

***DeK***

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4  
2

INSTALLATION MANUAL





# **DEK 248**



MACHINE SERIAL NO.

## **INSTALLATION MANUAL**

DEK Part No. 131377





**DEK 248 INSTALLATION MANUAL**

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DEK WORLDWIDE

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**MANUAL ERRORS**

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## MANUAL CHANGE REQUEST FORM

No. 

## CUSTOMER USE

COMPANY:

ORIGINATOR:

Name/Dept:

Date:

MACHINE

Type:

Serial Number:

Software:

MANUAL CHAPTER/FIGURE REF:

RECOMMENDATION:

ENCLOSURES:

## INTERNAL USE ONLY

MANUAL CHANGE

Accepted:

Rejected (State Reason):

PRIORITY

URGENT:

Next Issue:

CHANGE DETAILS:

OTHER MANUALS AFFECTED:

CHANGE CARRIED OUT BY:

Name:

AUTHORIZED BY:

Name:

Date:

Signature:

COMPLETED AMENDMENT:

MANUAL CHAPTER ISSUE DATE



**MANUAL AMENDMENT STATE****ISSUE 4 - DECEMBER 1998**

In line with the DEK policy of continual improvement this manual is periodically up-issued to reflect the latest machine enhancements and controlled by the Manual Amendment State shown above.

Changes to the manual are by individual section only, the latest up-issue of each is recorded in the table below and within and within the footer of each page of that section.

**Installation Manual in 1 Volume**

Title	Pages	Issue State
Flysheet	2	
Contents	4	Iss 4. Dec 98
Prelims	6	Iss 4. Dec 98
Section 1	6	Iss 4. Dec 98
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## **SECTION 1**

### **SAFETY FEATURES**

# SECTION 1

## SAFETY FEATURES

**SECTION 1 - SAFETY**

---

**MACHINE SAFETY FEATURES**

**Introduction** This chapter describes the various safety features that are incorporated into the machine to provide a safe operating and maintenance environment for the operator.

**Warning and Caution Notices** WARNING notices draw the attention of operators/maintainers to possible 'general' or 'functional' hazards which may cause loss of life, serious injury or ill health. These hazards are either inherent in the machine or arise during the operation/implementation of procedures.

An example warning notice is shown below:

**WARNING**

**LETHAL VOLTAGE. DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT. ENSURE ALL ELECTRONICS COVERS AND MAIN MACHINE COVERS ARE FITTED BEFORE OPERATING THIS EQUIPMENT.**

CAUTION notices alert personnel to the possibility of damage occurring to the machine material which is likely to arise following the departure from laid-down procedures. Caution notices do not imply danger to personnel.

An example caution notice is shown below:

**CAUTION**

**ANTI-STATIC HANDLING.** Standard precautions must be adhered to when handling electronic cards and configuring and inserting into the enclosures.



**General**

The following safety features provide safe operating conditions for both the operator and the machine:

- Emergency Stop Switch - an emergency safety shut down press button switch, located on the machine front control panel.
- Top Cover - the top cover is fitted with a cam safety switch (reed switch). If the cover is lifted during print operations the signal from the switch to the machine control board is lost thus opening the relay RL1.
- Front Cover - the front cover is fitted with a cam safety switch (reed switch). If the cover is opened during print operations the signal from the switch to the machine control board is lost thus opening the relay RL1.
- Two Button Control - (when the keyswitch is selected to two button control), ensuring that the operators hands are clear of moving parts during GO function operations.
- Foot Switch - all GO button functions may be operated by the foot switch option. With this option the printhead cover interlock prevents access to moving parts during the print cycle.

**Emergency Stop Loop**

The E Stop system is a low voltage powered loop which interconnects selected modules in the machine thus providing automatic shut down of any powered mechanisms during an emergency stop. At the same time all pneumatic air pressure is vented to the atmosphere.

**Front and Top Cover**

The Front and Top Cover is fitted with cam safety switches to protect personnel from the moving components during printing operations.

Except during set up operations where visual access is required, opening the covers disables all the machine movements, ensuring operator safety at all times. Pneumatic air pressure is not vented from the machine during this action.

**Recovery**

When the cover is lowered, normal working condition is restored by pressing the system button on the control panel, or either green GO button enables the machines re-initialization procedure.

**Two Button Control** The machine operates a two button control safety feature which requires to be pressed simultaneously (within 0.5 second of each other) in order to become active. The positioning of these (GO) buttons are needed to maintain maximum safety for the operator during certain operations.

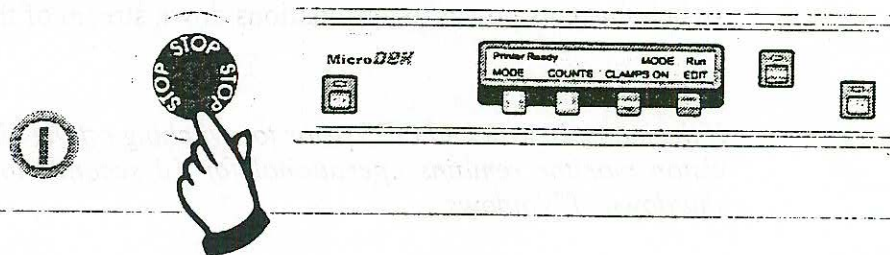
**Foot Switch**

If fitted, this option provides the GO button function. In this mode the printhead cover interlock still continues to prevent operator access to moving parts during a print cycle (see Printhead Cover above).



**EMERGENCY SHUTDOWN**

The machine is fitted with an Emergency Stop (E Stop) push button control switch located next to the machine control panel. Pressing this (or raising the top cover or front cover) cuts power to areas of the machine that may cause a hazard to the operator. A warning of this condition is reported on the machine control window.

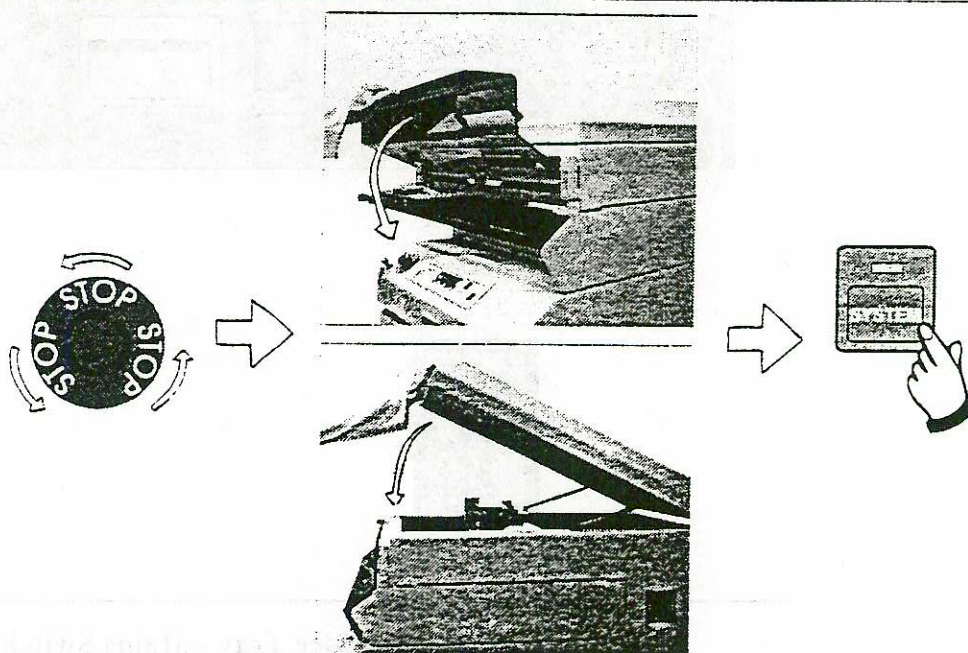


**Figure 1-2 Machine Control Panel - E Stop Position**

**Recovery**

When the normal working condition is restored, recovery requires that the machine be re-initialized to its start position as follows:

- Release the Emergency Stop Button that is latched down by depressing the button with a slight twist to the left and releasing.
- Close the Top Cover (if raised).
- Close the Front Cover (if raised)
- Press the green system (or GO) button located on the machine control panel, or the foot switch (if fitted).



**Figure 1-1 E Stop Recovery**



## PROTECTION FROM HIGH VOLTAGE

**Mechanisms** The machine incorporates Class 1 electrical protection according to the IEC 536 requirement 1:1993.

Machine mechanisms are powered by voltages less than 50V and do not pose an electrical hazard to personnel.

**110V-240V** Where (110V-240V) incoming supply voltage is present, protection is afforded by controlling access to the service tray. The machine is fitted with a mains switch that cuts power to terminations down stream of the isolator.

### NOTE

*If the mains is switched OFF prior to switching off the UPS, the system PC and vision monitor remains operational for 10 seconds to carry out an orderly shutdown of Windows.*

**Hazard Warning** A hazard warning label is placed on the outside of the service tray where dangerous voltage (110V-240V) terminations are present within the enclosure. The service tray is not fitted with a safety lock.

**Earth Bonding** All external metal surfaces are mechanically and electrically bonded to the machine earth point. The bonding wire used is identified by its green and yellow insulation and is commonly used to earth bond throughout. Care should be taken when removing these links that when they are replaced they are secured tightly and cleanly.

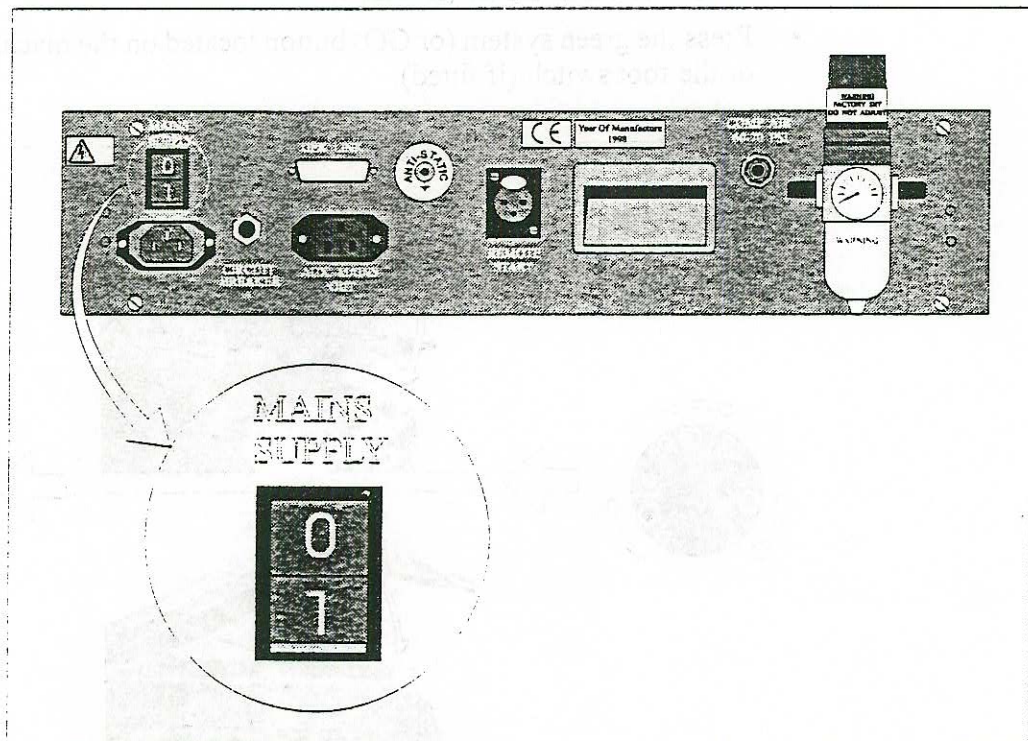


Figure 1-3 Service Tray - Mains Switch



## **SECTION 2**

### **INTRODUCTION**

## SECTION 2

## INTRODUCTION

**SECTION 2 - INTRODUCTION****GENERAL**

To prevent damage to the machine whilst unpacking or during machine power up it is essential to read and adhere to the procedures and sequences detailed in the Installation Manual and to ensure the correct method of unpacking, assembly, machine preparation and power up sequences are carried out prior to the normal running operations of the machine.

**Installation  
Personnel**

Only DEK authorized personnel may carry out this procedure.

**Manual Format**

**Section 1 - Safety Features**, describes the features on the machine that provides operator safety whilst the machine is in operation.

**Section 2 - Introduction**, details manual breakdown by sections.

**Section 3 - Services Required**, describes the services needed for the machine to function correctly. A view of the service panel showing the external connections to the services.

**Section 4 - Siting**, describes the clearance requirements around the machine for access to services, operation and maintenance. Preparing the machine for re-location if required.

**Section 5 - Unpacking**, describes the method of dismantling and unpacking the transit boxes, checking the machine, loose items and documentation. Checking the machine configuration against customer requirements, assembling the loose items to the machine and transportation of the machine to its designated area.

**Section 6 - Machine Preparation**, describes the method of preparing the machine for use, removal of transit brackets, fitting the external services, levelling the machine in preparation for machine power up. Connecting the optional vision system.

**Section 7 - Machine Power Up Sequence**, describes the sequence of machine power up, including DEKalign 4 vision setup option.

**Section 8 - Machine Performance**, checking the machine performance with the customers board for alignment.

**Section 9 - Installation Documentation**, describes the installation and acceptance documentation that accompanies the machine.



**Installation  
Procedure**

The procedures in this manual must be adhered to in the order that they are presented.

On installation, the machine must meet the required specification of performance, (refer to the 248 Engineering Specification). All installation and machine performance data must be returned to DEK.

**Anti-Static  
Handling**

Standard precautions must be adhered to when handling all electronic cards and configuring and inserting into the enclosures.

Anti-static precautions are necessary when connecting and disconnecting the printed circuit boards within the service crate.

**Delivery  
Questionnaire**

After the Installation has been completed, the Installation Engineer is to make the customer aware of the Delivery Questionnaire (see Section 9 of this manual).

**SECTION 3**

**SERVICES REQUIRED**

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SECTION 2

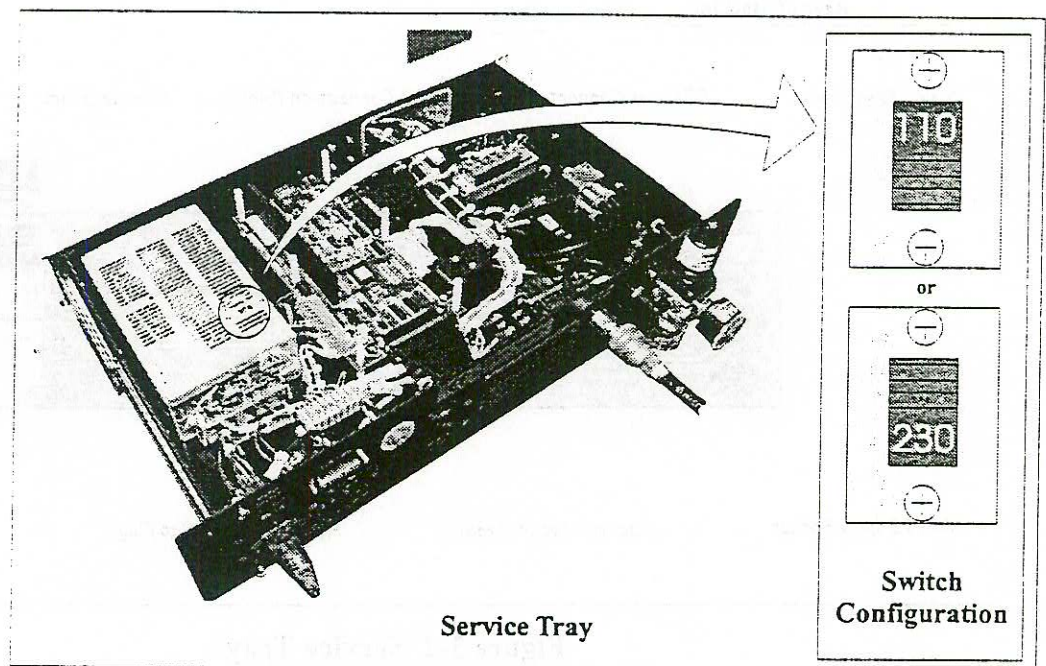
SERVICES REQUIRED



**SECTION 3 - SERVICES REQUIRED****MACHINE EXTERNAL SERVICES**

In order for the machine to function correctly the following services must be available. The services must be stable and clean.

**Electrical Supplies** Machines are switch selectable for 110V or 230V working. The voltage is factory set and conforms with the voltage statement on the machine serial plate. If necessary check the power supply tray for confirmation of voltage switch position, the switch is located on top of the power supply unit within the service tray (Dual Voltage Switch figure refers).



**Figure 3-1 Dual Voltage Switch**

**Pneumatic Supply** Pneumatic supply is standard workshop air between 60psi - 70 psi (2.4.3). The international standard for compressed air is a simple system of classification for the three main contaminants present in any compressed air system - DIRT, WATER and OIL.

Compressed air to quality class 2.4.3. represents:

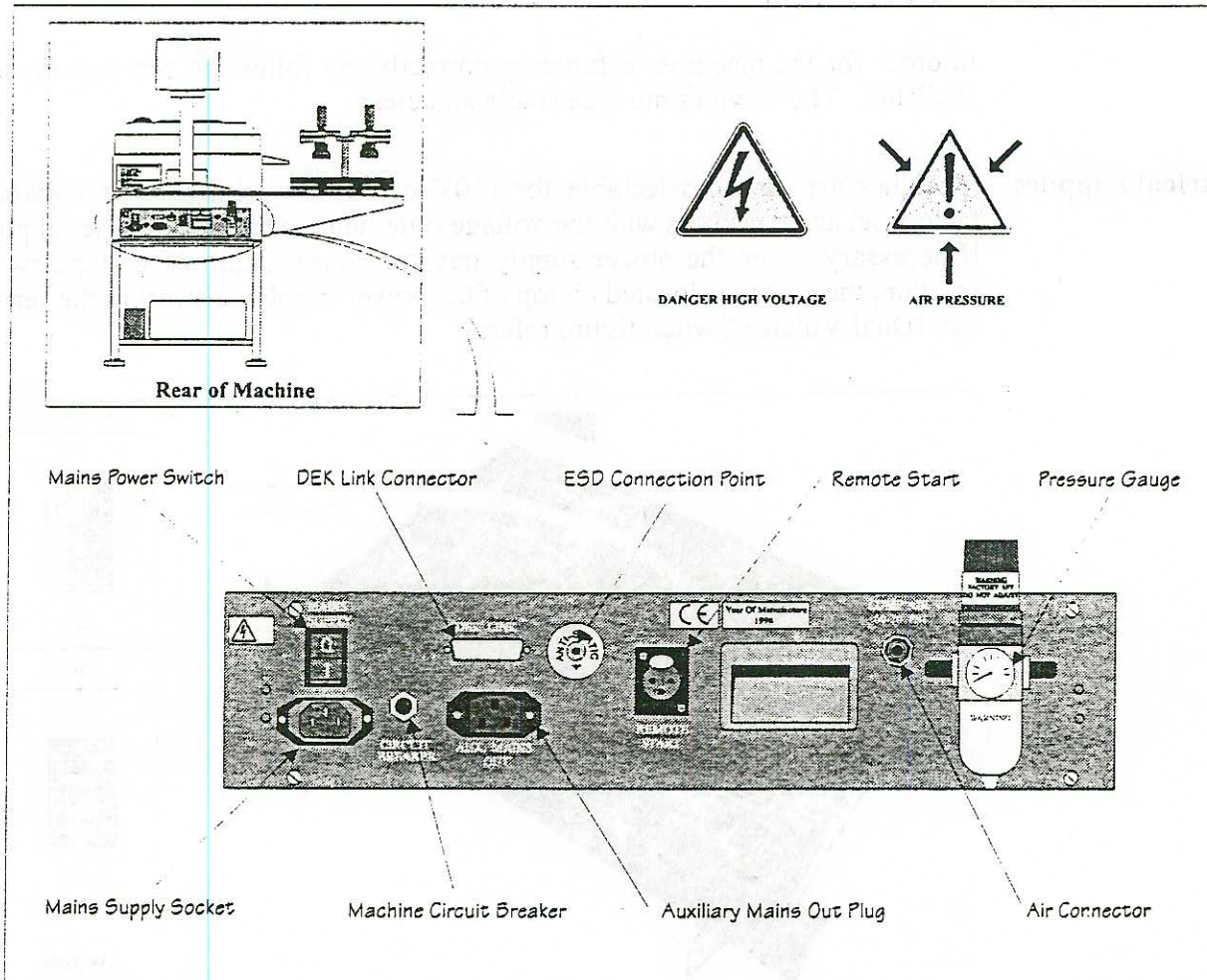
- 2 dirt = 1 micron
- 4 water = +3" c PDP (pressure dew point)
- 3 oil = 1mg/m<sup>3</sup>

The internal pressure regulator is set to 60psi - 70psi and is used to power the pneumatic actuators and the internal vacuum generator.

The low pressure detection switch is set to 55psi.

If the incoming pressure falls below this value for any reason an error message is displayed on the machine control panel.

**SERVICE TRAY** The Service Tray provides all connection points for external services and is situated at the rear of the machine.



**Figure 3-2 Service Tray**

## **SECTION 4**

### **SITING**



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SECTION 4

SITING

## SECTION 4 - SITING

## 248 MACHINE FOOTPRINT

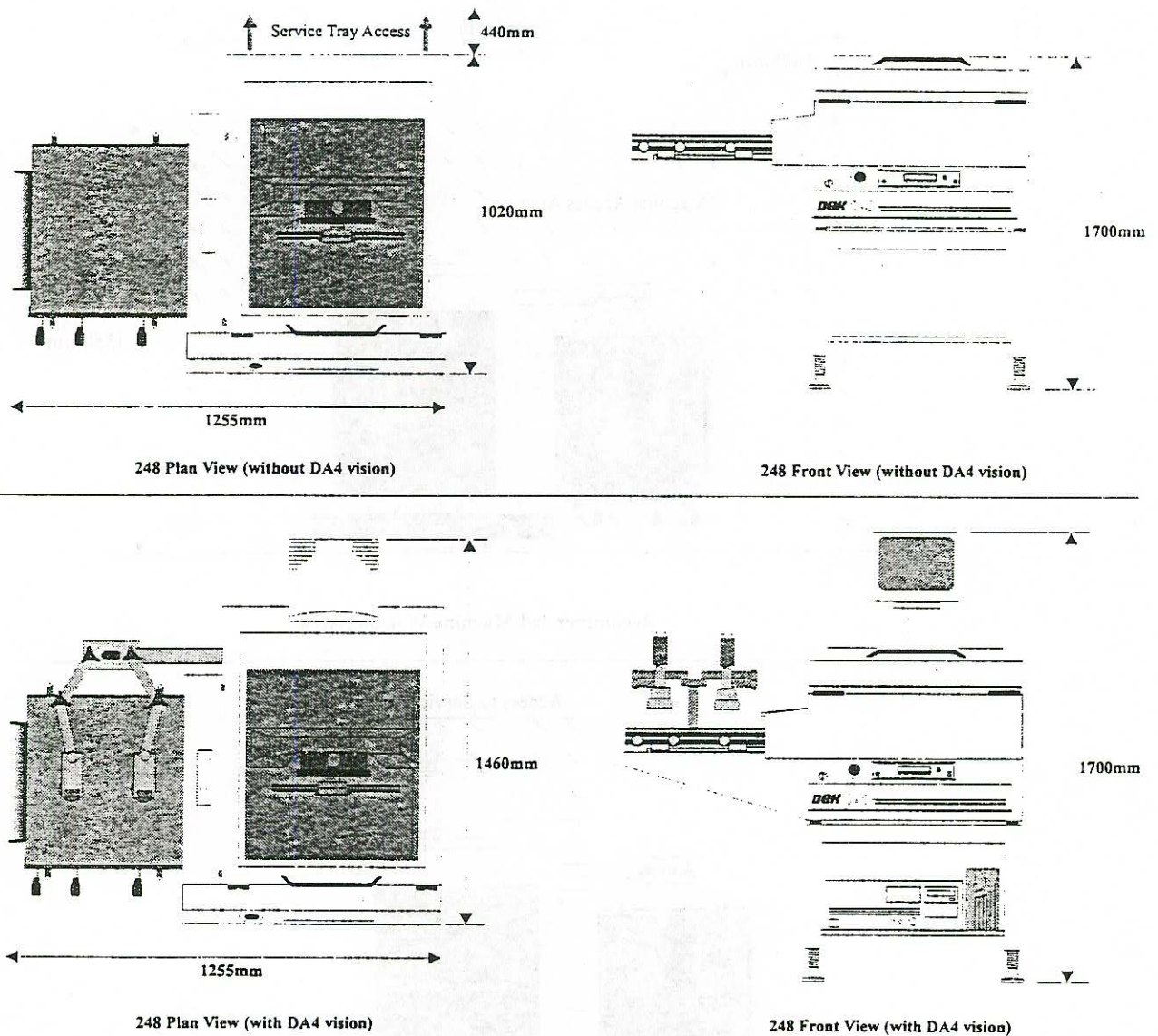
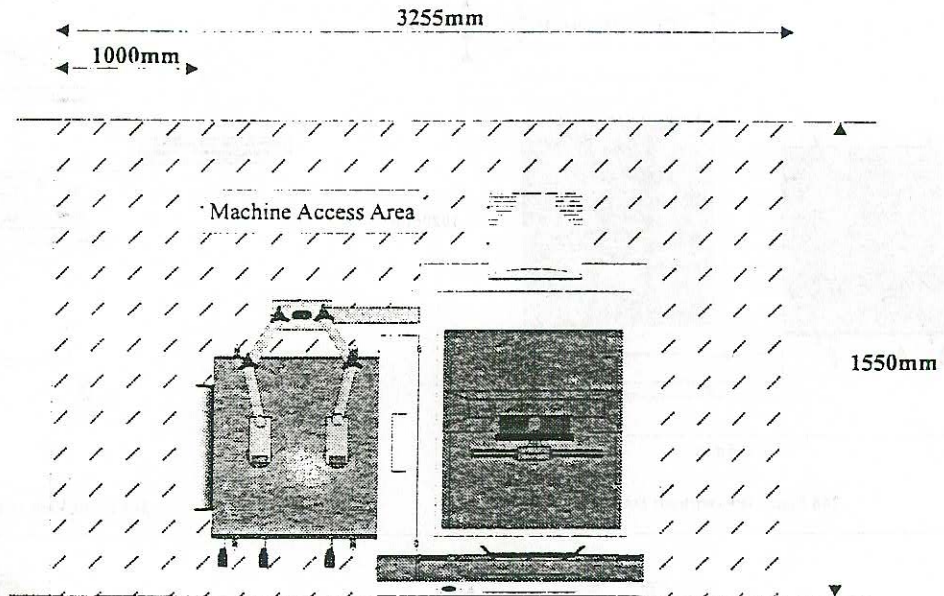


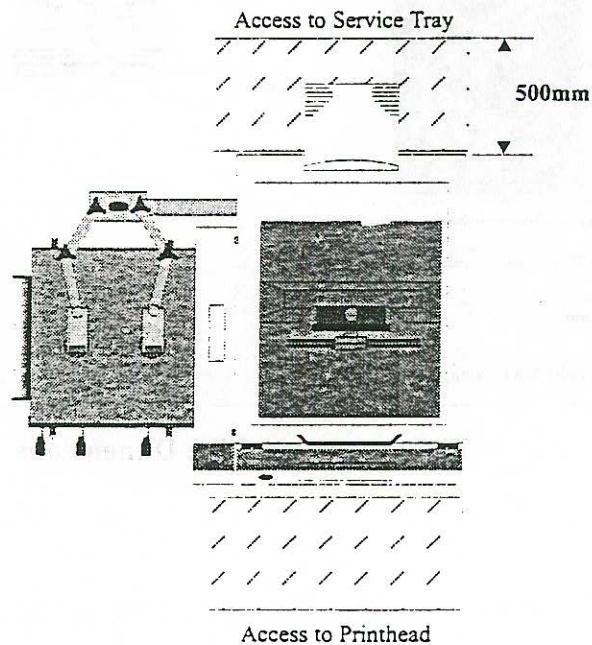
Figure 4-1 Machine Dimensions

**248 MACHINE CLEARANCE**

Clearance requirements around the machine for access to services, operation and maintenance are shown in the figure below.



**Recommended Machine Working Area**



**Required Access Around Printer**

**Figure 4-2 Machine Clearance**



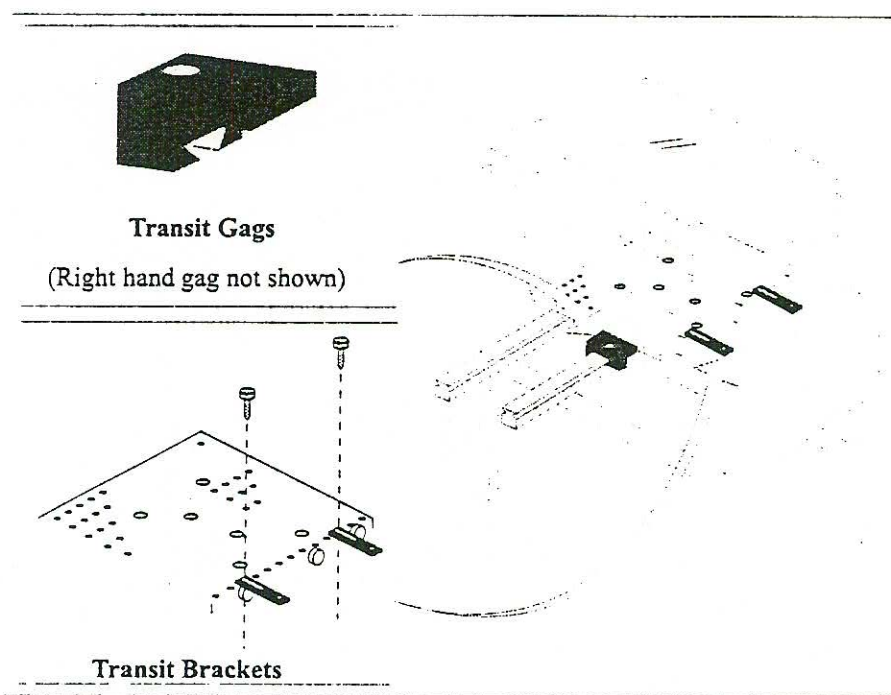
**MACHINE RE-LOCATION**

The following procedure is given for installation of the transit brackets in the event that the machine is re-located.

**Preparation**

With power and pneumatics removed from the machine, carry out the following:

1. Move the print carriage to the rear of the machine.
2. Fit a transit gag to the right hand end of the front table mechanism slide using a 5mm cap headed screw, (Transit Brackets figure in Machine Preparation section refers).
2. Slide the transfer table fully to the right so that it is positioned within the printhead enclosure and abuts the fitted transit gag.
3. To prevent movement of the floating table, fit the two transit brackets by securing the small hole end of each bracket to the mylar flap support pins height adjusters. The elongated hole end of each bracket is secured to the floating table using a 4mm cap headed screw, (Transit Brackets figure below refers).
4. To prevent movement of the transfer table, fit the second transit gag to the left hand side (front table mechanism slide) abutting the table, (using a 5mm cap headed screw, as shown in Transit Brackets figure below).



**Figure 4-3 Transit Brackets**

5. Ensure that the service tray is secured.
6. (If DA4 vision fitted). Remove the system PC and re-locate separately.
7. (If DA4 vision fitted). Remove the UPS and re-locate separately.
8. (If DA4 vision fitted). Remove the monitor and re-locate separately.
9. Carry out lifting and levelling of machine procedures in accordance with Section 5 and 6 of this manual.





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## **SECTION 5**

### **UNPACKING**

ITEM 246

SECTION 2

APPENDIX

**SECTION 5 - UNPACKING****GENERAL**

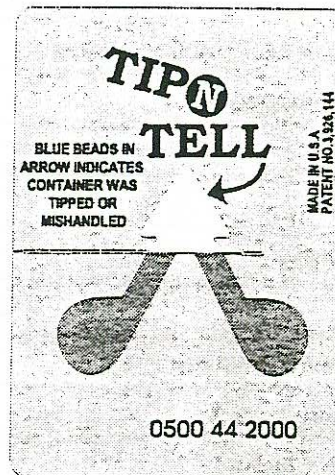
All 248 Machines dispatched in crates are fitted with tell tale monitors to indicate if the crate has been tipped over in transit.

Prior to unpacking carry out the following procedure:

1. Check that the 'Tip N Tell' arrow is white (Tell-tale Sensor figure refers).

**NOTE**

*If the machine has been tilted, contact DEK immediately.*



**Figure 5-1 Tell-tale Sensor**

To ensure that the machine is not damaged during transportation certain machine components are removed prior to despatch, wrapped and packed separately. The machine stand is also separated from the printer during packing.

The shipping crate is fitted with three internal support beams which takes the weight of the printer. There is sufficient clearance to allow entry of 48 inch (1200mm) forks fitted to a forklift vehicle. The printer is secured to the crate by means of four shipping studs.

**Unpacking**

The sides of the transportation boxes are secured with screws, carry out the following procedure:

1. Remove the four crate sides.
2. Remove all loose items from the box.
3. Remove any wrapping from around the machine.
4. Remove the loose items from their bags or wrappings.

**CAUTION**

**RED TRANSIT BRACKETS.** Do not remove the red transit brackets attached to the machine until the machine has been moved to its designated position.



**Machine  
Components**

Ensure the following machine components, removed for transportation are complete and correct.

Item	Yes	No
Mains Lead Type:		
Flood Bar (Mounts and Blades)		
Squeegee Mount		
Squeegees fitted with Paste Deflectors		
Board Location Pin Bases (1 pair)		
Board Location Pin Columns (3 pairs - various diameters)		
Support Pins (19.5mm x 3mm))		
Vacuum Supports		
Stand		
Stand Tray		
Stand Feet		
Screens Type:		
Footswitch (optional)		
Screen-roller Set		
Screen Adaptor		
Underscreen Cleaning Kit		
Tool Kit		
DEK Link Software Package		
Machine Feet (4 off)		
Touch-up Paint		
Mylar Flap Assembly (clear)		

**Miscellaneous Items**

Item	Yes	No
Customized or Additional Tooling (optional)		

**DA4 Vision System** The following table details the components making up the DEK Align 4 option.

Item	Yes	No
System PC		
UPS (Uninterruptible Power Supply)		
Camera Sync Interface Box		
Camera Arms		
Cameras (2 off)		
Lens and Lighting Assemblies (2 off)		
SVGA Monitor		
Monitor Stand		
Keyboard		
Trackball Mouse		
Power Cable		
Inhibit Cable		
Camera Loom		
Interface Loom		
Shutdown Warning Label		
Mylar Flap (white)		
Software and Manuals:		
Framegrabber & Driver - Floppy		
CUI DA4 - CD		
UPS - Floppy		
Graphics Card - CD/Floppy		
NT and Service Pack - CD x2 / Floppy x3		

**Documentation**

The following table lists all accompanying documentation.

Item	Yes	No
Machine Log Book		
HARD COPY MANUAL consisting of:		
DA4 Stand Alone Manual		
Operator Manual		
Technical Reference Manual		
Installation Manual		
Pocket Reference Operator Guide (4 off)		
Electrical and Mechanical Drawings Flat Pack		
Annual Service Programme		
CE Certificate		
Configuration and Despatch Procedures		



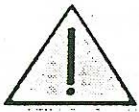
**Inventory**

Using the Sales Acknowledgment sheet check the machine against the customer machine configuration - Machine Components, Miscellaneous Items and Documentation as listed. If any components or items are missing or faulty then make a note of this on the outstanding issues sheet (Section 9).

**Inspection**

Visually inspect all machine components and equipment for completeness, condition and damage. If any components or equipment are incomplete, damaged or in poor condition the make a note of this on the outstanding issues sheet (Section 9 of this manual refers).

**TRANSPORTATION**



**WARNING**

**MACHINE LIFTING. TO PREVENT SERIOUS INJURY TO PERSONNEL, DURING LIFTING AND TRANSPORTATION OPERATIONS, ENSURE THE MACHINE IS LIFTED AND TRANSPORTED IN ACCORDANCE WITH INSTRUCTIONS AS DETAILED IN THIS SECTION.**

1. Remove the four crate sides.
2. Remove the four shipping studs securing the machine to the transportation box.
3. With reference to the cautionary notes below, raise the machine clear of the crate. Immediately fit temporary support blocks to protect against forklift failure.

**NOTE**

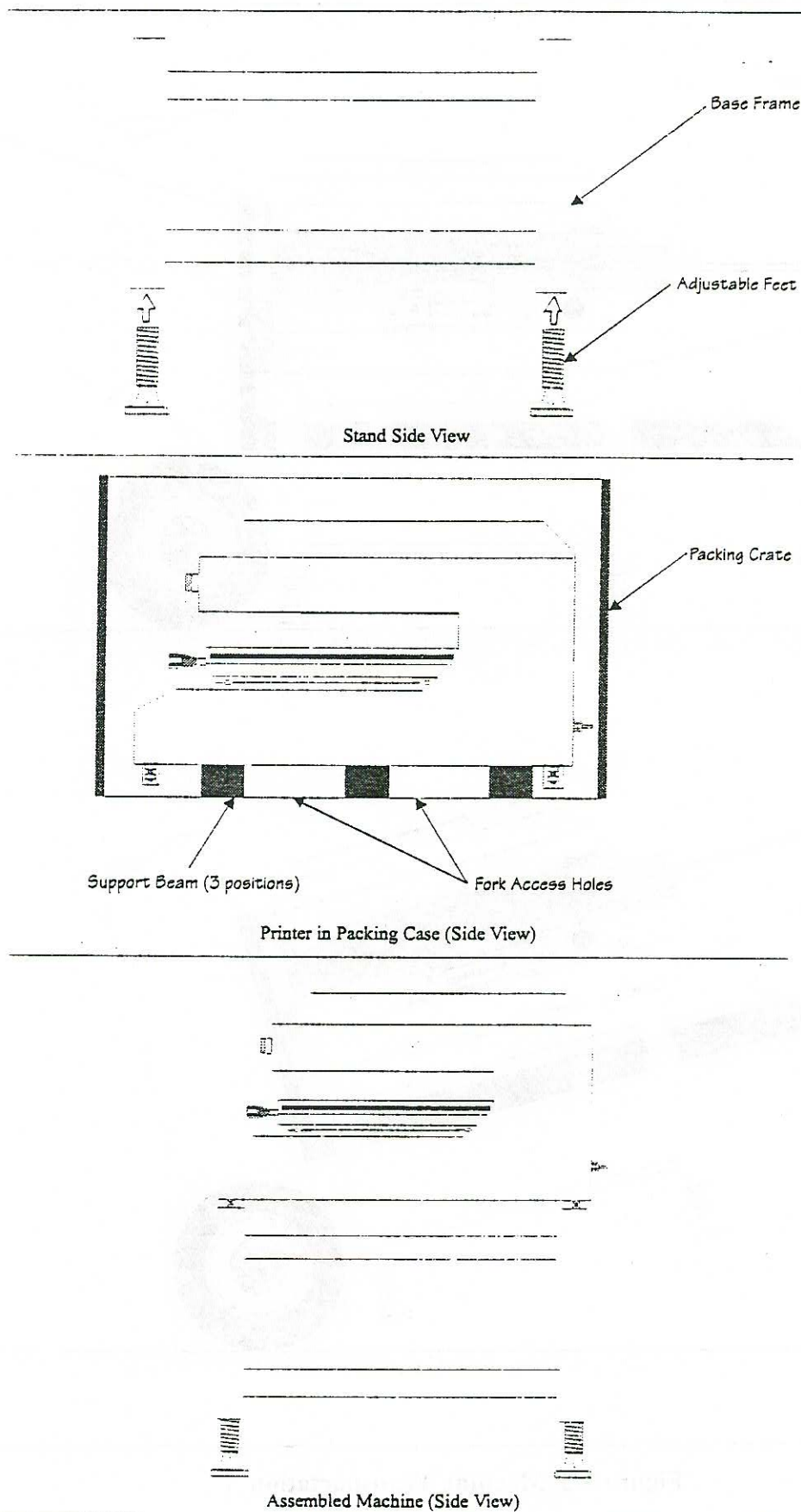
*Using a fork-lift truck or similar machine, with 48 inch (1200mm) forks and capable of lifting 400kg.*

**CAUTION**

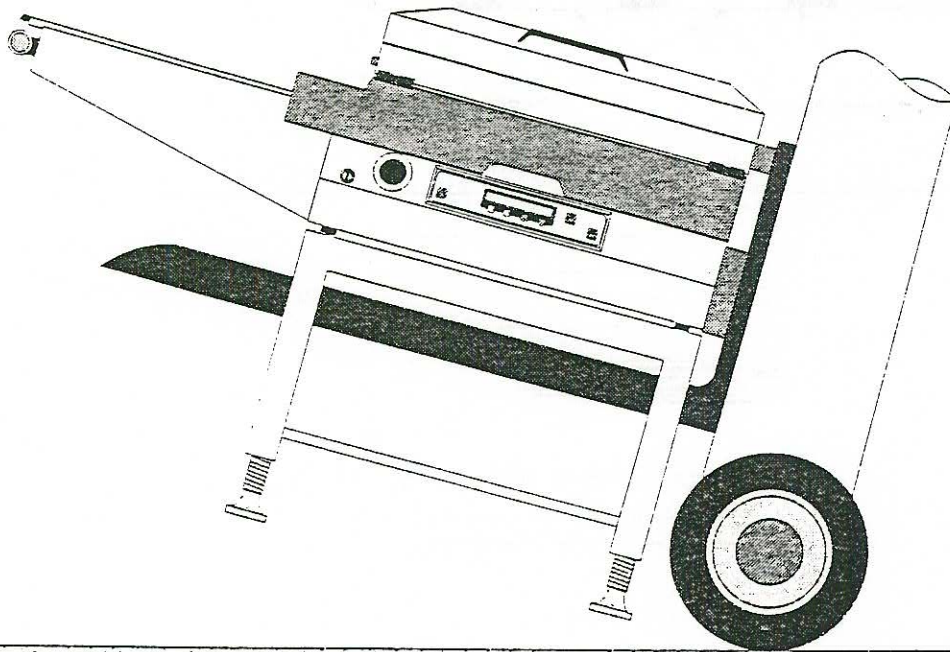
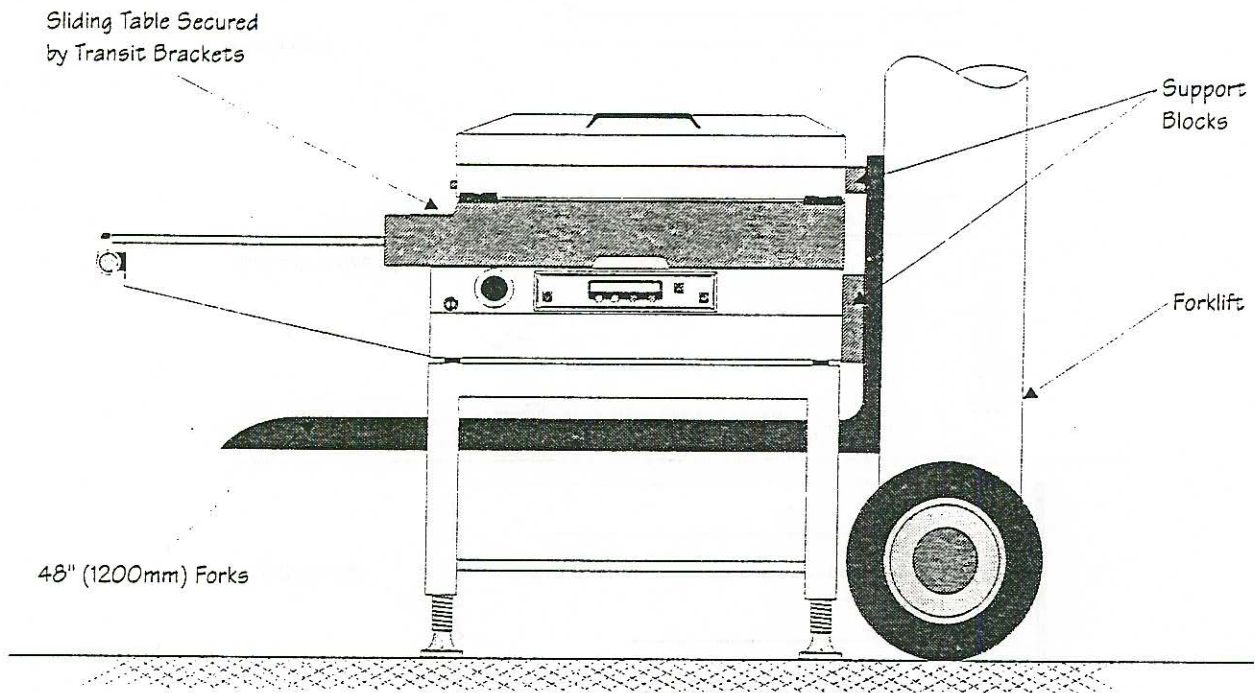
**CORRECT LIFTING.** Ensure that the following procedures are adhered to:

- i. Do not raise the machine using lifting strops.
4. Offer up the four support legs and castors to the underside of the machine (Unpacking the Machine figure refers).
  5. When the legs are in position, the assembly can then be placed onto the stand or work area.
  6. Figure Machine Transportation at the end of this chapter details the preferred manner of transportation of the printer.
  7. Remove the red transit brackets securing the sliding table when the machine has been sited in its designated area, (Transit Bracket figure- Section 4 - Siting refers).





**Figure 5-2 Unpacking the Machine**



**Figure 5-3 Machine Transportation**

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## **SECTION 6**

# **MACHINE PREPARATION**



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SECTION 2

TEACHING PREPARATION

**SECTION 6 - MACHINE PREPARATION****GENERAL**

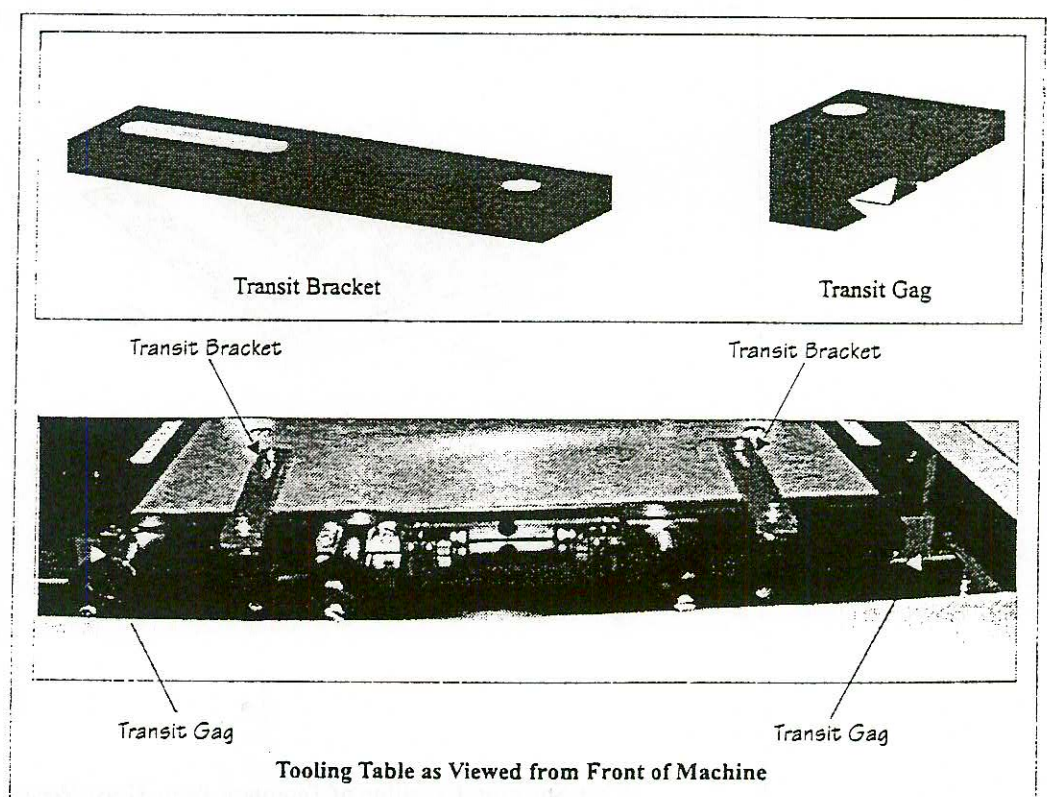
Prior to machine power-up it is essential to follow the preparation in this section to ensure correct operation of the machine and prevent any possible damage occurring to the machine or personnel.

Having successfully completed the unpacking and transported the machine to its designated area (as detailed in Section 5), lower the machine and adjust the mounting feet to the approximate height required.

**TRANSIT BRACKET REMOVAL****CAUTION**

**TRANSIT BRACKET REMOVAL.** Before any power is applied to the machine all four transit brackets must be removed from the machine, failure to do so may result in machine damage. These brackets are easily identified by their red colour.

1. Remove the two adjustable table transit brackets securing the transfer slide table to the baseplate.
2. Remove the two transit gags from the front linear guide rail (each side of table) to free the sliding table.
3. Degrease the forward and rear linear guide rails.
4. Move the transfer slide table to the right hand side of the machine (loading side).

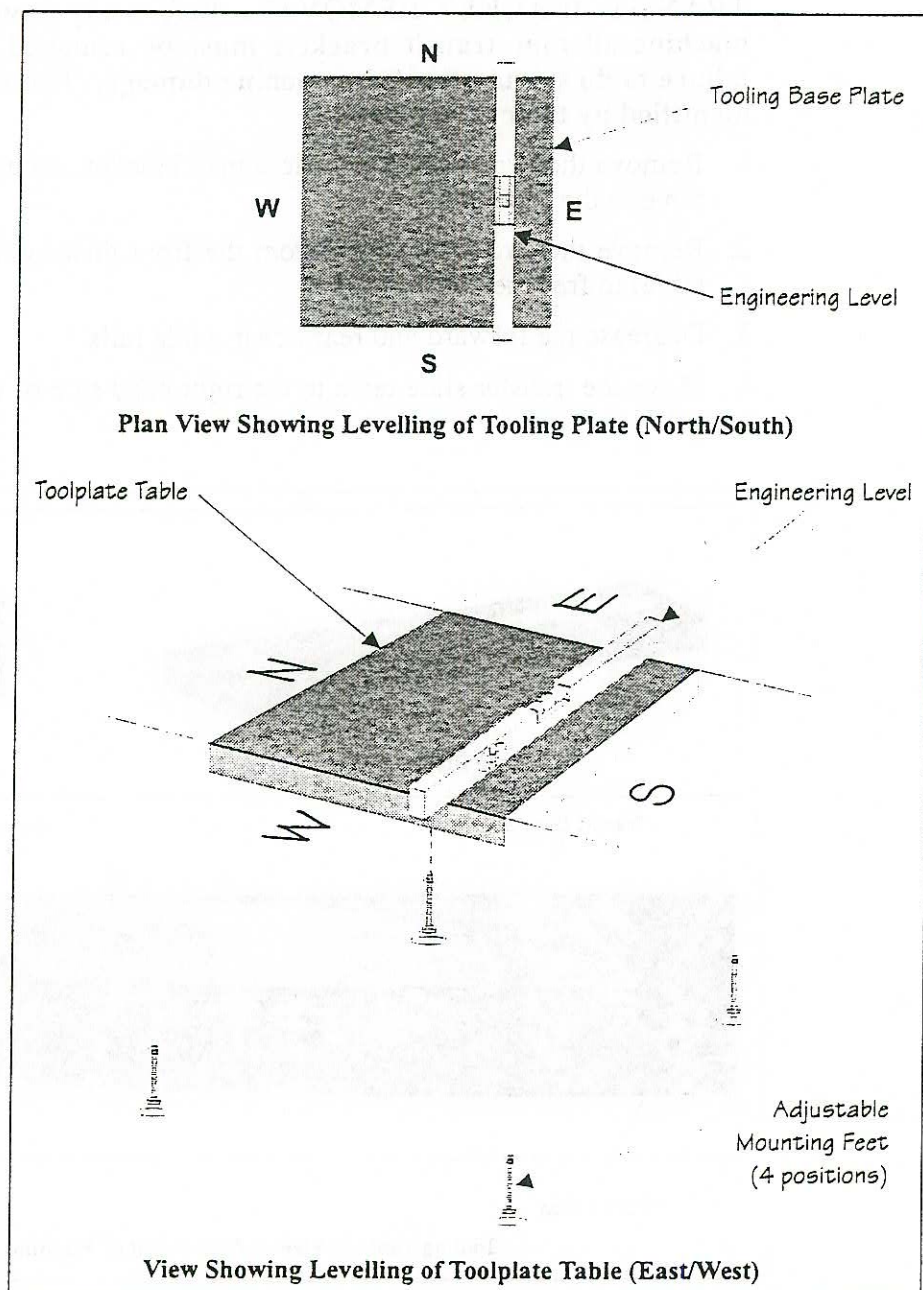


**Figure 6-1 Transit Brackets fitted to Machine**

## MACHINE LEVELLING

The screen frame must be level to ensure even distribution of the printing medium. Using an engineering levelling tool carry out the following procedure:

1. Push the tooling table fully home under the printhead.
2. Place the levelling tool onto the toolplate table in both the North (N) to South (S) and East (E) to West (W) direction.
3. Adjust each of the four feet individually by small amounts to level the machine in each direction, so that the bubble in the engineering level is centralized.
4. Lock the feet using the lock nuts on each adjuster.



**Figure 6-2 Machine Levelling Position**



**Protective  
Covering**

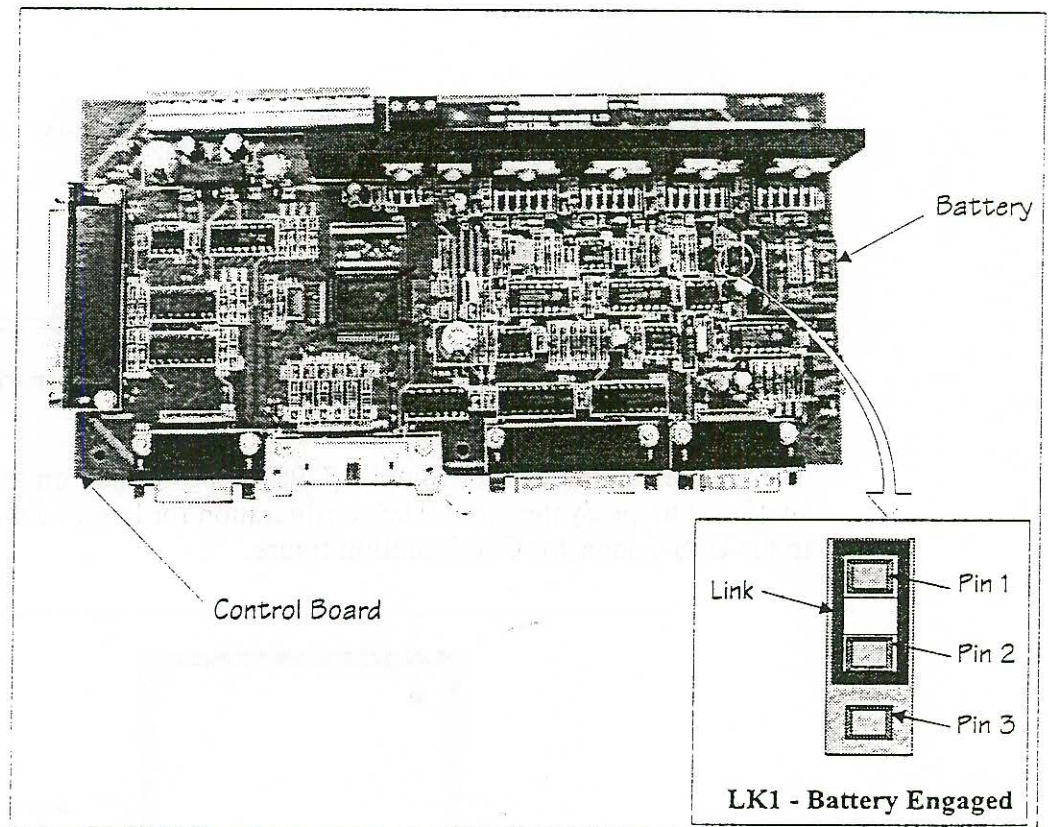
Before despatch from the manufacturer the machine carriage slides are coated with protective grease.

Wipe excess grease from the print carriage and table slides using a lint free cloth.

**CONTROL BOARD****CAUTION**

**ANTI-STATIC HANDLING.** Standard precautions must be adhered to when configuring and handling electronic cards.

The Control board, held within the service tray, is fitted with a +5V Varta battery. Ensure that the link connector LK1 is moved from the stowage position between pins 2 and 3 (battery isolated position), to the battery engaged position pins 1 to 2. (Control Board figure refers.)



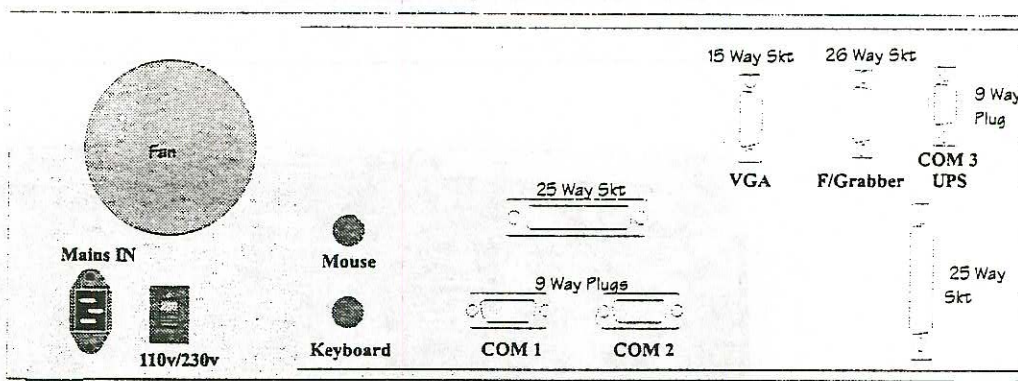
**Figure 6-3 Control Board**

**DA4 VISION FIT** The DA4 option consists of the following main units:

- System PC
- UPS
- SVGA Monitor
- Camera, Lens and Lighting System (2 positions)
- Interface Unit
- Trackball Mouse
- Keyboard

### System PC

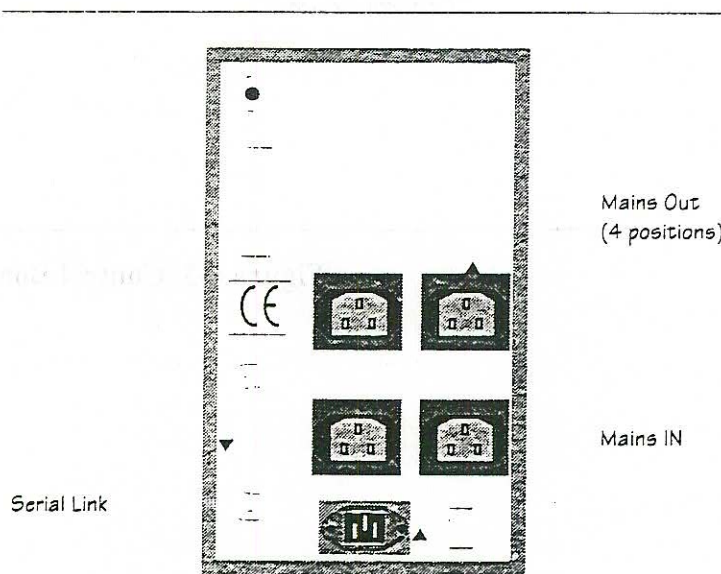
The System PC is positioned on the machine stand shelf (left side). The configuration for loom connection is detailed in the System PC Connector Configuration figure.



**Figure 6-4 System PC Connector Configuration**

### UPS

The Uninterruptible Power Supply (UPS) is positioned on the machine stand shelf next to the System PC. The configuration for loom connection is detailed in the UPS Connector Configuration figure.



**Figure 6-1 UPS Connector Configuration**



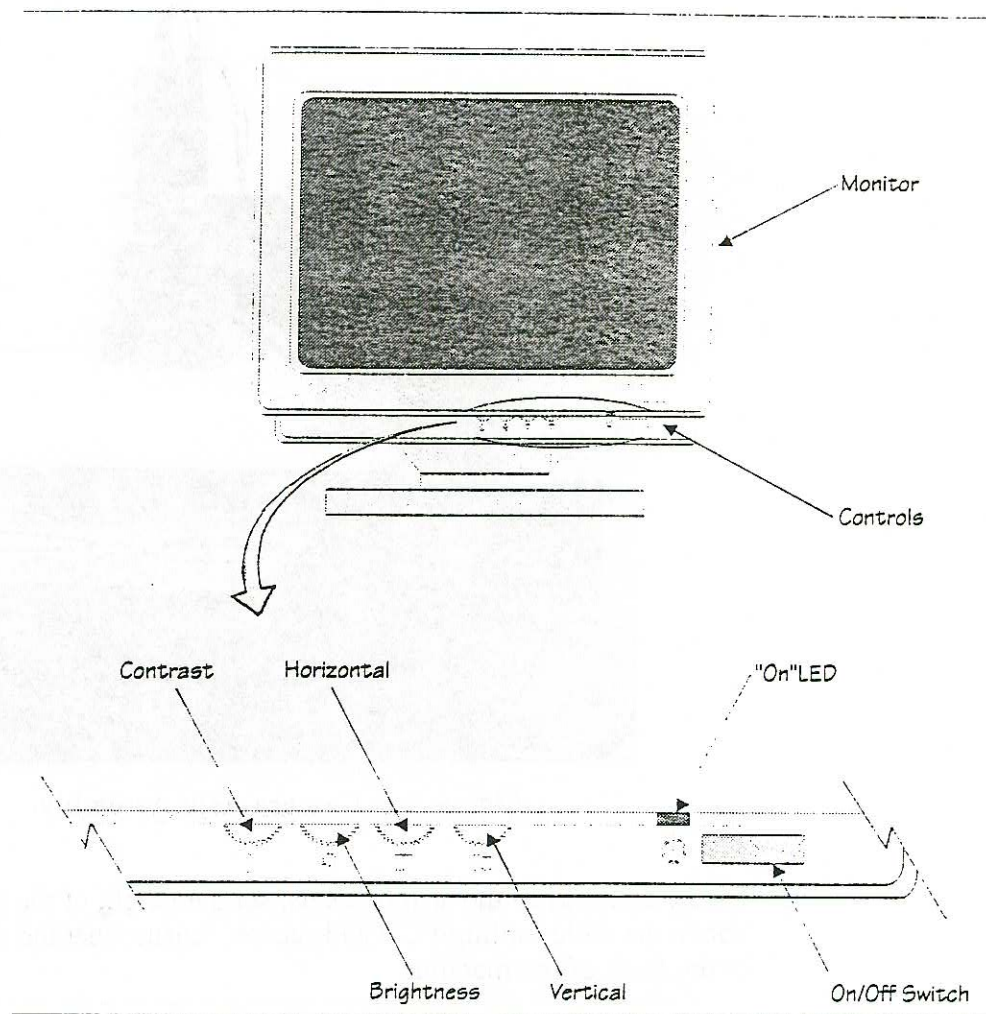
**SVGA Monitor**

Fit the monitor stand to the rear of the machine (using 4 off M8 x20mm cap head screws with plain and wrinkle washers). Ensure that the monitor plinth is level.

Position the monitor on the plinth.

**NOTE**

*The figure represents an example of a typical monitor as used on the 248 machine (monitor control panels may vary slightly).*



**Figure 6-5 Monitor Controls**

**WARNING**

**LETHAL VOLTAGE. DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT. ENSURE ALL ELECTRONICS COVERS ARE FITTED BEFORE OPERATING THIS EQUIPMENT.**



### Camera, Lens And Lighting System

The Camera, Lens and Lighting System is fitted to the machine as follows:

1. Fit the camera arm assembly to the machine (using 6 off M8 x20mm cap head screws with plain and wrinkle washers). Ensure that the camera arms are level.

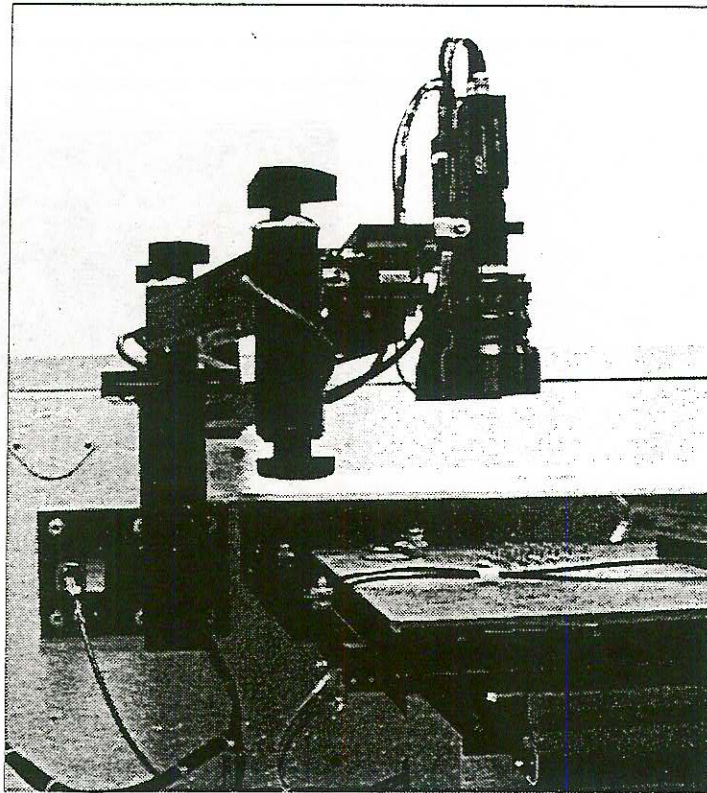


Figure 6-6 Camera Arm Assembly

2. Fit the cameras to the arm brackets, set the height of the camera to 120mm above the table tooling/PCB and secure. Ensure that the camera front faces to the front of the machine.

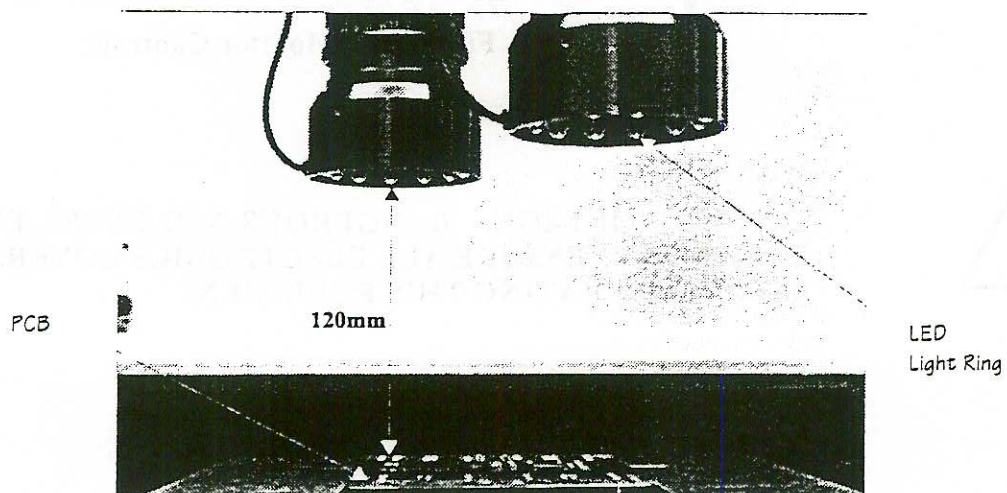


Figure 6-7 Camera Fit



3. Place an engineers level across the camera brackets to ensure assembly is level.

**NOTE**

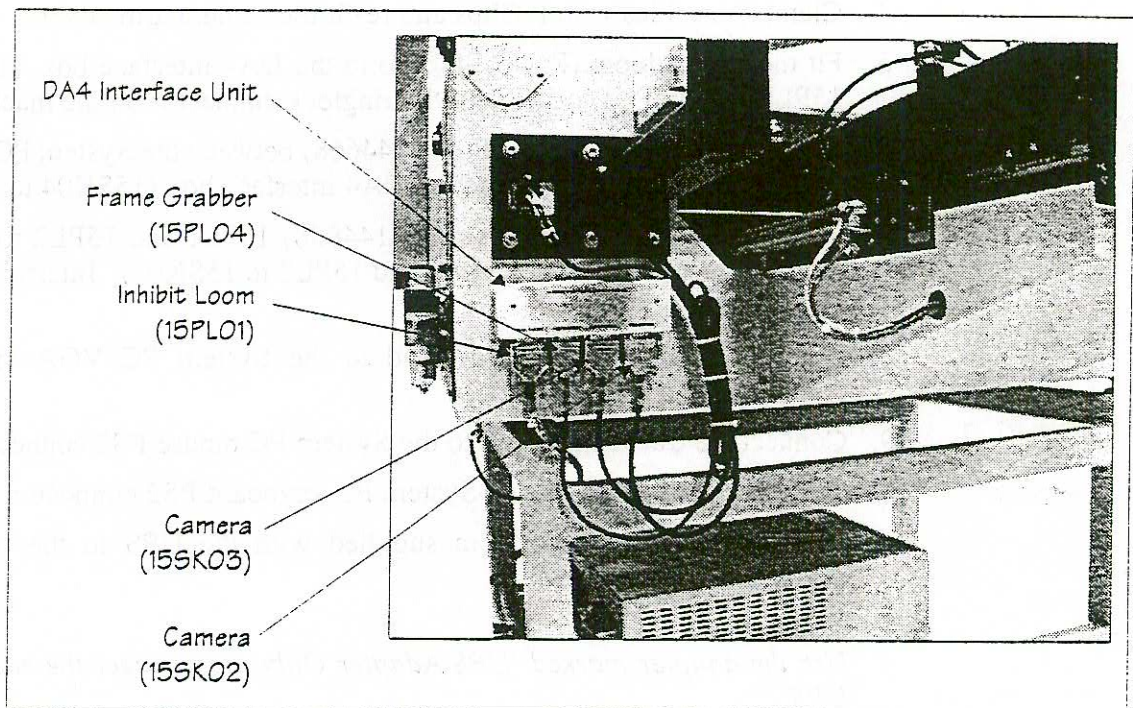
*Adjustment is carried out using the jacking screws on the underside of the camera brackets.*

**Interface Unit**

Fit the DA4 Interface Unit to the machine (using 2 off M5 x8mm cap head screws with plain washers).

**NOTE**

*Interface Box connectors face downwards (Interface Unit Fit figure refers).*



**Figure 6-8 Interface Unit Fit**

**Trackball Mouse**

The Trackball Mouse has a magnetic base to enable the mouse to be positioned on a convenient magnetically suitable surface. The unit is connected to the rear of the System PC (PS2 mouse port).

**Keyboard**

The Keyboard, which is a qwerty, low height, lightweight model, is only required for machine set up and for Service Engineer use. This item should normally be stowed in a safe place for future use.

## VISION SET UP

Carry out the following procedure to connect the vision system:

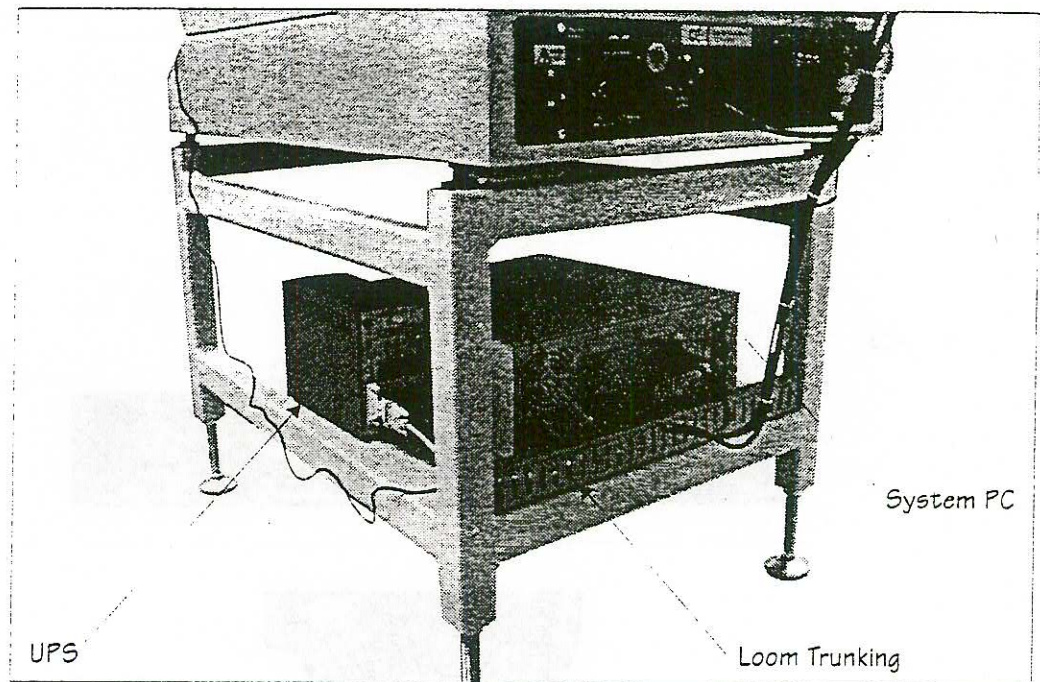
1. Remove the camera arm covers from the side of each camera arm (4 in total), retain the screws.
2. Feed camera cables (Pt.No.144688 x 2 off) through the camera arm assembly. Ensure that cable end connectors 13SK1 finishes at the left hand camera and 13SK2 finishes at the right hand camera.
3. Connect both connectors to the DCIN/SYNC connection of each camera, clamp cables.
4. Clamp the cables with P Clips and re-fit the camera arm covers.
5. Fit the inhibit loom (Pt.No.144686) to the DA4 interface box, (15SK01 to 15PL01) and 5PL1 to 5SK1 of the ringlock connector on the machine.
6. Fit the framegrabber loom (Pt.No.144668) between the System PC (12PL04 to the framegrabber card) and the DA4 interface box (15SK04 to 15PL04).
7. Connect the camera cables (Pt.No.144688) 15PL1 and 15PL2 to the DA4 interface box (15PL1 to 15SK02 and 15PL2 to 15SK03). Interface Unit Fit figure refers.
8. Connect the monitor display lead to the System PC VGA video card connection.
9. Connect the trackball mouse to the System PC mouse PS2 connector.
10. Connect the keyboard to the System PC keyboard PS2 connector.
11. Connect the serial link loom supplied with the UPS to the serial link connector of the UPS.

### NOTE

*Use the adapter marked 'UPS Adapter Only' to connect the cable to the UPS.*

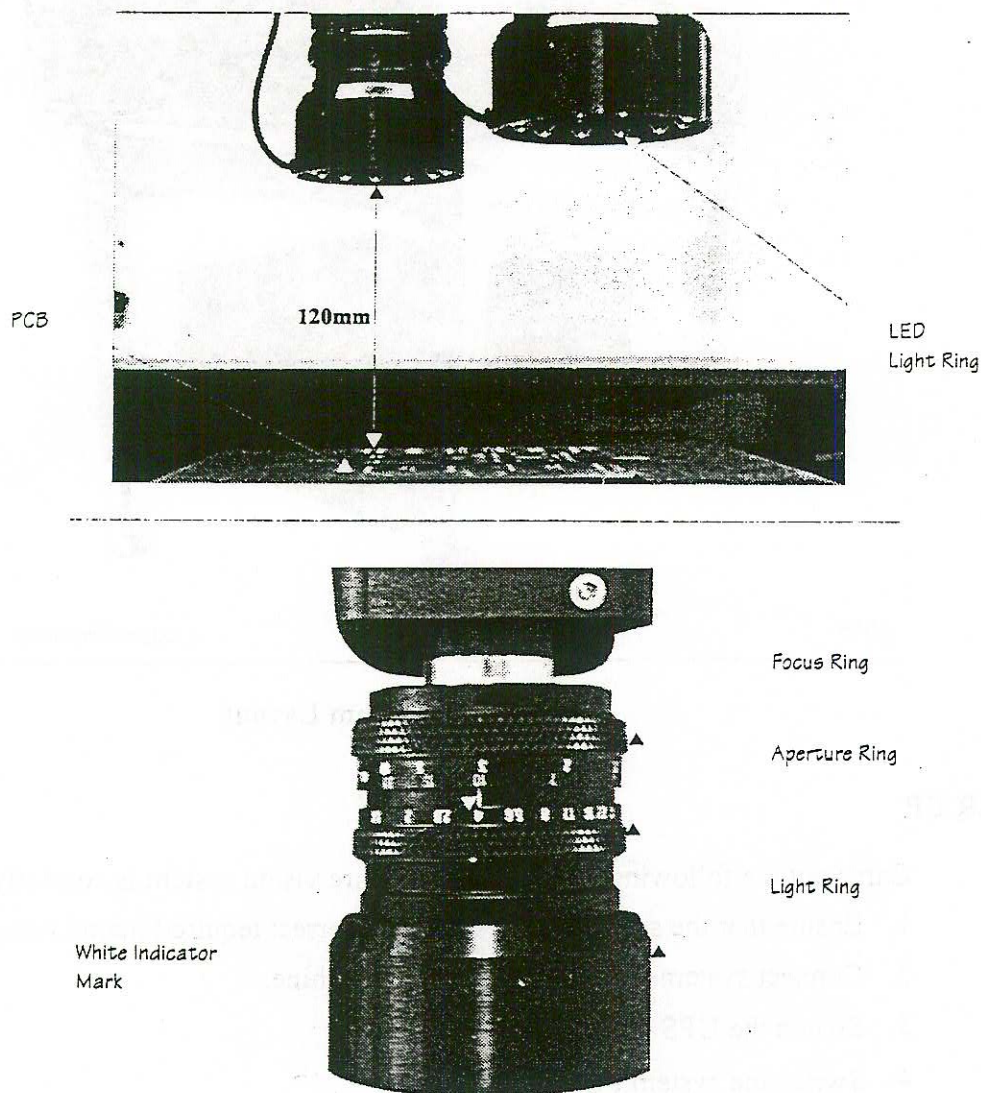
12. Connect the other end of the serial link loom to the System PC serial link COM3 connector.
13. Connect the monitor mains lead (supplied with the monitor) to an output socket on the UPS.
14. Fit the two mains leads supplied with the UPS, firstly between the mains IN of the system PC and the mains OUT of the UPS. The second lead between the UPS mains IN and the auxiliary supply connection of the service tray.
15. With the keyboard mounted on top of the System PC and the trackball mouse mounted on the front left hand side of the machine, cable tie and lay the looms into the trunking, fit the trunking cover. (View of Loom Trunking figure refers.)



**Figure 6-9 Loom Layout****VISION POWER UP**

Carry out the following procedures to ensure vision system is correctly set up:

1. Ensure that the system PC is set to the correct required mains voltage.
2. Connect system power and air to the machine.
3. Switch the UPS to **ON**.
4. Switch the system PC to **ON**.
5. Switch the monitor to **ON** and adjust settings as required.
6. Adjust the camera settings as necessary to obtain a clear image of the customer's product, adjust the height each camera, as necessary, to obtain a clear focus. (Camera Adjustment figure refers.)
7. Carry out the DA4 set up procedure on the customer's product (as detailed in the DA4 Stand Alone Manual). Run the machine to test the DA4 vision and the inhibit function operates correctly.
8. Test that the UPS performs correctly by removing power from the machine. The UPS is still operational and closes Windows NT in an orderly manner. The system PC power is then removed and the UPS finally shuts itself down.
9. Ensure that the mains isolation sticker is attached to the rear of the machine (above the service tray).



**Figure 6-2 Camera Adjustment**

**DEK LINK**

The DEK Link is a data management tool used to provide off-line inspection, preparation and storage of the process parameter menus of the 248 printer.

**Set Up**

The RS232 link supplied with the kit provides data transfer between the standard comms port on a PC and the FMI Connection port on the rear of the 248 machine (service tray).



The DEK Link software package is provided on a standard 3.5" diskette running under the Microsoft Windows 3.1 interface and can be implemented in conjunction with a standard IBM PC (or compatible). The formal minimum system requirements for the PC is listed as follows:

- 386 - 33Mhz PC
- VGA Monitor
- 2 Serial Ports
- Keyboard
- Mouse
- Hard Disk (600 Kbytes free)
- 4 Mbytes RAM
- Software Platform (Microsoft Windows 3.1)

#### **Software Installation**

Carry out the following procedure to install DEK Link:

1. Ensure that Windows 3.1 is installed on the PC.
2. Select **FILE** and **RUN** from the Program Manager.
3. Insert diskette into the floppy drive of the PC.
4. Type in the command line:  
**A:\INSTALL** and press **Enter** or **OK**.
5. Once the installation is complete return to the Program Manager page.
6. Select **FILE, NEW** and **PROGRAM ITEM**, enter **OK**.
7. Type **DEKLink** into the description box.
8. Type **C:\DEKLINK\DEKLINK.EXE** into the command line box.
9. Select **CHANGE ICON**.
10. Select the **ICON** required (DEKLink icon is supplied on the disk).
11. On completion press **RETURN** or **OK**.

On returning to the Program Manager it is possible to place the icon for DEK Link in the preferred application window.

To run DEK Link double click on the DEKLink icon.

#### **Initialization**

On first power up of the DEK Link system (with the RS232 connection made between the 248 machine and external PC), the program operates in on-line mode.

If the RS232 is not connected at the initialization stage the program operates in off-line mode.

#### **NOTE**

*Detailed instructions for DEK Link is provided in the Technical Reference Manual.*





## **SECTION 7**

### **POWER UP SEQUENCE**

100-100000

SECTION 1

LOWELL SEQUENCE



**SECTION 7 - MACHINE POWER UP SEQUENCE****GENERAL**

Before the machine is powered up, a final check is required to ensure proper installation (refer to Pre-Power Up Checks below). When fully satisfied that all instructions and preparations have been carried out as detailed in Section 6 - Machine Preparation, proceed with the power up checks detailed in this section.

**Pre-Power Up  
Checks**

Prior to powering up the machine ensure that the following checks are carried out:

- Transit brackets (2 off) removed.
- Transit gags (2 off) removed.
- Protective grease removed from linear guide rails.
- Remove all visible obstructions.
- Check mains voltage setting in service tray crate is correct.
- Ensure battery link connector on the control board is set correctly (Control Board paragraph refers).
- Service tray mains switch to **OFF (O)**.
- Connect the mains power cable.
- Connect air pressure connection.
- Power **ON**.

**PNEUMATIC SUPPLY**

Detail	Accept	Reject
Check pneumatic regulator setting - 60 psi		

**ELECTRICAL SERVICES****WARNING**

**LETHAL VOLTAGE. DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT. ENSURE ALL ELECTRONICS COVERS AND MAIN MACHINE COVERS ARE FITTED BEFORE OPERATING THIS EQUIPMENT.**

Check that the following electrical services are available:

Detail	Voltage
Measured customer/factory electrical supply	

Detail	Voltage	Accept	Reject
Check machine voltage is correctly configured for customer supply			

### Commonly Used Mains Voltages

Voltage	Country
100V	Japan (East), Japan (West) (60Hz), South Korea (60Hz)
110V	USA (60Hz), Philippines
200V	Hong Kong
210V	USA (208V 60Hz)
220V	Europe, Scandinavia, Brazil (60Hz), North Korea (60Hz), Eire, Taiwan (60Hz), China, Iran, Iraq
230V	UK, Singapore, Malaysia, Israel
240V	UK, Australia ( $\pm 6\%$ ), Cyprus

### INITIAL POWER UP

Carry out the following procedure to power up the machine:

1. Ensure air supply is connected and pressure is 60 psi - 70 psi.
2. Switch the mains switch **ON** (1).
3. Switch **ON** the UPS.
4. Switch **ON** the system PC.
5. Switch the vision monitor **ON**.
6. Press any green **GO** button on the machine front control panel.
7. The monitor displays:
  - i. Left and right camera windows
  - ii. Icons and welcome text.

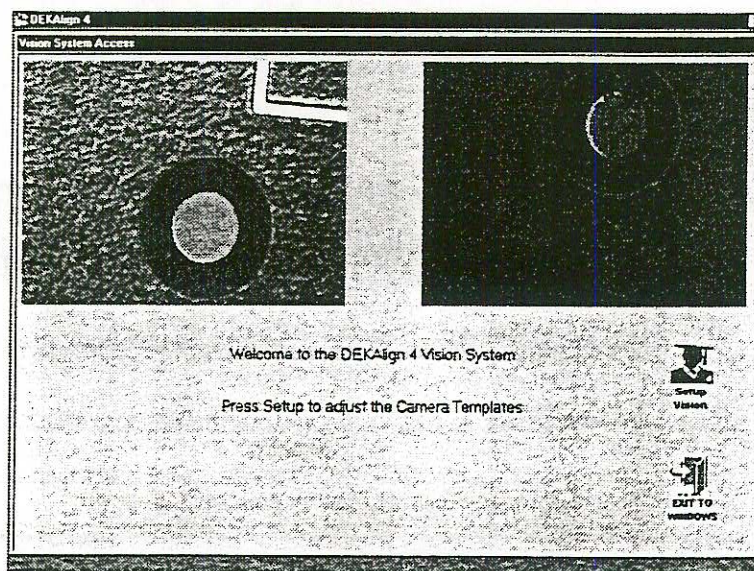


Figure 7-1 Monitor Display

8. Pressing the **GO** button initializes the machine.



**VISION SET UP**

The DEK Align 4 vision system software is pre-loaded onto the machine system PC. Configuration of the vision system is carried out by touching the relevant icons on the following display pages:

- Main Setup Page
- Camera Selection Page
- Region of Interest Setup Page
- Template Setup Page
- Advanced Template Setup Page
- Overlay Setup Page
- Configuration Page

A full description of these display pages are detailed in the DA4 manual (Camera and Vision System Chapter).

**Camera Set Up**

Carry out the following procedures for adjustment and focus of the DEK align system:

1. Adjust the focus ring on each camera body so that the 3 metre/10 foot mark indicator on the focus ring lines up to the white indicator mark (as shown in Camera Adjustment figure - Machine Preparation section).
2. Check that all LEDs on the light rings are illuminated (as shown in Camera Adjustment figure - Machine Preparation section).
3. Place a white piece of paper within the field of view under each camera alternately, and adjust the aperture ring on the lens unit until there is a white image shown on the monitor.
4. Place a PCB on the tooling table and adjust the position, focus and aperture of each camera until part of the PCB is clearly defined on the monitor.

**NOTE**

*For detailed information on setting up the templates for alignment refer to the DA4 manual (Adjustments and Settings section of the Camera and Vision Chapter).*





***DeK*** 248

## **SECTION 8**

# **MACHINE PERFORMANCE**

SECTION 8

MACHINE PERFORMANCE



**SECTION 8 - MACHINE PERFORMANCE**

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**GENERAL**

Prepare the machine for printing a product to the customer's requirement. Refer to the Technical Reference Manual for detailed setting up procedures.

The machine must meet the required specification of performance, (refer to the 248 Engineering Specification). All installation and machine performance data must be returned to DEK.



***DEK*** 248

## **SECTION 9**

# **INSTALLATION DOCUMENTATION**



REF 348

SECTION 2

INSTALLATION DOCUMENTATION

**SECTION 9 - INSTALLATION DOCUMENTATION**

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**GENERAL**

This section has been designed to document the installation of a machine at a customer site. The section is divided into two parts:

- Installation Checklist
- Installation Acceptance Document

**Installation Checklist**

The installation checklist is an aide for the installing engineer and documents the installation procedure. The checklist is sequential and each stage of the procedure should be ticked when completed.

**Installation Acceptance Document**

The Installation Acceptance document provides documentary evidence to DEK Printing Machines that the Customer has received a satisfactory product. The document also enables DEK Customer Support Group to provide effective support to the customer by having the machine details close to hand in the event of a query.

**DEK Delivery Questionnaire**

The DEK Delivery Questionnaire form is supplied with the machine. The installation engineer must make the customer aware of the existence of the DEK Delivery Questionnaire.

**Copies**

When the installation procedure has been completed and the customer has signed the Installation Acceptance Document, the Customer should take a photocopy of the Installation Checklist and Installation Acceptance Document. The originals should be given to the installation engineer for dispatch to:

Customer Support Supervisor  
DEK Printing Machines Ltd  
11 Albany Road  
Granby Industrial Estate  
Weymouth  
Dorset DT4 9TH  
UK

SECTION 9 - INSTALLATION DOCUMENTATION  
INSTALLATION CHECKLIST

**DEK 248**

**INSTALLATION CHECKLIST**

No.	UNPACKING INSTRUCTIONS	REFERENCE
1	Check machine components are complete and correct	See unpacking
2	Check miscellaneous items are present and correct	
3	Check DEK documentation is complete and correct	
4	Check manufacturers documentation is complete and correct	
5	Inspect machine for transit damage	
6	Check machine configuration is correct to Work Order	
7	Fit the 4 off mounting feet	

No.	MACHINE PREPARATION	REFERENCE
1	Transport to final destination	See shipping crate
2	Remove transit brackets	See transit gags
3	Set machine level	See machine levelling
4	Machine height	See machine height
5	Pre-power up checks	See pre-power up problems

No.	POWER UP SEQUENCE	REFERENCE
1	Check pneumatic regulator setting	See power up checks
2	Check power supply settings	
3	Carry out initial power up	

No.	TEST MACHINE FUNCTIONS	REFERENCE
1	E Stop and cover switches	See Operator Manual
2	Key switch operates correctly	See Operator Manual
3	Print carriage home position	See Tech Ref Manual
4	Table lift to print height	See Tech Ref Manual
5	Table In and Out movement	See Tech Ref Manual



No.	DEK ALIGN	REFERENCE
1	Check system components are present and correct	See system components
2	Connect the vision system	See connecting the system
3	Initial set up	See initial set up

No.	PRODUCT	REFERENCE
1	New product set up	See Operator Manual

No.	ON SITE TRAINING	REFERENCE
1	Printer fundamentals	See Tech Ref Manual
2	Maintenance and error messages	
3	Diagnostics menu	
4	DEK Align vision	
5	DEK Link package	
6	Manuals	

No.	MISCELLANEOUS	REFERENCE
1	Service report	
2	Acceptance report	
3	Installation report	

MACHINE MODEL	
MACHINE SERIAL NUMBER	

**RETURN ORIGINAL TO DEK CUSTOMER SUPPORT SUPERVISOR**

SECTION 9 - INSTALLATION DOCUMENTATION  
INSTALLATION CHECKLIST

**DEK 248**

**ACCEPTANCE DOCUMENT****General**

This document is sub-divided into three parts:

- Full Acceptance
- Conditional Acceptance
- Outstanding Issues



SECTION 9 - INSTALLATION DOCUMENTATION  
ACCEPTANCE DOCUMENT

**DEK 248**

**Full Acceptance**

MACHINE MODEL:	
MACHINE SERIAL NUMBER:	

CUSTOMER:	
ADDRESS:	
AGENT (If applicable):	

Declaration:      **I HAVE EXAMINED THE MACHINE DESCRIBED ABOVE AND  
HAVE FOUND IT TO BE IN COMPLETE ACCORDANCE WITH THE  
DESCRIPTION, IN GOOD ORDER AND CONDITION AND FIT FOR  
THE PURPOSES FOR WHICH IT IS INTENDED TO BE USED.**

**Customer Representative**

NAME:	
POSITION:	
SIGNATURE:	
DATE:	

**DEK Representative**

NAME:	
POSITION:	
SIGNATURE:	
DATE:	

**RETURN ORIGINAL TO DEK CUSTOMER SUPPORT SUPERVISOR**

**Conditional Acceptance**

MACHINE MODEL:

MACHINE SERIAL NUMBER:

CUSTOMER:

ADDRESS:

AGENT (If applicable):

Declaration:

**I HAVE EXAMINED THE MACHINE DESCRIBED ABOVE AND  
HAVE FOUND IT TO BE IN COMPLETE ACCORDANCE WITH THE  
DESCRIPTION, IN GOOD ORDER AND CONDITION AND FIT FOR  
THE PURPOSES FOR WHICH IT IS INTENDED TO BE USED.**

**Customer Representative**

NAME:

POSITION:

SIGNATURE:

DATE:

**DEK Representative**

NAME:

POSITION:

SIGNATURE:

DATE:

**RETURN ORIGINAL TO DEK CUSTOMER SUPPORT SUPERVISOR**

**DEK 248**[illegible]

THE ABOVE ISSUES HAVE BEEN ADDRESSED TO MY SATISFACTION.

NAME:
POSITION:
SIGNATURE:
DATE:

9-10



## INSTALLATION REPORT

*NOTE*

*This report form should be torn from the Installation Manual and on completion be returned **immediately** to DEK UK - CSG Office.*

MACHINE MODEL:	
MACHINE SERIAL NUMBER:	
DATE:	
ENGINEER:	

REPORT		
SYMPTOMS	CAUSE	REMEDY

## RETURN TO DEK UK QUALITY ASSURANCE

SECTION 9 - INSTALLATION DOCUMENTATION  
INSTALLATION REPORT

**DEK 248**

### DEK DELIVERY QUESTIONNAIRE

# DEK Quality Manager Customer Feedback

Customer -

Sales Order No. -

Date of Install -

Machine Type -

Machine Serial No. -

Please take the time to complete this form, it will help me  
to improve the way we serve you in future.

Rate our performance (✓) in the following categories-

On - time delivery

Did we deliver what you ordered?




Adequacy of packing

Condition of machine

Quality of installation

Quality of documentation

Were we up & running on time?

Poor 	Fair 	Good 	Delighted 

Please list any specific comments here :

Name .....

Signature .....

Date.....

## Customer *Delight* Programme

Post or FAXBACK to : Peter Davey +44 (0)1305 760123



**DEK 248**



