



Inventory Control Guide

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1 Introduction



What does inventory control do for you?

Inventory control is a set of processes that updates and maintains accurate on hand quantities. Inventory control provides the following features and benefits:

- An accurate, real time inventory enables jobs and POs to be generated by MRP, which eliminates the over-stocking and time-phased shortages that are inherent to manual planning.
- An accurate, real time inventory enables jobs to be released to production and rescheduled based on material availability.
- Items are stored in specific inventory locations, which facilitates receiving, issuing, picking, counting, and transferring transactions and reduces errors.
- Items can be flagged for lot or serial control with full traceability though past inventory transactions.
- Materials are issued to jobs in real time when they are used rather than after-the-fact when jobs are finished. This aligns on hand quantities with actual stock quantities.
- Stock counts are easy to perform, which facilitates cycle counting for bulk raw materials such as plastics are difficult to track at job level and have usage quantities that vary from job to job.
- DBA includes sales orders so that all inventory transactions, including order picking, are performed within a single system with consistent processes.

Our design is optimized for small business

We've designed our inventory control system so that it can be successfully used by companies of any size, especially small businesses, for these reasons:

- Our multi-line transaction screens – *PO Receipts*, *Job Issues*, and *Order Picking* – are designed for pre-filling where the majority of line items are processed with a single click.
- Our *Stock Counts* screen provide an easy to use means for conducting cycle counts for items with variable usage that require periodic stock adjustments.

Who is this guide for?

This guide is for the benefit of managers, production planners, shop supervisors, material handlers, workers, buyers, and anyone who wants to learn how inventory control works within a manufacturing system or is considering using DBA as a manufacturing solution.

2 Why You Need Inventory Control

Any advanced manufacturing system relies on an accurate inventory to drive job and PO planning. Without an accurate inventory you are plagued with chronic shortages, over-stocking, high expediting costs, late shipments, and an erosion of user confidence in the manufacturing system and customer confidence in you as a supplier.

Users lose confidence and resort to manual processes

Without an accurate inventory users lose confidence in the manufacturing system and resort to inefficient manual processes.

- Because MRP cannot function without an accurate inventory, jobs and POs are created manually, which is inherently biased towards over-stocking and typically results in shortages due to time-phasing issues.
- Chronic shortages encourage material hoarding as a means for getting jobs started, which helps individual jobs at the expense of other jobs and overall shop efficiency.

Chronic inventory problems inflict high costs

Chronic inventory problems inflict high costs and negatively impact cash flow and return on investment.

- Unexpected shortages incur high expediting costs due to express shipping charges and higher unit prices.
- Material shortages delay jobs and shipments, which in turn delays customer payment cycles and negatively impacts cash flow.
- Over-stocking needlessly ties up working capital and reduces return on investment.

Inventory problems are a cancer that affects employees and customers

Chronic inventory problems are a cancer that negatively affects employees and customers. Employees develop a cynical attitude towards the manufacturing system and regard it as more of a hindrance than a help. Lengthy lead times and frequent delays cause customers to lose confidence in your reliability as a supplier.

The DBA process workflow facilitates inventory accuracy

The DBA process workflow facilitates inventory accuracy.

- Items are stored in specific inventory locations, which facilitates receiving, issuing, picking, counting, and transferring transactions and reduces errors.

- Materials are issued to jobs in real time when they are used rather than after-the-fact when jobs are finished. This aligns on hand quantities with actual stock quantities.
- Stock counts are easy to perform, which facilitates cycle counting for bulk raw materials such as plastics are difficult to track at job level and have usage quantities that vary from job to job.
- DBA includes sales orders so that all inventory transactions, including order picking, are performed within a single system with consistent processes.

Accurate inventory enables MRP and job release

An accurate, real time inventory enables jobs and POs to be generated by MRP, which eliminates the over-stocking and time-phased shortages that are inherent to manual planning. MRP generates a coordinated master schedule where jobs are released to production and rescheduled based on material availability.

3 Inventory Control Elements

The Inventory Control system is comprised of the following elements:

Locations

Locations represent the locations – bins, racks, shelves – where items are physically stored.

Lot/Serial Control

Items can be flagged for lot control and serial control, in which case lot or serial numbers are assigned at time of receipt and specified at time of issuing and picking.

PO Receipts

Purchase items are received to inventory through the *PO Receipts* screen.

Job Issues

Materials – meaning components and raw materials -- are issued to jobs in real time through the *Job Issues* screen.

Job Receipts

Finished job items are received to inventory through the *Job Receipts* screen so that they are available for issue to other jobs or shipment to customers.

Shipment Planner and Order Picking

The *Shipment Planner* within the *Order Picking* screen prioritizes sales orders that are ready for order picking and shipment to customers.

Stock Counts

The *Stock Counts* screen is used to conduct cycle counts and physical inventories to adjust on hand quantities to match actual stock quantities.

Stock Transfer

Stock quantities can be transferred from one location to another through the *Stock Transfer* screen.

Stock Adjustments

The *Stock Adjustments* screen is used to make an inventory transaction that is not associated with a standard process.

Item Labels

Three item labels are available – stock item labels, PO receipt labels, and job receipt labels – that can be customized as needed.

4 Locations

Locations provide the physical infrastructure for inventory control. Stock quantities are tracked by location, which facilitates job issues, order picking, and stock counts.

Create a location to represent each physical location

In the *Locations* screen, create a location to represent each physical location, which can be a rack, bin, shelf, receiving area, or staging area. User-defined location IDs typically are structured in three segments, separated by dashes, as follows:

Warehouse – Area/Aisle – Bin/Shelf/Rack Number

Each item is assigned a default receipt and primary location

On the *Locations* tab in the *Stock Items* screen, each stock item is assigned a default *Receipt Location* and *Primary Location*. Often the two locations are one and the same, but the item can be received first to a receiving location and then transferred to its primary location.

Using a receiving location

Instead of receiving purchased items directly to their primary locations, it can be useful to receive all or selected items to a receiving location. This enables items to be inspected, unpackaged, and labeled as needed. Afterwards, the *Stock Transfer* screen is used to transfer stock from the receiving location to each item's primary location.

Designate the receiving location as Transitory

When you create the receiving location, select the *Transitory* checkbox. This identifies the location as a transitory location where stock is stored on a temporary basis to perform a process or transfer. In the *Order Picking* and *Job Issues* screens, stock quantities in transitory locations are displayed for reference, but are not available for picking or issuing.

Using an inspection location

You can also consider setting up an inspection location for manufactured items that are subject to an inspection process before they are transferred to a storage or shipping location. As with a receiving location, flag the inspection location as *Transitory* so that stock cannot be issued or picked from the inspection location.

Additional locations can be specified for each item

On the *Locations* tab in the *Stock Items* screen, you can also specify additional allowable locations for each item. You have the option of specifying individual locations or you can assign the item to a *Location Group*, which is a pre-defined set of locations

that apply to a group of items. Location groups are created and maintained in the *Inventory – Setup – Location Groups* screen.

Using location groups

How would a location group be used? For example, all your sheet metal items might be allowed storage in a particular rack area. Instead of assigning the allowable rack locations to each sheet metal item, you can create a location group to represent your sheet metal items and assign allowable locations to it. Any item that is assigned to the sheet metal location group is indirectly assigned to all its allowable locations.

Establish defaults for new stock item creation

In the *Inventory Defaults* screen, you specify a *Receipt Location* and *Primary Location* that get assigned by default to new stock items.

If you always receive items to a receiving location first, that location can be specified as the default receipt location. Otherwise, consider using an “ASSIGN” location as the default receipt and primary location.

Using an “ASSIGN” location

An “ASSIGN” location can be assigned by default to new items, which enables you to create the item record and assign actual receipt and primary locations at a later time. An “ASSIGN” location is not a physical location. It is a temporary location that indicates that the item does not yet have location assignments.

To use an “ASSIGN” location, create a location with an item ID of ‘ASSIGN’ and designate it as the default receipt location (if you are not using a receiving location) and default primary location in *Inventory Defaults*.

Whenever an item is encountered with an ‘ASSIGN’ location, it is your signal that the item needs to be assigned to an actual physical location.

Designate the ‘ASSIGN’ location as Transitory

When you create the ‘ASSIGN’ location, select the *Transitory* checkbox. This identifies the location as a transitory location where stock is stored on a temporary basis to perform a process or transfer. In the *Order Picking* and *Job Issues* screens, stock quantities in transitory locations are displayed for reference, but are not available for picking or issuing.

Use a “FIND” location for items without permanent locations

A “FIND” location can be used with items that do not have permanent locations. These might be items that are procured or manufactured only on occasion and can be stored in any allowable location within a general area. To do this, create a location with a location ID of ‘FIND’. Where applicable, assign this location as the item’s default *Receipt*

Location and Primary Location. When you encounter the ‘FIND’ location on a receiving screen, it is your signal to find an actual location.

Designate the ‘FIND’ location as Transitory

When you create the ‘FIND’ location, select the *Transitory* checkbox. This identifies the location as a transitory location where stock is stored on a temporary basis to perform a process or transfer. In the *Order Picking* and *Job Issues* screens, stock quantities in transitory locations are displayed for reference, but are not available for picking or issuing.

Create work center locations for receiving made to order subassemblies

When made to order subassembly jobs are completed, job outputs must be received to a location, even when items are issued immediately to higher-level jobs. Therefore, you should create locations to represent each work center that has a receiving staging area and you can designate such work centers as the default receipt location against items that are always received directly to specific work centers.

Create a shipping location for to order sell items

Sell items made or purchased to order can be received directly to a shipping location. You should therefore create a shipping location, which represents a general staging area for pending shipments. Designate it as the default receipt location against any item that is received directly to shipping.

Use a transit location if needed

If you transfer stock to remote locations and there is significant transfer time involved, you can create one or more “transit” locations to track stock in route. The *Stock Transfer* screen is used to transfer stock quantities from the source locations to the transit location, which may be your own truck or a commercial shipper. When the items arrive at the target destination, the *Stock Transfer* screen is used to transfer stock quantities from the transit location to final locations.

Designate the transit location as Transitory

When you create the transit location, select the *Transitory* checkbox. This identifies the location as a transitory location where stock is stored on a temporary basis to perform a process or transfer. In the *Order Picking* and *Job Issues* screens, stock quantities in transitory locations are displayed for reference, but are not available for picking or issuing.

Create service vehicle locations if needed

You may have service vehicles used by field technicians or salespeople that have a small parts inventory. Each such vehicle can be given its own location, so that you can track and replenish field inventories. Service vehicle locations are not assigned as

default locations because they are always secondary locations rather than primary locations. The *Stock Transfer* screen will be used periodically to replenish service vehicle stock.

Do not avoid using actual locations

Do not avoid locations by using a single dummy location that has no meaning. Use multiple locations so that stock quantities are tracked against actual locations. Using multiple locations reduces errors, increases inventory accuracy, and saves time by facilitating job issuing, order picking, and stock counts.

5 Lot/Serial Control

Items can be designated for lot or serial control in the *Lot/Serial Control* screen or via the *Lot/Serial* tab within the *Stock Items* screen. When an item is designated for lot or serial control, a lot number or serial numbers must be assigned at time of receipt and lot number or serial numbers specified when items are issued, picked, or transferred.

Lot Control Purposes

Items can be designated for lot control for these purposes:

- Sell items, components, and raw materials must be designated for lot control in industries such as food and pharmaceuticals where it is legally required to do so.
- Critical raw materials and components can be designated for lot control so that potential quality problems can be traced back to specific job inputs to help determine the origin of problems and to assess affected jobs and sales orders for possible corrective action.
- Perishable items with a limited shelf life can be designated for lot control and expiration control so that they do not get used or sold past their expiration date.

Only use lot control when it is required or serves a useful purpose

Lot control requires extra processing time for inventory transactions and therefore should only be used against items where it is required or serves a useful purpose. When an item is designated for lot control, a lot number must be manually assigned with each receipt and lot numbers must be specified when items are issued or picked. Furthermore, lot controlled items must be labeled by lot number and stock on hand must be carefully stored so that different lots do not get intermingled.

Devise a lot numbering convention

Lot numbers are manually assigned at time of receipt. You should therefore devise a lot numbering convention that provides consistency to your lot numbers. A simple method is to use two segments where the first segment is the PO number or job number and the second segment is the date.

Use PO and job receipt labels to identify lots on hand

After lot numbers are assigned in the *PO Receipts* or *Job Receipts* screen, you can go to the *Batch History* tab to print receipt labels that can be formatted to include the lot number as well as PO or job details. These labels can be used to identify on hand stock by lot number. Receipt labels can be customized using the *Forms Edit* utility.

Perishable items use lot control and expiration date control

Perishable items with a limited shelf life must be designated for lot control and for expiration date control. When such items are received, a lot number must be assigned as well as an expiration date.

Serial control tracks individual units

Unlike lot control, where an item lot number applies to multiple units, an item serial number applies to one unit.

Purposes of serial control

Items can be designated for serial control for these purposes:

- Sell items can be designated for serial control when each unit requires quality control or warranty tracking.
- Critical job components, which are typically higher value items that are serialized by the manufacturer, can be designated for serial control to track their use in specific jobs.

Only use serial control when it serves a useful purpose

Serial control requires extra processing time for inventory transactions and therefore should only be used against items where it serves a useful purpose. When an item is designated for serial control, a set of serial numbers must be entered or generated against each receipt and individual serial numbers must be specified when items are issued or picked. Furthermore, serialized items must be individually labeled by serial number.

You can use manual or automatic serial numbering

At the item level you can specify manual or automatic serial numbering. Automatic numbering is ideal because it generates sequential serial numbers for you within a pre-defined length and optional prefix and suffix.

Use PO and job receipt labels for serial number identification

After serial numbers are assigned or generated in the *PO Receipts* or *Job Receipts* screen, you can go to the *Batch History* tab to print receipt labels that can be formatted to include each serial number as well as PO or job header details. These labels can be used to identify on hand stock by serial number. Receipt labels can be customized using the *Forms Edit* utility.

6 PO Receipts

All purchased item inventory originates through transactions made in the *PO Receipts* screen.

Consider using a receiving location

Some items are subject to inspection, labeling, and other processing before they are ready to be transferred to storage locations. To accommodate this, you can create a receiving location and assign it as the default receipt location against such items.

Designate the receiving location as *Transitory* so that stock in the receiving location is included in overall stock on hand, but is not available for issuing and picking. After receipt processing is completed, the *Stock Transfer* screen is used to transfer items to their storage locations.

Using dispatching

When you use dispatching, you receive items on the screen first, then you go to the *Batch History* tab to print a dispatch list that provides receipt details to assist in receiving actual stock to designated locations.

Pre-filling primary locations

You can click the *Pre-Fill* button to pre-fill the remaining quantity on each line against each item's primary location, provided that the item is not subject to lot or serial control.

When you encounter an item with a 'FIND' location

Some items, especially those with occasional or infrequent usage, may not have location assignments, in which case we advocate creating and using a 'FIND' location. When you receive or transfer an item with 'FIND' as its primary location, it means that you should find an available location and specify it as the receipt or transfer location.

Finding an allowable location

In the *Receipt Details* sub-tab at the bottom of the screen, you can click the lookup in the *Location* field to get a list of allowable locations for the item. The *Capacity* field indicates the maximum number of units that can be stored in each location. When you select an allowable location, you can click the magnifying glass icon at the bottom of the screen to view stock in that location to determine if the location is available.

If the item is needed by one or more jobs

In the *Receipt Details* sub-tab you can click the magnifying glass icon to launch the *Stock Status* inquiry for the item, which lists any jobs that may be waiting for the item. In such cases you have the option of receiving stock directly to the work center location.

If the item is subject to lot control

When an item is subject to lot control, you are required to assign a lot number in the *Receipt Details* tab. This is a manual entry. We suggest devising a lot numbering convention that provides consistency to your lot numbers. A simple method is to use two segments where the first segment is the PO number and the second segment is the date.

If the item is subject to serial control

When an item is subject to serial control, you are required to assign or generate a set of serial numbers in the *Receipt Details* tab. If automatic serial numbering is designated against the item, the next available serial number is inserted by default and the remaining serial numbers are automatically generated in sequential order.

Printing receipt labels

After the receipt batch is updated, you can go to the *Batch History* tab to print receipt labels that can be formatted to include the lot number, serial number, and PO header details. Receipt labels can be customized using the *Forms Edit* utility.

7 Job Receipts

All manufactured item inventory originates through transactions made in the *Job Receipts* screen.

Pre-filling the item's primary location

You can click the *Pre-Fill* button to pre-fill the remaining quantity against the item's primary location, provided that the item is not subject to lot or serial control.

When you encounter an item with a 'FIND' location

Some items, especially those with occasional or infrequent usage or sales, may not have location assignments, in which case we advocate creating and using a 'FIND' location. When you receive an item with 'FIND' as its primary location, it means that you should find an available location and specify it as the receipt location.

Finding an allowable location

In the *Receipt Details* sub-tab at the bottom of the screen, you can click the lookup in the *Location* field to get a list of allowable locations for the item. The *Capacity* field indicates the maximum number of units that can be stored in each location. When you select an allowable location, you can click the magnifying glass icon at the bottom of the screen to view stock in that location to determine if the location is available.

If the item is needed by one or more jobs

In the *Receipt Details* sub-tab you can click the magnifying glass icon to launch the *Stock Status* inquiry for the item, which lists any jobs that may be waiting for this subassembly. In such cases you have the option of receiving stock directly to the work center location.

If the item is subject to lot control

When an item is subject to lot control, you are required to assign a lot number in the *Receipt Details* tab. This is a manual entry. We suggest devising a lot numbering convention that provides consistency to your lot numbers. A simple method is to use two segments where the first segment is the job number and the second segment is the date.

If the item is subject to serial control

When an item is subject to serial control, you are required to assign or generate a set of serial numbers in the *Receipt Details* tab. If automatic serial numbering is designated against the item, the next available serial number is inserted by default and the remaining serial numbers are automatically generated in sequential order.

Printing receipt labels

After the receipt batch is updated, you can go to the *Batch History* tab to print receipt labels that can be formatted to include the lot number, serial number, and job header details. Receipt labels can be customized using the *Forms Edit* utility.

8 Stock Transfers

The *Stock Transfer* screen is used to transfer stock from one location to another.

Stock transfer purposes

Stock is transferred for these purposes:

- If you receive purchased items to a receiving location for inspection, labeling, and other processes, the stock transfer is used to transfer stock from the receiving location to actual storage locations.
- The stock transfer is used to replenish stock in primary locations from stock in overflow locations.
- The stock transfer is used to transfer stock to remote warehouses or service vehicles.

Transferring stock from one location to multiple locations

There are situations such as when stock is transferred from the receiving location to actual storage locations where you need to transfer stock from one location to multiple locations. To do so, select the location in the header panel, then click the *Transfer All to Primary* button. All items currently in the selected location will be displayed and will be pre-filled for transfer to each item's primary location. You can then edit the screen for any exceptions and click *Update* to transfer all the items in a single transaction to their destination locations

When you encounter an item with a 'FIND' location

Some items, especially those with occasional or infrequent usage, may not have location assignments, in which case we advocate creating and using a 'FIND' location. When you transfer an item with 'FIND' as its primary location, it means that you should find an available location and specify it as the transfer location.

Finding an allowable location

In the *Transfer Inventory Details* section of the grid you can click the lookup in the *Location* field to get a list of allowable locations for the item. The *Capacity* field indicates the maximum number of units that can be stored in each location. When you select an allowable location, you can click the magnifying glass icon at the bottom of the screen to view stock in that location to determine if the location is available.

If the item is subject to lot control

When an item is subject to lot control, a line is displayed for each lot number within each location. Transfer stock line-by-line as needed.

If the item is subject to serial control

When an item is subject to serial control, a line is displayed for each serial number. Transfer stock line-by-line as needed.

Transferring stock in one line to more than one location

If you wish to transfer stock listed in one line to more than one location, click the *Add* button in the *Transfer Inventory Details* section to open another line, within which you can specify an additional location. Add as many lines as needed to accommodate the number of destination locations.

Using a transit location

If you transfer stock to remote locations and there is significant transfer time involved, you can create one or more “transit” locations to track stock in route. The *Stock Transfer* screen is used to transfer stock quantities from the source locations to the transit location, which may be your own truck or a commercial shipper. When the items arrive at their destination, the *Stock Transfer* screen is used to transfer stock quantities from the transit location to final locations.

Designate the transit location as Transitory

When you create the transit location, select the *Transitory* checkbox. This identifies the location as a transitory location where stock is stored on a temporary basis to perform a process or transfer. In the *Order Picking* and *Job Issues* screens, stock quantities in transitory locations are displayed for reference, but are not available for picking or issuing.

Using service vehicle locations

You may have service vehicles used by field technicians or salespeople that have a small parts inventory. Each such vehicle can be given its own location, so that you can track and replenish field inventories. Service vehicle locations are not assigned as default locations because they are always secondary locations rather than primary locations. The *Stock Transfer* screen will be used periodically to replenish service vehicle stock.

Transferring stock from multiple locations to a single location

There may be situations where you wish to transfer stock from multiple locations to a single location, such as when you transfer stock to a transit location or service vehicle location. To do so, after a location is selected in the header panel, click the *Transfer All to Single* button and select a target location to which all stock will be transferred.

9 Job Issues

Stock is issued to jobs using the *Job Issues* screen.

Job issues must be performed in real time

DBA is designed for real time inventory updating, which means that job issues must be performed concurrent with actual material issues out on the shop floor. This is the only way to achieve accurate location stock quantities, which are needed for job issuing, order picking, and stock counts.

DBA is not designed for “backflushing” at time of job finish

DBA is not designed for “backflushing” where job components are deducted in batch fashion at time of job finish. Backflushing is commonly used by light manufacturing systems that do not have time-phased jobs, location control, or lot and serial control.

Do not attempt to simulate backflushing

Do not attempt to simulate backflushing by delaying job issues until the end of the job. This is a destructive and inefficient practice that converts your inventory into a set of tentative, unreliable location quantities that take no account of materials in WIP. Without reliable location quantities, it is not possible to perform stock counts or to accurately dispatch job issues or order picking. Users will be aware that quantities on the screen cannot be trusted and will be less committed to proper procedures, which compounds the unreliability of your inventory.

Backflushing is error-prone and time-consuming

It is a mistaken notion that backflushing saves time, when in fact it consumes a great deal of extra time. Job issue transactions are exactly the same whether they are done when issues are made or at job end, so there is no time saved by delaying what has to be done anyway. A real time transaction is always more accurate than one performed hours or days later, often by a different person than the one who actually issued the material. A backflushing environment consumes a great deal of extra time tracking down and correcting inventory errors.

Job release assures material availability

Jobs are only released to production in the *Job Control Panel* when material is fully allocated to all job components and therefore the job release process assures that material will be available when needed for specific job sequences.

Initiate job issues through the Work Center Schedule

The *Work Center Schedule* screen is designed to manage work in process within each work center. Use the screen to determine when materials are needed and to initiate job issue transactions.

Issue material on a “just in time” basis

Because material is fully allocated on job release, there is no need to hoard material in advance, which clogs aisles and staging areas. Instead, material can be issued on a “just in time” basis prior to job sequences being started.

The Material icon indicates when material is needed

Within the work center queue in the *Work Center Schedule* screen, a red *Material* icon indicates when material is needed and has not yet been issued to a job sequence.

Any components assigned to the sequence are to be issued prior to sequence start. Additionally, if the *First Seq* checkbox is selected, this is the job’s first sequence, in which case all components that are not assigned to specific sequences are to be issued as well.

Click the icon to issue the material

To issue the material, click the icon in the *Material* field to launch the *Job Issues* screen, which is filtered to include just the components that are to be issued to this sequence.

Do not use the job traveler as an issue list

Do not use the job traveler as an issue list because it is not designed for that purpose and does not include location or lot and serial information. Components and quantity per amounts are listed on the traveler for manufacturing specification purposes.

Use the issue list or dispatch list

You can issue the material using the issue list or dispatch list method.

Issue List Method

The issue list is printed by clicking the *Issue List* button above the grid in the *Job Issues* screen. The issue list includes stock quantities by location and by lot and serial number and is limited to the components needed for this sequence. You print the pick list, gather the material, and then you return to the *Job Issues* screen to make your entries.

Dispatch List Method

The dispatch list method works in the opposite manner. You issue the material on the screen first, then you go to the *Batch History* tab and click the *Dispatch* button to print the dispatch list. The dispatch list provides a listing of the components, locations, and lot and serial values that were issued.

The dispatch list is highly useful if you rely on warehouse personnel to gather the material for you. You submit the dispatch list to the warehouse and it provides all the instructions needed for gathering and delivering the material to the work center.

Using the Pre-Fill button

The *Pre-Fill* button can be clicked to pre-fill the remaining quantities with available stock against all components where stock is stored in a single location and a single lot or serial number.

Issuing items with lot or serial numbers

When multiple lot numbers exist, an issue quantity must be manually entered against each applicable lot number. When multiple serial numbers exist, serial numbers must be selected, one-by-one.

Failure to issue affects downstream work centers

If material does not get issued against an associated job sequence, the material icon will continue displaying in red against all downstream job sequences until the material gets issued.

Return unused material and correct the BOM if needed

When a sequence is completed, any unused material should be returned to stock. This is done by clicking the *Return* button on the *Transactions* sub-tab within the *Job Issues* screen, which enables you to return a portion of the original issue amount back to stock.

If the unused material was due to an error in the bill of materials, it is vitally important that the BOM gets corrected immediately so that the error does not get perpetuated in future jobs.

10 Order Picking

Stock is picked for shipment in the *Order Picking* screen.

Use the Shipment Planner for guidance

Order picking should be guided by the *Shipment Planner* lookup tool in the SO No field.

The *Shipment Planner* lists which orders are ready to ship, prioritized by earliest required date. Starting with the first ready to ship order, you pick stock from available locations. After picking each order, you return to the *Shipment Planner*, which is now updated to reflect the sales order you just picked and the effect the transactions have on your remaining sales orders.

Use the pick list or dispatch list

You can pick orders using the pick list or dispatch list method.

Pick List Method

The pick list is printed by clicking the *Pick List* button above the grid in the *Order Picking* screen. The pick list includes stock quantities by location and by lot and serial number. You print the pick list, pick the items, and then you return to the *Order Picking* screen to make your entries.

Dispatch List Method

The dispatch list method works in the opposite manner. You pick the items on the screen first, then you go to the *Batch History* tab and click the *Dispatch* button to print the dispatch list. The dispatch list provides a listing of the items, locations, and lot and serial values that were picked.

Using the Pre-Fill button

The *Pre-Fill* button can be clicked to pre-fill the remaining quantities with available stock against all items where stock is stored in a single location and a single lot or serial number.

Picking items with lot or serial numbers

When multiple lot numbers exist, a pick quantity must be manually entered against each applicable lot number. When multiple serial numbers exist, serial numbers must be selected, one-by-one.

11 Stock Counts

Stock counts are conducted periodically using the *Stock Counts* screen. The purpose of a stock count is to physically count stock on hand and adjust the on hand quantity when any variance is encountered. Stock counts are typically scheduled and initiated by *Cycle Count Codes* for sets of items.

Do not use stock counts to correct inventory errors

Whenever an inventory error is detected during workflow processes, do not use a stock count to correct the error. Instead, correct the error using the *Stock Adjustments* screen, which is designed to adjust stock on hand for one item at a time. By contrast, a stock count always applies to a set of items and is for inventory maintenance purposes.

Stock counts require real-time inventory updating and location control

Stock counts are only possible with real-time inventory updating and location control. Without real-time inventory updating, on hand quantities are not accurate and have no basis of comparison with physical counts. Without locations, there is no way to account for stock stored in multiple physical locations.

Job issues must be made in real time

In order to achieve real-time inventory updating, job issues must be performed when material is actually issued out on the shop floor. This means that you cannot delay job issues by “backflushing” components at time of job finish. See the *Job Issues* chapter for more information.

Do not avoid using locations

Do not avoid locations by using a single dummy location that has no meaning. Use multiple locations so that stock quantities are tracked against actual locations. Using multiple locations reduces errors, increases inventory accuracy, and saves time by facilitating job issuing, order picking, and stock counts.

Avoid mass physical inventories

Unless required for auditing or regulatory purposes, avoid conducting mass physical inventories where you freeze operations and count your entire inventory. Mass physical inventories are highly disruptive to operations and notoriously error-prone.

Use cycle counting

Instead of mass physical inventories, implement a cycle counting program. Cycle counting is the process by which a small sub-set of stock items is counted on a periodic basis. Each subset of items can be assigned to a *Cycle Count Code* against which stock counts can be scheduled to be conducted at planned intervals.

Link:

-  Cycle Count Codes

Cycle counting is ideal for bulk materials with variable usage

Cycle counting is ideally suited for bulk raw materials such as plastics where job usage quantities are not precise and vary from job to job for the same parent item. The only practical way to issue such materials to jobs is to accept the BOM usage quantity by default. A cycle counting schedule can be applied to such items so that periodic stock counts are made to adjust on hand quantities to reflect actual stock on hand.

Alternative to mass physical inventories

Mass physical inventories where a stock count is performed on the entire inventory requires you to suspend operations and is error-prone due to the large number of items and locations being counted by numerous people in a short period of time.

Instead of conducting mass physical inventories, you can implement a cycle counting program where you count selected items, item categories, or location groups periodically on a scheduled basis. Small cycle counts are relatively easy to conduct and can be performed without suspending shop activities.

Freezing the stock count inventory

When you initiate a stock count, your intent should be to “freeze” the associated items and locations so that live transactions do not occur while a stock count is in progress. If any transactions happen to occur against an item after the stock count is initially created, the program will not allow a count quantity to be entered. Therefore, freeze the associated inventory and perform the actual stock count as quickly as possible.

Using mobile devices

Stock counts are ideally suited for real-time entry using mobile devices such as tablets or notebooks. See the Installation / Update guide for system requirements.

Link:

-  Installation / Update Guide - Shop Floor Access

12 Stock Adjustments

Stock on hand for an item can be adjusted using the *Stock Adjustments* screen.

Stock adjustments are used to correct inventory errors

When an inventory error is detected during workflow processes, a stock adjustment is used to correct the error. Stock on hand by location or lot or serial number is adjusted up or down as needed to conform to actual stock on hand.

Stock adjustments are used for non-job or non-sales usage

A stock adjustment is used to deduct stock associated with a non-job or non-sales purpose, such as trade show samples or materials used for prototyping.

Never use stock adjustments to bypass standard processes

Stock adjustments should never be used to bypass a standard process such as PO receipts, job receipts, job issues, or order picking. Each standard process has its own unique posting and updating in conformance with the overall process workflow.

Bypassing a standard process with stock adjustments severs the process workflow and causes numerous costing, accounting, and job updating problems.

13 Sources of Chronic Problems

Chronic inventory problems stem from the following sources:

“Backflushing” components at job finish

“Backflushing” components at time of job finish is the biggest source of inventory errors. Backflushing is commonly used by light manufacturing systems that do not have time-phased jobs, location control, or lot and serial control. It is a destructive and inefficient practice that converts your inventory into a set of tentative, unreliable location quantities that take no account of materials in WIP. Without reliable location quantities, it is not possible to perform stock counts or to accurately dispatch job issues or order picking. Users will be aware that quantities on the screen cannot be trusted and will be less committed to proper procedures, which compounds the unreliability of your inventory. Transactions recorded hours or days after the actual event, often by different persons than those who actually issued the material, are inherently error-prone.

Not using locations

Using a single, “dummy” location that has no meaning is a major source of inventory errors. Location control enables stock to be stored and tracked in multiple locations, including overflow locations and locations selected on the fly for items with infrequent or one-off usage. Without locations it is easy to make mistakes when performing job issues, order picking, and stock counts.

Using DBA with an outside inventory

Using DBA with an outside inventory, such as a sales inventory, is inherently error-prone and is not compatible with the manufacturing system. DBA is a closed loop inventory system where demand and supply details provide the feedback that drives MRP generation, job release, job priority, and shipment priority. Sales orders and sales inventory cannot be handled in an outside system because it severs the feedback information that underpins the closed loop system.

Inaccurate BOMs and not using issue or dispatch lists

Inaccurate bills of material combined with a failure to issue material using issue lists or dispatch lists is a major source of inventory errors. Bills of material should be as accurate as possible to avoid the introduction of potential errors during job issues. If materials are pulled from stock by memory instead of following actual quantities and locations on an issue list or dispatch list, it is easy for discrepancies to occur between actual usage and BOM usage. On the other hand, when materials are issued from a list, BOM errors will be detected when components do not conform to actual production requirements.

A culture of error-tolerance

Chronic inventory errors perpetuate in environments where BOM and inventory errors are allowed to be overlooked or fixed at later times for expediency sake. A shop floor culture that tolerates errors and does not enforce rigorous and timely error-fixing will be plagued with chronic inventory problems.

14 Fixing a Broken Inventory

An inventory system is “broken” when it cannot provide reliably accurate on hand quantities to drive MRP and workflow processes. A broken inventory can be fixed by implementing a set of proper inventory practices and performing an initial stock count:

Practices to Be Implemented

To address the source of chronic inventory problems, you must implement the following practices:

Issue material to jobs in real time

In order to insure accurate on hand quantities, it is essential that material be issued to jobs in real time through the *Work Center Schedule* screen prior to starting associated job sequences. If any errors exist among BOM component specifications, they are likely to be detected at time of use and can be corrected to prevent future errors. The most common source of inventory errors is to wait until job finish to “backflush” material after the fact without any scrutiny of actual components and quantities used.

Use locations

Do not avoid locations by using a single dummy location that has no meaning. Use multiple locations so that stock quantities are tracked against actual locations. Using multiple locations reduces errors, increases inventory accuracy, and saves time by facilitating job issuing, order picking, and stock counts.

Detect and correct BOM errors immediately

Inaccurate BOM component specifications are a major source of inventory errors. Material gets issued by memory instead of from a pick list or dispatch list and then is pre-filled in the *Job Issues* screen without scrutiny, in which case errors go undetected. Instead, issue material from a pick list or dispatch list so that errors are detected when the issued material does not conform to what is needed on the shop floor. When BOM specification errors are detected out in the shop, see that the BOM gets corrected immediately so that errors do not get perpetuated in future jobs.

Correct on hand discrepancies immediately when discovered

Whenever a discrepancy is discovered where the physical stock quantity within a given location differs from the on hand value, see that the on hand quantity gets corrected immediately with a stock adjustment so that the discrepancy does not adversely affect future processes.

Use cycle counting

Instead of conducting mass physical inventories, which are highly disruptive to operations and notoriously error-prone, implement a cycle counting program where you count selected items, item categories, or location groups on a periodic basis. Small cycle counts are relatively easy to conduct and can be performed with minimal disruption to ongoing operations.

Assign all PO lines a realistic supplier price

It is essential that all PO lines are assigned a realistic supplier price, which is translated into a unit cost that is applied to PO receipt transactions. The receipt cost updates the item's inventory cost and is the cost basis for any subsequent job issue or sales picking transactions.

Receive finished items at a realistic cost

When finished items are received to inventory in the *Job Receipts* screen, always make sure the unit cost is realistic, meaning that it is within acceptable range to the estimated job cost and is not affected by an obvious costing error.

Initial Stock Count

After the above practices are implemented, you must conduct an initial stock count to achieve an accurate inventory that can be maintained from this point forward.

Perform a mass stock count

The only way to get a valid starting point for ongoing inventory maintenance is to perform a mass stock count for all items using the *Stock Counts* screen. Ideally this would be performed when the shop is idle. For example, you may cease production on a Friday and use your workers to help conduct the stock count. Whatever is not counted can be finished on Saturday so that inventory is corrected by Monday when you can resume full production.

Correct item inventory values, if needed

If your inventory is also broken in regards to item inventory values, you must make a mass correction to item inventory costs, which is done by taking these steps:

Step 1 – Update P Item Costs

Use the Estimated Purchase Costs screen to update P item estimated costs.

Step 2 – Run a Mass Cost Rollup

Use the Cost Rollup screen to run a mass cost rollup on all your M items.

Step 3 – Make a Mass Inventory Cost Update

Go to the *Change Inventory Cost* screen and generate a list for all items. Use the *Mass Replace* option to replace inventory costs with each item's *Est Cost*.

NOTE: The mass replace will likely create a massive posting to your *Inventory Adjustments* account that will result in a large profit if your inventory was understated or a large loss if your inventory was overstated. There is no way to avoid or smooth out this one-time posting event.

15 Inventory Value

The focus of this guide is on inventory control, which deals with inventory accuracy. Inventory value is covered in depth in the *WIP Accounting Guide*, which includes these inventory value guidelines:

Assign all PO lines a realistic supplier price

It is essential that all PO lines are assigned a realistic supplier price, which is translated into a unit cost that is applied to PO receipt transactions. The receipt cost updates the item's inventory cost and is the cost basis for any subsequent job issue or sales picking transactions.

NOTE: Be aware that any discrepancy between the supplier invoice price entered in the *PO Invoices* screen and the associated receipt cost gets posted to *Inventory Adjustments* and makes no cost correction to past inventory transactions.

Receive finished items at a realistic cost

When finished items are received to inventory in the *Job Receipts* screen, always make sure the unit cost is realistic, meaning that it is within acceptable range to the estimated job cost and is not affected by an obvious costing error.

Never make journal entry adjustments to your Inventory account

Never make journal entry adjustments to your *Inventory* account. This is a self-adjusting account that is always fully reconciled with the total inventory value of stock on hand.

16 Inventory Control Guidelines

This chapter lists eight basic guidelines that should be followed for inventory control to work properly and provide good results.

1. Do not use DBA with an outside inventory

Do not attempt to use DBA with an outside inventory, such as a sales inventory. DBA is a closed loop inventory system where demand and supply details provide the feedback that drives MRP generation, job release, job priority, and shipment priority. Sales orders and sales inventory cannot be handled in an outside system because it severs the feedback information that underpins the closed loop system.

2. Do not avoid using locations

Do not avoid locations by using a single dummy location that has no meaning. Use multiple locations so that stock quantities are tracked against actual locations. Using multiple locations reduces errors, increases inventory accuracy, and saves time by facilitating job issuing, order picking, and stock counts.

3. Use cycle counting for bulk materials with variable usage

Many bulk raw materials such as plastics are difficult to track at job level and have usage quantities that vary from job to job. The only practical way to issue such materials to jobs is to accept the BOM usage quantity by default. A cycle counting schedule should be applied to such items so that periodic stock counts are made to adjust on hand quantities to reflect actual stock on hand.

4. Avoid mass physical inventories

Unless required for auditing or regulatory purposes, avoid conducting mass physical inventories where you freeze operations and count your entire inventory. Mass physical inventories are highly disruptive to operations and notoriously error-prone. Instead, implement a cycle counting program where you count selected items, item categories, or location groups on a periodic basis. Small cycle counts are relatively easy to conduct and can be performed with minimal disruption to ongoing operations.

5. Issue material to jobs in real time

In order to insure accurate on hand quantities, it is essential that material be issued to jobs in real time through the *Work Center Schedule* screen prior to starting associated job sequences. If any errors exist among BOM component specifications, they are likely to be detected at time of use and can be corrected to prevent future errors. The most common source of inventory errors is to wait until job finish to “backflush” material after the fact without any scrutiny of actual components and quantities used.

6. Detect and correct BOM errors immediately

Inaccurate BOM component specifications are a major source of inventory errors. Material gets issued by memory instead of from a pick list or dispatch list and then is pre-filled in the *Job Issues* screen without scrutiny, in which case errors go undetected. Instead, issue material from a pick list or dispatch list so that errors are detected when the issued material does not conform to what is needed on the shop floor. When BOM specification errors are detected out in the shop, see that the BOM gets corrected immediately so that errors do not get perpetuated in future jobs.

7. Correct on hand discrepancies immediately when discovered

Whenever a discrepancy is discovered where the physical stock quantity within a given location differs from the on hand value, see that the on hand quantity gets corrected immediately with a stock adjustment so that the discrepancy does not adversely affect future processes.

8. Never use stock adjustments to bypass standard processes

Stock adjustments should never be used to bypass a standard process such as PO receipts, job receipts, job issues, or order picking. Each standard process has its own unique posting and updating in conformance with the overall process workflow. Bypassing a standard process with stock adjustments severs the process workflow and causes numerous costing, accounting, and job updating problems.

17 FAQs

Is it necessary to use locations?

It is a big mistake to avoid locations by using a single “dummy” location that has no meaningful use. Once locations are set up and item location assignments are made, locations are easy to use because of pre-fill behavior and provide many benefits, including facilitating stock counts, finding stock in overflow locations, enhancing issuing and picking accuracy, and using receiving and inspection locations. Avoiding locations consumes far more time finding stock and tracking down errors than it does to incorporate them into your workflow processes.

Isn't it more efficient to backflush components at job finish?

Backflushing job components after the fact at time of job finish is the biggest source of inventory problems. You can experience a dramatic and rapid improvement in your inventory control system simply by issuing material to jobs in real time.

Backflushing is mostly done out of habit. Companies that come to DBA from a light manufacturing system are accustomed to backflushing because it is the only means by which assembly build inventory gets updated. In DBA, however, job processes are time-phased and there is no reason to delay any process updating, which defeats the purpose of shop control.

There is no screen entry time to be saved with backflushing because job issue transactions are identical whether done in real time or at job finish. It is always easier and more accurate for the person doing the issuing to enter transactions at the time they occur, compared to the errors that can easily be made when transactions are entered hours or even days later, often by someone who did not do the issuing.

Issue material in real time and your location stock quantities will always be accurate, which facilitates stock counts, stock transfers, job issues, and order picking.

Would bar coding improve inventory accuracy and efficiency?

Bar coding improves inventory accuracy and efficiency in retail and distribution environments, but is inefficient and unnecessary in manufacturing environments where batch updating is much more practical.

Bar coding is well suited for retail and distribution environments where inventory is a simple in-and-out transaction and items are labeled with bar codes that reflect different package sizes.

In a manufacturing environment, however, many items, especially raw materials, are not labeled for bar code scanning. Additionally, package sizes are irrelevant because most components and raw materials are broken down and stored in bulk for issuing to jobs. Implementing any type of shop-wide bar coding system would require a massive commitment to item and location labeling in order to achieve a consistent scanning capability.

The other difference between retail/distribution and manufacturing is the average number of line items involved per transaction. Assembly jobs can have hundreds of components where it is not practical to scan each and every item. Accordingly, we've designed our multi-line transaction screens – *PO Receipts*, *Job Issues*, and *Order Picking* – for pre-filling where the majority of line items are processed with a single click.

Inventory accuracy can be achieved easily and effectively without bar coding by using locations, issuing material in real time by means of issue or dispatch lists, cycle counting, and by immediately fixing BOM and stock discrepancies when encountered.