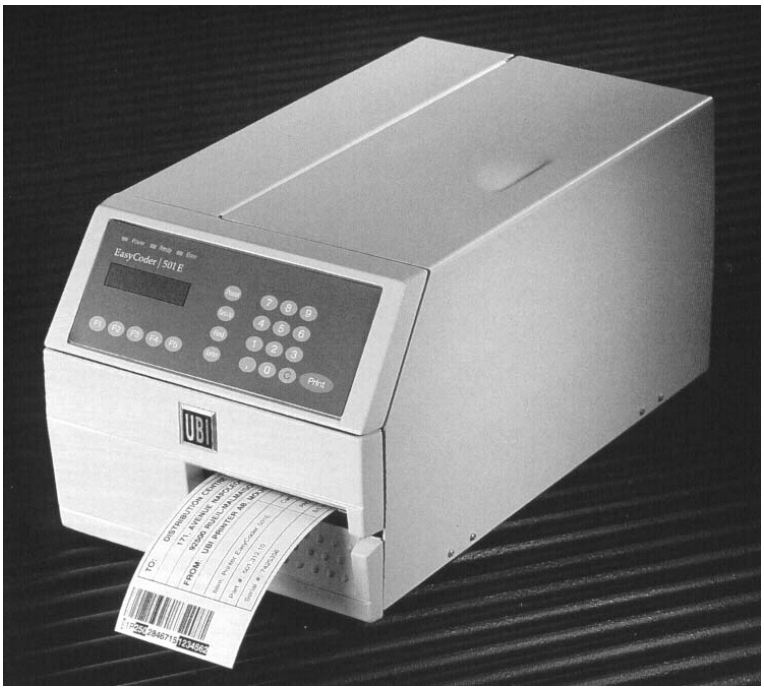
Label Printer

Introduction

For day to day operation please refer to the User Manual supplied.

The label printer used in Multiflex systems is the Intermec EasyCoder. Three models are available, the smaller 201E, the larger 501E unit and a high speed version of the 501 known as the 501XP. The most common unit is the 501E.

The printer is intelligent and is fitted with 1Mb of internal memory and its own processor. This means that the printer stores and processes label designs internally, removing this processing load from the Multiflex software.



The printer has a two line display and a numeric keypad that are used to configure the unit. They are not used in normal operation with Multiflex.

CCE Firmware

The EasyCoder printer is supplied with firmware (EPROM chips) known as FingerPrint - originally developed by UBI and now supplied by Intermec. When configured into a Multiflex system, this firmware is extended with Scanvaegt's own firmware known as CCE. CCE replaces some of the functions of FingerPrint; software information supplied by UBI/Intermec may not be applicable.

You use the CCE firmware to configure your specific labels in terms of their size, paper type, etc as well as the print contrast, resolution and print speed.

The current version of CCE firmware is 11.04 and this version number is displayed on the front panel of the printer.

Powering On

We recommend that printers are left powered on continually. This gives fewer problems with condensation in cold situations. There is no danger of over-heating inside a closed printer cabinet.

When powered on, the printer automatically loads the CCE program from EPROM. The printer memory holds all previous settings and parameters, so the printer will usually be ready to go. However if the memory battery is low or failed, factory default CCE settings may have been reset and you will need to reset your specific parameters.

From power on to ready takes about 2 minutes. The printer signals ready when both green Power and Ready lights are lit.

Cabling from 8362 to Printer

The Multiflex system allows the printer communications to be either 20mA Current Loop or RS-232 serial. Both the 8362 and the printer can be configured for either. Our preference is to use the RS-232 serial and this is how most units are configured in North America. The printer itself has a jumper on the main board allowing it to be switched between CL and RS232.

A single 3-core cable runs from the 8362 back box to a 25 pin D connector at the printer, The 8362 can support 2 printers one on COM1 and the other on COM2. When one printer is used it is normal to cable it to COM2.

A single printer is cabled to connector P6 inside the 8362 back box as follows:

P6 / T+	connects to	DB25 pin 3
P6 / R+	connects to	DB25 pin 2
P6 / Ground	connects to	DB25 pin 7

Logical Printer Numbers

Multiflex has a logical assignment for each printer which is specified in the PORTxxxx.DAT file for Multiflex 250. This file allows you to decide which printer should be logical printer # 1 and which should be # 2. Logical printer # 1 is used by Multiflex for the individual label and # 2 is used for the sum label (Tray and Case, or Case and Pallet for example).

Verifying 8362 to Printer communication

After installing a new printer or performing maintenance you can verify that the 8362 and printer are communicating with each other by using the “Hardware” section of the MF250 Supervisor menu.

Downloading Label Designs

Multiflex label designs reside in the printer and cannot be printed until they have been downloaded from the 8362. During label design, the labels for your application are stored in files called LABRECxx.DAT in the MF3000\D folder. Here there is one file for each Multiflex Description. Label Designs will remain in the printer even during power off, so they should only need to be downloaded once after each change to design.

Label Design download functions are in the MF250 Supervisor Menu.

Maintenance

The most important maintenance issue is to clean the printhead. Regular cleaning significantly increases the life of a printhead. The print head can be cleaned either with the manufacturer supplied cleaning card or by using a Q-tip with isopropyl alcohol. The degree of cleaning which is necessary will depend on your environment and on the amount of use.

Other than the printhead, there are no maintenance issues other than to wipe clean the printer and to regularly vacuum out any dust or chaff from inside the label roll compartment and from the outside of the printer. Keep the printer as free as possible from dust and dirt – warehouse and box packaging areas are very dusty and when this dust collects on the labels and is fed through the printhead the head will be damaged.

The printer is not wash-down and will be damaged by water. Make sure that the printer cabinet door fits tightly and is closed at end of day. Repair or replace any door that is warped or damaged such that the watertight seal is compromised.

Error Codes

The following list is not exhaustive. It contains the most common error codes and their meaning. These errors are displayed on the front panel of the printer.

Code	Meaning
1003	An individual field is outside the defined printable area. Check the width and length settings for the printable area by doing an F4 test pattern. Also check the label design.
1022	Head lifted. Lower print head
1027	Out of ribbon. If you are using direct thermal paper (no ribbon) this message is the first indication that the printer parameters have been lost – refer to the last paragraphs of this section.
1031	Problem seeing the label gap. Check paper path and LSS adjustment.

Print Head – Replacing and Adjusting

The print head is a maintenance item and will need replacing at regular intervals. The life expectancy of a print head will vary and is affected by the following factors:

- Paper Quality
- Dusty or dirty environments
- Physical attack with sharp objects (knives, screwdrivers, etc)
- The number of labels printed
- The pressure setting of the printhead
- The contrast of the print
- The amount of black on the label (more black = less lifespan)

Your first indication that a print head might need replacing will be one or more white lines running through the label in the direction of travel. Each of these white lines indicates that a print element has failed and can no longer heat up sufficiently to blacken the paper. You may still manage to get many more labels from a print head that shows white lines, but eventually the head will degrade to the point where the label becomes un-readable.

Although printing is marginally slower, we do recommend that bar codes are printed in “ladder” style so that any white lines that appear will intersect right/left across the bar code instead of up and down the bar code. The bar code will prove un-scannable with white lines running in an up/down direction. A right/left line still allows the bar code to be scanned.

To Replace a Printhead

1. Power off the printer

2. Open the front door and the right hand side cover

3. Lift the printhead

4. Remove the transfer ribbon (if fitted)

5. Turn the printhead locking lever counter clockwise to the open position

6. The printhead assembly will now be free and can be removed as far as the cables allow

7. Disconnect the two cables by pulling on the connectors – do not pull on the cables !

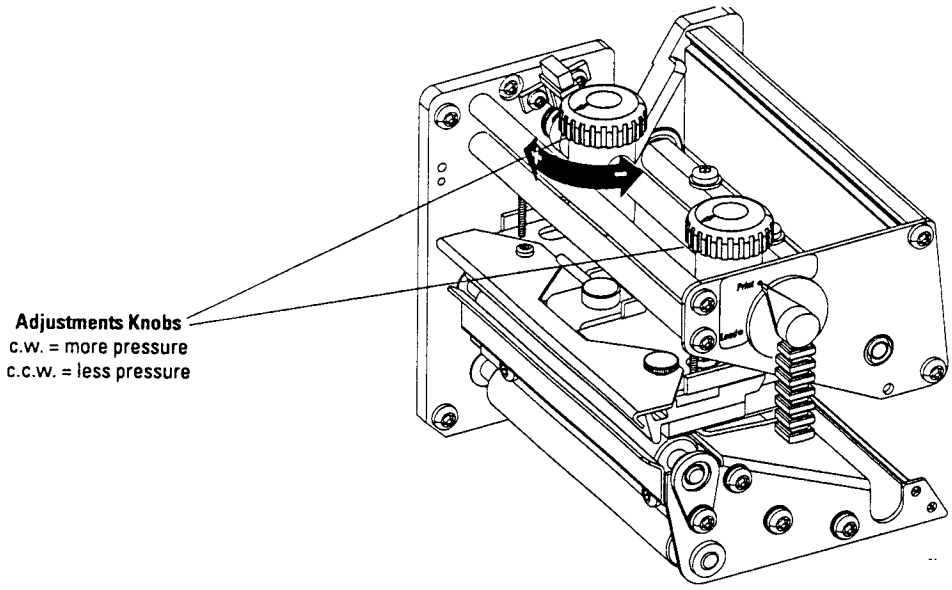
8. Reconnect the cables to the new printhead and reassemble

Printhead Adjustment

The printhead must be pressed against the grey rubber pressing roller in order that heat can be transferred to the paper. There must also be sufficient pressure to create friction enough to drive the paper. The pressure is factory set, but may be adjusted if print quality is poor – for example if one side of the label is much fainter or darker than the other.

Do not adjust with too much pressure – only enough to produce the required print quality.

The print head assembly has two adjustable spring packages that are fitted with adjusting knobs.



1. Start by making a rough adjustment by turning both knobs clockwise as far as they will go to maximum pressure

2. Release the pressure of the inner knob by turning counter clockwise 2¼ turns (9 clicks)

3. Release the pressure on the outer knob by 2 turns (8 clicks)

4. Now fine tune the pressure by turning the outer knob while retaining the setting for the inner knob. If the desired result cannot be obtained, increase or decrease the pressure by turning both knobs a quarter turn in the same direction and then fine adjust the outer one.

Thermal printheads – operation and dots per inch resolution

The printhead consists of a line of very small, closely spaced resistors on a ceramic tile fitted across the line of print. When a current is fed through the resistors, commonly called “dots”, these will be heated very quickly. When the current is shut off the dots cool down just as fast.

As the paper is fed past these dots the hot dots will produce a number of black spots on the thermal paper. Thermal paper is a special paper coated with a thin layer of heat sensitive chemicals that react with heat to produce a dark salt. The black spots produced by the head are combined to form letters, bar codes and images.

When using a transfer ribbon, the same heat “melts” the wax from the ribbon and fixes it onto the paper.

The printhead has a fixed resolution expressed as a number of dots per inch or per mm. The standard head for the 501E has a resolution of 8 dots/mm or 203 dots per inch. A higher resolution head is available as an option and is directly interchangeable. The higher resolution head is 11.8 dots per mm or 300 dots per inch. The printhead resolution is the basis for all the calculations regarding print width and print positions. When scanning logos for use on a standard printhead for example, it is necessary to scan as close to 203 dots per inch resolution as possible.

Problems when Loading a Roll of Labels

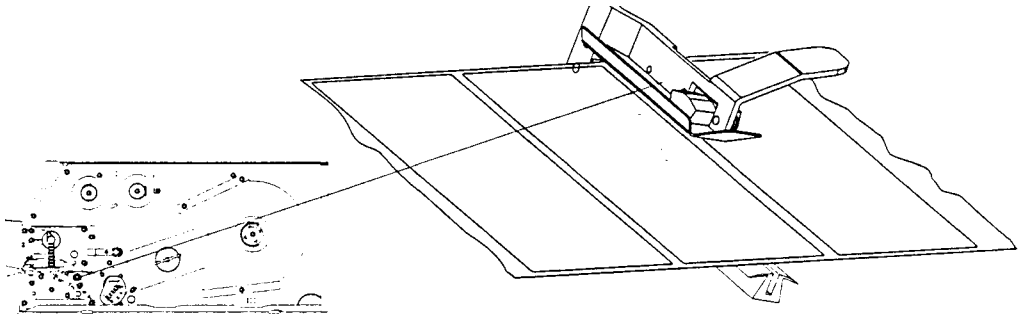
This section applies to users with peel off labels - “Labels with Gaps”. If you are using Fixed or Variable Length Strip please disregard this section.

After loading a new roll, press [C] and [FEED] keys together. This auto adjusts the label gap sensor and feeds two blank labels. If this fails with the red error light and the 1031 message, please read on.

- To start with, make sure that your printer is configured for “Label with Gaps”. This Media Type setting is easily accessible and might have been changed inadvertently.

- Use the diagram on the side of the printer door to make sure the paper path is correct. Pay particular attention to the Label Gap Sensor, and make sure that the

paper correctly sits underneath this sensor (see diagram below). The sensor can be moved on a sliding rail and sometimes can be pushed too far into the printer. Our advice is to have this sensor pulled out as far as possible on its rail to make sure that the photo-cells are positioned over the center of the label. Also make sure that the sensor photo-cells (top and bottom) are clean and not obscured by old labels or chaff.



- If you continue to have problems obtaining a satisfactory [C] and [FEED], please refer to the section on adjusting the Label Stop Sensor (LSS)

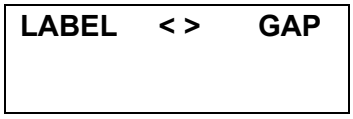
Adjusting the Label Stop Sensor

In order to stop the label at each gap, the LSS photo-eye needs to be able to differentiate between a total absence of paper, the backing paper (which is semi transparent) and the label fixed to the backing paper. Normally there is no need to adjust this sensor, but there may be a need if you have changed label suppliers or if the LSS photo-eye is dirty.

This procedure allows you to adjust the LSS to optimal values for both backing paper and labels.

Follow the Advanced Setup [C] + [SETUP] paragraph later in this section in order to access the UBI Setup Menu. From this menu, choose DETECTION followed by LSS ADJUST.

Adjustment is made in a small menu such as the one below:



A block cursor can be moved between the right and left hand side of this screen using the F4 and F5 keys. F4 decreases the sensitivity, F5 increases it.

Step 1
Insert a piece of backing paper only (labels peeled off) between the LSS sensor legs making sure that it extends all the way to the center wall of the printer. It should be positioned as it would be when labels are loaded. The block cursor should be positioned at the **left hand side** of the “gap” part of the menu, just to the right of the center pointers. If necessary, adjust it using F4 and F5.

Step 2
Remove the backing paper so that there is nothing between the LSS sensor legs. The cursor should jump at least two positions to the right towards “gap”. If necessary, adjust it using F4 and F5.

Step 3
Insert a label on the backing paper so that the LSS is looking at the label itself. The block cursor should jump at least two positions to the left of where it was in Step 1. If necessary, adjust it using F4 and F5.

Keyboard Functions

The following functions are available when the printer is in normal operation:

[F1]
Used for setting the number of copies of a specific label design, and for disabling and enabling the Label Taken Sensor. This function is password protected. See later paragraph “Label Count Configuration”.

[F2]
Used to enter the number of labels left on the roll and to receive a warning from the printer when there are less than 10 labels remaining. Used typically when a new label roll is loaded. Entering zero disables this function.

[F4]
Prints a grid showing the printable area. Use this as a test print to make sure that the labels are positioned correctly. The length and width are adjustable in the CCE Setup. The grid should fit all of the label and should not stray off either edge. When printing, the paper acts as a cooling media for the printhead - if you print over the sides of the paper, your printhead can be damaged by overheating.

[F5]
Prints your specific setup parameters. Useful to check the setup or to use to set up a second printer.

[C] + [F1]
Prints timing information and any errors for the previous label.

[C] + [F2]
Prints layout information for the previous label

[C] + [F4]
Prints the layout grid superimposed on top of the previous label

[C] + [F5]
Used to directly delete text files and logos from the printers memory instead of using the MF250 interface. This is password protected. See later paragraph “ Text Files and Logos”

[SETUP]
Set Up functions for the labels. This is password protected. See later paragraph “Label Set Up”

[C] + [SETUP]
Advanced Set Up for the printer. This is password protected. See later paragraph “Advanced Set Up”

[FEED]
Advances one blank label

[C] + [FEED]
Used after loading a new roll of labels. This function auto adjusts the label gap sensor and feeds two blank labels. If this fails (red error light and error 1031) please refer to the section below “Problems when loading a roll of labels”

[C]
Clears an error condition and removes the red error light.

[C] + [PAUSE]
Stops the CCE program

[PRINT]
The function of this key varies depending on the setup in the [F1] key.

Normally printers are set up to automatically print and present the label after each registration and in this default configuration this key repeats the previous label. Reprint must be used ONLY to obtain a re-print in the event that the first label has been damaged or mis-printed. The re-printed label is identical to the original and cannot be used to label a second box or tray.

As an option, the printer can be configured to not allow a reprint label. This is done by configuring a negative count in the [F1] Label Count function.

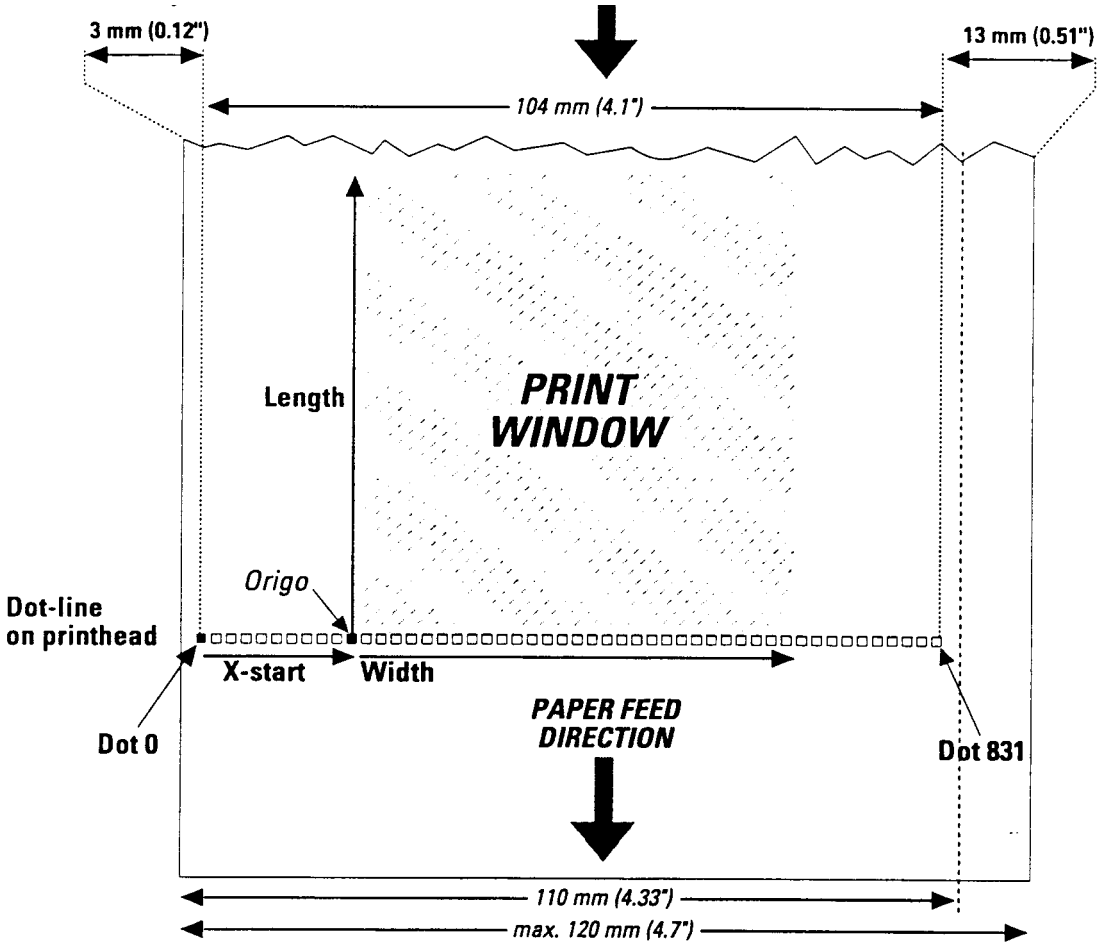
[C] + [PRINT]
Prints a test label

Label Set Up

Label Set Up allows you to define the type of label and its size. You get to these settings by pressing the [SETUP] key on the printer and entering the password 707201.

Using the F4 and F5 keys you can step through the following menu. Press [ENTER] to select one of these 6 options. Once you have finished making changes use [SETUP] to exit:

- WIDTH
- LENGTH
- START ADJ
- STOP ADJ
- XSTART
- MEDIA TYPE



The diagram above explains the meaning of **Width**, **Length**, and **X-Start**. These three settings make a “print window” in which all print fields must fit. A field defined outside this

window will cause an error 1003 at print time. All three settings are defined in terms of number of dots – this diagram is for a standard 203dpi printhead (8 dots/mm) which has a maximum print width of 831 dots (or 104mm). The higher resolution printhead has the same maximum print width in mm, but has 1279 dots. You must calculate your settings for Width, Length and X-Start to suit your printhead !

- Increasing the value of X-Start gives you a wider left hand margin
- The sum of X-Start and Width cannot exceed 831 for a standard printhead or 1279 for a high resolution printhead

Example
For a label size 120 x 80mm with no left hand margin on a standard printhead, X-Start=0, Width=640, Length=960

Start and Stop Adjust

These two settings control the amount of feed of the label before and after printing. For peel off labels, the label must be fed out of the printer sufficiently to be removed (but without falling to the floor), and after printing the next label must be pulled back to position the print correctly.

Again, these are specified in terms of number of dots. The settings below are recommended for peel off labels. If you are using a label applicator, the settings are likely to be different.

Use the "," key to generate a negative sign.

Start Adjust (for 8 dots/mm)	=	-90	(pull back 11mm before printing)
Stop Adjust	=	24	(advance 3 mm after printing)

Media Type

There are 4 different options available in this menu (select using F4 and F5).

- Label (w gaps) Adhesive peel off labels on backing paper (typical)
- Ticket (w gaps) Tickets and tags with detection slits
- Fix Length Strip The "Length" parameter controls the feed
- Var Length Strip The printer adds paper feed after printing to allow tear off

Label Count Configuration [F1]

This feature allows you to specify the number of labels (copies) that you want printed for each Multiflex registration. This is frequently used when two or more labels are required on one box or when printing batches of repeat labels.

Note that the labels printed are EXACT copies – this feature will not increment box or serial numbers. Only use this feature if you are happy that the labels you are printing can to be identical.

This feature is password protected. The password is 707201.

After entry of the password, the printer asks for the label design number for which you want to specify multiple copies. Enter two digits. Then enter the number of copies that you want to print.

- Choosing label design number 999 will allow you to specify counts for all labels.
- Specifying a label count of zero will inhibit automatic printing and wait for the PRINT key to be pressed before printing the label. A subsequent registration in this mode will overwrite the non-printed label.
- Specifying a negative number of labels (using the comma key [,]) will inhibit the PRINT key so that operators cannot print extra label copies

Press ENTER to return to normal running at the Label Design Number prompt.

Label Taken Sensor

This feature also allows you to enable and disable the label taken sensor on your printer. This sensor is usually enabled for peel off labels to ensure that the next label is not printed before the previous label has been taken by the operator. The sensor is visible just above the label dispensing slot in front of the printhead.

Specify label design 0 to access the LTS Enable / Disable feature.

You may wish to disable the sensor if you are temporarily feeding labels on the backing paper – bulk labels for example.

Text Files and Logos [C] + [F5]

This function allows you to control the text files and logos that have previously been downloaded to the printer from the MF250 station.

It is good practice to delete text files and logos that are no longer used. This frees memory in the printer and makes it available for new label designs, text and logos.

The function is password protected with password 707201.

You have 7 menu entries accessible with the F4 and F5 keys:

PRINT TEXT FILES	Prints the content of a selected text file. F5 displays the name of the next file, ENTER prints the contents
PRINT LOGOS	As for text files, F5 allows you to step from one logo to the next. ENTER prints the logo.
PRINT FILE LIST	Prints a list of files, fonts and logo images that have been downloaded.
* REMOVE LOGOS *	Use F5 to step from one logo to the next. ENTER deletes a logo
* REMOVE TEXTS *	Use F5 to step from one file to the next. ENTER deletes a text file.
* REMOVE DESIGNS *	This deletes all label designs from the printers memory (similar to the Clear Label Printer function in MF250)
HARDWARE STATUS	Prints a list of hardware information.

Advanced Set Up [C] + [SETUP]

Advanced Set Up provides access to the Intermec / UBI firmware parameters. Many of these parameters are crucial to the continuing operation of your printer and should only be changed if you are confident of what you are doing.

The password for this set up is 101300.

The first level of menu provides 4 options. Use F4 and F5 to move up and down this menu and ENTER to select an option.

CONTRAST

This allows you to change the “blackness” of the print out. The displays shows a block cursor with maximum contrast (more black) to the right, and minimum contrast (less black) to the left. Use F4 to decrease (cursor moves left), and F5 to increase (cursor moves right).

Be careful that too high a contrast will shorten the life of your printhead.

SER-COM

This allows the communication parameters to be modified for communication with the 8362. All parameters are pre-set by CCE except for the Baudrate (this means that changes to the other SER-COM parameters will have no effect). The baudrate entered here must agree with the baudrate specified in the MF250 PORTxxxx.DAT file.

DETECTION

Press ENTER to get to the LSS Adjust option (see earlier section). FEED ADJUST is also in this menu, but these settings are available from the normal SETUP menu.

SERVICE

This option is password protected with password 1138.
Only the following settings are relevant (others are either set automatically by CCE or are available in the normal SETUP menu)

PRINT DEFS

This option displays three further options.

- HEAD RESIST is the printhead resistance and this is automatically measured at start up. The value cannot be changed except by mechanical adjustment.
- PAPER TYPE allows you to change the paper type. Be careful – if you have a ribbon loaded and you select a direct thermal paper type the printer will not print. Conversely, if you have no ribbon loaded and you select a thermal transfer paper type the printer will not print (error 1027).

Option	Direct or Ribbon	Comments
RICOH 130	Direct	
KANZAKI 86S	Direct	
UBI DT 110	Direct	Recommended
UBI DT 110 +	Direct	Recommended

UBI DT 110 ++	Direct	
UBI DT 120	Direct	
UBI HP 20	Ribbon	
UBI HP 21	Ribbon	

- TESTPRINT prints 4 different test labels.

PERFORMANCE

You can change print speed between one of three settings using F5. NORMAL, HIGH and ULTRA HIGH. ULTRA HIGH is not recommended for bar code printing.

MEMORY ALLOC

- IMAGE BUFF SIZE is normally OK at 48K. This can be increased if you find that the last part of a label is printing slowly.
- REC BUF UART1 is set by CCE and should not be changed
- TRANS BUF UART1 should be left at 300

How to Reset Parameters to Initial Settings

On rare occasions we have received reports that printers appear to have mysteriously lost their configuration parameters. Usually the first indication of this is an error message “Out of Ribbon” indicating that the factory default paper type is now in place.

The cause of this is usually due to a dead RAM backup battery in the printer. Normally if the printer is left powered on, the dead battery has no effect. However it is noticed after power is off for a protrcated period, perhaps for maintenance.

These instructions step you through resetting the printer - first to clear the RAM memory and then to reset those parameters which are relevant to your installation.

1. Reset to Factory settings

This routine resets the printer to a known starting point

SCANVAEGT CCE+ VERSION CCE11.03

Press and hold [C] and at the same time press [Setup]

UBI SETUP PASSWD:

Key 101300 and press [Enter]

SETUP CONTRAST

Press [F5] three times

SETUP SERVICE

Press [Enter]

SETUP PASSWD:

Key 491601 and press [Enter]

RESETTING RAM PLEASE WAIT

Setup lost !!! - Press any key -

Press [C]

After a delay “Loading program” and “Initialising” messages.....

SCANVAEGT CCE+ VERSION CCE11.03

Now the Power and Ready lights should both be on. Do not proceed if both green lights are not on.

2. Communication Parameters

This section resets those parameters which are required for successful communication with the 8362.

```
SCANVAEGT CCE+
VERSION CCE11.03
```

Press and hold [C] and at the same time press [Setup]

```
UBI SETUP
PASSWD:
```

Key 101300 and press [Enter]

```
SETUP
CONTRAST
```

Press [F5]

```
SETUP
SER-COM
```

Press [Enter]

```
SER-COM
BAUDRATE
```

Press [Enter]

```
BAUDRATE
9600
```

Press [F4]

```
BAUDRATE
4800
```

Press [Enter]

```
SER-COM
PARITY
```

Press [C] and then [Setup] to exit.

3. Paper Type

Here we tell the printer about the type of paper that we are using.

SCANVAEGT CCE+ VERSION CCE11.03

Press and hold [C] and at the same time press [Setup]

UBI SETUP PASSWD:

Key 101300 and press [Enter]

SETUP CONTRAST

Press [F5] three times

SETUP SERVICE

Press [Enter]

SETUP PASSWD:

Key 1138 and press [Enter]

SERVICE MEDIA SIZE

Press [F5] twice

SERVICE PRINT DEFS

Press [Enter]

PRINT DEFS HEAD RESIST

Press [F5]

PRINT DEFS PAPER TYPE

Press [Enter]

PAPER TYPE UBI HP 20

Press [F5] five times

PAPER TYPE UBI DT 110+

(this is the recommended setting for direct thermal - your paper may work better with another setting)

Press [Enter]

PRINTDEFS NEW SUPPLIES

Press [C] twice

SETUP SERVICE

Press [Setup]

SCANVAEGT CCE+ VERSION CCE11.03

4. Label size and Printer Application

Now we set up the specifics for your label size and printer....
The following parameters assume a 8 dots per mm print head. If you have an 11 dots/mm print head the settings will be different !

SCANVAEGT CCE+ VERSION CCE11.03

Press [Setup]

SETUP PASSWD:

Key 707201 and press [Enter]

SETUP LABEL WIDTH

Press [Enter]

WIDTH [0]

Calculate the width of your label. Measure in mm and multiply by 8 (for a standard 8 dots/mm print head). Key the result in here and press [Enter]
(Example : 640 is equivalent to 80mm wide at 8 dots/mm)

SETUP LABEL LENGTH

Press [Enter]

LENGTH [0]

Again, as for width, measure and multiply by 8.
Key the result and press [Enter]
(Example : 960 is equivalent to 120mm at 8 dots/mm)

SETUP LABEL START ADJ

Press [Enter]

```
STARTADJ
[0]
```

For a stand-alone printer : key , 90 and press [Enter]

For a printer mounted to a ram type applicator : key , 360 and press [Enter]
(Note : the comma shows as a minus sign)
(this withdraws the label by 45 mm before printing)

```
SETUP LABEL
STOP ADJ
```

Press [Enter]

```
STOP ADJ
[0]
```

For a stand-alone printer : key 24 and press [Enter]

For a printer mounted to a ram type applicator : key 240 and press [Enter]
(this advances the label by 30mm after printing in order to get it onto the head)

```
SETUP LABEL
XSTART
```

Press [Setup]

```
SCANVAEGT CCE+
VERSION CCE11.03
```

5. Connect to 8362

With labels in the printer the following tests must all work OK before switching on the 8362.

5.1 Label gap sensor OK ?

Press and hold [C] and press [Feed]

This auto-sets the gap sensor and should feed 2 labels correctly.
If not then you have to set the LSS adjust (see CCE+ manual page 19 & 20)

5.2 Print area OK ?

Press [F4]

The printed grid should cover the label surface but not stray off the edge.
If not then you have set the label width and/or length incorrectly.

5.3 Parameters OK ?

Press [F5]

This function prints the set-up parameters. It is always a good idea to have a copy of these on file in case you need to reset them. Check this print for the correct communications baud rate and the label size.

5.4 Communication with 8362 OK ?

- Make sure that the communication cable is connected and power on the 8362.
- After the 8362 is booted, go to Supervisor Menu (password 707201) and select option 1 - Hardware Enabling / Testing
- Make sure that the printer shows as OK

5.5 Download label designs

- In the 8362 Supervisor Menu choose option 3 - Label printer Commands
- Choose Option 1 - Clear Label printer
- (note printer front panel says “Clearing label designs”)
- Choose Option 4 - Download label designs

