DOMINO

Domino A-Series
User Guide

A320i

A420i

A520i

Domino. Do more.

CONTENTS

CONTENTS OF
EC DECLARATION OF CONFORMITY

(in accordance with ISO/IEC 17050-1:2010)

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Issuer's name: Domino UK Ltd.

Issuer's Address: Bar Hill, Cambridge CB23 8TU

Object of the declaration: Domino A320i, A420i, A520i.

The object of the declaration described above is in conformity with the requirements of the following documents:

EN 61000-6-4:2007/A1:2011 Electromagnetic Compatibility (EMC). Generic Standards. Emission standard for industrial environments.

EN 61000-6-2:2005 Electromagnetic Compatibility (EMC). Generic Standards. Immunity Standard for industrial environments.

EN 55022:2010 Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement.

EN 60950-1:2006/A2:2013 Information technology equipment - Safety - Part 1: General requirements

2006/95/EC: Low Voltage Directive.

2004/108/EC: EMC Directive.

2011/65/EU RoHS Directive

FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

European EMC Statement

This product may cause interference if used in residential areas. Such use must be avoided unless the user takes special measures to reduce electromagnetic emissions to prevent interference to the reception of radio and television broadcasts.

Health and Safety

Symbols

The following symbols are used in this manual. Where they appear next to a procedure or instruction, they have the significance and importance of written warnings and cautions.

Eye protection must be worn.

Protective clothing must be worn. Use adequate protective gloves. Consult the relevant Safety Data Sheet (SDS).

Disconnect before carrying out maintenance or repair

Disconnect mains plug from electrical outlet

Only trained personnel should carry out this procedure.

Inks and Fluids Information

Domino supplies Safety Data Sheets (SDS) giving specific safety information with each of its ink, make-up and wash fluids. There are also warnings on each container. The following are general basic requirements:

- Proper standards of industrial practice relating to cleanliness and tidiness must be maintained.
- Inks and their containers must be stored and handled with care.
- Do not smoke or allow naked flames (or other sources of ignition) in the vicinity of any inks or solvents as this is highly dangerous.
- All who come into contact with inks must be properly instructed in their use.

Directions for safe working practices vary according to the environment. The following are broad principles so that necessary precautions may be taken:

- Contact with the mouth must be avoided. Therefore eating, drinking or smoking, or any personal habits or actions which may transfer ink to the mouth, must be avoided.
- Contact with the eyes must be avoided. Suitable eye protection must always be worn whenever there is any risk of splashing or misting. If ink does get into the eyes, first aid treatment is to flood the affected eye for 15 minutes with saline solution, (or clean water if saline solution is not available), taking care not to allow the water to run into an unaffected eye. Medical aid must be obtained immediately.
- Most inks contain solvents which may injure the skin. Good working practice must always be employed and risk assessments carried out. Safety Data Sheets are available that give advice on personal protective equipment. Most gloves only offer limited and short term exposure protection and must be changed after any splashing and on a frequent basis.
- Many inks contain materials which vaporise easily and can be inhaled. Good ventilation is necessary.

- Any used cleaning materials, e.g. rags, paper wipes, are a potential fire hazard. They must be collected for safe disposal after use. After exposure to ink, all possible traces must be washed off as soon as possible at the nearest washing facility.
- It is possible to control the printer remotely. If operated in this manner it is vital that the remote UI is disconnected before carrying out any cleaning or maintenance on the printer.

Storage

Printing inks must be stored in well ventilated buildings, in areas set aside for the purpose and chosen for safety in case of fire. All fluids must be stored in accordance with local regulations.

Fire Risk

For an electrical fire, do not use water. If water must be used, such as in the case of a Nitro-cellulose ink fire (see below) the power MUST BE REMOVED first.

Some inks contain Nitro-cellulose as the binder and remain highly flammable when dry. Observe all warnings given on the machine and the following safety instructions:

- If there has been an accumulation of dried ink, do not use metal scrapers to remove it, as they can produce sparks.
- If dry Nitro-cellulose based ink ignites, it will generate its own oxygen and can only be extinguished by lowering the temperature with water.
- If a Nitro-cellulose fire occurs, ENSURE THAT THE ELECTRICAL POWER IS IMMEDIATELY REMOVED FROM THE PRINTER BEFORE water is used to extinguish the fire.

Fire risk is a most important consideration where printing inks are stored and used. The degree of fire hazard will vary considerably from one type of ink or wash to another.

Water-based inks will not burn, although inks based on water-alcohol mixtures may burn if there is sufficient alcohol present.

Prolonged exposure of water-based systems to high temperatures may evaporate the water to give a flammable residue.

Solvent-based inks offer a greater degree of hazard depending on the particular solvent or solvent combination. When there is a particular hazard the appropriate information is given on the SDS.

The printers place small electrostatic charges on the ink drops used for printing. In most circumstances, such as when they arrive at the print surface, these electrostatic charges are either conducted away or cannot accumulate. However, during maintenance, print drops may be collected in a container, such as a beaker. It is essential that this container is made of conducting material and is securely connected to ground/earth. The electrostatic charges will then be safely conducted to ground/earth.

If there is a fire, there is a likelihood that dangerous fumes will arise from printing inks. For this reason ink must be stored where it can be reached quickly by the fire fighting service, and where it will not spread beyond the store.

Spillages and Disposal

WARNING: **Some dried inks are highly flammable. Clean up all ink spillages immediately. Do not allow the ink to dry or allow any build-up of dried ink spills.**

Spillages must be cleaned up as soon as possible with the appropriate solvent materials and with regard to the safety of personnel. Care must be taken to prevent spillages or residue from cleaning up entering drains or sewage systems.

Inks and associated fluids are materials which conduct electricity. Therefore, power to the printer must be switched off while spillages inside the printer cabinet are being cleaned up.

Printing inks and associated fluids must not be treated as ordinary waste. They must be disposed of using approved methods according to local regulations.

Electro-Static Discharge

To avoid static discharge from production line equipment, the equipment and everything on it must be grounded correctly. While it is not Domino's responsibility to maintain the customer's equipment, the customer must be aware of the importance of grounding. At the time of installation of the printer the Domino (or Domino distributor) technician should ensure that the line the printer is installed on is appropriately grounded. This means that all metallic items within 12 inches (300mm) of the print head location must be securely grounded. This should be checked with respect to the print head chassis ground using an Ohm Meter, DVM or other suitable device. It is essential that grounding is checked periodically and that if the printer is relocated to a different production line, then the new production line is properly grounded. Additional static dissipating devices, such as static brushes on the line, etc. are recommended.

General

This document contains basic operation instructions for the Domino A-Series i-Tech ink jet printers.

For detailed operation and repair information, refer to the Domino A-Series i-Tech Product Manual.

Only trained engineers should carry out repairs using genuine Domino spares.

Description

A-Series is a continuous ink jet printer that uses either 1 or 2 jets, (Depending on configuration.) for printing on a user supplied substrate. It consists of:

- A rectangular print head.
- A cabinet containing the ink supply and electronic control systems.

The print head is connected to the cabinet by flexible conduit.

Intended Use

The Domino A-Series is an industrial inkjet printer intended for printing variable data on manufacturing production lines.

A320i Printer

The A320i deploys the i-Tech ink system which only requires consumables to be replenished to maintain optimum performance. Consumables are colour coded yellow for user convenience.

With i-Tech ink and solvent management, the A320i monitors how you use it and calculates when consumables are due for replacement.

At the heart of the i-Tech ink system is the revolutionary i-Tech Module, which contains the working ink and ink filters. Changing the i-Tech Module is a job that anyone can do in less then 10 minutes.

WARNING: **Do not remove the i-Tech Module whilst the printer is powered on.**

A420i Printer

The A420i printer allows the use of a wide variety of specialist inks giving the flexibility to print on a wider range of substrates. Where appropriate the ink system is constructed of materials resilient to inks with corrosive properties, allowing reliable operation and minimal down time.

The A420i is available with 6m Conduit.

i-Tech Module replacement will vary according to the type specified. Contact Domino for details.

A520i Printer

The A520i printer utilises all of the features of the A420i, but provides a stackable, robust housing to suit any environment. For full versatility, the UI is provided via QuickStep, either on the optional TouchPanel Type 3 controller or a PC.

Printer Specification

Print Head

Standard Finish:	Chassis: Stainless Steel Wire box: Moulded nylon Holster: Plated aluminium
Dimensions:	Width: 50.3mm (1.98") Depth: 50.3mm (1.98") Height including conduit retaining nut: 243mm (9.57") Operating height with conduit at 90 degrees: 320mm (12.6") Weight including 3m conduit: 1.8kg (4lbs)
Duo Dimensions:	Width: 57mm (2.24") Depth (Max): 53mm (2.01") Height: 255mm (10") Weight: 2.8kg including 3m Conduit (6.17lbs)
Nozzle size: Pinpoint only:	60 or 75 micron 40 micron
Spacing from print surface: Pinpoint only:	12mm (0.47") nominal 4mm (+/- 1mm)
Working height relative to cabinet base:	3m conduit: ±1m 6m conduit: ±3m
Conduit Length:	A320i: 3m (10ft) A420i: 3m (10ft), 6m (20ft) A520i: 3m (10ft), 6m (20ft)

Cabinet

A320i, A420i

Standard Finish:	Glass filled nylon moulding with Grade 304 stainless steel rear door.
IP Rating:	Designed to IP55
Dimensions:	Width: 455mm (17.91") Depth: 370mm (14.57") Height: 524mm (20.63")
Weight:	24.5kg (54lb)
Weight (Duo):	As single jet variant (above) +1kg (2.2lb)
Control Panel:	Super Video Graphic Array (SVGA): Polyester, Membrane touch buttons and Touchscreen.

A520i

Standard Finish:	Grade 316 Stainless Steel
IP Rating:	Designed to IP55 (electronics enclosure to IP66)
Dimensions:	Width: 440mm (17.3") Depth: 395mm (15.6") Height: 470mm (18.5") Height (with TouchPanel): 698mm (27.5")
Weight:	33kg (75lb)
Weight (Duo):	As single jet variant (above) +1kg (2.2lb)
Control Panel:	Super Video Graphic Array (SVGA): Polyester, Membrane touch buttons and Touchscreen.

External Connections

Product detector (sensor)/ Shaft encoder connectors:	8-Way socket
Shaft Encoder Input:	NPN or PNP Open collector or 24V Push-Pull encoder, Single or Quadrature input
Beacon Connector:	5-Way socket
Alarms Connector:	7-Way plug, 1A, 30V maximum
TCP/IP:	RJ-45
Data Transfer:	USB Type A (A520i via TouchPanel Type 3 or optional kit)
Power connector:	3-way plug, cable supplied
Options:	
User port SK1:	25-Way D-Sub socket
User port SK2:	37-Way D-Sub socket
Serial (RS232) Port:	8-Way socket

Ink System

Ink Capacity (i-Tech Module):	600ml (0.159 US gall.) - automatically metered
Ink Capacity (Cartridge):	825ml (0.218 US gall.)
Make-up Capacity (Reservoir):	250ml (0.066 US gall.) nominal - automatically metered
Make-up Capacity (Cartridge):	1200ml (0.317 US gall.)
Ink Viscosity Control:	Automatic Viscometer
Ink Bleed Control:	Automatic Start-Up/Shut-Down

Environment

Temperature Range (working)*	+5º to +45ºC (42ºF to 112ºF)
Temperature Range (Storage)	-20º to +60ºC (-4ºF to +140ºF) (machine dry - storage, wet dependent upon fluids)
Humidity	10 - 90% RH (non-condensing)
Electrical Supply	100-240V 50-60Hz (nominal), single phase Auto ranging, 200VA, internal fuse rating 4A
Acoustic Noise Level	Not more than 70 dBA

* Model dependant.

TouchPanel Type 3

Standard Finish:	Cast Aluminium (rear), Nylon Plastic (front)
IP Rating:	IP65
Dimensions:	Width: 307mm (12") Depth: 75mm (3") Height: 232mm (9")
Weight:	2.5kg (5.5lb)
Connectivity:	Via DVI cable to rear of A520i printer
Data Transfer:	2 x USB Type A

Initial Installation

Cabinet Positioning

WARNING: **Care must be taken when moving the printer to avoid injury. Only personnel who have completed manual handling training and have the appropriate equipment should carry out this task.**

The cabinet should be in a position where there is access to the front and left (rear on A520i) side with clearances to open the doors. The cabinet must be level and electrically isolated from other equipment, except for a normal data interface.

The printer should be sited in an area where the temperatures will remain within +5°C and +45°C and the relative humidity will remain within 10% to 90% (non-condensing). The printer draws in and expels cooling air through the handling recesses. These areas must not be obstructed.

Cabinet Mounting

For total stability, the printer should be mounted on a Domino Cabinet Stand. If a Domino Cabinet Stand is not used it is important that the printer base is secured via M6 mounting bolts. Spacers must be used to ensure the mounting bushes are flush with the mounting surface.

The A520i Cabinets can also be stacked (maximum of 3 units high). For stability, the A520i Stacking Kit (P/N EPT011760) must be used when stacking.

Preparing the Ink System

The validity of the i-Tech Module and the ink type being used in it must be validated and registered. Do this as follows:

(1) Select *Home* > *Printer Status* > *Consumables.*

(2) At the prompt enter the 10 digit i-Tech Module and Ink Cartridge quality codes displayed on the front labels. Press *Validate Code(s).*

(3) If the code is OK, a prompt will display requesting the printer to be powered off. Press the Power On/Off button to switch the printer off.

(4) Fit the i-Tech Module as described on page 20.

(5) Fit the make-up cartridge as described on page 22.

(6) Fit the ink cartridge to the i-Tech Module as described in page 22.

(7) At the print head, release the securing screw and remove the print head from its holster and fit into a wash station.

Note: For details of the print head see page 13.

(8) Remove the silicone tube cap over the gutter. Check that the print head is clean and dry.

(9) Press the Power On/Off button to switch the printer on.

The printer will now automatically bleed the ink system to remove any air from the ink system. The printer is now ready for the jet to be switched on.

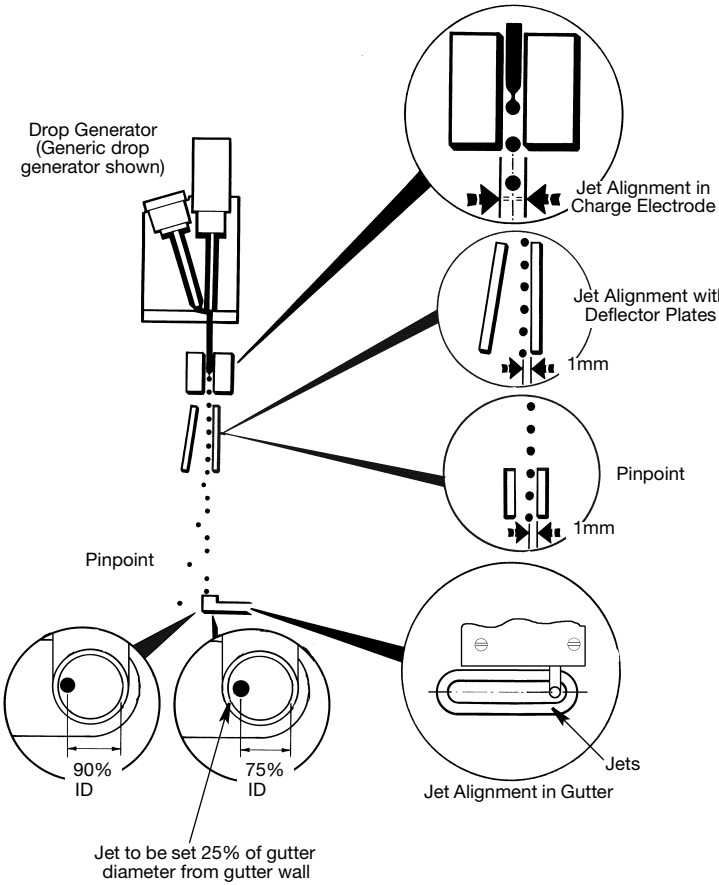
(10) Press the *Start*/*Stop* button. The printer will automatically start the jet.

(11) Check the jet alignment is correct according to the diagram on page 19.

(12) Check that approximately 40 seconds after pressing the *Start*/*Stop* button, the Status bar message changes to *Ready to Print* and the blue led stops flashing and shows steadily.

(13) At the print head, release the securing screw, remove the print head from the wash station and refit into its holster.

The printer is now ready to print.



Head Alignments

i-Tech Module Installation

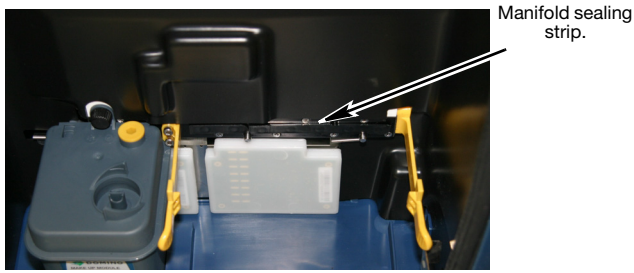
This procedure should be followed when the i-Tech Module is installed for the first time or following a long shutdown after i-Tech Module removal:

Note: Ensure you have Personal Protective Equipment, paper towel (or similar) and wash.

WARNING: Do not remove the i-Tech Module whilst the printer is powered on.

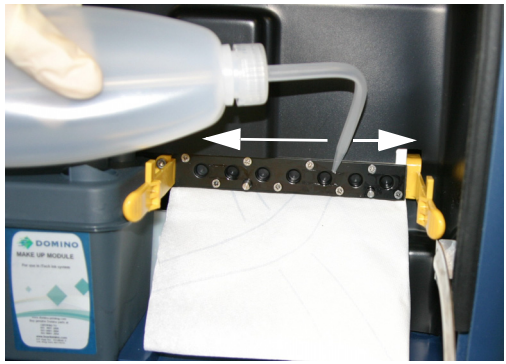
(1) Unpack the new i-Tech Module and note the i-Tech Module data code.

(2) Remove the manifold sealing strip that protects the ink block manifold.



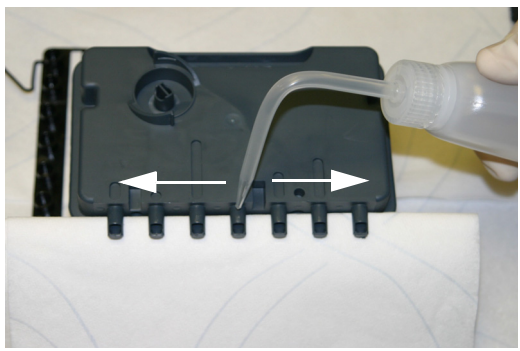
Manifold sealing strip in place

(3) Place paper towel or similar on top of the level sensor modules to catch excess fluid and using wash, remove any dried residual ink from the ink block valve face.



Washing the ink block valve face

(4) Place paper towel or similar under the i-Tech Module manifold pipes and lubricate the pipes with wash.



Washing the i-Tech Module manifold pipes

(5) Insert the i-Tech Module between the retaining clips and firmly push the manifold pipes into the ink block.

(6) Continue pushing until the retaining clips engage with a click.

Note: Ensure clips are fully engaged.

Ink Cartridge Installation

Note: Refer to diagrams on page 38.

(1) Insert a 6mm hex key into the top of the ink cartridge and twist to break the sealing tab. Remove the sealing tab.

(2) Push the cartridge onto the i-Tech Module ink cartridge manifold. Ensure the label is facing forwards.

Make-up Cartridge Installation

Note: Refer to diagrams on page 38.

(1) Unpack the make-up cartridge and note the cartridge code.

(2) Insert a 6mm hex key into the top of the make-up cartridge and twist to break the sealing tab. Remove the sealing tab.

(3) Push the cartridge onto the make-up reservoir manifold. Ensure the label is facing forwards.

Turn on the printer. Enter the data codes when prompted.

Start-Up

Press and hold the *Start/Stop* button.

- The blue indicator on the power and start/stop buttons flash.
- A progress bar and the Domino logo displays on the screen.
- The status bar displays defaults/printer status (see page 29).

Touchscreen (QuickStep)

(1) Select *Home* > *Settings* > *Regional* > *Language and Keyboard*
(2) From the drop down lists, select the required language, keyboard, IME scheme and primary currency.
(3) Select the *Date and Time* tab and press into the editable fields.
(4) Enter the system date and time using the arrows or press in the editable fields and use the keyboard.
(5) Select *OK* when complete.

QVGA

If the Install Wizard is enabled:

- The language screen displays. Select the required language.
- The printer model screen displays. Highlight and select the model.
- The wizard screen displays. Select the required Initial Printer Set-up/Installation/Print set-up option and then select *Finish*.

The printer is now ready to print messages.

Note: If switching on the Jet, the printer takes approximately 2 minutes to reach Standby and 2-3 minutes to reach Ready to Print state.

It is also possible to power the printer to a standby state from the off state. This is done by pressing the Power button on the membrane for approximately two seconds. Non-printing functions (such as creating messages) can be performed whilst the printer is in this status.

Shut Down

To shut down the printer in a controlled manner, press and hold the Power ⏻ button for approximately 2 seconds.

To shut down the printer in an uncontrolled manner, press and hold the Power ⏻ button for approximately 10 seconds.

To switch the printer between Ready to Print and Standby, use the Start/Stop ▶/■ button. From the Ready to Print state, this will take the printer to the Standby state and from the Standby state it will take the printer to the Ready to Print state.

Recommendations for a Long Shut Down

If the printer is to be shut down for up to 7 days, flush the gutter with the correct wash during the auto-flush cycle to ensure the gutter is completely clean. Clean the rest of the print head.

If the printer is to be switched off for longer than 7 days, stored, moved around or used infrequently, the following steps will keep the ink system sealed and the printer in good condition while not in use.

(1) Flush the gutter with the correct wash during the auto-flush cycle to ensure the gutter is completely clean. Clean the rest of the print head.

(2) Replace the ink and make-up cartridges with clean, empty cartridges.

(3) Wipe clean the seals on the removed cartridges and store for future use.

(4) For Duo printers cover the gutters with masking tape or similar.

Note: It is essential that the material used to cover the Duo gutters does not introduce any particulate matter into the gutters.

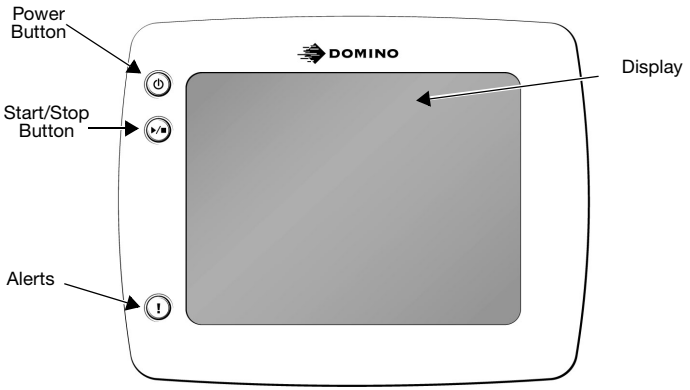
If the printer is to be switched off for longer than 14 days, please contact your local Domino office.

Printer Control

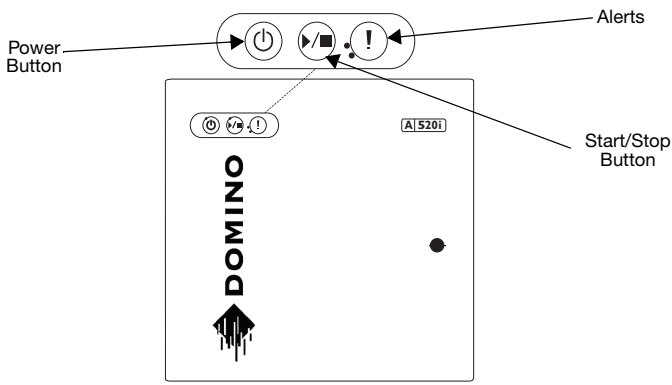
Touchscreen (QuickStep)

There are only three permanent buttons on the printer; the Power, Start/ Stop and Alert buttons. These are shown below. All other functions and buttons are available on the Touchscreen.

Note: A520i UI is via the TouchPanel Type 3.



SVGA Front Panel Layout



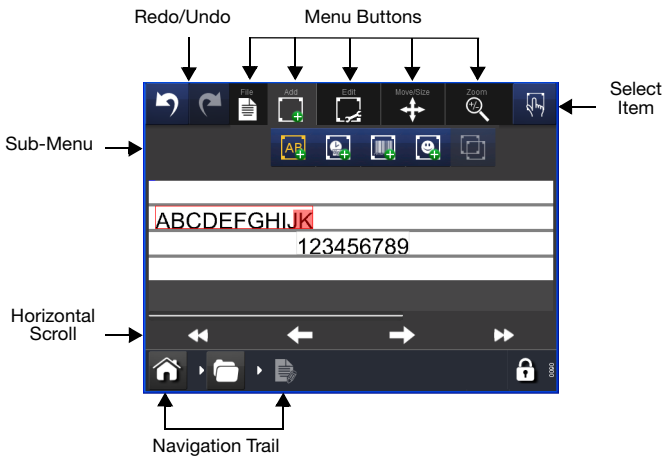
A520i Permanent Buttons

The touchscreen UI display is as shown on the following page:

General

Note: A520i UI is via the TouchPanel Type 3.

Editor Screen

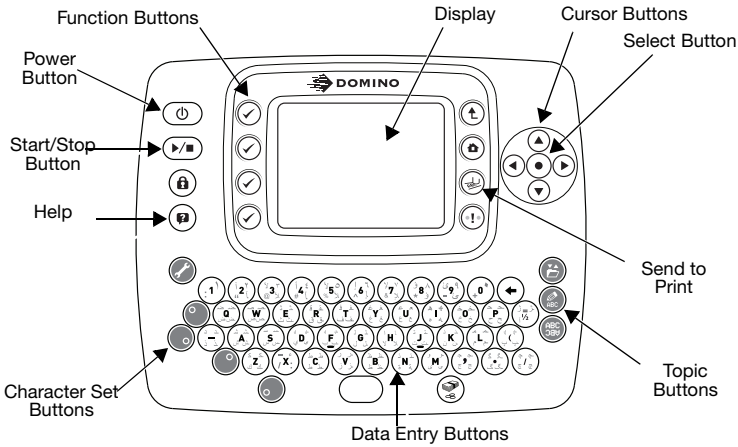


QVGA (A320i A420i Only)

The printer is controlled through the front panel. There are two types of buttons:

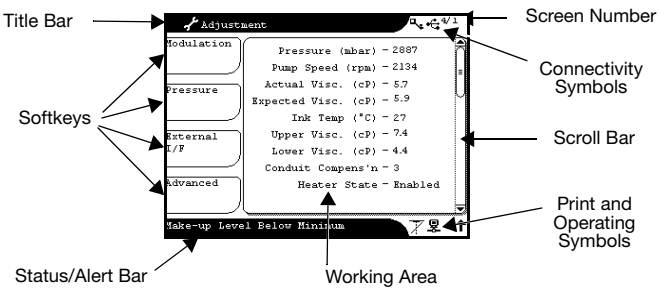
- Permanent buttons with fixed functions (majority of buttons)
- Function buttons (softkeys) with functions that can change.

The main areas of the QVGA front panel are identified in the diagram below.



QVGA Front Panel Keyboard Layout

The display presentation has the following basic structure.



Display Presentation (QVGA)

Status/Alert bar shows status information. When a printer alert is raised, it displays alert information. When the alert condition is cleared, the alert message is cleared (and status will be displayed). If two or more alerts exist simultaneously, the highest priority alert is displayed; if both are the same priority then the most recent will be displayed. Display messages are detailed in the “Display Messages and Fault Finding” section of the Product manual (supplied on disc).

Working area provides a general presentation area for the function in use.

Softkeys, up to four options display, in QVGA these correspond to the four function buttons immediately to the left of the screen, for SVGA simply touch the touchscreen.

Screen number provides a numerical identity for each screen.

Scroll bar shows that the screen detail, in the working area, extends off the display. Either use the up and down cursor buttons in QVGA or press above or below the scroll bar tab in SVGA to show the hidden detail.

Print and operating symbols show the printer status, a print symbol indicates that the printer is ready to print, an alert symbol indicates that there is an unacknowledged alert. See table below.

Connectivity symbols show items that are connected to the printer. USB indicates that a USB device is fitted.

See “QVGA Reference” on page 48 for a description of symbols and buttons.

Printer States

Shown below are some printer states, these are displayed on the Alert/ Status bar at the bottom of the screen.

Status: Standby

The ink system is inactive but the User Interface can still be used.

Status: Getting ready to print

Once completed, the printer should be in a ready to print state.

Status: Ready to print

If a message is on-line, it will print on receiving a product detect signal.

Status: Not ready to print

Printer changing from Ready to print to jet on only or standby state.

Status: Heating

Printer is heating the print head to the optimum temperature for the ink.

Status: Ink system standby

Ink system is pressurised and active, but the jet is off.

Display Contrast

QVGA Screen

The display contrast can be adjusted by pressing the shift ⇧ and printer setup 🔧 buttons together to enter the adjustment mode, then use the ◁▷ buttons to increase/decrease the contrast and the △▽ buttons to increase/decrease the brightness. Pressing the Select ● button will save these settings.

Notes: (1) Exiting by using shift ⇧ and printer setup 🔧 buttons will temporarily apply the settings but the printer will revert to the original settings when it is restarted.

(2) QVGA not available on A520i printers.

Creating a Message

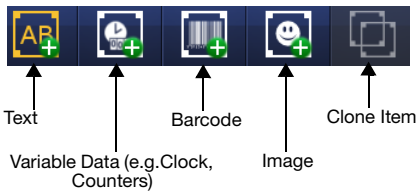
Touchscreen (QuickStep)

In this example text and a defined offset clock will be added to the message.

Add Text

(1) Select *Messages* > *New Message* to open the Message Editor.

The *Items* sub-menu displays.



(2) Place the cross hairs within a specific area of the Message Editor where you require the item to appear.

(3) From the sub-menu, select the *Text* icon.

Note: Change keyboards by selecting the appropriate Alternative Keyboard icon.

(4) Enter the required text using the keyboard and select the *green tick icon* when finished.

(5) To change text select the text item and then the *keyboard* icon on the sub-menu.

(6) To change text parameters (Bold, Width, Inter-character gap etc) use the sub-menu or select *More...*

Note: Text and other entered fields can be manually moved on the Editor screen by dragging and dropping.

Add a New Offset Clock

(1) Press on the screen within a specific area of the Message Editor where you require the item to appear. A cross hair will appear at this location.

(2) Select the *Add*  icon.

(3) From the sub-menu, select the *Variable*  icon.

(4) Select *Create New* > *Clock*.

(5) Use the drop down lists to select the clock type, format and language.

(6) Select the required offset parameters (Days, Months, Years and/or Hours, Minutes, Seconds) and add values using the keyboard. Select the *green tick* icon when each parameter is completed.

(7) Review the entered information and select the green tick icon if correct or press in the required field to add or change values.

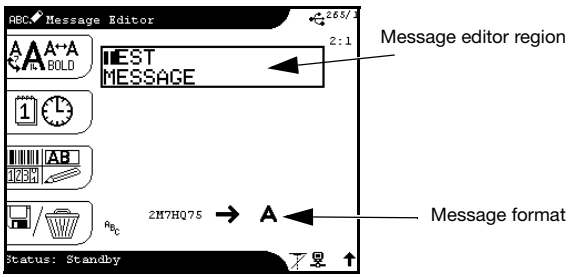
(8) Select the *green tick* icon to enter the offset clock into the message.

QVGA (A320i, A420i Only)

Simple messages can be entered in the Message Editor using the keyboard.

(1) Press the Message Editor topic button.
(2) Type in the message using the keyboard.

It is also possible to change the format of the message, such as font height, bold, inter character gap, etc. and enter different components into the message, such as clock data, serial numbers, shift codes, text fields. These functions are described below.



Message Editor Screen

Font Options

This menu allows access to: Font Height, Bold, InterChar Gap and Message Format Set.

Font (character) size, bold characters and double spacing can be selected as function button options. Pressing the button activates the option and all subsequent entries will be size/bold/spaced accordingly, until the option is modified.

Font size is indicated by the vertical size of the cursor. If a larger font size is inserted into a multi-line message, the other characters will be automatically arranged around the larger characters.

The Message Format Set allows different rasters (message formats) to be stored in the printer. The printer can store/manage up to 8 message formats in the Message Format Set. Messages created can use any of these 8 message formats.

In the Message Editor it is possible to open the properties or relevant setting dialogue for inserted formats by using the left/right cursor buttons ⟨⟩ to highlight the entry and pressing the select button. ⊙

The Font (print) Heights available will depend on the currently selected message formats. Select the required height and press *OK.*

Note that the cursor height will change accordingly in the Message Editor.

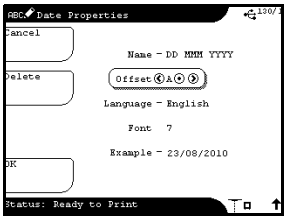
The Bold setting will actually add a number of extra drops, meaning instead of printing 1 line of vertical drops, the printer will print the selected number (a suggested amount would be 1). The next text entered into the message will then be in bold.

InterChar Gap is the distance between each character, this can be increased or decreased.

Clock Options

Date and Time fields and shift codes can be created and inserted into the message.

To insert either a date or time field, select the required field from the list in the screen and press the select button.



Templates for both Date and Time fields exist in the printer as standard and it is possible to add to these templates. An example of the actual printed text is shown.

Formats are used to build the date and time fields, a table of the formats follows on the next page:

Date Codes:

%A	Date (01 to 31)		%G	Month Name
%B	Day of Year (001 to 366)		%J	Day Name
%C	Julian Year (0 to 9)		%K	Week Number (01 to 53)
%D	Year (00 to 99)		%L	Day Number (1 to 7)
%E	Year (1970 to 2038)		%P	Julian Day (001 to 366)
%F	Month (01 to 12)			

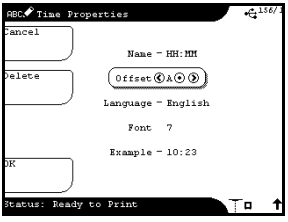
Time Codes:

%H	Hours (00 to 23)		%N	Seconds (0 to 59)
%I	Quarter Hours (01 to 96)		%O	Alpha Hours
%M	Minutes (0 to 59)			

Clock Offsets can also be set and applied to any of the clock templates. This can be useful when coding a sell or use by date that is a set number of days ahead of today's date.

To set, select an offset from the list in the *Clock Offsets* screen and press *Change.* Change the name if required and set the offset amount. It is best to leave one of the offsets at zero for clock fields that do not require any offsets.

To insert an offset into either a date or time field, open the *Properties* screen for the Date or Time field and select the offset required.



In this example, the offset A has been applied to the time field "HH:MM".

To Save the Message

Touchscreen (QuickStep)

(1) Select the *File*  icon and then select the *Save*  icon.

(2) Give the message a name and select a location.

(3) Select the *Save* button.

Note: It is recommended to save messages in the Message Stores for ease of retrieval.

QVGA

Once the message has been created, it is possible to save the message from within the Message Editor by pressing the *Save/Clear* button.

Notes: (1) If the message in the Message Editor has already been saved, pressing the Save/Clear button will clear the Message Editor.

(2) It is also possible to save the active message (in the Message Editor) via the message store, by pressing the Save button.

To Print the Message

Touchscreen (QuickStep)

With the printer in a *Ready to Print* state:

(1) Select the *File* icon.

(2) Click the *Send to Print* icon.

QVGA

With the printer in a *Ready to Print* state:

(1) Press the *Send to Print* button on the membrane, to print the currently selected message.

The message will now be printed at each Print Go signal.

Note: If an on-line message is changed in any way, it is necessary to press the Send to Print button again to implement the changes.

Ink and Make-up Cartridge Replacement

WARNING: **Do not smoke or allow naked flames (or other sources of ignition) in the vicinity of any inks or solvents as this is highly dangerous.**

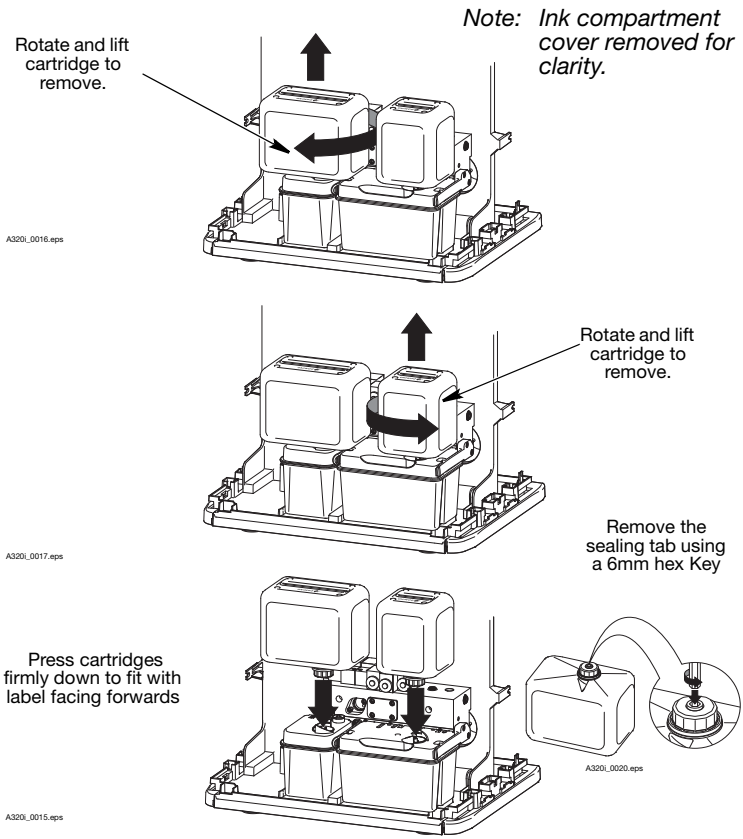
Messages ‘Add Ink Cartridge’ or ‘Add Make-up Cartridge’ will appear when the ink or make-up cartridges need replacing, and the amber alert will illuminate. Enter the relevant cartridge codes when prompted.

(1) Remove the old cartridge by rotating the ink cartridge anti-clockwise and the make-up cartridge clockwise to free it before lifting it away.

Note: This mechanism ensures that the cartridges cannot be fitted onto the wrong manifold.

(2) Insert a 6mm hex key into the top of the new ink cartridge and twist to break the sealing tab. Remove the sealing tab.

(3) Push the cartridge onto the i-Tech Module or make-up reservoir manifold. Ensure the label is facing forwards.



Cartridge Replacement

If the make-up cartridge is not replaced, the make-up reservoir will empty and the ink viscosity will eventually go outside its operating limits. Also, head flushing will not be carried out when the printer is shut down and ink may be deposited on the print head components. The printer can still be used but head faults may occur.

Make-Up Filter Replacement

The make-up filter is situated in the make-up reservoir. It is a user replaceable part and therefore identified by being coloured yellow.

To replace the make-up filter:

Notes: (1) Tools required: 6mm Hex Key, Lint-free tissue to catch any escaping ink, Protective clothing (especially safety glasses).

(2) Cleanliness is of extreme importance. Ensure debris does not enter the make up-reservoir during this process. Observe good cleanliness procedures at all times.

(1) Shut down the printer.

(2) If a make-up cartridge is attached to the make-up reservoir, remove it at this stage by twisting in a clockwise direction (refer to “Ink and Make-up Cartridge Replacement” on page 1-37).

(3) Remove the old make-up filter from the reservoir by inserting a 6mm hex key into the yellow filter top and unscrewing the filter out from the reservoir. Dispose of safely.

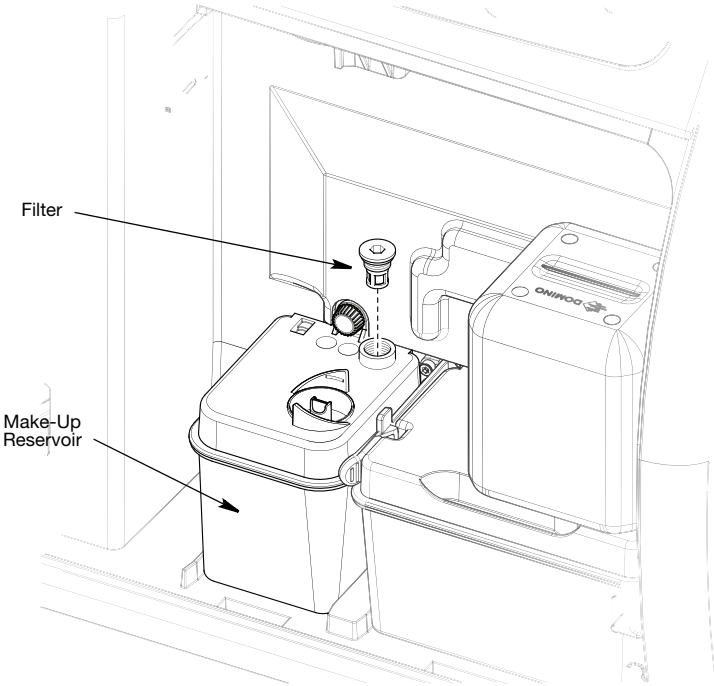
(4) Carefully unpack the new filter from its packaging.

(5) Use the 6mm hex key to screw the new filter home into the make-up reservoir.

(6) Replace the make-up cartridge (if fitted).

(7) Start the printer and check for leaks.

(8) Shut the ink compartment access door.



Make-Up Filter Replacement

i-Tech Module Replacement

WARNINGS:

(1) Do not smoke or allow naked flames (or other sources of ignition) in the vicinity of any inks or solvents as this is highly dangerous.

(2) Do not remove the i-Tech module whilst the printer is powered on.

The main ink and gutter filters are situated in the i-Tech Module and are an integral part of Domino's i-Tech ink system. Replacement of these filters therefore occurs automatically during scheduled i-Tech Module replacement.

Entering the i-Tech Module Data Code

The messages *Ink change needed in less than 24 hours* and, later, *Ink change needed in less than 2 hours* will appear near the end of the i-Tech Module life. Printing will not continue beyond the expiry of the i-Tech Module life.

The i-Tech ink system will automatically run down the level of ink in the ink cartridge to a minimum level, so it is usual to replace this cartridge at the same time.

It is necessary to enter the quality code of the new i-Tech Module and reset the replacement alarms, using the following procedure:

Touchscreen (QuickStep)

(1) Switch the printer to a standby state using the correct procedure, i.e ensure the jet is off.

(2) Select *Home* > *Printer Status* > *Consumables* > *Change i-Tech Module.*

The screen will display a prompt requesting input of the Quality Code printed on the label of the new i-Tech Module.

(3) Type in the i-Tech Module quality code.

(4) Type in the existing or new ink cartridge code.

(5) Select *Validate*.

If the correct code is typed in, the information bar will display "*Install i-Tech Module*" and the i-Tech Module run time will then be reset and the alarms cancelled. The printer will then automatically shut down. Proceed to "Replacing the i-Tech Module" on page 43.

If the number is typed inaccurately, it can be corrected by typing in again. If an invalid code number is typed, the number will not be accepted and messages in the information bar will indicate the problem, e.g. *Incorrect ink type - do not fit, Ink out of date - do not fit,* or *The i-Tech Module Data Code inserted has already been used. Please insert a new valid code* (an old i-Tech Module number has been used).

QVGA

(1) Switch the printer to a standby state i.e ensure the jet is off.

(2) Press the Machine Setup button and enter the password if required.

(3) Press the Production Data button and then the function buttons marked *Fluid Management* > *Change i-Tech Module* and the screen will change to show a prompt requesting input of the Quality Code printed on the label of the new i-Tech Module.

(4) Type in the i-Tech Module quality code where prompted.

(5) Type in the existing or new ink cartridge code where prompted.

(6) Press the function button marked *Submit Code*.

Replacing the i-Tech Module

Replace the i-Tech Module as follows:

Note: Cleanliness is of extreme importance. Ensure debris does not enter the new i-Tech Module or ink block during this process. Observe good cleanliness procedures at all times.

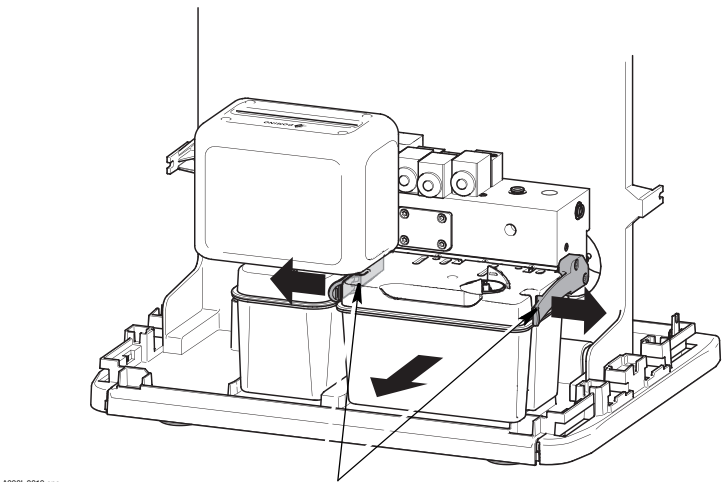
WARNING: Do not remove the i-Tech module whilst the printer is powered on.

(1) Shut down the printer.

(2) Open the access door to the printer ink compartment.

(3) If an ink cartridge is attached to the i-Tech Module, remove it by twisting it anti-clockwise.

(4) Pull the two i-Tech Module retaining clips outwards away from the i-Tech Module.



Note: Ink compartment cover removed for clarity.

Removing the i-Tech Module

(5) Pull the i-Tech Module backwards, withdrawing the connecting manifold from the ink block and remove the old i-Tech Module.

Notes: (1) If the i-Tech Module does not withdraw with moderate pressure, push the i-Tech Module fully forward (which will break any seal caused by dry ink) and try again.

(2) The manifold pipes will contain residual ink. Take care when removing the i-Tech Module to avoid spillage.

(6) Unpack the new i-Tech Module and remove the sealing strip that protects the i-Tech Module manifold.

(7) Re-use the sealing strip to seal the manifold on the old i-Tech Module.

(8) Place paper towel or similar on top of the level sensor modules to catch excess fluid and using wash, remove any dried residual ink from the ink block valve face.

(9) Place paper towel or similar under the i-Tech Module manifold pipes and lubricate the pipes with wash.

(10) Insert the i-Tech Module between the retaining clips and push the manifold pipes into the ink block.

(11) Continue pushing until the retaining clips engage with a click.

(12) Attach a new ink cartridge to the i-Tech Module (existing one may be re-used).

Note: Residual ink can be removed from the old i-Tech Module by inserting a 6mm hex key into the draining tab on the base of the i-Tech Module and snapping it off. Ensure the i-Tech Module is angled such that residual ink is not over the draining tab during this process.

When the printer is next switched on, it will display *"Bleeding Ink System - Please Wait..."*. Check the ink system for leaks.

Air Filter Replacement

Air filter replacement is recommended after every 2000 hours of operation but may need to be replaced sooner depending on the operating environment.

A new air filter can be ordered through BuyDomino which can be found on the Domino Printing website.

To remove the air filter:

(1) Shut down the printer

(2) The air filter is located in a slot to the side of A320i/A420i printers or at the rear (under electronics cabinet) on A520i printers. As a user replaceable part it is coloured yellow.

(3) Remove the air filter by holding the yellow exposed part of the filter and pulling it gently out of the filter housing.

Fault Finding

Issue	Possible Cause	Remedy
Not Printing, error *Gutter Dry* is displayed	Blocked Nozzle	Touchscreen (QuickStep): *Go to Home* > *Settings* > *Diagnostics*> *Tests* > *Clear Nozzle*. QVGA: Go to  > *Diagnostics,* then select *Clear Nozzle* and press *Run Test*
Ink on deflector plates and/or charge electrode, possible faults could be: “Ink detected on Charge Electrode” “Charge detection has failed” “Fall back jet modulation in use” “Deflection EHT has tripped”	Blocked Nozzle or dirty print head	With the printer switched off and unplugged, clean the print head, see page 54.

No print occurs but message has been sent.	Faulty sensor	Check the sensor and its position
	Faulty encoder	Check the encoder is outputting signals (can be seen via the Ext I/F screen)
	Incorrect setting of sensor	Check that the active level is set correctly
	Print delay and/or offset set incorrectly	Check the delay and offset for this message are suitable, adjust as required.
	Enable/Disable (Send to Print) button has been pressed whilst in the Home screen	This button will toggle printing within the Home screen, so only necessary action is to press button again.

QVGA Reference

Print Width and Height 

The print height and width can be set.

Notes: (1) The print width will only be affected if using an internal stroke rate.

(2) Print Height and Width are machine settings and are not saved with the individual messages.

Print Height 

This is adjusted as a percentage of the full height. The changes are instant and will affect all printed messages.

Print Width 

This is only effective when using an internally generated stroke rate. Use the buttons to increment/decrement the print width (measured in strokes).

Message Orientation 

Allows the message to be printed in reverse and/or inverted and also inverse video.

Note: Reverse and Invert print apply to the whole message, inverse video only applies to subsequent text entered.

Screen Icons

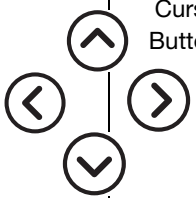
QVGA Icon	Description
Connectivity (top right of screen)	
	Service or Feature Key is fitted
	USB
Print/Operating (bottom left of screen)	
	Jet On
	Jet Off
	Printer is printing
	Transitional status (i.e. printer is going from Jet On to Jet Off)
	The printer software is communicating with the front panel (normal operation)
	A remote connection to the printer is established
	Caps Lock is on (QVGA only)
U	Unicode button (SVGA, contained within the numeric keyboard) or Unicode is active (QVGA)
U↑	Unicode and Caps Lock is active (QVGA only)
!	i-Tech Module 1st warning - there are 24 hours remaining in the i-Tech Module (a new i-Tech Module should be obtained).
!!	i-Tech Module 2nd warning - there are 2 hours remaining in the i-Tech Module.
	The i-Tech Module has expired and must be changed immediately. Printing has stopped.

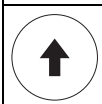
Topic Buttons

Each topic button opens sets of screen options.

	Message Editor	Provides access to the message creation utilities.
	Message Store	Provides access to the stored messages. Use to save messages.
	Print Parameters	Provides access to the utilities controlling the message being printed, e.g. message orientation. These parameters are saved with the message.
	Machine Setup and Service	Provides access to the printer for service and printer setup.
	Lockout	When security is set, this button will log out the current user.
	Home	Pressing this button from most screens will revert the printer back to the Home screen.

General Purpose Buttons

	Power On/Off	Switches power on to the printer. It will initialise the printer to a standby state. If pressed for 2 seconds whilst on, the printer will carry out a shut-down procedure and power off, if pressed for 10 seconds it will cause the printer to perform an emergency shut-down.
	Start/Stop	Powers the printer to a ready to print state. If pressed whilst in a ready to print state, it will take the printer to a standby state.
	Cursor Buttons	Four buttons used to move the cursor around the screen.
	Select Button	Select the currently highlighted option, either inserting it into the message or opening the properties.
	Function Buttons	Select softkey option on the screen to the right.
	Back	Press to go up a menu level.
	Send to Print (Enable/ Disable Print)	From Message Editor, Message Store and some areas of print parameters, this sends the currently selected message to print. From the home screen, this enables and disables the printing.
	Delete Button	Deletes entries immediately to the left of the cursor.

	Outline Button combination	*Within the Message Editor,* puts an outline around each individual component (such as dates, text) in the message.
	Alternative Character Set - Top Left (Blue)	Press this button to select the top left blue character on character button.
	Alternative Character Set - Top Right - Green	Press this button to select the top right green character on each character button on QVGA. (Arabic only - Turns on Arabic keyboard. Default is top right characters. Press and hold black, red and blue for alternative characters. Press again to return to Latin keyboard).
	Alternative Character Set - Lower Right - Red (Arabic only)	Press this button to select the lower right red character on each character button.
	Shift Lock Button	Changes characters to lower case until pressed again to return to upper case characters.
	Shift Button	Hold down to change the character case (from upper to lower or lower to upper).
	Shift Button/ Alternative Character Set Button (Arabic only)	Use to select the lower left black character on character buttons. Use as shift button when Arabic keyboard turned off.
	Alerts Button	Opens the alerts list. Alerts can be acknowledged within this dialogue.

Help Button

	Help Button	Provides access to help information concerned with the current menu screen.

Currency Button

	Currency Button	Provides entry for currency characters. Pressing this button generates minor currency symbols (e.g. p, c, etc.) pressing with the Shift button generates the major currency symbol (e.g. £, $, etc.)

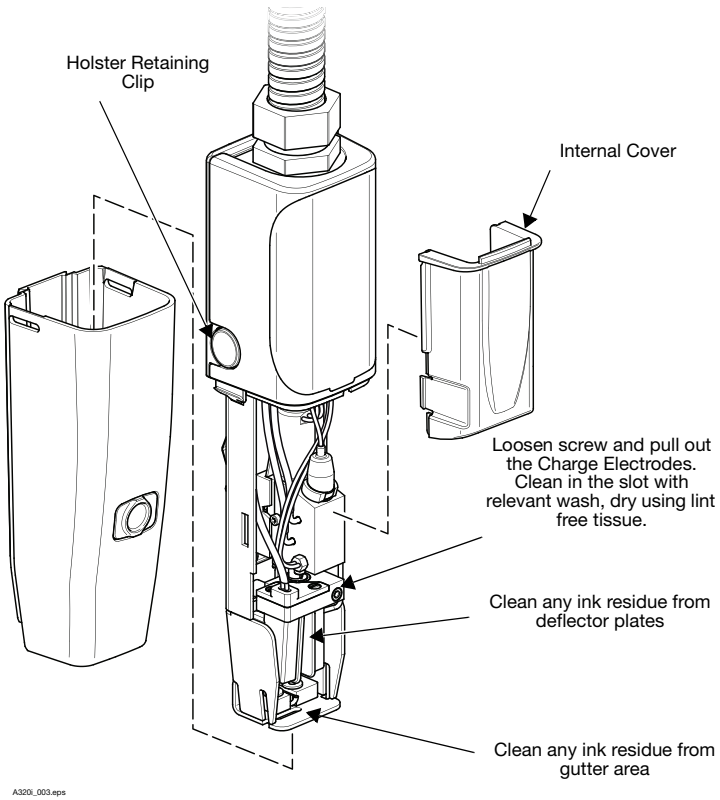
Lockout

Pressing the Lockout button prevents unauthorised changes through the front panel or interference while the printer is unattended. With Lockout selected, control of the printer is restricted to switching on, switching off and inspecting the message being printed. Access to all other functions requires the use of the appropriate password, provided this has been set, users can log in and have access according to their access rights. An administrator can set-up new users. Only administrators have access to the security setup area of the printer.

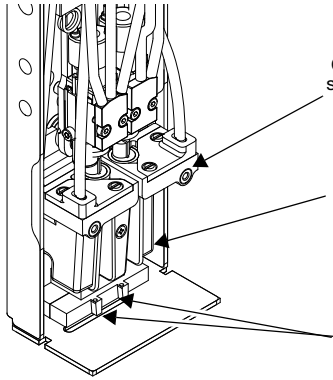
To enable the lockout function, security must be enabled within the Machine Setup area. Refer to the Product manual for details on the security area.

Cleaning the Print Head

Remove the holster by pressing in the two holster retaining clips at the side of the print head. Withdraw the holster by pulling gently downwards. Remove the internal cover by gently squeezing in the sides to release the clips and lifting the lower part away from the print head and gently pulling downwards.

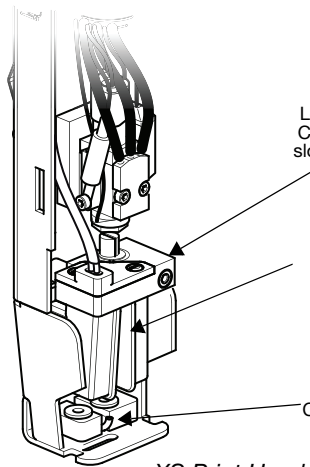


Standard Print Head



AD_0001.eps

Duo Print Head



XS Printhead Cleaning.eps

XS Print Head

Nozzle Plate Removal and Cleaning

WARNINGS:

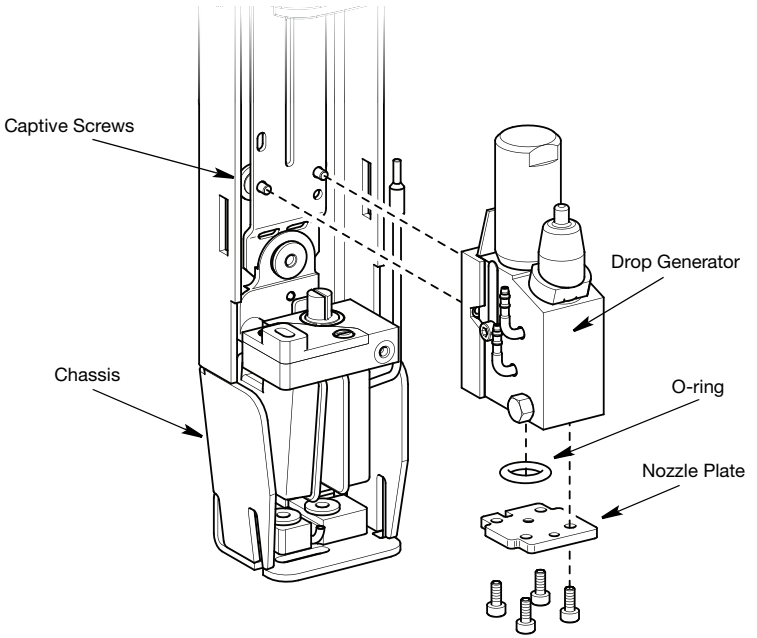
(1) Never start the printer with the nozzle plate removed.

(2) Under certain fault conditions, the ink in the feed tubes and drop generator could remain under pressure when the printer is switched off. To protect against escaping ink, place tissue around the nozzle plate before releasing the securing screws, or around an ink feed tube junction before disconnection.

CAUTION: In the following procedures, except where specified, do not touch the head valve plunger or the nozzle jewel (in the middle of the nozzle plate) with the fingers.

Standard Print Head

Remove the nozzle plate as follows:



Removing the Nozzle Plate

(1) Shut down the printer.

(2) Remove the holster from the print head by pressing in the two holster retaining clips and withdrawing the holster.

(3) Remove the moulded cover over the internal pipework and wiring by gently squeezing the sides of the cover inwards and withdrawing away from the print head.

(4) At the rear of the print head, unscrew the two captive screws (contained within the black rubber grommets) securing the drop generator.

(5) Pull the drop generator gently away from the chassis sufficiently to allow access to the nozzle plate screws. Avoid pulling on the wiring.

(6) Remove the four screws securing the nozzle plate. Pull the nozzle plate off its locating pins and remove.

To clean the nozzle, put the nozzle plate into a clean beaker filled with the appropriate wash. Stand the beaker in an ultrasonic bath filled with water. Switch on the ultrasonic bath and clean the nozzle plate for not more than 10 minutes. If the nozzle is to be changed, ensure that the new nozzle is the correct type. Replace the nozzle plate as follows:

(7) Wash the face of the drop generator and the tip of the head valve plunger where it projects from the drop generator. Gently press the tip of the plunger into the drop generator to ensure that it moves freely.

(8) Ensure that the O-ring is in place on the face of the drop generator, then fit the nozzle plate to the drop generator. The plate must be the correct way round so that the screw holes correspond and the plate fits onto the locating pins. Tighten the screws as far as possible.

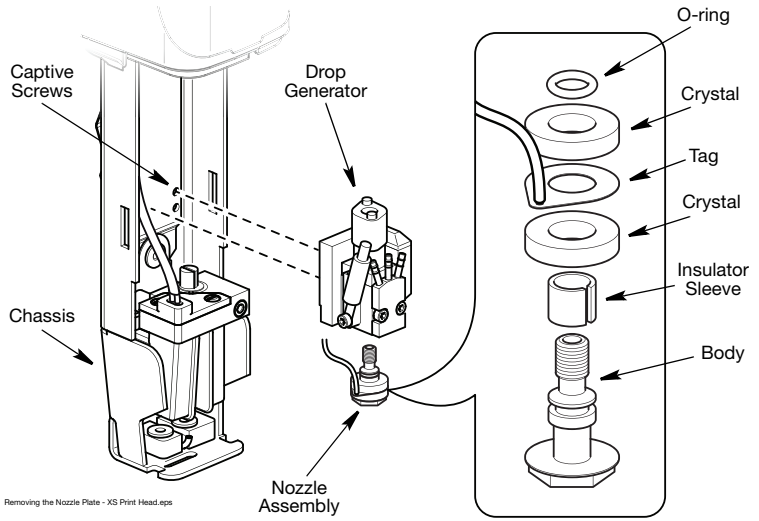
(9) Refit the drop generator onto its mounting, ensuring that it is correctly fitted onto the locating pins. At the rear of the head, tighten the two securing screws.

(10) Replace the moulded cover over the internal pipework and wiring and replace the holster.

XS Print Head

Note: A torque tool is required for fitting the nozzle assembly.

Remove the nozzle as follows:



Removing the Nozzle Assembly - XS Print Head

(1) Shut down the printer.

(2) Remove the holster from the print head by pressing in the two holster retaining clips and withdrawing the holster.

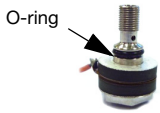
(3) Remove the moulded cover over the internal pipework and wiring by gently squeezing the sides of the cover inwards and withdrawing away from the print head.

(4) At the rear of the print head, unscrew the two captive screws (contained within the black rubber grommets) securing the drop generator.

(5) Pull the drop generator gently away from the chassis sufficiently to allow access to the nozzle assembly. Avoid pulling on the wiring.

(6) Holding the drop generator, use an 8mm spanner to unscrew the nozzle assembly from the drop generator.

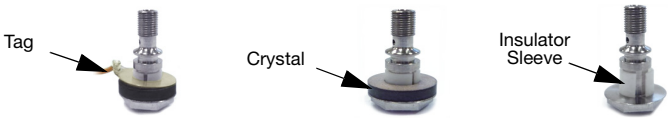
(7) Carefully withdraw the nozzle and crystal assembly from the drop generator.



(8) Carefully remove the O-ring from the nozzle assembly.

CAUTION: Always remove the O-ring before removing the piezo. Failure to do this can result in a broken crystal.

(9) Gently remove the piezo crystals and tag from the nozzle assembly.



(10) Remove the insulator sleeve

To clean the nozzle, put into a clean beaker filled with the appropriate wash. Stand the beaker in an ultrasonic bath filled with water. Switch on the ultrasonic bath and clean the nozzle for not more than 10 minutes. If the nozzle is to be changed, ensure that the new nozzle is the correct type. Replace the nozzle assembly as follows:

(11) Replace the insulator sleeve.

(12) Fit the first crystal, noting that the copper side should be uppermost, then refit tag and second crystal, noting that the copper side should be downwards.

(13) Replace the O-ring.

(14) Carefully refit the nozzle assembly - note that this should be tightened to 0.7Nm.

(15) Refit the drop generator onto its mounting, ensuring that it is correctly fitted onto the locating pins. At the rear of the head, tighten the two securing screws.

(16) Replace the moulded cover over the internal pipework and wiring and replace the holster.

This User Guide, part of pack EAS002849, shows how to operate your Domino product. For full details, please refer to the Product Manual contained on the CD-ROM.

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