



Domino M-Series User Guide

A decorative graphic consisting of a thick, wavy green line that curves across the bottom half of the page. Above this line are several teal-colored diamonds of varying sizes, some overlapping the line and others floating above it.

M50

M100

M200

Domino. Do more.

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INTRODUCTION

This User Guide shows how to operate the Domino M100 & M200-Series Print & Apply equipment.

WARNINGS

Personnel must regard all electrical equipment as powered on and all pneumatic equipment as pressurised.

"Unplug electrical power and compressed air supplies before attempting any cleaning or maintenance on the printer, PCU (Printer Control Unit) or applicator.

"When the printer is operating, keep hands, clothing and tools etc. well away from moving parts.

"Do not operate the printer with any of the protective covers removed.

"Observe all relevant safety precautions regarding the use of compressed air.

"Turn on the compressed air slowly and carefully to avoid rapid piston movement.

"The pistons must be in their home positions when turning on the compressed air.

SAFETY

Inspections

Regularly check the functioning of different stop functions and other interlocking devices related to safety.

When the emergency stop is activated the machine should stop securely. The machine should not be able to start unless a reset has been done.

Compulsory Knowledge

- Always know where the nearest emergency stop is
- Make sure that no unauthorized persons are in or close to the risk area when the machine is started
- Always use a normal voice when working, a high voice can indicate an emergency situation
- Always know where your colleagues are before the starting the machine
- Potentially lethal voltages are present in this equipment
- Switch off and isolate all electrical supplies before removing any covers
- Take precautions against electric shock when working on live equipment with the covers removed
- Isolate electrical power and compressed air supplies before attempting any cleaning or maintenance on the printer, PCU or applicator
- When printer is operating, keep hands, clothing and tools etc. well away from moving parts
- Do not operate the printer with the protective covers removed
- The pistons of the cylinders must be in their "home positions" when switching on the compressed air
- Switch on the compressed air slowly and carefully in order to avoid rapid piston movement
- Observe all relevant safety precautions regarding the use of compressed air".

CAUTION

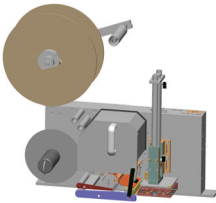
Avoid locations subject to extreme vibration and direct sunlight.

- Do not probe the printer's operating parts with sharp or metallic objects as this will cause operating malfunctions and possible damage
- Do not allow abrasive dust particles to enter the printing mechanism as this will lead to reduced printhead life
- When changing labels and/or ribbons, always follow the instructions
- Only use approved label and ribbon supplies
- Do not store thermal paper supplies in locations that are subject to direct sunlight, high temperature, high humidity or high dust or gas levels
- Under normal circumstances, clean the exterior of the printer only by wiping with a dry cloth. However, if necessary, use a cloth soaked in a mild detergent solution and squeezed out thoroughly
- Do not use strong solvents on any area of the printer, PCU or applicator surface
- Do not pour water or any other liquid directly onto the printer.

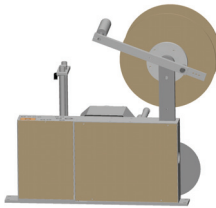
LAYOUT / ORIENTATION

The Print & Apply unit shown is a standard unit. Several other versions are available but the general design is more or less the same and the names of the different sides are the same.

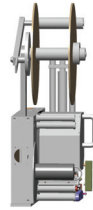
Operator Side



Front



Service Side



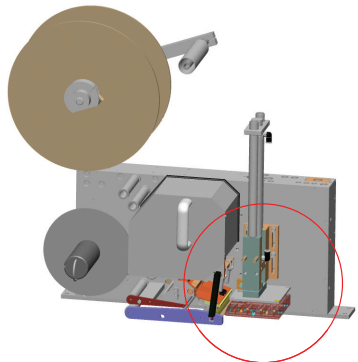
Back

RISK AREAS

The risk depends on the applicator used, but generally the risk area is in front of the printer where the applicator is mounted.

The risk area (area marked with a circle) could be dangerous and is also difficult to protect.

Ensure that hands and fingers are kept away from the machine when it is operating.



NOISE

Maximum measured acoustic power level L_w is 84.8 dB(A) measured in front of the applicator when the blow function in the pad is used.

It is a short but quite high noise. The use of Ear defenders is recommended.

Without the blow function in the pad, the acoustic power level L_w is between 70 and 75 dB(A) depending on the applicator used.

SITE REQUIREMENTS

The printer should be mounted securely in the required position, if possible away from direct heat and sunlight. The printer is not designed to be explosion proof and is not suitable for use in hazardous areas such as fume, gaseous or dust laden atmospheres.

WARNING: Do not install the printer into a hazardous environment such as fume, gaseous or dust laden atmospheres.

The printer is specified for operation in the following environmental conditions:

Temperature: +5 - +40°C

Humidity: 20% - 85% non-condensing

Whilst the printer can be used in dusty environments, this will tend to reduce its operating life. If the environment is unduly adverse, regular cleaning is recommended to ensure correct operation and maximum service life.

INITIAL INSTALLATION


On initial installation of the printer, it is important to mount it securely, if necessary, bracing it using additional supports, if it is required to operate in an area subject to vibration. Consideration must also be given to the necessary access for cleaning, label changing and routine maintenance.


CAUTION: Use as many additional supports as necessary to ensure that the printer will be unaffected by extreme vibration. Holes are provided in both the printer and the mounting plate to allow for the attachment of supports.



PCU CONTROLS & LED INDICATORS


PRINTER CONTROL UNIT (PCU) CONTROLS





 Enter set-up mode and it enters/confirms values when changed.

 Goes up/backwards one step in the menu system for each press. Is used to cancel changes or exit without saving (when used instead of Enter).

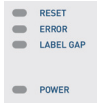
  Go to Next or Previous menu or item.
The button also changes the displayed value.
Confirm change with Enter key.

 The button restarts the printer/machine.
It is the same action as switching power OFF/ON.
A position label sequence will take place (blank labels fed) if Reset/Power on is selected.

 The Test button prints a grey pattern test label.
It is used for maintenance and printhead performance tests.

 The Print button is used to print a label.
Depending on the configuration, it can print a new label, print last label or previous label. It can also be set not to print

LED INDICATORS



RESET

This LED indicates that RESET has been set and the system has been reset to start the process.

ERROR

This LED flashes to indicate an error in the process.

LABEL GAP

This LED flashes to indicate the gap between labels.

POWER

This LED lights green when all voltages are available.



CH1 & CH2 (RS232 port)

RxD - Flashes when data is being received by the PCU.

TxD - Flashes when the PCU is transmitting data to a PC or other computer

CH3 (RS485 port or ethernet)

RxD - Flashes when data is being received by the PCU.

TxD - Flashes when the PCU is transmitting data to a PC or other computer

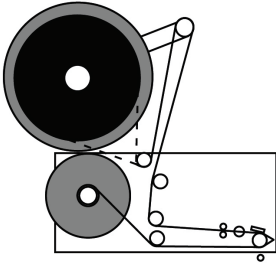
REAR PANEL



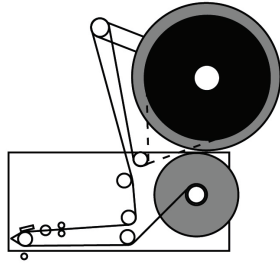
1. Power ON or OFF switch
2. Mains Fuse

CHANGING LABELS & RIBBONS

Left Hand Printer

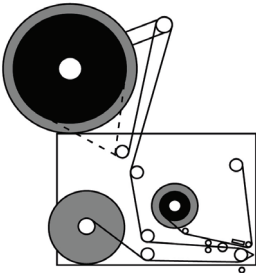


Right Hand Printer

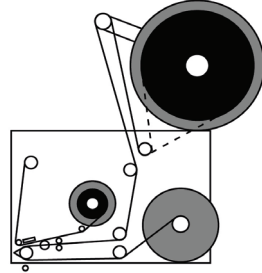


Direct Thermal Printers Models D30 and D40 (Labels)

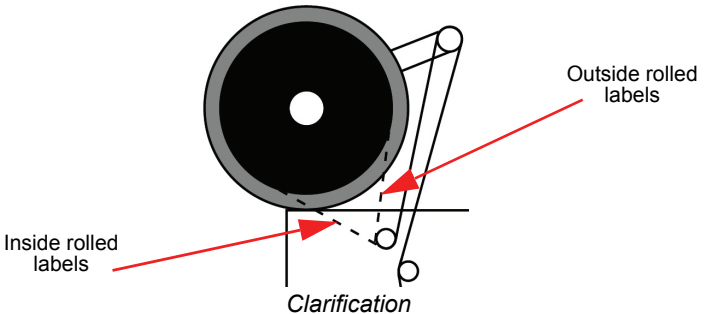
Left Hand Printer



Right Hand Printer



Thermal Transfer Printers Models T50 and T60 (Labels & Ribbon)



CHANGING LABELS

Note: Study the diagram attached to the printer, that shows the label path and ensure that the 'dancing' arm on the reel holder is employed in the correct way, as the correct arm positioning is important for achieving correct label positioning.

There must always be suitable tension in the label web to prevent it from moving sideways on the drive roller.

Always remove the labels from the backing paper before fastening it to the rewind reel. This will make it easier to remove the backing paper when changing labels.

PROCEDURE

- (1) Lift the printhead with the lifting handle and gently ease the labels out sideways.
(If the printer has a peel roller mounted, Lift the printhead with the lifting handle, loosen the peel roller and gently ease the labels out sideways).
- (2) Remove the label roll.
- (3) Carefully clean the printhead.
(Refer to Preventative Maintenance on page 21)
- (4) Gently blow any dust or debris away from the label-gap sensor.
- (5) Install a new roll of labels, thread through the printer drive mechanism as shown on page 10, and insert under the printhead.
- (6) Lower the printhead fully.
(If the printer has a peel roller mounted, lower the printhead fully and attach the peel roller).
- (7) To position the label correctly, the machine should feed and measure two to four labels.

Continued overleaf

Either of these 2 options:

Option 1: Head close (default & recommended method)

When the printhead is lowered the labels can be fed by pressing the Enter button.

Option 2: Reset / Power up

Reset the printer by pushing the RESET-button mounted on the printer.

Ensure that these non-printed labels are automatically fed out.

After auto feed-out, the printer will have measured the length of the labels and is ready to use. It is very important that the labels pass through the label-gap sensor; otherwise the printer will assume that the label supply is exhausted and will not operate.

CHANGING RIBBONS

Thermal Transfer Printers Models - T50 and T60.

Note: Ensure that the correct outside ink type ribbon is used.

Ensure that the ribbon rewind is parallel to the unwind reel.

Always take care to press the reels into place correctly.

- (1) Lift the printhead with the lifting handle and gently ease the ribbon out sideways.
- (2) Remove the exhausted ribbon roll.
- (3) If the ribbon roll does not have an empty tube, remove the empty inner spool from the exhausted roll and insert it into the rewind spool for ribbon collection.
- (4) Carefully clean the printhead.
(Refer to Preventative Maintenance on page 21)
- (5) Install a new roll of ribbon and thread it through the printer drive mechanism, as shown on page 10.
- (6) Lower the printhead to the print position.
- (7) To position the label correctly, the machine should feed and measure two to four labels.

CLEANING & MAINTENANCE SCHEDULE

<p>DAILY (approx 10 minutes)</p>	<p>CLEANING <i>Clean exterior of printer</i> <i>Clean the printhead</i> <i>Check the drive roller for dirt and debris, clean if necessary</i> <i>Clean the applicator (applicator pad, blow-on-box etc.</i> <i>Clean the label gap sensor</i></p> <p>MAINTENANCE <i>Check the position of the applicator</i> <i>Check the air pressure</i> <i>Check the movement of the applicator piston (if fitted)</i> <i>Clean the display and led's on the PCU</i></p>
<p>WEEKLY (10-20 minutes)</p>	<p>CLEANING <i>Carry out DAILY cleaning</i></p> <p>MAINTENANCE <i>Carry out DAILY maintenance, plus:</i> <i>Check the friction of the backing paper rewind spool</i> <i>Check the platen roller and ribbon take-up roller for damage and dirt</i> <i>Check the function of the emergency stop</i></p>
<p>MONTHLY (20-30 minutes)</p>	<p>MAINTENANCE <i>Carry out DAILY and WEEKLY maintenance, plus</i> <i>Check the label gap settings</i> <i>Check the tension of the drive belts</i> <i>Check the drive belts for wear</i> <i>Check the wear of the friction washers</i> <i>Check the printhead for missing dots (press the TEST button to create a test pattern label)</i> <i>Check the ON/OFF-valve to the air supply - Lubricate if needed.</i></p>
<p>EVERY SIXTH MONTH (60-90 minutes)</p>	<p>CLEANING <i>Carry out DAILY cleaning plus:</i> <i>Clean the PCU</i> <i>Tidy the printer and surrounding area</i></p> <p>MAINTENANCE <i>Carry out DAILY, WEEKLY and MONTHLY maintenance, plus:</i> <i>Re-calibrate the label-gap sensor</i> <i>Check the PCU fan operation</i> <i>Check the operation of any warning photo-cells (if fitted)</i> <i>Check the complete unit for loose or missing screws</i></p>

MENU NAVIGATION

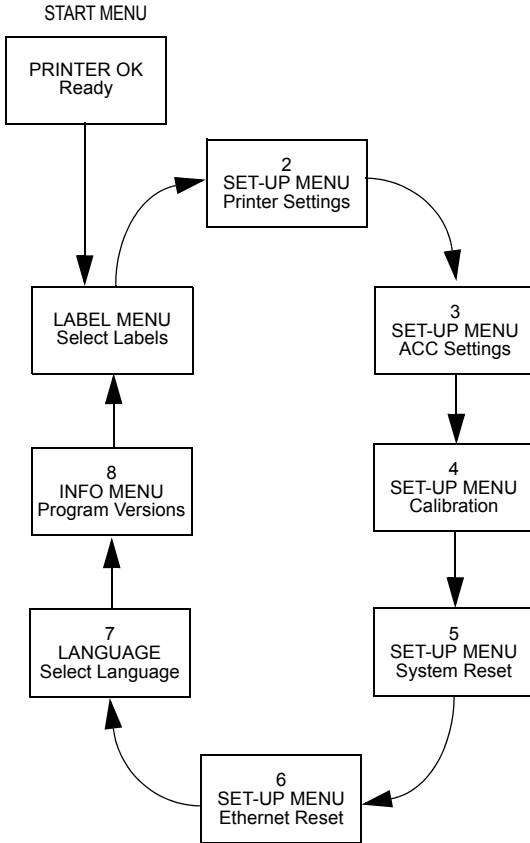
- (1) **LABEL MENU - Select Labels**
This menu has only one sub-menu - “Select labels”.
- (2) **SET-UP MENU - Printer Settings**
This menu, including eight sub-menus, contains all of the control functions of the printer.
- (3) **SET-UP MENU - APPLICATION CONTROL CARD (ACC) Settings**
This menu including six sub-menus, contain all of the control functions for the ACC.
- (4) **SET-UP MENU - Calibration**
This menu contains the calibration controls for label, ribbon, label sensor and ribbon sensor.
- (5) **SET-UP MENU - System Reset**
For making a system reset and deleting downloaded labels in the printer memory.
- (6) **SET-UP MENU - Ethernet Reset**
After installing or changing the internal ethernet interface, it is possible to upload the current configuration from the board to the controller.
- (7) **LANGUAGE MENU - Select Language**
Use this menu to select between English (default) and other languages available in the PRINTER CONTROL UNIT (PCU).
- (8) **INFO MENU - Program versions**
This menu provides information about the current firmware versions installed in the PCU.

PASSWORD PROTECTION

Changes in the menus are protected by a password to ensure that no unwanted changes are made except for the “LABEL MENU” and “LANGUAGE MENU” these do not require a password.

All settings use the same password except for the printhead set-up, which uses a special password.

Contact your Domino distributor for more information.



Level 1 Menus

- Press the Enter key twice to go to the Level 1 menus
- Press the “+/right arrow” key to move forward in the menus (following the arrows)
- Press the “-/left arrow”-key to move to previous menus
- Go to the desired level 1 menu and press the Enter key to locate the Level 2 menus (Printer Settings or Application Control Card (ACC) Settings) or a set-up menu.

SELECT A LABEL TO PRINT

- (1) Press the ENTER twice to start this menu. The label menu is shown.
- (2) Press ENTER, the current label number will be displayed.
- (3) Press ENTER to start edit mode.
- (4) Use the + or - keys to scroll up or down the list of available labels.
- (5) Press ENTER to select the label you want to use.
- (6) Press EXIT to return to the start menu.

SELECT LANGUAGE

- (1) Press ENTER twice to start this menu. The language menu is shown.
- (2) Press --
- (3) From the Language menu select Language.
- (4) Press ENTER twice.
- (5) Use the + or - keys to select the preferred language.
- (6) Press ENTER to select.
- (7) Press EXIT to return to the start menu.

SELECTION OF MEDIA/LABELS

With a Thermal Transfer Printer it is possible to print on virtually any type of media/label material. It is simply a matter of selecting the correct label and combining it with the required ribbon quality.

However, before ordering labels, make sure that the label quality is suitable for thermal transfer printing. Some label qualities have a top coating that is not printable.

With a Direct Thermal Printer the choice of label quality is far more limited, only thermal labels can be used.

A general rule is to have a good gram weight/thickness of the labels. Thin labels are often very soft and can be difficult to feed out to the applicator pad. A thicker label is more stable and is always easier to feed out on the applicator pad and be applied safely and securely on the product. Good labels secure production and reduce down time. Gram weight of label stock should not be less than 80 g/m².

LABEL SIZE

The smallest label size recommended is 10 mm x 10 mm (width x length).

However, it is possible to use smaller labels if the print speed is reduced. The narrower the label gets, the more difficult is it to feed and the risk for "slipping" on the platen roller is increased.

When you run very small labels, it is always recommended to use the "peel roller" (sometimes also called "nip roller") option.

The largest label width depends on which printer is used. The largest print width is 162 mm at present.

The maximum length of a label is around 600 mm but it also depends on the configuration and the printer used.

LABEL GAP

The minimum recommended label gap is 3 mm.

The maximum allowed gap can vary depending on application but should normally not be more than 15 mm.

Check with your Domino distributor if you need to run special media.

SELECTION OF LABEL ROLLS

If the printer is an "in-line" model, used with an applicator, it is an advantage if the roll of labels is rolled inwards (the labels on the inside). That makes it easier to feed the label out onto the vacuum pad and it will also stay there more safely.

It is also an advantage if the label roll has a large inner core diameter. 76 mm/3 inches is the minimum standard size that is recommended.

A large core size prevents the labels from becoming too curved towards the end of the roll. If a label becomes too curved, it can be difficult to feed it properly to the applicator.

The printer is always supplied with a 76 mm/3 inch core adaptor as standard, a 100mm/4 inch core is available as an option.

Do not remove the core adaptor to be able to run smaller rolls. It will most likely cause production problems when the end of the roll is reached and the curved labels need to be printed.

SELECTION OF RIBBON

TYPE OF RIBBON

The type of ribbon to be selected is totally dependent on the label material to be used as it is possible to obtain a ribbon to suit virtually any type of label material.

The type of printhead used is also of important as it is not certain that the same ribbon can be used for 8 and 12 dot print heads.

Contact your supplier for advice on which type of ribbon to use for your particular application.

BACK COATING

It's not only the type of "ink" on the ribbon but also the back coating is important. It is important for print quality to get the right type of "ink" for the label quality being used. The back coating is important for prolonged printhead life.

A low quality ribbon often has a poor quality back coating that leaves too much residues on the printhead and if not cleaned frequently it will damage the printhead.

Do not use low quality ribbon in the printer as this will increase maintenance costs.

WIDTH

The width of the ribbon required depends entirely on the width of the label used. The ribbon should be as wide as the label, plus 2 mm on each side.

This allows equal pressure to be applied to the entire label and the avoidance of sticky glue residues.

Note: Example:

*If the width of the label is 75 mm,
the ribbon should be $75 + 2.0 + 2.0 = 79$ mm wide.*

LENGTH

The standard length of a ribbon is 450 metres.

The maximum outer diameter of the ribbons is 80 mm.

The core size is 25 mm.

PREVENTATIVE MAINTENANCE

Refer to the Partial Printer Component Diagram on page 23 for location of components..

WARNING: **Ensure the mains power and air supply are turned off.**
Do not pour water onto the printer or allow any liquids to penetrate the internal parts.

GENERAL CLEANING

The external casing of the printer can be cleaned with a lint-free cloth, which has been immersed in warm soapy water and then well squeezed out. The printer must be electrically isolated and the compressed air supply switched off during any cleaning operation.

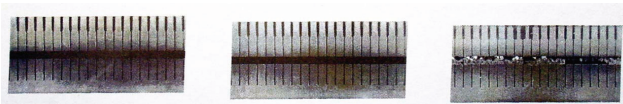
CLEANING THE LABEL GAP SENSOR

Using a small brush or the plastic nozzle of a vacuum cleaner, remove all paper dust and debris from the label gap sensor. Be careful not to bend the sensor when cleaning it.

CLEANING THE PRINTHEAD

The printhead is the most critical component in your printer, and possibly the most delicate. It is a consumable item just like the brakes on your car, which will eventually wear over time. However, with ongoing careful attention and maintenance, you can extend the life of the printhead.

Below are photographs of three printheads. The first printhead is brand new. The second has printed 25 kilometres of thermal transfer labels and has been properly maintained. The third printhead has printed far fewer labels, but without proper care and maintenance, signs of abrasion and contamination build-up are evident.



New Printhead

Over 25 kilometres properly maintained

Less than 25 kilometers without proper care

For optimum performance, clean the printhead regularly after every roll of thermal transfer ribbon or after every roll of direct thermal labels. Take care when handling or cleaning the printhead by removing any jewellery that may scratch the printhead and use a grounding strap or anti-static mat to discharge static electricity that could damage the printhead.

Only use the correct cleaning wipes provided in the Domino cleaning kit for the M-series. (Part No. MT25215)

- (1) Turn off the printer and raise the printhead.
- (2) Lightly blow or brush away any loose dust and lint particles within the print mechanism (i.e. rollers, media/ribbon sensors, and printhead).
- (3) Use the cleaning wipes and swipe the print elements from end to end.
Repeat this step until the cleaning wipes no longer shows dirt and make sure that no residues are left on the printhead before closing it.

CAUTION: NEVER use any hard, metallic or abrasive objects such as a screwdriver to remove adhesives or other contaminants that may have built up on the printhead as this will cause damage. Only use the cleaning wipes as supplied with the printer. Avoid the Contributing Factors to Premature Print Head Failure:

ABRASION

Over time, the movement of media/ribbon across the printhead will wear through the protective ceramic coating, exposing and eventually damaging the print elements (dots).

In order to avoid abrasion:

- Clean your printhead frequently and use well-lubricated thermal transfer ribbons with back-coatings optimized to reduce friction
- Minimize printhead pressure and burn temperature settings by optimizing the balance between the two
- Ensure that the thermal transfer ribbon is as wide as or wider than the label media to prevent exposing the elements to the more abrasive label material.

RIBBON BACK-COATING AND BUILD-UP

Printhead contamination from direct thermal media or thermal transfer ribbon may occur in applications requiring high burn settings, high head pressure, high speed, or high volume.

This contamination will build up on the printhead elements, creating a barrier to the heat transformation required to produce high quality images.

Contaminant build-up occurs gradually and results in poor print quality that may look like faded print or failed print element(s). This build-up is very resistant to cleaning with the maintenance wipes and is difficult to remove.

In order to avoid ribbon back-coating and build-up:

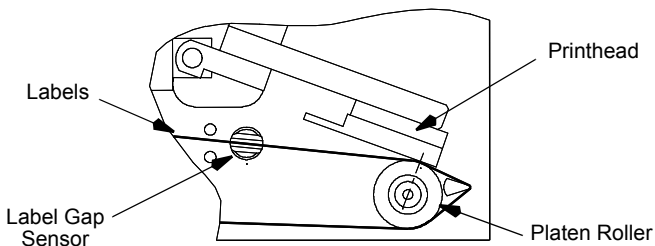
- Use thermal transfer ribbons that have been specially cured to provide back-coat protection for high demand applications. These ribbons – sometimes referred to as anti-stick ribbons – also dissipate static and provide more lubrication.
- Follow the recommended print head Preventive Maintenance procedures.

CLEANING THE PLATEN ROLLER

The platen roller can easily be cleaned using the correct cleaning wipes supplied with the printer.(Part No. MT25215)

- (1) Switch off the electrical and air supplies to the printer.
- (2) Raise the printhead, via the lifting handle, and gently ease out the labels sideways.
- (3) Hold the cleaning wipe against the platen roller and slowly turn the roller by hand until the platen roller is completely clean.

Note: If the printer is switched off it is possible to turn the platen roller.



Partial Printer Component Diagram

WARNING: Take care to observe all safety precautions relating to the use of compressed air.

CLEANING THE APPLICATOR

The applicator can be cleaned using the correct cleaning wipes supplied in the Domino M-Series Cleaning kit. (Part No. MT25215)

It is very important that all dirt, debris and glue residues are completely removed from the applicator pad in order that labels may be fed onto the pad without obstructions.

Suction and (if applicable) blow holes can be easily cleaned using compressed air.

TROUBLESHOOTING

ERROR & STATUS MESSAGES

Priority	Displayed Text	Priority	Displayed Text
1	Error! Printhead overheated	10	Error! Door control
2	Error! Power supply error		OK/Labels low ****Status****
3	Error! Label out		OK/Ribbon Low ****Status****
4	Error! Ribbon out		Printer OK Reset in progress
5	Error! Printhead up		Printer OK Printing in progress
6	Error! Emergency stop		Printer OK Label printed
7	Error! Applicator timeout		Printer OK Application in progress
8	Error! Label check		Printer OK Ready
9	Error! Bar code not readable		

SYMPTOM	POSSIBLE FAULT
Printer fails to print	<ul style="list-style-type: none"> • Is the power switched on? • Check that labels and ribbon are correctly threaded • Are there any error messages on the display? • Check the fuses and cables • Is the home position sensor activated? • Has the emergency stop been activated?
If the label do not stop in the correct position	<ul style="list-style-type: none"> • Is the platen roller clean? • Are the labels slipping? • Calibrate the label gap sensor • Check the drive belts • Check the head distance and backfeed length • Are the settings correct?
If the print quality is poor	<ul style="list-style-type: none"> • Is the printhead thoroughly cleaned? • Check the printhead settings • Check the printhead positions • Check the printhead pressure • Is the correct label and ribbon material used? • Unsuitable mix of label and ribbon material.
If the ribbon wrinkles	<ul style="list-style-type: none"> • Is the ribbon correctly threaded? • Increase the friction of the ribbon supply • Check the printhead/ribbon guide is parallel with the ribbon • Check that no printhead wires touch the ribbon. • Check that the ribbon is not too wide compared to the printed area
The ribbon rewind does not operate correctly	<ul style="list-style-type: none"> • The ribbon is incorrectly threaded • Insufficient tension for the ribbon take up.



This User Guide, part of pack 31316, 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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