Section 1: PC GUI Software and MJ HRP Controller Configuration

Chapter 5

You are at the phase where you will need to configure and communicate from a host computer or Hand Held Controller to the MicroJet HRP print head.

Each print head is supplied with a CDROM that contains the PC Graphic User Interface (GUI) software that allows the user to communicate from Desktop or Notebook PC that has a DB9 serial interface.

An optional Hand Held Controller is available to provide a more robust data entry device intended for warehouse / factory environments where a PC is not desired.

When a computer is being used, install the PC GUI software using the CD included with the print head. Follow the installation instruction prompts, and then launch the program. (Note: Select Interface 1 Serial Print Head when Prompted. See follow on screen shots for details.)

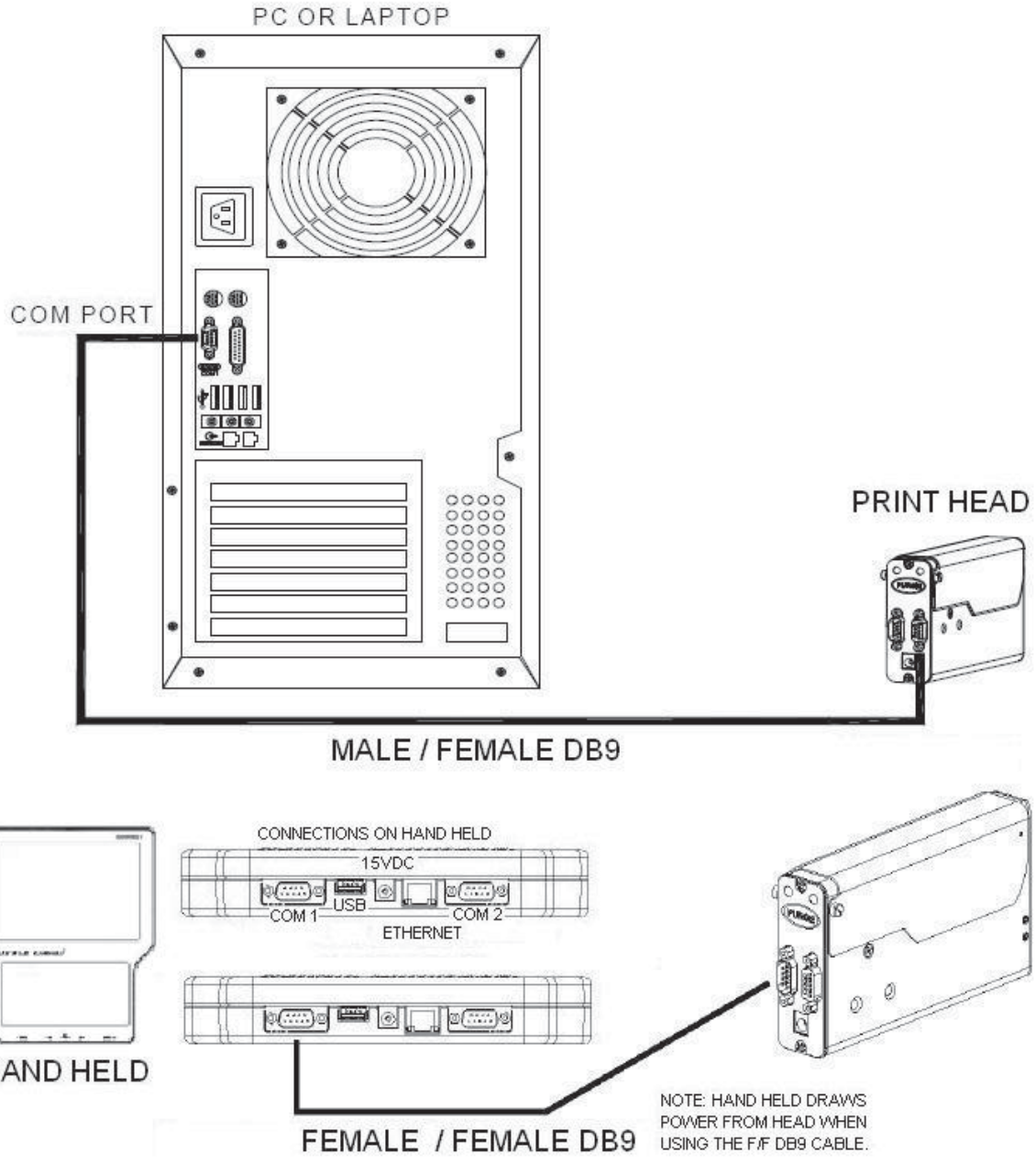
Connect the included serial cable between the computer or MJ HRP Hand Held Controller COM PORT and the rear of the print head as shown.

NOTE: Up to eight ½" heads or four 1" heads can be daisy chained together from one COM PORT when the updated PC GUI or New Color Touch Screen Handheld.

Note: Any combination of heads up to a maximum of eight cartridges can be daisy chained together per COM PORT.

Cabling

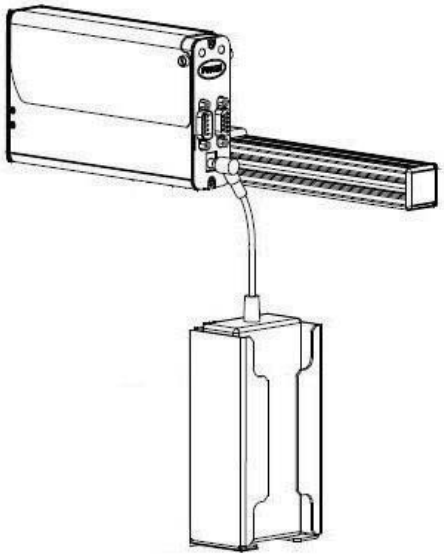
CAUTION: Power should be disconnected from the print head prior to connecting or disconnecting any external device, including: PC, handheld, controller or print head daisy chain cables. Electrical arcing may occur if external cabling is connected or disconnected while power is supplied to the unit.



Power

CAUTION: Power should be disconnected from the print head prior to connecting or disconnecting any external device, including: PC, handheld, controller or print head daisy chain cables. Electrical arcing may occur if external cabling is connected or disconnected while power is supplied to the unit.

Install the power plug from the previously mounted power supply into the power jack on the rear of each print head.



Press and hold the "PURGE" button on the rear of the print head while slowly moving a piece of paper, cardboard, or comparable material in front of the print cartridge. Print several purge images and validate that all channels are printing.

NOTE: Do not rub the ink cartridge face with the print sample material as this will scratch the orifice array and affect print quality.

At this point, the power supply for the or the computer may be installed.

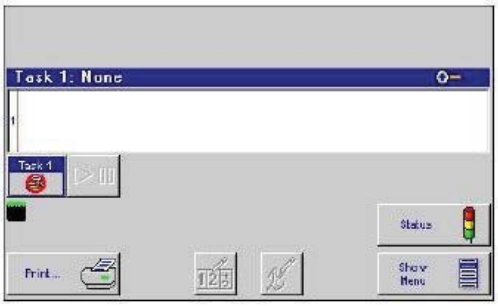
Serial Port Setup

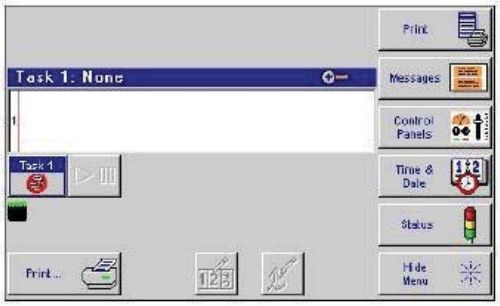
NOTE: Depending on GUI / **Hand Held** status, this step may already be complete.

If a computer will be used, install the PC software using the CD included with the print head. Follow the installation prompts, and at this prompt, **select "Interface 1 Serial Print Head" .**

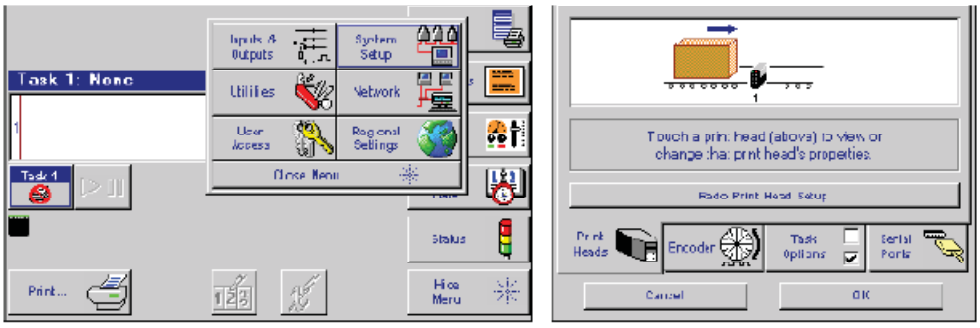
After the GUI program has been installed, launch the program.

Ensure the home screen menu is present via the **Hide Menu** / **Show Menu** button, and then press the **Control Panels** button.

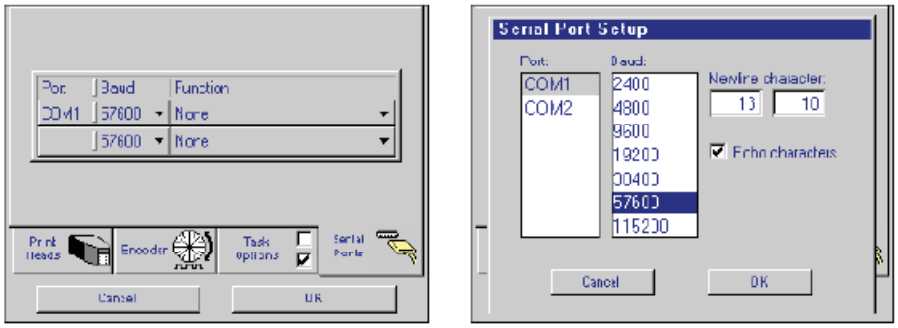




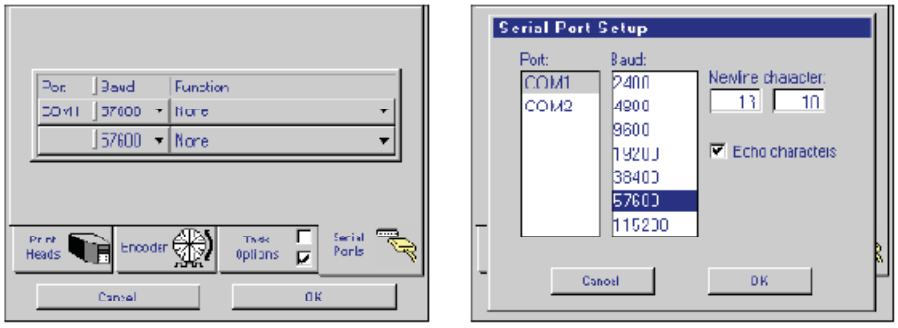
Press the **System Setup** button, and then the **Serial Ports** tab.



To ensure the baud rate is set for **57600**, press the button beneath the **Port/Baud** column and adjust if necessary. Press the **OK** button to exit the **Serial Port Setup** screen.

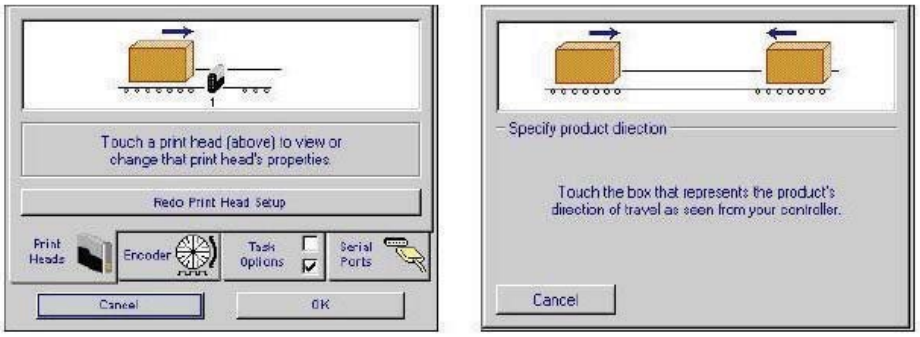


If the word "None" appears beneath the **Function** column, press it and select the **Serial Print Head** option. Press the **OK** button to exit the **COM 1 Function** screen. Press **OK** again to exit the **System Setup** screen.

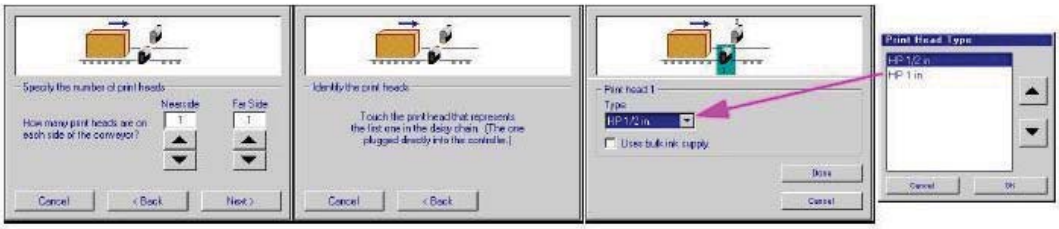


Print Head Setup

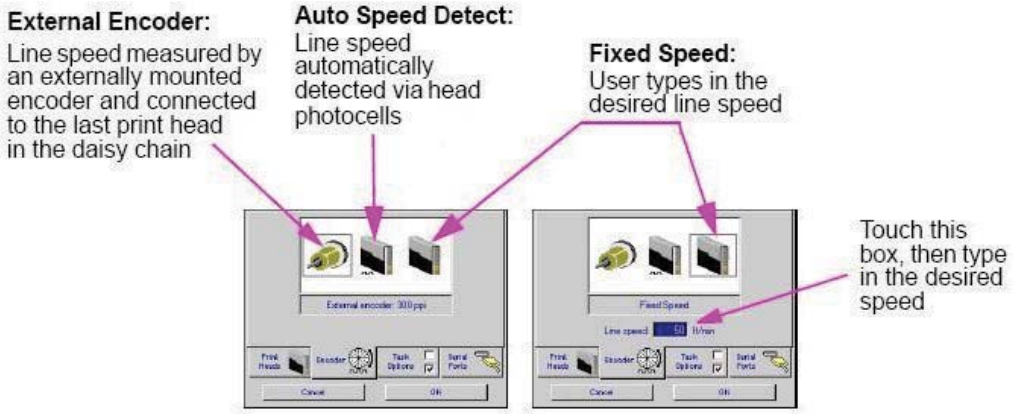
On the home screen, press the **Control Panels** button, and then press the **System Setup** button. On the **Print Heads** page press the **Redo Print Head Setup** button. Select the desired direction.



Select the number of print heads, identify the first in the daisy chain, and select the appropriate print head type by touching each one and then the drop down box.

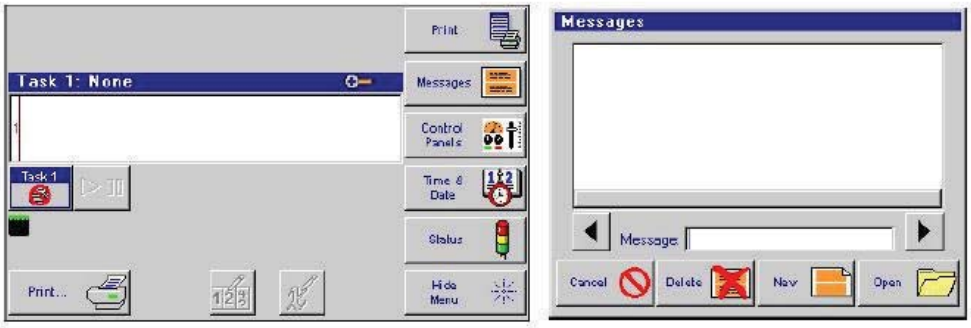


Print head setup complete. Next, select the Encoder tab, and choose the desired encoder type.

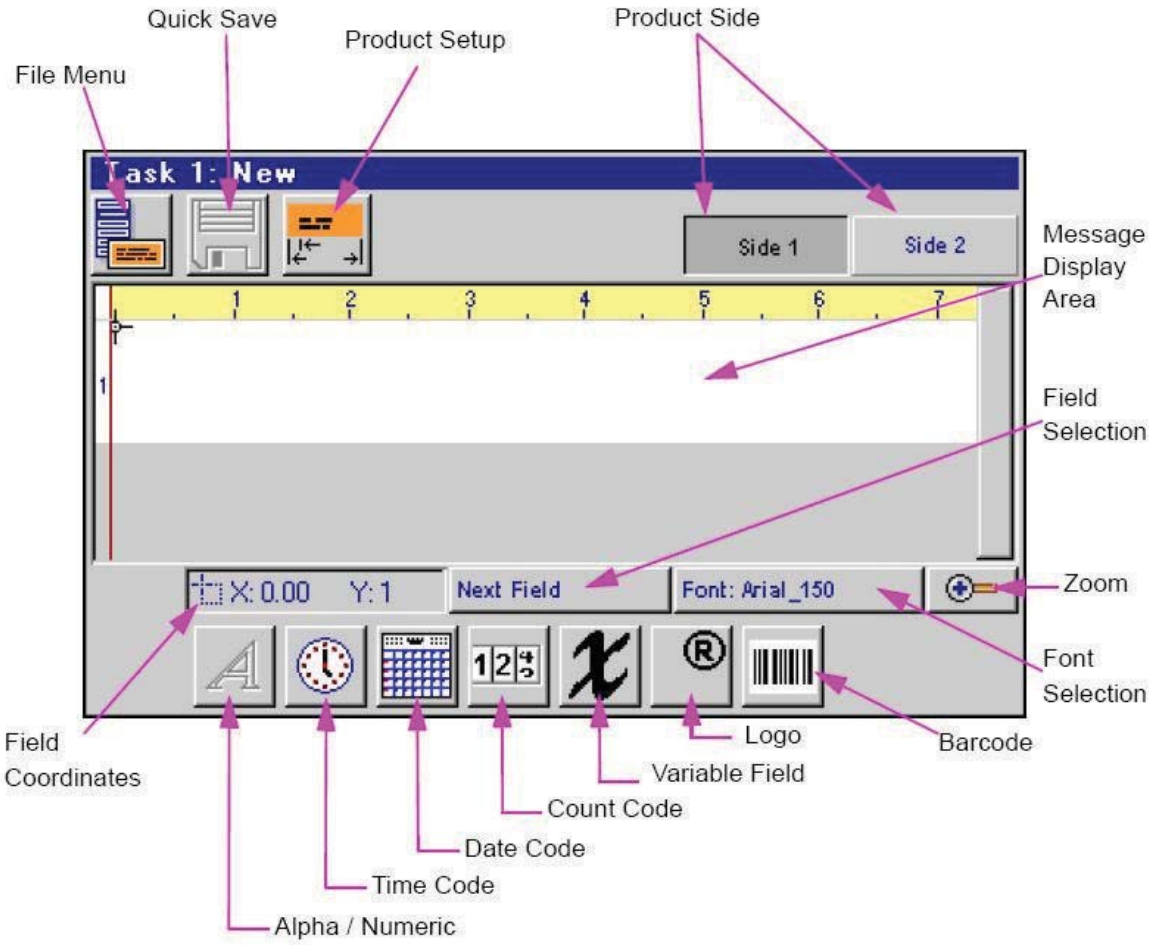


Create a Message

From the home screen, select the **Messages** button and then the **New** button to enter the message editor.

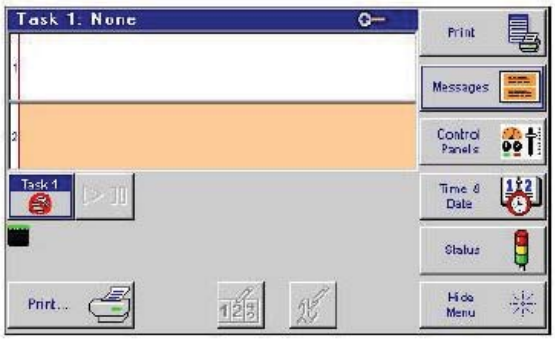


Create and save the message, and then exit the message editor.



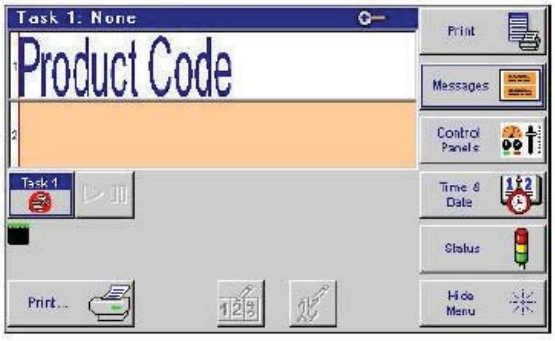
Print a Message

From the home screen, push the **Print** button.

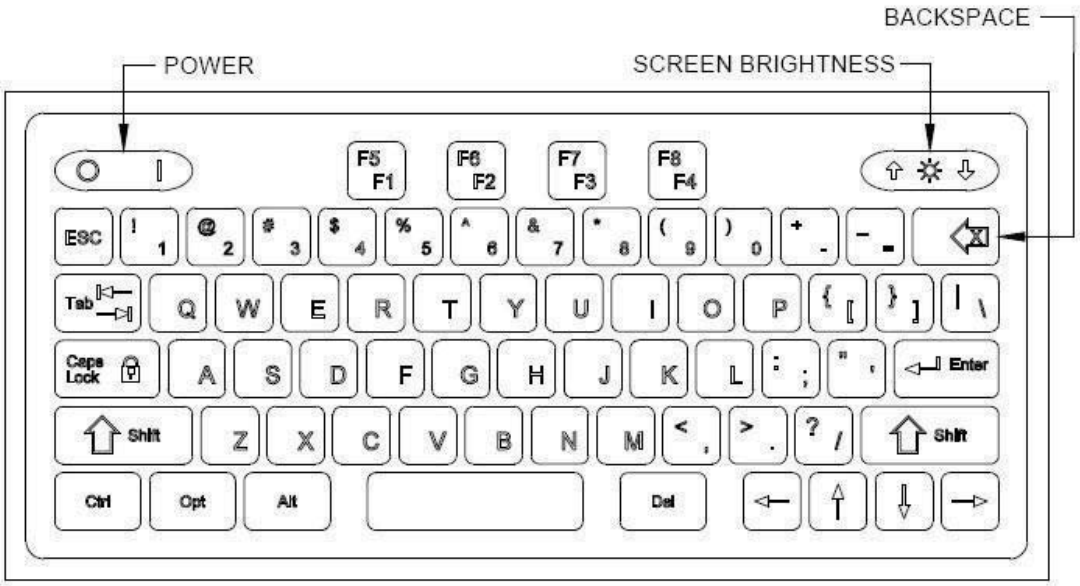


Select the desired message to print, and push the **Print It** button.

The message will print on the next photocell trigger.



HH or GUI Functionality
Keypad or Keyboard



ESC (Escape):

- Closes the current window, a dialog box, or menu.
- Restores the original contents of any input entry box, if **Enter** has not been pressed.

Arrow Keys:

- Shifts focus between screen controls.
- Moves highlighted fields or the cursor around in the Message Editor.

Tab:

- Shifts focus between screen controls.
- Shifts focus between fields in the Message Editor.

Backspace in Message Editor:

- Normal functionality as QWERTY keyboard.
- Deletes a highlighted field.

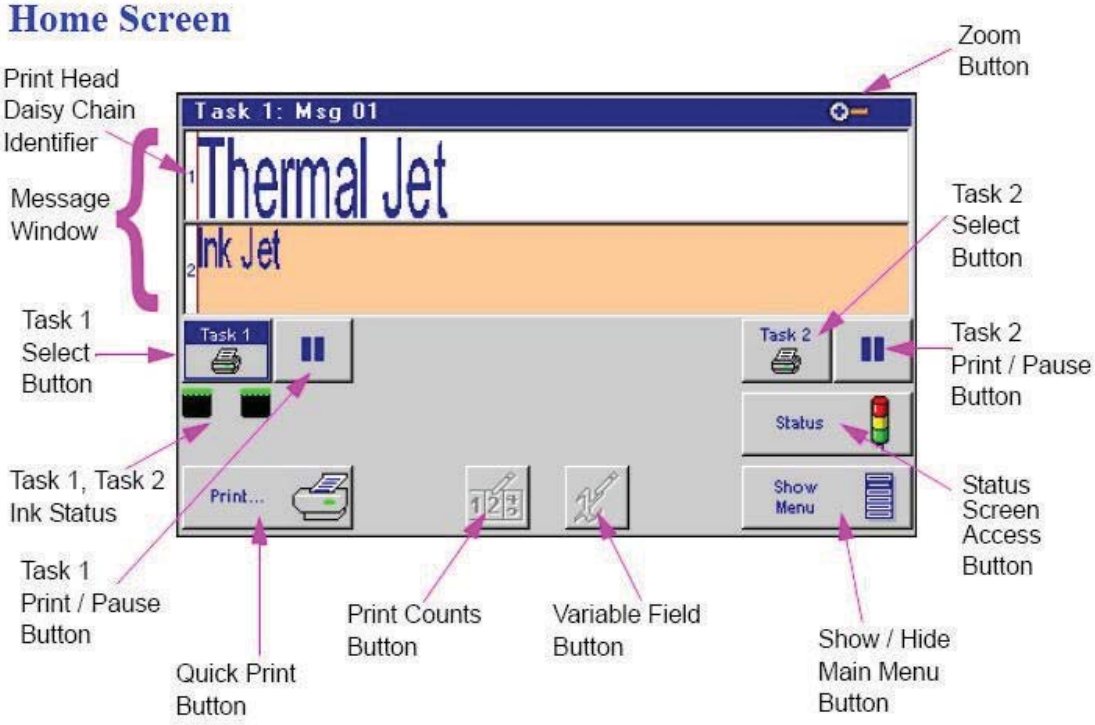
Ctrl (Control) in Message Editor:

- Amplifies the movement of the arrow keys.
- Holding the Ctrl key while pressing the Enter key at the end of a text line enables paragraph functionality.

F4/F8:

The **F4**/**F8** key pulls up the extended characters dialog.

Home Screen



Message Window:

- Displays the current print message.
- Updated approximately every seven seconds, so it likely will not show each print.
- Long print messages can be viewed by using the **F1** and **F2** keys to scroll the message left and right, respectively.
- White or beige bars represent a print head in the daisy chain and are identified by their respective numbering.
- The header displays the task number and file name of the message being printed. If no message is loaded to print, "**None**" is displayed.

Task Select Button:

- Places focus on the selected task. This allows one to view what is being printed on either task in the home screen. Additionally, items in the main menu vary from one task to the other.

Task Print / Pause Button:

Play State Press to Pause

- Starts and Stops print after an operator response to a confirmation dialog popup box.
- If a message is currently printing, pressing the Pause button will discontinue printing after the message completes printing.
- If the Play button is pushed, print will resume on the next product detected.

Pause State Press to Print

Quick Print Menu Button:

- Allows one to access the **Print** dialog box directly, even with Restricted User Access enabled.
- Simply select the desired message and press the **Print It** button. The message will print at the next photocell trigger.

Zoom:

- Expands the message window to full screen and magnifies the print message so that fine details may be seen.
- **F1**, **F2**, **F5** and **F6** keys, or the **Arrow** keys, scroll the message left, right, up and down.
- Press the **Zoom** button or the **ESC** key to zoom back out.

Counter:

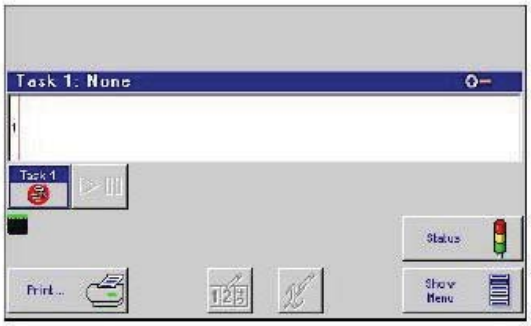
- Count codes are allowed, but one must select the "Print" button to adjust the count.

Variable Field:

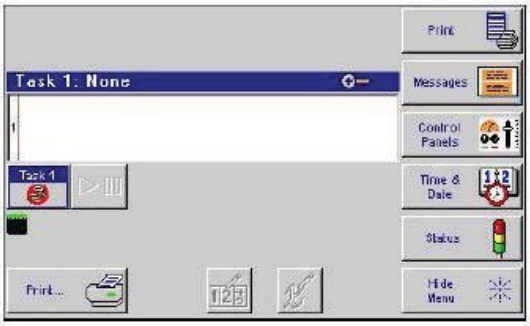
- Variable information fields are allowed, but one must select the "Print" button to change the information being printed.

Main Menu

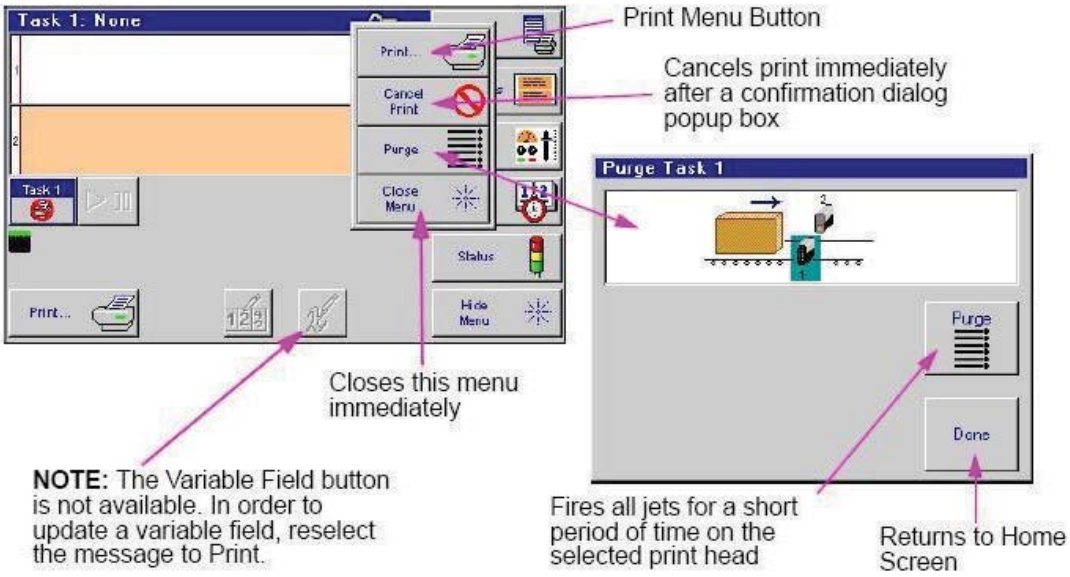
Main Menu Collapsed



Main Menu Expanded

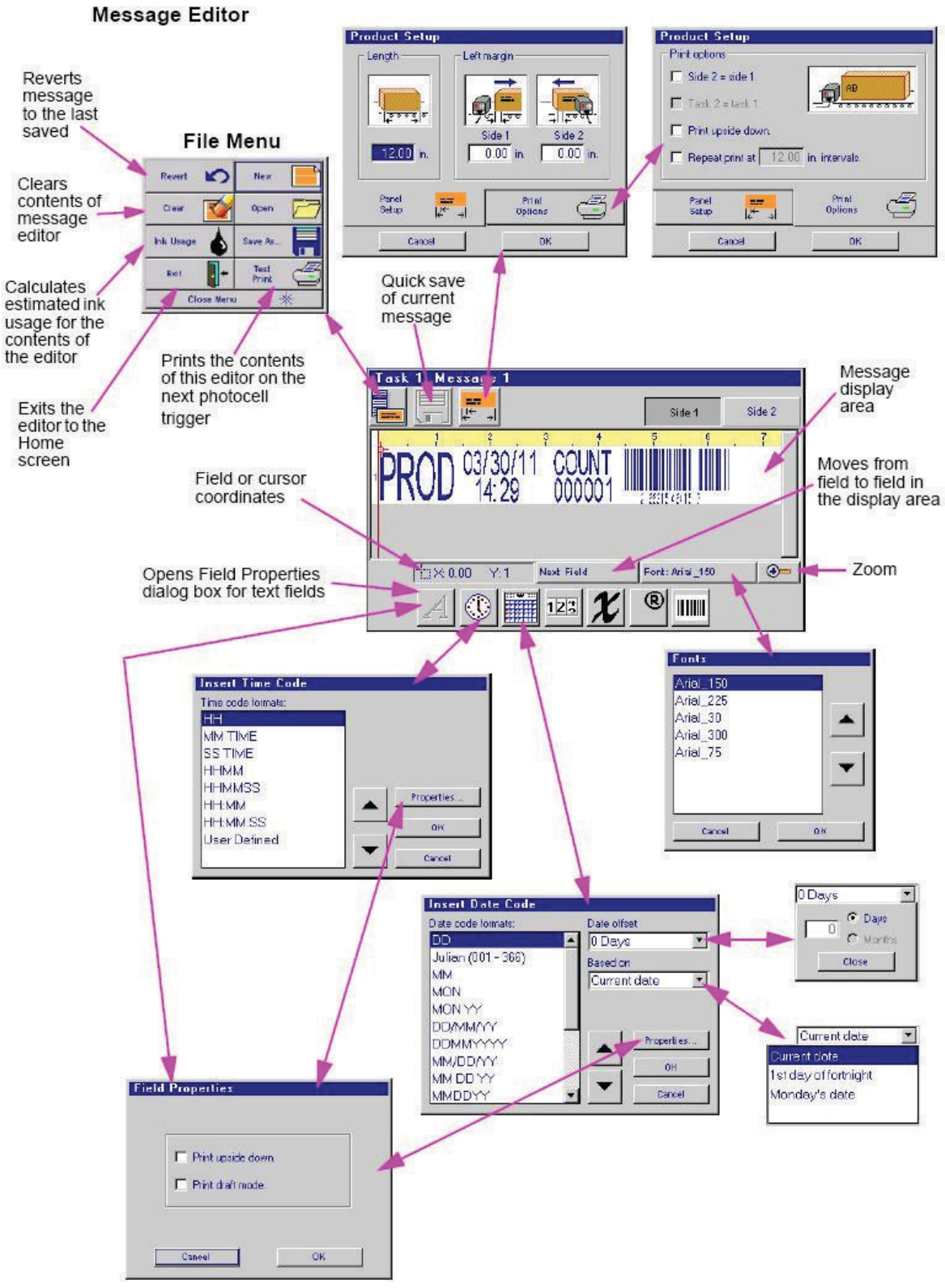


Print Menu

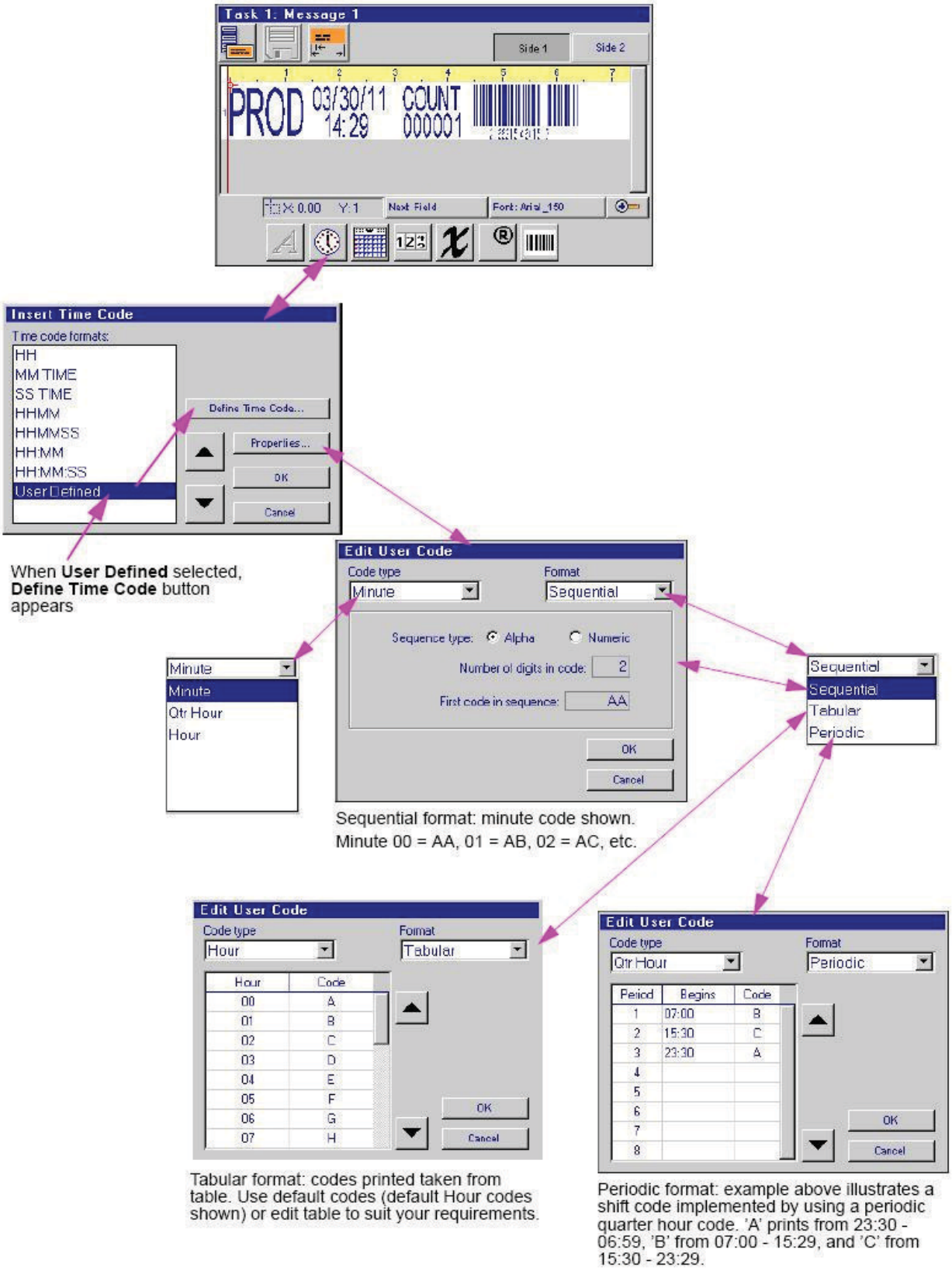


Messages Dialog & the Message Editor

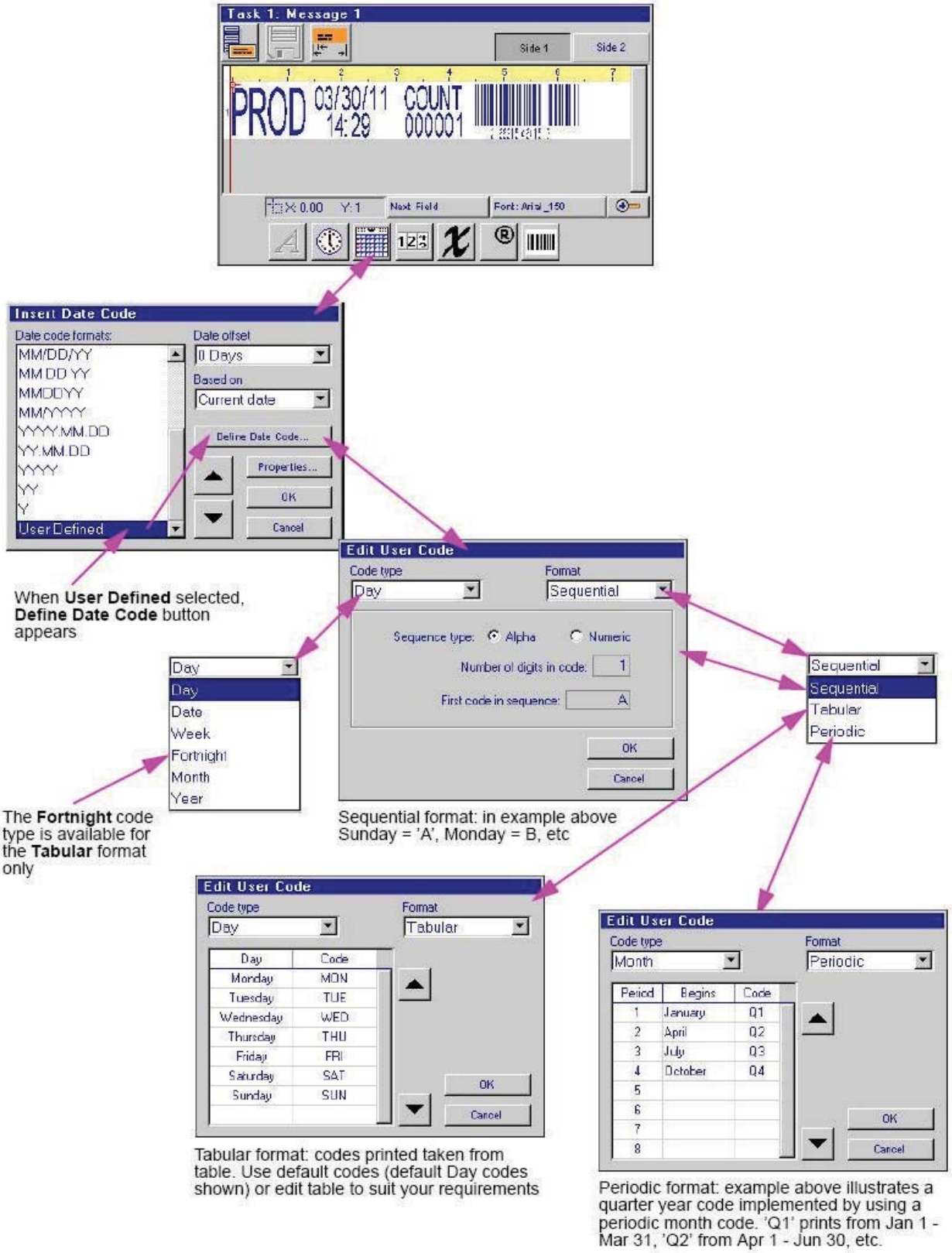
Messages Dialog


Message Editor
Reverts message to the last saved
File Menu
Clears contents of message editor
Calculates estimated ink usage for the contents of the editor
Exits the editor to the Home screen
Prints the contents of this editor on the next photocell trigger
Quick save of current message
Message display area
Moves from field to field in the display area
Field or cursor coordinates
Opens Field Properties dialog box for text fields
Zoom
Product Setup
Length
Left margin
Side 1
Side 2
Print options
Print upside down
Repeat print at
Panel Setup
Print Options
Cancel
OK
Revert
New
Clear
Open
Ink Usage
Save As...
Exit
Test Print
Close Menu
Side 1
Side 2
PROD 03/30/11 14:29 COUNT 000001
Next Field
Font: Arial_150
Insert Time Code
Time code formats:
HH
MM TIME
SS TIME
HHMM
HHMMSS
HH:MM
HH:MM:SS
User Defined
Properties...
Fonts
Arial_150
Arial_225
Arial_30
Arial_300
Arial_75
Insert Date Code
Date code formats:
DD
Julian (001 - 366)
MM
MON
MON YY
DD/MM/YY
DDMMYYYY
MM/DD/YY
MM DD YY
MMDDYY
Date offset
0 Days
Based on
Current date
Days
Months
Close
1st day of fortnight
Monday's date
Field Properties
Print upside down
Print draft mode

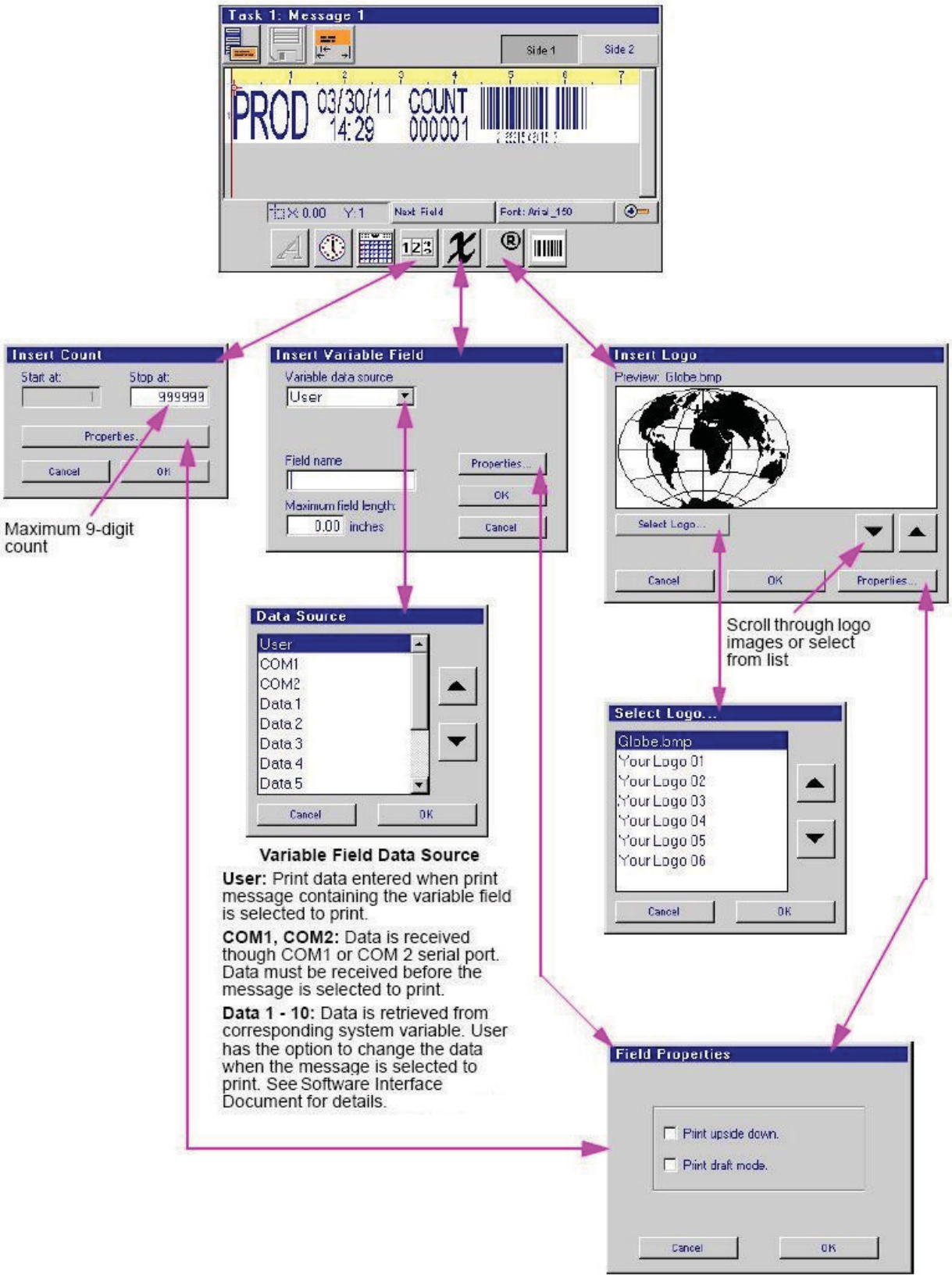
Message Editor continued: User Defined Time Codes



Message Editor continued: User Defined Date Codes



Message Editor continued: Product Counts, Variable Fields, Logos



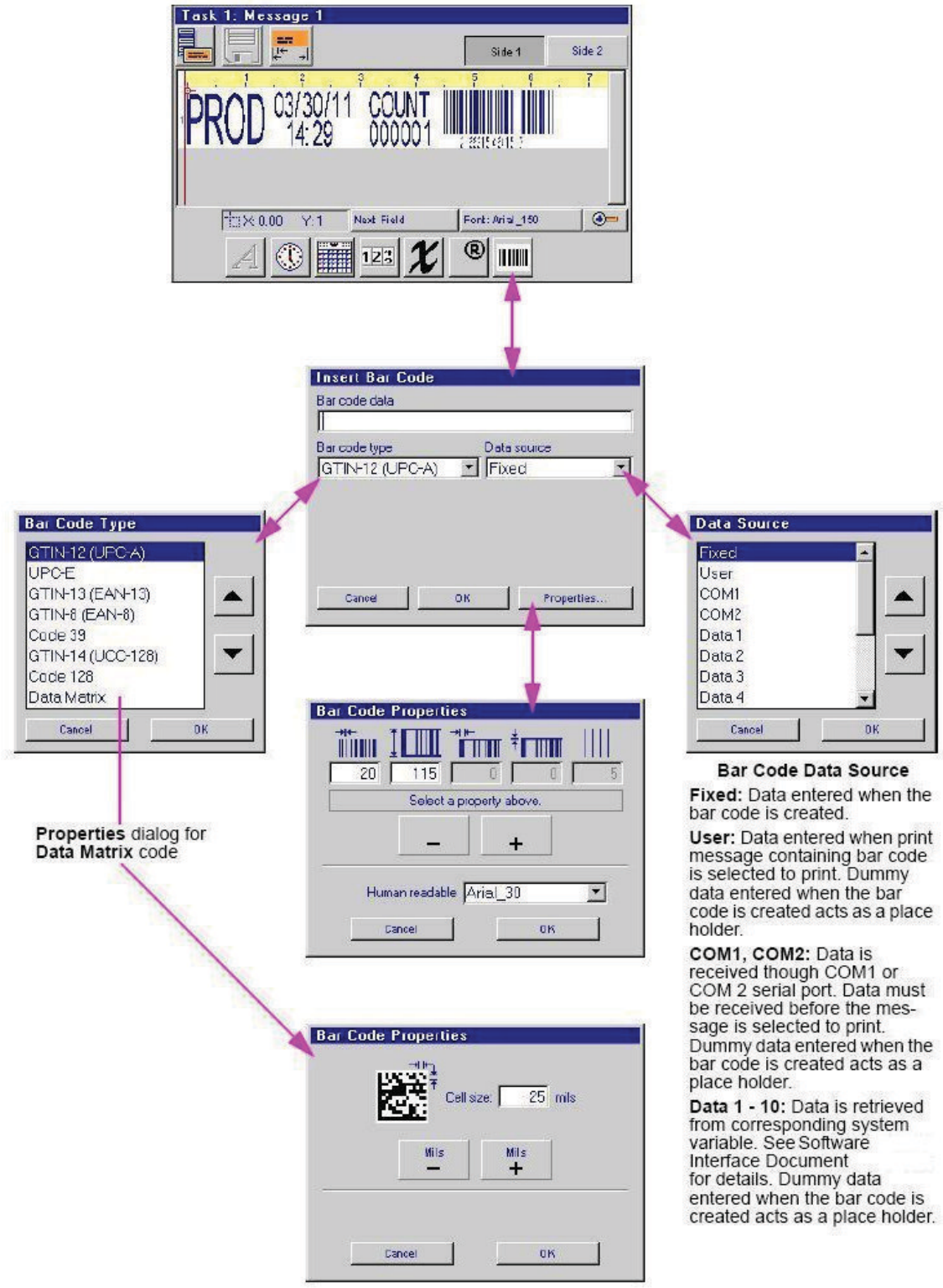
Variable Field Data Source

User: Print data entered when print message containing the variable field is selected to print.

COM1, COM2: Data is received though COM1 or COM 2 serial port. Data must be received before the message is selected to print.

Data 1 - 10: Data is retrieved from corresponding system variable. User has the option to change the data when the message is selected to print. See Software Interface Document for details.

Message Editor continued: Bar Codes



Bar Code Data Source

Fixed: Data entered when the bar code is created.

User: Data entered when print message containing bar code is selected to print. Dummy data entered when the bar code is created acts as a place holder.

COM1, COM2: Data is received though COM1 or COM 2 serial port. Data must be received before the message is selected to print. Dummy data entered when the bar code is created acts as a place holder.

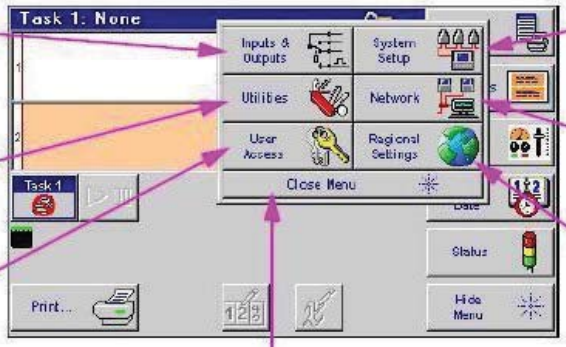
Data 1 - 10: Data is retrieved from corresponding system variable. See Software Interface Document for details. Dummy data entered when the bar code is created acts as a place holder.

Control Panels Menu

I/O feature not available on Hand Held or PC GUI Software

System Utilities menu for miscellaneous controller tools and file management

Security Access



Controls print head and ancillary equipment configuration

Configures network connectivity via the Ethernet port

Language and unit of measure configuration

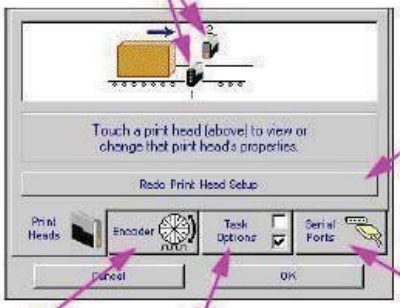
Closes this menu immediately

System Setup:

NOTE: The **Product sesnor offset** is only available when **External product sensor** is selected on the **Task Options** tab. In addition, **External encoder** or **Fixed Speed** must be selected on the Encoder tab.

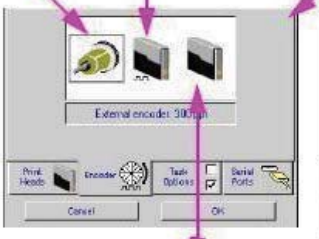
Set print direction, number and type of print heads

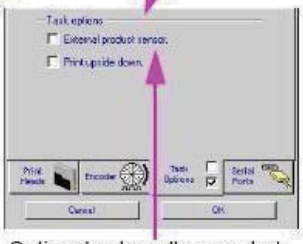
System Setup Screen

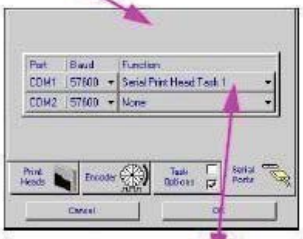


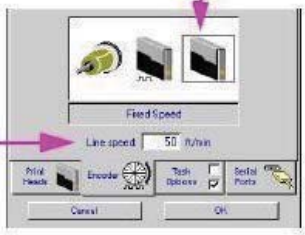
External Encoder:
Line speed measured by an externally mounted encoder and connected to the last print head in the daisy chain

Auto Speed Detect:
Line speed automatically detected via head photocells (disables the external product sensor)



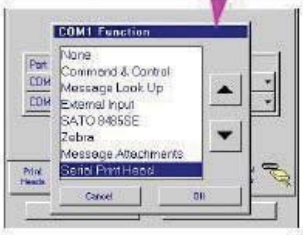






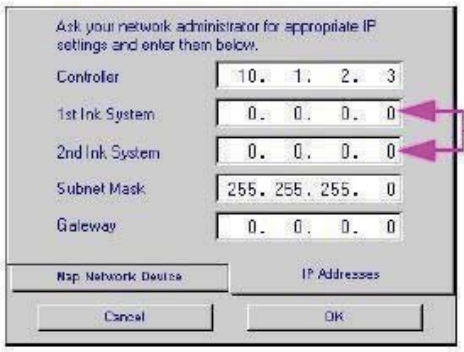
Fixed Speed:
Enter the desired line speed

Optional externally mounted photocell connected to the last print head in the daisy chain (disables Auto Speed Detect)



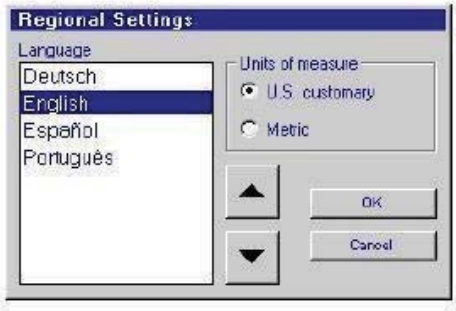
COM port configuration options

Network:



Does not apply to Thermal Jet print heads

Regional Settings:



User Access:

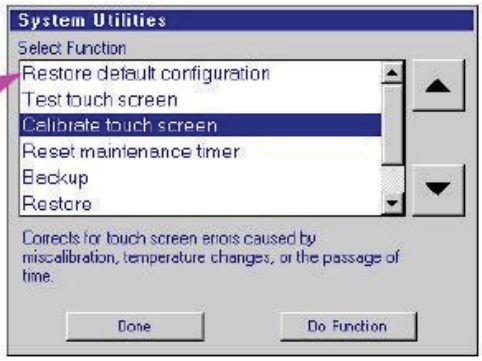
Controls within this box set the user access level. Buttons outside the box mirror the Home Screen and indicate which functions are password protected and which are open.

Padlock symbol indicates function is password protected

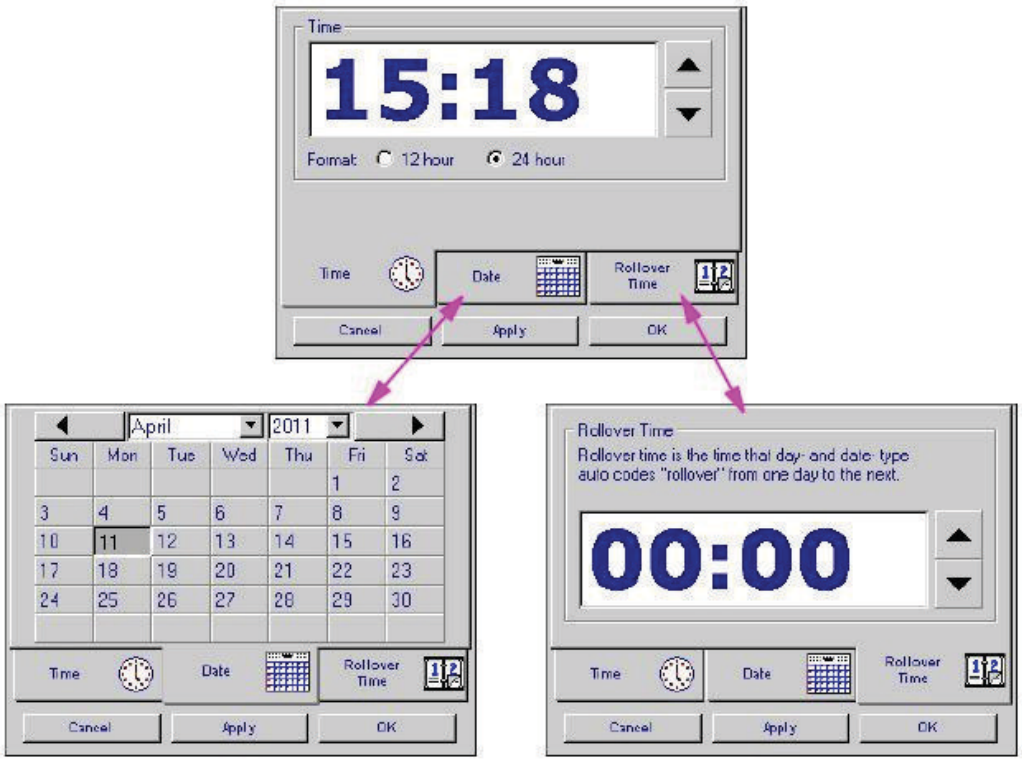
Note: The factory set password is Manager (passwords are case sensitive), and this will be your first "old" password. Once the password is changed Manager will not allow access unless it is again set as the password.

Utilities:

After performing the **Restore default configuration** function, the serial port must be reconfigured for a serial print head.

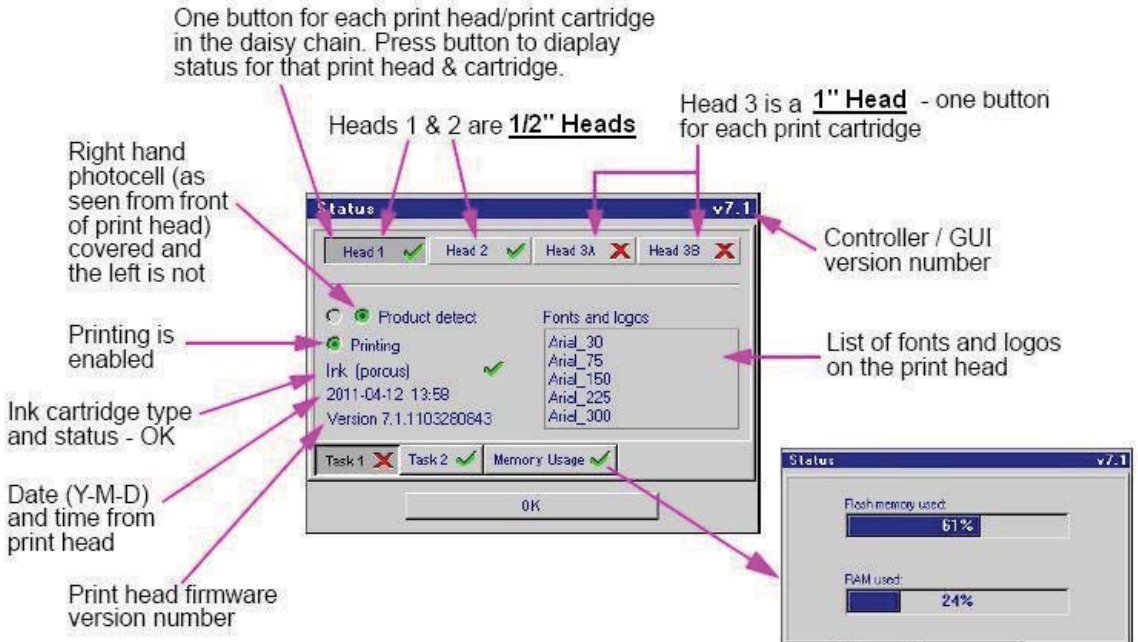


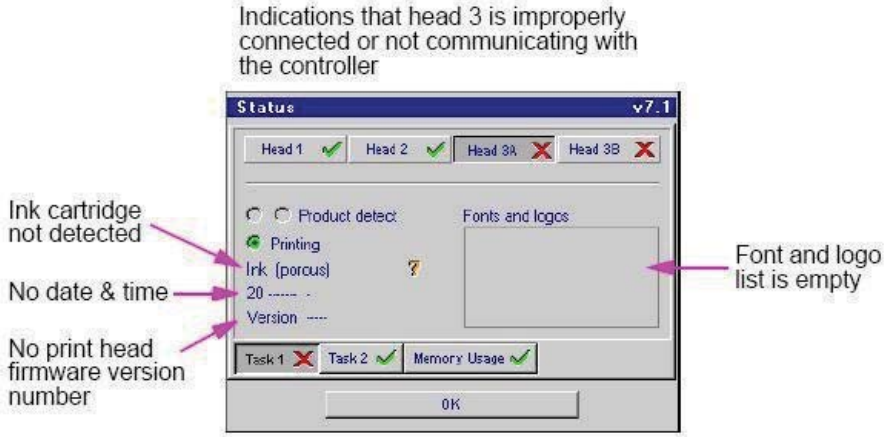
Time & Date Setting Screens



Status Screen

Note: This set of status screens represents three print heads, two 1/2" and a 1" Head, setup in a daisy chain. The first two print heads (Head 1 & 2) are properly connected and detected. The third print head has not been properly connected to the daisy chain.





Aligning the 1" (25.4 mm) Print Head to Eliminate Gap

NOTE: This procedure assume that the user has already installed the equipment per the installation procedure. **In addition, an encoder should be used for the best horizontal alignment between both print cartridges on the 1" Print Head.**

1. Ensure the front face of the print head is perpendicular to the substrate being printed.

2. Create a message using the Arial 300 font and run a print sample with actual product.

3. Observe the vertical overlap or gap between the two cartridges. If there is a significant overlap, loosen the mounting block hardware (below) and rotate the head bracketry counter clockwise. If there is a gap between the halves, rotate the bracketry clockwise to get a better alignment.

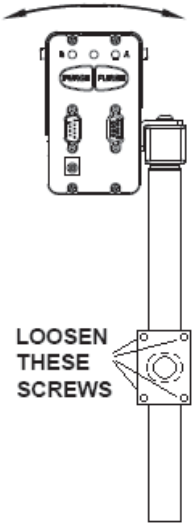
4. Snug the mounting screws and run another print sample. If the overlap or gap is not acceptable, then repeat the previous step.

5. Repeat the previous two steps until the two cartridges are matched vertically.

6. Fully tighten the mounting hardware.

7. Now observe the horizontal alignment of the characters.

8. Horizontal misalignment can be compensated electronically through the MJ HRP Hand Held Controller or GUI software program by navigating to the **Control Panel** from the **Home Screen** pressing **System Setup**, and then touching the print head in question.

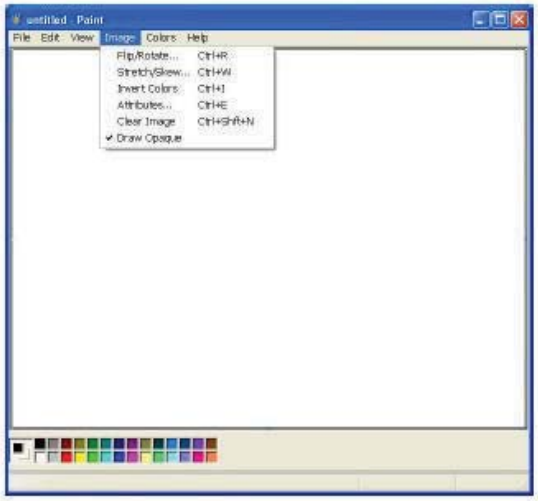


9. An adjustment box, labeled A to B offset adjustment, is available to compensate for any horizontal misalignment. Increase or decrease the number in the box and press **Apply**. The next print will have adjusted the alignment one way or the other. Repeat this step until the desired horizontal alignment is achieved.

Section 2: System Files

Creating Logo Files

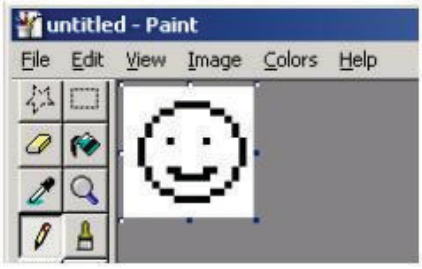
Open **Paint** from a PC by selecting **Start, Programs, Accessories,** and then **Paint.**
Bring up the **Attributes** dialog box by selecting **Image** and then **Attributes**.



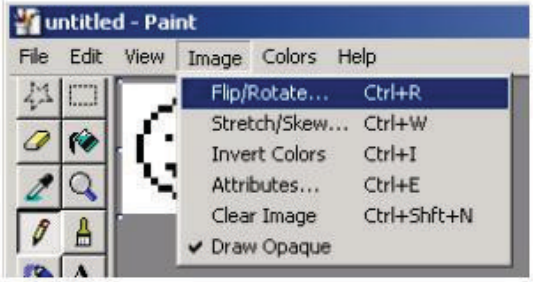
Enter the **Width** and **Height** of the logo in **Pixels**. For practical purposes the maximum height of a logo is150 pixels if the logo is prined with a **1/2"** print head, and 300 pixels if printed with a **1 Inch** print head. The absolute maximum logo height is 1200 pixels, but logos that cross print head boundaries will likely exhibit registration problems when printed. Maximum logo width is 32,767 pixels, or print columns (109.22 in / 2.77 n when printed at 300 dpi.) Select **Black and white** for the Colors.

Choose **Yes** at the screen prompt to convert to black and white if applicable.

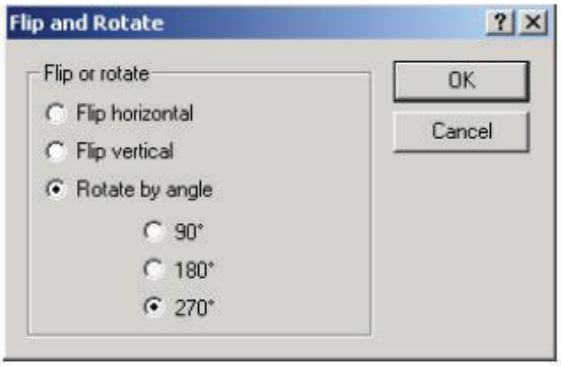
Define the pixels of the logo using the drawing tools, or copy and paste an image from another document.



Bring up the **Flip and Rotate** dialog by selecting **Image**, **Flip/Rotate**.



Select **Rotate by angle**, then **270°**. Click **Ok**.



From the **File Menu**, select **Save As** and save the logo in a directory location that you will remember.

NOTE: If the print heads are being controlled via a PC using the InkJet Demo software rather than a controller, then store the logo in **c:\Program Files\InkJet\bmps**.

Uploading Files

Uploading Files to the Print Head and File Management

CAUTION: Power should be disconnected from the print head prior to connecting or disconnecting any external devise, including: PC, handheld, controller or print head daisy chain cables. Electrical arcing may occur if external cabling is connected or disconnected while power is supplied to the unit.

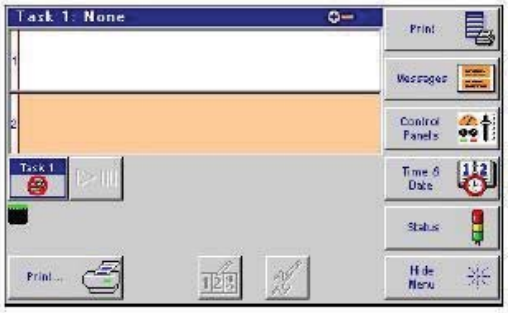
NOTE: Files can **not** be transferred while thermal jet print heads are printing. Pause print first.

Font and bitmap (logo) files are uploaded to the print head via the Controller or PC Inkjet Demo software using the File Manager on the System Utilities screen. In addition to uploading files, the File Manager also allows removal of files from the print heads; however, files cannot be copied from a print head. During the upload process, files are simultaneously added to or removed from all print heads on the daisy chain being addressed. Operations on an individual print head are possible only when it is the sole head on the daisy chain.

NOTE: A .bmp (logo) or .fnt (font) file must reside on both the controller and print head(s) to be correctly selected, displayed, and printed. Refer to "File Backup and Restore" Select the "Transfer file from PC to controller" option. Browse the PC and locate the BMP. Select Ok to transfer the file to the controller.

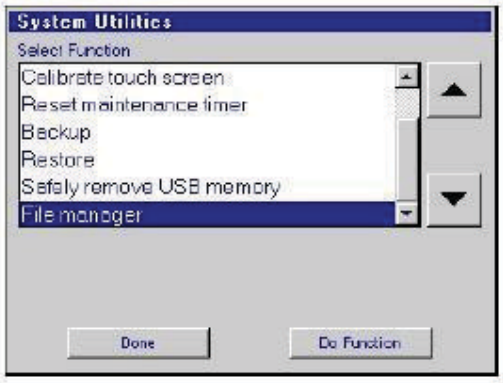
To access the File Manager utility:

1. Touch the **Control Panels** button on the **Home** screen.

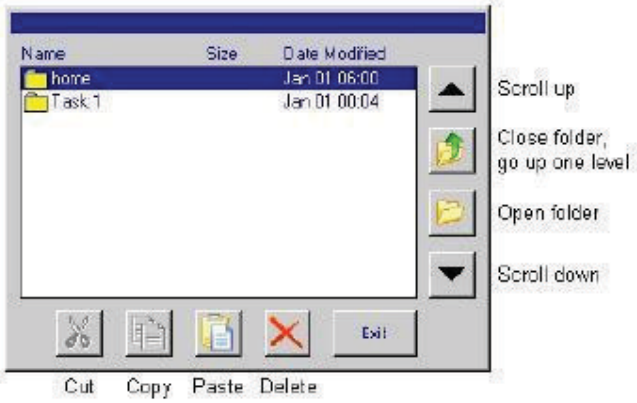


2. Touch the **Utilities** button; the **System Utilities** screen is displayed.

3. Scroll to the bottom of the utilities list and select **File manager**.



4. Touch the **Do Function** button; the **File Manager** screen is displayed.



The **home** folder contains all folders and files related to HH controller operation; task folders, **Task:1** and **Task:2** (not shown), contain the font and logo files present on the print heads on their respective tasks. Task folders are present only when one or both of the controller's serial ports are configured for serial print heads. Not shown above are folders **usb0** and **usb1**, which are displayed when USB drives are plugged into the one or both of the HH's USB ports. The HH controller will show only **usb0** as it has only one USB port. USB folders are not displayed when running the PC InkJet Demo program.

Adding Logo and Font Files

So that they may be correctly selected, displayed, and printed, logos and fonts must be stored on both the controller and the print head(s).

On the controller, logos are stored in the folder **/home/bmps**, and fonts are stored in the folder **/home/fnts**. Files are automatically placed in the correct folders when transferred to the controller from a PC using a web browser; they must be manually placed in the correct folder when being transferred from a USB drive using the copy-and-paste method.

Uploading a file to a print head loads the file on all print heads on the task. A step-by-step example of uploading a logo file to task 1 print heads follows. The example assumes the file being uploaded is already on the controller.