on-line help as a quick reference guide at any time. Here's how:

To use on-line help as a quick reference:

1. From the help menu, choose Contents.
2. Choose the underlined subject you want by clicking it

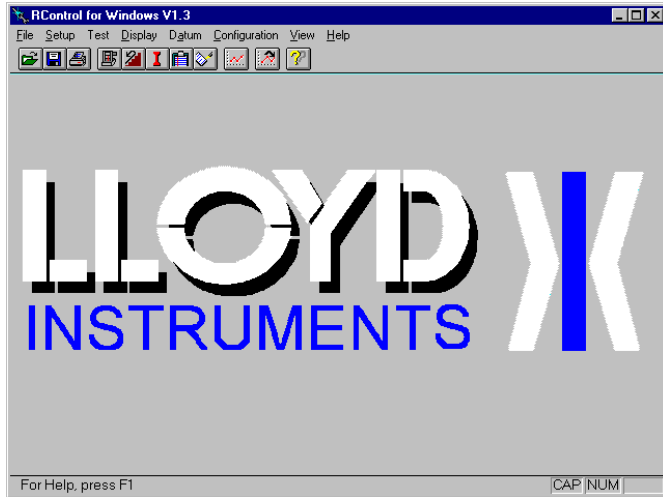
or

For an alphabetical list of key words, like the index in a book, choose the search button any time the RCONTROL FOR WINDOWS help window is displayed. Click or type the key word you want, and press enter to display a list of help topics related to the key word.

3. Choose the topic you want.
4. When you have finished choose exit from the help window file menu.

9.0 SOFTWARE OPERATION

Once the RCONTROL FOR WINDOWS icon has been chosen the software will automatically be loaded. The user will be presented with the start up screen shown below:



From this option the user is now able to set up or run a test as required. Full details on operation for all toolbar functions and menu categories are given in the on-line help. However you may wish to make use of the PASSWORD OPTIONS at an early stage.

9.0 SOFTWARE OPERATION

9.1 PASSWORD OPTIONS

Caution; Make a note of the User name and Password selected by the Supervisor / Manager because once activated without these, future access will be denied to all.

This option allows the system supervisor to limit the user accessibility of some of the functions of the program. The option can be set ON or OFF. To turn the option ON and set the levels of access, click on Configuration in the menu bar of the start up / opening screen.

Select Defaults and Defaults Window will appear.

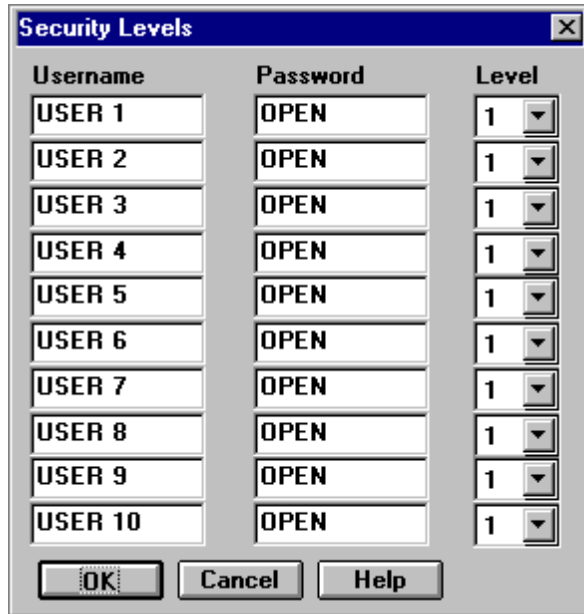
The image shows a 'Defaults' dialog box with the following settings:

- Default Directory: C:\winrcon
- Language: english
- Data Save Interval: 1
- Data Array Size: 8191
- Conversion Information: None, Lotus, ASCII, DBF
- Results Only
- Conversion Path: C:\winrcon
- Automatic Gauge: Gauge Port: NONE, Gauge Type: Heidenha
- Average Readings
- Page Margins: Top: 0., Left: 0.
- Enable Passwords (Set Passwords button is visible)
- Buttons: OK, Cancel, Help

Click on Enable Passwords and then on Set Passwords.

9.0 SOFTWARE OPERATION

The following window will appear;



Username	Password	Level
USER 1	OPEN	1
USER 2	OPEN	1
USER 3	OPEN	1
USER 4	OPEN	1
USER 5	OPEN	1
USER 6	OPEN	1
USER 7	OPEN	1
USER 8	OPEN	1
USER 9	OPEN	1
USER 10	OPEN	1

Buttons: OK, Cancel, Help

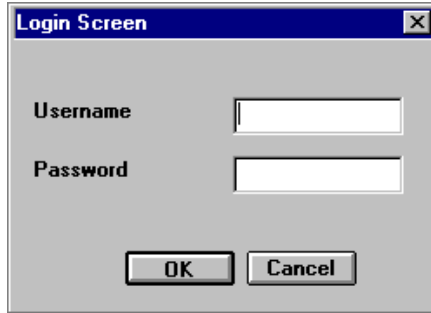
Note: Make a note of the top level, User 1, user name and Password at all times from now on.

A user name, password and security level has to be specified for each user. The user name and password can contain any alpha-numeric character in upper or lower case, except the following: *,.,?

The security level is a numeric character in the range 1 to 5, with level 1 having the highest priority and level 5 the lowest.

9.0 SOFTWARE OPERATION

If the password option is turned on in the Configuration - Defaults window, when the program is re-started, the following screen will be displayed:



A user name and password (defined in the Configuration - Defaults - Security Levels screen) must be entered before the main Start Up Screen will appear allowing access.

Once the user name and password have been entered successfully, the appropriate access level will be set. This level restricts access to certain parts of the program as follows:

- LEVEL 1.** Access to all options including setting user name, passwords and access levels and turning the password options on and off.
- LEVEL 2.** Access to all options except password selection.
- LEVEL 3.** Access to all areas of the program except for changing the "Configuration" menu options.
- LEVEL 4.** Allows a test set up to be loaded, tests performed, the machine to be put into LOCAL mode and to leave the program.
- LEVEL 5.** This is the lowest access level which only allows a test to be performed and to leave the program.

APPENDIX A: GLOSSARY OF TERMS

EXT, LOAD	The current sample state
STRAIN, STRESS	More of the sample state, providing the sample dimensions were entered.
TIME	The time since the start of the test.
WORK	This variable stores the work done on the sample since this value was last used. It is not an absolute value, unlike the other system variables.
DATUM	The position of the datum, relative to the current zero (DT is not an abbreviation of DATUM).
ML, ME, MW, MT	ML-The maximum load observed during the test so far. (ML is an abbreviation of MAX - LOAD).ME-The extension at the point where ML sampled (ME is an abbreviation of MAX - EXT, although this name can be misleading because ME holds the extension at the maximum load point, which is not the same as the maximum extension).MW - Energy to max load (work) MT - Time to max load.
SML, SME	This pair of variables is equivalent to ML an ME for the maximum load observed during the preceding stage.
SL,SE,SSL,SSE	These four variables are equivalent to ML, ME, SML and SME but for inimum load values not maximum (SL is an abbreviation for MIN-LOAD and SE an abbreviation for MIN_EXT).
LENGTH WIDTH, THICKNES, DIAMETER INTERNAL, EXTERNAL	The sample dimensions entered before the test are available as user variables. Not every variable will be defined, for example, if the sample is square then the DIAMETER variable should not be used (LE is an abbreviation of LENGTH, WI is an abbreviation of WIDTH, TH is an abbreviation of THICKNES, DIA is an abbreviation of DIAMETER).
AREA	This value is automatically calculated from the relevant variables above, providing the sample type is set to NONE.
EE	Elastic Extension

APPENDIX A: GLOSSARY OF TERMS

EL	Elastic Load
ES	Elastic Slope
EI	Elastic Intersect.
UYL, UYE, LYL LYE, YIELDS	The variable UYL and UYE contain the load and extension values at the upper yield point. This is defined as the first load maximum followed by at least four consecutive decreasing load values. LYL and LYE contain the load and extension values at the lower yield point, defined as the first load minimum after the upper yield point followed by at least four consecutive rising values. It is possible to determine which yield points have occurred using the YIELDS variable. It is initially zero, but is increased to 1.0 once the upper yield point has passed. It is increased to 2.0 once the lower yield point has passed.
BL, BE, BW, BT	The variable BL and BE contain the load and extension values at the point located by the break detector (BL is an abbreviation for BRK LOAD and BE an abbreviation for BRK - EXT). BW - Energy at break BT - Time at break

Some system variables are only useful after the end of the test. They will be used in results formulae but never in action formulae:

ST	The number of the last stage performed (ST is an abbreviation of STAGE).
C1E, C1L, CIT CIW CIB UP TO C8E, C8L, C8T, C8W, C8B	These variables contain the extension, load and time values at the points, marked by up to eight cursor points which can be positioned once the test is complete. C1L - Load C1E - Ext CIT - Time CIW - Work CIB - Width

For more information on Action Formulae please read the RCONTROL FOR WINDOWS Help file.

APPENDIX B: HARDWARE REQUIREMENTS

HARDWARE REQUIREMENTS

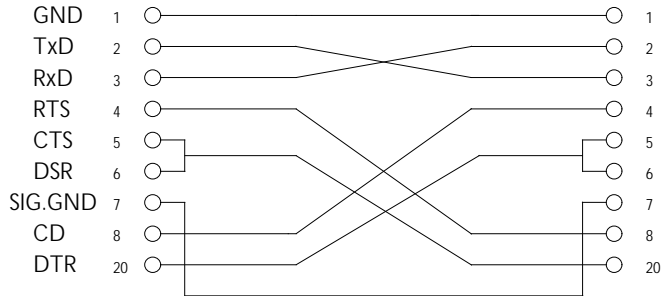
1. IBM compatible computer system with a 386/486 processor.
2. 4 Megabytes of RAM (minimum).
3. A minimum of one 3.5 inch disk drive.
4. A hard disk drive with a minimum capacity of 30 Megabytes.
5. Asynchronous communications adapter (RS232 configured as COM 1 or COM2).16550 UART chip.
6. Parallel printer port configured as LPT 1.
7. VGA or SVGA graphics adaptor.

The RCONTROL FOR WINDOWS software was specifically designed to run on IBM 386/486 or compatible computer running Windows 3.xx or above. In general any IBM compatible computer using such a processor running at 12 MHz or greater, and with a hard disk will perform satisfactorily.

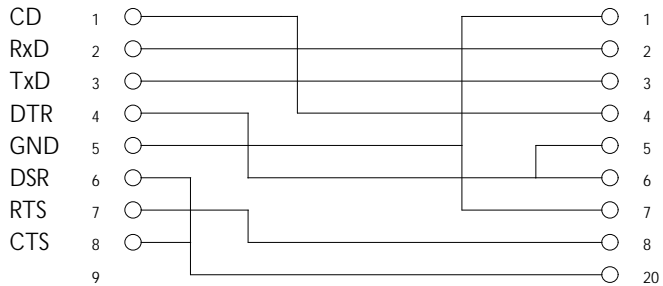
APPENDIX C: INTERFACE CONNECTIONS

INTERFACE CONNECTIONS

Your L/LR or LRX Series machine is supplied with an RS232 interface cable. The pin configuration lay-out for the 25 way 'D' to 25 way 'D' lead (LLOYD Pt No. 09/0310) and 9 way 'D' to 25 way 'D' lead (LLOYD Pt No. 09/0311) are shown below.



25 way 'D' to 25 way 'D' Lead LLOYD Pt No. 09/0310)



9 way 'D' to 25 way 'D' Lead (LLOYD Pt No. 09/0311)

Lloyd Instruments Ltd has an on-going programme of design and development which may alter product specification. Therefore Lloyd Instruments Ltd. reserve the right to change specifications at any time without notice.

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