BRADMAN-LAKE
CARTONING SYSTEMS WORLDWIDE

Compact 3 Table of Contents

1.0 - ABOUT THIS MANUAL

RESEARCH AND IMPROVEMENT POLICY

Bradman-Lake Ltd., have a policy of continual research and improvement and we reserve the right to make such modifications and design changes as are considered necessary in the light of experience. For this reason illustrations and particulars given in this Manual may differ in detail from machines in current production.

This manual is designed to help operators, maintenance personnel and engineers get the best from the packaging machine.
Please ensure that all operators and engineers read this manual in its entirety before using the machine. Following the operating and maintenance instructions, will keep the machine operating at its maximum efficiency and prolong its life.

The manual provides information on:

a) Routine maintenance

b) Machine operation

c) Safety

d) Cleaning

The manual also gives a logical course of action and diagnosis for use in the event of a fault occurring. The location and function of various components are illustrated and described to enable personnel to understand and become familiar with the machine.

This manual is accompanied by a Parts Manual; please use the Parts Manual to obtain part numbers before ordering spares.
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2.0 - INTRODUCTION

The Bradman - Lake Flexible Carton Closer (FCC) COMPACT 3, is a fully automatic packaging machine for gluing and closing three flap pre - formed, top loaded cartons after filling.

This machine is built to robust frozen food standards and offers a high standard of cleanliness. Materials used are of a non-toxic, corrosion resistant nature such as stainless steel, aluminium or plastic. The base chassis is steelite plated / or stainless steel.

Access to the electrical enclosure is provided by hinged doors fitted with an isolator which operates when the door is unlocked. This is a safety feature that ensures that the electrical supplies are isolated whenever the enclosure is opened.

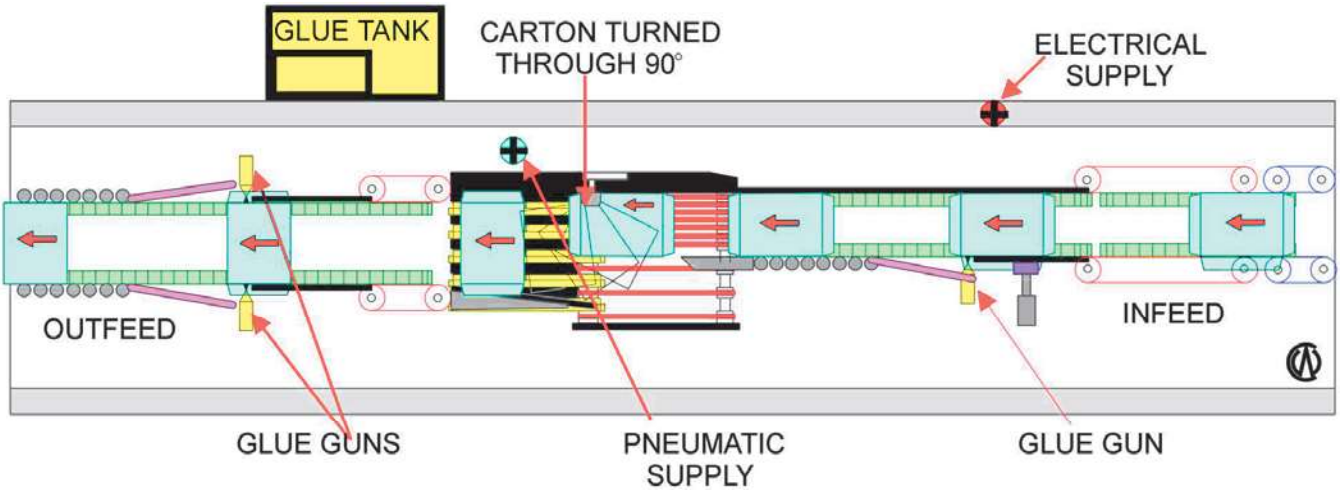
Casters and jacking screws are fitted so the machine is portable.

Clear polycarbonate guard panels mounted on stainless support frames provide excellent visibility and swift access into all working parts of the machine. The four polycarbonate machine top guards are fitted with safety switches which ensure that the machine cannot start if one, or more, guards are open.

Emergency ‘STOP’ buttons are fitted at the four corners of the machine.

Control of all electrical machine functions is via a ‘Touch screen’.

Castors and jacking screws are fitted so the machine is portable. Servo motors provide the drive for all aspects of this machine.



CARTON SEQUENCE THROUGH THE MACHINE

3.0 - SAFETY FIRST

3.1 - PUT SAFETY FIRST:

The machinery described in this manual has been designed for the sole purpose of packaging the specified product. Any other products must be approved beforehand by Bradman - Lake Inc. Packaging of unsuitable products could result in damage to the machinery and injury to the operator.

Suitable doors, guards and electrical safety devices are fitted to all Bradman - Lake machines. These protective features are designed for the safety of the operator and are tested in our works before the machine is despatched.

The design of the guards and safety devices all follow the recommendations of the Factory Inspectorate and satisfy the requirements of the Machinery Directive. The functions of the components must not be altered in any way and they must not be replaced by alternative items.

3.2 - SAFETY ASPECTS OF LOCAL OPERATING INSTRUCTIONS:

Before delivery of your machine, prepare general operating instructions for the use of the machine. The operating instructions must meet any requirements for:

- Compliance with local safety regulations and codes.
- Protection of employees against bodily injury, e.g. hard hats, gloves, safety glasses, hearing protection etc. as required for local conditions.
- Protection of employees against hazards such as hot surfaces etc.
- Maintaining clear visibility of **DANGER, WARNING** and **CAUTION** notices and labels.

- Advisory indicating systems to alert employees near the machine that it is ready to be started.
- Piping all vents on pressure equipment to a safe location.
- Instructing operators how to deal with any foreseeable mishandling of the machine.

Finger trap

Although Bradman - Lake try to guard against every possible misuse of the machine, there are some circumstances where additional warning labels may be needed. Finger Trap warning labels are positioned on the machine to warn operators / engineers of areas of concern where fingers may get caught if misused.
These are warning labels and therefore must be kept visible at all times and must not be removed.

3.3 - ESSENTIAL DO's AND DON'TS FOR SAFETY:

- DO NOT operate the machine unless all guards are securely and correctly fitted.
- DO NOT touch the glue pots / guns as they operate at high temperatures. If maintenance needs to be done always wear a pair of protective gloves.
- DO NOT inhale the adhesive fumes from the glue unit.
- DO NOT put your hands or fingers into the machine when it is running. If debris needs removing **ALWAYS** stop the machine and open a guard door before removing any obstructions.
- DO NOT obstruct or remove any **DANGER, WARNING** or **CAUTION** notices / labels that may be on the machine.
- DO NOT use the machine if you have not received the necessary training.
- DO check the security of all nuts and bolts, screws etc. after the machine has been operating for a while.
- DO keep the area around the machine clean and tidy.
- DO disconnect any power supply when needing to work on the electrical system or when cleaning the machine.

MAKE SURE YOU ARE AWARE OF WARNING SIGNS AND THEIR PURPOS

4.0 - SPECIFICATIONS / DIMENSIONS

TOTAL LENGTH:	5000 mm
TOTAL WIDTH:	2300mm
TOTAL HEIGHT (DOORS OPEN):	1780 +/- 50mm
TOTAL WEIGHT:	1400 Kg
MINIMUM / MAXIMUM SPEED:	50 to 120 c.p.m.
MAINS SUPPLY:	400V, 3-PHASE, 50Hz
CONTROL SUPPLY:	24v d.c.
TOTAL ELECTRICAL CONSUMPTION:	7.5 kW
AIR SUPPLY:	80 P./S.I.
COMPUTER:	486Dx2/66, 16M RAM 600HD
NORDSON HOT MELT SYSTEM:	TANK 3400 series GUNS H201 T

5.0 - MACHINE DESCRIPTION

Filled cartons are fed, from the packing conveyer into the infeed timing side belts of the closer. These rough top belts control the speed of the carton and hence decide the capacity in cartons per minute.
The carton then transfers onto the tabletop chain and into the second longer infeed side belt, which accelerate the carton, thus creating the necessary gap between the cartons. During this period a fixed overhead guide folds the carton cover down.

Figure 1. View of infeed

As the carton leaves the infeed side belts, it is taken over by the flexible fingers on the split overhead conveyer. It is then driven by the rubber fingers through the hot melt application, plough down and compression section and emerges from the overhead conveyer, with front flap closed, onto the turn correction section. A leading corner of the carton then contacts a fixed stop and the continually running roundthane belts conveying the carton cause it to turn through 90°. Another set of indexing lugged belts then ensures the carton is correctly orientated and conveys it onto the short transfer section.

The transfer section comprises of the side running ‘wing top’ belts that convey the carton onto the tabletop chains where it is propelled by further overhead rubber fingers through the hot melt and closing operation for the side flaps.

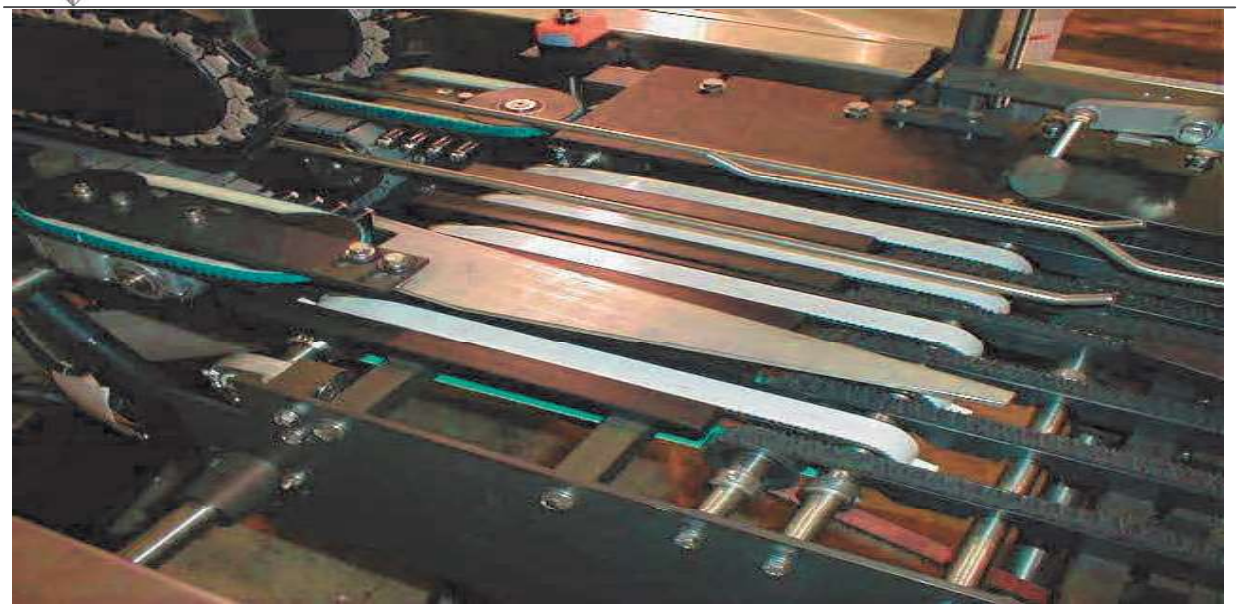


Figure 2. View of turn correction and transfer section

The range of sizes is easily accomplished, generally by manually operated screw shafts with SIKO readouts to ensure repeatability or the graduated shafts used on the split overhead conveyors. These are adjusted by turning the knurled lock nuts anti clockwise moving to the required setting and locking in place by turning the knurled lock nuts clockwise.

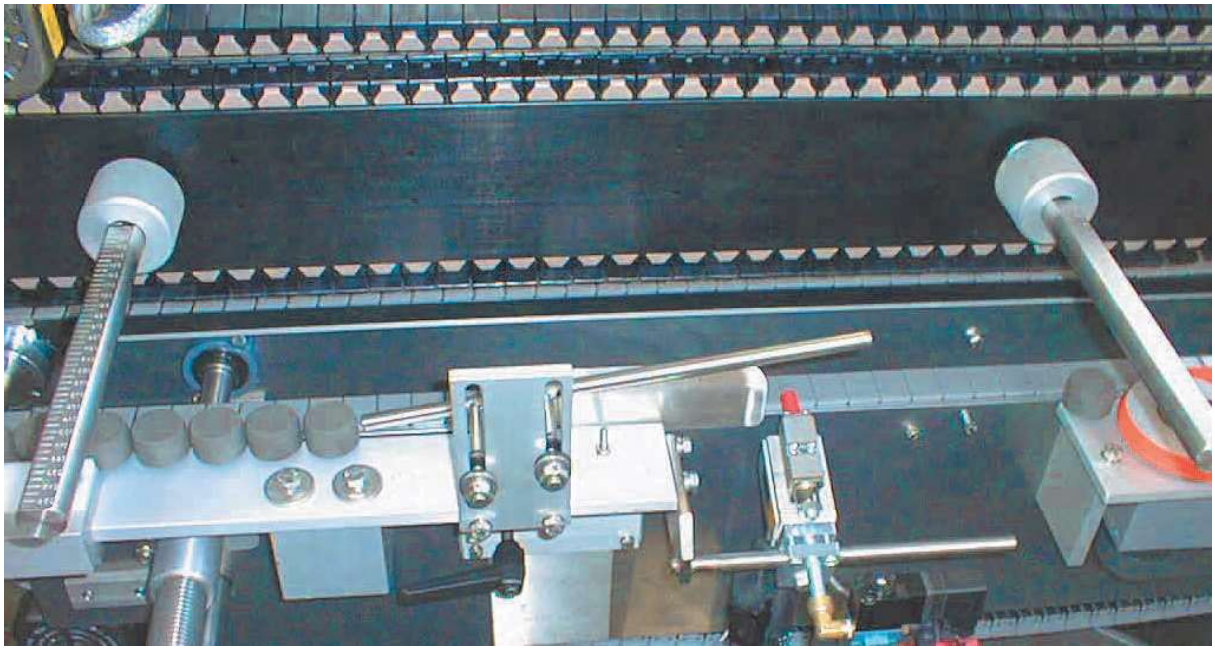


Figure 3. View of split O/H conveyer

5.1 Hot Melt Application- (generally by jetting)

The carton is seen by an overhead sensor that triggers a glue gun to apply a line of adhesive to the carton. The start and stop of the glue line is controlled from the touch screen and can be changed to suit customer requirements.

A full Nordson technical manual accompanies the machine that identifies the component parts and recommended spares.

The applicator guns are vertically and horizontally adjustable for initial set-up.

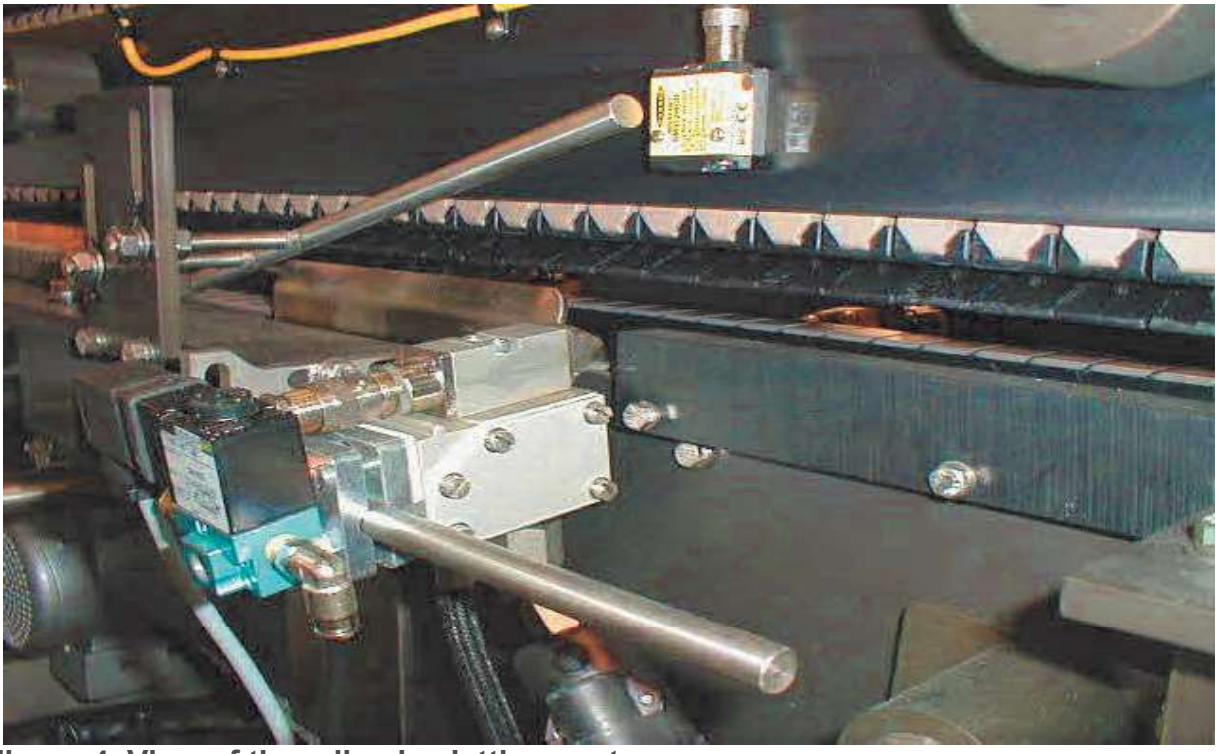
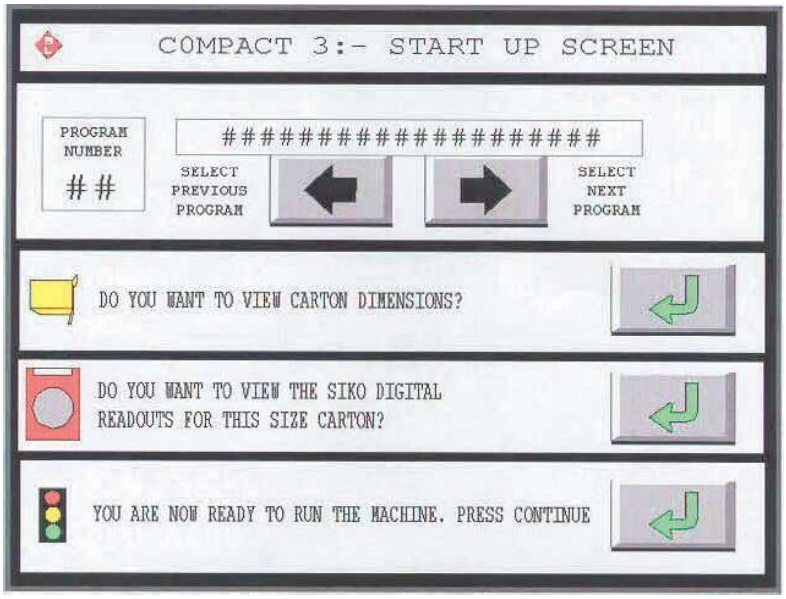


Figure 4. View of the adhesive jetting system

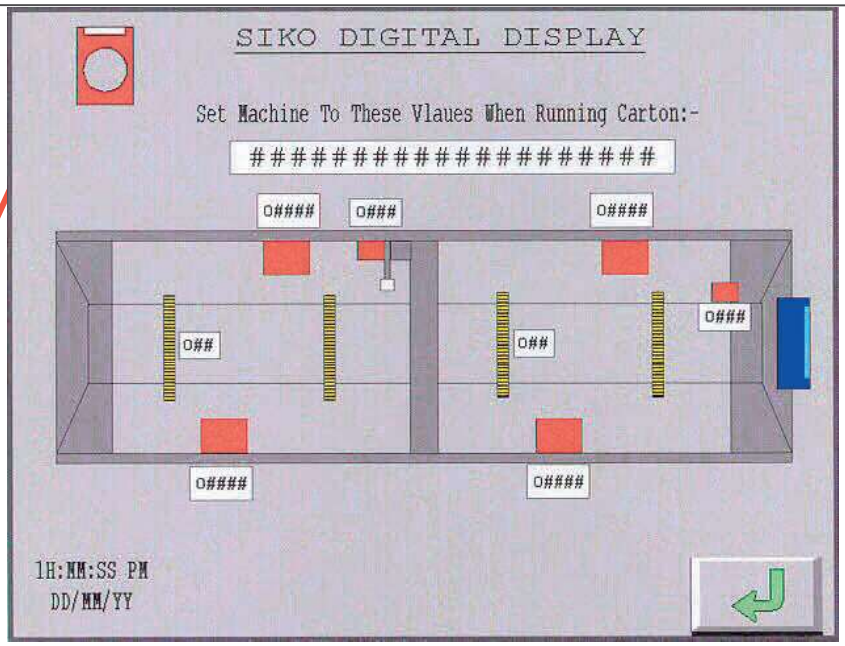
6.0 - DESCRIPTION OF OPERATOR CONTROLS

This is the first screen that appears after initial switch on. If the date or time needs to be changed, touch the upper right edge of the screen (Goto Config). Once the date and time are correct, press the lower right hand button, this will take you to the START SCREEN.

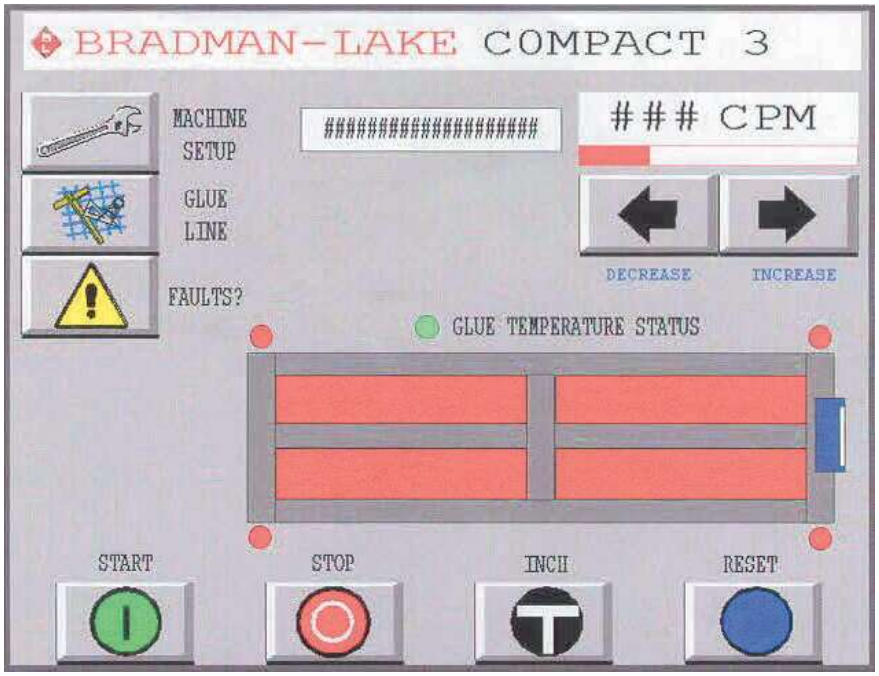


On this screen, you can select the program to be run by pressing either of the black left hand or right hand arrow buttons until the desired program appears on the display. If you wish to change a program title, you can alter this by touching the program title box. An 'ASCII' keyboard will appear, allowing the operator to type a 20 character display title. When complete press the key to enter the new title.

The carton selected can be viewed to confirm the dimensions. To alter the dimensions touch the window required and use the touch-pad keys to enter the new dimension pressing enter returns you to the carton screen. You can return to the START SCREEN by touching the lower left button or enter the GLUE LINE screen by touching the lower right button and going through the PASSWORD SCREEN.

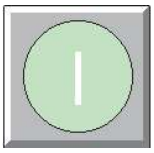


This screen shows the 'Siko' settings of the machine for the program selected.
To alter the 'Siko' settings touch the meter on screen, this button will take you to the 'Siko' digital readout settings screen. This screen allows the operator to enter revised or new 'Siko' values. Select the meter number to be changed and use the numeric touch pad to enter the number required, pressing enter displays the new setting. When all the values have been entered, press the lower right hand button to enter the values and to return to the start up screen.



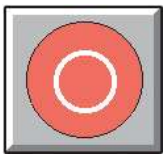
The Compact 3 is generally controlled by the use of the Touch screen. Operator access is only available to the basic screens required. All other screens will only be accessible via the PASSWORD SCREEN. The operators main control panel is referred to as the RUN SCREEN and offers the operator a range of controls.

START BUTTON: -



Pressing the “START” button starts the machine if there are no faults on the machine. Servo will “home” after an “emergency stop” or a door open condition.

STOP BUTTON: -



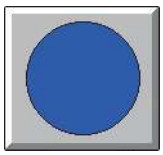
This STOP button is a Software Stop, therefore should not be used in an emergency. When pressed the machine ramps down to a stationary condition. There is no need to press the RESET button after pressing the STOP button.

The STOP button is generally used for stopping the machine instead of the E-Stop.

INCH BUTTON:

The INCH button is used to operate the machines mechanisms by small controlled amounts. It is used when undertaking cleaning, adjustments, setting up and other maintenance tasks. The machines mechanisms will only operate when the INCH button is kept depressed, once the button is released the machines mechanisms will immediately be halted.
The INCH button will only be operative if the EMERGENCY STOP button is unlatched and all the machine doors are closed.

RESET BUTTON: -



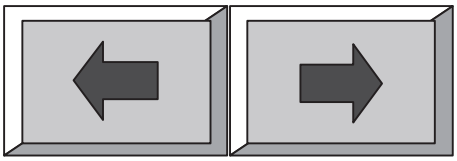
The RESET button should be pressed to clear any faults. The RESET will then set the machine into a Ready to Run mode.
After pressing the RESET, allow 3 seconds before pressing another control.

EMERGENCY STOP STATIONS: -

There are four EMERGENCY STOP stations on the Compact 3, one positioned on each corner of the machine. Pressing an E - Stop instantly

stops the machine and dumps the air to the glue tank. To restart the machine, unlatch the E - Stop and press the RUN button.

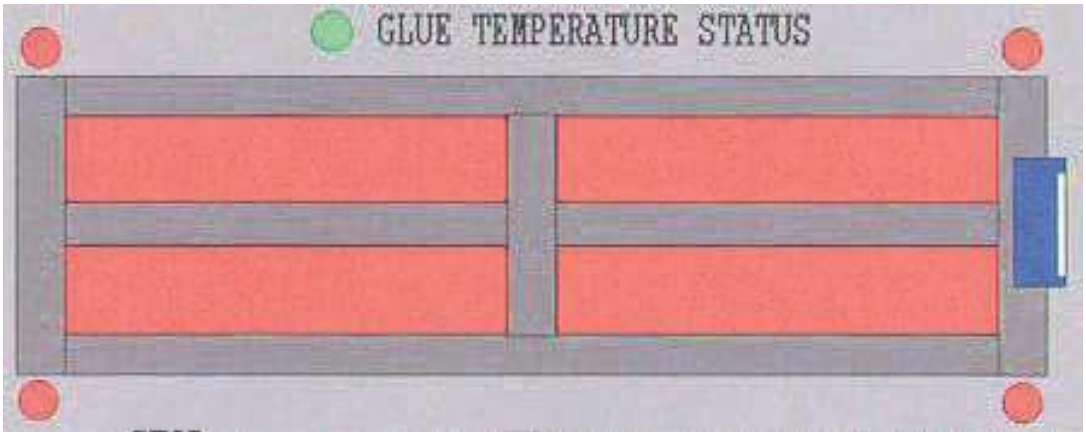
MACHINE SPEED: -



From here the operator simply keeps his finger pressed on the RIGHT ARROW to INCREASE the machine speed or the LEFT ARROW to DECREASE the speed. As the finger is kept down on an arrow button, the C.P.M. value rapidly changes. As the C.P.M. value changes note that the machine speed changes until the finger is released from the button.

The machine speed is shown in Cartons Per Minute (C.P.M.) as is automatically set when running different size cartons, if already set to do so.

DOOR GUARDS: -

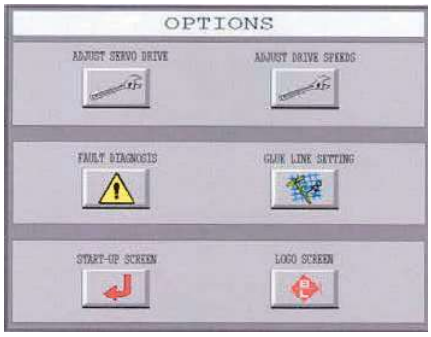


A plan view of the Compact 3 is shown on the RUN SCREEN showing, at a glance, the state of the guard doors and emergency stops. If a door is open or a stop depressed, a red indicator or panel (door) is shown. If a door is closed the red panel is extinguished and if an emergency stop is released the indicator changes from red to white.
Opening of a guard door also dumps the air to the glue tank.
When shutting a guard door ensure the red panel is extinguished, and then start the machine. Air is applied to the glue tank.
The glue temperature status indicator changes from red to green when the correct operating temperature is achieved.

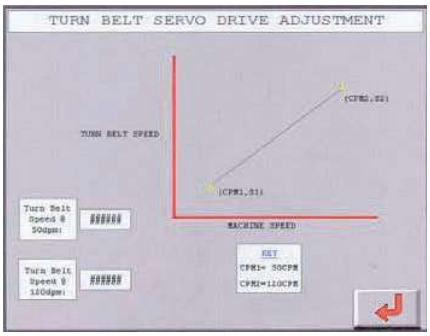
On the upper left of the screen, access is gained to the MACHINE SETUP (Section 10) and GLUE LINE SETUP (Section 8) screens via the PASSWORD screen. Only when the correct password is entered can you progress to the OPTIONS screen where you can select the desired screen.

Pressing either of these two buttons takes you to the PASSWORD screen, see next.

Only after the correct password has been entered does the “Continue” button at lower right become active and when pressed takes you to the “Options” screen. If you do not have the password press the lower left button to return to “Start” screen.

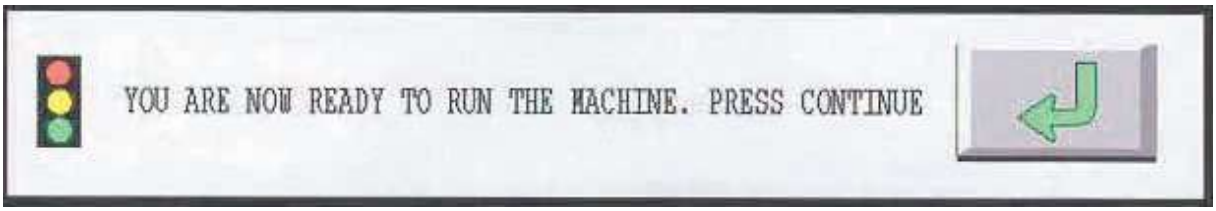


The three main options are the “ADJUST SERVO DRIVE”, “ADJUST DRIVE SPEED” and GLUE LINE SETTING.



This screen adjusts the gain ratio at which the servo will follow the "CPM” speed.
To adjust the SERVO DRIVE screen touch the window to be adjusted and enter the change on the numeric touch-pad. Pressing the lower right key will return you to the RUN screen.

When the machine has been mechanically set, touch the Enter/Return symbol on the screen to return to the Start - Up screen.
The screen now prompts the operator that he is ready to run the machine, and by pressing the CONTINUE button loads the RUN screen.



NOTE: The existing size carton you want to run will be displayed on the RUN screen.

6.2 - SETTING UP FOR A NEW SIZE CARTON

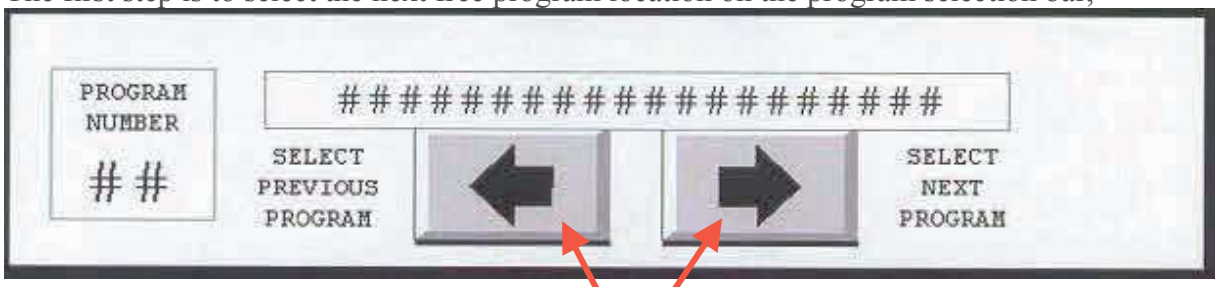
To set a brand new carton size on the Compact 3 that is not programmed into the machine (i.e. New Carton) follow this procedure. **ENSURE THE MACHINE IS AT REST.**

From the RUN screen press the MACHINE SETUP button. This will bring up the Password screen.

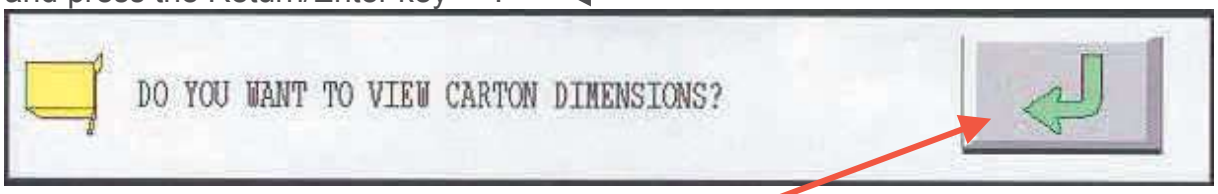
No password is required at this point, it is just the method of reaching the Start up screen!

From here press the 'Left arrow' screen button at the lower left of the screen, this will bring up the 'Start up' screen.

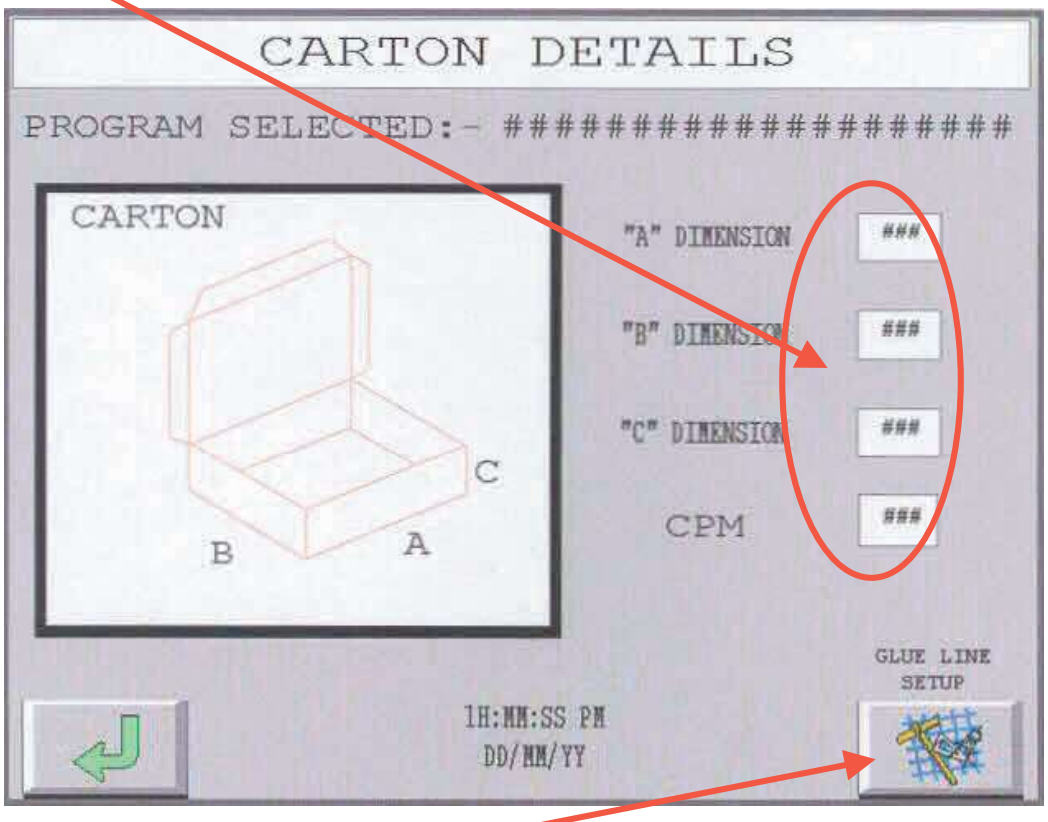
The first step is to select the next free program location on the program selection bar,



using the Select Next/Previous Program arrows. As soon as the next free location appears touch the title bar and enter the program name on the keyboard that will appear and press the Return/Enter key .

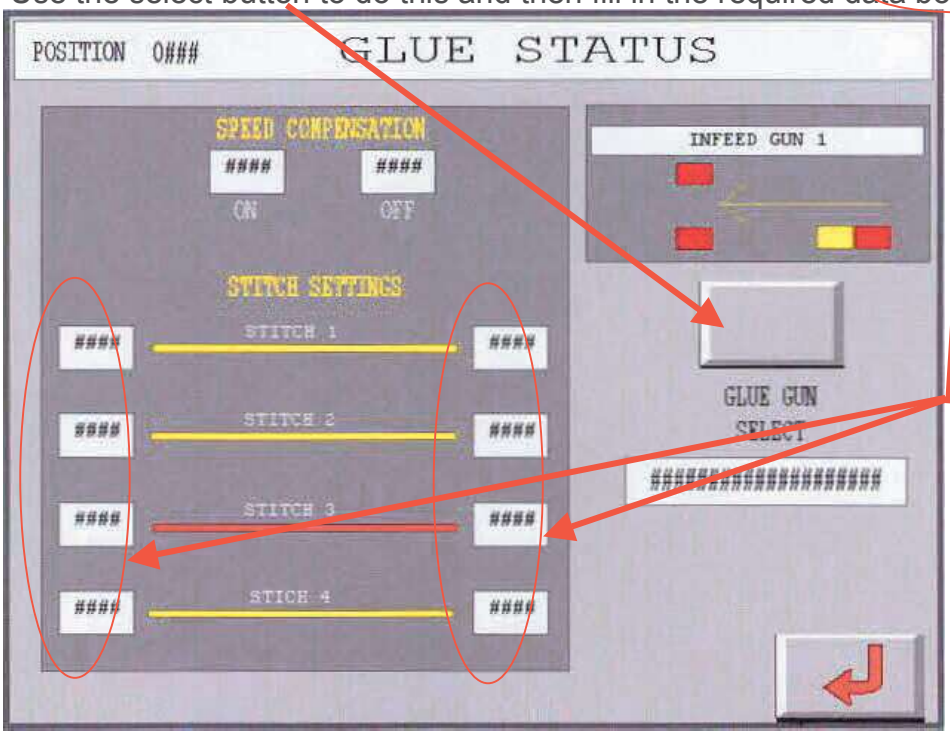


Next select the VIEW CARTON DIMENSIONS screen, and enter the details in the correct boxes.

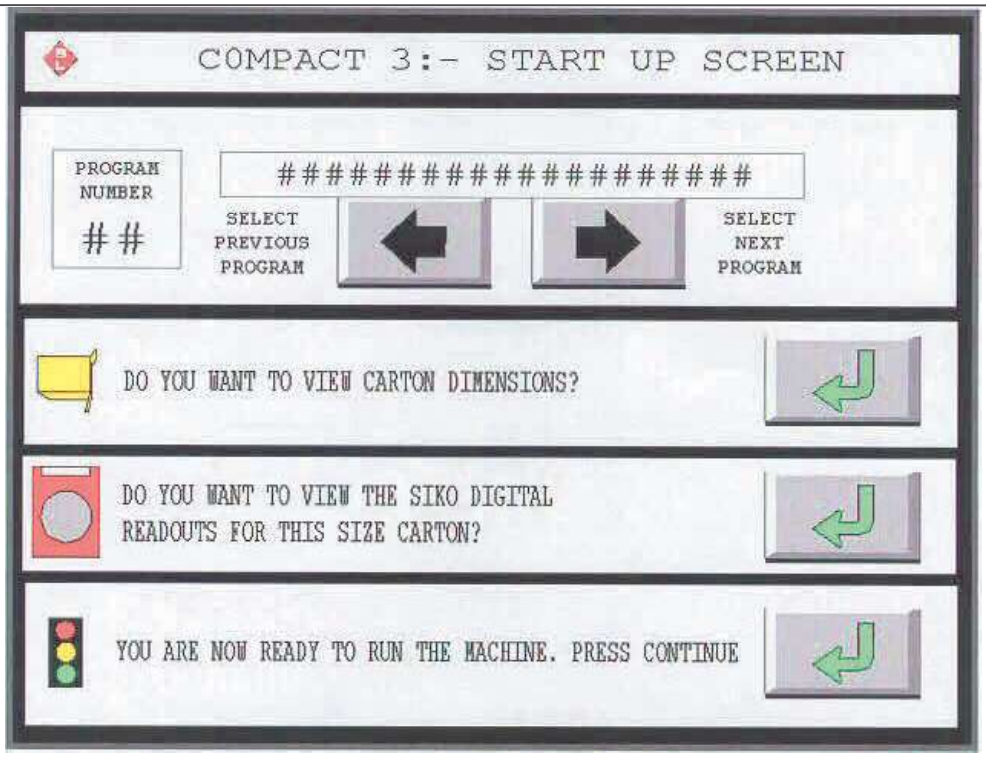


When complete press the Glue Line Setup button this will take you to the Password Screen, once the correct password is entered and the Glue Status screen appears.

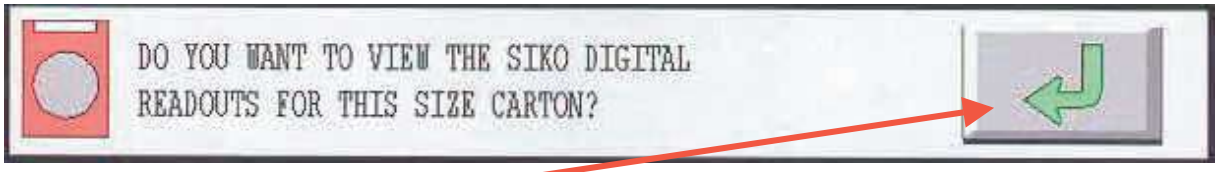
The first task on the screen is to highlight the glue gun whose details you would like to enter first. Use the select button to do this and then fill in the required data boxes.



Once the details have been entered press the return button, which will return you to the Run screen.



To select an existing size carton look for the carton you want to run. The right button looks up the list for cartons, the left button looks down the list for cartons. When the carton name or number you are looking for is displayed, view the Siko meter settings



by pressing the Return button.

7.0 - OPERATING INSTRUCTIONS

BEFORE OPERATING THE MACHINE, ENSURE THAT YOU READ AND UNDERSTAND THE SAFETY INSTRUCTIONS GIVEN IN SECTION 3.0

7.1 - WARNING:

Do not attempt to operate the machine with the guard covers removed or by overriding interlocks. If you do, serious injury could result.

7.2 - CAUTION:

Before operating the machine ensure that:
- All guard covers are correctly located.
- All moving parts are free from obstruction.
- The machine is clean.

7.3 - OPERATING THE TOUCH SCREEN BUTTONS

NOTE:- Using Touch screen controls can be a very different experience from that of push buttons, therefore it is recommended that you follow this simple exercise before operating the machine for production.
After this exercise you should be familiar with the feel and timing that operating the Touch screen requires.
Do **NOT** use sharp objects such as pencils, pens, nails etc. on the Touch screen, always use a finger.

OPERATOR ! YOU MUST FOLLOW THIS EXERCISE BEFORE PRODUCTION.

Exercise 1:- USING THE BUTTONS

When using the Touch screen controls ensure that you press the buttons SLOWLY & FIRMLY. Do not just quickly press one button then another like using push buttons. With the Touch screen there is a slight delay between controls actions, due to information being sent from the screen to the machine. Note that the buttons have an actual feel to them when pressed.
To start with always count 3 seconds before activating another control, obviously the stop must be activated straight away.
e.g.

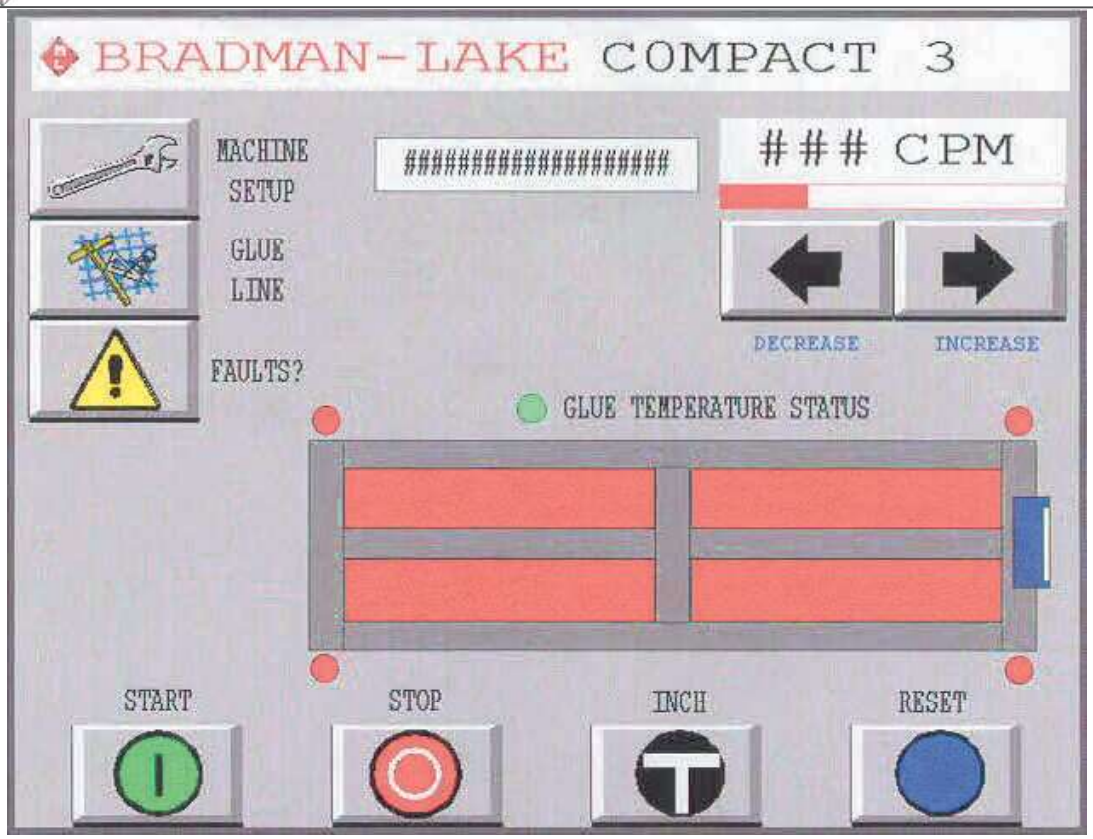
Press START, wait for the machine to Start up both infeed and outfeed then when the machine is running press STOP on the screen.
Count 3 Seconds after pressing the STOP button then press the START button again.
(If any problems occur increase the count to 5 seconds until you become familiar with the time the controls need).
Practice the START and STOP on the screen until you become familiar with the control time.

Now we will introduce an E - STOP condition.
e.g.
Press START on the screen and let the machine run. Instead of pressing STOP on the screen depress an E - STOP to suddenly stop the machine.
Unlatch the E - STOP.
Press RESET slowly and firmly on the Touch screen.
Count 4 seconds.
Then press the START button.
(If any problems occur increase the count to 5 seconds until you become familiar with the time the controls need).
After you become familiar with the controls, the delay time will reduce.
It is recommended that every new operator using the Touch screen should follow the above exercise to become familiar with the controls.

7.4 - SWITCHING THE MAINS ON TO THE COMPACT 3

To apply power to the Compact 3 switch the main isolator switch to the ON position.
The Touch screen will start to
‘ BOOT UP ‘ and will display after approx. 10 seconds the following screen.

This screen will be shown until all the information is downloaded to the servo drives then the START UP screen will automatically load.



7.5 - PRE - START CHECKS

Before starting the machine ensure that:

- All access doors are closed. An open door will prevent the machine from running.
- The electrical supply is connected and the mains isolating switch is set to on.
- The glue tank reservoir is filled to the appropriate level and has been switched on for sufficient time to allow the adhesive to reach its operating temperature. Warm up time approx. 45minutes.
- All stop buttons are unlocked and released.
- The machine is free from obstruction and is suitably clean for use.
- The correct carton size has been selected from the ‘ START UP screen ‘. The chosen carton is displayed on the RUN screen.
- The SIKO digital readout values for the selected carton on the Touch screen have been checked against the machines values.

7.6 - STARTING THE MACHINE

After all the Pre - Start checks have been completed and the Operator is familiar with the Touch screen controls the machine is ready for production.
By pressing the START button on the Touch screen starts firstly the Outfeed / Turn section, after a 2.5 second delay starts the infeed. By pressing START on the push buttons starts Outfeed / Turn / Infeed together.

7.7 - STOPPING THE MACHINE

To stop the machine always use the STOP button on the Touch screen. In an emergency always use the E - Stop button as this will stop the machine and cut the air supply to the glue tank, opening a guard door also has the same effect as activating an E - Stop.

7.8 - INCHING THE MACHINE

This button allows the operator to move the machine in small increments throughout its working procedures. The machine will only run when the Inch button is depressed and during this time the Turn section belts are isolated. Inching is invaluable to the operator / engineer when setting the machine up for a different size carton.

7.9 - TURNING THE MAINS OFF TO THE COMPACT 3

Before switching the main isolator switch off follow this procedure.
Make sure that the Touch screen is displaying the RUN screen and the machine has stopped.

This is the only way to switch the machine off. Do not just switch the isolator off without stopping the machine first.

7.10 - SAFETY NOTE

While the machine is running, ensure that all safety procedures, as detailed in your local instructions, are followed. Continuously check that only personnel required to operate the machine are in its vicinity and that the machine is running correctly. If a hazard or fault is suspected, stop the machine by pressing the STOP button, then investigate.
For emergency stops press one of the 4 E - Stop buttons situated at each corner of the machine. This button locks in the OFF position and must be released in order to restart.

8.0 - GLUE LINE ADJUSTMENT

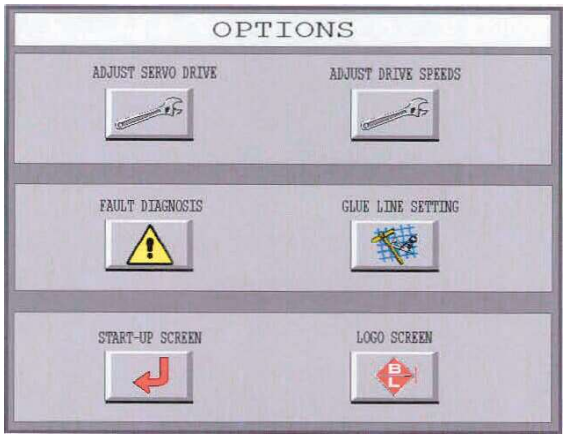
The GLUE LINE adjustment screen is password protected therefore only the person with the correct password can access this facility.

Whilst the Compact 3 is running the operator can adjust the position of glue onto the cartons front and side flaps without causing any downtime to production.

Pressing either of these two buttons takes you to the PASSWORD screen.

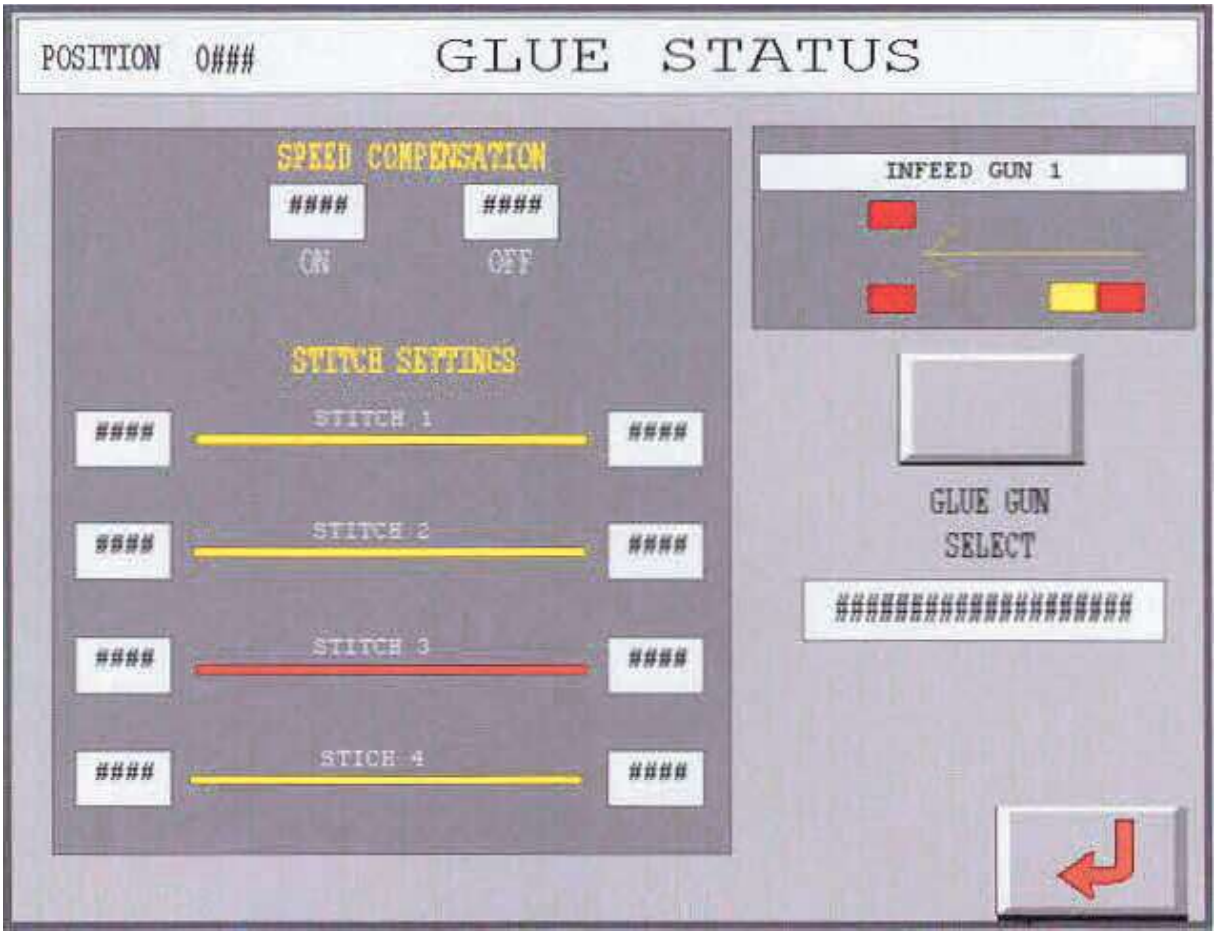
When the correct password has been entered; the right hand button takes you to the options screen.

The lower left-hand button takes you back to the start screen.



The three main options are the “ADJUST SERVO DRIVE”, “ADJUST DRIVE SPEED” and GLUE LINE SETTING.

8.1 Glue Line Adjustment:



To adjust the GLUE SETTINGS first use the GLUE GUN SELECT button to select the desired gun, then touch the window you need to adjust and enter the desired value on the numeric touch pad. When all the necessary changes have been made press the lower right button to return to the RUN screen.

8.2 HOT MELT ADHESIVE GUIDE

1. Hot melt is a 100% solid adhesive, and must be heated before it becomes liquid.

2. Different grades of Hot Melt should not be mixed.

3. Hot melt should not be over-heated; consult the Data Sheet for the correct application temperature.

4. This type of adhesive bonds as it cools. It is very important to only use the Hot Melt at the correct temperature because:

   a. The viscosity will vary as the temperature alters;

   b. Being applied at too high a temperature, the Hot Melt will take longer to set at too low a temperature, the Hot Melt will set too quickly;

   c. The adhesive needs to be at the correct temperature to wet out the surfaces to be bonded, particularly P.E.T. Polypropylene, Polyethylene, etc.;

   d. It will not apply cleanly at an incorrect temperature;

   e. It will fume, degrade and become very dark in colour if over-heated;

5. 'Open time' is the time from applying the Hot Melt to one surface and bonding the second surface to it.

6. Remember that compression is important, pressure should be applied so that the two surfaces meet at the point where the Hot Melt has been applied.

7. Once the hot melt has been applied and the two substrates bonded, the bond should not be disturbed until cool (compression time).

8. Remember that standard Hot Melts can be re-melted. This is important when it is used in conjunction with the packing of hot product or shrink wrapping, either can cause the Hot Melt to soften.

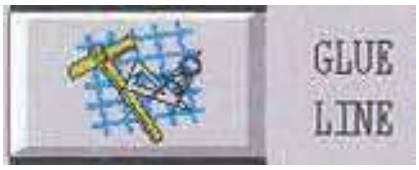
8.3 HOT MELT ADHESIVE TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
FUMING	Temperature too high	Adjust temperature
CHARRING	Temperature too high Adhesive level too low Adhesive oxidised	Adjust temperature Keep reservoir filled Keep reservoir lid closed
STRINGING	Nozzle too far from substrate Temperature too low Hot Melt too viscous	Adjust nozzle Adjust temperature Increase temperature
BLOCKED NOZZLES	Char in system Contaminated reservoir	Flush system, reduce Temperature, clean
DRIPPING	Dirty, worn nozzles Pressure too low	Clean or replace nozzle Adjust pressure
BUBBLES IN BEAD	Vapour boil-moisture in substrate	Check and dry substrate
POOR PENETRATION OF SUBSTRATE	Temperature too low Bead too small	Increase temperature Apply more adhesive
POP OPEN AFTER COMPRESSION	Too little adhesive Temperature too low Substrate shift under compression	Apply more adhesive Increase temperature Adjust compression
ADHESIVE ON BOTH SUBSTRATES	Too much adhesive applied Temperature too high	Decrease pressure Decrease temperature
HOT MELT NOT COMING THROUGH JET APPLICATOR	Check filter	If plugged up, remove filter and replace with a new one

9.0 - DRIVE SPEED FINE TUNING

The DRIVE SPEEDS fine tuning screen is password protected therefore only persons with the correct password can access this facility.

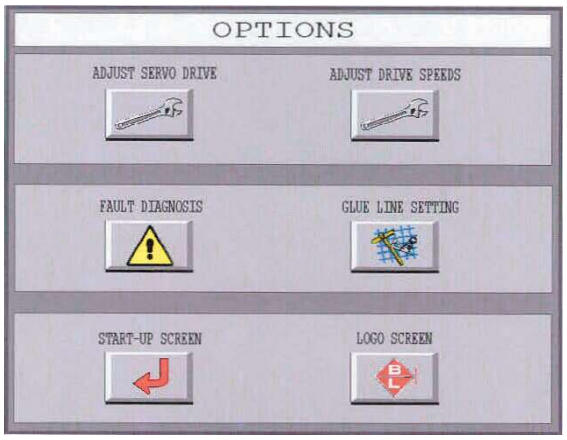
The Compact 3 is a fully variable speed machine, and by pressing the ADJUST DRIVE SPEEDS on the 'Options' screen, the 'Drive motors' fine tuning screen is then accessed. The fine tuning screen allows the operator to adjust the speed of each servomotor. This screen can be used to ' square up ' the carton's front and side flaps. The speed settings are designed to be done on the run thus without causing production downtime.



Pressing either of these two buttons takes you to the PASSWORD screen and then to the OPTIONS screen.

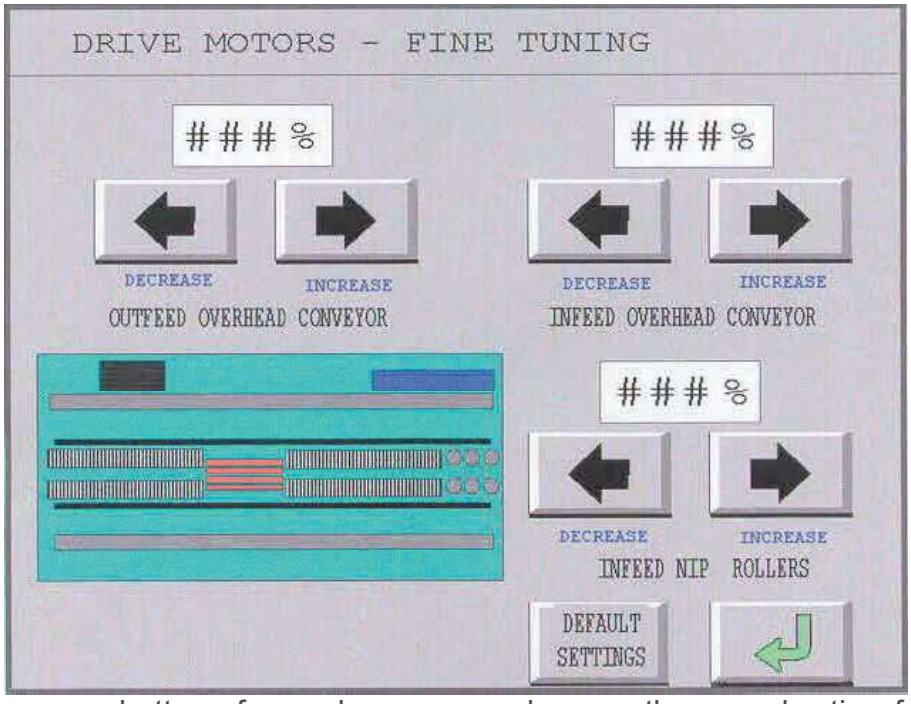
When the correct password has been entered; the right hand button takes you to the options screen.

The lower left-hand button takes you back to the start screen.



The three main options are the "ADJUST SERVO DRIVE", "ADJUST DRIVE SPEED" and GLUE LINE SETTING.

9.1 Adjust Drive speeds.



Pressing the arrow buttons for each conveyor changes the speed ratio of the inverter drives . Each value is a 1% increase or decrease of the machines base speed in ft/min. e.g. Adjusting the Infeed Overhead conveyor adjusts the position of the front flap onto the carton.

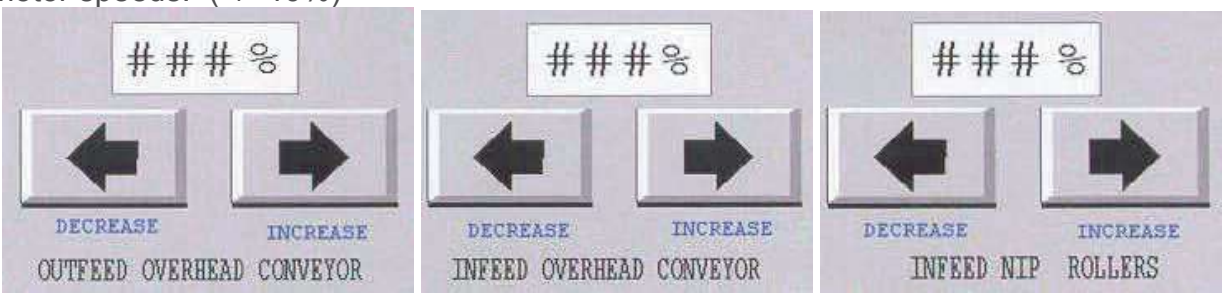
‘SQUARE‘ CARTON FRONT	‘OUT OF SQUARE‘ CARTON FRONT FLAP

Note: that if the value in the box for the Infeed Overhead is 95. This 95 means that this conveyor is going 5% slower than the infeed base conveyor. If you press the RIGHT arrow button, a press at a time, notice the value in the box changing i.e. 96, 97, 98, 99, 100 etc. This is changing the speed of the Overhead conveyor 1% at a time. When the Overhead conveyor value reads 100, this means that it is at 1:1, or going the same speed, as the bottom Infeed conveyor. By increasing this value now to 101, 102, 103 etc. is speeding up the Overhead and thus gripping the cartons lid and accelerating it into the machine before the carton. Accelerating the lid brings it forward more on the box and by decelerating the Conveyor, (values 90, 89, 88 etc.) retards the lid onto the box.

‘DEFAULT SETTINGS‘ BUTTON: -

Pressing the (DEFAULT SETTINGS) lower left-hand button sets all the motor speeds to 100%.

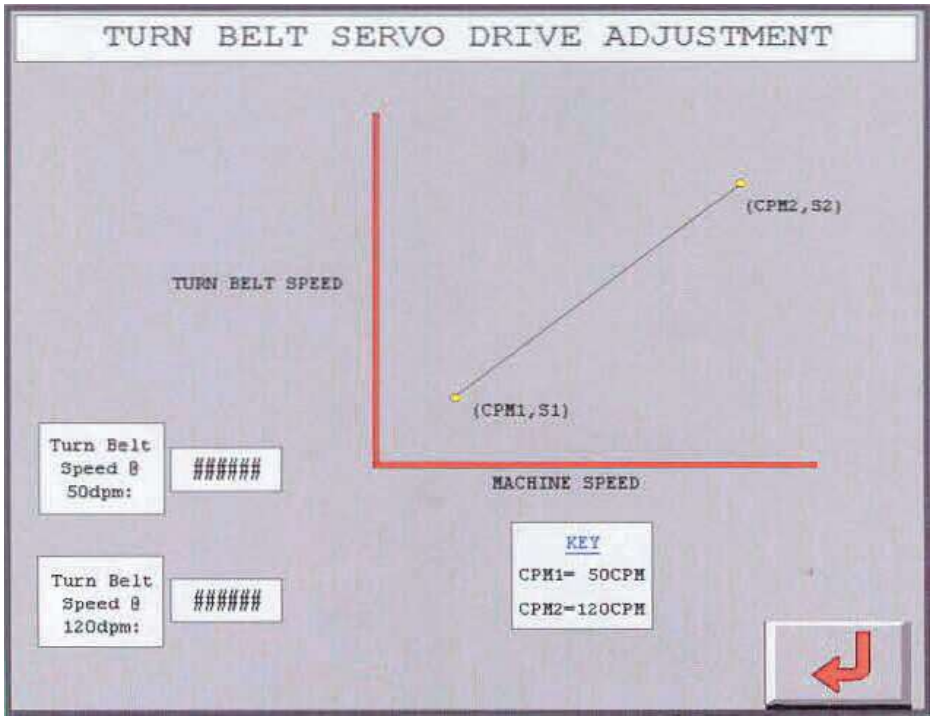
To adjust the DRIVE MOTORS use the ARROW buttons to increase or decrease the motor speeds. (+/- 10%)



The lower right button returns you to the RUN screen.

NOTE: - “Returning” to the “Run” accepts the values in the boxes as the new Original settings. The operator can only return to the original settings if he punches them back in on the touch-pad and then “Returns” to the “Run” screen.

9.2 Adjust servo Drive.



This screen adjusts the gain ratio at which the servo will follow the "CPM” speed.

To adjust the SERVO DRIVE screen touch the window to be adjusted and enter the change on the numeric touch-pad.

Pressing the “Return” button will accept the new settings and return you to the RUN screen.

10.0 - CARTON SIZE CHANGE

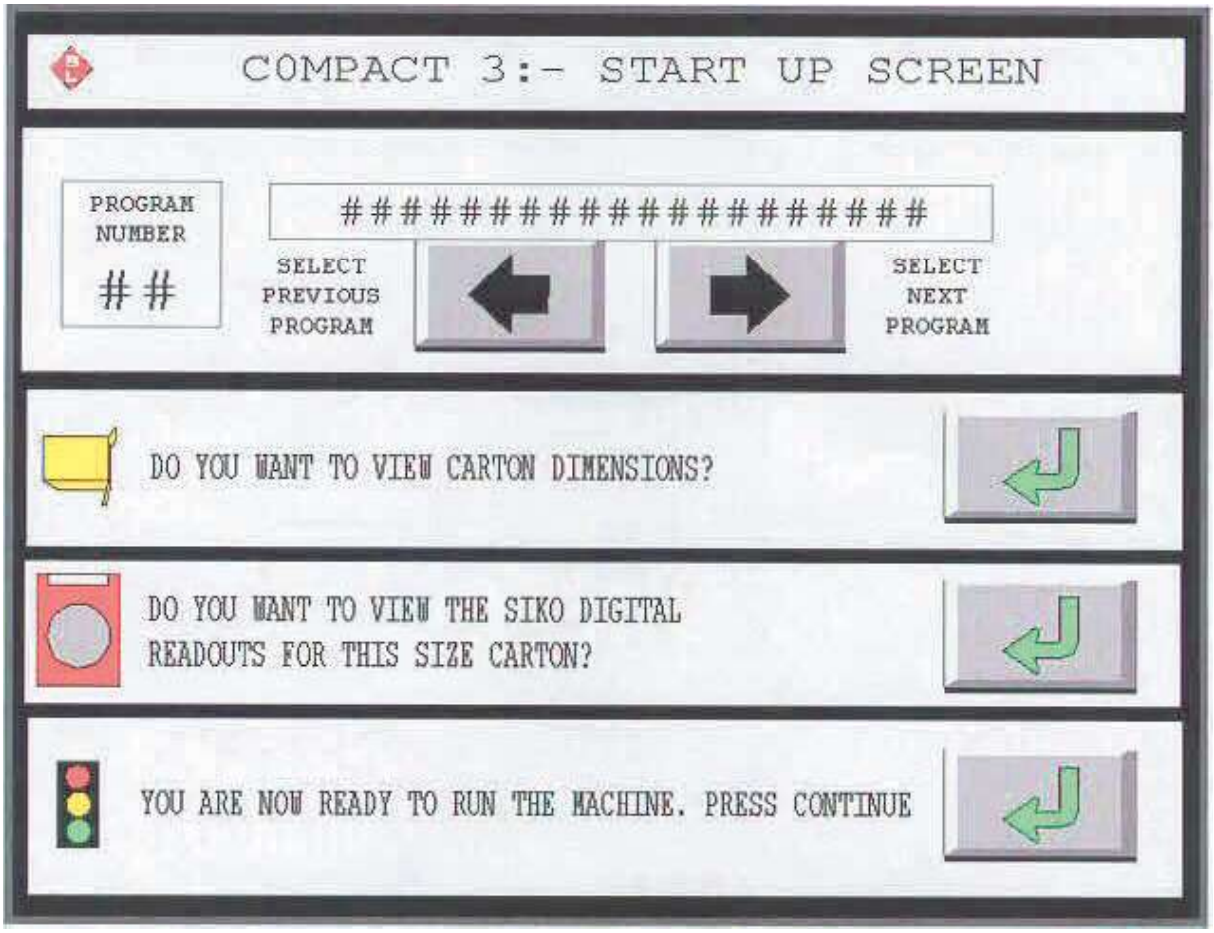
10.1 - SELECTING AN EXISTING CARTON SIZE TO RUN

If you want to select a carton size that has already been programmed into the machine (i.e. Existing Size Carton) use the following procedure.
ENSURE THE MACHINE IS AT REST.

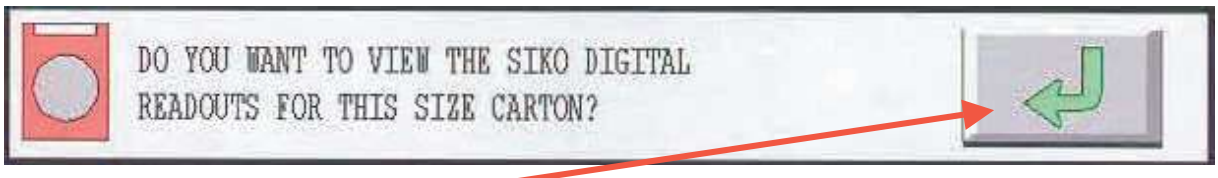
From the RUN screen press the MACHINE SETUP button. This will bring up the Password screen.

No password is required at this point, it is just the method of reaching the Start up screen!

From here press the ‘Left arrow’ screen button at the lower left on the screen, this will bring up the ‘Start up’ screen.

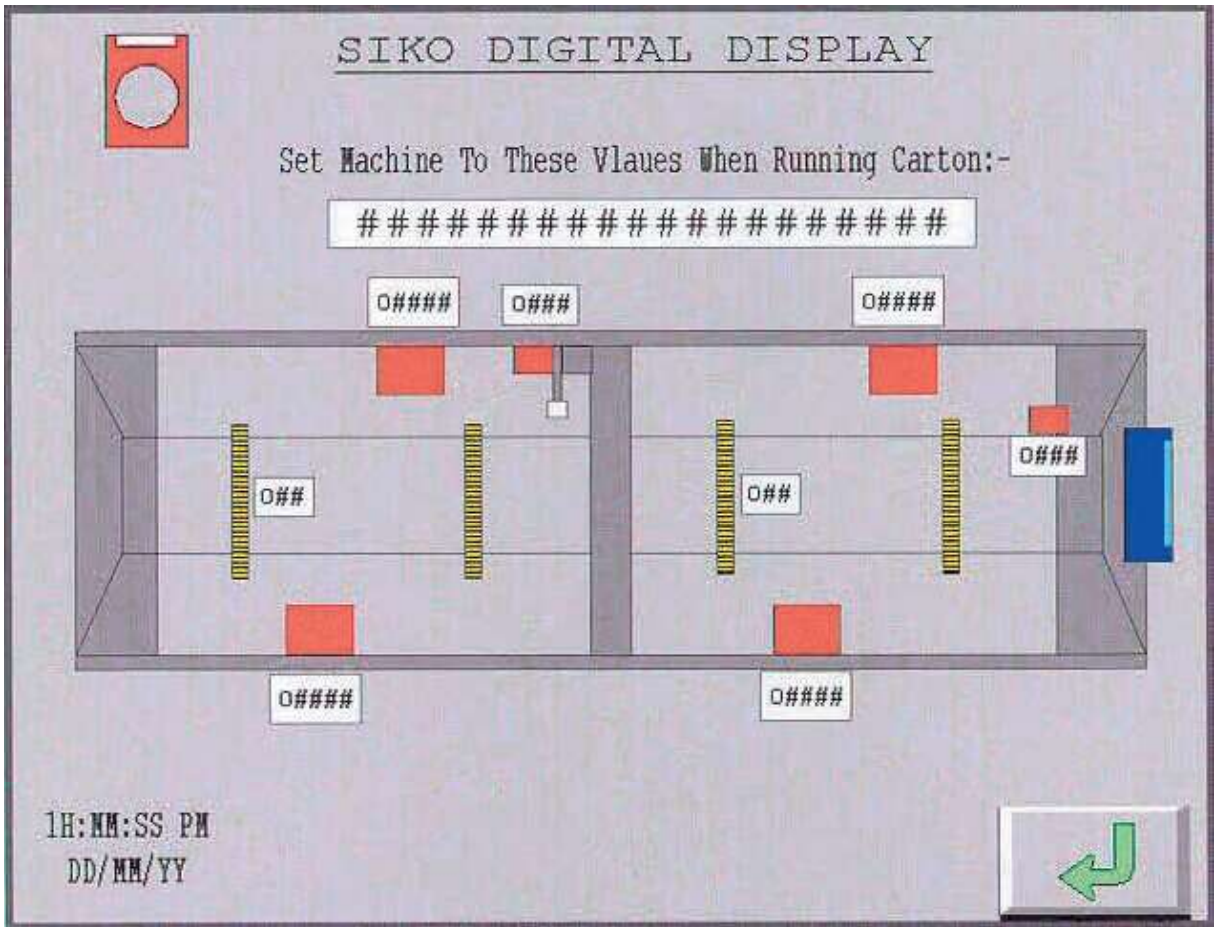


To select an existing size carton look for the carton description you want to run. The right button looks up the list for cartons, the left button looks down the list for cartons. The machine is capable of holdingcarton data and machine settings of up to 10 products. When the carton name or number you are looking for is displayed, view the Siko meter settings



by pressing the Return button.

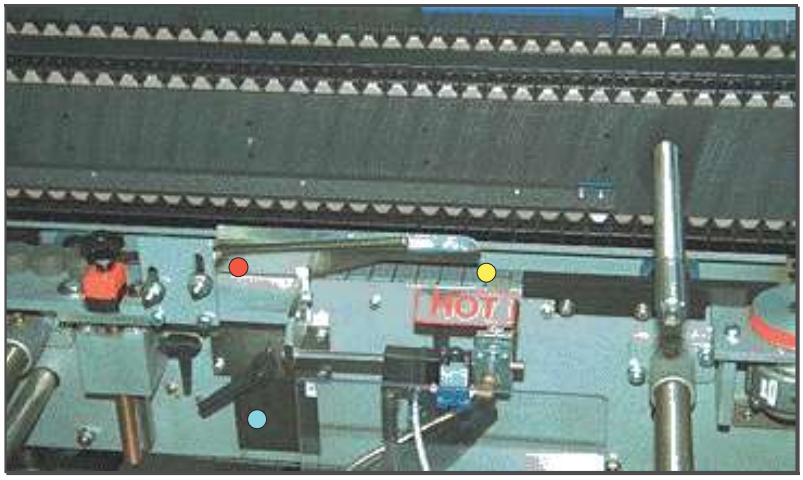
The screen then diplays the SIKO digital readout values that need to be manually set for this size of carton. This screen is then left on until all the values have been set. These values are always stored in the computer. If the SIKO readouts need changing for any reason then by touching the Siko symbol in upper left corner of the screen will bring up a button for each readout. Touching the button for the siko that needs to be changed brings up the numeric touch key pad on which the new setting can be entered.



As well as setting the Siko readouts, adjust all Knife edge guides. These guides, (3 of them), are found just after the glue guns and are responsible for supporting the carton lid as the flaps are being closed by the plough.

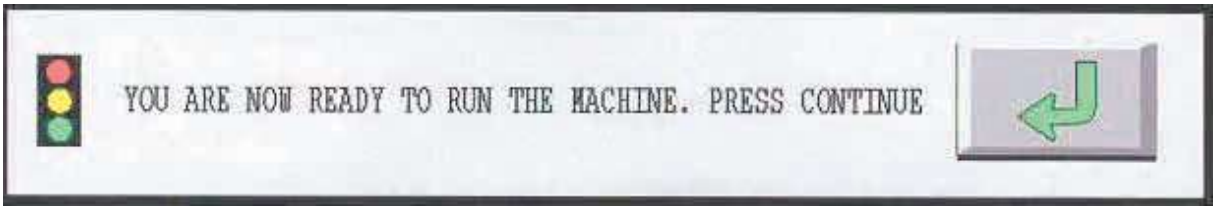
To adjust the Knife edge guides simply loosen the Adjustment Handle and raise or lower the guide to the height of the carton. To aid in this adjustment there is a scale provided on the Knife edge. If the carton height is 50mm set the Knife edge so 50mm is showing on the scale.

Ensure that this adjustment is done on the Infeed section and both sides of the Outfeed section.



- Knife Edge Guide
- Adjustment Handle
- Plough

When the machine has been mechanically set, touch the Enter/Return symbol on the screen to return to the Start - Up screen.
The screen now prompts the operator that he is ready to run the machine, and by pressing the CONTINUE button loads the RUN screen.



NOTE: The existing size carton you want to run will be displayed on the RUN screen.

10.2 - SETTING UP FOR A NEW SIZE CARTON

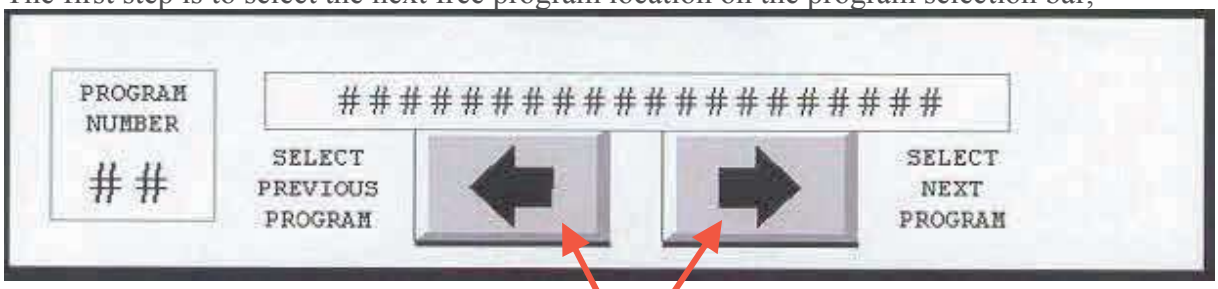
To set a brand new carton size on the Compact 3 that is not programmed into the machine (i.e. New Carton) follow this procedure. **ENSURE THE MACHINE IS AT REST.**

From the RUN screen press the MACHINE SETUP button. This will bring up the Password screen.

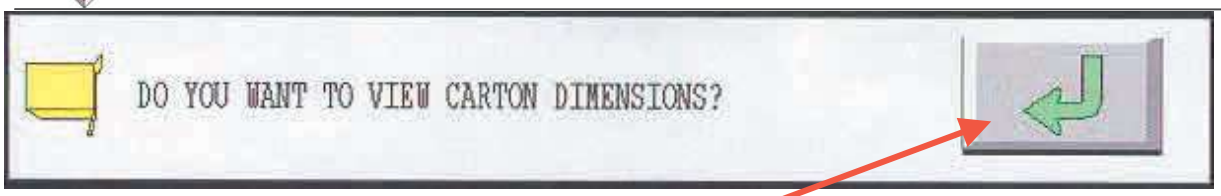
No password is required at this point, it is just the method of reaching the Start up screen!

From here press the 'Left arrow' screen button at the lower left of the screen, this will bring up the 'Start up' screen.

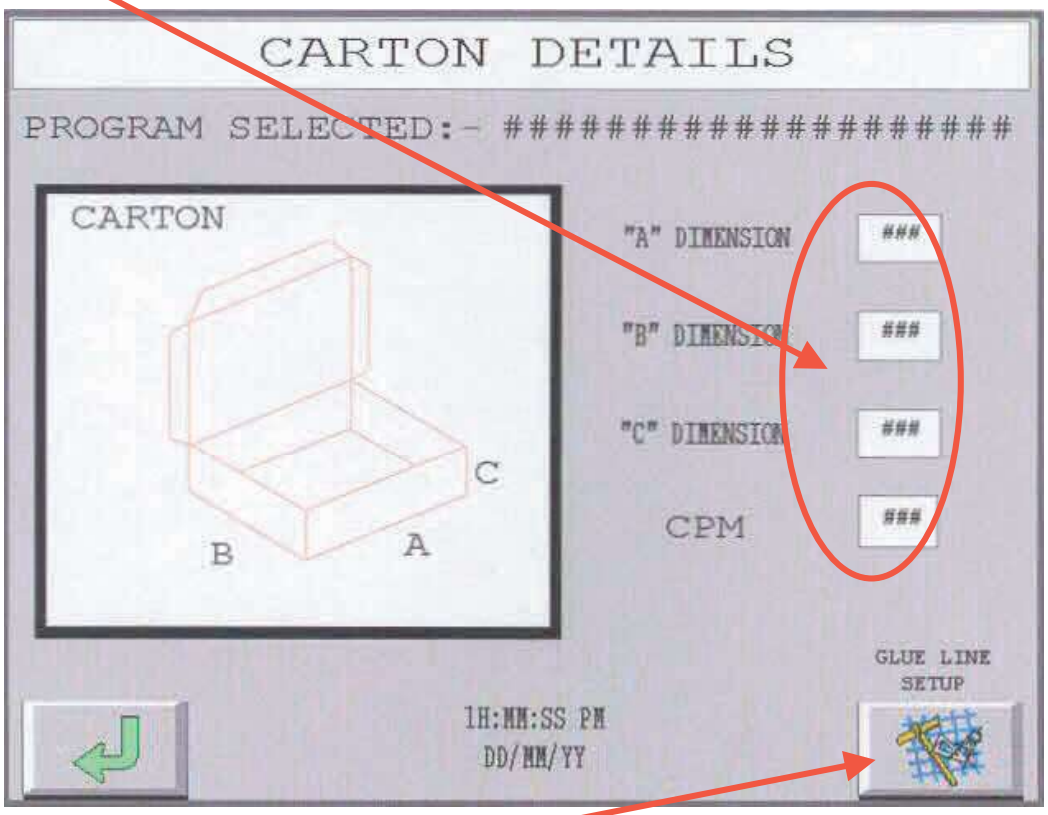
The first step is to select the next free program location on the program selection bar,



using the Select Next/Previous Program arrows. As soon as the next free location appears touch the title bar and enter the program name on the keyboard that will appear and press the Return/Enter key .

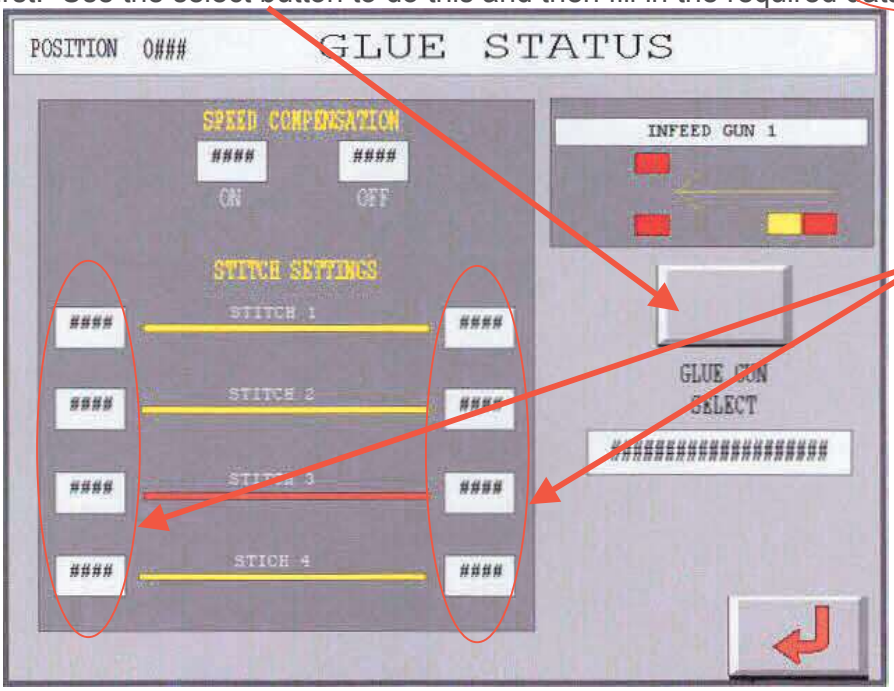


Next select the VIEW CARTON DIMENSIONS screen, and enter the details in the correct boxes.

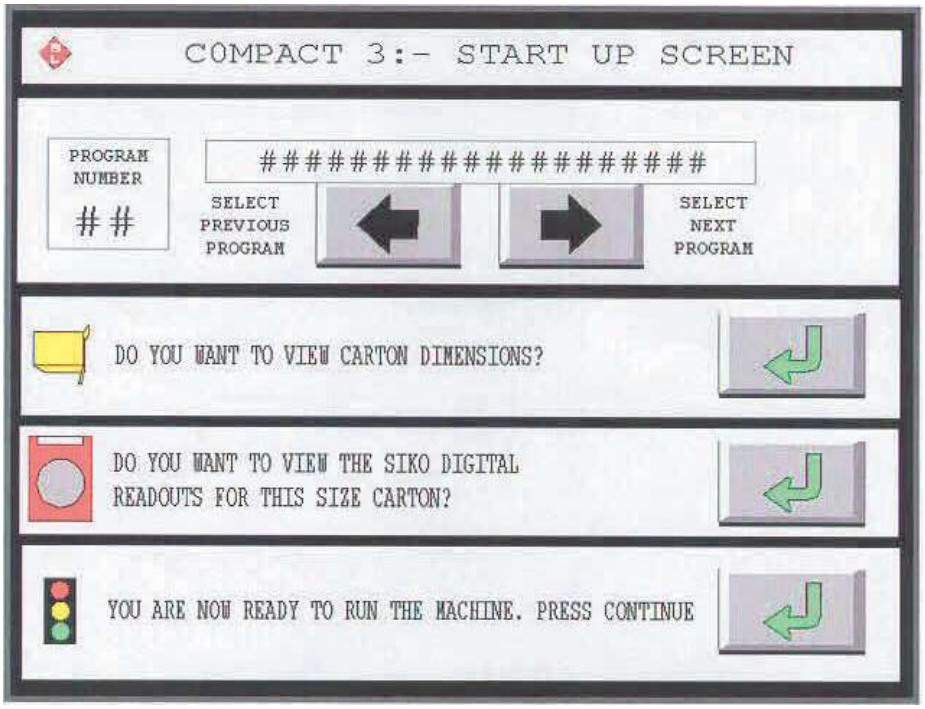


When complete press the Glue Line Setup button this will take you to the Password

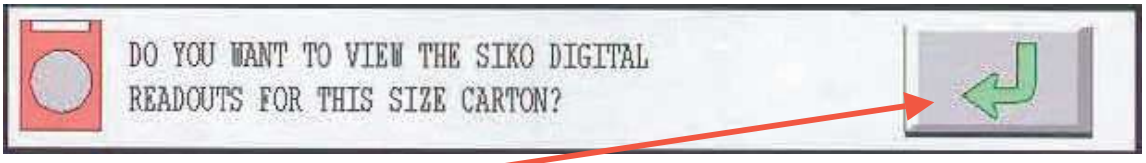
Screen, once the correct password is entered and the Glue Status screen appears. The first task on the screen is to highlight the glue gun whose details you would like to enter first. Use the select button to do this and then fill in the required data boxes.



Once the details have been entered press the return button, which will return you to the Run screen.



To select an existing size carton look for the carton you want to run. The right button looks up the list for cartons, the left button looks down the list for cartons. When the carton name or number you are looking for is displayed, view the Siko meter settings



by pressing the Return button.

11.0 - ROUTINE MAINTENANCE / INSPECTION

IMPORTANT BEFORE PERFORMING MAINTENANCE TASKS, ENSURE THAT YOU READ AND UNDERSTAND THE SAFETY INSTRUCTIONS GIVEN IN SECTION 3.0

11.1 CLEANING

Cleaning of the machines internal and external surfaces is to be carried out as follows:

a. Dilute a food safe detergent in warm water to the manufacturers recommendations.
b. Apply diluted detergent solution to the areas to be cleaned using a lint free cloth. Remove surplus moisture from the cloth before applying to the areas to be cleaned.
c. If any areas are heavily or stubbornly soiled, use undiluted detergent to the affected areas.
d. Using a dry lint free cloth, wipe dry previously cleaned areas.

NOTE: When operating the machine in a dusty environment, use a clean air supply to blow away affected areas before applying detergent. Do not use abrasive or destructive cleaning agents that would be detrimental to the machines surface finishes i.e. Safety hoods, polished or painted surfaces.

11.2 MAINTENANCE

a. Check the condition of all chains, chain guides and sprockets.
b. Check electrical isolator switch, that it is not possible to start the machine with the electrical isolator switch in the off position.
c. With the machine in operation, raise each safety hood in turn and check that the machines operating mechanisms stop. Closure of the safety hoods and pressing the reset button enables the machine to be re - started by pressing the start button.
d. Inspect the main electrical enclosure and remote stations etc. for loose terminals, damage to wiring or wear to contactors and other equipment.
e. Check and clean all sensors and sensor connectors

11.3 ROUTINE MAINTENANCE CHECKS

Electrical Isolator Switch:

It should not be possible to start the machine with the electrical isolator switch in the off position. Call for maintenance assistance should this occur.

Safety Guards:

With the machine in operation, raise each safety guard in turn and check that the machines operating mechanisms stop. Closure of the safety guards and pressing the reset button enables the machine to be re - started by pressing the start button.

Cleanliness:

Check to ensure that the general state of cleanliness of the machine is to the desired standard. Refer to section 9.1 for cleaning procedures.

Visual Inspection:

Visually inspect the machine internally and externally for signs of damage, deterioration (wear and tear and security of assemblies and components.

Operating Modes:

Using the machines controls and indicators (control panel) check for correct functioning and operation. Refer to section 6.0 for control panel operating procedures.
Call for maintenance assistance should any fault be found or suspected in the machines operation or functioning.

11.4 RECOMMENDED LUBRICANTS

NOTE: Care should be taken when choosing the correct lubricant for the servicing of the compact, as the machine may be being used in a food factory therefore requiring approved food quality grease. This is something that needs to be checked.

FREQUENCY	ITEM	LUBRICANT
Monthly	Drive chains	Oil, Cemodex Foodlube (or equivalent)
Three monthly	Open gears Helical gears on adjustment drives Threads on adjustment drives Grease nipples on all bearing housings Primary and common drives Jockey sprockets and tensioners	Grease Shell Alvania RA (or equivalent)
Annually	Main drive gearbox Side conveyor bevel gearboxes	Grease Shell Alvania RA (or equivalent)

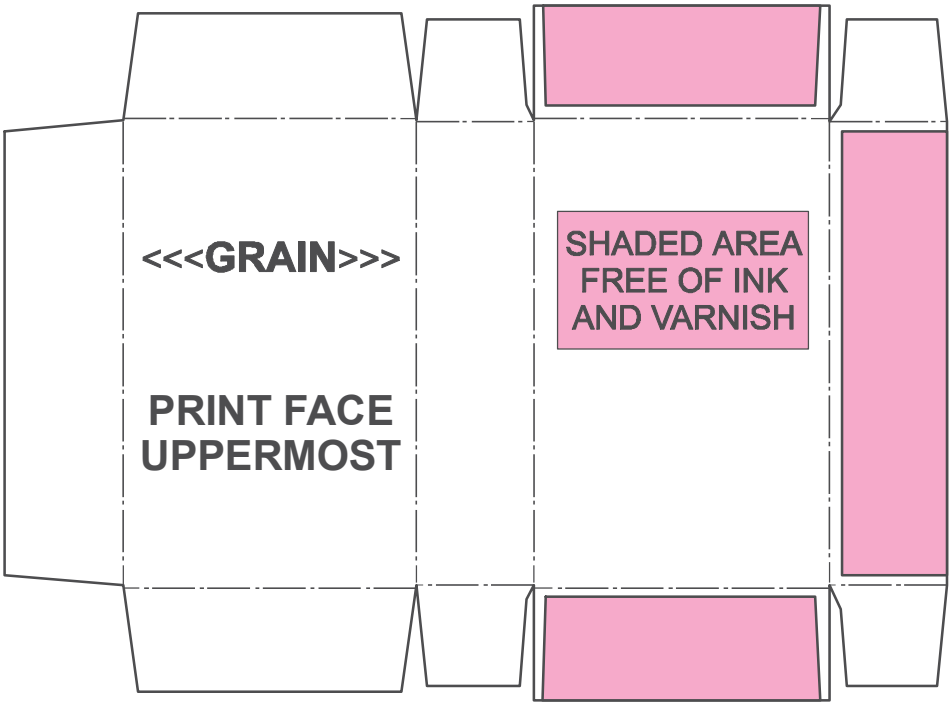
12.0 - GUIDELINES FOR THE PRE-PRODUCTION & STORAGE OF TOP LOAD CARTONS.

Introduction:

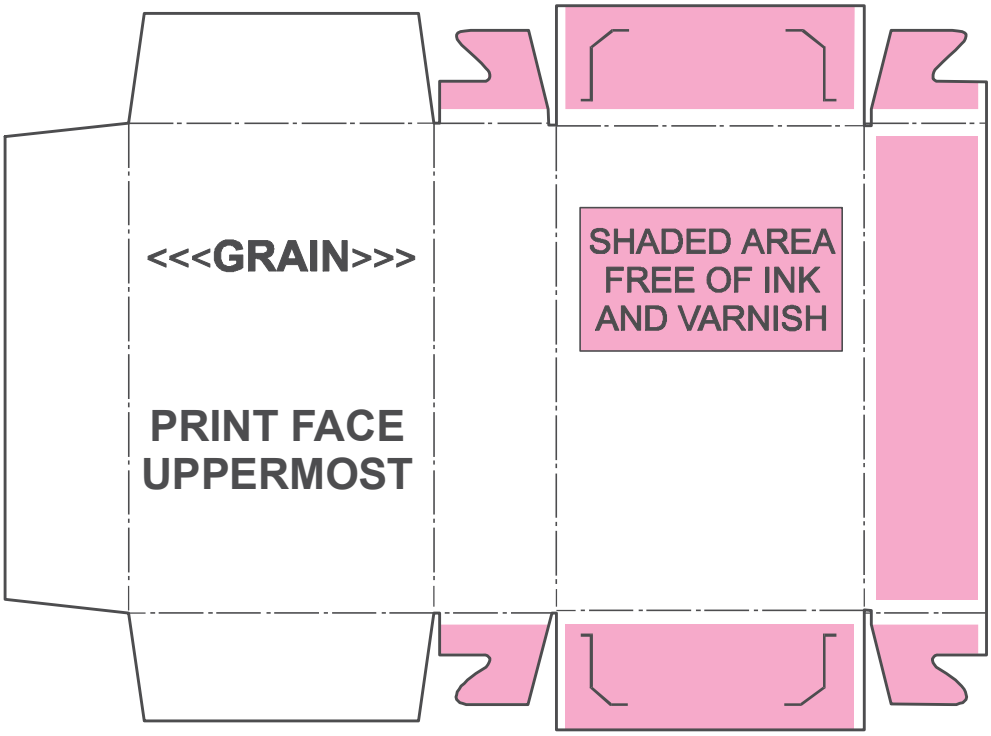
The efficiency of any packaging, or carton forming machine depends on the condition and quality of the cartons being used. Incorrectly manufactured cartons or badly stored cases of cartons will effect the efficiency and performance of a packing line.
Proper care and attention must therefore be given to the storage and handling of cartons.

Manufacture of top load cartons:

Grain direction is extremely important as it is the grain that assists in the breaking of the creases in the carton when being formed. If the grain direction is the wrong way through the carton this will restrict the carton from being formed properly and will therefore be incorrect.
When lying the template of the carton on the board material make sure that the grain direction is correct. (See diagrams)
During printing and varnishing of the carton, the areas where the hot melt adhesive is to be applied needs to be keyed out and free from any print or varnish so that the hot melt adhesive can produce a secure bond between the two surfaces. This is applicable for both the Lock and the Glue carton.



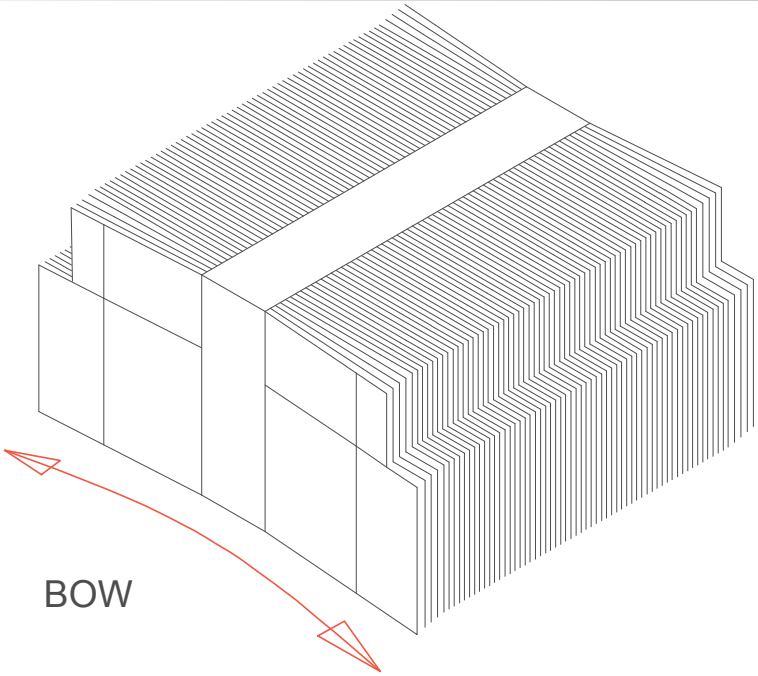
GLUE CARTON



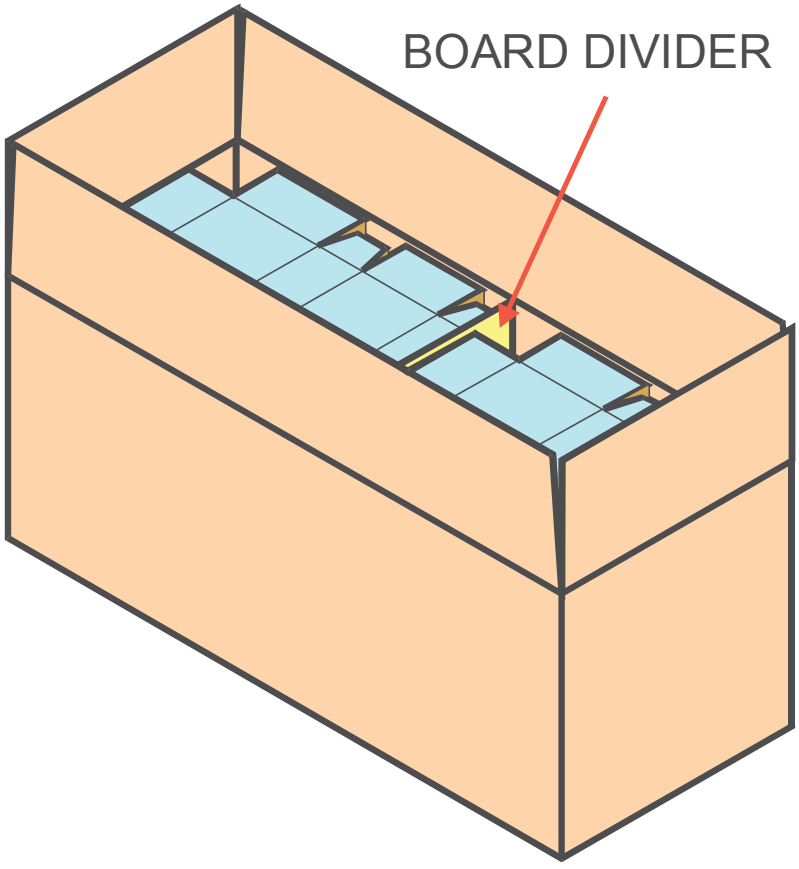
LOCK CARTON

Handling and storage of cartons:

A carton storage area must be situated in a waterproof, well ventilated building away from direct sunlight and with an optimum storage temperature of approximately sixteen (16) degrees centigrade (sixty (60) degrees fahrenheit and a relative humidity in the region of 40% to 50%. The layout of the store should be arranged so that carton blanks are not placed near local sources of heat e.g. radiators, steam pipes and electric lamps. Carton blanks should not be stored directly on the floor, especially when the floor is of concrete or brick as a cold damp floor will seriously damage the cartons.
In general carton blanks should not remain in storage for longer than three months. Like most other goods in store, carton blanks should be used in proper rotation, the oldest stocks being used first.
Carton blanks should be handled as little as possible, but, when they do have to be handled, proper care and attention must be taken. Boxes of carton must not be dropped or thrown, they should not be placed where they can be damaged, run into by trucks, or have other goods stored or dropped on them.
Blanks should not be strapped in bundles as this can damage the edges of the carton and also cause the body of the carton to bow.
Carton blanks should be kept in their original packing right up to the time of use and should always be stacked horizontally. For boxes containing more than one stack of carton blanks a dividing board must be used to provide protect to the butting edges of the stored carton blanks.



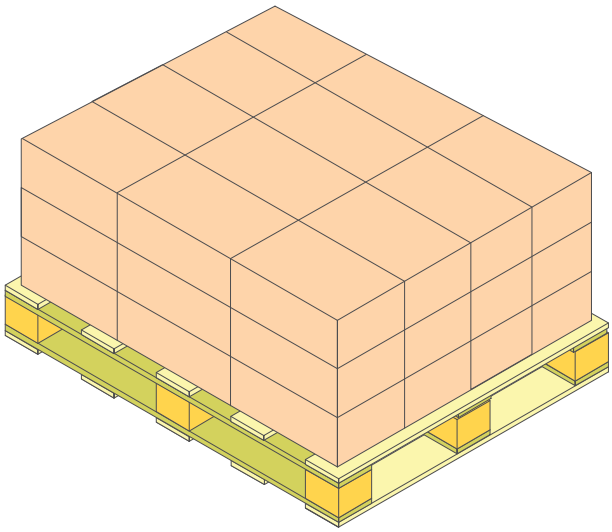
AVOID THE USE OF STRING TO SECURE THE CARTONS



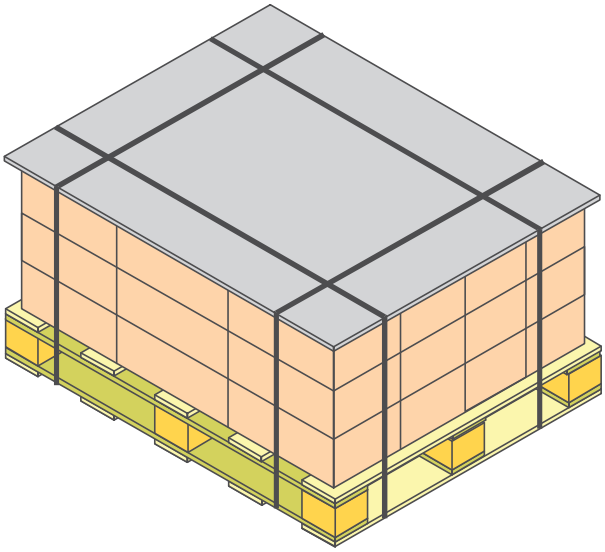
Avoid leaving cartons in the machines magazine during long breaks in production, especially overnight when air conditioning or temperature changes occur. Dampness in the atmosphere during wash down can also have a detrimental effect on the exposed cartons. Cartons presented to the cartoning machine must be flat and no twist or bowing of the carton is permissible.

Packing carton blanks for transit:

Pallets of cartons must be stored in a dry controlled atmosphere as cartons pick up and absorb moisture that together with extremes of temperature will effect the carton characteristics detrimentally.
Stacking pallets on top of each other is only permissible provided sufficient stacking strength is present to avoid outer case deformation. Stacked outers must not overlap the pallet base. If strapping is used, a top board must be used to avoid the straps deforming the outer cases thus damaging the carton. Another method of pallet stacking is to shrink wrap the carton boxes so that the stacked load is stable and secure.



SHRINK WRAP



STRAPS

Following and understanding the guide lines for the pre-production and storage of top load cartons will make the carton user aware of the importance of manufacturing, handling and storage required for packaging machines to operate efficiently.