

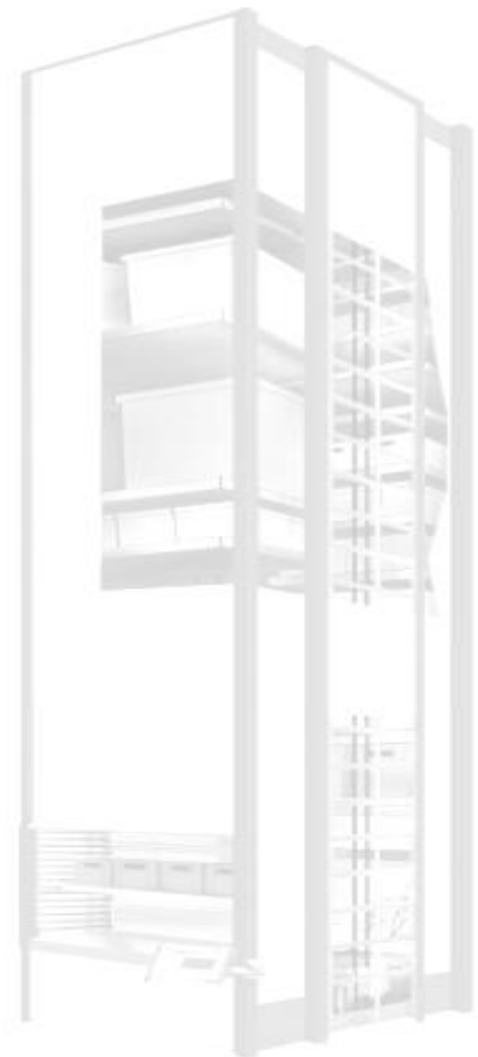
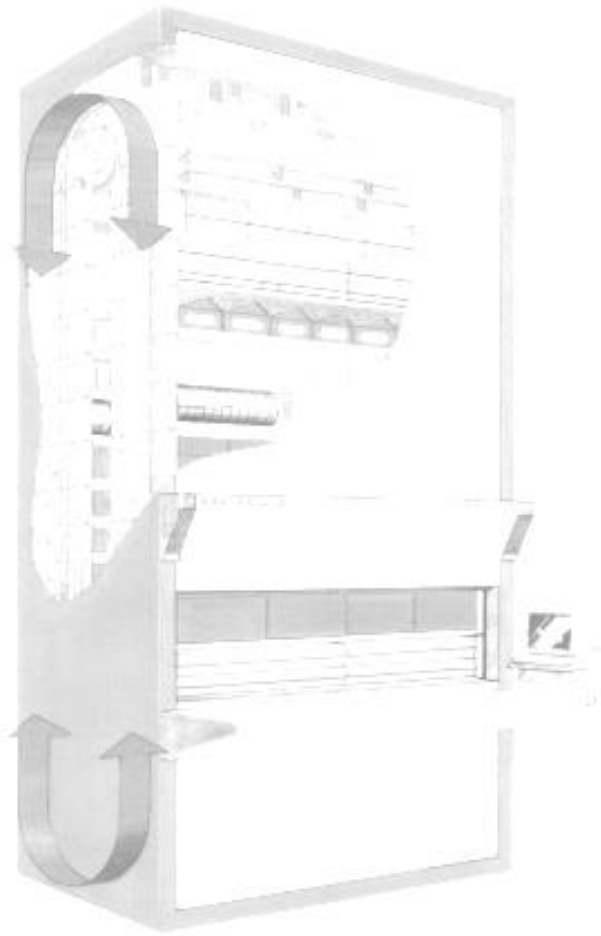
kardexremstar



K A R M A N TM

T E C H N I C A L M A N U A L

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IMPORTANT NOTICE

This software is made available for use under the terms of your 'Software Licence Agreement'.

For new equipment installations Kardex Vertical Storage System software is configured by our staff and operation of the equipment (Carousel / Vertical Lift / SortBench) and utility software is confirmed as part of the commissioning process.

The software warranty will be void if the Customer or their representative changes, modifies or makes any additions to the hardware and/or software of the Vertical Storage System without the written permission of Kardex VCA Pty Ltd (Kardex). Kardex will not withhold that permission if the changes will have no material effect on the system operation or performance.

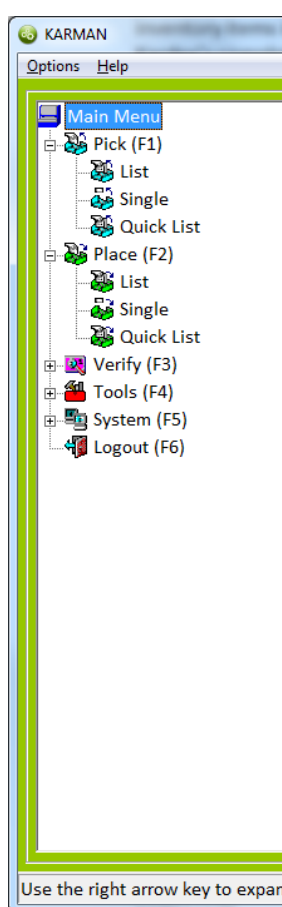
The **Customer** is responsible for the maintenance of all **system** and **data files** including backup and restoration procedures.

1. Introduction

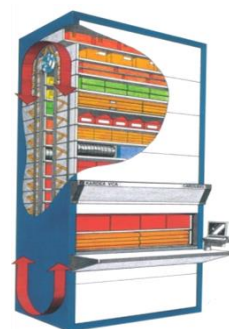
KARMAN™ is Kardex's proprietary native Windows application for management of inventory stored in Kardex Vertical Storage Units. KARMAN™ will run on all Windows™ operating systems and uses an ODBC compliant SQL database which can be implemented as a STANDALONE or CLIENT / SERVER configuration.

KARMAN™ provides comprehensive functionality for managing the storage and retrieval of inventory items in both a distribution and maintenance environment. KARMAN™ is part of Kardex's complete Inventory Handling System (IHS) which extends to Management browsers, utility file and data handling, full warehouse order printing and distribution, seamless integration with Kardex's SortBench™ for high throughput order picking and RackMAN™ for control of inventory held in static racking.

The following functionality is available in the standard KARMAN product:



- Range of Storage (Place) Modes allowing transparent changeover from one mode to the other
- Range of Retrieval (Pick) Modes
- Barcode Product Identification
- Integrated Lot Number Support
- Comprehensive text file based interface for data exchange and Pick Slip processing.
- Support for peripheral equipment such as Barcode Scanners, Thermal Label Printers, Integrated Weigh Scales, Remote Confirmation Buttons
- Practical Global and Cyclic Stocktake (Verify) functionality
- Range of System Reports including Stock Report, Location Report, Aged Inventory Report & Audit Report
- Customised User Profiles for operator access
- System data access via network browser tool 'KardexIS Data Browser' – Inventory Handling System
- Support for customised functionality using system Plug-ins
- Integrated PLC diagnostics
- Dial-up diagnostic support

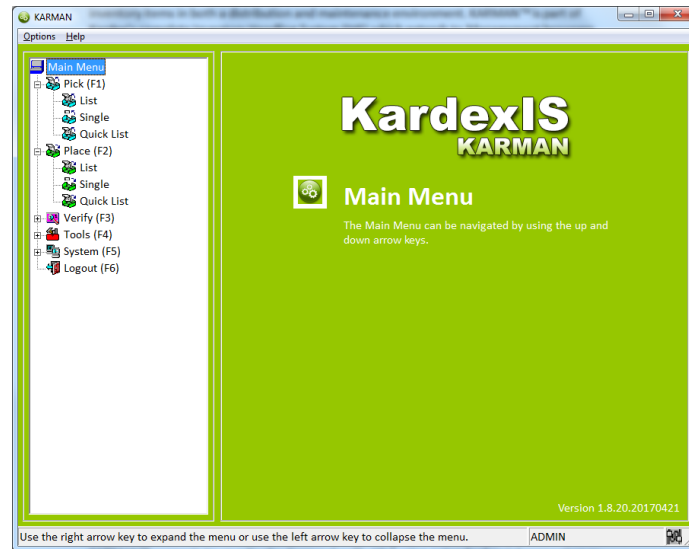


KARMAN™ connects to your Kardex Carousel or Shuttle® using a standard serial connection or network connection to the Carousel PLC or Vertical Lift controller.

KARMAN™ is designed to be user friendly and understood by Stores personnel. It is a menu driven package requiring minimum use of the PC keyboard. Functions are displayed using a collapsing tree structure similar to Windows Explorer.

All available high level functions are displayed to the operator on Login. Each function has a unique ICON displayed in the tree structure and on the associated form making identification of the desired operation easy.

All forms are color coded for ease of identification and all quantity and location information is presented using high contrast colors for easy visibility at a distance.



KARMAN™ can be conveniently used *without* a mouse. Forms have been designed with consideration to natural process flow and all functions can be used intelligently with basic keystrokes such as the **Enter**, **Tab** and the arrow keys (← → ↑ ↓).

The main functions KARMAN™ provides are:

- *Place: For storage of parts into the machine*
- *Pick: For retrieval of parts from the machine*
- *Verify: For confirmation that location quantities are correct*

Each of these processes is explained in the KARMAN™ Operators Manual. There is also a section in the manual to describe how to undertake a stock take your system. KARMAN terminology for stock take is 'Verify'.

The other operations that KARMAN™ offers are described in this manual and can be accessed in KARMAN™ via the Tools and System Menus. These menu items are:

- *Reports [Tools Menu]*
Used to generate standard reports
- *Local Lists [Tools Menu]*
Used to create Pick, Place or Verify lists
- *Manual Machine Operations [Tools Menu]*
Used to rotate the Carousel to a target shelf location, synchronise the access level carrier to KARMAN™ or to present a specific tray to the Shuttle® access.
- *Users [System Menu]*
Used to Add, Change or Delete users
- *Inventory [System Menu]*
Used to Add, Change or Delete inventory items
- *Configuration [System Menu]*
Used to customise KARMAN™ for your site

Note: *The manual machine operations 'Move to Shelf', 'Set Shelf' and 'Get Tray' are explained in the KARMAN™ Operators Manual.*

2. Loading Your Storage System




If you are implementing a new storage system at your site, Kardex will generally have conducted a site survey and provided a recommendation for the shelf configuration to be used in your system. We will set up KARMAN™, prior to system delivery, based on the location size mix suggested in the sales proposal document. **Machine Configurations**

2.1.1. Vertical Carousels

Kardex has a range of 400mm and 600mm storage tote bins suitable for use in our Carousel and Shuttle® units. The number of bins per shelf is determined by the width of the shelf. Our Carousels will generally use a 3600mmW carrier for 12 large bins and our Shuttles® will use a 3000mmW tray for 10 large bins:

<i>Bin Type</i>	<i>Dimensions</i>	<i>Max. Locks. / Bin</i>
• SMALL	150mmW x 600mmD x 50mmH	12
• MEDIUM	150mmW x 600mmD x 100mmH	8
• LARGE	300mmW x 600mmD x 150mmH	4

The storage bins are shown in the following table:

Tote Type:	VCT 01 (Small Tote)	VCT 02 (Medium Tote)	VCT 03 (Large Tote)
			
Max. Compartments	12	8	4
Length (mm)	600	600	600
Width (mm)	150	150	300
Height (mm)	50	100	140
Max. Locs / Bin	12	8	4

Kardex uses a location naming convention to identify the bin location sizes. The naming convention uses the base bin size plus the number of locations in the bin to identify the location size.

For example; a 'large' bin with 4 locations is termed a 'LARGE4'. Similarly, a 'medium' bin with 8 locations is termed a 'MEDIUM8'. The open locations are referred to as 'OPENHALF' or 'OPENFULL'. There are 12 of these locations across a shelf. 'OPENFULL' locations use the full clear height of the carrier and 'OPENHALF' locations use half the carrier clear height. An 'OPENFULL' location is equivalent to 65 litres of volume. An 'OPENHALF' location is equivalent to 32 litres of volume.

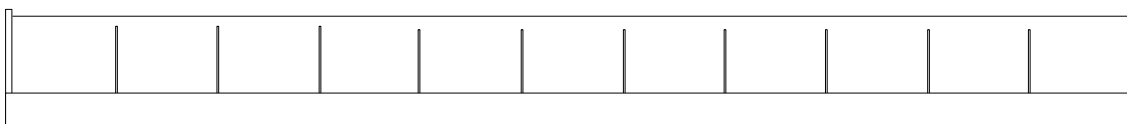
This terminology is used to describe the proposed bin configuration and is also used within the KARMAN inventory software to identify location sizes during the initial loading and following replenishment process.

Use of MEDIUM and LARGE tote bins is shown in the following picture:



Each of the carrier / bin combinations is shown below:

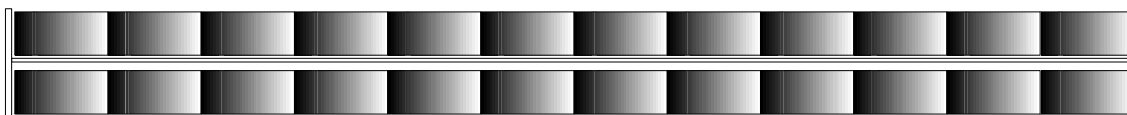
OPEN FULL – 1 Shelf / 12 Locations using upright dividers



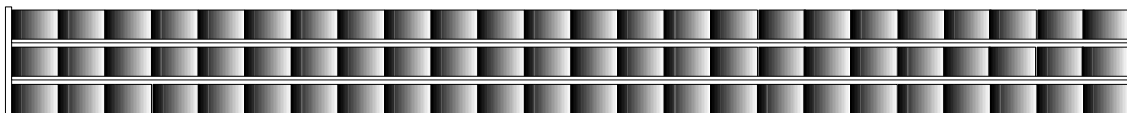
OPEN HALF – 2 Shelves / 24 Locations using upright dividers



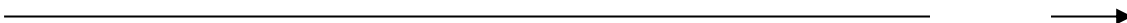
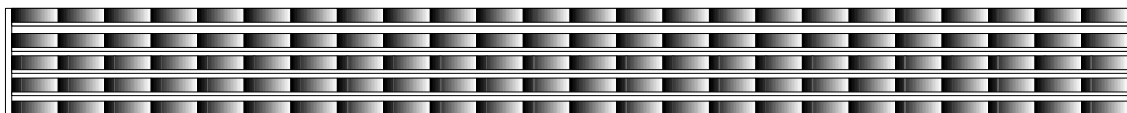
LARGE Bins – 2 Shelves / 24 Bins per Carrier / Up to 96 Locations



MEDIUM Bins – 3 Shelves / 72 Bins per Carrier / Up to 576 Locations

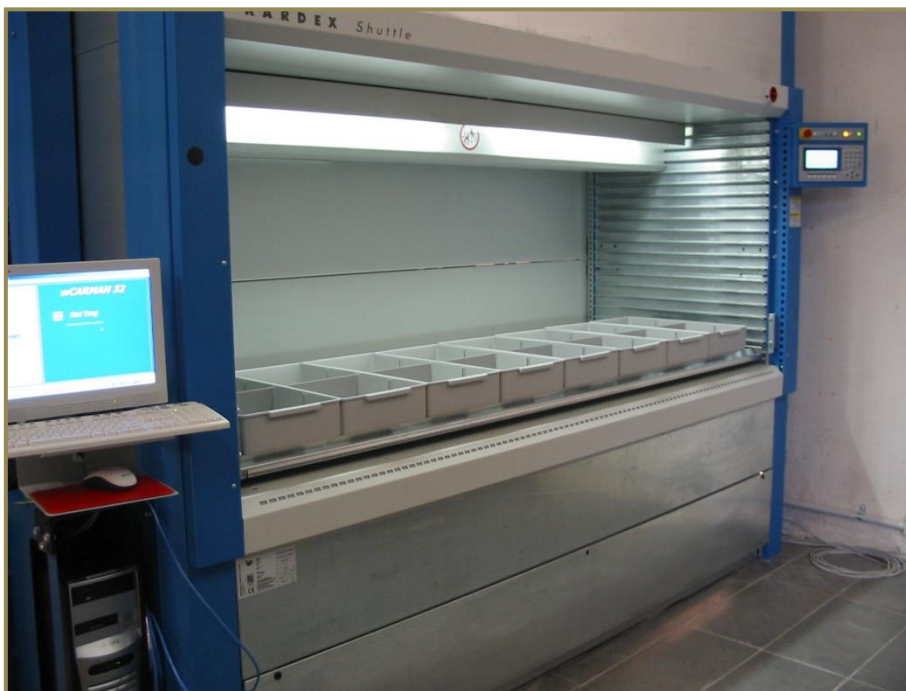


SMALL Bins – 5 Shelves / 120 Bins per Carrier / Up to 1440 Locations



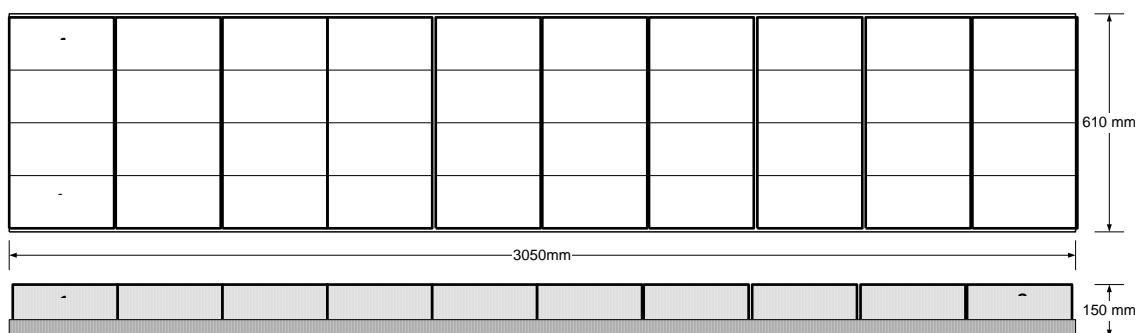
2.1.2. Vertical Lift Modules

In the case of the Shuttle® or Element®, the storage totes sit on the tray and all locations are accessible from above the tray, as shown in the image below:

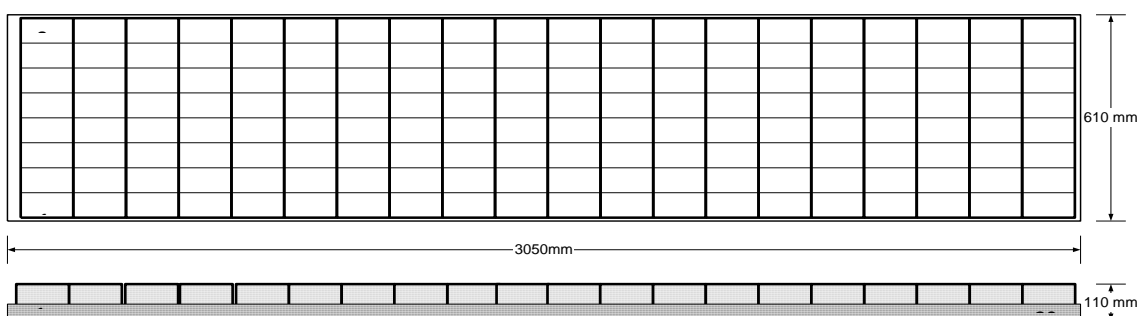


Locations in the bins would be accessible as shown below, when used with a 3050mmW Shuttle Tray:

Large4 Bins – 10 Bins per Tray / 40 Locations



Medium8 Bins – 20 Bins per Tray / 80 Locations



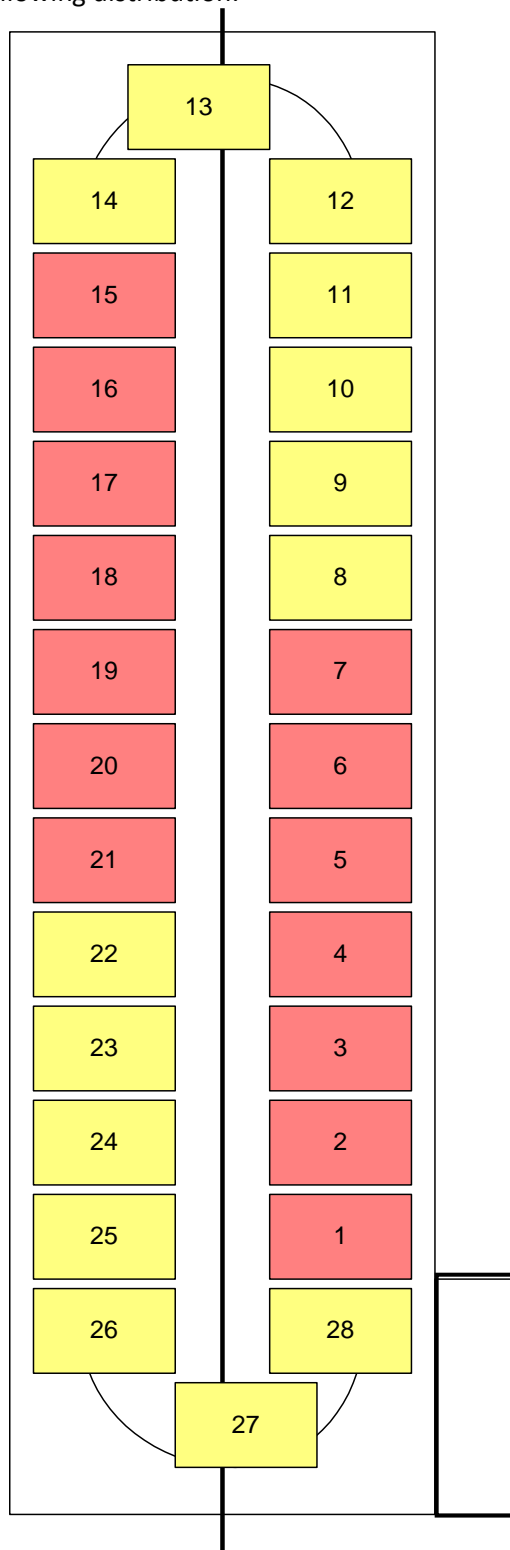
NOTE: If you do not have a copy of the suggested shelf configuration, please contact Customer Services on +61 2 6056 5173.

2.2. Loading Your Machine

2.2.1. Vertical Carousel

Your vertical Carousel operates on the counter-balance principle. This means that both front and back carriers should be reasonably in balance throughout the entire cycle.

When determining the system shelf configuration, Kardex will distribute the bin / locations sizes evenly around the 4 quadrants of the machine. A 28 carrier machine will have the following distribution:



Carousel Type: 500kg 2816

The four quadrants of the 28 carrier Carousel are:

Q1: Carrier	1	⇒	7
Q2: Carrier	8	⇒	14
Q3: Carrier	15	⇒	21
Q4: Carrier	22	⇒	28

When initially loading your Carousel you should load opposite carriers and thus maintain a reasonable balance.

For example, in a 28 carrier Carousel you should load in the following order:

1, 15; 2, 16; 3, 17; 4, 18; 5, 19; 6, 20; 7, 21; 8, 22; 9, 23; 10, 24; 11, 25; 12, 26; 13, 27; 14, 28;

You should endeavour to keep your Carousel evenly loaded at all times.

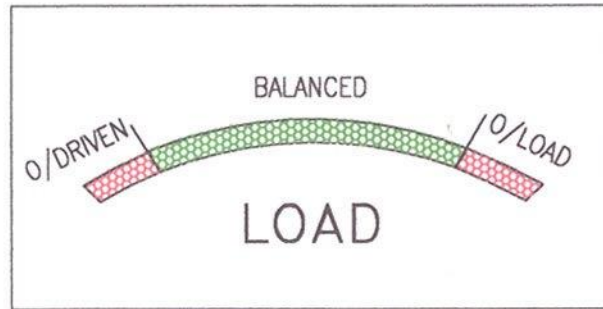
IMPORTANT: The maximum out-of-balance tolerance is 20%.

In the case of the 28 carrier Carousel this means that no more than 3 carriers can be unloaded on one side of the machine without causing a balance problem.

Kardex Carousels are fitted with a Load Meter on the front RHS Local Panel to assist you to identify if you have an out of balance situation.

You will know if your Carousel is out-of-balance by the following symptoms:

- (i) The out-of-balance indicator will show an overload condition. The pointer will be in one of the red zones most of the time or is moving dramatically from one side of the



indicator to the other.

- (ii) Motor noise indicates extra load at certain stages of the cycle.
- (iii) The unit starts and runs roughly and trips the electronic drive.
- (iv) The inverter displays high current during normal operation. Kardex would expect Carousels to operate at 40 to 50% of full current in normal circumstances.

If any of these symptoms are noted, it is recommended that you adjust the load to ensure better balance.

Consistently running your Carousel Out-of-balance will cause damage!

WARNING:

The capacity of each carrier in your Carousel is 100 / 250 / 500 / 750kg including any intermediate shelves. Check the Serial Number plate on the LHS of your machine for carrier rating.

Items stored in the carrier must lie within the bounds of the carrier. Items must not protrude over the front lip or exceed the height of the carrier side.

Failure to observe these conditions could damage your Carousel and is not covered under Kardex machine warranty.

2.2.2. Vertical Lift Module

To be added.

3. Installing KARMAN™

3.1. Current Installations

In a multi machine configuration it is typical to host the KardexIS database on a dedicated site server. In the absence of a server device Kardex would host the database on the #1 machine PC or the SortBench PC (if included in the configuration).

KARMAN SQL Server Setup file

The 'KARMAN SQL Server Setup' installation will install Microsoft's SQL Server Express and set up the common database. Run this install on the PC where you will host the database. Kardex will typically set up a common database as follows:

- *Where the system configuration includes multiple machines and a SortBench, set the database up on the dedicated SERVER or set it up on the SortBench PC*
- *Where the system configuration includes multiple machines and no SortBench, set up the database on a dedicated SERVER or the #1 machine PC.*

KARMAN Client Setup file

Run the KARMAN Client Setup on each machine PC. The dialog will move through configuration parameters and will facilitate connection to the KardexIS Server instance.

It is possible to install KARMAN™ in the following configurations.

- ❑ *Single machine connects to the KardexIS database*

Install both "KARMAN Server" and "KARMAN Client" on the machine PC.

- ❑ *Multiple machines connecting to the KardexIS database*

- Install 'KARMAN Server' on the desired SERVER device.
- Install 'KARMAN Client' on all machine PCs

- ❑ **KARMAN™ for Sybase SQL**

'KARMAN™ for Sybase SQL' installation requires the WIN9x component of the SYBASE SQLAnywhere database to be already installed. Refer to Section 3.4 'Install SYBASE Database' for details regarding database installation. If you are upgrading your existing KARMAN installation, please refer to Section 3.6 when you have completed the database installation and KARMAN™ installation.

- ❑ **KARMAN™ Runtime**

If you are installing the KARMAN™ Runtime application (for demonstration or development purposes) please refer to Section 3.5, Quick Setup Guide. The runtime application is delivered with a runtime version of the database. This version cannot be used for communication to the machine PLC and does not create a log file

NOTE: You do not need to install the MS SQL Express or SYBASE database when using the runtime version of KARMAN™.

- ❑ **Upgrade to a new version of KARMAN™**

If you are upgrading your installation of KARMAN™ over an existing installation, all your settings and database content will be retained. Refer to Section 3.6 for installation details.

NOTE: The database must be installed prior to installing KARMAN™

3.2. Use of the Kardex VCA Installer Program

KARMAN™ is generally delivered on a 'System Software' CD. The CD will auto run in your PC and present each of the applications for installation.



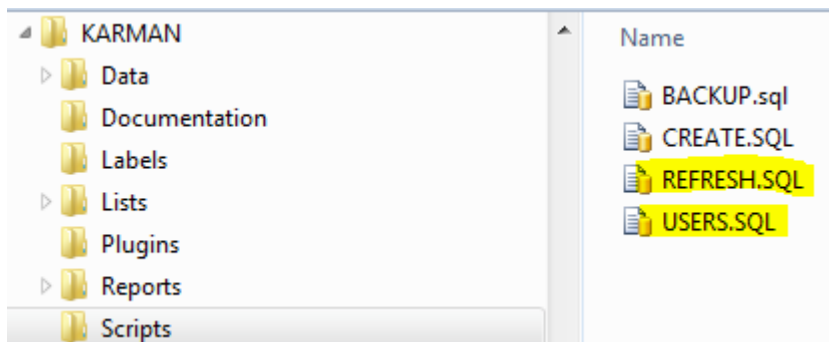
3.2.1. Setup MS SQLExpress 2008 Server

Kardex provides MS SQLExpress 2008 to host our system database. If you have a dedicated SQL server (2008 or 2012) the KardexIS instance can also be created on that device and the KARMAN database attached in the conventional way.

Refer to Kardex procedure SW-PR-045 MS SQL Server 2008 Install.pdf

This procedure describes how to install MS SQL Express and also create the KardexIS\KARMAN database instance.

If you implement the KARMAN database from a system backup you will need to run two refresh scripts which are available in the ..\KARMAN\Scripts folder (machine PC)



Once you have installed MS SQL refer to Kardex's KardexIS setup procedure:

3.2.2. Run KARMAN™ Setup Program

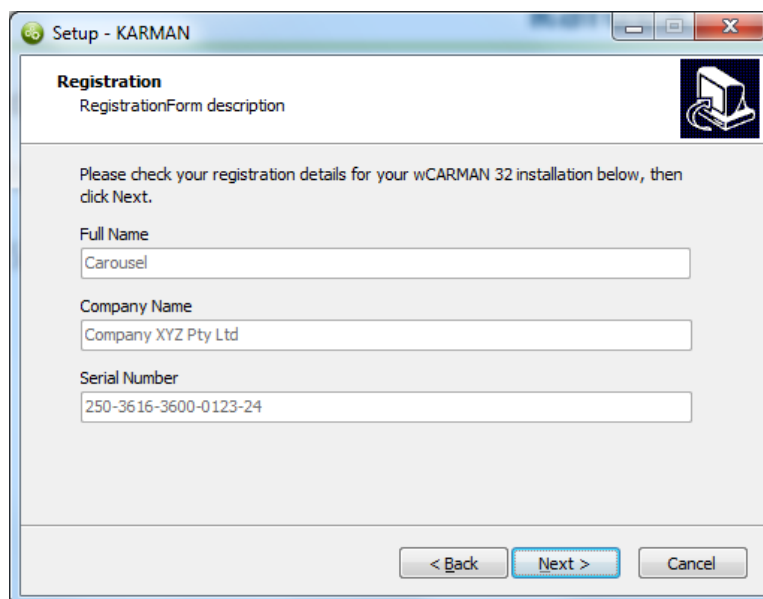
Select the KARMAN™ Install item from to run the client setup.

If the 'System Software' CD does not auto run, find the installation program called 'KARMAN Plugin Client for SQL Server Setup.exe' located under the \...\KARMAN subdirectory on the CD.

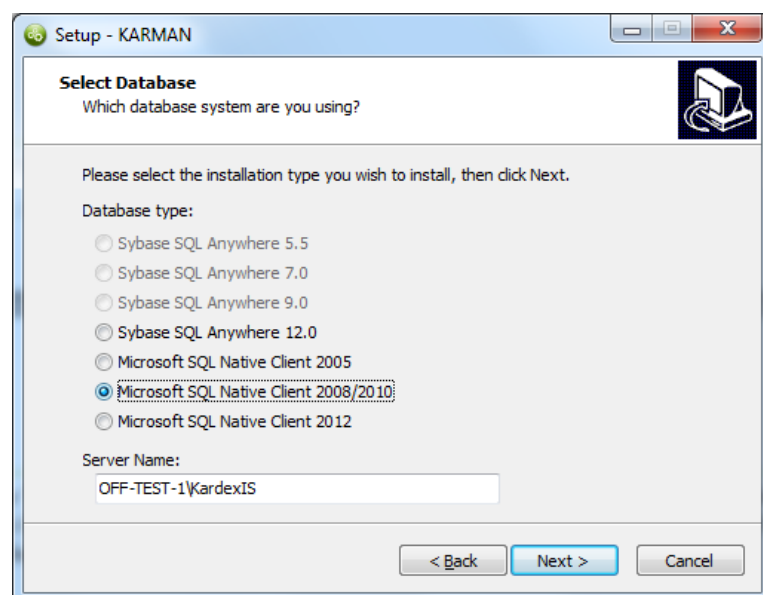
Run this program by double clicking on the ICON with the mouse or by pressing **Enter** on the highlighted ICON.

Follow the dialogue to install the application. You will be required to enter data from your site license as part of the installation:

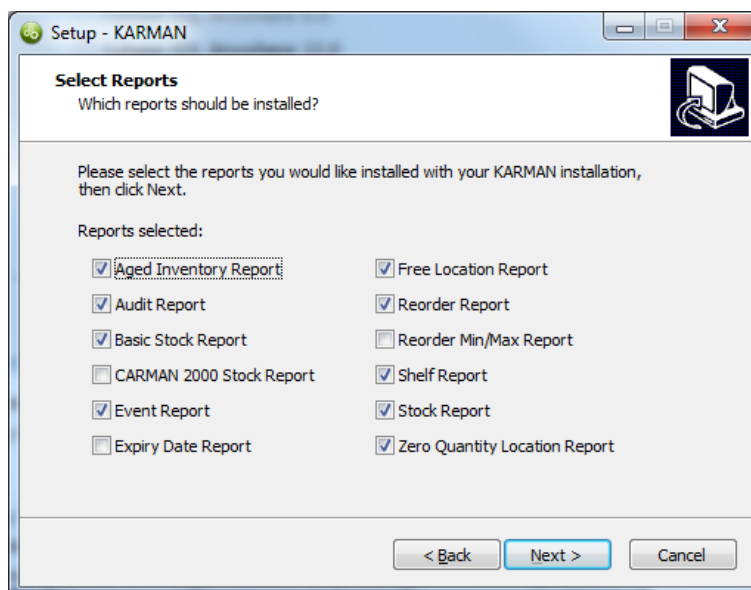
The Registration Information screen will then appear. Kardex will provide you with the Serial number you need to install your program on the Site License. If you are upgrading from a previous version of KARMAN™, your original registration details will be displayed.



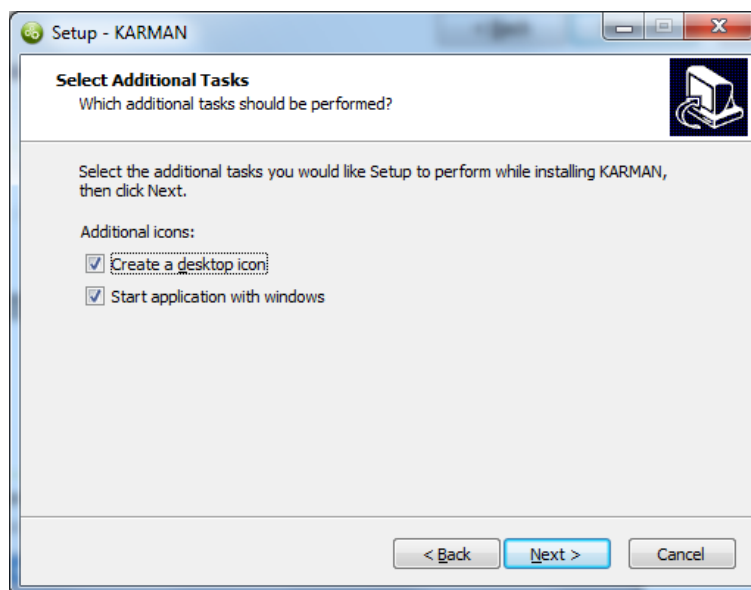
The 'Database Server' screen will then appear. The local computer name is the default text, this is correct if the database resides on this computer. If the database was installed on a different PC then that PC name is required as the 'Server Name'.



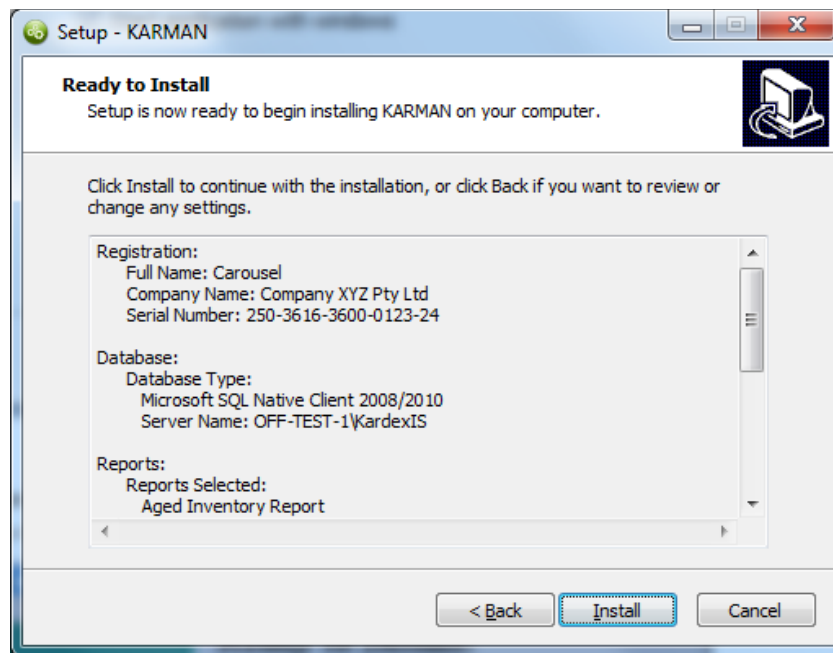
The 'Choose your Reports' screen will then appear. The recommended reports are already selected as default. Use the mouse to select or unselect reports as desired. You can confirm by pressing Enter on the Next button or pressing Alt & N for Next.



The 'Select Additional Tasks' screen will then appear. The recommended Additional Tasks are already selected as default. Use the mouse to select or unselect reports as desired. You can confirm by pressing **Enter** on the Next button or pressing **Alt & N** for Next.



After KARMAN™ has performed a system check, the Ready to Install screen will then appear, you can confirm by pressing **Enter** on the Next button or pressing **Alt & N** for Next.



When the setup program has been completed, the Installation Completed screen will ask for confirmation. You can confirm by pressing Enter on the Finish button or pressing Alt & F for Finished.

NOTE: If you are upgrading from a previous version of CARMAN, do not start KARMAN™ until you have completed the upgrade process. Refer to Section 3.6, Upgrading to KARMAN™.

KARMAN™ can be started from the ICON on the desktop or from the shortcut in the 'Start Menu\Programs\Kardex VCA' folder. The default user name for KARMAN™ is ADMIN with no password.

KARMAN™ can be uninstalled using the standard Windows Add/Remove program routine, located in the Control Panel. If you are upgrading your version of KARMAN™, do not uninstall the application, as you will lose all configuration settings and your database.

3.3. Quick Setup Guide – KARMAN Runtime

The default Login for the runtime version of KARMAN™ is DEMO with no password. Once you have logged into KARMAN, you will need to undertake the following activities so KARMAN can operate correctly.

1. *Set up your Shelf \ Bin configuration*
Select System \ Configuration from the Main Menu. Go to the 'Machine' tab. Refer to Section 6.5.2 for details.
2. *Select your Bin Allocation Mode.*
Select System \ Configuration from the Main Menu. Go to the 'Placing' tab. Refer to Section 6.3.1 for details.
3. *Select your Bin Selection Mode.*
Select System \ Configuration from the Main Menu. Go to the 'Picking' tab. Refer to Section 6.4.1 for details.

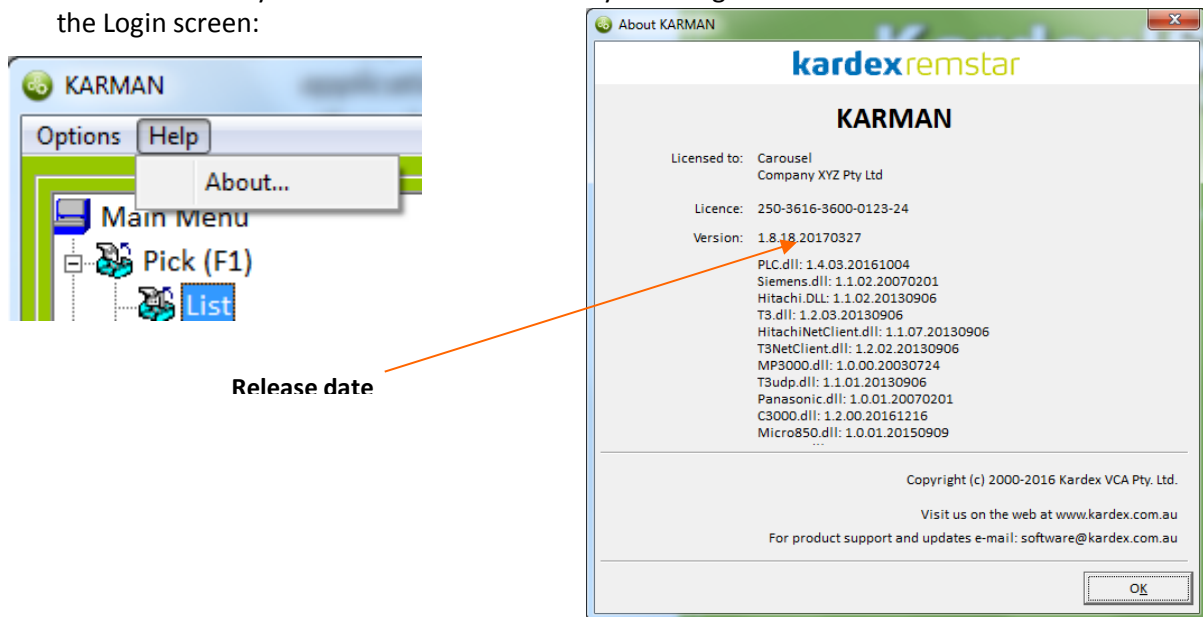
You are now ready to PLACE parts with KARMAN™. The runtime version of KARMAN™ is set up with six parts. The part names are 111, 222, 333, 444, 555 and 666. You can use these part names or create your own. Refer to Section 5, Inventory for details.

3.4. Upgrade / Crossgrade to a New PC

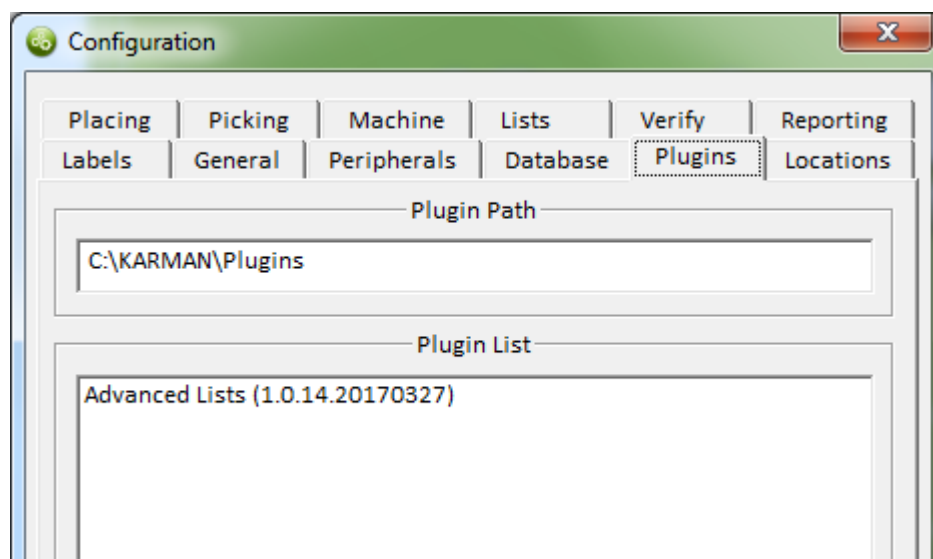
3.4.1. Preparation

If you intend to upgrade to a new PC you will need the following:

- ❑ *Setup discs for correct version of the Database*
 - The disc would have been delivered with you original installation documentation and the database type will be noted on your Site License Agreement
- ❑ *Setup file for your current version of KARMAN plus any setup files for KARMAN plugin applications that you are running.*
 - If you have not upgraded your system since installation, use the System Software CD that was provided with your installation documentation.
- ❑ You can confirm your KARMAN release date by checking the About... form available from the Login screen:



You can check if you have any plugins installed from the System \ Configuration \ Plugins tab:



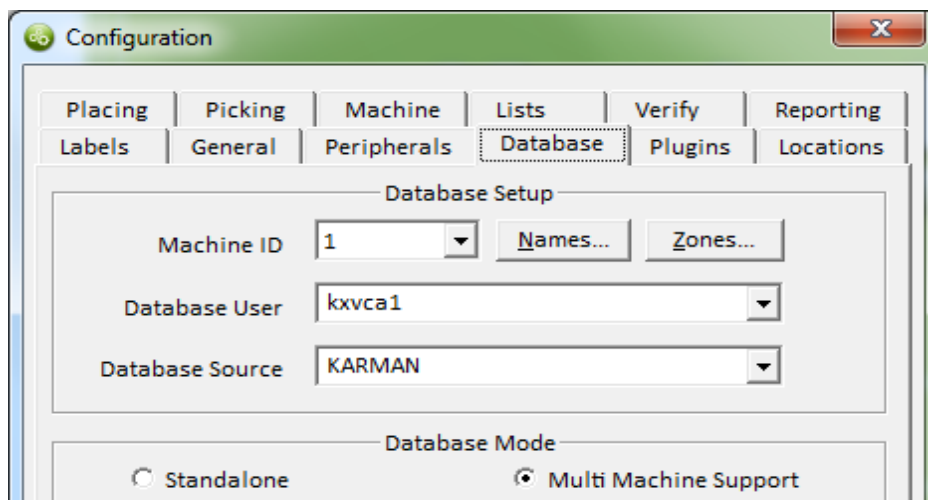
If you do not have the correct setup files for your current installation of KARMAN and the plugins, contact Kardex for Site Support on +61 2 6056 5173.

- ❑ **Setup file for PLC Upload (SIEMENS PLC) or Hitachi Manager (Hitachi PLC)**
In addition to the respective setup file, it is also prudent to copy the PLC program files from your current system. The files will be located in the following folders:

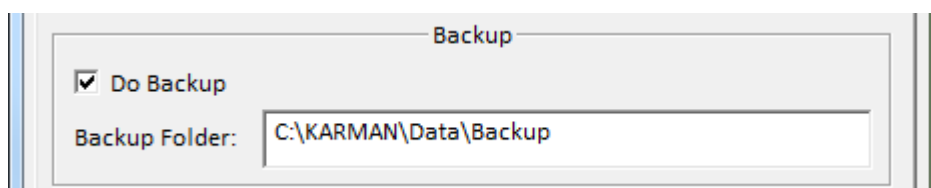
PLC Upload: C:\Program Files\Kardex VCA\PLC Upload\Programs
Hitachi Manager: C:\Program Files\Kardex VCA\Hitachi Manager\Programs
- ❑ **Current copy of your working database**
For a standalone configuration the working database file should be located in the default data folder c:\KARMAN\Data of your Carousel PC. Make sure you check the date / time stamp for the files.

For a CLIENT / SERVER configuration, the database could be on a separate device. You must confirm your configuration and the location of the correct files.

You can check your configuration type from the System \ Configuration \ Database tab:



For a Standalone setup, KARMAN will back up the database and registry settings to the folder noted below:



For a Multi Machine configuration, KARMAN will back up the registry settings to the above folder. The database backup must be managed externally.

- ❑ **Current copy of the registry settings for KARMAN.**
The KARMAN registry setting will be saved in the above folder if you have the 'Do Backup' flag set.

3.4.2. Procedure

- ❑ Prepare your PC for use on your network. During the software installation, the PC user will need administrator access
- ❑ Install PLC Upload (for SIEMENS PLC) or Hitachi Manager (for HITACHI PLC). Copy the PLC program files from your original PC to the 'Programs' folder for the respective application.
- ❑ Install the required database components. Refer to Section 3.4
- ❑ Apply your KARMAN registry file SETTINGS.REG
- ❑ Run the KARMAN Setup file and follow the prompts.
- ❑ Run the plugin setup files and follow the prompts.
- ❑ Copy your working database files into the c:\KARMAN\Data folder.
- ❑ Start KARMAN and confirm that the installation has worked. KARMAN will probably start in DEMO mode as it is expecting to connect to the Carousel.

3.5. Upgrade from early CARMAN / SYBASE Versions

If you are running a DOS version of CARMAN or an early version of KARMAN i.e. pre 1.6 please contact Kardex for information regarding possible upgrade paths.

Kardex no longer supports SYBASE SQLAnywhere v5 or v7 for use with KARMAN. It is possible to continue to work with SYBASE SQLAnywhere v9 but Kardex recommends upgrading to MS SQLExpress which is our preferred implementation.

Please contact Kardex for assistance if you are running this database version.

3.5.1. Restoration of S5 PLC Programs

If you have not purchased Kardex's 'PLC Upload' application as part of your upgrade, you need to manually move the PLC S5 programs from the original S5 directory to be located under the c:\KARMAN subdirectory. All files in the original S5 directory should be moved as follows:

CARMAN	Old Location	New Location
Version 5	c:\s5	c:\KARMAN\S5
Version 7	c:\s5	c:\KARMAN\S5
Version 7	c:\car\s5	c:\KARMAN\S5

NOTE: *This final step in the process is very important. If you do not undertake this step and your machine PLC has a problem, it may not be possible to download a new PLC program. Significant delays in assistance may be experienced if this problem occurs.*

4. KARMAN Configuration

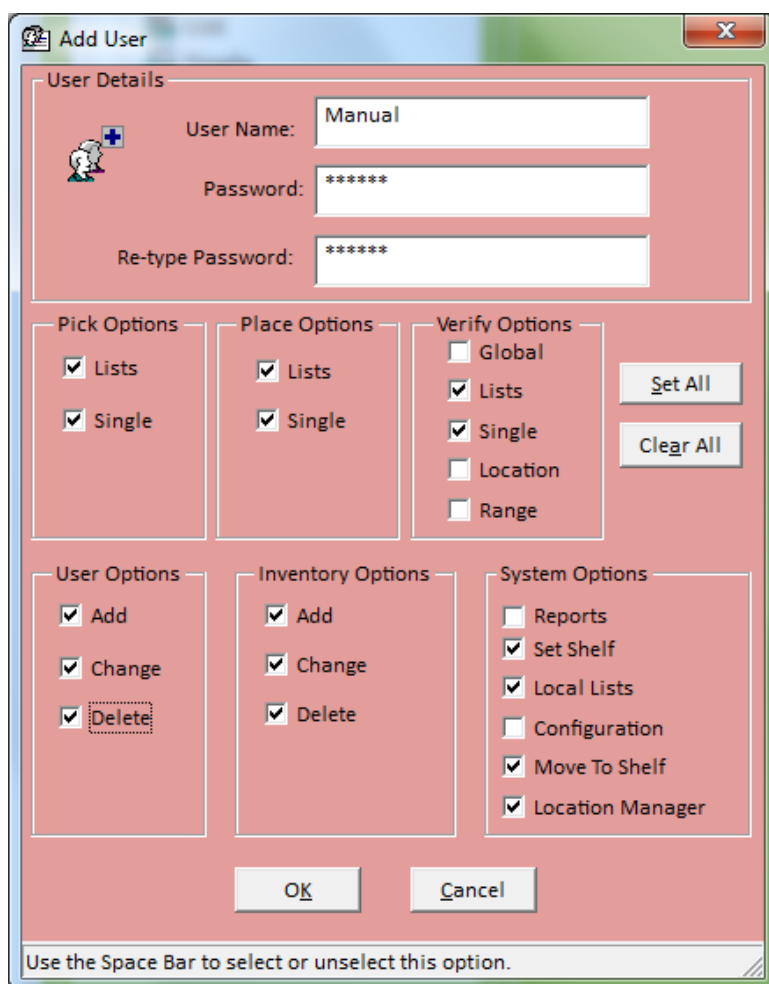
4.1. User Names

You will need to enter a valid user name and password at the KARMAN™ Welcome screen before the Main Menu will be presented. The default Admin user has access to all system functionality including Add, Change and Delete users from the 'User' Menu which is available under Main Menu \ System \ User. The User Menu allows you to Add Users (Section 4.1), Change Users (Section 4.2) or Delete Users (Section 4.3).

Kardex recommends that your system responsible person uses the Admin user and also adds a password for added security. All other users should be given specific user logins with functionality appropriate for their required tasks.

NOTE: *If you are running KARMAN™ as a Standalone installation for the purposes of software evaluation, the default user name is DEMO. No password is required.*

4.1.1. Add User



Action

Move forward
Move backward
Set All access
Clear All access
Tick Boxes ON or OFF
Save changes and exit
Cancel changes and exit

Method

Tab

Shift & Tab

Alt & S or **Enter** on the Set All button

Alt & A or **Enter** on the All button

Spacebar

Alt & K or **Enter** on the K button

Alt & C or **Enter** on the C button

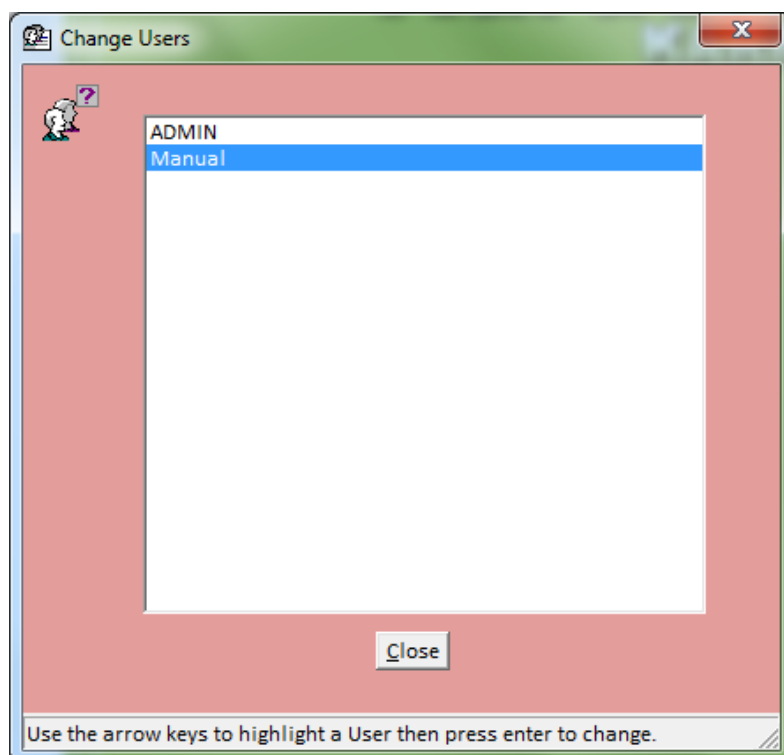
Type in a User Name and Password. The Password may be left blank. Give the User adequate access to do their job and operate the machine.

The Configuration and User options should be limited to one or two users from your operations team. A User cannot create another user with higher level access than their own user.

Access to the Verify functions should be given with care. These functions can actually change stock quantities in your machine. Please refer to Section 8 for more information.

The 'Set Shelf' function should be given to all users. It may be needed to realign the machine position within KARMAN™. Refer to Getting Started, in Section 2 of the Operators Manual, for more information.

4.1.2. Change User



Action

Move through User Names

Select User Name

Close window

Method

Up(↑) and Down(↓) arrow keys

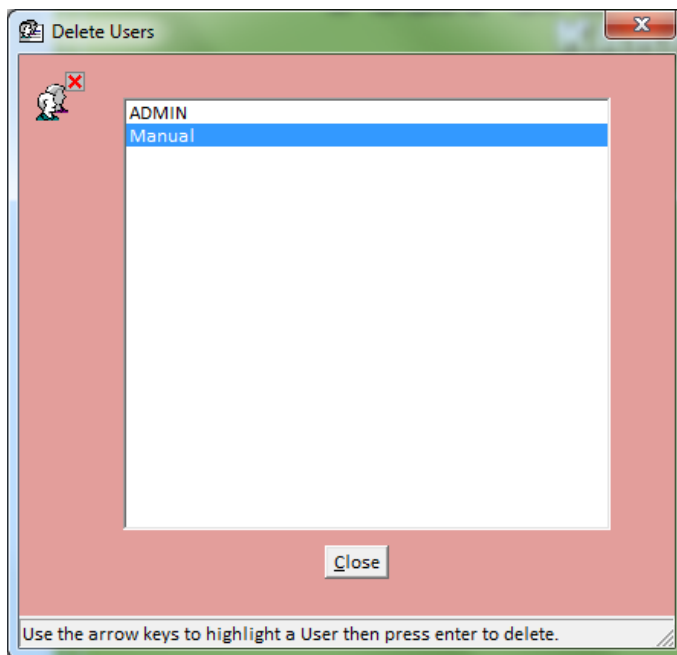
Enter

Alt & C or Tab to the Close button and press **Enter**

When you select a User Name, the Add User screen (shown on the previous page) will appear, displaying the selected User's details. You can change all fields except for the User Name itself.

Refer to the previous page for instructions on navigating the User screen.

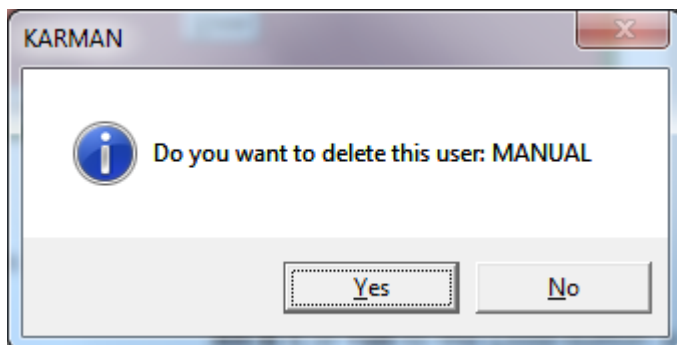
4.1.3. Delete User

**Action**

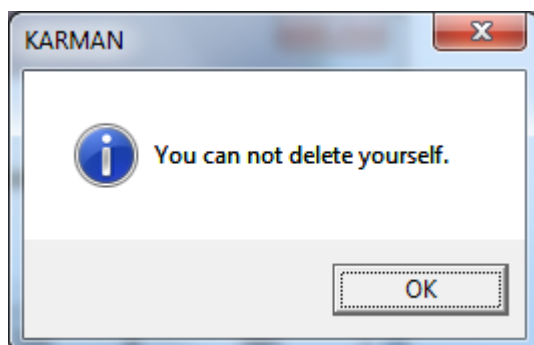
Move through User Names

Select item

Close window

Method**Up(↑) and Down(↓) arrow keys****Enter****Alt & C** or **Tab** to the **C**lose button and press **Enter**

When you select a User name, a confirmation message will be displayed.



Press **Enter** to confirm deletion of the User Name. If you do not want to delete this User Name then press **Alt & N** or **Tab** to the **N**o button and press **Enter**.

NOTE: *YOU CANNOT DELETE THE USER THAT IS CURRENTLY LOGGED IN.*

4.2. Inventory

The Inventory Menu can be accessed from the System Menu. The Inventory Menu allows you to Add Inventory (Section 5.1), Change Inventory (Section 5.2) or Delete Inventory (Section 5.3).

KARMAN™ also has functionality to transparently upload new or updated inventory via an external text file (Section 5.4).

4.2.1. Add Inventory

NOTE: IF YOU HAVE A HOST INTERFACE, YOU SHOULD ALWAYS KEEP YOUR INVENTORY DETAILS UP TO DATE USING THE AUTO UPLOAD FUNCTION DESCRIBED ABOVE. ADDING INVENTORY DETAILS MANUALLY CAN LEAD TO TYPING ERRORS AND MISMATCHES BETWEEN YOUR HOST SYSTEM AND KARMAN™.

Action

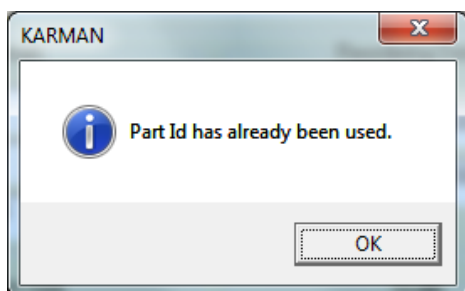
Move forward
Move backward
Save changes and exit
Cancel changes and exit

Method

Enter or **Tab**
Shift & Tab
Alt & K or **Enter** on the OK button
Alt & C or **Enter** on the Cancel button

All fields are optional except Part Id. Part Id is the unique identifier in the KARMAN™ database.

If you type in a Part Id that has already been used, you will see the following message:



Press **Enter** to clear this message and KARMAN™ will return to the Add Inventory screen so you can change the Part Id.

The Inventory fields are listed below. The 'Max Char' column is the maximum number of characters allowed in each field.

Field	Max Char	Description
Product Details		
Part Id	30	Type in a part number. This is the database primary key. It must be unique and should match the unique identifier in your host system.
Alternate Part Id	30	Type in an alternate part number, for example the supplier's part number. This number can be used during Single Pick or Place operations to select a part.
Description 1	60	Type in a description of the inventory item.
Description 2		Description Line 1 will appear on the operation screens so it should be as informative as possible. It is possible to append Description 2 to Description 1 for presentation on the operations forms
Description 3		
Unit Details		
Unit Type	10	Type in a unit type. This field will appear next to quantity on the operation screens. Eg. Each, Boxes, Pieces.
Unit Value	8	Type in a unit value (per unit) including the decimal point. If you do not put the decimal point in, KARMAN™ will add it for you at the end of the number you enter. This field can be used to report the total value of products in your machine.
Unit Weight	8	Type in a unit weight in grams. Unit weight is used with integrated weigh scales to determine the number of units for Pick / Place / Verify operations.
Reordering Details		
Reorder Point	5	Type in a quantity. This is the stock level at which you want this part to be reordered. This quantity is used to generate the Re-order report.
Reorder Quantity	5	Type in a quantity. This quantity is the amount of stock you want reordered when the stock level is at or below the Reorder Point.

4.2.1.1. Default Bin Size

Default Bin Size is an option within KARMAN that allows you to allocate a certain bin size for this part being entered. What this means is when you place this part it will automatically have the Bin Size highlighted in the Notification window, but you can select a different Bin Size if need be.

Default:None

4.2.1.2. Scale

Get Weight by pressing **Enter** on the highlighted button or by pressing the shortcut keys **Alt & W**.

When there is a scale connected to the PC this will allow the operator to weigh a part and it will be entered into the Unit Weight automatically. This weight could be for an individual unit weight or a packet weight of ten units it will depend on what the unit type is setup as.

4.2.2. Change Inventory

STEP 1 Enter Part Number

Type in the part number or the description of the item you want to change and press **Enter**. A list of parts matching your entry will be displayed.

STEP 2 Select Part Number

Action

Move through part numbers
Select part number to change
Close window

Method

Up(↑) and Down(↓) arrow keys

Enter

Alt & C or **Tab** to the Close button and press **Enter**

When you select a part number, the Add Inventory screen shown on the previous page will appear, displaying the details of the selected part. You can change all fields except for the part number.

Refer to the previous section for instructions on navigating the Add Inventory screen.

4.2.3. Delete Inventory

STEP 1 Enter Part Number

Type in the part number or the description of the item you want to delete and press **Enter**. A list of all parts matching your entry will be displayed. Only parts with no stock on hand will be displayed.

Search

Part Number Find

Description

Parts

Number of Parts: 0 Max. 50

Part No.	Description
----------	-------------

STEP 2 Select Part Number

Action

Move through part numbers
Select part number to delete
Close window

Method

Up(↑) and Down(↓) arrow keys
Enter
Alt & C or Tab to the Close button and press **Enter**

Search

Part Number 057 Find

Description

Parts

Number of Parts: 2 Max. 50

Part No.	Description
057-022	Test
057-023	Test

When you select a part, the following confirmation message will be displayed:

KARMAN

Do you want to delete this part: 057-023?

Yes No

Press **Enter** to confirm deletion of the part. If you do not want to delete this part, then press **Alt & N** or **Tab** to the No button and press **Enter**.

NOTE: PARTS WITH A QUANTITY PLACED IN THE MACHINE WILL NOT APPEAR IN THE SELECT LIST, SO THEY CANNOT BE DELETED.

4.2.4. Auto Load Inventory

KARMAN™ can automatically upload inventory items, via a text file, on start-up and poll for the file every 2 minutes while it is running. The path to the text file is set up on the Database tab of the Configuration form (refer to Section 6.12).

The default Auto Load path / filename is C:\KARMAN\Data\Parts.dat.

The Parts.dat file can be used to add new inventory items or update existing inventory item details such as description changes or alternate part number changed.

The Parts.dat file will be deleted after the file has been processed by KARMAN™. KARMAN™ must have full access to the text file for this purpose. KARMAN™ will create a log file called Parts.log with a record for all entries in the Parts.dat file.

The Parts.dat file has the following characteristics:

- The fields are of variable length
- The fields are comma-separated.
- The contents of the fields must not contain any single quotation marks (') as this character is interpreted as a < > in the SQL database
- If your fields contain any commas (,) percent signs (%) or ampersands (&) or similar characters, you will need to use a text qualifier around these fields so the content does not cause errors in the upload. Refer to Section 6.12 for details.

If KARMAN™ cannot upload all the inventory lines in the file, it will rename the file to Parts.dat.off. You should check the log file to see at what point the upload has failed.

The default KARMAN file record format is:

Field	Description	Max.	SIZ E
1	Part number	30	
2	Alternate part number	30	
3	Description line 1	60	
4	Description line 2	60	
5	Description line 3	60	
6	Unit Type	10	
7	Unit Value	8	
8	Unit Weight	8	
9	Reorder Point	8	
10	Reorder Quantity	8	
11	Default Bin Size	12	
	<CR/LF>		

Below is a sample file record layout:

PARTS.DAT

```
999999,abcdef,big,5mm,spanner,each,1.20,50,10,20,01-24-05
101439, ,BEARING & SHAFT ASSY PUMP EAM005M WARMAN, , ,EA,0,0,0,0,
123456,,,,,,,,,
```

NOTE: The KARMAN™ inventory file can be configured to suit your application. It is not necessary to include all fields in the file. The simplest format would be to provide the 'Part Number' and 'Description':

```
AB1234,Widget Type 1234
AB1235,Widget Type 1235
```

Refer to Section 6.12.3 for details regarding modification of the upload file format.

4.2.5. Changing and or Deleting Part Ids

Kardex has a utility application called 'Part Update' that can be used to change Part Ids or delete Part Ids in KARMAN™. If you need to change your current Part Ids because you are going to implement a new ERP or WMS, this utility is very useful and can save a lot of time.

KARMAN™ does not have internal functionality to change or delete Part Ids on mass because this activity is generally a high level activity that should be undertaken in a controlled way.

If you require the 'Part Update' utility, please contact Customer Services for a quotation. Contact details are available in Section 16.

4.3. Customizing KARMAN™

4.3.1. Introduction

All KARMAN™ parameters are available from the Configuration forms. There are eleven tabs on the Configuration form. A brief description of the parameters on each tab is provided below:

<i>Tab</i>	<i>Section</i>	<i>Description</i>
Placing	6.3	Bin Allocation Mode, Default Answers
Picking	6.4	Bin Selection Mode, Default Answers
Machine	6.5	Shelf configuration, Bin Text setup and machine usage information
Lists	6.6	Local / Host List directory set up, list selection mode, customising list formats
Verify	6.7	Default Verify report directories and database update mode
Reporting	6.8	List of available reports and set up options
Labels	6.9	Printer and label selection
General	6.10	KARMAN Logout action.
Peripherals	6.11	Hardware support required, SortBench support
Database	6.12	Database ID set up and Auto Load path
Plugins	6.13	Plugin Path and Plugin List
Locations	6.14	Customise Location Mask

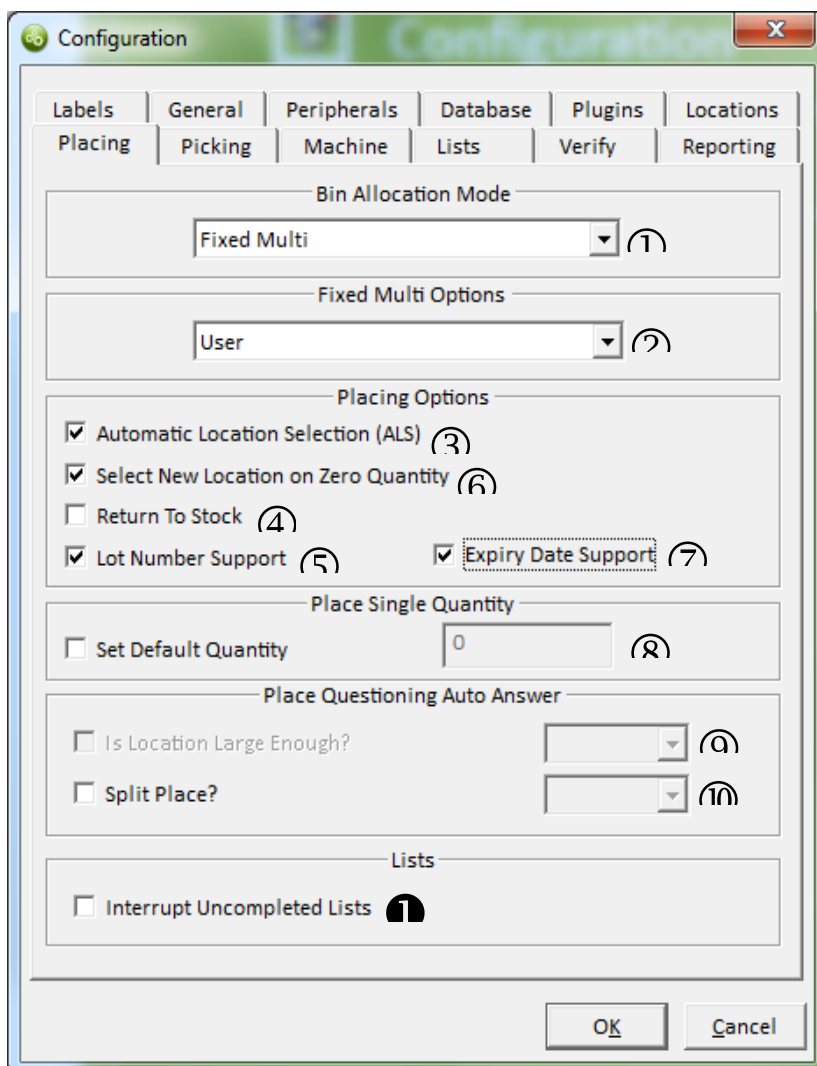
4.3.2. Getting around the Configuration Form

The following keystrokes can be used to navigate each tab of the Configuration form:

<i>Action</i>	<i>Method</i>
Switch between tabs	Ctrl & Tab
Move forward to next tab	Tab
Move backward to previous tab	Shift & Tab
Switch Tick boxes ON or OFF	Spacebar
Switch Radio Buttons	left (←) & right (→) arrow key
View pull down menus	F4
Move through pull down menu	up (↑) and down (↓) arrow keys
Select item in pull down menu	Enter
Save changes and exit	Alt & K or Enter

Cancel changes and exit

Alt & C

4.3.3. Placing**4.3.3.1. Bin Allocation Mode****① Bin Allocation Mode**

KARMAN™ provides three methods of location usage in your machine. The concept of location usage is termed Bin Allocation Modes (BAM).

To switch between BAMs use the **Up(↑) and Down(↓) arrow keys** to highlight the BAM you require, or use F4 to display the pull down menu.

Kardex can help you decide which BAM to use before installation. However, if required, KARMAN™ can easily switch between BAMs.

Bin Allocation Mode	Description
Fixed Single	<ul style="list-style-type: none"> Each part number is Placed into a single location in the machine. When a part location becomes empty, the location is retained for future use by that part.
Dynamic	<ul style="list-style-type: none"> Each part is Placed into a new location in the machine.

Bin Allocation Mode	Description
	<ul style="list-style-type: none"> When a part location becomes empty, the location is freed for storage of another part. This mode ensures not cross contamination from Pick or Place transactions.
Fixed Multi	<ul style="list-style-type: none"> KARMAN™ offers the operator a choice either to Place a part in to a new location or to an existing location for that part number. KARMAN™ offers a choice when a part location becomes empty to either free the location or retain the location for that part.

4.3.3.2. Fixed Multi Options

② Fixed Multi Options

The options available under the Fixed Multi BAM are designed to provide a method of choosing a default location to place a part away to. Three options are available:

- User
- Emptiest Location
- Closest Location

Option	Description
User	<ul style="list-style-type: none"> The user will select the location to place the part away to. <p><i>NOTE: This method is appropriate if your machine is not interfaced to a host system. This Place method is relatively slow as the User must always choose a location.</i></p>
Emptiest Location	<ul style="list-style-type: none"> The machine will rotate to the emptiest location for that part. <p><i>NOTE: This method is appropriate if your machine is interfaced to a host system</i></p>
Closest Location	<ul style="list-style-type: none"> The machine will rotate to the closest location <p><i>NOTE: This method is appropriate for both standalone and interfaced machines.</i></p>

4.3.3.3. Placing Options

③ Automatic Location Selection (ALS)

The Automatic Location Selection (ALS) option can be switched ON or OFF by pressing the **Spacebar**.

Value	Description
OFF	The operator chooses size, shelf, bin and location from a presented list of free locations.
ON	The operator selects the bin size required and KARMAN™ will automatically choose the closest free location of that size.

Placing time is substantially reduced when ALS is used. When your machine is approximately 80% loaded, ALS should be set ON.

WARNING: FOR THE INITIAL LOADING OF A CAROUSEL, ALS IS ALWAYS TURNED OFF. THIS IS SO THE OPERATOR CAN ENSURE THE CAROUSEL IS EVENLY LOADED (PLEASE REFER TO SECTION 1 FOR LOADING INSTRUCTIONS).

④ **Return to Stock (RTS)**

The Return To Stock (RTS) option can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	Parts are Placed in locations as determined by the BAM. Part is placed away with current date / time stamp.
ON	<p>The operator is asked, at each Place operation, whether the item(s) are being Returned To Stock. If so, the new location will be given a date / time stamp which is older than all other locations for that part. This will ensure the oldest stock is always picked first, when Picking by FIFO. (Refer to Operators Manual Section 4.7 for a description of the RTS process).</p> <p>[Does not apply for Fixed Single BAM]</p>

⑤ **Lot Number Support**

Lot Number is the terminology used by Kardex when referring to a manufacturing batch or serial number, which may be associated with received stock. The supplier batch number is the number that identifies when a product was manufactured. This number may be relevant to determine aged stock and also convenient for stock recalls.

Lot Number Support can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	No Lot Number support. Pick / Place / Verify only by Part No.
ON	<p>At each Place operation KARMAN™ will ask for a Lot Number.</p> <p>Each Lot Number must be unique only if Enable Unique Lot Number Support is turned ON in General tab.</p> <p>If Enable Unique Lot Number Support is turned OFF under the General tab this will allow an option Pick by Lot Number in the Pick options to be accessible.</p> <p>[Does not apply for Fixed Single BAM]</p>

⑥ **Select New Location on Zero Quantity**

The Select New Location on Zero Quantity option can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	If the User confirms '0' quantity during the Place operation, KARMAN will accept that quantity and conclude the Place operation.
ON	<p>If the User confirms '0' quantity during a Place operation, KARMAN will allow the User to select a new location.</p> <p>[Does not apply for Fixed Single BAM]</p>

⑦ Expiry Date Support

Expiry Date is used if the product has an expiry date, so that the products can be turned over at a regular interval and minimize any waste.

Expiry Date Support can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	No Expiry Date support. Pick / Place / Verify only by Part No or Lot Number.
ON	At each Place operation RackMAN will ask for an Expiry Date. It is also possible to place without an Expiry Date.

4.3.3.4. Place Single Quantity

⑧ Set Default Quantity

KARMAN™ can be configured to provide a default Place quantity in the Qty field on the Place \ Single form. This parameter can be used in circumstances where the machine is being used for repetitive storage and retrieval of parts such as in a tool dispensing situation.

Set Default Quantity can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	No default Place quantity. Operator must enter quantity.
ON	Default Place quantity as set in the adjacent field. KARMAN will present this quantity in the Qty field on the Place form. Operator must then acknowledge the quantity to complete the transaction.

4.3.3.5. Place Questioning Auto Answer

KARMAN™ can be configured to auto answer the standard questions that are presented in the course of normal Place operation. Auto answering of standard questions can be useful in ensuring a consistent response from the operators when handling new stock locations.

⑨ Is Location Large Enough?

[NOTE: Does not apply for Dynamic or Fixed Multi BAM]

This question is presented when the operator places parts to an existing location.

'Is Location Large Enough?' can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	Operator must answer question when it is presented.
ON	Question will be answered automatically as determined by the YES / NO selection in the adjacent drop down box.

⑩ **Split Place?**

[NOTE: Does not apply for Fixed Single BAM]

This question is presented if the operator reduces the confirmed Place quantity after the machine has rotated to the selected location.

Split Place? Can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	Operator must answer question when it is presented.
ON	Question will be answered automatically as determined by the YES / NO selection in the adjacent drop down box.

4.3.3.6. *Lists*4.3.3.7. *Interrupt Uncompleted Lists.*

This switch can be used if it is likely that you receive new inventory items for placing prior to those items being added to the KARMAN™ database.

The Interrupt Uncompleted Lists option can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	KARMAN™ will not interrupt Place lists that have items which do not exist in the database.
ON	<p>KARMAN™ will allow the operator to interrupt Place lists which have items that do not exist in the database. Once all possible items have been placed, the following dialogue is presented:</p> <p>It is then possible to return to the interrupted list once the database has been updated. Refer to the Operators Manual for selection of Interrupted Lists.</p>

4.3.4. Picking

Configuration

Labels General Peripherals Database Plugins Locations
Placing **Picking** Machine Lists Verify Reporting

Bin Selection Mode

FIFO ①

Picking Options

☐ Use FIFO for list processing ② ☐ Show Find when Picking Single ③

Pick Quantity

☐ Set Default Quantity Pick Single 0 ④
☐ Scale Monitored Picking Tolerance 0

Pick Questioning Auto Answer

☐ Is Location Empty? ⑤
☐ Keep Location? ⑥
☐ Change Total Pick Quantity? ⑦

Lists

☐ Interrupt Uncompleted Lists ⑧

OK Cancel

4.3.4.1. Bin Selection Mode

① Bin Selection Mode

[Does not apply for Fixed Single BAM]

KARMAN™ currently provides five modes for retrieving inventory from your machine. The concept of inventory retrieval modes is termed Bin Selection Mode (BSM).

Bin Selection Mode	Description
FIFO [First In First Out] Default	Parts are always picked from the oldest location first. This will ensure that stock is continually rotated during the Pick / Place cycle of the machine.
User	Parts are picked from the location that the operator selects from the Locations window. This mode can make picking relatively slow as the user must always choose the location to pick from.
Closest	Parts are picked from the location closest to the machine access level.
Fullest Location	Parts are picked from the location that contains the most quantity.
Satisfy Quantity	Parts are picked from the location, which will satisfy the pick quantity.

<i>Bin Selection Mode</i>	<i>Description</i>
Expiry Date	Parts are picked from the closest date to the furthest date, to ensure a constant turnover of parts.

4.3.4.2. Picking Options

② Use FIFO for list processing

Only when Bin Selection Mode is set to User, you can turn the Use FIFO for list processing option ON or OFF. This option allows Pick List process to be used as FIFO (parts picked from oldest location first), instead of the Pick List process being done like User (parts picked from location operator selects).

The 'Use FIFO for list processing' option can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	Parts are picked from the location that the operator selects from the Locations window.
ON	Parts are always picked from the oldest location first only when processing a Pick List.

③ Show Find when Picking Single

KARMAN can be configured to automatically show the find form when picking single, this allows the operator to search for the part required automatically either using the part ID or the description of the part.

The 'Show Find when Picking' option can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	KARMAN™ will display the normal pick single form.
ON	KARMAN™ will display the find form automatically, this will allow the operator to easily find the part they require through the find process.

4.3.4.3. *Pick Single Quantity*④ **Set Default Quantity**

KARMAN can be configured to provide a default Pick quantity in the Qty field on the Pick \ Single form. This parameter can be used in circumstances where the machine is being used for repetitive storage and retrieval of parts such as in a tool dispensing situation.

Set Default Quantity can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	No default Pick quantity. Operator must enter quantity.
ON	Default Pick quantity as set in the adjacent field. KARMAN will present this quantity in the Qty field on the Place form. Operator must then acknowledge the quantity to complete the transaction.

4.3.4.4. *Pick Questioning Auto Answer*

KARMAN can be configured to auto answer the standard questions that are presented in the course of normal Pick operations. Auto answering of standard questions can be useful in ensuring a consistent response from the operators when handling new stock locations.

⑤ **Is Location Empty?**

This question will normally be presented when a location quantity is picked to zero.

Is Location Empty? can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	Operator must answer question when it is presented.
ON	Question will be answered automatically as determined by the YES / NO selection in the adjacent drop down box.

⑥ **Keep Location?**

NOTE: *Not relevant for Fixed Single BAM or Dynamic BAM*

This question is presented in Fixed Multi BAM, when a location is picked to zero.

Keep Location? can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	Operator must answer question when it is presented.
ON	Question will be answered automatically as determined by the YES / NO selection in the adjacent drop down box.

⑦ Change Total Pick Quantity?

This question is presented after every Pick when the question asked “Confirm Quantity” is answered with “No”. If the ‘Total Pick Quantity’ is not changed, KARMAN assumes that the location quantity on hand is incorrect and changes the location quantity to the amount entered by the user. The user is then asked to confirm the location is empty.

This option can be useful if it is likely that your list pick quantities are required to be changed on the run.

<i>Value</i>	<i>Description</i>
OFF	Operator must answer question when it is presented.
ON	Question will be answered automatically as determined by the YES / NO selection in the adjacent drop down box.

4.3.4.5. Lists

⑧ Interrupt Uncompleted Lists.

The Interrupt Uncompleted Lists option can be switched ON or OFF by pressing the **Spacebar**.

<i>Value</i>	<i>Description</i>
OFF	KARMAN™ will not interrupt Pick lists that have items which do not sufficient stock on hand.
ON	<p>KARMAN™ will allow the operator to interrupt Pick lists which have items with insufficient stock on hand in the machine. Once all possible items have been picked, the following dialogue is presented:</p> <p>It is then possible to return to the interrupted list once the required stock has been placed in the machine Refer to the Operators Manual for selection of Interrupted Lists.</p>

4.3.5. Machine

Configuration

Labels General Peripherals Database Plugins Locations
Placing Picking Machine Lists Verify Reporting

Machine Configuration

No. Carriers: 10

No. Bin Lights: 24 ①

Max Carrier/Tray Weight: 250 kg

Width: 3600 mm

Max No. of bin locations: 12 ③ (Min: 1, Max: 100)

Machine Options ② Check Machine ④ Bin Size Text

Edit Shelf Setup ⑤ Unavailable Shelves ⑥ Usage Info. ⑦

OK Cancel

4.3.5.1. Machine Configuration

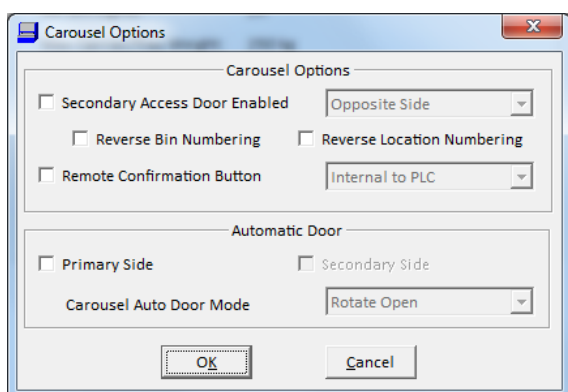
① Machine Configuration

WARNING: INCORRECT SETTINGS COULD DISRUPT OPERATION

Kardex will set up these fields prior to installation and it should NOT be changed unless instructed by Kardex. The physical configuration parameters on this form are determined during installation of KARMAN™ and cannot be changed.

Parameter	Value	Description
No. Carriers	10 .. 54	The number of carriers in your machine.
No. Bin Lights	16 .. 24	The number of bin lights on your carousel bench.
Max. Carrier Weight	750kg	The maximum weight allowed on each carrier in your machine including intermediate shelves.
Width (mm)	2400 .. 4500	The width of your machine.
Max No. of bin locations	1 .. 100	Change the maximum number of locations in your bins by typing the number in. The maximum number of bins is only limited by the amount of dividers you can fit into each bin.

② Machine Options



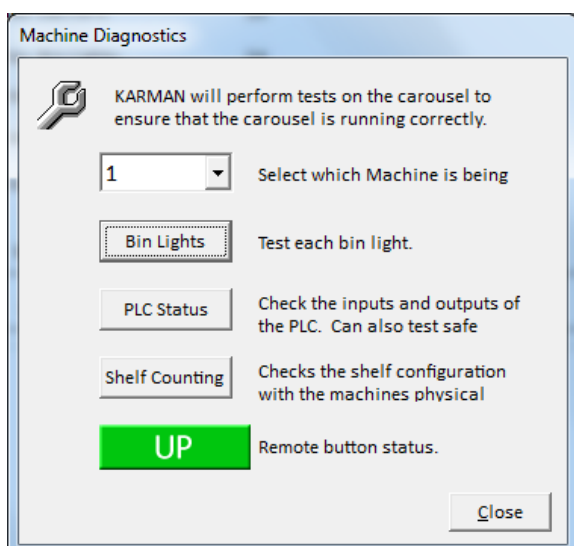
Parameter	Value	Description
Secondary Access Door Enabled	OFF	The Secondary Access Door can be Enabled or Disabled by pressing the Spacebar . If the Carousel has a 2 nd Access, this switch must be set ON and the relative position of the 2 nd access selected [Only valid for Dual Access machine]
	Default	
	ON	
Reverse Bin Numbering	Same Side	Normal Bin configuration, left to right. Will Reverse the Bin numbering from right to left.
	Opposite Site	
	ON	
Reverse Location Numbering	OFF	Normal Location configuration, front to rear. Will Reverse Location numbering from rear to front. Best used for dual access Shuttle on opposite sides so it will show correct location in secondary access.
	Default	
	ON	
Remote Confirmation Button	OFF	No remote confirmation buttons installed on carousel bench. Remote confirmation buttons are installed on carousel bench. These buttons are used in conjunction with the Enter key during Pick, Place or Verify operations. The type of confirmation button must also be selected.
	Default	
	ON	
	Internal to PLC External LPT1 External LPT2 External LPT3	
Primary Side Auto door Installed	OFF	No Primary Side Auto door is installed If a Primary Side Auto door is installed, this switch must be set ON. The door will then open based on the selected door mode.
	Default	
Secondary Side Auto door Installed	ON	No Secondary Side Auto door has been installed If a Secondary Side Auto door is installed, this switch must be set ON. The door will then open based on the selected door mode.
	Default	
Carousel Auto Door Mode	ON	Door will open on Login and remain open until Logout.
	Rotate Open	
	Rotate Closed	

Parameter	Value	Description
		Door will open once the Carousel has rotated to the correct shelf. The door will open to the height necessary to get access to the required shelf.

4.3.5.2. Shelf / Bin Configuration

③ Check Machine (Carousel Diagnostics)

Check Machine by pressing **Enter** on the highlighted button or by pressing the shortcut keys **Alt & E**. The Carousel Diagnostics screen will then be displayed:



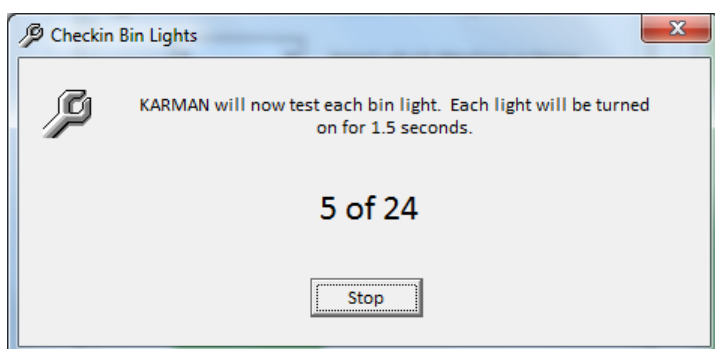
This feature is provided to assist service personnel in checking the machine functionality.

The diagnostic routine can be activated by pressing the **Tab** key until you reach the required button, then press **Enter**.

To exit the Machine Diagnostics screen, press **Alt & C**. This will take you back to the Configuration form.

Bin Lights

Tab to the 'Bin Lights' button and press **Enter**. The 'Check Bin Lights' form will be displayed:

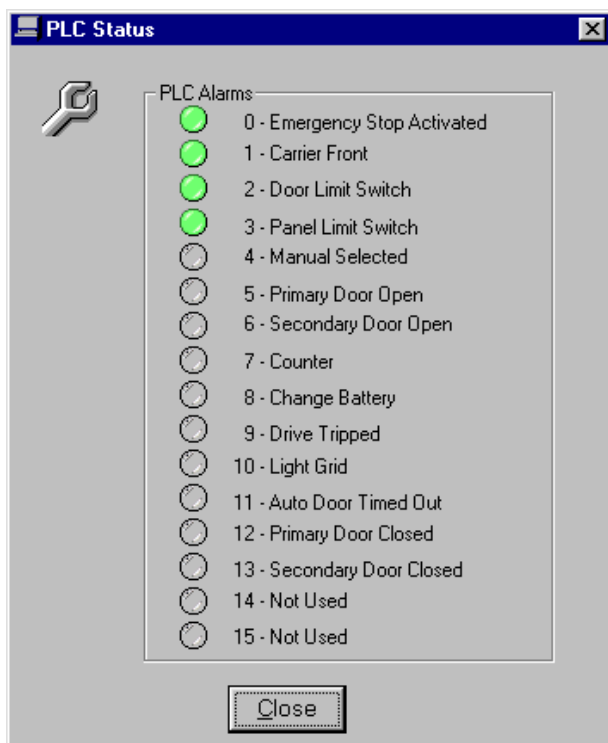


This will make the corresponding bin light flash across the front of the Carousel.

This form will close automatically when the bin lights routine has finished or you can press **Enter** to stop.

PLC Status

Tab to the 'PLC Status' button and press **Enter**. The 'PLC Status' form will be displayed:



This form displays the status of the PLC alarms and can be used to determine the cause of faults at the Carousel.

To exit this form, press **Enter** or alternatively press **Alt & C**. This will take you back to the Carousel Diagnostics form.

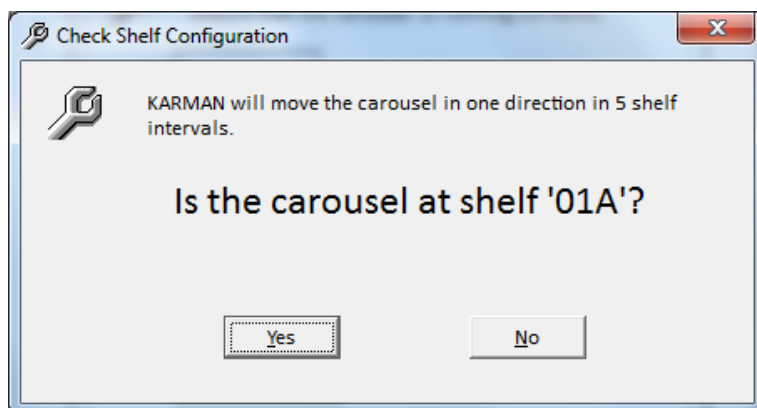
Shelf Counting

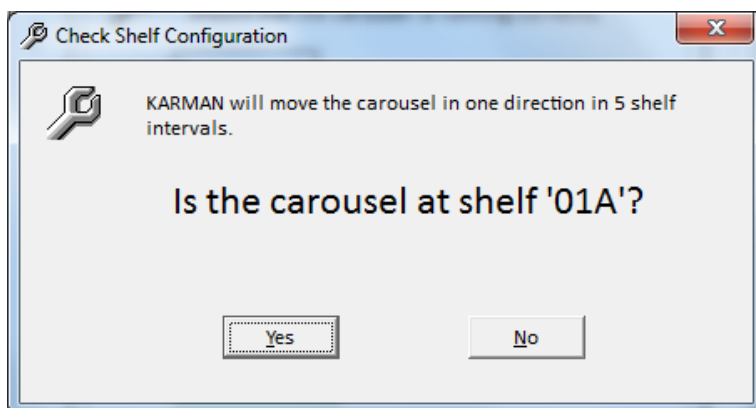
Tab to the Shelf Counting button and press **Enter**. The 'Check Shelf Configuration' form will be displayed. This routine checks the expected shelf configuration with the machine.

Step 1

Press **Enter** on the Go button, or alternatively press **Alt & G**. The Carousel will rotate to Shelf 01A. To exit the form **Tab** to the Stop button and press **Enter** or alternatively press **Alt & S**.

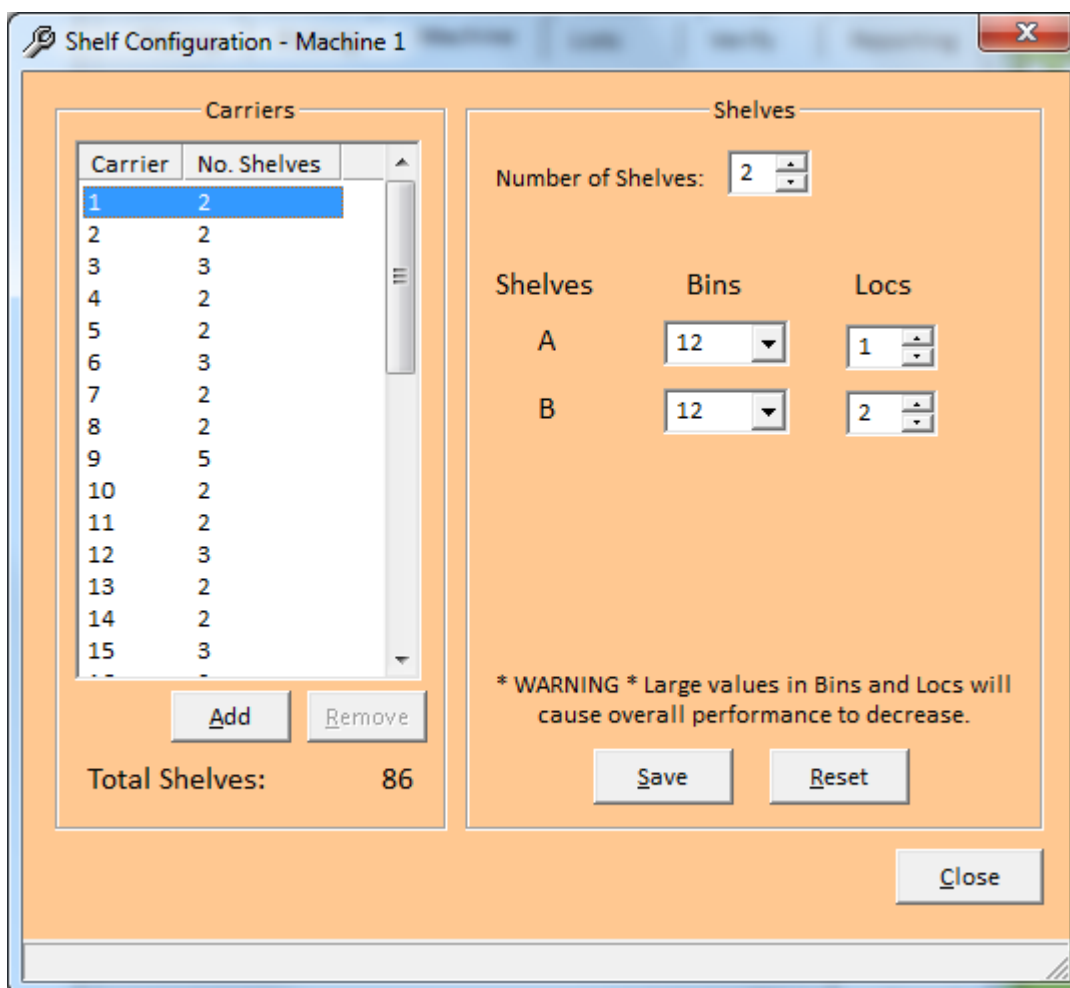
Proceed with **Step 2**.



Step 2

If the Carousel is at the correct shelf press **Enter** on the Yes button, or press **Alt & Y**. The Carousel will index a further 5 shelves. Repeat **Step 2**.

If the machine is not at the correct shelf then **Tab** to the No button and press **Enter**. Proceed with **Step 3**.

Step 3

If your Shelf Configuration is not correct you should change it to match the actual Carousel configuration via the 'Shelf Configuration' form. If the Shelf Configuration is correct, **Tab** to the Close button and press **Enter**, or **Alt & C**. Proceed with **Step 4**.

Step 4

The 'Set Current Shelf' form will be presented after you close the 'Shelf Configuration' form. Press F4 to present the drop down list of all shelves and select the current shelf using the **↑** or **↓** keys. Confirm your selection by pressing **Enter** or **Tab** to the **Set** button or press **Alt & S**

NOTE: It is not possible to cancel this form.

Return to **Step 2**.

If you cannot correct a counting error, you may have an issue with a target on one of the Carousel shelves. Please contact Customer Services for assistance (refer to Section 16 for contact details).

⑥ **Bin Size Text**

It is possible to associate meaningful names to each bin size such as 'Small', 'Medium' and 'Large'. This speeds up the bin selection process. The name can be up to twenty (20) characters long.

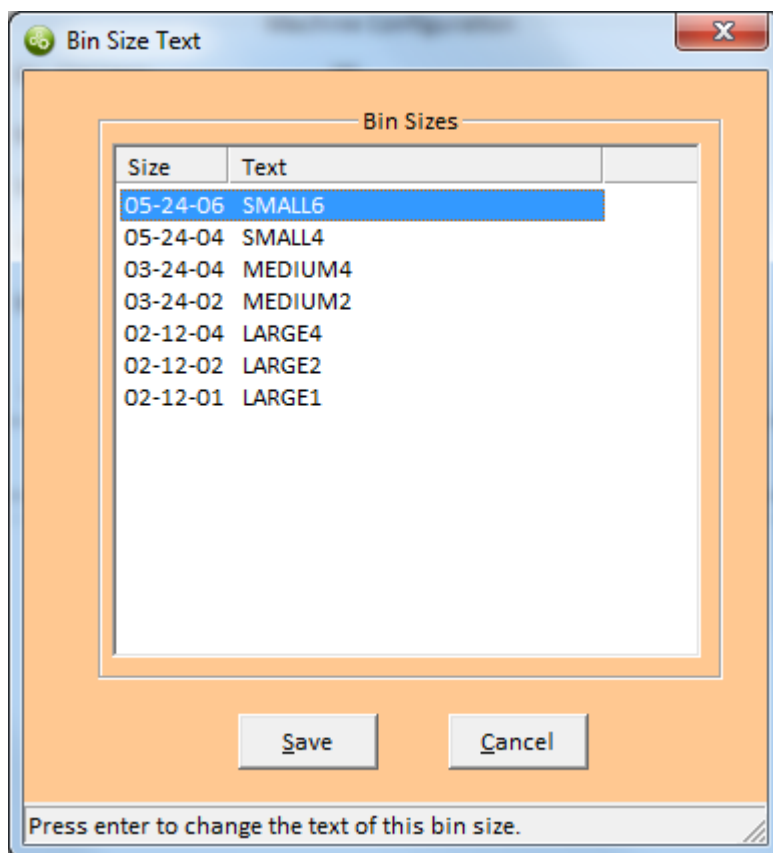
Kardex uses a location naming convention to identify the bin location sizes. The naming convention uses the base bin size plus the number of locations in the bin to identify the location size. For example; a 'large' bin with 2 locations is termed a 'Large2'. Similarly, a 'small' bin with 6 locations is termed a 'Small6'. This naming convention can be used consistently where all location sizes are an integer multiple of the smallest location.

This terminology is used on the Shelf Configuration and is also used within the KARMAN inventory software to identify location sizes during the initial loading of the Carousel and following replenishment process.

Kardex uses a location naming convention to identify the bin location sizes. The naming convention uses the base bin size plus the number of locations in the bin to identify the location size. For example; a 'large' bin with 4 locations is termed a 'Large4'. Similarly, a 'small' bin with 3 locations is termed a 'Small3'. This naming convention can be used consistently where all location sizes are an integer multiple of the smallest location.

This terminology is used to describe the proposed bin configuration and is also used within the KARMAN inventory software to identify location sizes during the initial loading of the Carousel and following replenishment process.

Open the 'Bin Size Text' form by pressing **Enter** when the button is selected or by pressing the shortcut keys **Alt & B**. The Bin Size Text screen will then be displayed:



Action

Scroll through the Bin Sizes

Select a Bin Size

Save changes and close form

Cancel changes and close form

Method

Press **Up(↑) & Down(↓) arrow key**

Press **Enter**

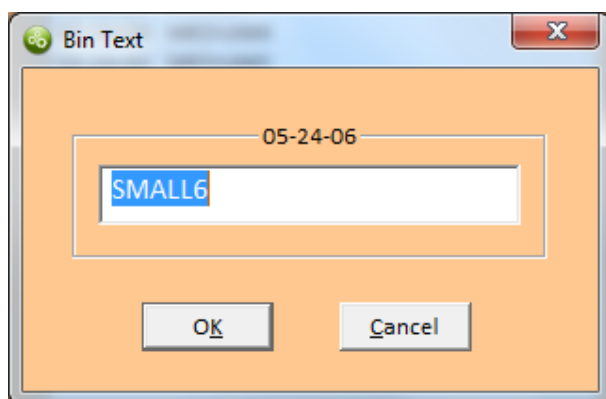
Alt & S, or

press **Enter** on the Save button

Alt & C, or

press **Enter** on the Cancel button

When you select a Bin Size the Bin Text window will be displayed.



Type the name of the bin size and press **Enter**. The text should clearly explain the size of the bin location.

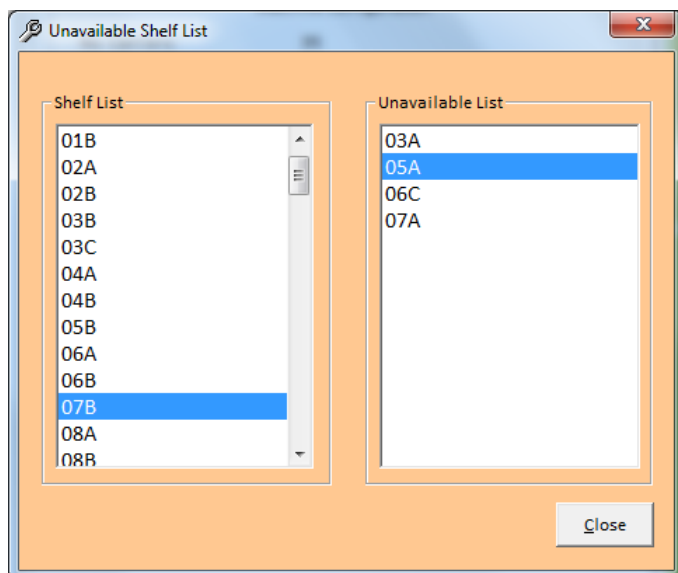
In the above example, **05-16-06** has the following meaning:

- **05** is the number of shelves on the carrier i.e A to E
- **16** is the number of bins across the shelf

- **06** is the number of locations with the bin

⑤ Unavailable Shelves

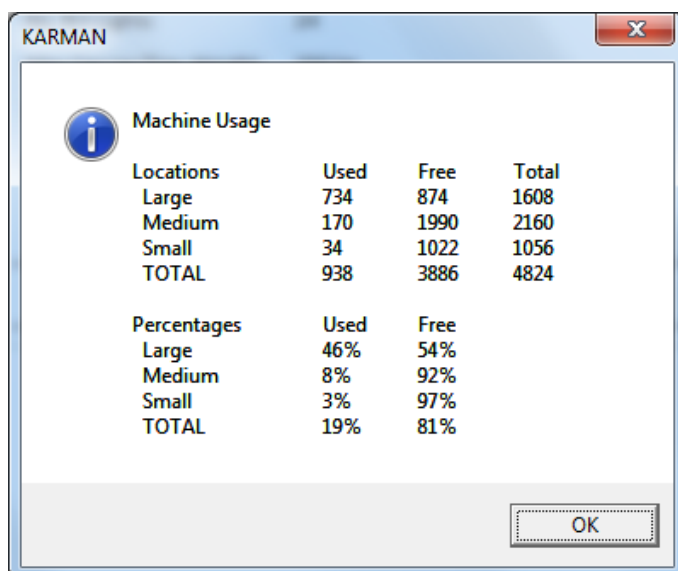
This form shows all the Available and Unavailable Shelves. If a shelf is marked as Unavailable, it will not be presented in the Location list when the Place operation is undertaken and it is not possible to Pick items from the shelf.



To make a Shelf Available or Unavailable, **Tab** to the desired List and use the $\uparrow\downarrow$ keys to select the required Shelf number and press **Enter**. The selected Shelf will be moved to the opposite window. To Close the form press **Alt** and **C**.

⑦ Usage Info

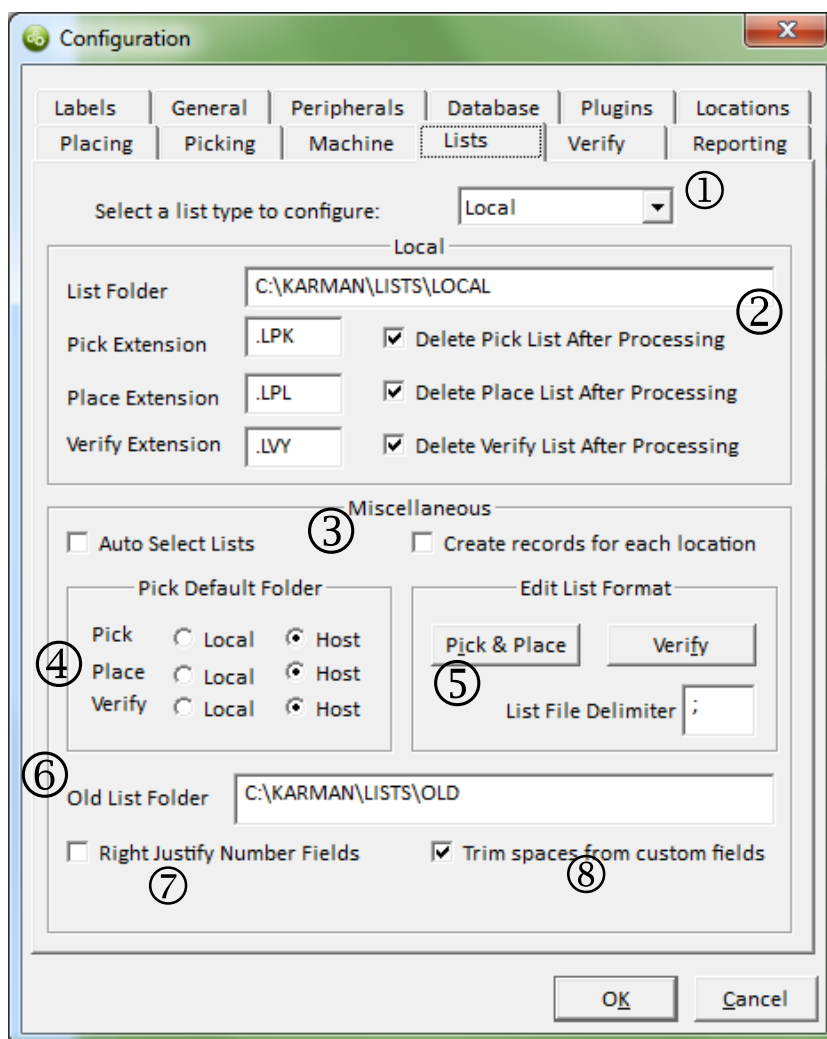
Select the Usage Info by pressing **Enter** on the highlighted button or by pressing the shortcut keys **Alt & U**. The Machine Usage statistics will then be displayed.



The Machine Usage statistics shows you information about your machine locations, how many are free and how many are used as well as the total amount available across all location sizes.

4.3.6. Lists

List files are primarily used to transfer information back and forth from your host computer system to KARMAN™. Refer to Section 7, KARMAN™ List Files for a comprehensive description of the use of lists.



List Details

① List Type

Select the List Type you want to configure by pressing the **Up(↑)** and **Down(↓)** arrow keys to highlight either Host (Lists created from the host system) or Local (Lists created locally using KARMAN™), or select one from the pull down menu.

Value	Description
Local	Form displays list folder, file extension and delete selection for Local list files.
Default	
Host	Form displays list folder, file extension and delete selection for Host list files.

Depending on your selection, the List Type details in Section ② will change to display the relevant information. In the picture above, the Host List details are displayed.

② Options

Parameter	Value	Description
List Folder	<u>Local</u> C:\KARMAN\Lists\Local <u>Host</u> C:\KARMAN\Lists\Host	The full path including drive letter should be entered. KARMAN™ will look for your List files in this location.
Pick Extension	Local: .LPK Host: .GPK	The file extension is used by KARMAN™ to identify the file type i.e. whether Pick, Place or Verify
Place Extension	Local: .LPL Host: .GPL	
Verify Extension	Local: .LVY Host: .GVY	
Delete List After Processing	OFF <i>Default</i> ON	<ul style="list-style-type: none"> Press the Spacebar to switch these options ON or OFF. If switched ON the Lists will be deleted after they are processed. If switched OFF the Lists will remain in the source folder after processing. <p>The normal mode of operation is to delete a list once it has been inducted into the KARMAN database.</p>

③ Miscellaneous

Press the **Spacebar** to switch these options ON or OFF.

Parameter	Value	Description
Auto Select Lists	OFF <i>Default</i> ON	<p>When set OFF, lists are manually selected by the operator from the List Selection form (refer to KARMAN™ Operators Manual)</p> <p>When set ON, all available Lists will be selected for processing at one time.</p> <p>The Auto Select List utility lets your host system control which lists are processed and when.</p>
Create records for each location	OFF <i>Default</i> ON	<p>When set OFF, only the first location for each product will be displayed in the populated (Old) List file.</p> <p>When set ON, all available Location information for each product will be displayed in the populated (Old) List file.</p> <p>This parameter has been provided to keep your host system up to date with all location transactions in the machine. Location transactions are reported in the populated (Old) List file (refer to Section 7, KARMAN™ List Files).</p>

④ Default Folder

The Default Folder parameter is provided to determine which List folder should be displayed on the KARMAN List Selection form when the Pick, Place or Verify \ List operation is selected. This selection is useful for sites that use Host lists for picking, but Local lists for placing parts into the machine.

To switch between file types use the **Left(←) & Right(→) arrow keys**.

List Folder	Value	Description
Pick	Local Host <i>Default</i>	Display Local Pick Lists Display Host Pick Lists
Place	Local Host <i>Default</i>	Display Local Place Lists Display Host Place Lists
Verify	Local Host <i>Default</i>	Display Local Verify Lists Display Host Verify Lists

⑤ Edit List Format

To begin editing the format of 'Pick & Place' Lists press **Enter** on the highlighted button or use the shortcut keys **Alt & I**. To begin editing the format of Verify Lists press **Enter** on the highlighted button or use the shortcut keys **Alt & F**.

The format of your List files can easily be designed to suit your host computer system. For more information on Custom List Formats refer to the Section 7.4.

Parameter	Default	Description
List File Delimiter	“;” (semicolon)	It is possible to configure the List file delimiter. The character chosen should make file format simple to read and debug.

⑥ Old List Folder

The Old List Folder is where KARMAN™ will write the populated (Old) List files after the Lists have been processed. The full path including drive letter should be entered. KARMAN™ is fully setup to support network connections and can be used to write the populated (Old) List files to a drive mapping or to the local drive.

The populated (Old) List files are designed to keep your host system up to date with the processing statistics for each List file. For more information, refer to Section 7.3.

Parameter	Default	Description
Old List Folder	C:\KARMAN\Lists\Old	The full path including drive letter should be entered. KARMAN™ will deposit populated List files in this location.

⑦ Right Justify Number Fields

When KARMAN™ imports list files into the database all numeric fields are converted to integers. This means they lose any padding added at the start of the field.

This option pads out all numeric fields with leading zeros. So, 10 would become 00000010. This switch is useful for some host systems that cannot import blanks in integer fields.

Default is OFF.

⑧ Trim Spaces from Custom Fields

Custom fields contain data specific to each customer implementation. The fields may contain detail such as customer ID or name, address or phone numbers etc. which can be used for label printing

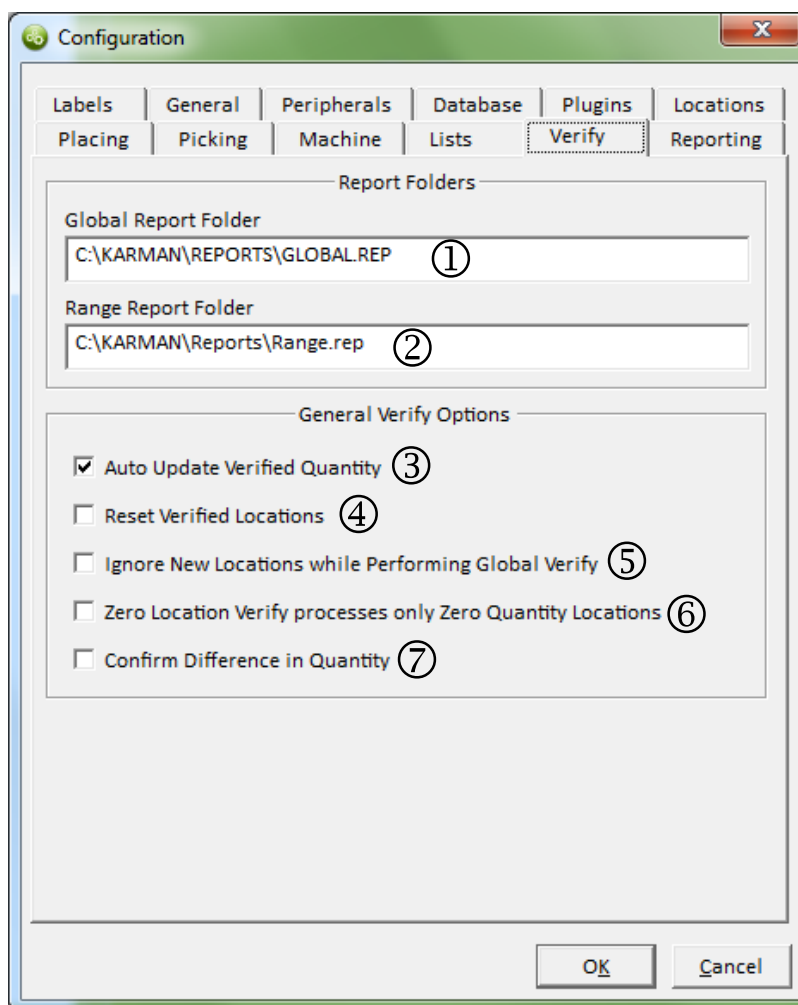
When this switch is set, KARMAN will trim all leading and trailing spaces from the custom field.

If this switch is set, the data in the custom field will also be trimmed when re-presented in the 'old' list file.

Default is ON

4.3.7. Verify

The Verify function is designed to facilitate checking of stock levels in your machine. For more information on Stocktaking your machine refer to the Section 8.



① **Global Report Folder**

This is the file path that KARMAN™ will write the 'Global Verify' Report out to. The full path and file name must be entered. KARMAN™ is designed to support network connections and can be used to write the report out to a shared folder or to the local drive.

Refer to Section 8.2 for information regarding the Global Verify report.

② **Range Report Folder**

This is the file path that KARMAN™ will write the 'Range Verify' Report out to. The full path and file name must be entered. KARMAN™ is designed to support network connections and can be used to write the report out to a shared folder or to the local drive.

Refer to Section 8.2 for information regarding the Range Verify report.

③ **Auto Update Verified Quantity**

Auto Update Verified Quantity can be switched ON and OFF by pressing **Spacebar**.

NOTE: Verify \ List, Verify \ Range and Verify \ Global are affected by this setting.

When this switch is ON, the verified quantity for each item is updated in the KARMAN™ database immediately. If this switch is OFF, the verified quantity will be captured in the old List, Range Report or Global Report respectively. If the quantities are then accepted as correct, the quantities will need to be updated in manually KARMAN™.

NOTE: Kardex recommends that this switch is set to ON to save double data entry.

Verify \ Single and Verify \ Location are not affected by this setting. Use of these Verify modes will update the KARMAN™ database stock on hand levels immediately.

④ **Reset Verified Locations**

The 'Reset Verified Locations' flag can be switched ON or OFF by pressing the **Spacebar**.

The functionality of this flag only applies if a Verify \ Global routine is interrupted and Pick or Place operations are undertaken prior to the routine being resumed.

<i>Value</i>	<i>Description</i>
OFF	KARMAN™ will not revisit locations that have been picked or placed after the location has been visited using Verify \ Global.
ON	KARMAN™ will revisit locations that have been picked or placed after the location has been visited using Verify \ Global.

⑤ **Ignore New Locations while Performing Global Verify**

When ticked to be switched on – When performing a Global Verify, any new location created from placing away products will be ignored by the global verify. To detect the new location, just restart Global Verify from the beginning again.

⑥ **Zero Location Verify processes only Zero Quantity Locations**

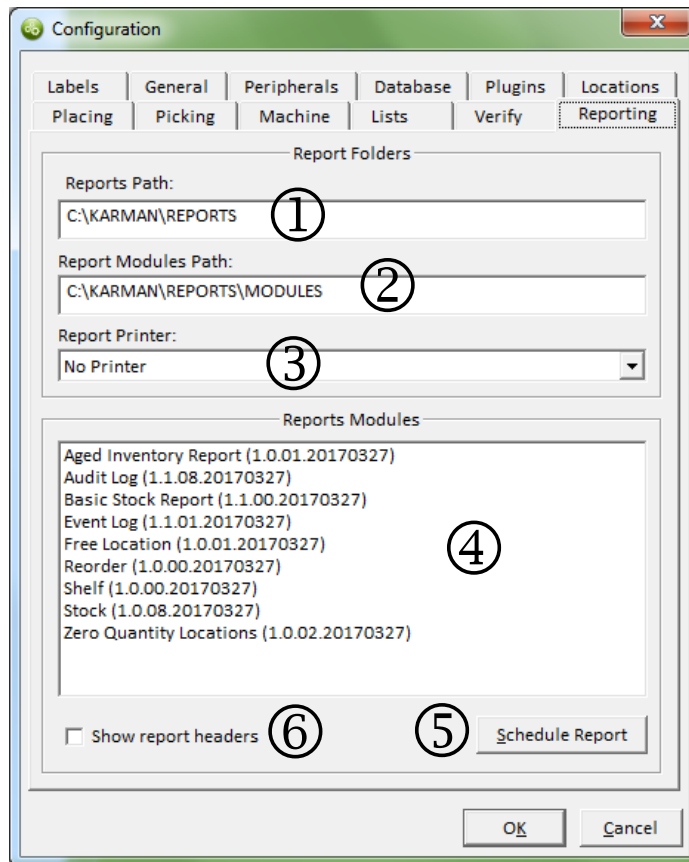
When ticked to be switched on – When you perform a Zero Location Verify it will only process and grab the information from Zero Quantity locations.

⑦ **Confirm Difference in Quantity**

When ticked to be switched on – When you verify you will be asked to check that the shelves have the correct Quantity in them.

4.3.8. Reporting

The content of each standard KARMAN™ report is explained in detail in Section 9.



4.3.8.1. Reports Folders

① Reports Path

The Reports Path is the destination for all KARMAN™ report files and can be located on the local drive or a shared folder. The full path should be specified. The files can be generated on demand from the Tools menu, on Startup / Shutdown as determined by the specific report configuration or Scheduled.

Default Path: C:\KARMAN\Reports

② Report Modules Path

The Report Modules Path is the location for all KARMAN™ report definitions. This path should not be changed.

Default Path: C:\KARMAN\Reports\Modules

③ Report Printer

A number of the KARMAN™ reports can be printed. After you have installed the desired printer on the machine PC, select the printer you want to use to print the KARMAN™ reports by pressing the **Up(↑)** and **Down(↓)** arrow keys to highlight it, or select one from the pull down menu.

The report printer is used for reports that have had the new printing feature added to them. The printers configured for your computer through Windows determine the list of printers in the selection box.

Default Report Printer: No Printer

4.3.8.2. Reports Modules

All KARMAN™ reports have a report module which allows the report operation to be configured. The configuration parameters available will depend on the complexity of the report.

④ Report Modules

To select a specific Reports Module press **Up(↑) & Down(↓) arrow key**.

To view the 'Report Config' form associated with the report, press **Enter**.

Each Report Module has basic functionality which is described in the following table:

Parameter	Value	Description
File Name	<Report>.REP <i>Default</i>	<ul style="list-style-type: none"> Type the full file name and file extension. The name of each report can be changed to suit your needs. For example, use a < >.csv so the report will automatically open in MS Excel.
File Options	<ul style="list-style-type: none"> New and overwrite existing report New and keep existing report Append to existing report 	<ul style="list-style-type: none"> A new report will be generated each time the report is run. If there is an existing report, it will be overwritten. A new report will be generated each time the report it is run. If there is an existing report, it will be renamed. The report will be appended to the existing report each time it is run.
Report Rollover Size	500 <i>Default</i>	Type in a number in Kb. If you are using Append to existing report the maximum size of the report can be set here so that the file never gets too big to open.
Generate Report at Startup	OFF <i>Default</i> ON	<ul style="list-style-type: none"> Report can only be run from the Tools \ Reports menu. The report can be automatically set to run every time KARMAN™ starts up.
Generate Report at Shutdown	OFF <i>Default</i> ON	<ul style="list-style-type: none"> Report can only be run from the Tools \ Reports menu. The report can be automatically set to run every time KARMAN™ shuts down.

NOTE: Refer to Section 9 for details of all standard reports.

⑤ Schedule Report

All reports can be scheduled. KARMAN™ can schedule a report to run at a certain time on selected days or a number of times during the day.

To schedule a report, select it from the Reports Modules list using the **Up(↑) & Down(↓) arrow keys**, then press the **Tab key** to get to the Schedule Report button and press **Enter**. The 'Schedule Report' screen will be displayed:

The report can have the scheduling enabled by pressing the **Space bar** as soon as the form is opened. You will then need to select the days you require the report to run, followed by your timing requirement.

Days Report Should Run

The required day(s) can be selected by using the **Tab key**, **Up(↑) & Down(↓) arrow keys** or the **Left(←) & Right (→) arrow keys** followed by the **Space bar**.

Scheduled Time

The timing regime can be selected by using the **Tab key** followed by the **Left(←) & Right (→) arrow keys**. Use the **Tab key** to move to the 'Time' field and the **Up(↑) & Down(↓) arrow keys** or the **Left(←) & Right (→) arrow keys** to set the required time. The shortest report interval is 15 minutes.

⑥ Show Report Headers

When reports are output to file, the fields are semi-colon delimited. The standard report files are intended for use by 3rd party applications and as such are not readily 'readable'.

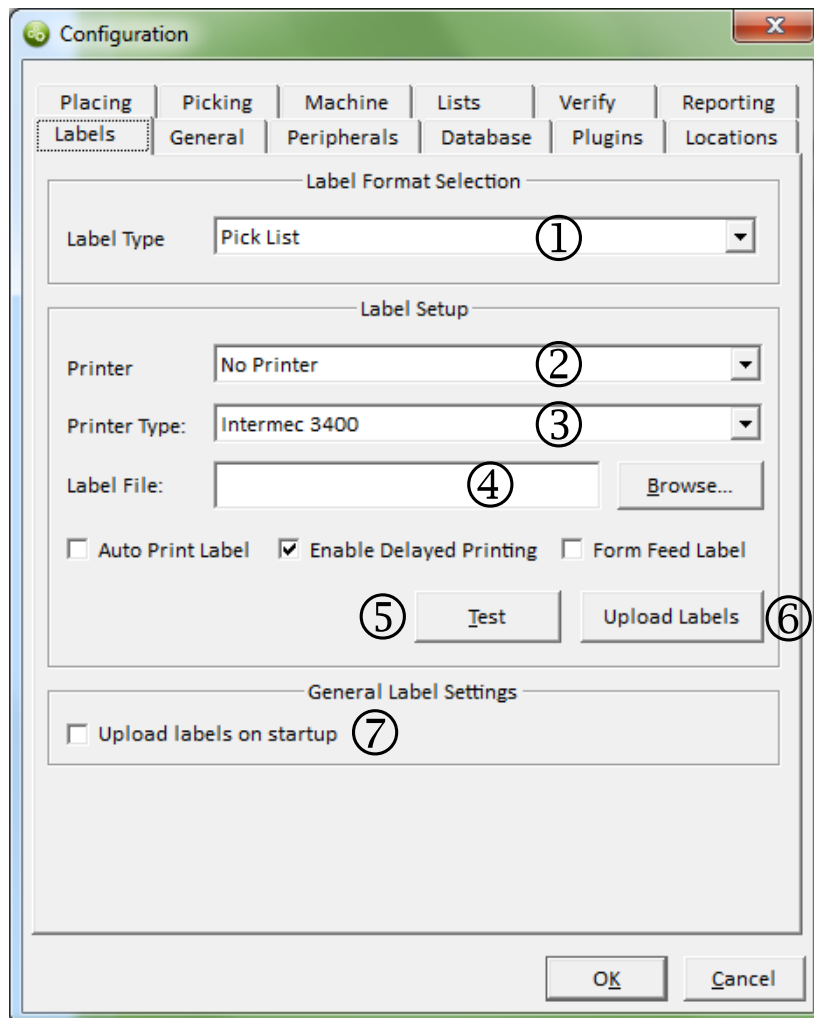
If this switch is set ON, the 1st line of the report file will include the field names.

Default:OFF

4.3.9. Labels

KARMAN™ supports label (direct thermal or thermal transfer) printing during both Pick and Place operations under either Single or List method. It is possible to have four dedicated labels i.e. one for each activity.

It is also possible to generate labels on demand, or automatically when a Pick or Place transaction is complete.



4.3.9.1. Label Format Selection

① Label Type

It is possible to use a different printer, printer type and label file for each Pick / Place operation:

- ☐ Pick List
- ☐ Pick Single
- ☐ Place List
- ☐ Place Single

Each label format must be created using either the Intermec 3400 Label Shop START or Zebra Bar-ONE LITE label design tools. If you require additional labels to be implemented, please contact customer Service for assistance.

4.3.9.2. Label Setup

② **Printer**

You must first install the required printer driver using the Windows Add Printer function. Once the printer has been successfully installed, select the required printer for generating thermal labels for Pick and Place operations.

③ **Printer Type**

KARMAN™ supports the Intermec 3400 and C4 printers, plain text printers and also Zebra Stripe printers. Select the printer type you are using from the drop down list.

④ **Label File**

Select the label format file that should be used for the selected 'Label Type'. The label format file can be located on the local drive or on a shared folder. To search for the file on the local computer or over the network, press the Browse button

The name of the label file should reflect the operation. If a label printer has been included with your installation, Kardex will have provided the label format files with your system.

The default location for label files is c:\KARMAN\Labels

⑤ **Label Options****Auto Print Label**

<i>Value</i>	<i>Description</i>
OFF	Labels are not printed automatically.
<i>Default</i>	Labels can be printed on demand by pressing the F10 key before the quantity is confirmed during a Pick or Place operation.
ON	Labels will be printed automatically for all operations with a current label file.

Enable Delayed Printing

<i>Value</i>	<i>Description</i>
OFF	Labels are printed as soon as the F10 key is pressed.
ON	Labels will be printed after the quantity has been confirmed by the operator - for all operations with a current label file.
<i>Default</i>	

Form Feed Label

<i>Value</i>	<i>Description</i>
OFF	Form Feed command is not sent to the printer after the label is printed.
<i>Default</i>	
ON	Form Feed command is sent to the printer after the label is printed. The use of this parameter is printer specific and will need to be set on-site.

⑥ Test and Upload Labels

Test

A test label can be printed once all the settings are complete. This will test to make sure your label settings have been done correctly. The test label will print sample data and should be used to check that the label format is OK.

Upload Labels

To implement a new label file, it is necessary to upload the label to the printer memory area. Click on the 'Upload Labels' button, or use the **Tab** key and then press **Enter**.

If the upload is successful, no errors will be reported. If errors are reported, check your file name, label path, printer cable and make sure the printer is switched on.

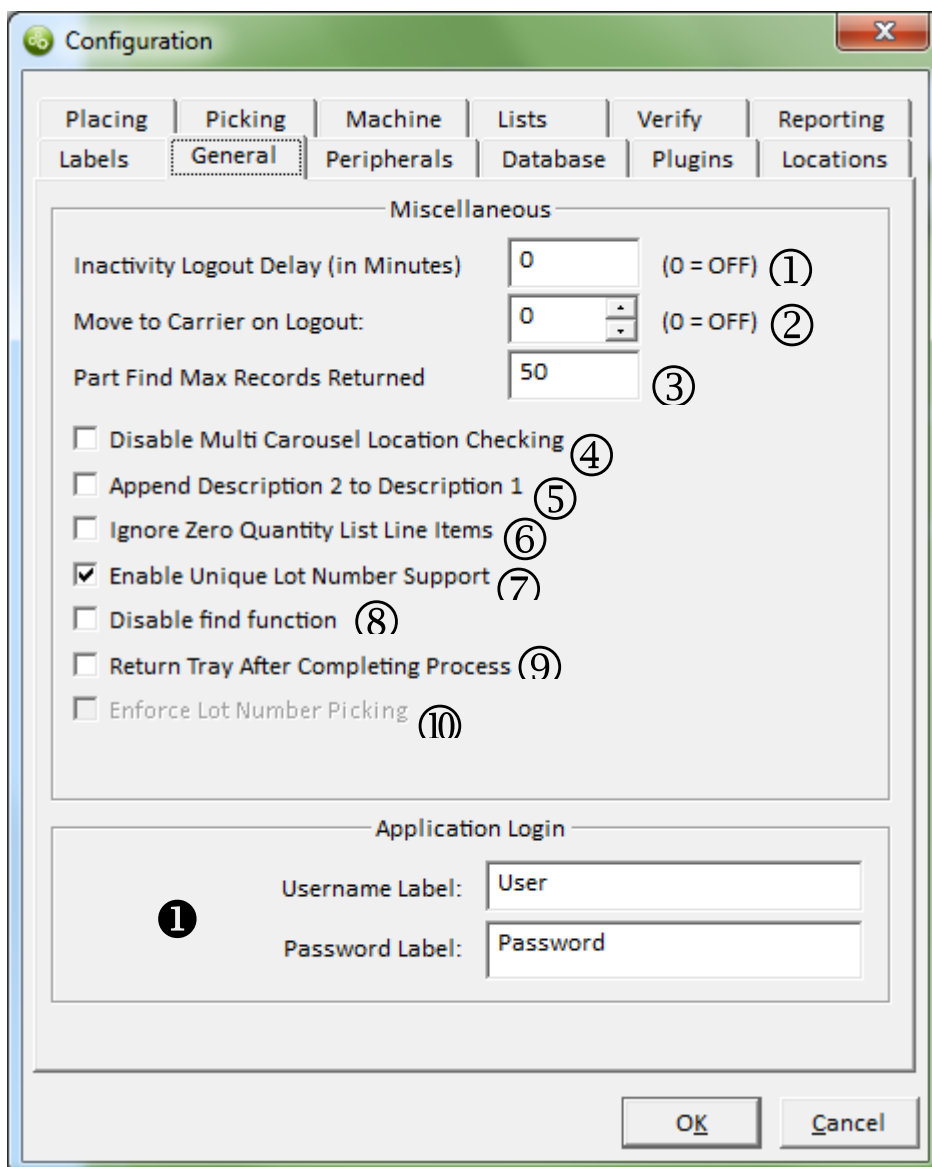
4.3.9.3. General Label Settings

⑦ Upload Labels on Startup

Use this setting if your label printer does not have retentive memory.

<i>Value</i>	<i>Description</i>
OFF	Label format files will not be uploaded to the label printer when KARMAN is started.
ON	Label format files will be uploaded to the label printer when KARMAN is started.

4.3.10. General



① Inactivity Logout Delay

The purpose of the Inactivity Logout Delay is to force KARMAN™ to return to the Login screen if it has been inactive for a period of time. This function is used in conjunction with other security features such as automatic doors and 'Move to Carrier on Logout'. This function will ensure that operations at the machine are attributed to the correct user in the Audit Log report.

Value	Description
0 = OFF	No automatic Logout
1 .. N	Enter a value greater than zero to have KARMAN™ automatically Logout to the Welcome screen if there has been no activity for N minutes.

NOTE: THE INACTIVITY LOGOUT ONLY WORKS FROM THE MAIN MENU I.E. AUTOMATIC LOGOUT WILL NOT OCCUR IF AN OPERATIONS SCREEN IS LEFT OPEN.

② Move to Carrier on Logout

The purpose of the Move to Carrier on Logout function is to rotate the machine to a known carrier when the user has logged out of KARMAN™. This function can be used to ensure commonly used inventory items are readily available or as a means of ensuring the strictest security regime. This function is typically used in conjunction with Automatic Door control.

Value	Description
0 = OFF Default	Current carrier remains at access level on Logout.
1 .. N	Move to Carrier on Logout can be turned ON by entering a carrier number N in the box. To select from the available carriers use the Up(↑) and Down(↓) arrow keys to highlight the carrier you require, or select one from the pull down menu. Machine will rotate to the relevant 'A' shelf KARMAN logs out.

③ Part Find Max Records Returned

This is the maximum number of matching items displayed when using the Find function in Pick / Place / Verify.

The default value is 50. This final value selected will depend on the commonality of part names in your database.

④ Disable Multi Carousel Location Checking

Value	Description
OFF Default	During a Place operation KARMAN™ will check whether the item has been placed in to another machine – which may include static locations managed under the Static Racking Plugin or RackMAN.
ON	During a Place operation KARMAN™ will not check whether the item has been placed in to another machine. It is then possible to place the same items over multiple machines – which may include Static Racking areas. NOTE: Kardex recommends that this parameter is set OFF for distribution environments.

⑤ Append Description 2 to Description 1

Value	Description
OFF Default	Description 1 is presented on the Pick / Place / Verify form
ON	Description 1 + Description 2 are presented on the Pick / Place / Verify form

⑥ Ignore Zero Quantity List Line Items

This can be Enabled or Disabled by pressing the **Spacebar**. By enabling this it will mark zero quantities as already processed and therefore these will not be picked.

Value	Description
OFF Default	KARMAN™ will process all records in list files.
ON	KARMAN™ will process all records in list files with a required quantity greater than zero

⑦ Enable Unique Lot Number Support

Value	Description
OFF	KARMAN™ will accept the same lot number for different part numbers.
ON	KARMAN™ will not allow the same lot number to be used for different part numbers.

⑧ Disable Find Function

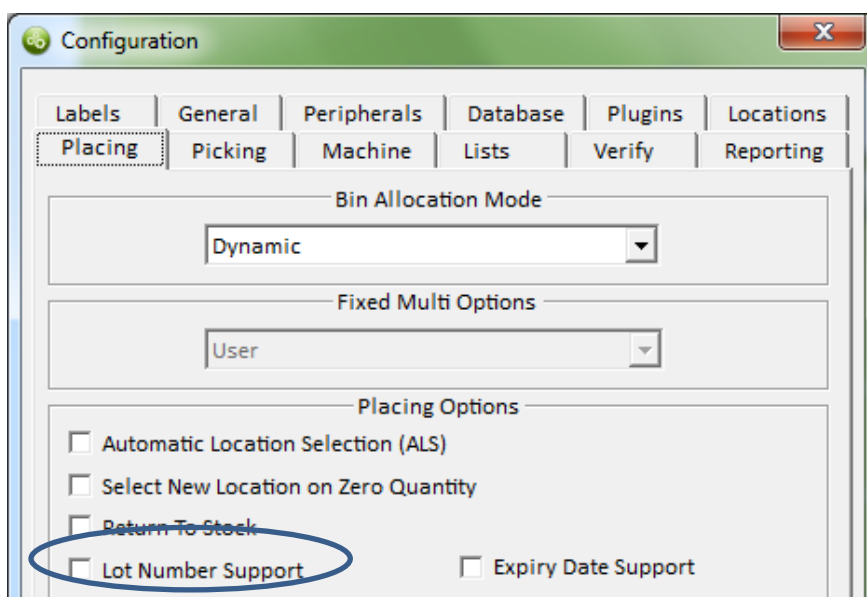
Value	Description
OFF	The standard Find function will be available from KARMAN™ Pick / Place / Verify forms.
ON	The standard find function is not available from the Pick / Place / Verify forms.

⑨ Return Tray after Completing Process (Shuttle Only)

When selected the tray will return itself back into the storage system after pick, place or verify window is closed. This is a security feature to avoid stock shrinkage.

⑩ Enforce Lot Number Picking

You must have a lot number when picking. This is only available when Lot Number Support is selected in the Placing Tab seen in the photo below



① Application Login

You can adjust what the username label could be when you first login. Eg. User, username, worker id, ID etc. Can also adjust what the password label is too. Eg. Barcode, ID number, password etc.

4.3.11. Peripherals

WARNING: INCORRECT SETTINGS COULD DISRUPT OPERATION

The set of peripheral equipment will determine how KARMAN™ actually interacts with the other physical devices in the system. Kardex will set up these fields prior to installation and the selections should NOT be changed unless instructed by Kardex.

If you need to change these configuration parameters because your physical configuration has changed, please contact Customer Services for assistance.

The screenshot shows the 'Configuration' dialog box with the 'Peripherals' tab selected. The dialog is divided into three main sections: PLC Setup, Scale Setup, and Sortbench Setup. Numbered callouts (1-11) highlight specific fields and controls. A red rectangle highlights the monitoring options in the Scale Setup section.

PLC Setup

- ① PLC Type: T3 Shuttle
- ② Port: COM3
- ③ Options button
- ④ ☐ Multiple Carousels or Shuttles

Scale Setup

- ⑤ Scale Type: Not Installed
- ⑥ Port: COM3
- ⑦ Tare Weight (grams): 0.000000
- ⑧ ☐ Enable Pick Monitoring
- ☐ Enable Verify Monitoring
- ☐ Enable Place Monitoring

Sortbench Setup

- ⑨ ☒ Enable Sortbench
- ⑩ Sortbench Group ID: 1
- Sortbench Computer Name: localhost ⑪
- No. of Bench Pos.: 10 ⑫

Buttons: OK, Cancel

4.3.11.1. PLC Setup

Kardex will select the correct settings for your equipment type and configuration.

① **PLC Type**

KARMAN™ currently supports the following direct communication types:

- Siemens
- Hitachi
- T3 Shuttle
- Hitachi Net
- Hitachi Shuttle
- HitachiNet Shuttle
- T3 Carousel
- T3 Net Shuttle
- T3 Net Carousel
- MP3000 Carousel
- T3 Ethernet Shuttle
- T3 Ethernet Carousel
- Panasonic

Each device must also have the correct communication configuration and settings. These settings will not need to be changed unless your hardware configuration is changed. Please contact Customer Services for assistance.

② **Port**

Select the correct communication port for your device. The drop down box will list all ports configured in your system.

Default:COM1

③ **Options**

NOTE: This function is only active if T3 control has been selected.



Click on the Options button to present the T3 Options form:

4.3.11.2. T3 Communication Type

Use the **Up(↑) & Down(↓) arrow keys** to select the required communication type.

Default: T85 Communication

T3 Settings

Tab into the settings fields and enter the required value or use the **Up(↑) & Down(↓) arrow keys**

To close the form, **Tab** to the OK button and press **Enter**.

④ Multiple T3 Carousels or Shuttles

If your configuration includes multiple T3 Carousels or Shuttles controlled from the one KARMAN™ console, this parameter should be set ON. Add the unique machine IDs in the adjacent field. The entries should be separated with a comma.

During the Place routine, you will be given access to the locations in each of the machines.

4.3.11.3. Scale Setup

⑤ Scale Type

KARMAN™ currently supports use of the following counting scales:

- Digi DC-120
- PC805 / G226
- PC820 / G227
- Precisa XB3200C

Each scale must be set up with the correct communication parameters. Refer to the specific scale set up description provided with your system documentation. The supported functionality may vary across scale types.

Select your Scale Type from the drop down list using the **Up(↑) and Down(↓) arrow keys**.

Default: 'Not Installed'

⑥ Port

Select the correct communication port for your device. The drop down box will list all ports configured in your system.

Default: COM1

⑦ Tare Weight

It is possible to set up a tare weight for the counting scale. The tare weight will be uploaded to the scale when the Pick, Place or Verify form is opened.

Default: 0.000000

NOTE: Functionality not supported by all scale types.

⑧

Enable Pick Monitoring	Off/On	Monitoring the scales to match quantity process
Enable Place Monitoring	Off/On	
Enable Verify Monitoring	Off/On	

4.3.11.4. SortBench Setup

Kardex will set up configuration of your SortBench prior to installation and these settings should not need to be changed unless the physical configuration of your SortBench is changed. Please contact Customer Services for assistance.

Please refer to the SortBench User Guide for a description of the operation of the SortBench.

⑨ **Enable SortBench**

This switch must be set ON for KARMAN™ to respond to requests from the SortBench application.

Default: OFF

⑩ **SortBench Group ID**

It is possible to cascade SortBench systems. This parameter must match the same parameter for the associated SortBench.

Range: 1 to 4

Default: 1

① **SortBench Computer Name**

KARMAN™ uses this parameter to find the SortBench on the network. Enter the computer name of the SortBench PC in this field.

Default: Sortbench

② **No. of Bench Pos.**

This parameter must match the number of bench positions set up on the SortBench.

Range: 1 to 20

Default: 10

4.3.12. Database

Configuration

Placing | Picking | Machine | Lists | Verify | Reporting
Labels | General | Peripherals | **Database** | Plugins | Locations

Database Setup

① Machine ID: 1 (Names... Zones...)

Database User: kvca1 (④)

Database Source: KARMAN (⑤)

Database Mode

⑥ ☐ Standalone ⑦ ☒ Multi Machine Support

Auto Load Inventory

Path: C:\KARMAN\Data\Parts.dat (⑧)

☒ Allow User Interruption (⑨) (⑩ Edit Part List Format)

Backup

☒ Do Backup (①)

Backup Folder: C:\KARMAN\Data\Backup (②)

③ Check Database Clear Interrupted Lists (④)

OK Cancel

4.3.12.1. Database Setup

WARNING: INCORRECT SETTINGS COULD DISRUPT OPERATION① **Machine ID**

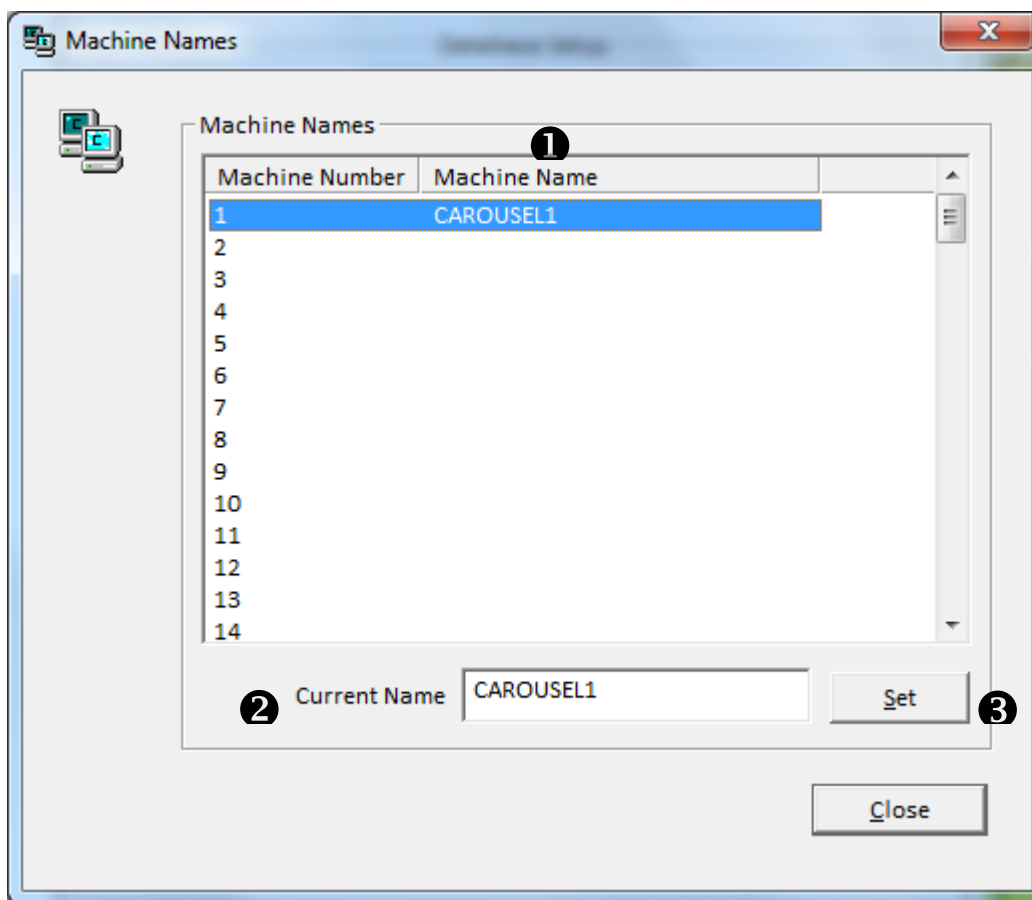
The Machine ID is the unique machine identifier in the system. Kardex will set up this field prior to system installation and it should NOT need to be changed unless your system configuration is changed i.e. if you change from a multi-machine standalone configuration to a common database configuration.

Please contact Customer Service for assistance.

Default:1

② Names

To edit the Names settings by pressing **Enter** on the highlighted button or by pressing the shortcut keys **Alt & N**. The Names Configuration screen will then be displayed:



① Machine Names

This will display any machine names that are associated to the machine number. To change or enter a machine, simply highlight the machine number enter the name in Current Name window.

Default: Blank Machine Name Field

② Current Name

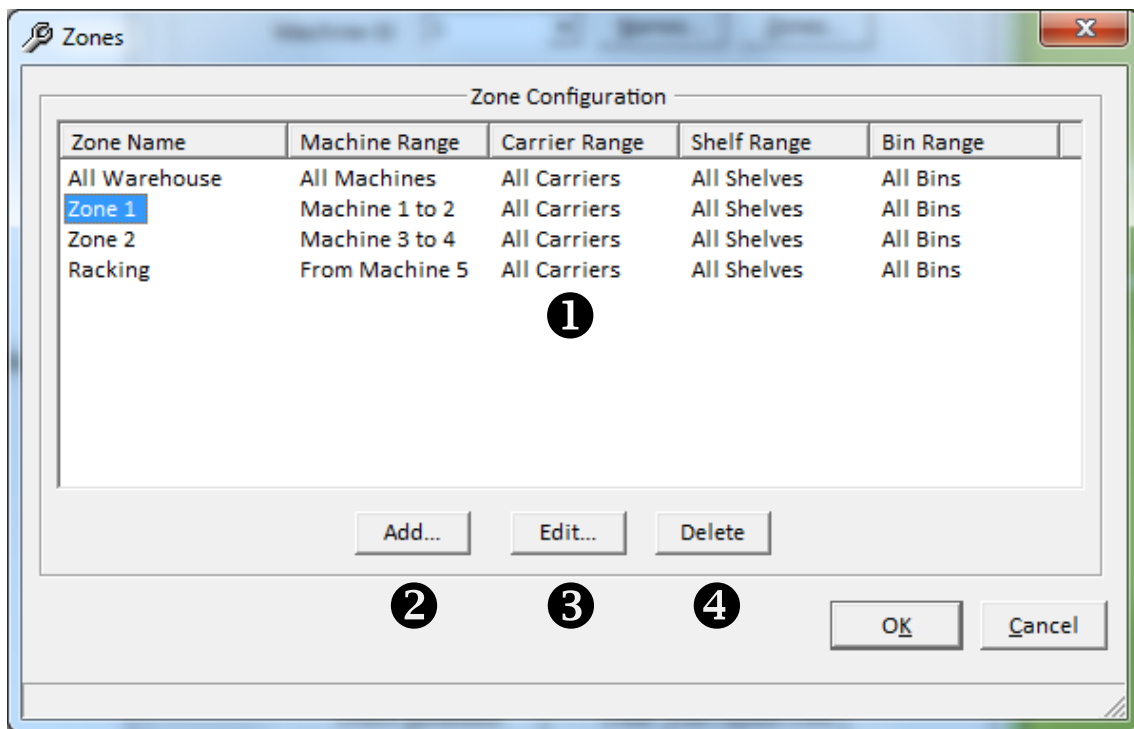
By entering a machine name in this window, this will allow the name to be associated with the machine number that is highlighted in the machine names list.

③ Set

To Set the name by pressing **Enter** on the highlighted button or by pressing the shortcut keys **Alt & S**. The Names Configuration screen will then be displayed:

Once the Current Name has been entered, please press this Set button to allow the changes to be entered into Machine Names list where it will be displayed.

③ Zones



① Current Zones Available

This will show the current zone configurations that you have saved for you current database setup.

2 Add Zone

Section	Value	Description
Name	Blank	Put the name of your new zone
Machine Range	-1 to 100	Adjust this to select which machines will be in the range of this zone
Carrier Range	-1 to 1000	Adjust this to select which Carriers will be in the range of this zone
Shelf Range	A to Z	Adjust this to select which shelves will be in the range of this zone
Bin Range	-1 to 100	Adjust this to select which Bins will be in the range of this zone

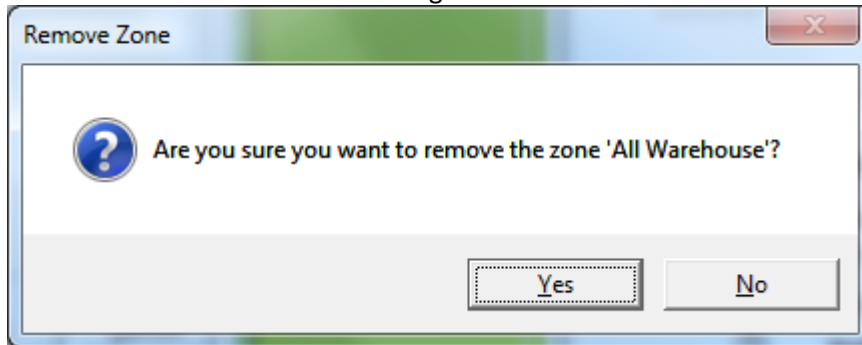
NOTE: if you have Start at -1 and End at -1 in Machine, Carrier or Bin it will select all available and if you put the Shelf Range at Start A to End Z it will select all Available.

3 Edit Zone

You can edit any zone currently in the Zone Configuration by selecting the name of the zone and then clicking edit and the adjust using the same values as above in Add Zone.

④ Delete Zone

You can delete any zone by clicking the name of the desired zone to delete and then clicking the delete button and then selecting Yes as shown below.



④ Database User

The Database User is used to log in to the SQL database. Kardex will set up this field prior to installation.

Default:KXVCA

⑤ Database Source

The Database Source is the name of the ODBC link to the KARMAN database.

Default:KARMAN

4.3.12.2. Database Mode

WARNING: INCORRECT SETTINGS COULD DISRUPT OPERATION

The Database Mode is used to differentiate between dedicated and common databases for single and multi-machine systems respectively. Kardex will set up this field prior to installation.

The following files are backed up:

- Settings.reg KARMAN Registry Key
- KARMAN.db KARMAN Database file
- KARMAN.log KARMAN Database Log file

⑥ Standalone

When 'Standalone' is selected, KARMAN™ will back up its registry settings and database files to the path noted as the 'Backup Folder'

⑦ Multi Machine Support

When 'Multi Machine Support' is selected, KARMAN™ will only back up its registry settings to the path noted as the 'Backup Folder'.

You will need to ensure that the appropriate scheduled routine is in place to back up the common database and log files. Refer to the system specification provided with your delivery documentation.

4.3.12.3. Auto Load Inventory

⑧ **Path**

This is the file path and file name that KARMAN™ will search for when the 'Auto Load Inventory' routine is run. Refer to Section 5.4 for details of possible file formats. This routine is executed every 2 minutes when KARMAN is running.

The full path and filename must be included.

Default: c:\KARMAN\Data\Parts.Dat.

⑨ **Allow User Interruption**

If you want the user to be able to interrupt the parts upload, the switch must be set ON.

Default: ON

⑩ **Edit Part List Format**

To enter Edit Part List Format settings by pressing **Enter** on the highlighted button or by pressing the shortcut keys **Alt & P**. The Part List Format configuration screen will then be displayed:

① Format Presets

Use this box to select a pre-defined Part file format. Presets are helpful if you are upgrading from previous versions of DOS CARMAN. KARMAN™ has the following presets:

- *KARMAN*
- *KARMAN 1.3 or earlier*
- *Addnew*
- *Addnew Version 2*
- *Custom*

Default:KARMAN

② Current Format

The fields shown in this window are based on the selected 'Format Preset'. If you want to define your own Part file format, select 'Custom' as the 'Format Preset' and then choose your fields. The KARMAN format preset presents all the fields available to be populated in the database.

③ Available Fields

The fields shown in this window are the fields that are not used in the 'Current Format'. These fields can be added to the end of the 'Current Format'. Use the **Tab key** and **↑ ↓** keys to select the field and then press **Enter**.

④ Left and Right Arrows

Highlight the field you would like to move then use these buttons to move fields from one side to the other. You can double click on the desired field or **Tab** to the desired field and press the **Arrow** or **Enter** key, or **Tab** to the < > buttons and press **Enter**.

⑤ Up and Down Buttons

Once all required fields are in the 'Current Format' window, it is possible to re-order the fields to suit the import file.

To move fields up and down, select the required field and then **Tab** to the Move Up or Move Down buttons and press **Enter**.

Misc. Options

⑥ Field Delimiter

This character separates the fields and may only be one character in length.

Default:comma

⑦ Field Qualifier

This character is used to qualify the text fields. If your description fields contain characters such as , " % & or similar, you will need to qualify the text fields with an appropriate character. The delimiter must be limited to one character.

Default:single quote

⑧ Start At Line No

Use this field to indicate to KARMAN that the first lines of the Parts.dat file may not contain inventory data as the case for files with headers.

Default:1

⑨ **Allow Blanking Fields**

Set this switch ON if your Parts.dat export contains fields with data that is not relevant to the inventory upload. You will need to ensure your 'Current Format' includes 'Blank Fields' in the appropriate position in the format definition.

Default:OFF

4.3.12.4. Backup

① **Do Backup**

Set this switch to ON to ensure that KARMAN can back up its own settings and database files as per 'Database Mode' and 'Backup Folder' parameters. The backup routine will be executed when KARMAN is shut down.

Default:ON

NOTE: *KARDEX RECOMMENDS THAT THIS AUTOMATIC BACKUP PROCEDURE BE ENABLED.*

② **Backup Folder**

This is the destination folder for the KARMAN database and registry files when backed up.

Default:c:\KARMAN\Data\Backup

4.3.12.5. Miscellaneous

③ **Check Database**

NOTE: *THIS UTILITY SHOULD ONLY BE USED WHEN INSTRUCTED BY KARDEX.*

If KARMAN is not closed down correctly i.e. via power failure or similar, the Check Database routine will automatically run when KARMAN is restarted. 'Check Database' will examine the database location table and update all total quantities in the Part table.

The 'Check Database' routine can be started by pressing **Enter** on the highlighted button or by pressing the shortcut keys **Alt & D**.

④ **Clear Interrupted Lists**

The 'Clear Interrupted Lists' utility will clear any the database of any interrupted Pick / Place / Verify lists which relate to this machine ID.

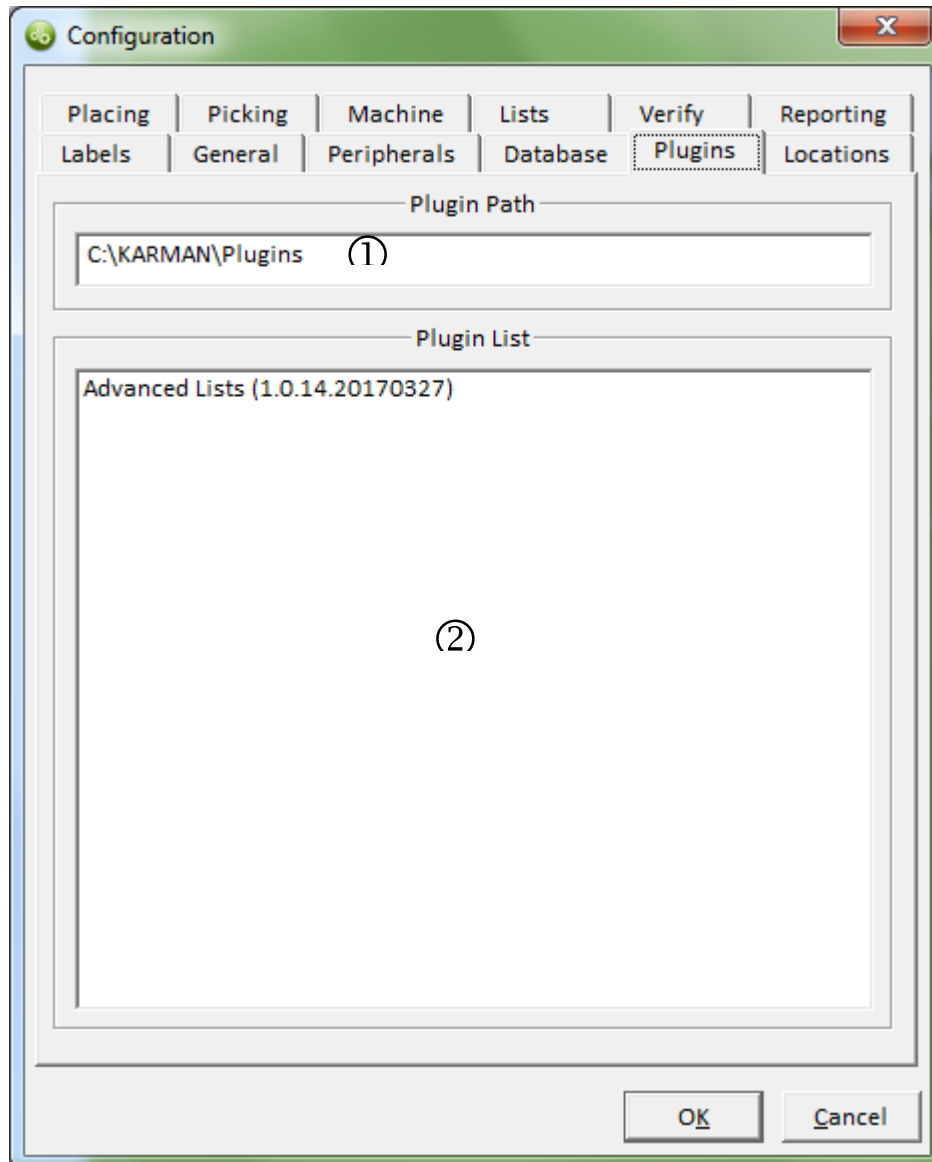
The 'Clear Interrupted Lists' routine can be started by pressing **Enter** on the highlighted button or by pressing the shortcut keys **Alt & I**.

Refer to Section 7 for information on Lists and Interrupted Lists.

4.3.13. Plugins

KARMAN uses plugins to provide enhanced functionality and to provide user specific functionality.

Refer to Section 10 for a current list of plugins available for use with KARMAN.



① Plugin Path

This is the path that KARMAN will search to find which plugins are in use and the plugin definition.

Default: c:\KARMAN\Plugins

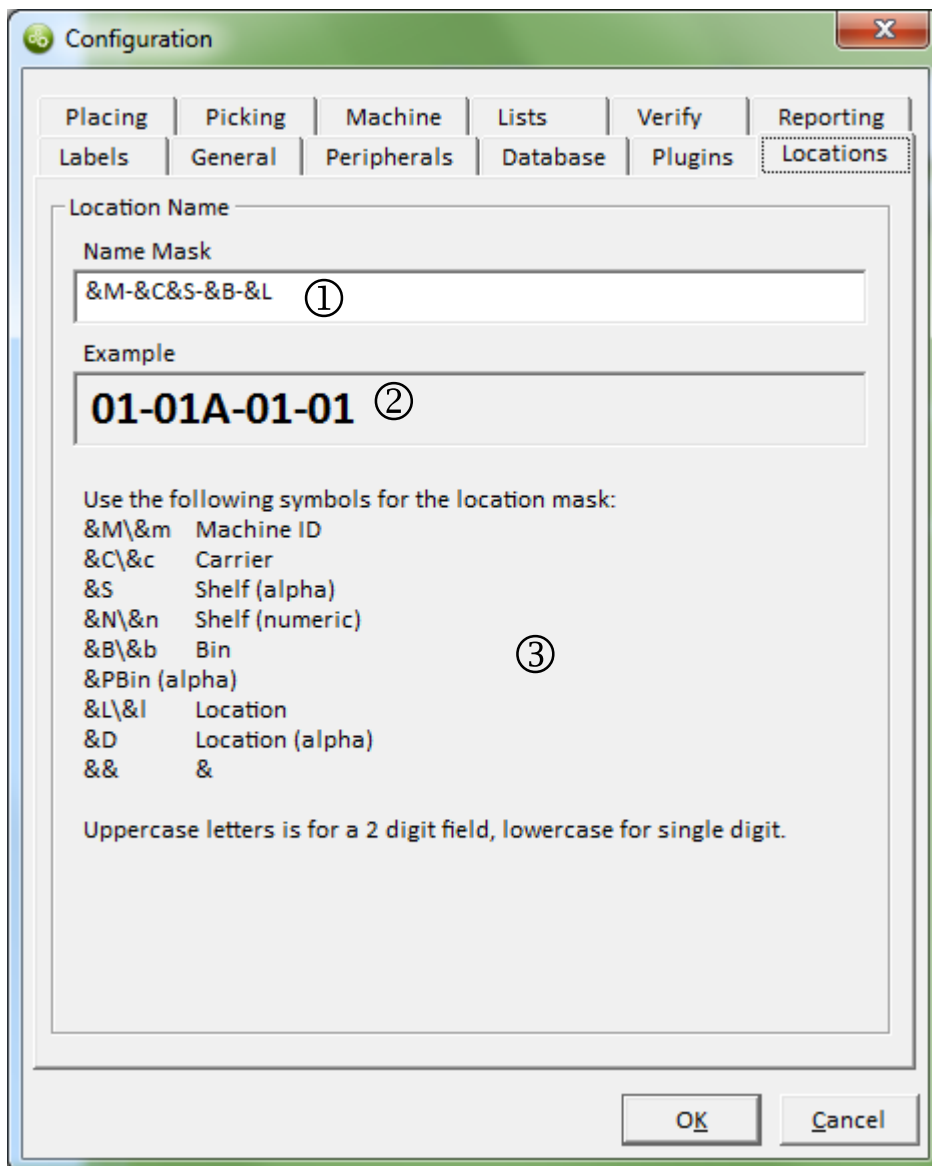
② Plugin List

Once a plugin has been installed it will be displayed in this section and must be configured. To select a plugin for configuration, **Tab** to the Plugin List field, use the **↑** and **↓** arrow key to select the plugin and then press **Enter**.

Refer to the specific plugin User Guide for details on the configuration settings. Please contact Customer Services if you do not have a copy of the User Guide.

4.3.14. Locations

KARMAN uses plugins to provide enhanced functionality and to provide user specific functionality.



① Name Mask

This is the Name Mask that is currently configured, to alter the please refer to the symbols below to customize your mask. There will be an example of what the mask will look like in the example window below.

Default:&M-&C&S-&B-&L

② Example

In this window it will display an example of what the location mask will look like once configured in the Name Mask window.

Default:01-01A-01-01

③ Symbols used for Location Mask

These are the list of symbols used to configure a custom location mask.

4.4. KARMAN List Files

All operations in KARMAN i.e. Pick, Place and Verify can be performed as single operations at the KARMAN console. Alternatively it is possible to create lists of multiple items for each operation type. Kardex terms multi item handling as List handling in KARMAN.

List files can be made from customer orders, works orders, bills of material or any other type of list. There is no limit to the number of parts in a List.

Lists that are automatically generated by your host system are referred to as HOST List files. HOST files are generally located on a network drive, which is accessible directly by KARMAN. List files can also be generated locally at the operator console, referred to as LOCAL List files. The location for Host and Local List files is set in the KARMAN Configuration \ Lists form.

The KARMAN list format makes it possible to:

- Use Lot Numbers for Picking and Placing
- Picking by alternate part number
- Prioritising of list handling

KARMAN supports the previous CARMAN 2000 list format and also supports custom fields. For example, custom fields can be added to the list format to hold pass through data such as customer name, customer number or delivery address. This information can be used by KARMAN for label printing purposes. Refer to Section 7.4 Custom List Formats for more information.

KARMAN identifies a file type i.e. Pick, Place or Verify List, by the List file extension. The file extensions can be changed to suit your requirements in the Configuration \ Lists form. The KARMAN default file extensions are shown below:

<i>LIST Type</i>	<i>HOST</i>	<i>LOCAL</i>
Pick	GPK	LPK
Place	GPL	LPL
Verify	GVY	LVY

4.4.1. Default List Formats

The Standard KARMAN List format for Picking and Placing is as follows:

FIELD	DESCRIPTION	SIZE	COLUMN NUMBER FOR :
1	Status	1	2
2	Machine Number	3	6
3	Shelf Number	3	10
4	Bin Number	3	14
5	Location Number	3	18
6	Part Number	30	49
7	PICK / PLACE quantity	8	58
8	Confirmed Quantity	8	67
9	Old Total Quantity	8	76
10	New Total Quantity	8	85
11	Old Location Quantity	8	94
12	New Location Quantity	8	103
13	List Identifier	20	124
14	Priority	3	128
	CR/LF		(2 bytes)

NOTE 1: *The KARMAN list format is user configurable. It is possible to remove fields and also add user defined fields. User defined fields can be used to print labels or as pass-through fields for host order confirmation. Refer to Section 6.6.2*

NOTE 2: *If KARMAN is configured to use lot numbers, the 7th field in the above list file is the Lot Number field. The following fields move down and the total record size becomes 160bytes.*

The default Pick / Place List file has the following characteristics:

- The fields are all fixed length
- The delimiter is defaulted to “;” this can be changed to suit your requirements from the Configuration \ Lists form.
- The size of each record MUST be 130 bytes when the default KARMAN format is used.
- Fields 6 and 7 are required. Field 13 and 14 are optional. All other fields are populated by KARMAN after the List file has been processed.

The Standard KARMAN List format for Verifying is as follows:

FIELD	DESCRIPTION	SIZE	COLUMN NUMBER FOR ;
1	Status	1	2
2	Machine Number	3	6
3	Shelf Number	3	10
4	Bin Number	3	14
5	Location Number	3	18
6	Part Number	30	49
7	Lot Number	30	80
8	Confirmed Quantity	8	89
9	Old Total Quantity	8	98
10	New Total Quantity	8	107
11	Old Location Quantity	8	116
12	New Location Quantity	8	125
13	List Identifier	20	146
	CF/LF		

The default Verify List file has the following characteristics:

- The fields are all fixed length
- The delimiter is defaulted to “;” this can be changed to suit your requirements from the Configuration \ Lists form
- The size of each record MUST be 117 bytes.
- Fields 6 is required. Field 12 is optional. All other fields are populated by KARMAN after the List file has been processed.

4.4.2. DOS CARMAN Backward Compatibility

KARMAN supports the DOS CARMAN List files:

FIELD	DESCRIPTION	SIZE	COLUMN NUMBER FOR ;
1	Status	1	2
2	Machine Number	3	6
3	Shelf Number	3	10
4	Bin Number	3	14
5	Location Number	3	18
6	Part Number	30	49
7	PICK/PLACE/VERIFY Quantity	8	58
8	Old Total Quantity	8	67
9	New Total Quantity	8	76
10	Confirmed Quantity	8	85
11	List Identifier	20	106
12	List File name	12	119
13	Lot Number	30	150
	CR/LF		

The default CARMAN 2000 List file has the following characteristics:

- The fields are all fixed length, separated by a “;”
- The size of each line MUST be 121 bytes.
- Fields 6 and 7 are required. Field 11 is optional. All other fields are populated by KARMAN after the List file has been processed.

4.4.3. List Confirmation Files

When a list operation is initiated in KARMAN, all records of the list file are inducted into the KARMAN database.

As each item is processed, KARMAN populates the empty list fields with information from the machine database. When all items in the list have been processed, KARMAN re-writes the list to the ‘Old List Folder’. The destination for the Old list files is set from the Configuration \ Lists form. Refer to Section 6.6.2.

The Old list file can be uploaded by your HOST system to reconcile the actual transactions that have been undertaken at the machine. The Old list file will report actual quantities for the Pick or Place transaction and will also report remaining stock quantities.

This provides one method by which inventory levels can be maintained, accurate invoices can be dispatched with goods and reports can be generated from your host computer system.

As seen on the previous page, the first field in the populated list file is the status field. This field indicates whether the operator was successful in performing the required operation or whether manual intervention was required.

Status Code	Descriptions
J	Part has been Picked/Placed/Verified successfully
X	Part Not Placed or Total Quantity = 0
N	Part not found in database
M	Stock moved while Placing
Y	Quantity altered by operator
S	Required quantity could not be picked
Q	Required quantity value is not valid
U	No parts in that machine

4.4.4. Custom List Format

To add, remove and customize lists to suit your requirements, select System \ Configuration from the Main Menu. Go to the 'Lists' tab and click on the button **Pick & Place** under the 'Edit List Format' heading. The 'Custom List Format' form will be displayed.

Custom List Format

Current fields

Field Name	Size	State
Status	1	Empty
Machine	3	Empty
Shelf	3	Empty
Bin	3	Empty
Location	3	Empty
Part Number	30	Fill
Required Quantity	8	Fill
Confirmed Quantity	8	Empty
Old Total Quantity	8	Empty
New Total Quantity	8	Empty
Old Location Quantity	8	Empty
New Location Quantity	8	Empty
List ID	20	Either
Priority	3	Fill

Record Size: 130 Move Up Move Down

Available fields

Field Name	Size	
List File Name	12	
Lot Number	30	
Long File Name	30	
Expiry Date	30	
User Name	25	
Tote ID	20	
Tote Count	3	
Full Location	20	
WMSID	20	C...
SOID	8	C...
RunStop	8	C...
CustName	45	C...

Add Field... Delete Field

List type: ☐ DOS Carman default ☒ KARMAN default ☐ Custom list format

OK Cancel

To add a field press **Alt A** or **Tab** to the **Add Field** button and press **Enter**, then enter the Field name and Field Size.

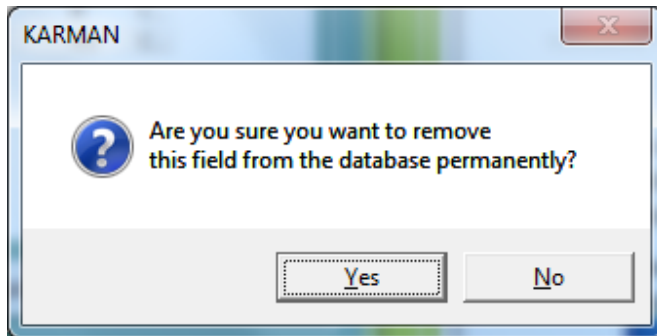
Add New Field

Field Name: CustomName

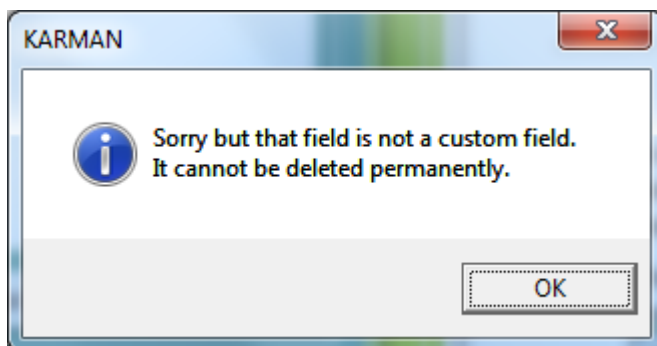
Field Size: 30

OK Cancel

To delete a field, select it using the **arrow keys** and press **Alt E**. You can only delete custom fields (shown with a C next to it). Fields can only be deleted when displayed in the 'Available fields' window.

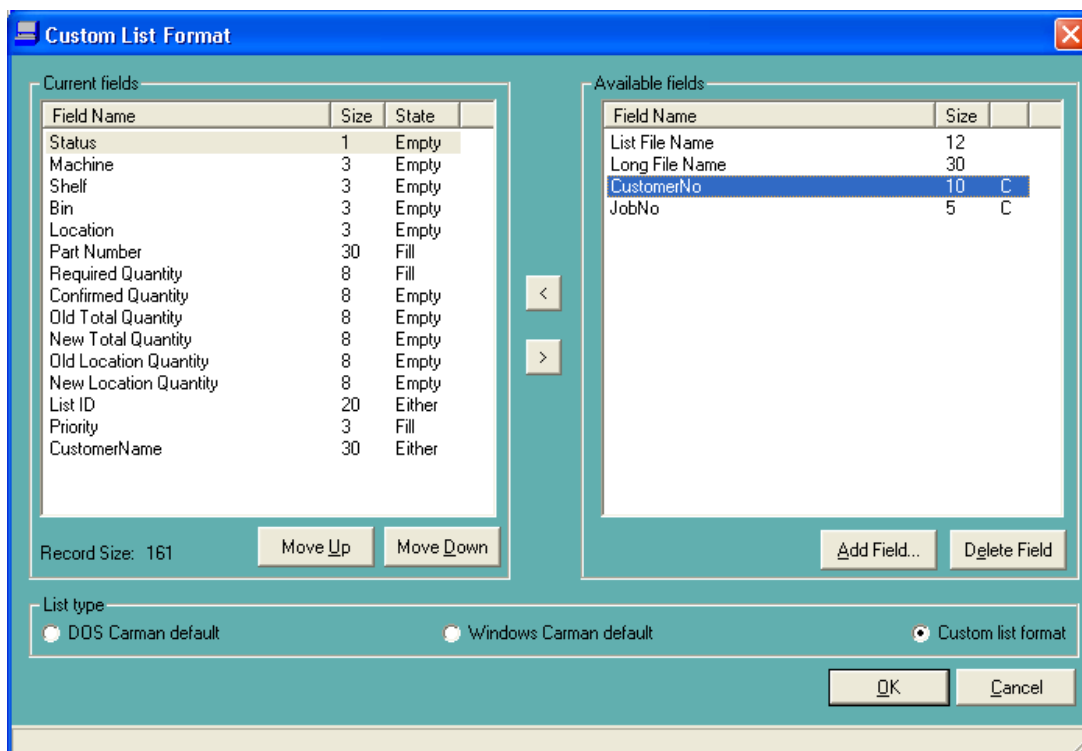


The following message will then appear. Press **Enter** or **Alt Y** to delete the field, or tab to **Alt N** and press **Enter** to cancel.



If you try to delete a field that is not a custom field the following error message will appear:

Once created the custom field will be placed in the 'Available fields' window. To add the custom field to the 'Current fields' window, select the desired field using the **arrow keys** and press **Enter**. The field will be moved to the bottom of the 'Current fields' window.

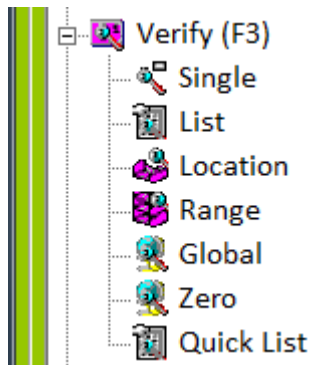


NOTE: Once you have changed the List Format definition in KARMAN, you must begin to create your HOST lists with this format. If the list format generated by the HOST does not match the definition, lists will not be visible in the List Selection windows.

5. Stocktaking Your Machine

'Verify' is Kardex's terminology for the stock take process. Kardex has endeavored to provide functionality in KARMAN to minimize one-off stock take activities which can be time consuming and an interruption to business.

In addition to the mechanisms in place to maximize your stock accuracy, such as pick to zero confirmation, KARMAN provides seven (7) methods to Verify that the location quantities stored in the machine database are accurate. Each method is available from the Main Menu \ Verify menu item:



The Verify process is characterised as follows:

- The Verify process does not display quantities on the screen. This is to ensure that the operator actually counts each item.
- When using Verify \ Single or Verify \ Location the quantities in your database are automatically updated when the operator confirms the quantity.
- When using Verify \ List, Range, Global or Zero, the quantities in your database are left unchanged, unless you configure KARMAN to automatically update stock on hand quantities during this process.

NOTE: *The default setting is OFF. Refer to Section 6.7 to change this functionality so that quantities changed during Verify can be updated immediately in the KARMAN database.*

- Verify \ List, Range and Global automatically produce reports of the Verify process. The reports will be written as described by the parameters set up on the Configuration \ Verify form. Refer to Section 6.7

The contents of the reports could be used to update stock quantities in your HOST system or to initiate a re-count routine as per your Company stock handling policy. Refer to Section 8.2 for details of Verify reports.

5.1. Verify Methods

Refer to Section 5.5 in the KARMAN Operators Manual for details on how to use each method.

5.1.1. Single

This method is used to Verify the location quantity of a single part in the machine. KARMAN will visit all locations where the part is placed during this process. When the operator confirms the stock quantity for the location, the machine database will be updated immediately. This method may be used for random checks on part quantities.

5.1.2. List

This method is used to Verify the location quantities of multiple parts in the machine. The list can be generated by the HOST or can be created locally. The details of the each Verify operation are reported in the List confirmation file. The machine database will only be updated during this process if the 'Auto Update Verified Quantity' parameter is set ON (Refer to Section 6.7) This method may be used for fast moving items. If the list is retained, the same list can be run periodically.

5.1.3. Location

This method is used to Verify the quantity of a single location. When the operator confirms the stock quantity for the location, the machine database will be updated immediately. This method may be used for random checks on location quantities.

5.1.4. Range

This method is used to Verify the quantity in a range of locations within the machine. The smallest range is one shelf i.e. the same shelf could be entered as the starting location and the ending location. This method is used to facilitate perpetual stock take of the machine locations. It is then possible to stock take a shelf or carrier weekly or monthly, removing the need to undertake an annual global stock take of the complete machine.

Once the Verify \ Range routine is started, it should be completed as it is not possible to interrupt and resume this routine. The default report c:\KARMAN\Reports\Range.rep is generated at the completion of the routine.

If a previous Range report exists, the filename extension will be indexed and the new file written out as Range.rep.

5.1.5. Global

This method is used to Verify the quantity held in all locations within the machine. The routine starts at location 01A-01-01 and will visit each known location sequentially until all locations have been visited. It is possible to interrupt and resume the Global Verify operation at any time. The routine can continue from the last checked location or can revisit locations that have had Pick or Place transactions in the interim. Refer to Section 6.7 for Verify parameters.

This routine can be run in an ongoing way such that the entire machine can be checked over an extended period or it can be run as a one off activity at the appropriate time of the year. The default report c:\KARMAN\Reports\Global.rep is generated at the completion of the routine.

5.1.6. Zero

This contrary method is used to Verify that locations without part details or locations with zero quantity are actually empty.

The routine starts at the first empty location and will visit each empty location until all locations have been visited. The operator will simply confirm that the location is empty. The routine should be completed once it has been started, as it is not possible to interrupt or resume.

This method could be used in combination with a sample check of used locations to confirm that stock on hand quantities are accurate. If your machines are well utilised, this method will be more time effective than the Global routine.

5.1.7. Quick List

This method is used to create a Verify list, which is a list of products you want to verify. Then you can run the program

5.2. Verify Reports

When using Verify \ List, Range or Global, a report is generated at the conclusion of the routine.

In the case of the Verify \ List, the report is the list confirmation file. Refer to Section 6.6.2 for details regarding Verify List formats.

5.2.1. Range Report

The Range report is created when the routine is completed. The Range report has the following format:

FIELD	FIELD NAME	FIELD DESCRIPTION	SIZE	DELIM
1	Part Number	Part Number.	30	31
2	Lot Number	Lot Number	30	62
	<i>This will only be shown if Lot Number Support is activated.</i>			
3	Shelf Number	Shelf Number.	3	66
4	Bin Number	Bin Number	3	70
5	Location Number	Location Number.	3	74
6	Before Total Quantity	Total Quantity before Verify.	8	83
7	Before Location Quantity	Location Quantity before Verify.	8	91
8	Verified Quantity	Quantity entered for that location.	8	100
9	Date/ Time	Date of the operation – YYYY-MM-DD Time of the operation – HH:MM:SS	26	127

5.2.2. Global Report

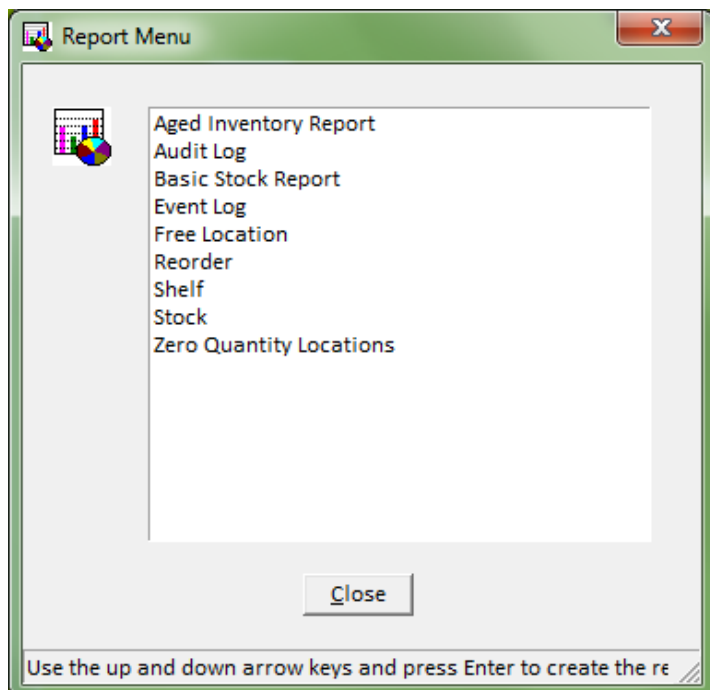
The Global report is created when the routine is completed. The Global report has the following format:

FIELD	FIELD NAME	FIELD DESCRIPTION	SIZE	DELIM
1	Part Number	Part Number.	30	31
2	Lot Number	Location Lot Number	30	62
	<i>This will only be shown if Lot Number Support is activated.</i>			
3	Shelf Number	Shelf Number.	3	66
4	Bin Number	Bin Number	3	70
5	Location Number	Location Number.	3	74
6	Before Total Quantity	Total Quantity before Verify.	8	83
7	Before Location Quantity	Location Quantity before Verify.	8	91
8	Location Quantity	Quantity entered for that location.	8	100
9	Date/ Time	Date of the operation – YYYY-MM-DD Time of the operation – HH:MM:SS	26	127

6. Reports

The Report Menu can be accessed via the Tools Menu. Some reports are designed to create external files when activated while other reports are intended for viewing and printing.

All KARMAN standard reports are shown in the following 'Report Menu' window:



Action

Move through Reports
Select Report
Close window

Method

Up(↑) and Down(↓) arrow keys
Enter
Alt & C or Tab to the Close button and press **Enter**

When you press **Enter** on a Report, the report file may be generated immediately or the report form may be displayed. If the report is only created as a file, the report will be created in the location, and with the filename defined in your Configuration \ Reports form. Refer to Section 6.8 for details.

The standard KARMAN Reports are:

- Aged Inventory Report
- Audit Log
- Basic Stock Report
- Event Log
- Free Location
- Reorder
- Shelf
- Stock
- Zero Quantity Locations

Kardex can design custom reports to suit your Company's reporting needs and has provided an extensive range of reports for our existing customers. Any data that is held and captured in the database can be presented as a readable report or as a file for 3rd party usage. The custom reports would also be presented in the 'Report Menu'. For more information please contact Customer Services.

NOTE: All reports can be generated on demand, on system start-up or shut-down or can be scheduled at a particular time each day. Refer to Section 6.8 for details.

6.1. Aged Inventory Report

The Aged Inventory report will provide a list of all inventory items that have not been accessed prior to a nominated date. Select the date from the calendar in the drop down box. The report data can be viewed by the user prior to saving or printing:

Characteristics:

- Default Location \ Name: c:\KARMAN\Reports\AgedInventory.rep.
- Action: View, Save, Print

Each record in the report file consists of the following fields:

FIELD	FIELD NAME	FIELD DESCRIPTION	SIZE	DELIM
1	PartNum	Part Number.	30	31
2	Desc1	Description 1	60	92
3	Location	Location	9	102
4	Qty	Location Quantity	8	111
5	LastPicked	Last Picked Date	23	135
6	LastPlaced	Last Placed Date	23	159
	<CR/LF>			

6.2. Audit Log

The Audit Log report will provide a comprehensive record off all transactions in the database. The data can be filtered base on date and user. Set the required filter from the drop down boxes and press **Alt + S** to Show all relevant data. The report data can be viewed by the user prior to printing or saving:

AuditDate	AuditTi...	Oper...	PartNum	Activ...	ActivitySo...	Actual...	PartLocati...
21/04/20...	13:32:...	ADMIN	1779818	Pick	Single	1	
21/04/20...	13:35:...	ADMIN	111	Place	Single	1	
21/04/20...	13:35:...	ADMIN	222	Place	Single	1	

Characteristics:

- *Default Location \ Name:* c:\KARMAN\Reports\Audit.rep.
- *Action:* View, Print, Save

Each record in the report file consists of the following fields:

FIELD	FIELD NAME	FIELD DESCRIPTION	SIZE	DELIM
1	S	Status field: Letter I for Information.	1	2
2	Date	Date of the operation – YYYY-MM-DD	10	13
3	Time	Time of the operation – HH:MM:SS	12	26
4	UserName	User Name that performed operation.	25	52
5	PartNum	Part Number.	30	83
6	Operation	Operation performed	20	104
7	OperationMethod	Operation method	50	155
8	Location	Location of the Part number	10	166
9	DsireQty	Quantity required of the operation	8	175
10	CnfrmQty	Quantity confirmed for the operation.	8	184
11	TotalQty	Total quantity after the operation.	8	193
12	LotNum	Location Lot Number (if supported)	30	224
13	Not Used		8	233
14	OldLcQty	Location quantity before the operation.	8	242
15	NewLcQty	Location quantity after the operation.	8	251
	<CR/LF>			

6.3. Basic Stock Report

The Basic Stock Report is a summary stock listing. The report lists all inventory items and the total quantity held for each item.

This report is most commonly used as an upload to host systems for the purpose of inventory SOH comparison.

Characteristics:

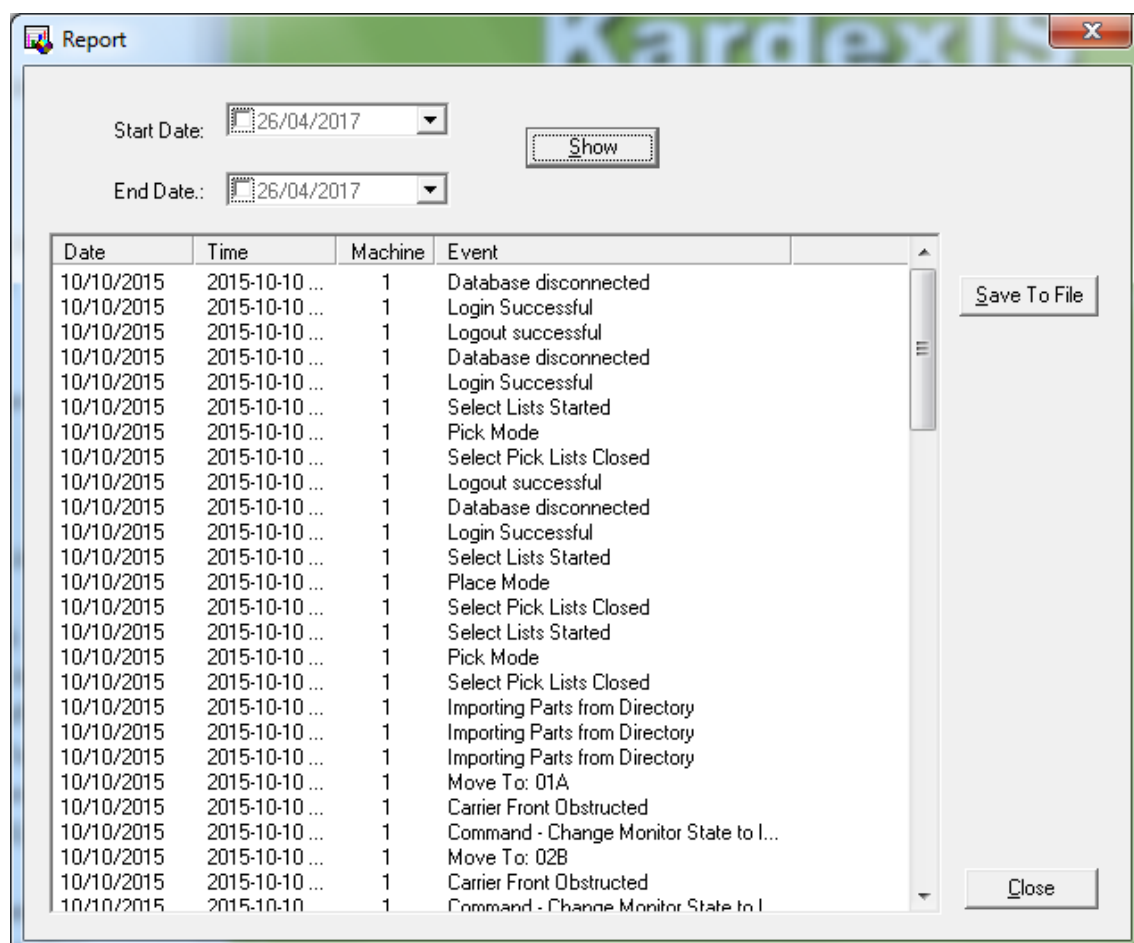
- Default Location \ Name: c:\KARMAN\Reports\BasicStock.rep.
- Action: Save

Each record in the report file consists of the following fields:

FIELD	FIELD NAME	FIELD DESCRIPTION	SIZE	DELIM
1	PartNum	Part Number	30	31
2	Desc1	Item Description 1	60	92
3	TotalQty	Total Stock on Hand	8	101
	<CR/LF>			

6.4. Event Log

The Event report captures hardware and operation related events. The data can be filtered base on date. Set the required filter from the drop down boxes and press **Alt + S** to Show all relevant data. The report data can be viewed by the user prior to saving:



Characteristics:

- Default Location \ Name: c:\KARMAN\Reports\Event.rep.
- Action: View, Save

Each record in the report file consists of the following fields:

FIELD	FIELD NAME	FIELD DESCRIPTION	SIZE	DELIM
1	S	Status: I for Information	1	2
2	Date	Date of Event	10	13
3	Time	Time of Event	12	26
4	Source	Database Source	20	47
5	Event	Event Code	60	108
6	Description	Description of Event	100	209
7	Operator	Operator Name	25	235
	<CR/LF>			

6.5. Free Location

The Free Location Report lists all unused locations in the machine.

Characteristics:

- Default Location \ Name: c:\KARMAN\Reports\BasicStock.rep.
- Action: Save

Each record in the report file consists of the following fields:

FIELD	FIELD NAME	FIELD DESCRIPTION	SIZE	DELIM
1	Machine ID	Machine ID	2	3
2	Shelf Number	Carrier / Shelf Number	3	7
3	Bin	Bin	2	10
4	Location	Reorder Quantity	2	13
	<CR/LF>			

6.6. Reorder

The Reorder report will export a list of all inventory items with stock on hand levels below the re-order point set for the inventory item. The Reorder Point and Reorder Quantity fields must be filled in at the Inventory screen. The Reorder report can be configured to include the Total Quantity field. Refer to Configuration \ Reports \ Reorder.

Characteristics:

- Default Location \ Name: c:\KARMAN\Reports\BasicStock.rep.
- Action: Save

Each record in the report file consists of the following fields:

FIELD	FIELD NAME	FIELD DESCRIPTION	SIZE	DELIM
1	PartNum	Part Number	30	31
2	Unit	Unit Type	10	42
3	RoPoint	Reorder Point	8	51
4	RoQty	Reorder Quantity	8	60
	TotalQty	Total Quantity (Field is optional)	8	60
	<CR/LF>			

6.7. Shelf

The Shelf report is a list of each shelf in your machine and the associated matrix configuration and usage.

Characteristics:

- Default Location \ Name: c:\KARMAN\Reports\Shelf.rep.
- Action: Save

Each record in the report file consists of the following fields:

FIELD	FIELD NAME	FIELD DESCRIPTION	SIZE	DELIM
1	Shl	Carrier / Shelf Number.	3	4
2	Bin	Number of bins on the shelf.	3	8
3	Loc	Number of locations in each bin.	3	12
4	Use	Number of used locations on Shelf.	3	16
5	Tot	Total number of locations on Shelf.	3	
	<CR/LF>			

6.8. Stock Report

The Stock report is a List of all inventory items in your database, complete with locations, location quantity and total quantity. The Stock report has a number of configuration settings which can be accessed from the Configuration \ Reports form.

Characteristics:

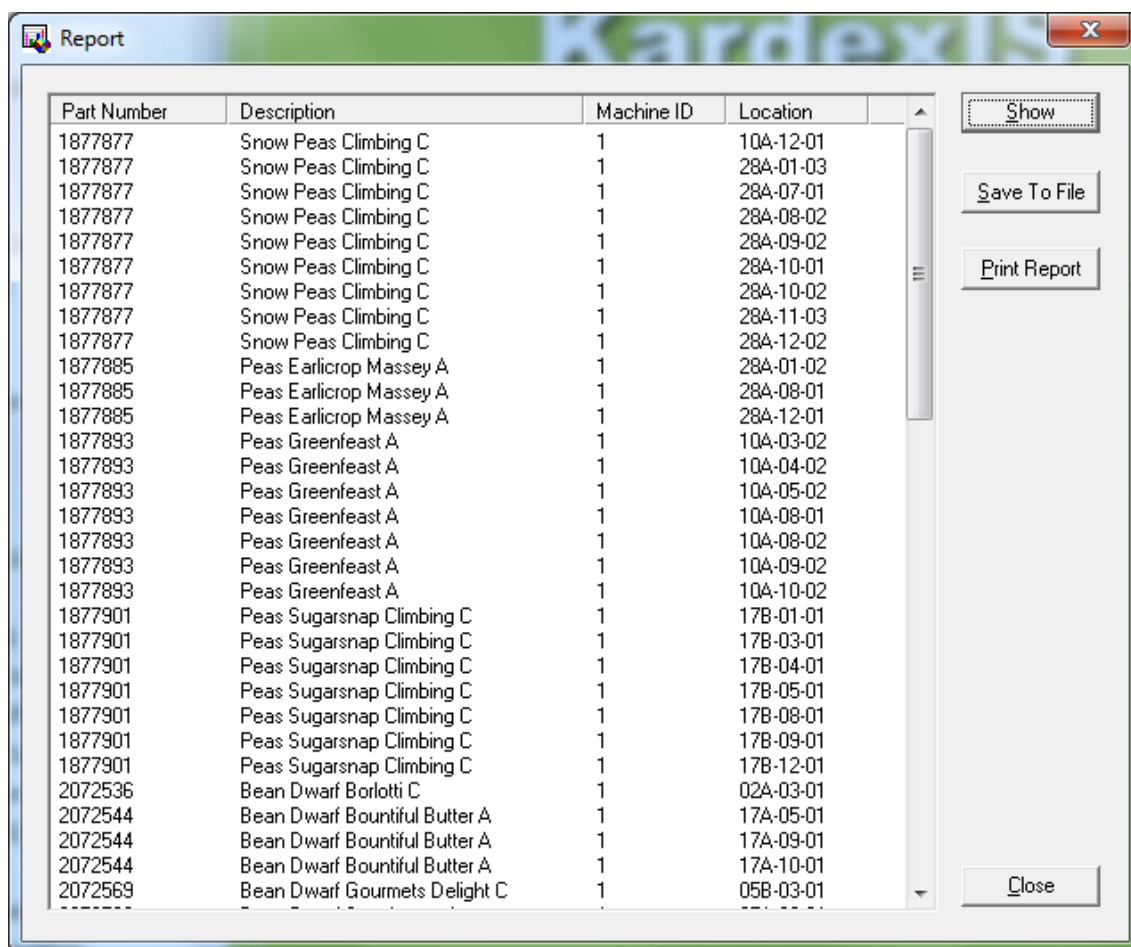
- Default Location \ Name: c:\KARMAN\Reports\Stock.rep.
- Action: Save

Each record in the report file consists of the following fields:

FIELD	FIELD NAME	FIELD DESCRIPTION	SIZE	DELIM
1	ID	Machine Number	3	4
2	PartNum	Part Number.	30	35
3	AltPartNum	Alternate Part Number	30	66
4	Desc1	Description of the part Line 1.	60	127
5	Desc2	Description of the part Line 2.	60	188
6	Desc3	Description of the part Line 3.	60	249
7	Unit	Unit type the part is carried in	10	260
8	Value	Unit Value of each item.	8	269
9	Weight	Unit Weight of each item.	8	278
10	RoPoint	Reorder point.	8	287
11	RoQty	Quantity to reorder.	8	296
12	Shl	Shelf number the part is found on.	3	300
13	Bin	Bin number the part is found in.	3	304
14	Loc	Location in the bin the part is found in.	3	308
15	LocQty	Quantity in this location.	8	317
16	TotalQty	Total quantity in the machine.	8	326
17	LotNumber	Location Lot Number (If in use)	30	357
18	LastPlaced	Placed date for part / location	30	388
	<CR/LF>			

6.9. Zero Quantity Locations

The Zero Quantity Locations report is a list of locations that show zero stock on hand.



If you are using Dynamic storage, this report should be empty.

Characteristics:

- Default Location \ Name: c:\KARMAN\Reports\ZeroQty.rep.
- Action: View, Print, Save

Each record in the report file consists of the following fields:

FIELD	FIELD NAME	FIELD DESCRIPTION	SIZE	DELIM
1	Machine Number	For use with multiple machines.	3	4
2	Part Number	Part Number.	30	35
3	Alternate Part Number	Alternate Part Number	30	66
4	Description	Description of the part Line 1.	60	127
5	Description 2	Description of the part Line 2.	60	188
6	Description 3	Description of the part Line 3.	60	249
7	Unit Type	Unit type the part is carried in	10	260
8	Unit Value	Unit Value of each item.	8	269
9	Unit Weight	Unit Weight of each item.	8	278
10	Reorder Point	Reorder point.	8	287

7. Using KARMAN Plugins

Kardex has used Plugins to add enhanced and customer specific functionality to KARMAN. Plugins have been used to provide customised Find methods or capture cost or usage based information when inventory is taken from the machine.

Kardex's current list of general Plugins for use with KARMAN is as follows:

- Auto Pick and Place
- Credit Return
- Custom Label Print
- Enhanced User Profiles
- Place List Items
- Single Event
- Static Racking
- Use By Date
- Vendor Managed Stock

7.1. Auto Pick and Place

The Auto Pick and Place Plugin is presented as Pick and / or Place items in the Main Menu. Implementation of this Plugin disables the standard Pick and Place menu items. This Plugin treats KARMAN as a truly dynamic storage system in that KARMAN will record the ID of items stored in the machine and then remove that ID from the system when the item is picked. This Plugin can be used in 'temporary' storage applications or where your inventory items have unique identifiers which are unlikely to be repeated.

7.2. Credit Return

The Credit Return Plugin is presented as new item in the Place menu. When using Dynamic storage mode, this Plugin allows you to place inventory into existing locations. This Plugin may be helpful if you receive items in very small quantities on a regular basis. This Plugin can assist in optimum location utilisation when you are not in complete control of the inventory re-ordering process i.e. quantities received and periodicity of ordering.

7.3. Custom Label Print

KARMAN has standard support for printing one label format for each Pick / Place transaction type i.e. Single and List. This Plugin is used with Pick \ List and facilitates printing up to 3 different Pick label formats as determined by a label ID sent down in the Pick file.

This Plugin can be useful if you are a parts distributor with more than one parts brand. It can also be useful if you distribute to different groups such as wholesalers and retailers under a different brand banner.

7.4. Enhanced User Profiles

KARMAN standard functionality allows all users to access all shelves in the machine. This Plugin allows User Profiles to be structured to give Users Pick and Place access to designated shelves. This Plugin can be useful if you have high value items stored in the machine, which are required to have restricted access, or in a maintenance application where the machine is divided between plant areas.

7.5. Place List Items

This Plugin can be used with Dynamic storage and is used in conjunction with the Place \ List routine. Dynamic storage requires the user to place items to an empty location. This Plugin allows the user to determine the order that items are placed away – rather than being forced to search thru a container with 20 or more items to find the one that is required.

Use of barcode scanners can also improve the speed of this operation.

7.6. Single Event

Standard KARMAN functionality allows transaction data for Pick, Place and Verify activities to be captured from the Audit log or from list confirmation files. This Plugin operates transparently and will export a single record file for each Single or List transaction that is executed by KARMAN. This Plugin provides a convenient method of trapping inventory movements by all methods at the system.

This Plugin can be useful where there is a combination of List and Single operations at the machine, ensuring that your HOST is informed of all movements.

7.7. Static Racking

The Static Racking Plugin allows you to extend the KARMAN inventory management outside of the machine domain. This Plugin allows you to define an area outside of the machine with a location configuration and then Pick and Place to that area from the KARMAN console.

This Plugin is convenient because it can permit management of all inventory items by the storage system interface. This Plugin is intended for use in areas that may have up to 100 locations. If your area is bigger than that, you may want to consider Kardex's RackMAN application which runs from a dedicated console and can be applied to many thousands of locations.

7.8. Use By Date

This Plugin provides an extension of the standard 'Lot Number' support and allows users to store items by Use By Date or Expiry Date. The date must be entered in the format YYYYMMDD and this information is then used as the Pick criteria rather than the standard FIFO method. If an item is stored without a Use By Date, KARMAN reverts to FIFO picking.

7.9. Vendor Managed Stock

This Plugin is designed for use in 'open stores' environments and allows vendors to replenish specific carriers or trays in the machine. The vendor is given access to one or more carriers / trays for replenishment of 'free-issue' items.

KARMAN does not track the inventory on these shelves.

If you think any of the above functionality may be useful or you have a need for specific functionality, please contact Customer Services for assistance.

All Plugins can be made available for download from the Support page on our web site. You will require your user login plus password to access the downloads on this page.

8. KARMAN Interface

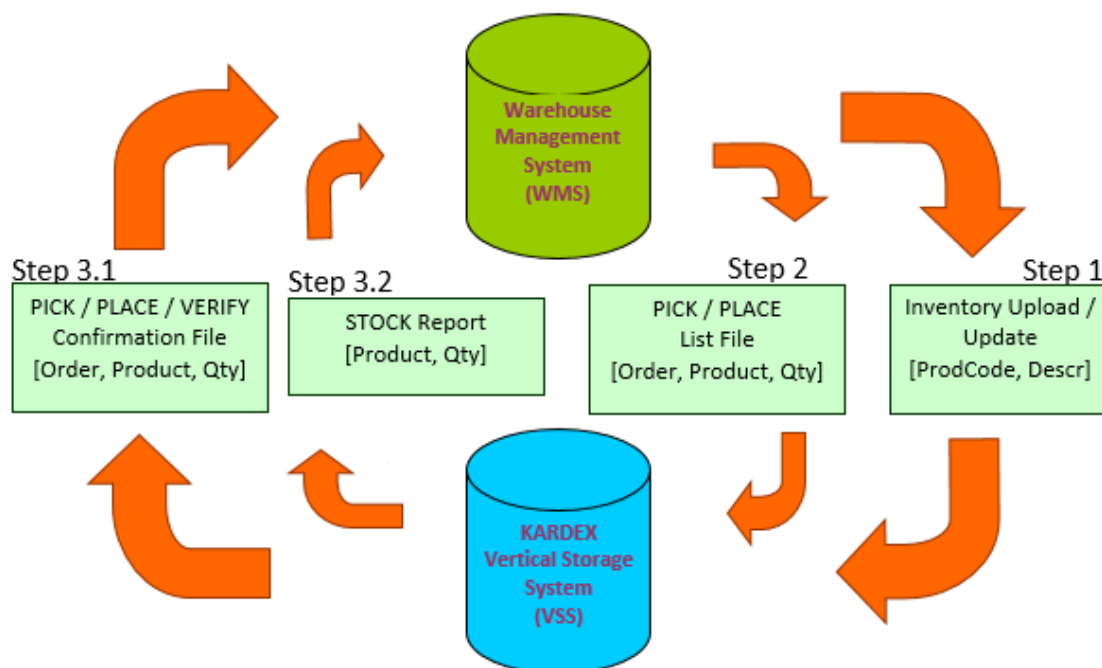
KardexIS is Kardex's suite of inventory management applications for use in Australia & New Zealand with our machine based and extended Vertical Storage Systems (VSS). The principle user applications are KARMAN (Vertical Carousels and Lifts) and RackMAN (static shelving and storage).

There are three stages of implementation of the KardexIS interface with your Warehouse Management System. These are:

1. Master Inventory File / Regular Inventory Upload (WMS to KardexIS)
2. PICK / PLACE File Download (from WMS to KardexIS)
3. Return of Confirmation File or Upload of Product Quantity data using database STOCK report (KardexIS to WMS).

KARMAN™ / RackMAN™ and the KardexIS SQL database run on a WINDOWS based PC platform using WIN10 or previous. The KardexIS interface is a mature and well defined interface based on the transfer of flat files for each of the above stages. There are a number of additions to the above scenario to broaden the scope of the interface and it is not always necessary to implement all of the above stages, as the required functionality may be achievable by other methods within your facility and operational processes.

The data flow between the Warehouse Management System (WMS) and Kardex Vertical Storage System (VSS) can be summarised as follows:



Refer to Kardex document 'SW-DE-059 KardexIS Interface Method.pdf' for further details.

9. Peripheral Equipment

KARMAN has support for a range of peripheral equipment including:

- Kardex SortBench
- Bar Code Scanners
- Label Printers
- Counting Scales



9.1. Kardex SortBench

The SortBench is a place to light system that facilitates simple picking of multiple orders from multiple machines.

SortBench facilitates the picking of multiple orders consecutively from your Carousel or Shuttle. The SortBench can be used with single machines and is ideal in multi-machine environments. One operator can successfully pick up to twenty orders at a time from up to four Carousels. If a SortBench is included in the scope of your system delivery, Kardex will have set up all configuration parameters for you. These parameters will only need to change if you change your file structure or you need to increase the size of your bench.

The maximum number of lists that can be picked at any time is determined by the physical configuration of the bench. Our SortBenches are typically ten (10) or twenty (20) stations.

For more information on our VCA SortBench please contact Customer Services or refer to the SortBench User Guide delivered with your system.

9.2. Barcode Scanners

KARMAN can use keyboard wedge and USB barcode scanners for part number entry during Pick \ Single or Place operations. Use of barcode scanners will minimize keystroke entry and thus error at the keyboard.



For more information on the use of barcode scanners with KARMAN, please contact Customer Services.

9.3. Printers

KARMAN supports label printing to some Intermec and Zebra printers. Refer to Section 6.9.2 for a list of printer types currently supported. Kardex can custom designs labels to suit your requirements. Order number and associated part information contained in the machine database can be printed on labels along with pass thru data presented via custom fields in list files. Labels can be generated automatically or on demand.



KARMAN support for custom list fields enables additional pass through information to be printed on labels such as customer name and address.

For more information on using Printers please contact Customer Services.

9.4. Counting Scales

Integrated counting scales are a particularly useful addition to a static racking system where parts are quite small and picked or placed in large quantities.

RackMAN supports a range of counting scales such as the DIGI DC120 range and also Avery Berkel range of scales where the unit weight of a part is passed to the scale at the start of the Pick or Place operation.

The operator will then use the scale to ensure the correct quantity is recorded for the transaction.



For more information on using Counting Scales please contact Customer Services

10. Backup Recommendations

The default location for the KARMAN database file in a standalone configuration is in the C:\KARMAN folder located on the machine PC hard drive. If you have a multi machine / SortBench configuration, please refer to the system functional specification provided as part of the system documentation for back up recommendations.

In a standalone configuration KARMAN will back up its own database and registry settings each time the application is shutdown. Refer to Section 6.12.4 for default path details. You should ensure that the backup path is included in your regular site backup routine.

To restore a standalone version of KARMAN from scratch you will need the following:

- Working PC
- SYBASE Database Installation disk
- KARMAN Setup file – available from the System Software CD or from our website.
- Latest KARMAN .db database file backup
- Latest Settings.reg file backup

KARMAN and associated setup files are generally delivered on CD. Refer to Section 3 of this manual for installation instructions.

How to:

Schedule an automatic backup of KARMAN database for MS SQL Server.

From the control panel, add a new scheduled task called Database Backup. The application you choose is not important as we will replace the information with the following.

Run:

```
SQLCMD.EXE -S <Server Name>\KARMAN -i C:\KARMAN\Scripts\Backup.sql
```

Start in: C:\

Replace <Server Name> with the actual server name, this can be seen when connecting to SQL Management Studio.



PC Files

- New installations

The PC supplied with your machine will be delivered with a recovery diskette that will contain the operating system and all of the hardware device drivers.

Pre-existing installations

The PC that was supplied with your machine was delivered with all of the hardware device drivers and operating system DVD or USB.

11. Support

If you need assistance to set up a back regime or to determine a disaster recovery plan, please contact Customer Service by phone or email:

Kardex Customer Service

Wodonga Office Australia

Phone: +61 2 6056 5173

Fax: +61 2 6056 2422

Email: Support@kardex.com.au

Please quote your 'Site ID' code to assist us to find your site details. Your site code is listed on the site software license or your service agreement document

12. Security for Your Machine

KARMAN has a number of features which will enhance the security of the Carousel or Shuttle.

User names and passwords are required to start KARMAN and each user name can be given access ranging from a single operation to all operations. The Audit Log will track all transactions at the machine and can be used to allocate costs to particular cost centers if required.

KARMAN has an 'Inactivity Logout Delay' setting which will automatically log the last user out of KARMAN and present the Login screen, requiring the next user to log in. Activation of this feature will ensure that the correct user is tracked while they are accessing stock in the Carousel or Shuttle®. If the Carousel mode is selected to AUTO, the Carousel can only be rotated using KARMAN. In the case of the Shuttle®, KARMAN will automatically return the last tray inside the machine on logout.

'Move to Carrier' on Logout option can be used to force the Carousel to rotate to a particular carrier when KARMAN is logged out. If your machine is fitted with an Auto Door, this feature will provide a secure and contained environment for your stock.

To enable these modes of operation, refer to Section 6.3, Customizing KARMAN.