

CableJoG128[®]



DECLARATION OF CONFORMITY

Manufacturers Name: CableJoG Ltd.
Address: 18 Browmere Drive, Croft,
Warrington. WA3 7HT.

Type of equipment: Cable tester

Model: CableJoG 128

I hereby declare that the equipment specified above conforms to the provisions of the EC DIRECTIVE 2004/108/EC on Electromagnetic Compatibility (EMC).

Having applied the following standards;

BS EN61000-6-1 :2007

"Generic EMC Immunity Standard for the residential, commercial & light industry enviroment".

BS EN61000-6-3 :2007

"Generic EMC Emissions Standard for the residential, commercial & light industry enviroment".

Edward Stefan Zych, Director.10th April 2014

RoHS+WEEE



APPENDIX - F

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Connecting to C.C.P.

CableJoG's RS232 communication port has been designed as a DTE (Data Terminal Equipment) and so a 'one to one' cable is all that is required to Connect CableJoG128 to a PC Serial Communications Port.

A suitable cable :

<u>CableJoG128</u>		<u>PC Comms Port</u>
Pin	Signal	Pin
2.....	RXD.....	2
3.....	TXD.....	3
5.....	GND.....	5
7.....	RTS.....	7
8.....	CTS.....	8

Connecting to a Serial Printer.

CableJoG's RS232 communication port has been designed as a DTE (Data Terminal Equipment) and so a 'cross over' cable is required to Connect CableJoG128 to a Serial Printer Port.

A suitable cable :

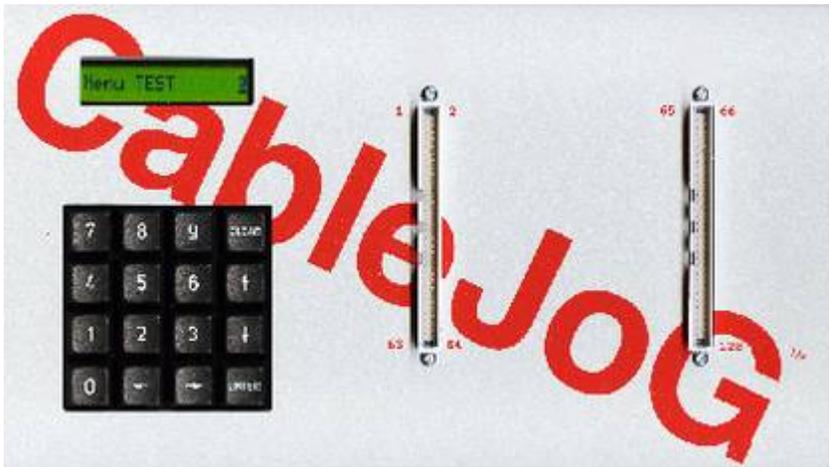
<u>CableJoG128</u>		<u>Serial Printer Port</u>
Pin	Signal	Pin
2.....	RXD.....	3
3.....	TXD.....	2
5.....	GND.....	7
7.....	RTS.....	20
8.....	CTS.....	6

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INTRODUCTION

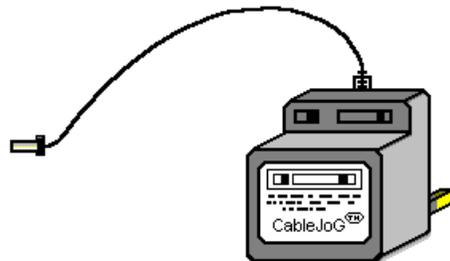
CableJoG128 takes the concept of truly portable intelligent ribbon cable & cable harness testing a step further by increasing the number of test points and incorporating a PC/Printer link. CableJoG will identify any pattern of connections between any of the 128 connector points. The display will identify each connection made in terms of the connectors true pin number. These connections can then be stored and retrieved at a later time. Using connectors crimped onto ribbon cable, CableJoG is both robust in use and simple to repair when worn out.

CableJoG 128:



CableJoG PSU:

If the PSU supplied is of the switchable voltage and polarity type then please make sure the polarity is set to + and the voltage is set to 12V.



APPENDIX - E

ERROR MESSAGES

Pin number not recognised.

Err OutOf Range#

Pin label conversion error.

Sorry Wrong No. #

Only 64 pairs of connections allowed.

Err TooMany Conn#

There are only 128 test pins.

Err Pin addr>128

This connector has taken the pin count past 128.

Err Conn Too Big

Trying to run TEST with having anything in compare memory to test against.

No Cable in MEM#

Results in BATCH mode and this location used as a buffer.

BUFFER IN USE #

In EDIT 'from' address has to be less than 'to' address.

Err From addr>To

In EDIT 'from' and 'to' have to be different.

Err From = To

In EDIT connection buffer full.

Err Buffer Full

There are only 128 test pins.

Err From > 128

Err To > 128

APPENDIX - D

FUNDAMENTALS

ONCE

```

CableJoG128 1.0
CableJoG Serial Number 00001234
Operator: J Brown
Date 10/12/15
Time 11:36:30
Cable 23 TEST CABLE
PASSED 00000001 11:38:22 10/12/15
Cable 23 TEST CABLE
PASSED 00000002 11:38:24 10/12/15
Cable 23 TEST CABLE
PASSED 00000003 11:38:26 10/12/15
Cable 23 TEST CABLE
PASSED 00000004 11:38:28 10/12/15
Cable 23 TEST CABLE
PASSED 00000005 11:38:29 10/12/15
    
```

CONTIN.

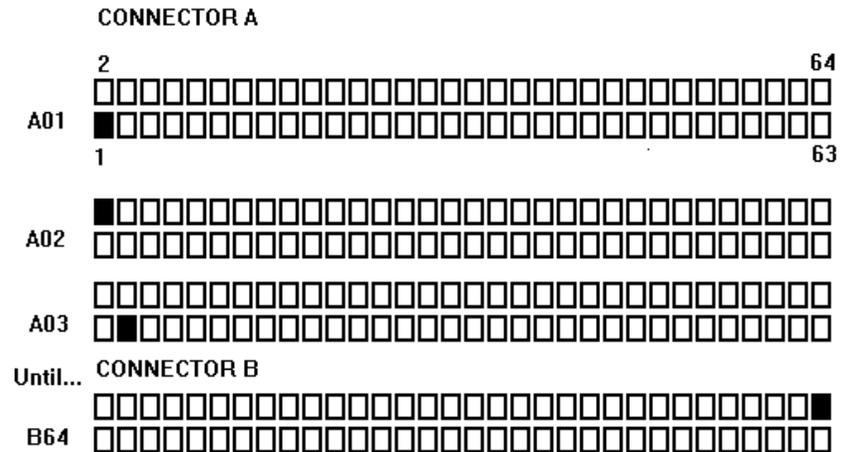
```

CableJoG128 1.0
CableJoG Serial Number 00001234
Operator: J Brown
Date 10/12/15
Time 11:36:30
Cable 23 TEST CABLE
PASSED 00000001 11:38:22 10/12/15
PASSED 00000002 11:38:24 10/12/15
PASSED 00000003 11:38:26 10/12/15
PASSED 00000004 11:38:28 10/12/15
PASSED 00000005 11:38:29 10/12/15
    
```

The cable testing starts off at the main connectors PL1 and PL2 on the main circuit board, these connectors are 64 way IDC. PL1 and PL2 are numbered as shown below:-

2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64
1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63

The Learn/Test programs start checking for connections with Pin 1 of PL1, known from now on as A, and all the other pins. After A64 the program moves onto Pin 1 of PL2, known from now on as B, ending at B64.



FUNDAMENTALS

Using the ribbon or IDC versions of the popular multipin connectors it is very easy to assemble a customised test box enabling a great variety of cables/harnesses to be tested. The pin numbering varies between these connector types and normally a 'look up' chart would have to be used to identify a real connection. The figure below shows some of the possibilities:-

2	4	6	8	10	12	14	16	18	20	22	24	26	26 way idc
1	3	5	7	9	11	13	15	17	19	21	23	25	
14	15	16	17	18	19	20	21	22	23	24	25	25 way 'd' type	
1	2	3	4	5	6	7	8	9	10	11	12		13
13	14	15	16	17	18	19	20	21	22	23	24	24 way Centronics	
1	2	3	4	5	6	7	8	9	10	11	12		
2	4	6	8	10	12	14	16	16 way idc					
1	3	5	7	9	11	13	15						
9	10	11	12	13	14	15	15 way 'd' type						
1	2	3	4	5	6	7		8					
2	4	6	8	10	12	14	14 way idc						
1	3	5	7	9	11	13							
8	9	10	11	12	13	14	14 way Centronics						
1	2	3	4	5	6	7							
2	4	6	8	10	10 way idc								
1	3	5	7	9									
6	7	8	9	9 way 'd' type									
1	2	3	4		5								

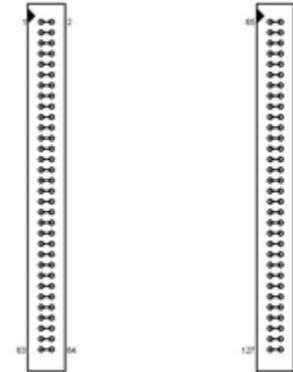
All of these connectors and more are supported by CableJoG so once the connector type has been selected the number displayed will be the actual pin number on the connector. To be of any use CableJoG has to have the relevant connections in its compare memory.

The connections can be entered into the compare memory four different ways. Firstly using EDIT the details can be entered, via the keyboard, off a wire list or circuit diagram. Secondly, using a known actual cable you can LEARN the details. Thirdly if the details have been previously stored they can be retrieved by using RECALL and finally if you have the CableJoG Command Program the connections can be transferred from a database of cables held on the PC.

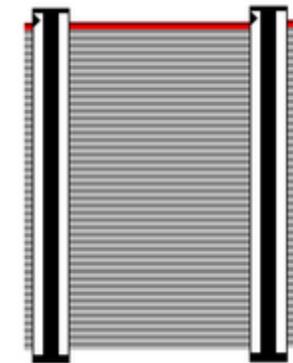
APPENDIX - C

SELF TEST CABLES

No: Description:
58 JOG 128 test A



59 JOG 128 test B



APPENDIX - B

FUNDAMENTALS

CONNECTOR TYPES

- 64way IDC
- 60way IDC
- 50way IDC
- 40way IDC
- 34way IDC
- 30way IDC
- 26way IDC
- 20way IDC
- 16way IDC
- 14way IDC
- 10way IDC

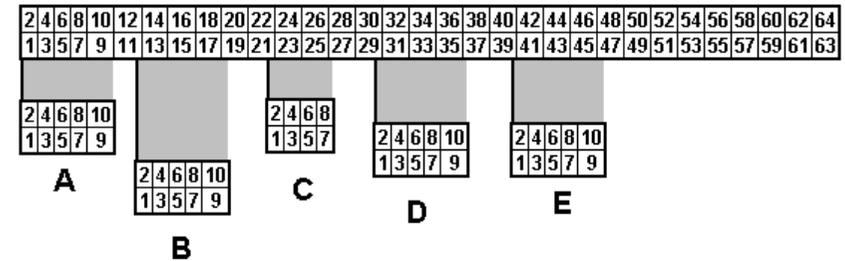
- 37way 'd' type
- 25way 'd' type
- 15way 'd' type
- 9way 'd' type

- 50way Centronics
- 36way Centronics
- 24way Centronics
- 14way Centronics
- 1 way

Once the compare memory has the details it can use them to test an unknown cable through the TEST menu option. Testing can be configured to either a one pass/fail test, or to carry on testing if the cable passes, but to stop once a fail has been detected enabling the cable to be shaken to possibly identify intermittent connections. Or in continuous testing where the test is run continuously regardless of the presence, or not, of the cable. This enables 'hands free' use of CableJoG.

Multiple plugs or 'looms' can be easily set up on CableJoG, below is an example of a test assembly to test 5 small plugs. The plug identities A to E are allocated when the cable is learnt, but can be changed to whatever is required later on using the Edit menu.

The purpose of selecting the five connectors and inputting the start positions of each of them enables CableJoG to use 'real' pin identification when displaying a short, open or crossed connection.



Again the example above would produce a table of Pin Address and Plug Label as follows:-

| Address : Label |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| 001 = A01 | 011 = B01 | 021 = C01 | 031 = D03 | 041 = E03 |
| 002 = A02 | 012 = B02 | 022 = C02 | 032 = D04 | 042 = E04 |
| 003 = A03 | 013 = B03 | 023 = C03 | 033 = D05 | 043 = E05 |
| 004 = A04 | 014 = B04 | 024 = C04 | 034 = D06 | 044 = E06 |
| 005 = A05 | 015 = B05 | 025 = C05 | 035 = D07 | 045 = E07 |
| 006 = A06 | 016 = B06 | 026 = C06 | 036 = D08 | 046 = E08 |
| 007 = A07 | 017 = B07 | 027 = C07 | 037 = D09 | 047 = E09 |
| 008 = A08 | 018 = B08 | 028 = C08 | 038 = D10 | 048 = E10 |
| 009 = A09 | 019 = B09 | 029 = D01 | 039 = E01 | |
| 010 = A10 | 020 = B10 | 030 = D02 | 040 = E02 | |

GETTING STARTED

Unpack the CableJoG unit and its power supply. Please make sure the polarity switch on the power supply is set to + and the voltage switch is set to 9V. It is recommended that the power supply be plugged in and left switched ON to charge the internal battery for at least 6 hours before use.

Whilst the unit is charging itself, it would be a good time to make any adaptors or non standard connectors. CableJoG comes with two 64way IDC connectors as standard.

On switching the CableJoG unit ON, the display will show the current software version followed by the current date and time. Press Enter to move from date to time and then onto the Main Menu:

```
CableJoG128v1.12
```

followed by:-

```
Date 01/12/15
```

```
Time 10:01:30
```

```
Menu LEARN
```

You can use either of the   keys to move through the menu options, or press the number that corresponds with the menu option you require. On first switch ON the menu prompts will follow a Learn, Store and Test sequence. Should you see:-

```
Next= 00110000
```

then refer to Appendix A on replacing the memory battery backup unit and reprogramming CableJoG. Or should the following appear after the Time display:-

```
Operator No: _ _ _ _
```

then the operator private identity number (pin) has been set, if you have a valid number you can enter it now, otherwise contact your supervisor. If the number was correctly entered your name will be displayed briefly before moving onto the main menu's:-

```
Hello Eddie _ _ _ _
```

Should a wrong pin number be entered the display will show:-

```
Sorry Wrong No. _
```

Press ENTER to try again.

APPENDIX - A**Battery Replacement**

There are two batteries in the CableJoG unit.

1. PP3 type rechargeable NiCD or NiMH type. This battery is used during normal operation of the unit. Should this need replacing, only replace with a rechargeable type as detailed earlier. **DO NOT USE** a standard 'dry' or 'alkaline' type as damage to the unit will result.
2. CMOS memory and clock battery. This can be one of three types:-
 - a) Lithium CR2430 horizontal PCB mount cell.
 - b) Two 'AA' type alkaline cell wired in series and protected in a sleeve.
 - c) Lithium CR AA PCB mount cell.

Should this need replacing you will need to use a soldering iron to remove the old battery and insert the new. **DO NOT USE** a rechargeable battery in this case.

To change the battery the plastic box needs to be 'split' open without damaging its construction. The preferred method is:-

- a) Stand the box upright on the side opposite the ON/OFF switch.
- b) Press hard in the middle of the box, on the switch half.
The two halves should start to separate.
- c) Whilst still pressing in the middle, unhook one end of separating halves, this should stay open.
- d) Whilst still pressing in the middle, unhook the other end.
The two halves are now partly open.
- e) Turn the box over and repeat the process,
but care must be taken NOT to press down on the ON/OFF switch.

If the battery hasn't actually died then it can be replaced without loss of data. This is simply achieved by having the unit powered and switch ON during the battery change over.

To re-assemble the box, align the two halves and press gently until the halves click into place.

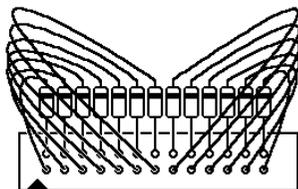
If in doubt contact CableJoG.

SPECIAL USES / SINGLE ENDED TESTS

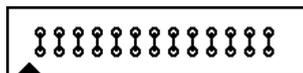
Using a shorting plug it is possible to test cables where access to both ends simultaneously is not possible. There are three basic types of shorting plug each has its place in the cable testers tool kit.

DIODE SHORTING PLUG

Using a diode to connect a pair of wires has the advantage that a short between the pair of wires will be detected and also if the wires are crossed. The cable details need only to be stored once. To enable CableJoG to recognise that a diode test is to be carried out the cable needs to be 'marked' such by including a % character in the cables title when being stored.

**SPECIFIC WIRED PLUG**

If the connections are known, but a diode plug is not available then a specific wired plug will identify correct connections along the cable. Two tests will need to be carried out. One with the shorting plug on and one with the shorting plug off. Unfortunately to test for crossed wires a further specific wired plug will be needed with a different wiring pattern to the first and three tests to fully check the cable out. This sort of plug can be made on site requiring only a plug, wire and a soldering iron. When learning the various patterns the character % MUST NOT BE USED as it will probably overflow the compare memory.

**SHORTING PLUG**

This is the most universal shorting plug and no prior knowledge of the connections to be tested is needed. However, don't exceed the cable connection buffer limit of 64 pairs of connections. This gives a maximum number of wires as 7.

**A FEW FURTHER POINTS:-**

- a. Unless using the diode specific plug, check each end for shorts within that end by Learning/Testing that end without the shorting plug on at the far end.
- b. don't forget that the loop configuration is still valid, therefore the cable can still be checked for intermittent faults.
- c. Again unless using the diode specific plug, Learn the two ends with and without shorting plugs on a known good cable, this will make testing much easier as the results are slightly confusing because all the permutation of connections will be displayed.

GETTING STARTED

Should the display show:-

Waiting for CTS_

just after the CableJoG version display, then one of the options using the serial interface has been activated and the Printer/PC is not connected or On-Line. Either sort out the problem with the Printer/PC or press CLEAR on the keyboard. The display will show:-

Abort Comms[y/n]

Press ENTER to stop CableJoG trying to connect.

If one or more of the menus do not appear it may be that someone has set the password option on it/them you will need to know the password to gain access. If you have just received CableJoG from sales or repair then please contact CableJoG for further instructions.

The CLEAR key will always take you back to the main menu.

If there has been no activity for more than 1 minute (default setting) the unit will beep and then go into power down mode to conserve battery power. The display will show:-

**** Power Down ****

To restore the unit to a working state switch OFF and then ON again, to change the power down time see the chapter MENU SETUP option 2.

After familiarising yourself with the concept/fundamentals of CableJoG it may be useful to move onto the MENU SETUP chapter to set the unit up to your requirements.

Menu LEARN 1

This menu deals with the process of determining which pins of connector A are connected to connector B (and any internal links within connectors A & B). If the display shows:-

Enter No. 1

Enter the four digit password, if the password is incorrect then you will be taken back to the main menu. If the password is correct or has not been set then the display changes to:-

Learn [y/n]

If you see this display and you don't want to proceed then use the  key to move the cursor under the **n** character and then press ENTER this will return you to the main menu.

Press ENTER to continue, the display will show:-

Any DIODES [y/n]

If there are diodes in the cable then press  to move the cursor under **Y** then press ENTER, otherwise just press ENTER. With or without diodes the display shows:-

Sel. Conns. [y/n]

As described in earlier chapters CableJoG works on a three character label for each pin, if you don't want to use this system use the  key to move the cursor under the **n** character and then press ENTER. Each pin label will now be it's actual pin number. The cable is learnt. Otherwise, the next step is to choose the type of connectors used, press ENTER again the display will show the first connector type:-

A: 64w IDC [y/n]

Press ENTER or  if this is not the correct connector type, otherwise press  to move the cursor under **Y** then press ENTER to accept that connector. The connector types currently supported can be seen in Appendix B.

Once one of the options has been accepted you have to choose the connectors position within the two 64 way IDC connectors. Connector A has pins with address numbers 001 to 064, connector B has pin addresses 065 to 128. The display will show:-

Pin 1 addr 001

SPECIAL USES / DIN 41612

CableJoG can be used to test cables/harnesses and PCB's with a variety of the DIN 41612 connectors. 96way abc connectors could only be tested going to a 32 way connector because of the overall test pin limit of 128.

DIN 41612 connectors use the same pin number twice with a lower case letter to identify which column the pin number belongs to making the whole pin label three characters long. CableJoG128 has three characters per pin label, but the first character is normally the connector identifier (A,B etc.). As this character is automatically assigned the only way around the problem is to LEARN the cable using the 64way IDC connector in place of the DIN 41612 and then EDIT that cable changing the pin labels.

Procedure:

- 1). Assemble the test adaptor leads, taking care with the orientation of the DIN 41612 connectors, as these seem to come without any identification of pin1.
- 2). In LEARN mode use the 64way IDC connector for each DIN 41612.
- 3). Complete the LEARN process and STORE the result.
- 4). EDIT the cable just stored, go into EDIT PINS and change the details of the 64way IDC to reflect the DIN 41612. i.e. if you had learnt the 64way IDC (DIN 41612) as connector A with its pin 1 in position 001 then the current labels would be:-

001: A01
002: A02
003: A03 etc.

Change these to:-

2 row 96way 'a' and 'c'	2 row 64way 'a' and 'b'
001: a01	001: a01
002: c01	002: b01
003: a02	003: a02
004: c02	004: b02

Hint:

to quickly select the lower case letters **a,b,c** etc. press **9** then  to put the cursor back and  to move to **a**. If you are using more than one DIN 41612 in the cable/harness it might be easier to use x,y or z for the columns on the second connector.

Menu SETUP 0000 2

SERIAL NO. 0000 8

This option enables the user to set the start number to be used for tested cable serialisation, the display will show the current value:-

Continue (default):-

Next= Continue

With the option set to continue each tested cable will be numbered and the number will be a continuation of the fundamental serial number (see SETUP for details on the fundamental serial number). Use the  key to move onto the next option, or press ENTER to accept the continue option.

The second option is :-

Next= OFF

In this option the tested cables will NOT be numbered. Use the  key to move onto the next option, or press ENTER to accept the off option.

The third option is:-

Next= 00000000

In this option the number shown will be the first used when this cable is tested. This enables cables of a particular type to be assigned a specific starting serial number. Use the     keys to alter the number, or simply enter the number from the keypad. To change the option to OFF or CONTINUE press the  key until the display changes. Press ENTER to accept the next number.

After ENTER has been pressed the display will show the ENTER key at the right hand position. Press ENTER again to move onto the next cable option.

Menu LEARN 0000 1

One PRESS 0000 0

In One Press mode (see Menu Setup - Test Loop) you only have to press the key once to complete the scanning process. If the display shows:-

Enter No. 0000 0

Enter the four digit password, if the password is incorrect the you will be taken back to the main menu.

If the password is correct or has not been set then the display changes to:-

1=Learn 2=Test

and both the LED's will go out (if fitted). You are now ready to test the cable.

Diode testing is not available with One Press option. You will have to turn one press off, Learn the cable and then turn One Press back on.

Press the 1 key to learn the new cable. The display will show the number of connections found:

001 Connections

Check this against the master cable. If correct press the 2 key to test the next cable, if not then change the cable and press one again. If the number of connections is still incorrect change the test loop option to no loop which will display the actual connection details found (see Setup Menu, Test Loop option).

Menu SETUP 2

OPERATORS 6

This option enables ten operators to be identified. Each operator has a four digit 'pin' number. Once an operator has been set up CableJoG will prompt for the 'pin' number on switch ON. The display will show:-

Operators [y/n]

If you don't want to use this feature then press **[←]** to select **n** then press ENTER. This will take you back to the date and time menu. Otherwise press ENTER to continue.

The display will prompt for a 'pin' number:-

Operator No: _ _ _ _

Enter the four digit 'pin' number, if the password is not recognised the display will prompt:-

NewOperator[y/n]

If you just entered the number incorrectly, or don't want to enter a new operator, then press **[←]** to select **n** then press ENTER you will be taken back to the date and time option.

The display shows:-

Sorry Wrong No. _

Accepting the New Operator, the display prompts for a 8 character name. Use the **[↑]****[↓]** keys to move up or down through the

Name: _ _ _ _ _ _ _ _

Upper case characters, numbers and lower case characters. Press the **[←]** key

to move onto the next letter. Use the **[←]** key to move back to change a character and finally press ENTER when you have finished. The display will show:-

Confirm No: _ _ _ _

To confirm the new operator enter the same 4 digit 'pin' number, if entered correctly the display will confirm the new operator:-

John Entered

If the number entered is incorrect then the new operator will not be entered.

Menu TEST 2

Once the test cycle has been completed the display will show the results. The format of the display(s) is determined by the Test Display settings in Menu Setup.

With the PF Only setting in Test Display you will see:-

PASSED

if the cable connected is the same as the one in compare memory, if the two are different the display will show:-

FAILED

if the display shows:-

No Connections

then NO connections were detected at either end.

If Serial Numbering has been Setup then the Passed display changes to:-

PASSED 00000001

If Date and Time stamping has been Setup then the Passed display changes to:-

PASSED 09-12-15

And finally if both Serial Numbering and Date and Time Stamping the display Passed display changes to:-

PASS 0001 09-12

With the PF + Err setting in Test Display the Passed displays don't change from the above however, the Failed display is followed by the error report. Depending on the type of fault there are three possible displays you could see:

Missing connection on u.u.t.:-

no connection was found where one was expected.

A01B01 OPEN

Extra connection on u.u.t.:-

a connection was found on the u.u.t. that was not in the compare memory.

A02B02 SHORT

Incorrect connection:-

this example shows that the original cable had a connection from Connector A pin1 to Connector B pin1, whereas the u.u.t. had Connector A pin1 connected to Connector B pin2.

A01B01 ≠ A01B02


```
Menu SETUP 0000 9
```

```
TEST MODE 0000 4
```

Mode 5 - PRESS ONE BUTTON

```
TEST = PRESS ON
```

This mode set the CableJoG unit to use only one button to run the test, everytime the 1 key is pressed the test will run. This option also makes learning into a one button press. However, you can not assign any labels at the learning stage.

If there are no results to display you wil see:

```
1=Learn 2=Test
```

All of the other menu s still work but, can't be accessed using the arrow keys.

Mode 6 - WIRES

This option allows for a number of of different types of cable to be tested quickly, connections are assumed to be from the A connector to the B connector and pin for pin e.g. 1wire connection would be: A01 to B01 (001 to 065), 2 wires connection would be A01 to B01 and A02 to B02. and so on to the maximum 64 wires.

6.1 Enter the no of wires (connections) and press ENTER, if the number shown is correct (repeating the same type of cable), just press ENTER.

```
000000 01 Wires
```

6.2 LOOP for intermittant connections, once a cable has been tested it is possible to test that cable for intermittant problems by entering 99 wires, this will loop the test until either, a fault occurs or, a key is pressed.

6.3 END WIRES mode, switch the CableJoG unit off and on, press Enter when you see the date prompt, then press 9 this will take you to the Setup menu where you can change test modes.

```
Menu TEST 0000 2
```

TEST LOOP OPTIONS (Continued):

4.STAGED

This is a varient of the Continious testing mode with the added feature of stringing more than one test together.

Assuming we have a two stage test procedure then the sequence of events could be:

4.1 Recall the first cable and run the test. With out anything connected you will see:

```
No Connections #
```

4.2 Plug in the first stage, if all is well the display will change to:

```
Stage PASSED 01
```

4.3 Depending on how quickly you can plug the next stage in you might see a Failed message,probably an OPEN circuit.

4.4 Once the last stage has passed the display reverts to the normal PASSED one, with all it's possibilities.

```
PASSED 00000001#
```

4.5 Remove the Cable under test, once the No Connection display shows the first stage will be automatically recalled and run.

5. ONE PRESS

This option turns the whole testing process into just pushing one of two buttons:

```
1=Learn 2=Test
```

5.1 Press 1 to learn a new cable, this option can be passworded .

5.2 Press two to run the test, the results options are as with the other test loop option.

Please be aware that the learnt cable details are not catalogued for future use.

6. WIRES

This option allows for a number of of different types of cable to be tested quickly, connections are assumed to be from the A connector to the B connector and pin for pin e.g. 1wire connection would be: A01 to B01 (001 to 065), 2 wires connection would be A01 to B01 and A02 to B02. and so on to the maximum 64 wires.

6.1 Enter the no of wires (connections) and press ENTER, if the number shown is correct (repeating the same type of cable), just press ENTER.

```
000000 01 Wires
```

6.2 LOOP for intermittant connections, once a cable has been tested it is possible to test that cable for intermittant problems by entering 99 wires, this will loop the test until either, a fault occurs or, a key is pressed.

6.3 END WIRES mode, switch the CableJoG unit off and on, press Enter when you see the date prompt, then press 9 this will take you to the Setup menu where you can change test modes.

Menu RECALL 3

This menu deals with the selection of a cable from the stored list and putting the details into the compare memory ready to be used by either the Test or Edit menus.

If the display shows:-

Enter No. _

Enter the four digit password, if the password is incorrect the you will be taken back

to the main menu. If the password is correct or has not been set then the display changes to:-

Recall [y/n]

If you see this display and you don't want to proceed then use the  key to move the cursor under the **n** character and then press ENTER, this will return you to the main menu.

Press ENTER to continue, the display will show:-

01:PrinterCable1

The two digit figure on the left is the cable file number. There is now a choice of methods to move through the file index.

Using the   keys you can scan through until you have recognised the cable you require. The other method is to enter the cable number directly, using the   keys to move between digits.

Press ENTER once you are on the right cable, the cable details will be transferred into the compare memory and you will go back to the main menu.

Self Test cables. There are two self test cables stored in the EPROM. They start with cable number 58. It is possible to edit these details, but the changed cable will have to be stored under a new cable number below 58. For details of the self test cables see Appendix C.

Menu SETUP 2

TEST MODE 4

This option allows the default test modes to be set, this default value is used when a new cable is learnt.

Mode 1 - NO LOOP the test is run just once and the results displayed.

TEST = NO LOOP

if this is what you require then press ENTER, otherwise use the   keys to move through the following modes.

Mode 2 - LOOP the test is run continually until either the unit under test fails or no connections are found. The display will show:-

TEST = LOOP

This is the same display as would be shown if test looping was ON in the first instance, again if this is what you require then press ENTER, otherwise use the   keys to move through the following modes.

Mode 3 - Contin. the test runs continually giving the current results, pressing any key will stop the test. The display will show:-

TEST = CONTIN.

This is the same display as would be shown if continuous testing was ON in the first instance, again if this is what you require then press ENTER, otherwise use the   keys to move through the following modes.

Mode 4 - Staged the test runs continually like mode3 giving the current results, once the cable under test has passed CableJoG looks through the cable store for any more cables with the same first 8 characters in the name. If one is found the stage number is check to see if it is the next one to the current, if so that cable is recalled and the test re-started automatically. After the last stage the Passed ticket is printed (if the printer [y/n] is selected) and the first stage recalled. The display will show:-

TEST = STAGED

Pressing ENTER will cause that option to be set and the display will return to the date and time option.

```
Menu SETUP 0000 2
```

```
TEST DISPLAY 000 3
```

This menu allows you to set the amount of information to be displayed during the TEST operation, the options vary from simply shown Passed or Failed, to shown the connections found and if failed an analysis of the errors. the first display after selecting this menu will depend on what the current setting is.

The possible options are:-

```
PF only 0000 [y/n]
```

```
PF+Err 0000 [y/n]
```

```
PF+Cons 0000 [y/n]
```

```
PF+Er+C 0000 [y/n]
```

If the option shown is what you require then press ENTER, other wise use the  key to move under the **n** character and press ENTER, the display will move onto the next option. The various options are:-

```
PF only 0000 [y/n]
```

This means PASSED or FAILED messages only will be displayed at the end of the Test program. This is particularly useful if there is a large number of cables to be sorted.

```
PF+Err 0000 [y/n]
```

This means that PASSED or FAILED messages will be displayed along with an ERROR report at the end of the Test program.

```
PF+Cons 0000 [y/n]
```

This means that PASSED or FAILED messages will be displayed along with any connections found during the test program. This is particularly useful if used in conjunction with the Loop test option, as it will shown the test progressing.

```
PF+Er+C 0000 [y/n]
```

This option will produce a display of all the connections found as well as a full ERROR report at the end of the test program.

Press ENTER over a **Y** to accept that option, the display will return to the date and time option.

```
Menu STORE 0000 4
```

This menu deals with the transfer of a cables details from compare memory into the cable database.

If the display shows:-

```
Enter No. 0000
```

Enter the four digit password, if the password is incorrect the you will be taken back to the main menu. If the password is correct or has not been set then the display changes to:-

```
Store 0000 [y/n]
```

If you don't need to keep a record of this cable then press  to select **n** then press ENTER. This will take you back to the main menu. Otherwise press ENTER to continue.

Press ENTER the display will prompt:-

```
Sel Number/Name#
```

Press ENTER. The display will show the first cable e.g.:-

```
01:PrinterCable1
```

The two digit figure on the left is the cable file number, press the  key to move onto the first entry. There is now a choice of methods to move through the file index. Using the   keys you can scan through until you either have a vacant position or are over a cable that is no longer relevant. The other method is to enter the cable number directly, using the   keys to move between digits. Press ENTER once you are on the right file, the cursor will move into the filename first character. If this hasn't been used before you will see the letter A :-

```
02:A
```

Use the   keys to move up or down through

the Upper case characters, numbers & lower case characters. Press the  key to move onto the next letter. Use the  key to move back to change a character and finally press ENTER when you have finished. To select a single ended test, enter the % character anywhere in the title, but not the first character. The % character is available by pressing the  key when moving onto a previously blank entry. For further details see the chapter 'SPECIAL USES / SINGLE ENDED TESTS'.

```
Store 02: [y/n]
```

Press ENTER to store the cable details and return to the main menu. Or use the  key to select **n** and press ENTER the display will show:-

```
Delete 02: [y/n]
```

This gives you the option to remove a cable from the register, again use the  key to select **n** and press ENTER if you don't want to delete this cable.

```
Menu EDIT 00005
```

```
Edit New Cable
```

This menu deals with the process of changing the details of an existing cable or entering details of a new cable from a wire list. If the display shows:-

```
Enter No. 00000
```

Enter the four digit password, if the password is incorrect the you will be taken back to the main menu. If the password is correct or has not been set then the display changes to:-

```
Edit 0000 [y/n]
```

If you don't want to proceed then use the  key to move the cursor under the **n** character and then press ENTER, this will return you to the main menu.

Press ENTER to continue, if there is no cable in the compare memory the display will show:-

```
New Cable 0 [y/n]
```

If you intended to edit an existing cable then use the  key to move the cursor under the **n** character and then press ENTER, this will take you to the recall menu. If you wish to enter a cable's details from a wiring list then press ENTER to continue, the display will show:-

```
Sel. Conns. [y/n]
```

As described in earlier chapters CableJoG works on a three character label for each pin, if you don't want to use this system use the  key to move the cursor under the **n** character and then press ENTER. Each pin label will now be it's actual pin number. The program moves onto Cable Ready.

Otherwise, to choose the type of connectors used, press ENTER again the display will show the first connector type:-

```
A: 64w IDC [y/n]
```

Press ENTER if this is not the correct connector type, otherwise press  to move the cursor under the **Y** character, then press ENTER to move onto the next connector. The connector types currently supported can be seen in Appendix B.

Once one of the options has been accepted you have to choose the connectors position within the two 64 way IDC connectors. Connector A has pins with address numbers 001 to 064, connector B has pin addresses 065 to 128. The display will show:-

```
Pin 1 addr 001
```

```
Menu SETUP 00009
```

```
POWER DOWN 00002
```

CableJoG has a power down feature where the microprocessor is switched off after a set period of inaction, this menu allows you to set that period from a minimum of 1 minute (factory setting) through to 99 minutes or never powering down (00).

The display will show the current setting and the cursor will appear under the least significant digit:-

```
PWR DOWN 01 min
```

you can use the     keys to adjust the time, or enter the digits from the keyboard.

will leave the unit powered on all the time.

```
PWR DOWN 00 min
```

Once you have set the time amount press ENTER, the display will show the result:-

```
PWR DOWN 00 min
```

Press ENTER, the display will return to the date and time option.


```
Menu EDIT      5
```

```
Edit Cable 01
```

If a cable is already in compare memory the display will show it and prompt the operator to edit it:-

```
Edit 01 [y/n]
```

If this is not the right cable then use the  key to position the cursor under the **n** character and press ENTER, this will enable you to choose another cable using the Recall menu.

If this is the correct cable then press ENTER, the display will show:-

```
Edit Pins [y/n]
```

This option allows the user change any or all of the 128 pin labels. If there is no need to modify the pin labels then use the  key to position the cursor under the **n** character and press ENTER, otherwise the display will show:-

```
001 Label= A01
```

The first three numbers (001) represent the pin address, see the Fundamentals chapter for when details on pin addresses and connector pins, use the     keys to move around the addresses until the correct one is displayed, press ENTER.

```
001 Label= A01
```

The cursor is now under the label that will represent pin address 001. Using the arrow and numeric keys the label can be changed to whatever is required. This feature means that connectors using letters for pin numbers can easily be accommodated. Press ENTER when the label is correct. The display will show the ENTER symbol, if you have made a mistake press the  key to go back to editing the label, otherwise press ENTER again to accept the new label.

```
001 Label= A01 e
```

The display will change from:-

```
Label Changed e
```

To:-
And:-

```
Another [y/n]
```

If another label is to be edited then press ENTER, other wise press the  key to move the cursor under the **n** key and press ENTER.

```
Menu SETUP    9
```

```
DATE & TIME  0
```

This menu deals with the setting/changing of system parameters.

If the display shows:-

```
Enter No. [ ]
```

Enter the four digit password, if the password is incorrect the you will be taken back to the main menu.

If the password is correct or has not been set then the display changes to:-

```
Setup [y/n]
```

If you don't want to change the system parameters then press  to select **n** then press ENTER. This will take you back to the main menu. Otherwise press ENTER to continue. The display will show the first option:-

```
DATE & TIME  0
```

If you don't want to change the date and time values then either use the   keys to select another sub-menu or enter the number corresponding to the subs-menu number you require.

Setting the date and time, the display will show the current date and time:-

```
13:05 01/12/15
```

Using the numeric keys and the   keys adjust the date and time to the correct value, when finished press ENTER.

The display verifies the new date:-

```
Date 01/12/15 e
```

and new time:-

```
Time 13:05:01 e
```

Press ENTER:-

```
OK? [y/n]
```

If everything is correct press ENTER, If there is an error then press  to select **n** then press ENTER. This will take you back to changing the date and time.

Menu EDIT

Edit Date Stamp

Another of the test options that can be set for each cable type individually is the Date and Time stamping of each cable tested:-

01. B01 to A02

If you do not want to edit this option then use the  key to position the cursor under the **n** character and press ENTER, this will take you to the next option.

If you do want to edit the Date and Time stamp, then press ENTER, the display will show:-

Enter DateStamp

Press ENTER, if this has not been set before then the display will show (default):-

Set - - - - -

Using the   keys you scroll through the date and time options.

Y	=	Year
M	=	Month
D	=	Day
h	=	hours
m	=	minutes
s	=	seconds

Once a value has been set, that value will be attached to each cable tested, there are 6 positions giving a maximum of hmsDMY. Press ENTER when the correct date and time format has been entered. The display will show the ENTER key at the right hand position.

Press ENTER the display will confirm the changes:-

Stamp Changed

Press ENTER again to move onto the next cable option.

Set h-m-s-D-M-Y

Example of full time and date stamp:-

Set h-m-s- - - -

Menu SEND

Send BATCH

This menu deals with the transfer of Batch test results from CableJoG to CableJoG Command Program (C.C.P.). When enabled, CableJoG uses any spare cable memory area past the last cable as a print buffer. During testing the results are stored away and held even if the unit is switched off. Then when a PC running C.C.P. is available the results can be transferred. For details on how to set this see chapter menu SETUP RESULTS.

If the display shows:-

Enter No. _ _ _ _

Enter the four digit password, if the password is incorrect the you will be taken back to the main menu. If the password is correct or has not been set then the display changes to:-

Send [y/n]

If you see this display and you don't want to proceed then use the  key to move the cursor under the **n** character and then press ENTER, this will return you to the main menu.

Press ENTER to continue, if there are any results to print from the batch buffer then the display will show:-

Send BATCH [y/n]

If you don't want to send the results use the  key to move the cursor under the **n** character and then press ENTER the display will show (For details on this option see next page .).

If you do want to send the batch results then make sure you have CableJoG connected and ready. Press ENTER, if you see:-

Waiting for CTS

then the link is either not ready or not connected, correct this fault or press any key to break out of printing.

The display will change to:-

Abort Comms [y/n]

If sending has taken place the display will change to:-

Results SENT

press ENTER, CableJoG then re-initialises itself going through the power on sequence of date, time, operator and password (if used).

```
Menu RECEIVE 7
```

```
REMOTE LINK
```

If you entered to the Receive prompt the display will show:-

```
Remote Link[y/n]
```

This allows the CableJoG unit to be controlled from CableJoG Command Program (C.C.P.). If you see you don't want to proceed then use the  key to move the cursor under the n character and then press ENTER, this will return you to the main menu.

Press ENTER to continue, the display will show:-

```
Remote Link ON
```

```
Menu EDIT 5
```

```
Edit Test Mode
```

Another of the options that can be set for each cable type individually is the test routine itself. The test routine operates in one of five modes.

The display will show:-

```
Edit Test [y/n]
```

If you do not want to edit this option then use the  key to position the cursor under the n character and press ENTER, this will take you to the next option.

Press ENTER, the first and default mode will be displayed:-

```
TEST = NO LOOP
```

Mode 1 - NO LOOP the test is run just once and the results displayed. If this is what you require then press ENTER, otherwise use the  key to move onto the next mode.

Mode 2 - LOOP the test is run continually until either the unit under test fails or no connections are found.

The display will show:-

```
TEST = LOOP
```

If this is what you require then press ENTER, otherwise use the  key to move onto the next mode.

Mode 3 - Cont. the test runs continually giving the current results, pressing any key will stop the test. The display will show:-

```
TEST = CONTIN.
```

If this is what you require then press ENTER, otherwise use the  key to move onto the next mode. See next page.

```
Menu EDIT      5
```

```
Edit Test Mode
```

Mode 4 - Staged testing, actual test mode is as for continuous, but once passed the NEXT stage is automatically loaded. The display will show:-

```
TEST = STAGED
```

If this is what you require then press ENTER, otherwise use the  key to move back to the first mode.

After confirming the option the display will show:-

```
Stage Number 01
```

Select the stage number for this cable, 1 is the first stage option.

NOTE:

1. The first 8 characters of the cable name need to be the same for each cable stage.
2. The passed display and printout will happen on completion of the last stage.

Mode 5 - PRESS ONE BUTTON

```
TEST = PRESS ON
```

This mode set the CableJoG unit to use only one button to run the test, everytime the 1 key is pressed the test will run. This option also makes learning into a one button press. However, you can not assign any labels at the learning stage.

If there are no results to display you will see:

```
1=Learn 2=Test
```

All of the other menu s still work but, can't be accessed using the arrow keys.

```
Menu RECEIVE  7
```

This menu allows the transfer of cable details from CableJoG Command Program (C.C.P.) into the cable register, if the display shows:-

```
Enter No.  _
```

Enter the four digit password, if the password is incorrect then you will be taken back to the main menu. If the password is correct or has not been set then the display changes to:-

```
Receive [y/n]
```

If you see this display and you don't want to proceed then use the  key to move the cursor under the n character and then press ENTER, this will give you the option of running the CableJoG unit from a PC using C.C.P. (see below).

Otherwise, press ENTER to continue, the display will show:-

```
Receiving
```

Following the instructions for C.C.P. a Cable Profile is chosen and sent to CableJoG128. During receiving the display reflects the number of cables currently received.:-

```
Received Cab 01
```

Finishing off with:-

```
..End of File(s)
```

```
Menu PRINT 0000 6
```

```
Print 0000 CABLE
```

```
Print 0000 LIST
```

This option enables the details of a particular cable to be printed.

```
PrintCABLE [y/n]
```

If you see this display and you don't want to proceed then use the  key to move the cursor under the **n** character and then press ENTER the display will show:-

```
Print LIST [y/n]
```

This option prints out the cable store catalogue with any staged details.

Press ENTER to print or use the  key to move the cursor under the **n** character and then press ENTER the display will show:-

```
Print 01 [y/n]
```

Press ENTER to print a cable, CableJoG tries to print the details for the cable in compare memory. In this example it is number 01:-

```
01:PrinterCable1
```

If this is not the cable you want to print the details of then use the  key to move the cursor under the **n** character and then press ENTER, this will take you into the cable register and allow selection of the cable to print.

The two digit figure on the left is the cable file number. There is now a choice of methods to move through the file index. Using the   keys you can scan through until you have recognised the cable you require. The other method is to enter the cable number directly, using the   keys to move between digits.

Press ENTER once you are on the right cable, the cable details will be transferred to the printer, when finished the display will show:-

```
Cable PRINTED
```

For examples of print out's see Appendix D.

```
Menu EDIT 0000 5
```

```
Edit Connections
```

This option allows the actual connections of this cable to be edited.

```
Edit Conns [y/n]
```

If you do not want to edit the connections then use the  key to position the cursor under the **n** character and press ENTER, this will take out of the edit cable menu. Remember that the editing is carried out on the details in compare memory and although you will be able to test cables against these settings you have not saved them, to do so use menu STORE.

If you do want to edit the Connections, then press ENTER, the display will show:-

```
Enter Connectn.
```

Press ENTER, if you are editing a new cable then there won't actually be any connections and the display will show:-

```
01. A00 to A00
```

This of course isn't an actual connection, but identifies a vacant entry. If you are editing a cable that is already in compare memory (in this example it is cable number 01) the display might show:-

```
01. A01 to B01
```

The two digit figure on the left is the cable connection number, press the  key to move onto the first entry.

Use the     keys to select the correct line entry, if you are just starting to enter a wire list then only line 01 is valid. Press ENTER to move into the details area. The cursor will move underneath the first 'A' character. To change this to 'B' press the  key, continue to use the     keys to move along the line and change any or all the details. The only rule to remember is that the left hand detail must be less than the right hand detail. For example:-

```
01. A01 to A02
```

Is valid, but:-

```
01. B01 to A02
```

is not because B01 has an address of 65 and A02 is 2 and will produce an error message:-

```
Err From addr>To
```

```
Menu EDIT 00005
```

```
Edit Connections
```

Once you are satisfied with the details press ENTER. The display will show:-

```
InsertLine [y/n]
```

If you don't want to proceed then use the  key to move the cursor under the **n** character and then press ENTER, this will restore the line to what it was and return you to the line number part. Pressing ENTER will insert this line in the correct place in the compare table. You may find that it is not where you expected it to be, this will be because you have chosen a connector with a different pin numbering scheme to a standard 64way IDC header. The pin number you see will always correspond to the actual number by that pin in the real connector.

By pressing the ENTER key the display will show the entry in its correct location.

If you wish to Delete then once the cursor is in the details area Press ENTER without changing any of the details, the display will show:-

```
DeleteLine [y/n]
```

If you want to delete the line then press the  key to position the cursor under the **Y** character and press ENTER. The display will remove those details and display next connection in the current position. e.g. if the cable was:-

```
01. A01 to B01
```

```
02. A02 to B02
```

then after deleting the second entry, the table would look like:-

```
01. A01 to B01
```

To complete editing is similar to Deleting a line, that is you have to be on a valid unchanged line then press ENTER.

The display will show:-

```
DeleteLine [y/n]
```

This time press ENTER and the display will change to:-

```
Cable Done [y/n]
```

If you've made a mistake then use the  key

to move the cursor over the **n** character and then press ENTER, this will return you to the line you were editing, otherwise press ENTER and the display will return to the main menu. Remember that the editing is carried out on the details in compare memory and although you will be able to test cables against these settings you have not saved them, to do so use menu STORE.

```
Menu PRINT 0006
```

```
Print 0000 BATCH
```

This menu deals with the printer batch output. When enabled, CableJoG uses any spare cable memory area past the last cable as a print buffer. During testing the results are stored away and held even if the unit is switched off. Then when a printer is available the results can be printed using this option. For details on how to set this see chapter menu SETUP PRINTER.

If the display shows:-

```
Enter No. 00000
```

Enter the four digit password, if the password is incorrect the you will be taken back to the main menu.

If the password is correct or has not been set then the display changes to:-

```
Print 0000 [y/n]
```

If you see this display and you don't want to proceed then use the  key to move the cursor under the **n** character and then press ENTER, this will return you to the main menu.

Press ENTER to continue, if there are any results to print from the batch buffer then the display will show:-

```
PrintBATCH [y/n]
```

If you don't want to print the results use the  key to move the cursor under the **n** character and then press ENTER the display will show (For details on this option see next page.):-

```
PrintCABLE [y/n]
```

If you do want to print the batch results then make sure you have the printer connected and ready. Press ENTER, if you see:-

```
Waiting for CTS
```

then the printer is either not ready or not connected, correct this fault or press any key to break out of printing. The display will change to:-

```
Abort Comms [y/n]
```

If printing has taken place the display will change to:-

```
Results PRINTED
```

press ENTER, this batch buffer will be cleared and its value shown briefly:-

```
Comms Buff =18K
```

CableJoG then re-initialises itself, going through the power on sequence of date, time, operator and password (if used). For examples of print out's see Appendix D.