15 New Software Release Notes

Overview of CableEye Version 4.2 Software

The latest CableEye software includes four major enhancements not found in previous versions. Review this document to learn how to setup and use the new features. Note that changes in the software need not affect the way you currently use CableEye; you may be tempted to not read further if CableEye currently meets all of your needs. However, by spending a few minutes looking this over, you may find it possible to make improvements in your procedures and reporting that considerably benefit your productivity.

The software offers new capabilities in four areas:

1 – *Enhanced Security:* you may now optionally assign user names with passwords and varying levels of privilege if several operators share the same tester. You may choose to have the current operator name appear on printed reports, or be embedded in stored test data. One or more individuals may be assigned “Administrator” privileges which permit full access to all functions, including control of the system access and adding or editing operator data. Operators with a lower level of privilege will be unable to alter Match Data, modify Macros, change thresholds, or make any critical preference changes to the tester.

2 – *Bar Code Scanning:* new Macro instructions permit you to employ bar code scanners for reading cable serial numbers, bar-coded operator badges, bar-coded work orders that include batch name, customer name, part number, serial number, and other data of your choice. This benefits both production efficiency and process documentation.

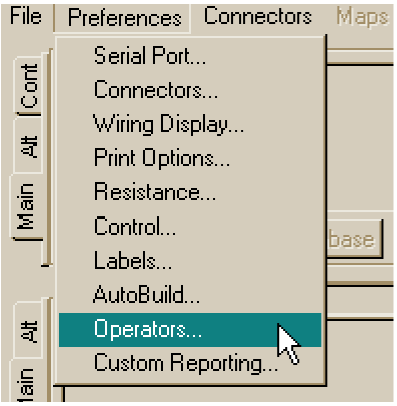
3 – *Database Archive:* you may now store cable data in either of two independent databases. Typically, one database will contain ideal cable data (“Match Data”). An optional second database will capture test results. When you employ this second database, CableEye stores the Pass / Fail result of every cable tested, the thresholds used (for M3 testers), the operator name, and other optional data you choose. You may store archived cables by serial number, Macro loop count, or customer code.

4 – *Enhanced Reporting:* printed reports now include a new text field underneath the title block of every printed report. In previous software, you had the option of printing company information below the title block, right justified. Use the new text area on the same line but left justified to show the operator’s name or other information you choose. Also, you may show Pass / Fail results and other data automatically in the Notes section of every printed report. If you use Data Logging, scanned serial numbers may be shown on every line of the log file. Any data included on the test data’s printed report may also be stored in the archival database and reprinted in the future, if needed.

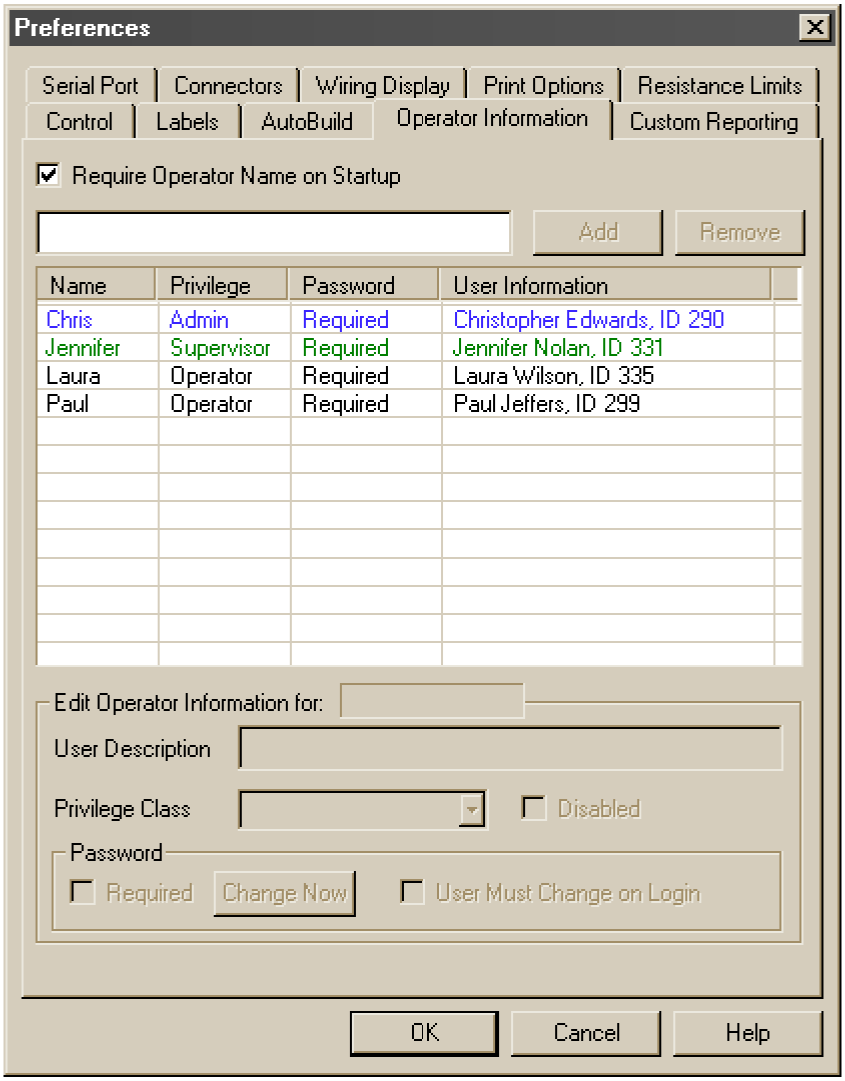
Setting Up and Using CableEye's New Features

15.1 – User Names, Passwords, and Privileges

Click the *Preferences* menu and note the new entry "Operators...". Selecting this brings up the *Operators Preferences* panel (seen below right) into which you enter operator names, passwords, and privileges.



If you leave this panel without entries, CableEye operates as it did in prior versions and uses the WREN.DAT file as the write protection enabler; remove the WREN.DAT file from the CableEye\Software folder to write protect the database, Macros, and other items, or leave it there to keep everything fully enabled. The new *Operator Preferences* facility offers three new levels of control: (a) you may enter specific user names, (b) you may optionally assign them different levels of privilege, and (c) you may optionally assign them passwords.



☑ Require Operator Name on Startup

Name	Privilege	Password	User Information
Chris	Admin	Required	Christopher Edwards, ID 290
Jennifer	Supervisor	Required	Jennifer Nolan, ID 331
Laura	Operator	Required	Laura Wilson, ID 335
Paul	Operator	Required	Paul Jeffers, ID 299

Enter a new user by typing their name in the entry box at the top of the panel and click the “Add” button. Once added, you may select their level of privilege from a pull-down menu below or assign them a password or require that they choose their own password the next time they log in. For each name, you may also enter “User Information” which may consist of the employee’s full name, ID number, or other information visible only in this panel. Check the “Require Operator Name on Startup” if you want to limit use of the tester to only the listed individuals.

Note the following items regarding the use of operator names and passwords:

1 – Three levels of “privilege” control access to CableEye’s functions: *Administrator, Supervisor,* and *Operator.*

An **Administrator** has editing and writing access to all functions.

The **Supervisor** has editing and writing access to all functions *except* the Operators Preferences, the Custom Reporting setup, and the master database (usually used for long-term Match Data storage).

The **Operator** may select and use all features of the tester, but *may not* (a) save Match Data, (b) Learn a cable (to ensure that a bad cable is not learned to force passes on other bad cables), (c) create or edit Macros, (d) change resistance thresholds, or (e) change Preferences settings.

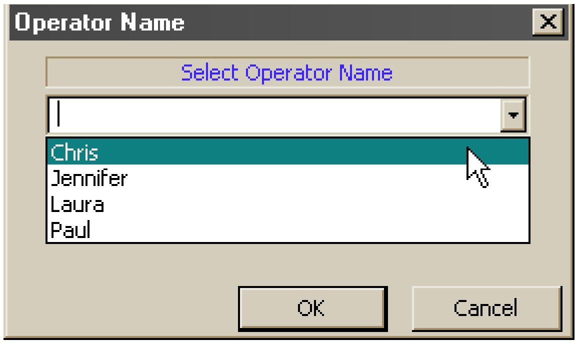
2 – At least one individual on the list *must* be named as an Administrator. Only the Administrator may open and edit this panel. The panel will not close unless an administrator has been named to avoid the possibility of locking yourself out of the panel. You may name two or more Administrators if desired.

3 – If a User forgets his password, it cannot be retrieved from the system or looked up by the Administrator. A new password must be defined which the Administrator may enable by checking the box “User must Change on Login”.

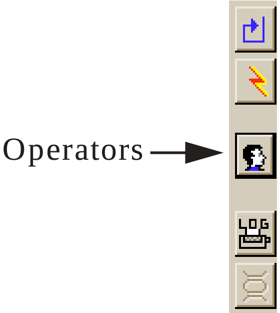
4 – If the Administrator forgets his password and “*Require Operator Name on Startup*” is checked in the Operator Information panel, he becomes locked out of the system. The only way to regain control of the Administrator panel is to reinstall the software (be sure to save your cable databases, Macros, Logs, and Notes in another folder to preserve them before reinstalling). *Note that CAMI Tech Support has no means of recovering a lost password!*

5 – If you assign some Users passwords and other not, it is possible for anyone to use the system under the name of someone without a password. You may wish to create a “Guest” entry for such circumstances.

When the Administrator checks "Require Operator Name on Startup", a login box appears as shown on the right before the software starts. You may enter a name by (a) selecting it from the pull-down menu, (b) typing it in, or (c) scanning it from a User's name badge or worksheet. If a password is required, it must also be entered in a similar manner.



To change Users without shutting down the software, click the "Operators" button on the desktop to bring up the Operator Name selector.



15.2 – Bar Code Scanning

Many bar code scanners intended for use with PCs act as a second keyboard by substituting scanned symbols for characters that would otherwise have been typed on a keyboard. We offer the Worth Data brand of bar code scanners in our catalog, although other brands should work as well if they are designed to work as a second keyboard.

Scanners with a USB interface activate automatically when plugged into the PC; no driver or other software is necessary, and they are ready to use instantly. For older PCs, you may employ a "Y" cable that inserts the bar code scanner between your regular keyboard and the computer. In this case, the computer cannot distinguish between typed characters and scanned characters. When ordering your scanner, specify whether you want a USB interface or a "keyboard wedge" interface and the proper cable will be included.

When typing manually, you would normally type in the character sequence and press ENTER or RETURN. Bar code scanners conveniently add an "ENTER" character *automatically* to the end of each scan sequence. This means that when you scan bar codes into a pop-up window like the new Macro instruction "Enter Operator Name...", the window disappears immediately after a successful scan without any further action.

Keep in mind that the view angle of the scanner limits the length of the bar code you can read. The Worth scanner in the CAMI catalog reads a bar code as much as 4.5" wide at a distance of 7" from the lens (about a 30° angle). This limits the number of characters you can fit into a single code; the actual number of characters this represents depends on the bar code type you use (UPC, Codabar, etc.), but you should have ample characters for serial numbers, part numbers, and first names.

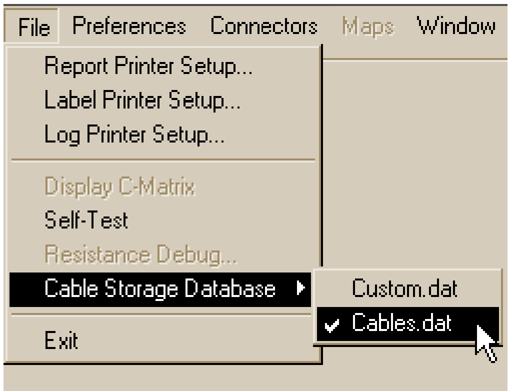
The application examples below offer some ideas on how you may employ a scanner with CableEye:

> *Scan serial numbers on cable labels or connectors.* Once scanned, the serial number may appear on printed reports, reports saved to disk, entries in the log file, or on printed labels.
>
> *Scan operator badges with barcoded names when someone logs in at startup.* The scanned name may then appear on printed reports, reports saved to disk, printed log reports, or on printed labels.
>
> *Provide a test technician with a bar-coded work order sheet on which the cable Match Data name, customer part number, lot code, operator name, or other relevant data are given in both text and bar codes.* This provides complete, automatic setup information before starting a job.
>
> *Develop a translation sheet for operators not fluent in English.* Show printed text in a foreign language and bar code the English text equivalent to be scanned into CableEye.

15.3 – Database Archive

Prior versions of the CableEye software incorporated two databases, "Cablesnn.dat" for for CAMI-provided cables (the "nn" represents the version number, Cables07.dat being the most recent), and "Custom.dat" for cables you save during the regular course of business. Previously, you could not save or alter any cables in Cables07.dat, although this database file could be removed from the CableEye\Software folder to entirely eliminate its cable list from the system. In version 4.2 and beyond, the former CAMI database assumes the name "Cables.dat" and becomes available for cable storage to anyone logged in as Administrator. The software ships with the CAMI cables present, although you may remove individual cables using the Erase Cable Data function, or drop the entire list of CAMI cables immediately after you load the software by removing Cables07.dat. When you remove the database, the next time CableEye starts and finds the Cables07.dat database missing, it creates a new, empty Cables.dat database ready for use.

To select which database you want CableEye to use when saving cables, click the File menu and choose “Cable Storage Database” as shown on the right. Choose “Custom.dat” (default) to maintain the behavior of prior version of the software, or Cables.dat to target this alternate database for your cable storage.



By using Cables.dat for your model cable storage, you may then use Custom.dat as a *cable archive* in which you store the result of every cable tested. This becomes possible in software version 4.2 because of a new Macro instruction “SAVE TEST DATA...<cablename>” which automatically copies test data to a new record in Custom.dat, just as if you had pressed the SAVE button and typed in a file name. In this case, <cablename> part of the SAVE TEST DATA instruction specifies a *variable* to use as the name you assign to this cable. The next section explains this in more detail, but briefly the variable you specify contains a scanned serial number, a time stamp, or the loop counter value.

If you have activated *Operator Names and Passwords* and have assigned specific login names to people, only an individual with Administrator privileges may store cables in Cables.dat. Anyone may read cables from Cables.dat, but only the Administrator may store them there. *Important: When someone with a lower privilege level than Administrator logs into the system, the storage database automatically reverts to Custom.dat.* So, if you, as the Administrator, log back on to the system at a later time, you must manually set the storage database back to Cables.dat if you wish to store more cables there.

Note that you should decide in advance how you wish to employ the dual database capability, and then write a consistent procedure for your technical staff to follow. We offer the following suggestions for your consideration:

1 – Store all model cable data in Cables.dat, and use Custom.dat strictly for cable archiving. We have tested an archive containing over 10,000 cables. However, loading and searching can begin to take noticeable time at this size, so we suggest starting a new Custom.dat periodically, say at the beginning of every month, and copying the original Custom.dat to a backup.

2 – Store all common, frequently used model cable data in Cables.dat, and use a different Custom.dat for specific customers of yours, or for specific projects. When CableEye starts, it looks for exactly the name “Custom.dat” in the software folder. When you store the database offline, you may append identifying characters. Examples: “Custom 3-31-04.dat”, “Custom Motorola.dat, “Custom Delaware.dat”. At this time, you must manually remove any appended characters to later read back data from the CableEye software.

3 – Use Cables.dat as originally designed for CAMI cables, but edit them to remove all but the cables you regularly need.

To view an archived Custom.dat, we suggest that you create a separate folder intended just for viewing archives. In this case, duplicate the original CableEye software folder and include a folder within that has your archived Custom.dat files. To view one, copy it from the archive folder into the folder that has WinCI.exe, remove any identifying characters you may have added (for example, change Custom 3-31-04.dat to Custom.dat), and start the CableEye software. Click “LOAD CABLE” and choose the file you wish to examine.

The optional *Exporter* software (Item 709) may be helpful in creating reports from your archived data. Exporter lets you translate an archived Custom.dat database into a comma-delimited ASCII file that can then be imported into Access, Excel, Word, or any commercial package for formatting or report generation.

15.4 – New Reporting Features and Macros

The biggest change in software v4.2 involves reporting. Additionally, we include a new function that lets you exclude some connections from a test when permissible changes in continuity, such as with multiple grounds, have no electrical effect on a cable’s function. This section explains the new capabilities and offers many examples. As an overview, these are the changes:

– You may now use *variables* in Macros to hold data you wish to embed in reports or specify the names of stored cables. A variable may contain scanned data such as a serial number, data you manually type in such as an operator name, and system data such as the Macro’s loop count, or the Pass / Fail value of the test result.

– New Macro instructions facilitate bar code scanning, data logging, and archive creation. These include:

Enter Operator Name
Open/Resume Log File

Save Test Data...
Test Excluding...
Timestamp...
Wait for Scan...

– A new template form appears to simplify set up for *Wait for PB...* and *Wait for Scan...* instructions.

– New left-side header text is available for report printing, usually used to show the operator's name under the title block of reports.

15.4.1 Variables

In previous CableEye software, you may have used the placeholders <TIME>, <DATE>, or <COUNT> embedded in Notes or Label text to cause printing of the current values of these items at the time the report is actually printed. For example, if you had entered the following text in the Match Data Notes

> "Cable number <COUNT>, tested on <DATE> at <TIME>."

you would see the following printed on the report when the Macro instruction *Print Match Data Notes* executes:

> "Cable number 324, tested on 4-1-04 at 9:28 AM."

<DATE>, <TIME>, and <COUNT> are examples of *variables*. Version 4.2 offers many new variables, as follows:

<LOGFILE> – the name of the currently open log file.

<OPERATOR> – the name of the individual currently logged in.

<TESTRESULT> – the PASS or FAIL condition of the last test.

<REPORTRESULT> – same as <TESTRESULT> except with fail printed as "* * * F A I L * * *" to highlight the fail condition.

<TESTTIME> – the date and time test data was last acquired. Note that the existing variable <TIME> represents the time the report is printed.

<THRESHHIGH> – the current value of the isolation threshold (for M3 only).

<THRESHLOW> – the current value of the conduction threshold (for M3 only).

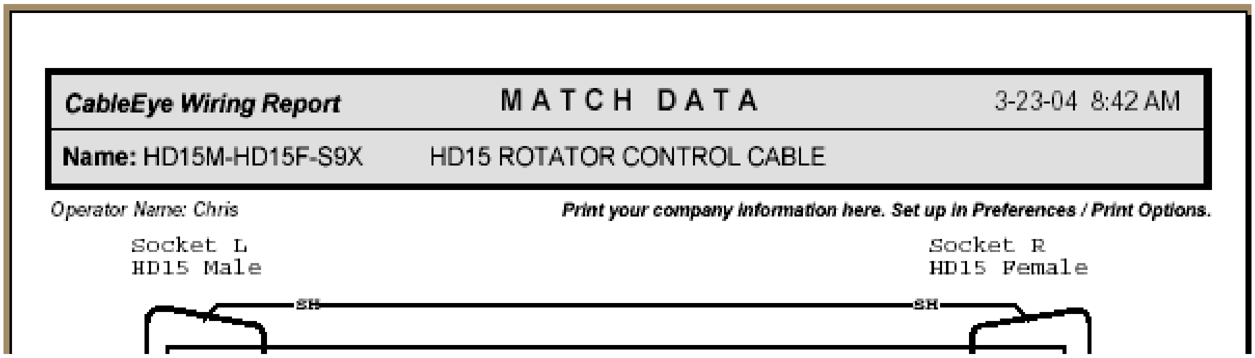
In addition to these permanent system variables, you may define your own variables into which data you scan is deposited. For example, variables you might create would be

<SERIALNUMBER>, <LOTNUMBER>, <BATCHCODE>, <CUSTOMERNAME>, etc. The names you use are arbitrary and serve only to identify the variable’s purpose. The next section describes how you enter and custom variables and control where their values appear on reports.

Note that all variables appear between angle brackets “<>” to signify their status. As the program prepares text to be sent to the printer, it simply forwards the characters it reads, verbatim, one-by-one, until the text ends. If during this process it sees a left angle bracket “<“, it knows that text that follows is a *variable name*, with the right angle bracket terminating the name. Once it acquires the name, the program looks up the variable’s current value in a “symbol table” and sends that value to the printer in place of the variable’s name.

15.4.2 Printing the Operator’s Name under the Title Block

In previous software versions, you could print your company’s information or other text on every printed report. This information appeared *right justified* under the title block. You may now also print the operator’s name, or other information of your choice, on the same line, but *left justified*. The result looks like this:



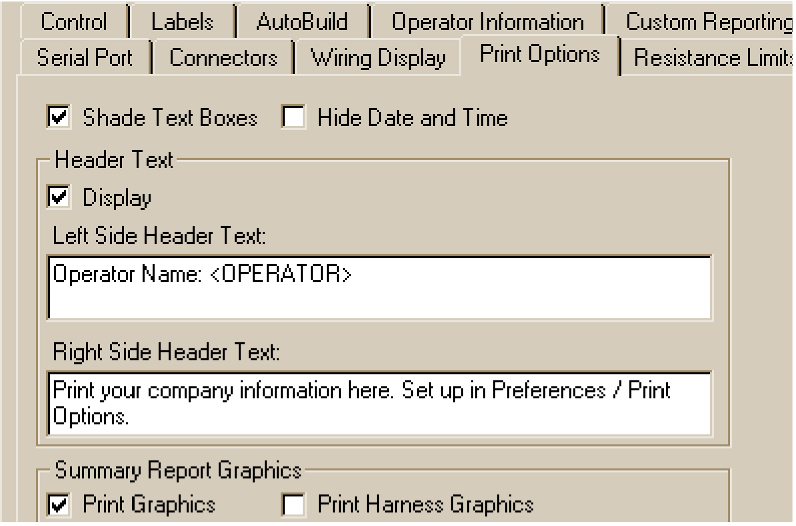
CableEye Wiring Report MATCH DATA 3-23-04 8:42 AM

Name: HD15M-HD15F-S9X HD15 ROTATOR CONTROL CABLE

Operator Name: Chris

Print your company information here. Set up in Preferences / Print Options.

Set this up in Preferences/ Print Options as shown on the right. If you ask operators to log in when using CableEye, then enter the system variable <OPERATOR> to print the name of the individual currently logged in, as shown here. If only one individual uses the tester, then just type in their name.



☑ Shade Text Boxes □ Hide Date and Time

Header Text

☑ Display

Left Side Header Text:

Operator Name: <OPERATOR>

Right Side Header Text:

Print your company information here. Set up in Preferences / Print Options.

Summary Report Graphics

☑ Print Graphics □ Print Harness Graphics

You may add other variables to show more information under the title block. For example, you might use

“Tested by <OPERATOR>, <TESTTIME>.”

This would print as

“Tested by Chris, 4-1-04 17:14:12”

You may use variables in the right side header text as well. Be careful not to make the text on either side too long; it is possible that the left- and right-side text could run into each other in the middle of the line.

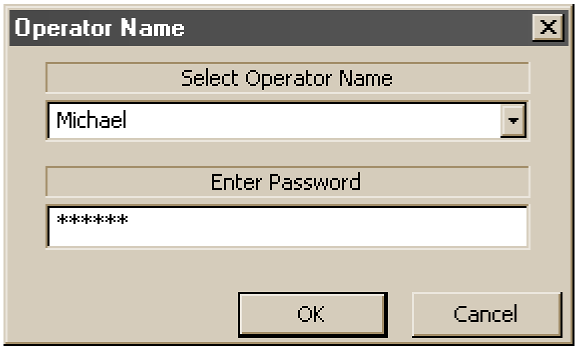
15.4.3 New Macro Instructions

Various new Macro instruction included in software version 4.2 make it possible to use bar code scanners with Macros, keep an archive of every cable tested, and permit you to exclude specific connections which are electrically unimportant from a cable comparison. We describe these instructions in this section but save examples for a separate section at the end of this document.

4.3.1 Instructions Useful with Bar Code Scanners

ENTER OPERATOR NAME . . .

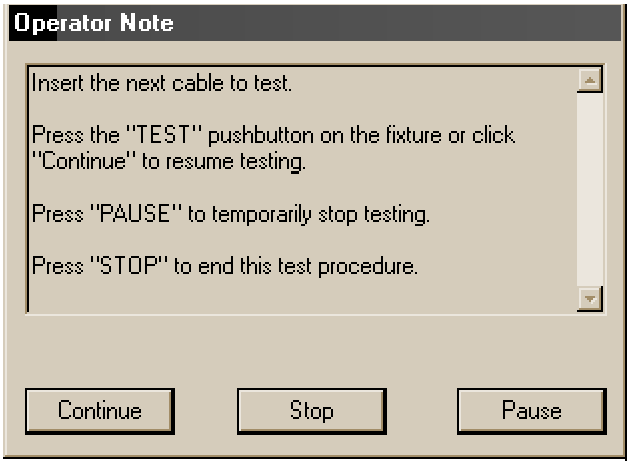
When executed, a pop-up window appears in which the present operator’s name may be selected from a list, or scanned in from an ID badge. The same window appears when you click the “Operators” button on the main window or require an operator to login when the software starts. If you plan to use this instruction, ensure that you have at least one operator defined operators in “Preferences / Operators...”.


Select Operator Name: Michael
Enter Password: ******

WAIT FOR PB . . . <notefile> (Conditional Wait for Pushbutton)

Although not new, this instruction now uses a new template format to simplify entering your notes and branch conditions. We discuss it here to review how it works and demonstrate the template function. The version of WAIT FOR PB without the “**. . .**” simply pauses the Macro sequence until you press the TEST pushbutton. With the “**. . .**” added, a pop-up window appears with descriptive notes and three buttons that determine what happens next. The file name appearing after the “. . .” tells the instruction which text file to refer to for the pop-up window text and button names. For example, consider this sequence:

```
WAIT FOR PB...Next.tpl
    PRINT LOG FILE
    CLOSE LOG FILE
    STOP
TEST CABLE
```



Operator Note

Insert the next cable to test.

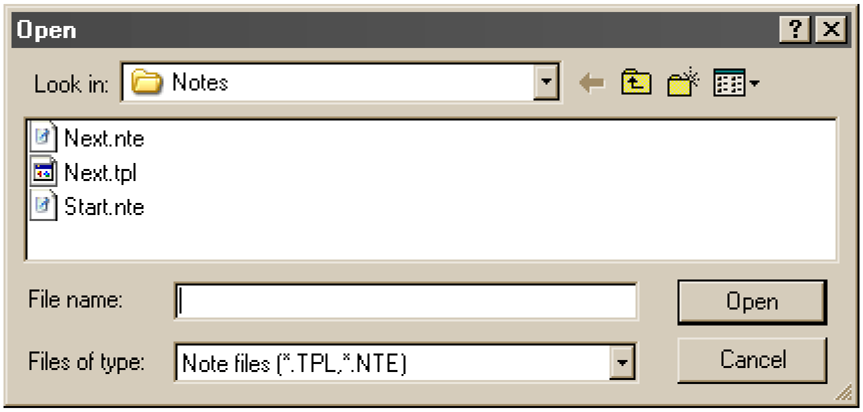
Press the "TEST" pushbutton on the fixture or click "Continue" to resume testing.

Press "PAUSE" to temporarily stop testing.

Press "STOP" to end this test procedure.

When WAIT FOR PB...Next.tpl executes, the pop-window you see on the right appears. Click “Continue” or press the TEST pushbutton to go on to TEST CABLE, press the “Stop” button to execute the indented instructions, or press “Pause” to simply pause the Macro.

When you set up this instruction in the past, you first created a text file with Wordpad and saved it in Cable-Eye / Software / Notes. Then, when you chose the instruction WAIT FOR PB... in the Macro editor, you would specify the name of your text file. With the current version of WAIT FOR PB..., you need not create the text file in advance. Instead, when you select WAIT FOR PB... and press enter, you see a file name entry window as shown here:



Open

Look in: Notes

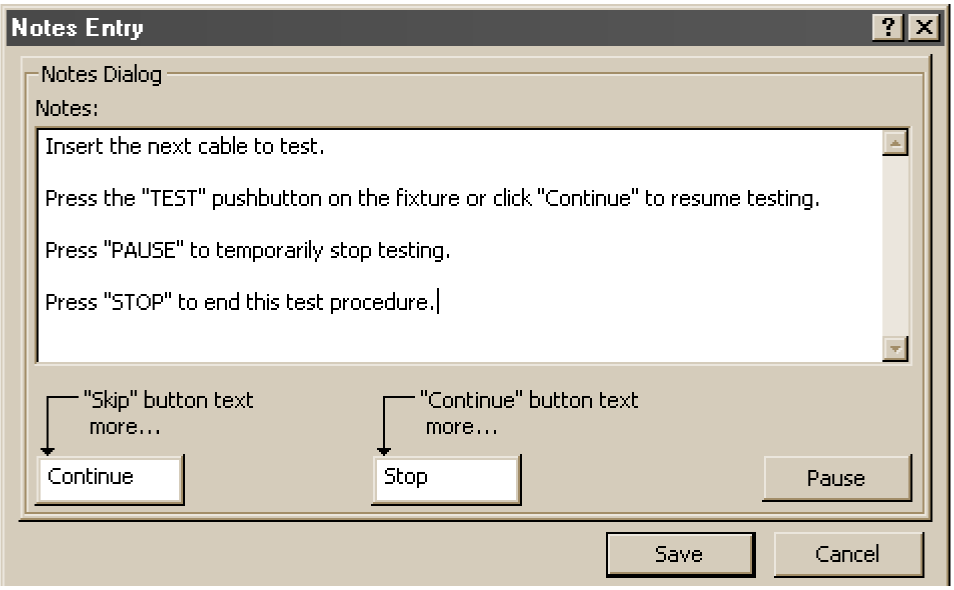
Next.nte
Next.tpl
Start.nte

File name:

Files of type: Note files (*.TPL,*.NTE)

To create a *new* template rather than editing one that you see here, just type in the template name you wish to use and click Open. It will then create a new file. Older format files from previous version of the software end in “.nte” (“note”). If you select one of those to edit, it will be saved in the new .tpl format without erasing the prior

.nte file. When you click “Open”, the following editing window appears into which you can type your notes and label the buttons:



Insert the next cable to test.

Press the "TEST" pushbutton on the fixture or click "Continue" to resume testing.

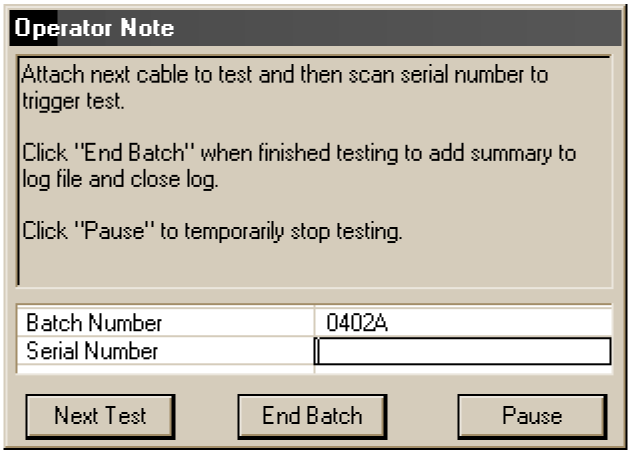
Press "PAUSE" to temporarily stop testing.

Press "STOP" to end this test procedure.

When you click SAVE, CableEye stores the data you’ve entered in the Notes folder as a “.tpl” file (“template”). You may edit this in the future by simply deleting the current WAIT FOR PB... instruction, inserting a new one, and specifying the same template file (rather than creating a new one).

WAIT FOR SCAN . . .<notefile> (Conditional Wait for Scanned or Typed Entry)

This instruction operates very much like WAIT FOR PB... but in addition to offering branch options, it accepts either scanned or typed data input for specified variables. When embedded in a cable test loop, it permits you to enter a unique serial for every cable tested, either by scanning a bar code attached to the cable or typing it in. Other data may be scanned in also, such as lot number, workstation, operator, etc. The screen you see on the right provides an example.



Attach next cable to test and then scan serial number to trigger test.

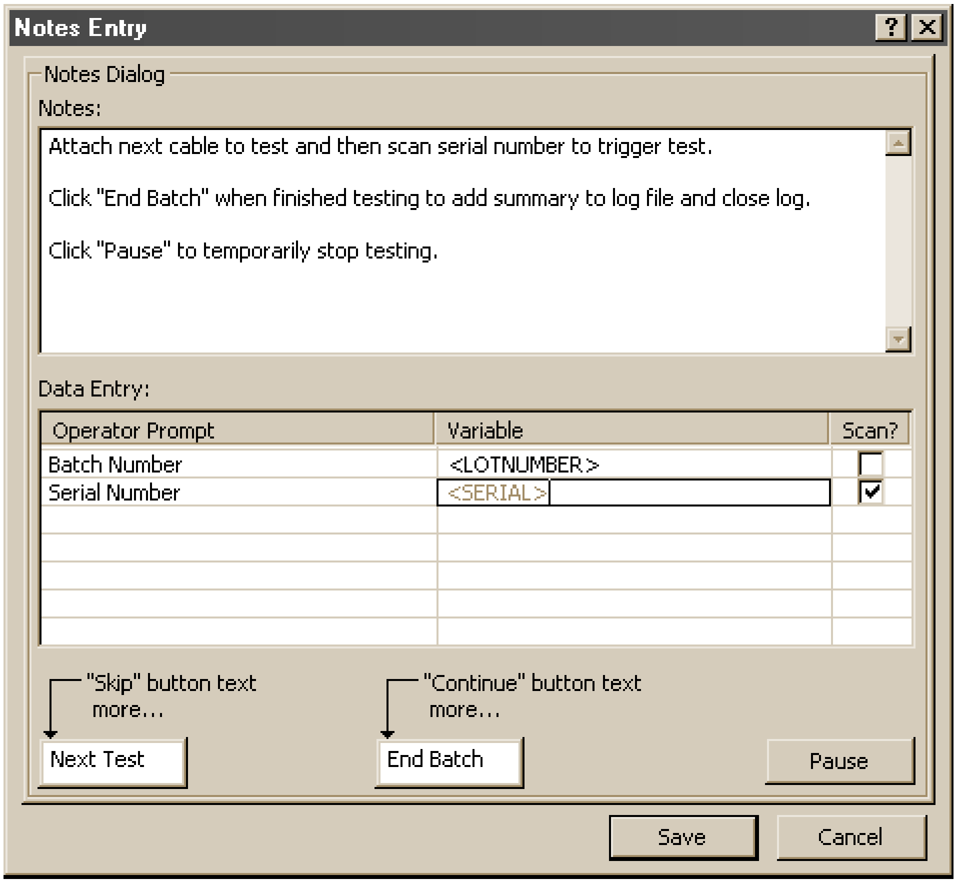
Click "End Batch" when finished testing to add summary to log file and close log.

Click "Pause" to temporarily stop testing.

Batch Number	0402A
Serial Number	

In this case, only two variables appear in the list, the Batch Number and the Serial Number. Both of these variables may be entered or edited in this window, although normally only the Serial Number would need to be scanned in the loop. Once scanned, the window disappears and Macro resumes as if the “Next Test” button had been pressed. Rather than scanning, the operator may click End Batch to cause the indented instructions to execute (not shown), or Pause to temporarily stop the Macro. Although you cannot see the indented instructions, they are intended to close a log file, print a log report, and then stop.

When you create the Macro, setup the WAIT FOR SCAN... instruction just like the WAIT FOR PB... by selecting it from the instruction list and completing the template. The screen image below shows what would be entered for the last example.



Attach next cable to test and then scan serial number to trigger test.

Click "End Batch" when finished testing to add summary to log file and close log.

Click "Pause" to temporarily stop testing.

Operator Prompt	Variable	Scan?
Batch Number	<LOTNUMBER>	□
Serial Number	<SERIAL>	☑

Note that you should add a check to the *Scan* column if you want that field to be scanned when the instruction executes. If multiple fields are checked, then data must be scanned into each field before the pop-up disappears and execution resumes. Unchecked fields may be edited, if desired, but will not require that new data be entered before execution continues.

SAVE TEST DATA. . .<cablename>

Use this instruction to save current Test Data in the database archive. The contents of the Test Data Buffer along with any currently active variables specified in your Custom Reporting setup (described in the next section) save to the database using the name specified by <filename>. Normally, you would have previously set up a system variable such as <SERIALNUMBER> into which you scan the actual serial number of the cable before testing. You may also use the current value of the Macro's loop counter <COUNT>, or manually enter a file name into the system variable with WAIT FOR SCAN before executing the instruction. *Important:* this instruction *always* saves data in the *Custom.dat* database, regardless of how you have set the File / Cable Storage Database... preference.

TIMESTAMP...<variable>

This instruction copies the current system date and time into the specified variable. The date appears first (mm-dd-yy) followed by the time in 24-hour format.

Example: "4-3-04 13:59:43" (April 3rd, 2004, at 1:59:43 PM).

Use TIMESTAMP... to capture the test time by executing it immediately after TEST CABLE, something like this:

TEST CABLE
TIMESTAMP...<YOURVARIABLE>
COMPARE TEST TO MATCH
etc.

Then, in Test Data notes, or in the User text area under the title block, you might enter the following:

"Tested by <OPERATOR> at <YOURVARIABLE>"

to produce, when printed, the following:

"Tested by Michael at 4-3-04 13:59:43"

OPEN/RESUME LOG FILE

This functions exactly like APPEND LOG FILE in that you may open a new log file or append to an existing one. However, when you use OPEN / RESUME LOG FILE, you don't get the option to overwrite an exiting log. This acts as a safety measure to prevent an operator from inadvertently deleting a prior log to which he intended to append new data.

TEST EXCLUDING...<cablename>

This instruction permits the exclusion of named connections from a comparison, thus allowing a cable to pass a comparison test whether or not the excluded connection exists. This new instruction addresses certain applications where one or more connections may be *optional*, or permissibly intermittent, and need not flag a cable as being faulty.

Before testing, you need to set up two cable files. The first file defines the ideal cable *without* the optional connections shown in the wire list. The second file is the *Exclusion List* which gives all connections that may be ignored (the optional connections). Refer to the following two Macros as examples of the setup.

Example 1: We wish to check a simple DB25 male to female cable which may or may not have a shield connection present. We may, for example, have a supplier who can provide a needed cable at a very reasonable price but offers a mixed batch with some shielded and some not. Because our application does not require a shielded cable, we can use either variety. First, define a standard DB25 M/F cable with all lines present and a 1-to-1 configuration, and no shield:

Match Data Wire List

1:1
2:2
3:3
4:4
.
.
.
25:25

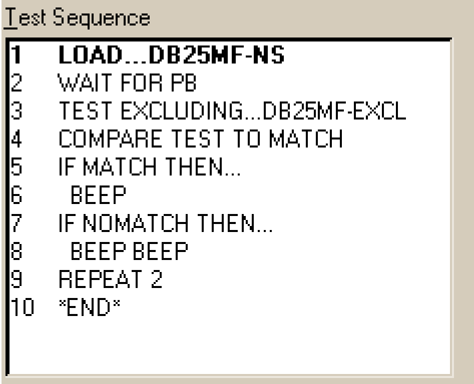
Save this as part number DB25MF-NS. Then define the "exclusion list" using the same connectors, saved as a separate cable:

Exclusion List

SH:SH

Save this a part number DB25MF-EXCL

Finally, enter the following Macro you see on the right to perform a basic test. Note that on Line 3, instead of TEST CABLE, we use "TEST EXCLUDING...<cablename>" to test. This measures the cable and ignores any connections given in DB25MF-EXCL. As long as all 25 lines are present in the cable with no shorts, opens, or crossovers, the cable will pass regardless of the presence or absence of the shield.


Test Sequence

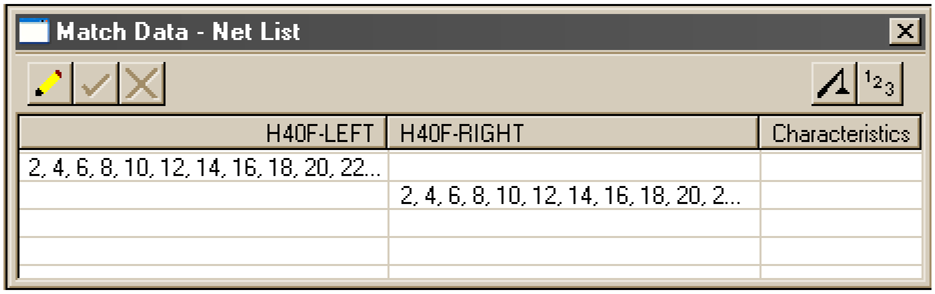
```
1   LOAD...DB25MF-NS
2   WAIT FOR PB
3   TEST EXCLUDING...DB25MF-EXCL
4   COMPARE TEST TO MATCH
5   IF MATCH THEN...
6     BEEP
7   IF NOMATCH THEN...
8     BEEP BEEP
9   REPEAT 2
10  *END*
```

Example 2: Consider a 40-conductor flat cable in which alternate wires (even number connections) will serve as ground connections. When in use, this cable attaches to a printed circuit board in which all even numbered connector pins link to a common ground on the PCB. As a result, short circuits between even numbered connections in the cable have no effect on the function of this cable, and if present, may be ignored. To test this cable allowing any combination of shorts between even numbered pins on either side of the cable, use a Macro similar to that in Example 1 but with the following Match Data and Exclusion List:

Match Data Wire List

1:1
2:2
3:3
4:4
.
.
.
40:40

Exclusion List


Match Data - Net List

H40F-LEFT	H40F-RIGHT	Characteristics
2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22...		
	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 2...	

Important Notes:

1 – In Example 2, not only are connections between 2:4, 4:6, 6:8, etc. ignored, but also any permutation of connections, such as 2:8, 6:40, etc. In summary, any or all combinations or permutations of the connections in the list will be ignored.

2 – If you are using a custom pin map with the cable under test, the Exclusion List must be created by first measuring a cable with the custom map active, then deleting all measured connections and adding the exclusion connections. The result should then be saved. It is not possible to assign a custom map to a newly-created wire list; a cable must be *measured* with the map active!

15.4.4 Customizing Reports

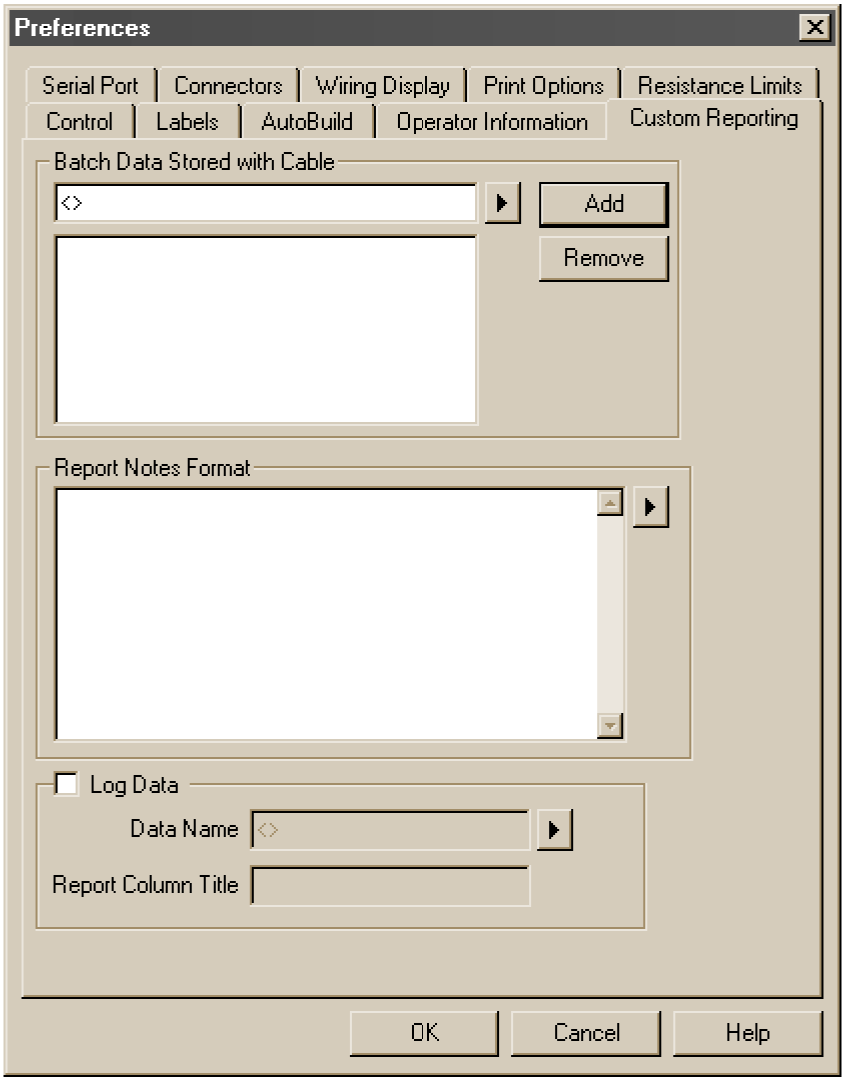
Beginning with CableEye's first software release in 1993, you have been able to store and retrieve model cable data in an integrated cable database. Each cable record includes the cable name, connector names, wire list, descriptive notes, and label notes. Now, in software version 4.2, you may also save your choice of system and custom variables along with the usual cable data, including the operator's name, threshold settings, serial number, and test time. When you later review cable data from the database or archive, these values may be viewed or printed on a report. This section describes how to setup and use this new capability.

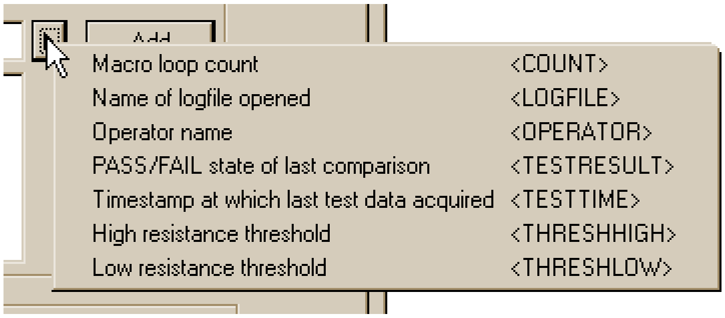
4.4.1 Selecting Variables to Save with a Cable

Suggestion: During this discussion, it would be helpful if you could have your computer on and the CableEye software running, allowing you to view and test the functions that we discuss. We will, in any case, provide screen shots that should adequately illustrate the concepts if your computer is not handy.

From the *Preferences* menu, choose "*Custom Reporting...*" to display the control panel used to set up your report. A blank panel as you would see it for the first time has no data entered and appears at the top of the next page. Here, you see three white text entry boxes. The first two let you define variables to be stored with a cable, and the third depicts how these variables will appear in the report.

The smallest box accepts custom variables you wish to enter, or system variables you wish to select from a list. The two angle brackets, initially with nothing between them (“<>”), enclose the variable’s name. Enter a *custom variable* by typing the name you wish to use, such as “SERIALNUMBER”, and then click the *Add* button. That variable then moves into the list below. Select a *system variable* by clicking on the small triangle to the right of the entry box, choosing what you want from the list, and again clicking the *Add* button. The names of system variables, as shown in the inset on the right, are *reserved* and cannot be used as names for custom variables.

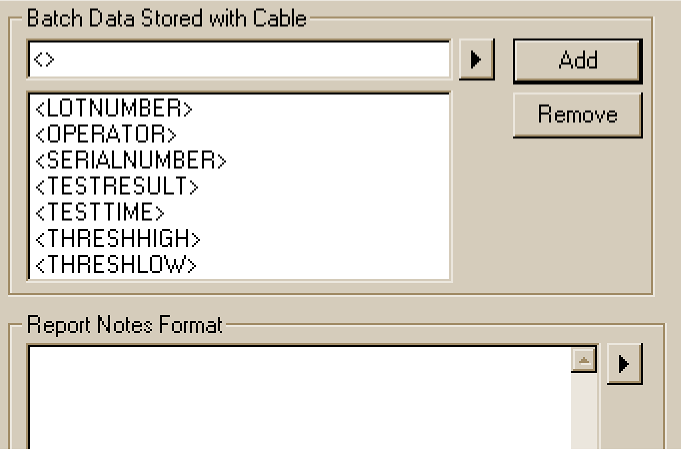




Macro loop count	<COUNT>
Name of logfile opened	<LOGFILE>
Operator name	<OPERATOR>
PASS/FAIL state of last comparison	<TESTRESULT>
Timestamp at which last test data acquired	<TESTTIME>
High resistance threshold	<THRESHHIGH>
Low resistance threshold	<THRESHLOW>

The list of variables you create here specify what additional data bind to the regular cable data when stored in the archive database. You may return to this panel at any time to edit the list, but changes you make will not affect data that has already been stored. At the present time, only the Macro instruction **SAVE TEST DATA...<cablename>** appends the variable list to stored data. Simply pressing the SAVE button for Test or Match data does not do so.

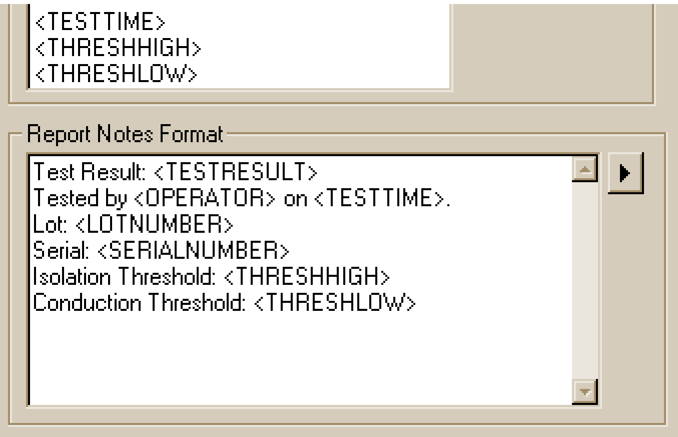
A typical list of variables that might be used for archiving appears on the right. Note that CableEye displays the list in alphabetical order, not in entry order. Review this list to see if you can identify which entries are system variables and which are custom variables. Remember that custom variables are *scanned in* (or typed in) and values for system variables originate internally from the CableEye software.



<>

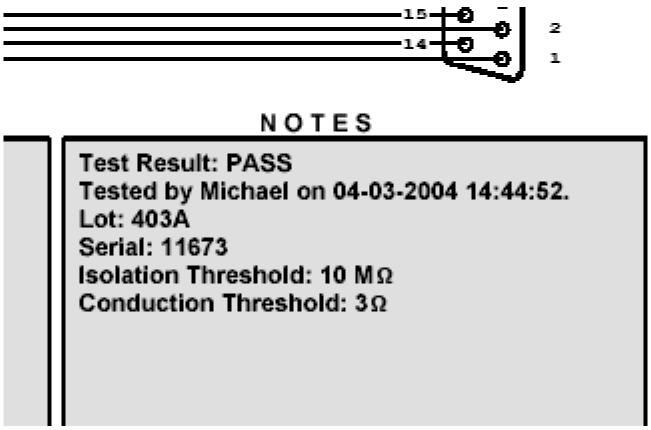
<LOTNUMBER>
<OPERATOR>
<SERIALNUMBER>
<TESTRESULT>
<TESTTIME>
<THRESHHIGH>
<THRESHLOW>

Although the variables you specified in the above list bind to stored data, we presently would not have any way of visually seeing this data on the report. The third and last entry box in this panel satisfies that need. In the *Report Notes Format* box, you type in the names of the variables in any order you wish, and surrounded by any desired text, to compose the report format. When **SAVE TEST DATA...<cablename>** executes, the actual value of the variables at that instant replace their placeholders (those items in angle brackets) and the entire text block is inserted into the Test Data Notes. When you print the result, you see all of the values you specified along with any added formatting text. See the sample report on the right.



<TESTTIME>
<THRESHHIGH>
<THRESHLOW>

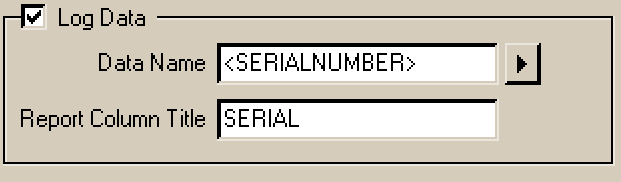
Test Result: <TESTRESULT>
Tested by <OPERATOR> on <TESTTIME>.
Lot: <LOTNUMBER>
Serial: <SERIALNUMBER>
Isolation Threshold: <THRESHHIGH>
Conduction Threshold: <THRESHLOW>



NOTES

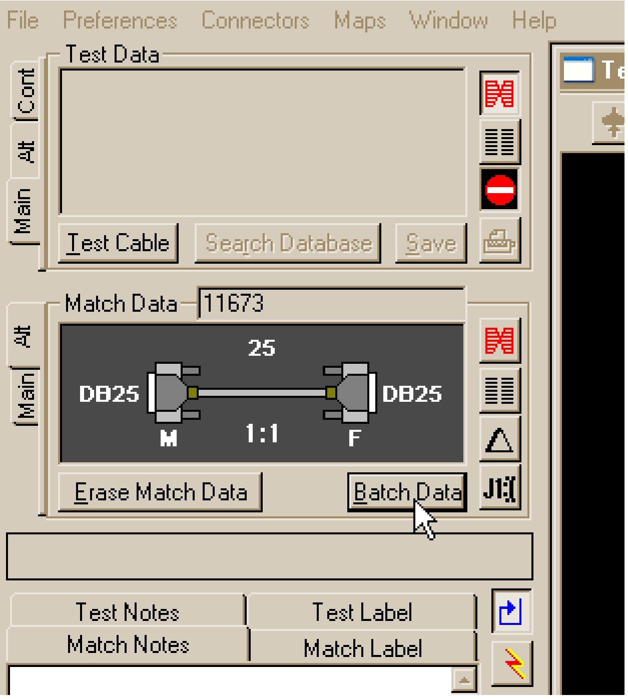
Test Result: PASS
Tested by Michael on 04-03-2004 14:44:52.
Lot: 403A
Serial: 11673
Isolation Threshold: 10 MΩ
Conduction Threshold: 3Ω

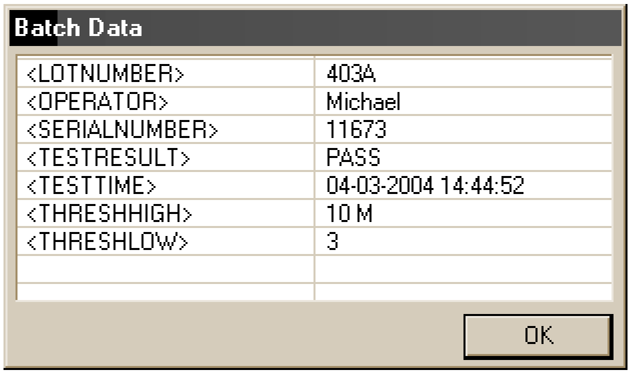
Finally, you may specify one variable, usually the serial number, to print on the log report. Do so by checking *Log Data* at the bottom of the Reporting panel and choosing the variable and column title.



☑ Log Data
Data Name <SERIALNUMBER>
Report Column Title SERIAL

If you load a cable from the archive database (Custom.dat), you may view the report data on the video screen without having to print it. To do so, first load the cable, then click the "Alt" tab (vertical tab) next to the Match Data Summary Box (see right, top). You see a new button labeled "Batch Data". Click this to see the report data (right, bottom). Remember that you are looking at the variable values that have been saved with the cable record, not the formatted text as it would appear in the printed Notes.



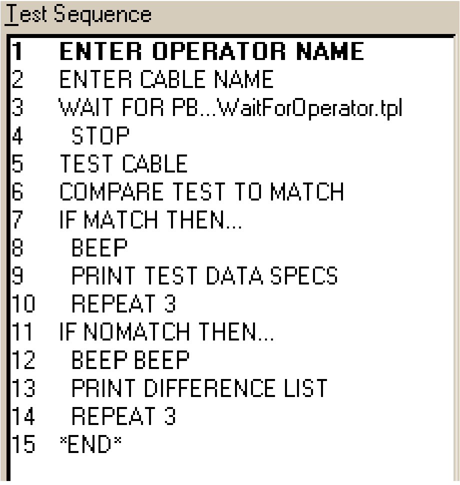


<LOTNUMBER>	403A
<OPERATOR>	Michael
<SERIALNUMBER>	11673
<TESTRESULT>	PASS
<TESTTIME>	04-03-2004 14:44:52
<THRESHHIGH>	10 M
<THRESHLOW>	3

15.5 – Macro Examples

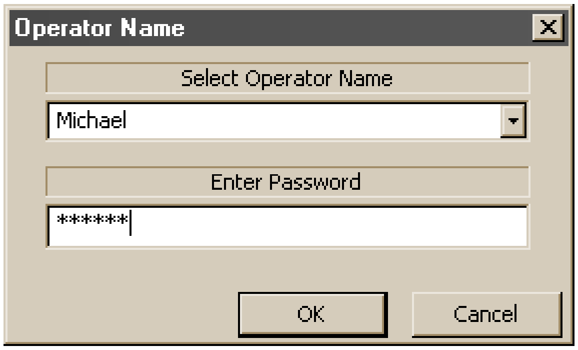
Example 10 *(continuation of existing example sequence in User's Guide)*

The Macro shown on the right demonstrates use of several new instructions. On Line 1, we request the name of the current operator, necessary in order to print this name on the test report. The pop-up you see below appears in response to this instruction. In this case, a password has been assigned to the operator and must also be entered. Scan the operator's name from a badge or work order, if desired. Normally, the password would be typed in, not scanned, for security purposes.



Test Sequence

```
1   ENTER OPERATOR NAME
2   ENTER CABLE NAME
3   WAIT FOR PB...WaitForOperator.tpl
4     STOP
5   TEST CABLE
6   COMPARE TEST TO MATCH
7   IF MATCH THEN...
8     BEEP
9     PRINT TEST DATA SPECS
10    REPEAT 3
11  IF NOMATCH THEN...
12    BEEP BEEP
13    PRINT DIFFERENCE LIST
14    REPEAT 3
15  *END*
```

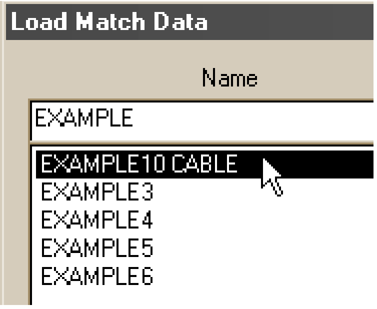


Operator Name

Select Operator Name: Michael

Enter Password: ******

We request Match Data name (part number) on Line 2, resulting in the usual pop-up that would be shown when you press the "Load Cable" button. Again, you may either scan the cable's name from a work order or type it in manually.

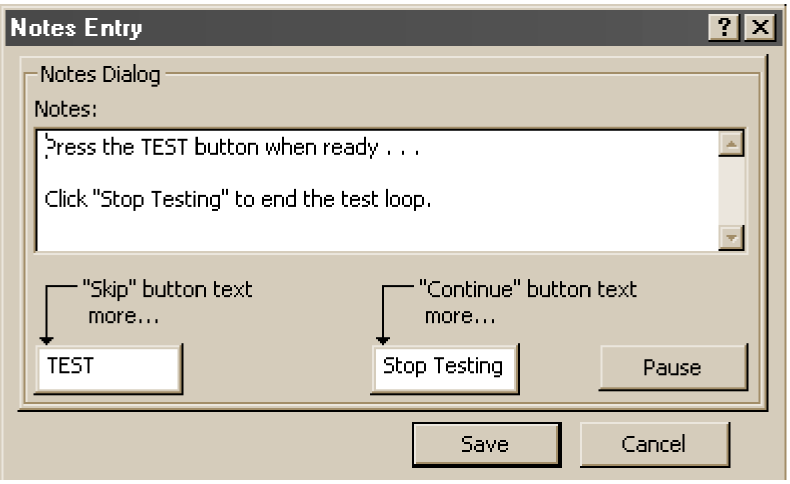


Load Match Data

Name: EXAMPLE

EXAMPLE10 CABLE
EXAMPLE3
EXAMPLE4
EXAMPLE5
EXAMPLE6

When we create Line 3, WAIT FOR PB..., in the Macro editor, the setup template you see appears on the right. Enter the text you want the operator to see when the instruction executes, and type in the button labels below. The middle button, labeled here “Stop Testing” causes *indented instructions* following WAIT FOR PB... to execute. The left button skips indented instructions and proceeds to the next non-indented instruction. In this case, if the operator presses “Stop Testing”, we simply execute the STOP instruction on Line 4. Pressing “TEST” causes execution to drop down to TEST CABLE and the Macro continues. The pop-up window as it would appear to the operator is shown also. You may enter considerably more text than shown here.


Notes:

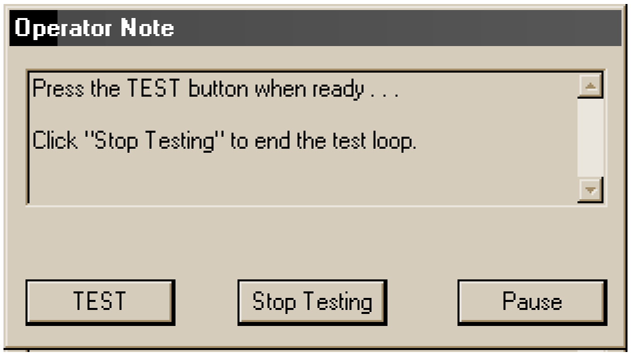
Press the TEST button when ready . . .

Click "Stop Testing" to end the test loop.

"Skip" button text: TEST

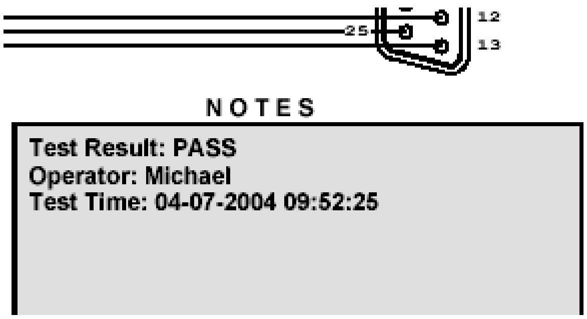
"Continue" button text: Stop Testing

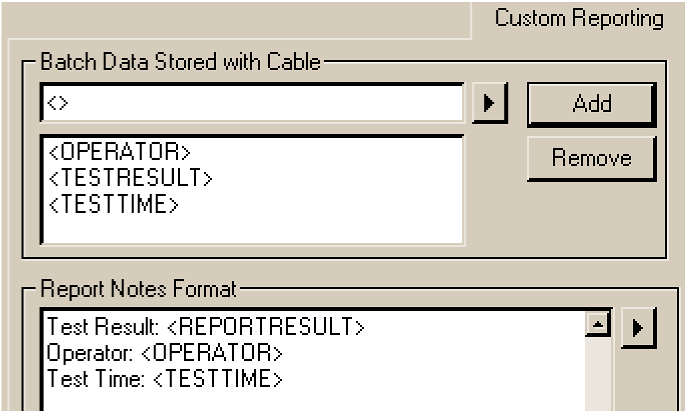
Pause


Press the TEST button when ready . . .

Click "Stop Testing" to end the test loop.

For every cable that passes, we print a test report on Line 9. What differs in this software release from previous CableEye versions is the ability to show information about the test in the *Test Data Notes* block. In this case, we print the test result, operator name, and test time. Before running the Macro, set up the variables you wish to print, and their format, in *Preferences/Custom Reporting* as shown here.


Test Result: PASS
Operator: Michael
Test Time: 04-07-2004 09:52:25


Batch Data Stored with Cable

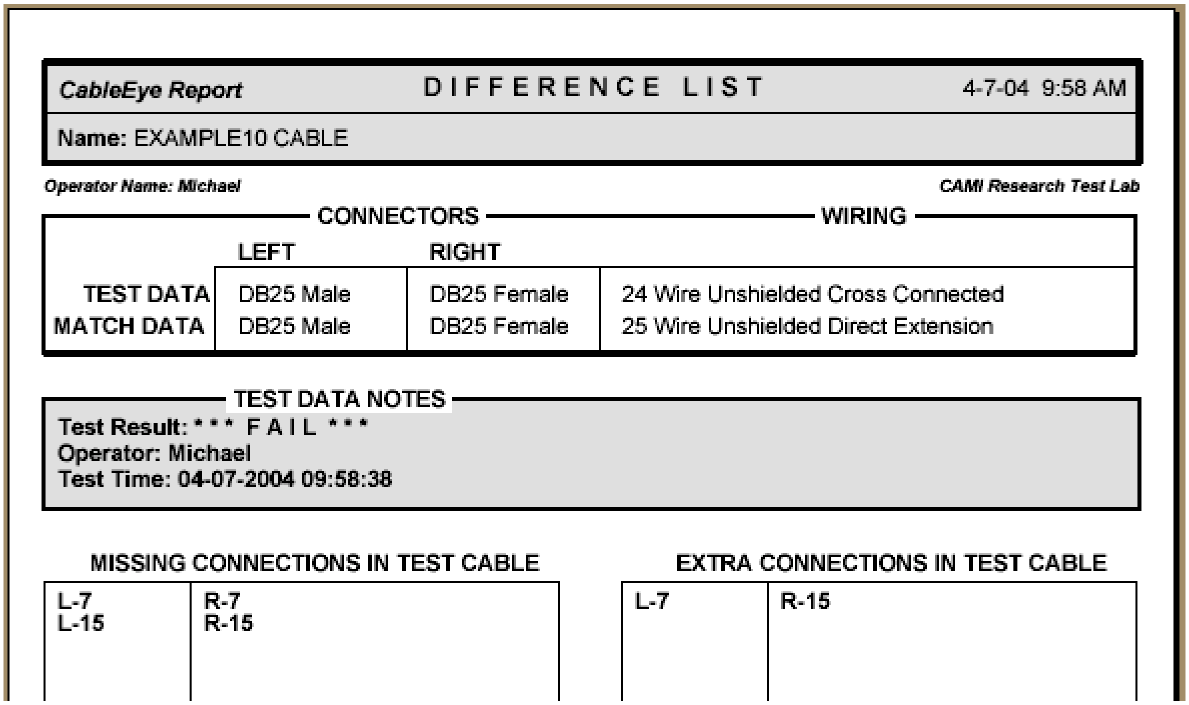
<>

<OPERATOR>
<TESTRESULT>
<TESTTIME>

Report Notes Format

Test Result: <REPORTRESULT>
Operator: <OPERATOR>
Test Time: <TESTTIME>

Finally, should an error occur, we print the Differences List on Line 13. Review the sample report below. Two things differ from previous software versions. First, you see a new block labeled “Test Data Notes” appear just above the error list. This gives the test result as “* * * FAIL * * *” along with the operator name with test time, exactly as it would appear in a standard test report. Note that the operator name also appears in the upper left hand corner under the title block, and that the title block itself shows the time. It is important to realize that the time shown in title block gives the time the report was printed, whereas the time in the notes is the time the cable was tested. In this case, they happen to be identical. However, were this test report saved in the archive database and recalled later, these times would be different. Similarly, the operator logged-in at the time the report is printed may be different from the individual who tested the cable.



CableEye Report DIFFERENCE LIST 4-7-04 9:58 AM

Name: EXAMPLE10 CABLE

Operator Name: Michael ***CAMI Research Test Lab***

CONNECTORS WIRING

	LEFT	RIGHT	
TEST DATA	DB25 Male	DB25 Female	24 Wire Unshielded Cross Connected
MATCH DATA	DB25 Male	DB25 Female	25 Wire Unshielded Direct Extension

TEST DATA NOTES

Test Result: * * * F A I L * * *
Operator: Michael
Test Time: 04-07-2004 09:58:38

MISSING CONNECTIONS IN TEST CABLE

L-7 **L-15**	**R-7** **R-15**

EXTRA CONNECTIONS IN TEST CABLE

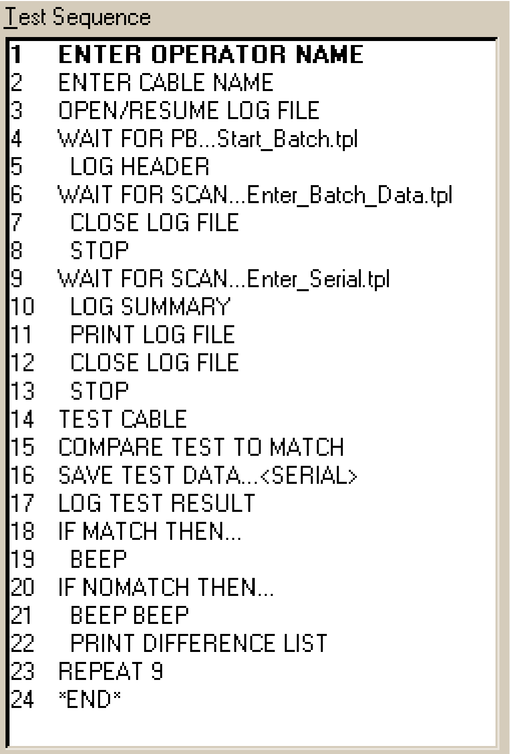
L-7	**R-15**

Example 11

This example demonstrates WAIT FOR SCAN... and uses data logging to produce a batch report at the end of a test session. Recall that a log file summarizes test results for all cables tested and gives statistics for percent accuracy in the batch, average time per test, and total time required.

Refer to the Macro seen on the right. As in the last example, we ask for the operator's name and load the Match Data in the first two lines.

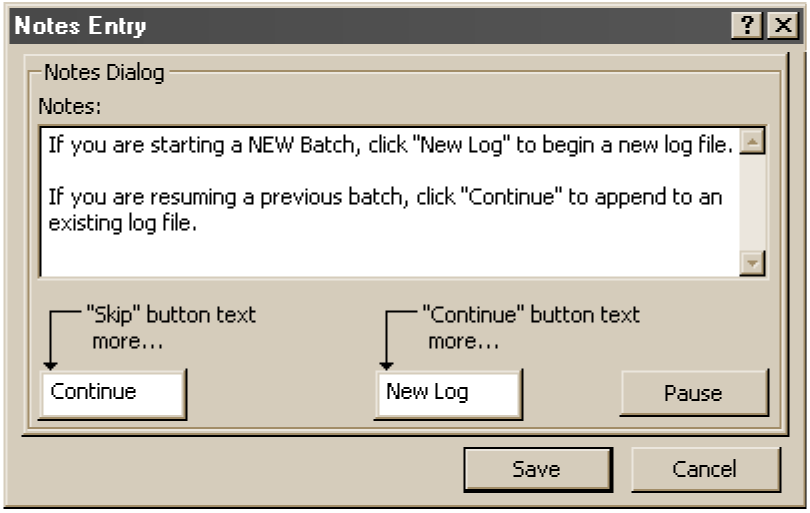
OPEN / RESUME LOG FILE on Line 3 performs a function identical to APPEND TO LOG FILE except that the OPEN / RESUME version does not permit overwriting (and thus deleting) an existing log. You may open a new file, or append to an existing one only. This safety precaution eliminates any chance that a careless operator will inadvertently erase archival log data.



Test Sequence

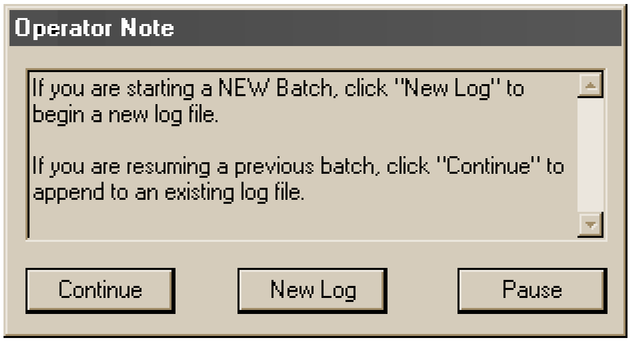
```
1  ENTER OPERATOR NAME
2  ENTER CABLE NAME
3  OPEN/RESUME LOG FILE
4  WAIT FOR PB...Start_Batch.tpl
5    LOG HEADER
6  WAIT FOR SCAN...Enter_Batch_Data.tpl
7    CLOSE LOG FILE
8    STOP
9  WAIT FOR SCAN...Enter_Serial.tpl
10   LOG SUMMARY
11   PRINT LOG FILE
12   CLOSE LOG FILE
13   STOP
14 TEST CABLE
15 COMPARE TEST TO MATCH
16 SAVE TEST DATA...<SERIAL>
17 LOG TEST RESULT
18 IF MATCH THEN...
19   BEEP
20 IF NOMATCH THEN...
21   BEEP BEEP
22   PRINT DIFFERENCE LIST
23 REPEAT 9
24 *END*
```

When this Macro begins, you may either be starting a new log or continuing a previously started one. For new logs, you would like a title block to appear at the top of the first page, whereas for an appended one, this is not necessary. So on Line 4, we ask the operator to choose whether a title block should be inserted. The screen shot on the right show the setup for this instruction. The pop-up window that appears during execution appears below it.



If you are starting a NEW Batch, click "New Log" to begin a new log file.

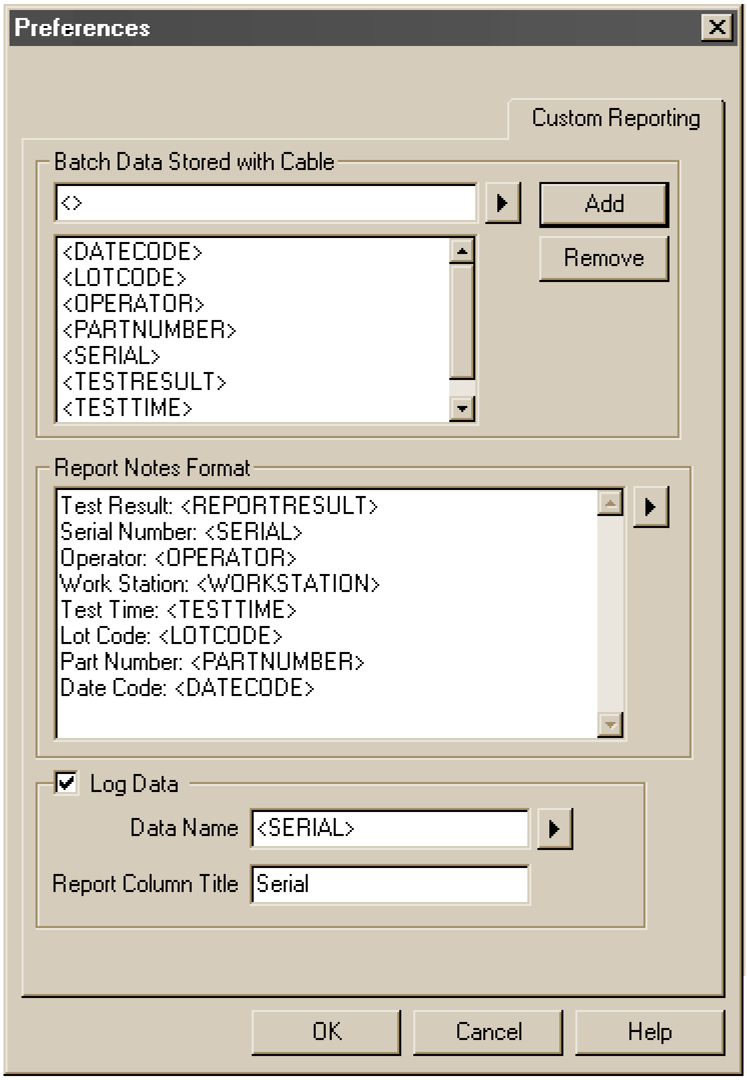
If you are resuming a previous batch, click "Continue" to append to an existing log file.



If you are starting a NEW Batch, click "New Log" to begin a new log file.

If you are resuming a previous batch, click "Continue" to append to an existing log file.

From the *Preferences* menu we choose *Custom Reporting* to set up the variables and report format needed in this example. We use eight variables here as seen in the upper block. The last variable, <WORKSTATION>, falls below the bottom of this window and is not visible. <TESTTIME> and <TESTRESULT> are *system* variables while the other variables we created for use in this application.



Batch Data Stored with Cable

<>

```
<DATECODE>
<LOTCODE>
<OPERATOR>
<PARTNUMBER>
<SERIAL>
<TESTRESULT>
<TESTTIME>
```

Report Notes Format

```
Test Result: <REPORTRESULT>
Serial Number: <SERIAL>
Operator: <OPERATOR>
Work Station: <WORKSTATION>
Test Time: <TESTTIME>
Lot Code: <LOTCODE>
Part Number: <PARTNUMBER>
Date Code: <DATECODE>
```

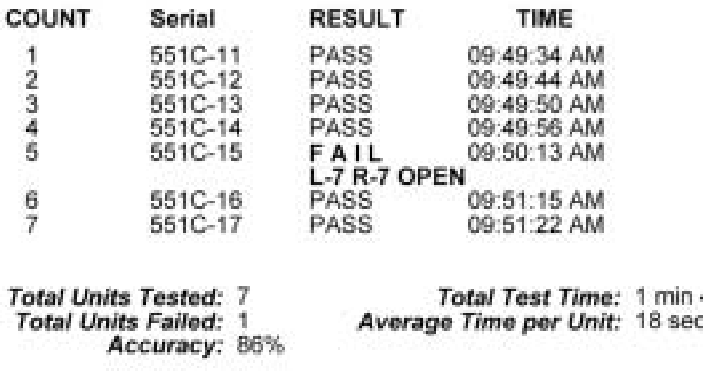
☑ Log Data

Data Name: <SERIAL>

Report Column Title: Serial

For this example, we assume the operator receives a work order sheet along with a batch of cables or wire harnesses stating the manufacturing date code, lot code, and part number. Each unit under test has its own serial number which we will scan prior to testing. We plan on saving a report on every item tested in an archive database, and showing the test result and all relevant information for each item in the *Notes* field of the report. The *Report Notes Format* shows the order and formatting text inserted in the Notes field. <REPORTRESULT> takes the PASS or FAIL value in <TESTRESULT> and adds asterisks to highlight the text; it would turn “FAIL” into “* * * F A I L * * *” for greater visibility.

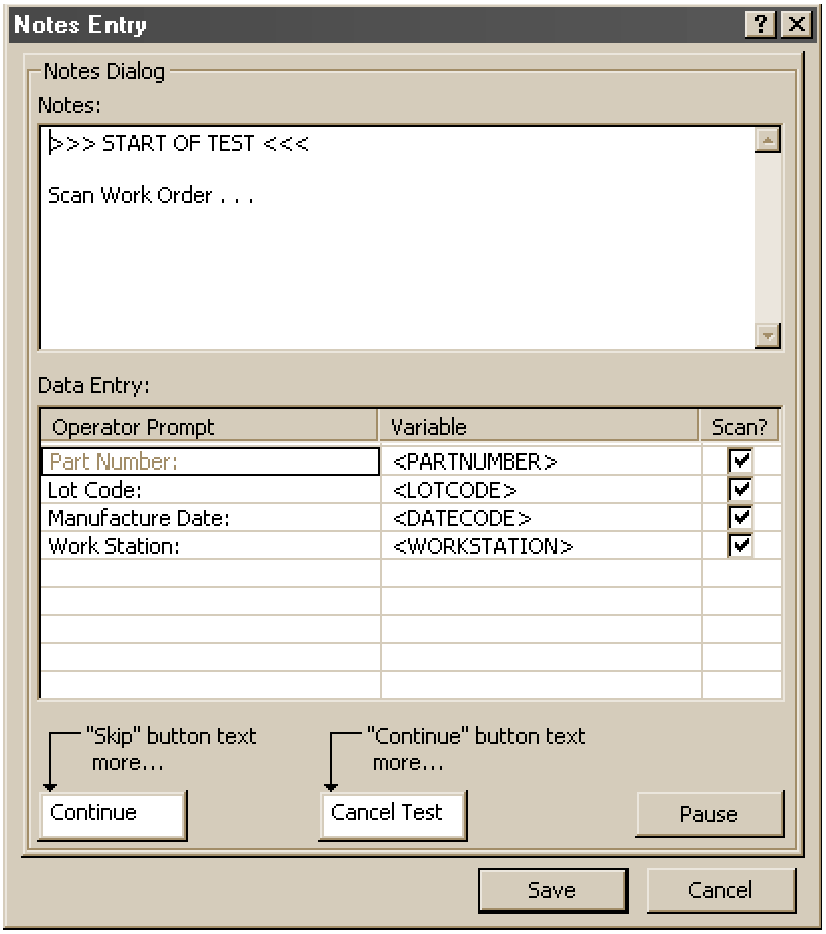
We have the option of displaying one variable on each line of the log report, next to the count. Check the *Log Data* box to select this, and choose the variable and column title you wish to use. In this case, we will show the serial number scanned for each cable. An example appears on the right.



```
COUNT     Serial      RESULT            TIME
  1       551C-11     PASS              09:49:34 AM
  2       551C-12     PASS              09:49:44 AM
  3       551C-13     PASS              09:49:50 AM
  4       551C-14     PASS              09:49:56 AM
  5       551C-15     F A I L           09:50:13 AM
                      L-7 R-7 OPEN
  6       551C-16     PASS              09:51:15 AM
  7       551C-17     PASS              09:51:22 AM

Total Units Tested:  7                   Total Test Time:  1 min
 Total Units Failed:  1             Average Time per Unit:  18 sec
           Accuracy:  86%
```

On Line 6 of the Macro, we use WAIT FOR SCAN... to request basic information from the operator's work order sheet. This data includes the cable's part number, lot code, date code, and the workstation name. The setup screen for this appears on the right. Add a check to the *Scan* box to require that a new value be entered for the variable whenever this instruction executes. In some cases where the WAIT FOR SCAN... is in a test loop, you may wish to require only one variable, like the serial number, to be scanned, while retaining previous values for other variables. Showing unscanned variables in the list gives the operator the option to change them but does not require it.

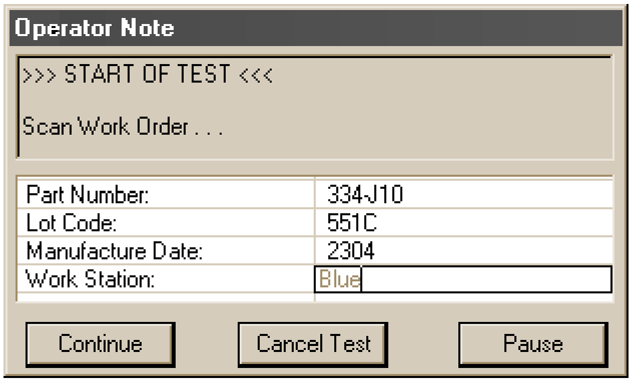


```
>>> START OF TEST <<<

Scan Work Order . . .
```

Operator Prompt	Variable	Scan?
Part Number:	<PARTNUMBER>	☑
Lot Code:	<LOTCODE>	☑
Manufacture Date:	<DATECODE>	☑
Work Station:	<WORKSTATION>	☑

The pop-up window that would appear in response to this instruction appears on the right. Notice that should the operator click *Cancel Test* rather than *Continue*, we simply close the log and stop testing on Lines 7 and 8. Because we have not yet entered the test loop or tested any cables, the log file is empty.

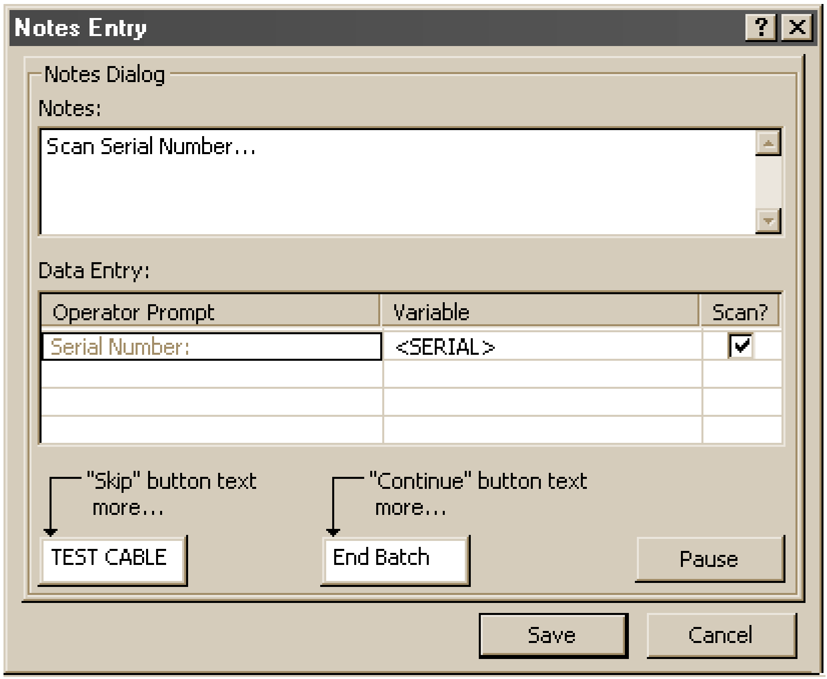


```
>>> START OF TEST <<<

Scan Work Order . . .
```

Part Number:	334-J10
Lot Code:	551C
Manufacture Date:	2304
Work Station:	Blue

The test loop begins on Line 9, and it is on this line where the program waits following the test of every cable. Setup for this instruction appears on the right, and the actual operator prompt during execution is shown below.



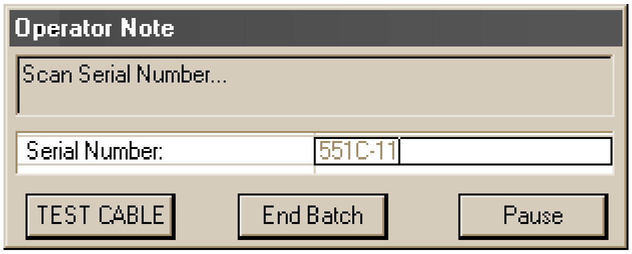
Notes:

Scan Serial Number...

Data Entry:

Operator Prompt	Variable	Scan?
Serial Number:	<SERIAL>	☑

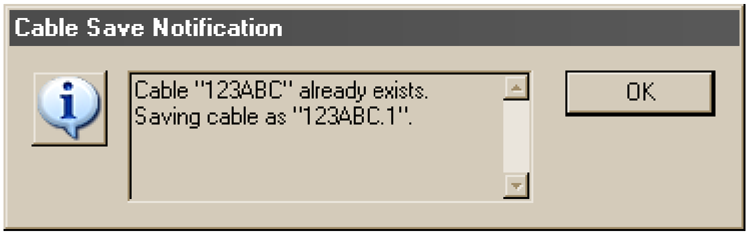
Normally, the operator would simply scan a serial number to trigger the next test. The left button, *Test Cable* is automatically "pressed" by the scanner after a successful read, and execution jumps down to Line 14 where the cable is tested. If, instead, all units have been tested, the operator would click *End Batch* to cause the indented instructions to execute on Lines 10 through 13. In this case, doing so would place a summary at the end of the log file, print the log file, close it, and stop testing.



Scan Serial Number...

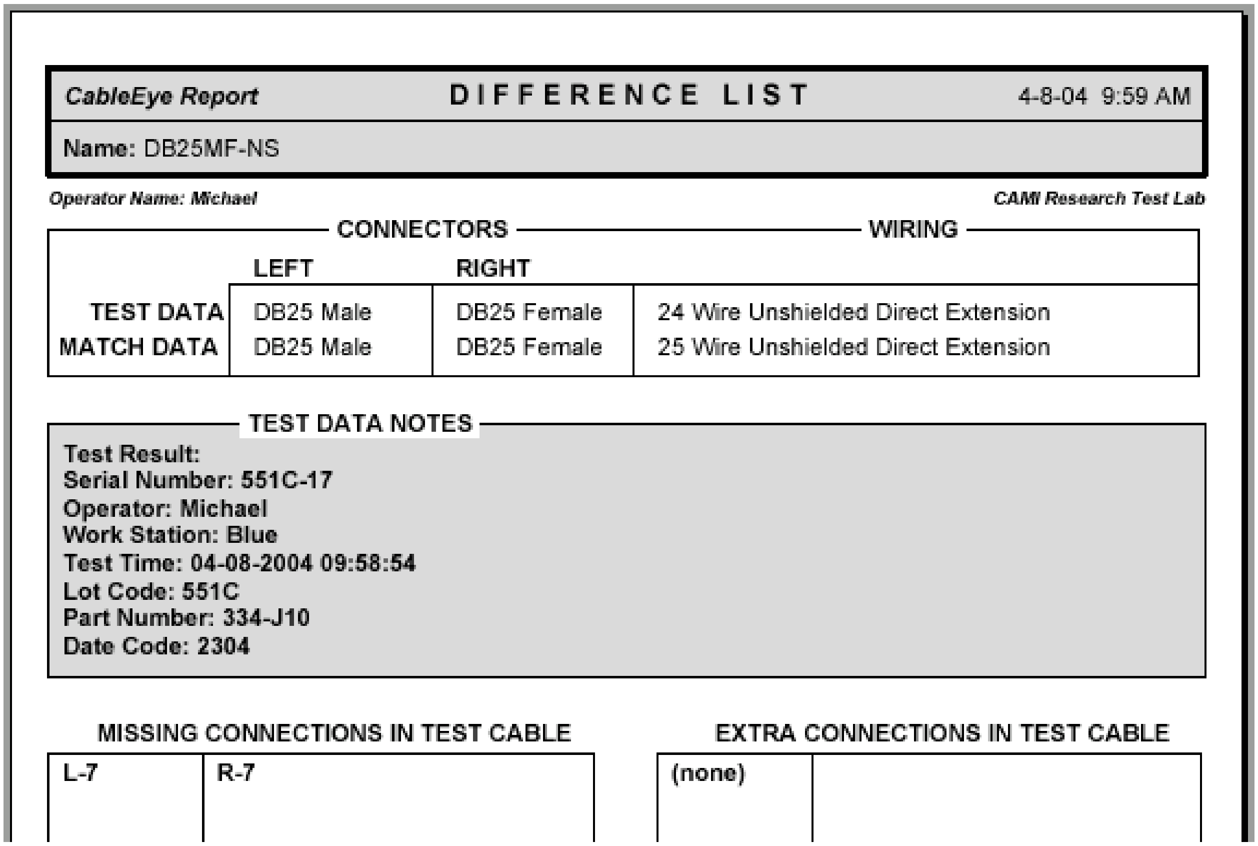
Serial Number: 551C-11

On Line 16, we save the test result to the archive database and log the result whether or not the cable passes. If the wiring passes, the operator hears a beep and execution returns to WAIT FOR SCAN... on Line 9 for the next cable. If the wiring fails, we sound the error tone and print the differences list on Lines 21 and 22 before resuming the test sequence. At this time, the operator may either place a failed cable into a "failure" bin, or pause to repair it. Note that when a failed cable is retested and the operator then attempts to save it in the archive database, because a file with the same serial number has already been saved, the system will add a ".1" to the cable name to distinguish it from the previously saved data.



Cable "123ABC" already exists.
Saving cable as "123ABC.1".

When a cable fails, we automatically print a *Differences List* on Line 22 to be included with the cable for rework. The printed output appears below. Finally, the log report you see at the bottom prints when the batch test is finished, Lines 10-13.



CableEye Report **DIFFERENCE LIST** 4-8-04 9:59 AM

Name: DB25MF-NS

Operator Name: Michael *CAMI Research Test Lab*

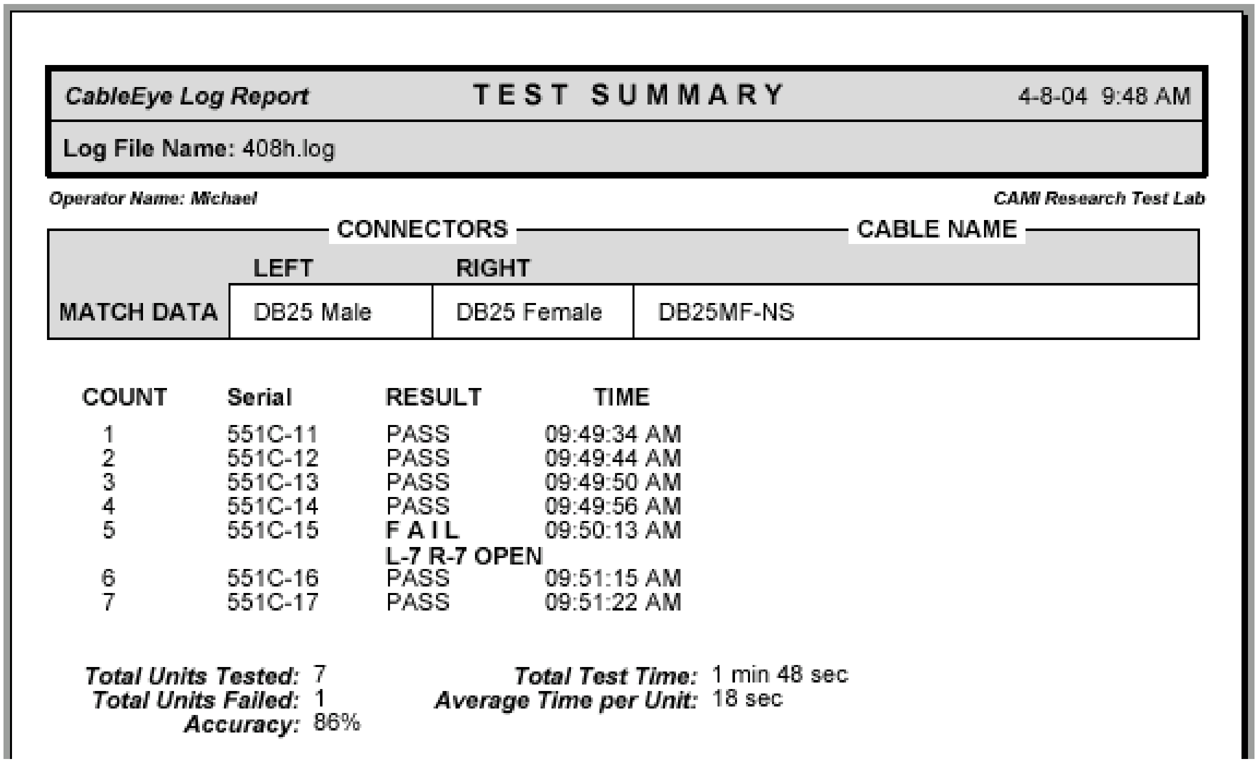
	CONNECTORS		WIRING
	LEFT	RIGHT	
TEST DATA	DB25 Male	DB25 Female	24 Wire Unshielded Direct Extension
MATCH DATA	DB25 Male	DB25 Female	25 Wire Unshielded Direct Extension

TEST DATA NOTES

Test Result:
Serial Number: 551C-17
Operator: Michael
Work Station: Blue
Test Time: 04-08-2004 09:58:54
Lot Code: 551C
Part Number: 334-J10
Date Code: 2304

MISSING CONNECTIONS IN TEST CABLE	
L-7	R-7

EXTRA CONNECTIONS IN TEST CABLE	
(none)	



CableEye Log Report **TEST SUMMARY** 4-8-04 9:48 AM

Log File Name: 408h.log

Operator Name: Michael *CAMI Research Test Lab*

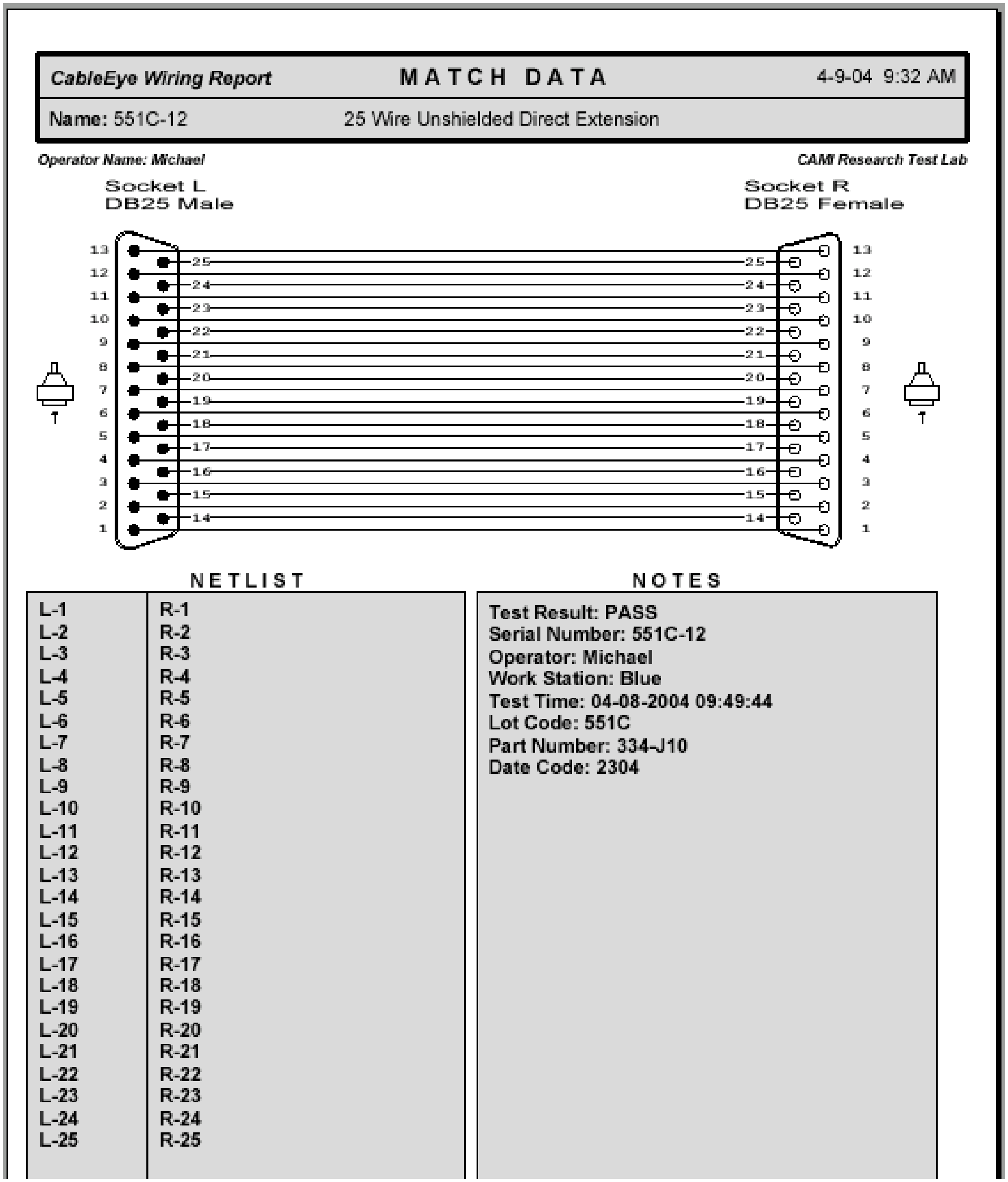
	CONNECTORS		CABLE NAME
	LEFT	RIGHT	
MATCH DATA	DB25 Male	DB25 Female	DB25MF-NS

```
COUNT     Serial      RESULT        TIME

  1       551C-11     PASS          09:49:34 AM
  2       551C-12     PASS          09:49:44 AM
  3       551C-13     PASS          09:49:50 AM
  4       551C-14     PASS          09:49:56 AM
  5       551C-15     FAIL          09:50:13 AM
                      L-7 R-7 OPEN
  6       551C-16     PASS          09:51:15 AM
  7       551C-17     PASS          09:51:22 AM
```

Total Units Tested: 7 *Total Test Time:* 1 min 48 sec
Total Units Failed: 1 *Average Time per Unit:* 18 sec
Accuracy: 86%

At some later time, you may wish to view or print data stored in the archive database. For example, load serial 551C-12 and click print. The results appears below. Note that the time you printed the report is shown in the upper right corner of the output, whereas the test time is shown in the Notes area.



CableEye Wiring Report **MATCH DATA** 4-9-04 9:32 AM

Name: 551C-12 25 Wire Unshielded Direct Extension

Operator Name: Michael *CAMI Research Test Lab*

NETLIST

L-1	R-1
L-2	R-2
L-3	R-3
L-4	R-4
L-5	R-5
L-6	R-6
L-7	R-7
L-8	R-8
L-9	R-9
L-10	R-10
L-11	R-11
L-12	R-12
L-13	R-13
L-14	R-14
L-15	R-15
L-16	R-16
L-17	R-17
L-18	R-18
L-19	R-19
L-20	R-20
L-21	R-21
L-22	R-22
L-23	R-23
L-24	R-24
L-25	R-25

NOTES

Test Result: PASS
Serial Number: 551C-12
Operator: Michael
Work Station: Blue
Test Time: 04-08-2004 09:49:44
Lot Code: 551C
Part Number: 334-J10
Date Code: 2304