

About this Book

The **Qube Production Scheduling and Bills of Material User Guide** provides information about the Production Scheduling, Bills of Material, and Labor and Personnel modules. This book includes such topics as Production Planning, Setting Up Production Scheduling, Forecasting, Master Scheduling, MRP and CRP, Allocations, Bills of Material, Routing Lists, Critical Path Viewer, BOM Utilities, Personnel Functions, Job Cost Set Up Functions, and Labor Reports.

Use this book as a general reference book.

The **Qube Production Scheduling and Bills of Material User Guide** is part of a 14-volume set. The other books in the set are:

- General Information User Guide
- System Administration User Guide
- Inventory Management User Guide
- Sales Order Management User Guide
- Purchasing Management User Guide
- Accounting with Qube User Guide
- Accounting with Dynamics User Guide
- Job Costing User Guide
- Order Configuration User Guide
- Global Commerce User Guide
- Implementation Workbook
- Qube Sample Reports Book
- Index

Overview

This user guide contains the following topics:

- Production Planning Overview
- Setting Up
- Forecasting
- Master Scheduling
- Production Planning
- Execute the Plan
- MRP and CRP
- Allocations
- Response to Change
- MRP Reports
- Bills of Material
- Routing Lists
- Critical Path Viewer
- BOM Utilities
- BOM Reports
- Personnel Set Up Functions
- Personnel Functions
- Job Cost Set Up Functions
- Labor Reports

Production Planning Overview

This module will enable users of Qube ERP™ to evaluate their requirements for both materials and labor. To do this, it will analyze current inventory levels, pending purchase orders, and pending customer orders, and create a production schedule showing demand for materials and labor, day by day, work center by work center.

MRP Summary Report vs. Production Scheduling

Qube ERP™ provides two approaches to material requirements planning (MRP). The first, and simplest, involves running the **MRP Summary Report** found in the **Production Planning Reports** window. This report does not time phase or schedule; it simply looks at your sales orders and/or forecasts for a given period of time and recommends what you need to make and buy to meet them. The MRP Summary report is used with the Generate POs/Requisitions Stock to Max function to create requisitions or POs. This MRP Summary Report is included in all Qube ERP™ base systems, and is available to all Qube ERP™ users.

The second approach is this **Production Planning Module**. This is much more involved, and takes much more work to implement. It does time phasing, calculates capacity requirements, provides for shop floor control, and performs MRP calculations. It is available only if you have purchased the Production Planning Module.

It is highly recommended that, prior to running production planning, you become proficient and comfortable with the MRP Summary Report. For information about this report, see [“MRP Summary Report” on page PLAN-207](#). Only then, after you can make this work and are confident in the results, should you tackle the full-bore production planning functions in the system.

Manufacturing Environments and Qube ERP™

Make to Stock vs. Make to Order

Make to stock (MTS) manufacturers normally wish to separate the manufacturing and scheduling processes from the ups and downs of order taking. Therefore, they tend to prefer to generate a master production schedule (MPS), and then run their MRP calculations from that. Qube ERP™ provides comprehensive tools for generation of

the MPS from sales orders and forecasts. Make whatever adjustments you find necessary, and then run the MRP procedures utilizing this MPS.

Make to order (MTO) manufacturers, however, are more concerned with the actual order-taking process. It is, after all, the actual sales orders which are driving their manufacturing and scheduling processes. Therefore, these companies have whole different sets of criteria upon which to schedule, cost, and run their operations. Qube ERP™ provides excellent tools for generating the MRP calculations directly from the sales orders and forecasts, eliminating the MPS stage, if you prefer.

Production Planning Steps

This section of the Qube ERP™ User Guide is designed to help you implement the software portion of this task; but be aware that *the software component is the least important component in the process*. The most important components in a successful MRP implementation are the people and the data. Unless you pay as close attention to educating your people and maintaining the accuracy of your data, you will never be successful in this process, regardless of the software package you have chosen.

Step 1 - Set Up the Data File

Item Master File Records

Make sure all of the Item Master File records, bills of material, work centers, etc., are set up completely and accurately. Without this data in the data file, this process will not work properly. See [“Setting Up” on page PLAN-11.](#)

Open Order Conditions

Make sure all of your sales, manufacturing, and purchase order conditions are accurate and up to date. See [“Open Order Conditions” on page PLAN-16.](#)

Inventory Accuracy

Review your inventory conditions for accuracy. Make sure any scheduled or unscheduled assembly transactions have been entered into the data file. Any unrecorded cycle counts or physical inventory transactions should be entered and finalized. You should review your inventory for any negative stock quantities and reconcile them prior to running production scheduling.

The importance of inventory accuracy cannot be overstated. Here is an example. Assume you do achieve the *recommended* level of 98% inventory accuracy. That means a 2% level of inaccuracy per item. Now, assume that, statistically, half the time you will have more inventory than you need, and half the time the errors will go the other

way; an inventory shortage. *This means that only 1% of the time will you run short on items.*

Now, assume you have a bill of material with 10 items in it. Each item has a 1% chance of not having enough to make the assembly. Now multiply that 1% by the 10 items in the BOM, *and suddenly you have a 10% chance of not being able to complete it!*

With that same BOM and 95% inventory accuracy, you have a 23.4% chance of shortages. With 90% inventory accuracy, your chance of shortages rises to 40.1%. Now you get an idea of how critical these numbers are.

Set Up the MRP Preferences Window

This must be done for all companies running production scheduling, whether make to order or make to stock. See [“MRP Preferences Window” on page PLAN-22.](#)

Step 2 - Forecasting

By definition, MRPII is an attempt to plan ahead. It is a series of steps designed to provide you with a glimpse of the future, so that you can be ready to do things when they are needed. The process must cover a time horizon at least as long as your longest lead time item. If you can anticipate your customer demand, you can anticipate the things you will need to do to meet that demand.

Therefore, the better you get at forecasting, the better you will be at anticipating the things you need to do, and therefore the better you will be at planning. For information on how to conduct the forecasting process within Qube ERP™, see [“Forecasting” on page PLAN-41.](#)

Step 3 - Master Scheduling

If you are going to operate on a make-to-stock model, or you wish to balance sales orders and forecasts using time fences, you will need to schedule from a master production schedule. See [“Master Scheduling” on page PLAN-61.](#)

Step 4 - Run Production Scheduling

Use the **Finite Capacity Scheduling** or **Infinite Capacity Scheduling** window to load and adjust the scheduling queue and run production scheduling. See [“Production Scheduling Window” on page PLAN-100.](#)

Review the MRP Results

If necessary, run the **Scheduling Audit Report** to look at anything that seems to be wrong or out of place. See [“Scheduling Audit Report” on page PLAN-112.](#)

Run the **POs to Expedite** report to determine if any existing POs could be used to meet the projected demand. See [“POs to Expedite Report” on page PLAN-117.](#)

If the report indicates any might be expedited, do the following:

- Contact your vendors to see if they can be expedited.
- Open any such POs in the **Purchase Order** window, and change any scheduled dates to meet the new plans.
- Using the **Material Requirements Plan** window and the **Manufacturing Orders** window, delete any impacted **Planned Purchases**. See [“Manufacturing Order Tasks” on page PLAN-131.](#)

Step 5 - Execute the Plan

Evaluate & Lock In the Planned Purchases (Material Requirements Plan)

After any POs have been expedited, use the **Requisitions Proposed by MRP** reports to audit the remaining proposed purchases (see [“Requisitions Proposed by MRP \(By Date & Item\)” on page PLAN-214.](#) After making any necessary adjustments in the **Manufacturing Orders** windows, use the **Release Manufacturing Orders** window to lock in the purchasing plan and delete any remaining and unwanted planned purchases. See [“Release Manufacturing Orders” on page PLAN-170.](#)

Evaluate and Release the Planned Assemblies and Operations (Capacity Requirements Plan)

Run the necessary production planning reports to evaluate your internal manufacturing order tasks. See [“MRP Reports” on page PLAN-207.](#)

Use the **Capacity Requirements Plan** window to make any adjustments to the plan. See [“Capacity Requirements Plan” on page PLAN-163.](#)

When you are happy with the plan, lock in the shortest possible window which is realistic for your shop. Hopefully this will not be longer than one to two weeks, although in some businesses it may be longer. See [“Release Manufacturing Orders” on page PLAN-170](#) and [“Releasing Strategies and Considerations” on page PLAN-176.](#)



Note: You will need to strike the best possible balance between giving your employees and suppliers the most stable and accurate advance information, and responding to new orders coming into the mix. The fewer changes, the more confidence people will have in your plan and the better performance you will get from them. Keeping the release horizon short improves your ability to respond to late-breaking delays and new orders. No one can tell you the best mix for your business; you will have to determine this for yourself.

Issue the Manufacturing Orders to the Floor

As each day rolls around, issue the necessary manufacturing orders to the various workstations. These documents become the kitting and work order documents and shortage lists for each work center on each day.

Record the Assembly Transactions as they are Completed

As your production staff completes the various tasks, you must record the completion of these tasks in the data file. Use the Sched-

uled Assembly Transactions and Labor Applied to Planned Operations functions to complete these tasks. This will provide up-to-the-minute accuracy on your inventory and job status. See [“Material Requirements Plan, Card 2” on page PLAN-150](#), [“Assembly Transactions” on page INV-80](#), and [“Labor Applied to Planned Operations” on page JC-17](#).

Also make sure that any PO receipts which are logged as purchased items are received into inventory.

Step 6 - Carefully Monitor the Situation

As items are received through purchase order receipts and as items are assembled using assembly transactions, the system will look at open manufacturing order material requirements and update these to reflect the newly added inventory.

If everything goes properly (i.e., if all POs are issued on time, all vendor lead times are correct, all subassemblies are produced on time, etc.) there should be no shortages on any manufacturing order ready for assembly on its scheduled assembly date. Of course, things often do not go as planned. Vendors are late delivering goods, priorities change in the assembly of items, etc. It is therefore advisable that the user print the **Material Requirements List Report** (see [“Material Requirements List” on page PLAN-220](#)) at least once a week to see what shortages are likely to occur in the coming week.

It is also advisable to print the **Open Purchase Orders** report entering a transaction cut off date of “today”. Any POs listed (open POs not filled by “today”) are by definition late and should be followed up immediately.

To monitor exceptions and delays inside the plant, the Production Exceptions Report is very helpful. This report should be printed and followed up regularly (see [“Production Exceptions” on page PLAN-219](#)).

Step 7 - Response to Change

Replan as Necessary

As sales orders, PO receipts, and manufacturing orders change, you will need to make adjustments to the schedule. You can use the **Push-Pull Report** (see [“Push-Pull Report” on page PLAN-211](#)) and **Production Exceptions Report** (see [“Production Exceptions” on page PLAN-219](#)) to help you with this task.

Use the Schedule One Job Function

As new orders are received within a finalized production window, you may thread them into an existing production plan using the “one job at a time” function within the production scheduling module. See [“**Enter 1 Order #/ Item Code or ALL**” on page PLAN-101](#).

Rerun the Production Scheduling Function on a Regular Basis

Repeat this whole process every one to two weeks, or more frequently if necessary.

Setting Up

In order for production scheduling and MRP to function properly, you must have your data set up very precisely, or else your calculations will be inaccurate.

The production scheduling function must calculate and analyze many sets of variables. Inventory, open order, and bill of material accuracy are of the utmost importance. Many authorities maintain that you shouldn't even try to run MRP unless your accuracy in these areas exceeds 95%. Some others insist that 100% accuracy is necessary to achieve the desired results.

Whatever your benchmark, accuracy in these records is critical. If you have the wrong items in a bill of material, production scheduling will indicate that you should make or buy the wrong items. If you have the wrong quantities of items in your inventory data base, you will be instructed to make or buy the wrong quantities. Likewise if you have the wrong items or quantities on open sales orders, MPS orders, or purchase orders, the MRP calculations will be wrong. None of these conditions are caused by the computer; they all have to do with inaccurate recordkeeping by the operator.

And they all will sink the MRP process (and perhaps the entire system implementation) within your company, as your workers will quickly learn that they cannot rely on your MRP calculations.

In addition to the accuracy of this data, there are many fields to be populated and values to be set up in Qube ERP™ prior to running the production planning process. This section will outline those fields. It is very important that all of these steps be complete prior to running production scheduling, or you will get disappointing results.

Item Master File

Depending on the type of part and whether it is fabricated in-house or purchased from a vendor, certain Item Master File fields must be set properly in order for the production scheduling module to function correctly.

Purchased Items

Item Type

Insert **RAW** into the **Item Type** field if this is a purchased part. Insert **SUB** into the field if this is a subassembly and parts will be supplied to a vendor to perform contract labor (outwork) on it. Insert **RES** if this is a resale item.

Purchased
RAW, RES
or SUB

Item Master File, Card #1

Item Code	LAM-1	Laminate in Antique White	
Group	FINE FURN	Sub-Group	<input checked="" type="radio"/> Purchased <input type="radio"/> Fabricated
Option Class	LAMINAT	Raw Materials	
Item Type	RAW	Sub-Assemblies	
Revision Code		Finished Goods	
Cost Updated	01/27/97	Resale Items	
		Expense Items	

G/L Sales Sub-Account: 1000

☐ 1st Article Produced
☐ 1st Article Approved
☐ Master Scheduled Item

Purchased/ Fabricated

All purchased parts (including those with outwork) should be flagged as **Purchased**.

Prime Vendor & Lead Time

Make sure that all purchased parts have a **Prime Vendor** and **Lead Time**. Without an accurate lead time, the system won't know when to order parts. Without a prime vendor, it won't know from whom to order them. Note that purchasing lead time is in calendar days.

Vendor,
Lead Time

Item Master File, Card #2

Item Code	LAM-1	Laminate in Antique White	
Prime Vendor	EAGBEA Eager Beavers	Vendor Item Code	
2nd Vendor		Last Paid	2.00000
Assembled at		Lead Time	30 Days
Total Hours	=0.000		0.00000
Hours to Set Up	=	Hours to Assemble	=0.000



Hint: It is a good idea to set up a record in your vendor file called “No Vendor Specified” (no quotes necessary!). Give it a vendor code of NVS. For items in which you do not know the prime vendor, enter **NVS** in the Prime Vendor field. It is very important, however, to carefully follow up on any purchase orders which are generated with the **NVS** designation, making sure that

proper vendors are assigned to each prior to releasing them. You will also wish to review items periodically with this designation so that the proper Prime Vendor designations can be assigned to them as they are developed. An easy way to do this is to run the following report on a prime vendor designation of NVS:

Bill of Material

If the item is a SUB type part (purchased subassembly), specify the component parts and quantities which you will send to the vendor.

Fabricated Items

Item Type

Insert SUB into the **Item Type** field if this is a subassembly. Insert FIN into the field if this is a finished good.

Purchased/ Fabricated

All fabricated parts should be flagged as Fabricated.

Prime Vendor & Lead Time

Leave the **Prime Vendor** and **Lead Time** fields blank.

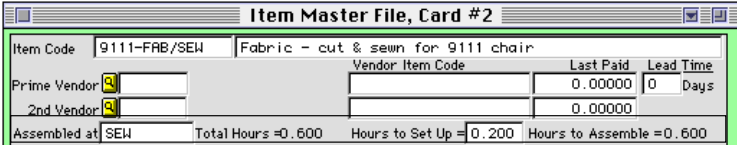
Assembled At

This is the code of the work center where this assembly will be made. While it is possible to manually enter data into this field, it is best to let the system default it. This field is populated as a result of execut-

ing the **BOM Reconstruct** utility. If an item is defined as **Fabricated** and it has no work center in its bill of material, this will default to the work center designated as the **Default Work Center** in System Setup card #3 (see [“Default Work Center” on page SYS-118](#)). If there is a scheduling work center in the item’s bill of material, the value in this field will default to that work center.

Hours to Set Up

If there is setup time associated with this part, enter this value in the **Hours to Set Up** field.



Item Master File, Card #2			
Item Code	9111-FAB/SEW Fabric - cut & sewn for 9111 chair		
Prime Vendor	Vendor Item Code	Last Paid	Lead Time
		0.00000	0 Days
2nd Vendor		0.00000	
Assembled at	Total Hours	Hours to Set Up	Hours to Assemble
SEW	=0.600	=0.200	=0.600

Work Center & Set Up Time

Bills of Material

If the item is a **SUB** or **FIN** type part, specify the component parts which must be used to build it on the **Bill of Material** window, as well as the amount of labor required. Note that only one work center should be specified for labor at each level of a BOM.

The main parameter for setting up bills of material so that production scheduling will function correctly is to make sure that there is a separate inventory item record and bill of material created for each fabricated item at each stage of assembly. For detailed information on how to structure the bills of material, see [“Structuring Your Bills of Material” on page BOM-1](#).

All Items, Purchased or Fabricated

Units of Measure

Audit and adjust the units of measure and conversion factor for each item. If there is a difference between the way things are bought, used

up and sold, make sure these values are entered for all items, purchased and fabricated. See [“Units of Measure” on page INV-26.](#)

Stockkeeping Unit.....	EA		
Purchasing Unit.....	BF	=	2.00 SKUs
Sales Unit.....	BF	=	2.00 SKUs

Scheduling Lot Size

Some items must be purchased or fabricated in fixed lot sizes. Make sure you have this number adjusted properly for each item. See [“Scheduling Lot Size” on page INV-40.](#)

Yield

If there are yield issues in your manufacturing or purchasing operations, ensure the numbers are adjusted accurately in your **Item Master File, Card #2** window. Otherwise you may find you don't have enough of an item when you need it. See [“Yield %” on page INV-40.](#)

Sched Lot Size	1	EA
Yield =	0.0	%

Shop Calendar

Qube ERP™ will assume that work is done five days each week, Monday through Friday, one shift per day. If this is true, you need not enter shop calendar records, as the system will enter them for you as they are needed. But, for example, if Saturday is a work day or if there are holidays to be recorded within the scheduling period, you must enter them and flag them as holidays so that work will not be scheduled for these days. See [“Shop Calendar” on page PLAN-32.](#)

Open Order Conditions

Assembled Inventory

Make sure all assembly transactions have been entered to reflect the use of components to create completed subassemblies and/or finished product. See [“Assembly Transactions” on page INV-80.](#)

Order Entry

1. Make sure all sales order changes have been entered (e.g., quantity and shipment date changes).
2. Make sure all shipped orders have been invoiced. If not, they should be invoiced before the MRP run so they are not scheduled for production.
3. Confirm that current sales forecast records reflect the best estimate of sales orders expected over and above those already received. If not, this information must be entered so that scheduling can prepare for this work and material requirements.

Purchasing

Audit Requisitions

Be sure all requisitions generated from the last MRP run have either been approved for purchase or deleted. Remember, the system will automatically create a requisition record for items required but not in inventory and not reflected in a PO or an approved requisition. Requisition items generated by the last MRP run but not yet approved for purchase could be duplicated with a new MRP run.

To find out which requisitions are still outstanding and have not yet been approved for purchase, print the report, **Requisitions by Item Code** in the **Purchasing Reports** window. Print the report with the following setup parameters to show all unapproved requisitions in the data file:

Enter a Product Item Code or "ALL" ALL
Please Enter Beginning PO or Req Number or ALL ALL
Please Enter Ending PO or Req Number or ALL ALL

Make sure you
print "Closed"
requisitions only

Include Purchase Orders in this report? NO
Include Requisitions in this report? YES
Include "Open" Items in this report? NO
Include "Closed" Items in this report? YES

Audit PO Receipts

Have all PO receipts been recorded? If not, be sure to enter the PO receipts for all POs which have been received into inventory.

1. Load the **Scheduled Receipts** window to show all open POs. Sort the list by date. Look for scheduled receipt dates prior to the current date. Have these late shipments been, in fact, received or have they been delayed or canceled?
2. Look for POs which were shipped short by the supplier. Will the small quantities remaining ever be received or should these POs be closed out so they are not considered as expected stock by the production scheduling run?

Clear Outdated Job Allocations

Allocated to Production

PO allocations involve three components: a quantity allocated, an allocation flag associated with production scheduling, and an allocation flag associated with manual allocations. If you run a finite or an infinite schedule:

- an allocation flag and quantity happens automatically as Qube ERP assigns resources to a job.
- a manual allocation happens when you enter a job number on the shipment record of a PO, thus circumventing its allocation through scheduling.

You can clear PO allocations by using one of two MRP utilities provided; see ["Clear PO Allocations" on page SYS-182](#) and ["Clear PO Manual Allocations" on page SYS-181](#). The Clear PO Allocations utility clears the allocated quantity and the allocation flag associated

with production scheduling. The Clear PO Manual Allocations utility clears location flags associated with manual allocations.

Each PO shipment record may be allocated in part or in full to any job or jobs. Manually entering a Job Allocation will cause the system to fill in the quantity allocated to production as equal to the quantity backordered (not yet received). Removing the job allocation will set the quantity allocated to production to zero and cause the entire quantity represented in the selected shipment to be available in the next scheduling run.

Prior to running production scheduling for the first time, it is important to clear existing purchase order allocations. This will result in Qube treating all open purchase orders as available for allocation based on the logic incorporated in the scheduling module. Once allocations have been created through production scheduling, users should not clear purchase order allocations as a routine part of preparing to run production scheduling. Qube will perform any maintenance required on existing allocations as part of the rescheduling process.

Changing the Job Allocation

The system will allow the user to change the job allocation or to remove it entirely. Removing the job allocation will cause the quantity allocated to production to revert to zero and set the status of the selected PO shipment so that it will now be made available for use on any other job in the next scheduling run.

Load the **Scheduled Receipts** window to show all open POs. Sort the list by Job. Look at the job allocations displayed on the **Scheduled Receipts** window. *Any PO shipments allocated to any specific job will not be considered as available for use on any other job.* These job allocations may have been set manually or by a previous production scheduling run.

Use the <CLEAR JOB ALLOCATIONS> button to clear out job allocations on PO shipments which you wish to make available to any

manufacturing requirements on the upcoming scheduling run. See [“Scheduled Receipts Window” on page PUR-77.](#)

Scheduled Date	Vendor	Item	Item Status	Quantity Ordered	Qty Not Allocated to	Product Job Allocation
01/07/97	60010-2-1	WOODMAR	SCERRY Wood - Sh	0	120	20
06/13/97	60017-1-5	TABMAK	0005 Bracket - Ch	0	5	5 1864-1-4
06/13/97	60017-1-4	TABMAK	0005 Bracket - Ch	0	10	10 1864-1-4
06/18/97	60016-1-3	POINCOA	9111-FR/S Frame - 0	5	5	5 1864-1-4
06/18/97	60016-1-2	POINCOA	9111-FR/S Frame - 0	5	5	5 1864-1-4
01/08/97	60009-1-8	EROSER	LAM-1 Laminate in 0	15	15	15 1864-1-4
05/12/97	60017-1-3	TABMAK	0005 Bracket - Ch	0	10	10 1864-1-3
05/19/97	60016-1-1	POINCOA	9111-FR/S Frame - 0	5	5	5 1864-1-3
01/08/97	60009-1-7	EROSER	LAM-1 Laminate in 0	15	15	15 1864-1-3
04/11/97	60017-1-2	TABMAK	0005 Bracket - Ch	0	10	10 1864-1-2

Clear any
outdated job

Negative Stock Levels

You should very carefully audit the data file for any negative stock levels. While the Qube ERP™ production planning function will treat negative stock levels as zero quantities, they almost always indicate errors in the entry of transactions or a condition where all PO receipts or assemblies have not yet been entered. This condition would exaggerate recommended purchase and assembly quantities.

Set Up Errors Reports

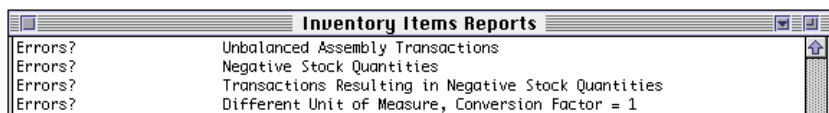
The system provides several reports to help you check for and fix inventory setup errors before running production scheduling. These reports are covered in this section.

Set Up Errors Which Will Cause Scheduling Errors

Select from the MRP Reports **Set Up Errors** report. The report will print or display every inventory record which has insufficient or invalid data. For example, the report will print a record identifying an inventory item designated as purchased but which does not have a prime vendor indicated. Without this information, the system will not know for whom a purchase order must be generated or if, in fact, a PO is needed. The report procedure will also look for a lead time specified in the same record. Without specifying a lead time for each purchased item, the system will be unable to produce a schedule.

Similarly, the report procedure will look for fabricated items which do not specify which work center does the fabrication.

If you answer **YES** to the prompt “Fill in Blank Work Centers and Prime Vendors”, the window will display fields which allow you to select what the default vendor and work center would be. QCI recommends using NVS as the default vendor and WC1 as the default work center. If the system finds a fabricated item with no work center, it will replace the blank with the selection you entered. If it finds a purchased item with no prime vendor specified, it will fill in the blank vendor code with the code you entered. Reports exist in the **Inventory Items Reports** window which allow you to audit negative stock levels, unbalanced inventory transactions, and units of measure. These should also be run when auditing the production schedule setup.



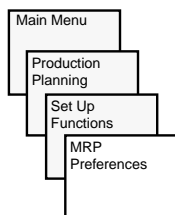
Inventory Items Reports	
Errors?	Unbalanced Assembly Transactions
Errors?	Negative Stock Quantities
Errors?	Transactions Resulting in Negative Stock Quantities
Errors?	Different Unit of Measure, Conversion Factor = 1

MRP Links Window

MRP Links							
Insert the list		Select 1, Add or All					
PLKEY	PS-PLKEY	PS-PROJKEY	MRP-PS-KEY	MRP-Source-KEY	PL-KEY	PS-PS-KEY	
2145-1-1	1354-1-1	7077	7077	TFH0P044253	SH0P044253		
2145-1-2	12145-1-2	7019	7019	TFINAL073781	FINAL073781		
2145-1-3	12145-1-3	7050	7050	TFINAL074091	FINAL074091		
2145-1-2	01073781	7077	7077	P60213-1-2			
2145-1-2	01074091	7048	7048				
	FIN073801	6624					
	FIN073701	6045					
2143-1-2	FIN073781	7030	7030	THILL073781	THILL073781		
2145-1-2	FIN073781	7024	7024	P60207-2-1			
2145-1-3	FIN074091	7051	7051	THILL074091	THILL074091		
2145-1-3	FIN074091	7050	7050	P00212-1-1			
2145-1-2	FIN073781	7019	7019	TSEU073781	TSEU073781		
2145-1-2	FIN073781	7025	7025	P60202-2-2			
2145-1-2	FIN073781	7026	7026	LUU1073781	LUU1073781		
2145-1-2	FIN073781	7020					
2145-1-2	FIN073781	7029	7029	TFIN073781	TFIN073781		
2145-1-2	FIN073781	7035	7035	P60207-3-1			
2145-1-2	FIN073781	7036					
2145-1-2	FIN073781	7037	7037	P60200-1-1			
2145-1-3	FIN073781	7058					
2145-1-3	FIN074091	7040	7040	TSEU074091	TSEU074091		

If you sign on as a developer, the MRP Links window is available from the Production Planning function list. This window is a debugging tool that can be used to identify production scheduling problems, such as breaks in the data linkage. The data is display only and cannot be modified.

MRP Preferences Window



World Class Industries normally operates based on the **Make to Order** model
☒ Include Sales Orders & Forecasts in the Scheduling Queue

World Class Industries normally operates based on the **Make to Stock** model
☐ Do Not Include Sales Orders or Forecasts in the scheduling queue ☐ Include MPS orders in the scheduling queue.

☒ Schedule each routing step ☐ Do not lot size when generating MPS orders.
☐ Assemblies are never built to stock. Scheduling should always recommend a build of assemblies, never pull from stock.

☒ Allow changes to orders + forecasts which have been scheduled but not released.
☒ Use less memory for forward scheduling (takes more time, but allows scheduling bigger jobs)

☒ Allocate latest PO shipments first (reserves earliest PO for urgent requirements)
Demand Time Fence 02/01/1999 Planning Time Fence 12/31/1999

☒ Item Master Comments are normally printed on Mfg Orders ☒ Assign batch codes to tasks where appropriate at release

☒ RRM Comments are normally printed on Mfg Orders ☒ Calculate MPS Requirements Using Order at Stock
☐ Compute MPS Requirements Using Total Stock

Number of Working Days This Year 300

☐ Default to Memory Based Scheduling

Purchasing Lead Time Variance 30 Days Assembly Lead Time Variance 1 Days

These allow a PO shipment or Mfg Order Task to be allocated by production scheduling even if it is scheduled to be received late, by this number of days. Since lead times are often not exact or fixed, this helps to avoid unnecessary additions to planned purchases or assemblies when expediting POs or Mfg Order Tasks will get the job done.

MPS periods are based ☐ Weeks ☒ Fiscal ☒ Months ☐ Calendar ☐ Quarters

Schedule completion of production 1 days prior to start of MPS period

Reset MPS Calendar

Period	Begin
10	10/01/1999
11	11/01/1999
12	12/01/1999
13	01/01/2000
14	02/01/2000
15	03/01/2000
16	04/01/2000
17	05/01/2000
18	06/01/2000
19	07/01/2000

Make to Order Planning Cycle without Scheduling Make to Stock Planning Cycle without Scheduling
Make to Stock Planning Cycle with Scheduling Make to Order Planning Cycle with Scheduling

This window is used to set up your MRP Preferences. There are several areas which can be affected by this window.

Window Functions

Make to Order/ Make to Stock

{Radio button selections} Depending on which module you wish to base your business, you will select only one of these options. They impact the way the **Production Scheduling** window defaults when you click <LOAD THE SCHEDULING QUEUE>. Either way, they are merely defaulted values, and can be overridden on the **Production Scheduling** window.

Schedule each routing step

{Checkbox selection} If you have set up a routing for any of your items, checking this selection will cause each routing step to be scheduled for each item included in the scheduling queue. If you turn this selection off, only the final work center of a routing will be scheduled (see [“Routing Lists” on page BOM-21](#)).

Do not lot size when generating MPS orders

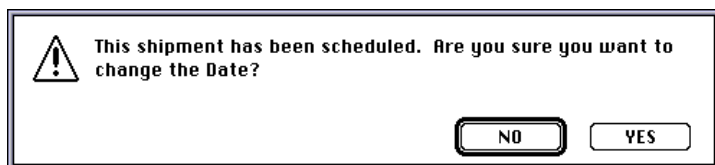
{Checkbox selection} When Qube ERP™ makes MRP calculations, it will base its calculations on the lot size number set up on **Item Master File, Card #2** (see [“Scheduling Lot Size” on page INV-40](#)). You may also cause the system to factor lot sizes into the calculation of MPS orders by leaving this off. If you wish to defeat the lot size when generating MPS orders, turn this selection on. In either case, the lot sizing function will remain on when generating the production schedule; this selection is only for MPS orders.

Assemblies are never built to stock...

{Checkbox selection} Some companies never make any items to stock; all items, whether independent or dependent demand items, will be made to order. Therefore, all new orders require all new finished items and subassemblies to be made to order. Setting this selection to on will cause the system to ignore any manufactured components in stock and create a new manufacturing order for all assembled items required. Any unallocated general stock for purchased raw materials, however, will be available for production.

Allow changes to orders and forecasts...

{Checkbox selection} If this selection is off, and you attempt to change the quantity, the scheduled ship date, or the status on a sales order or forecast item which has been scheduled, but not released, a message similar to the following will be returned.



If this selection is turned on, this message will not be returned when a change is made to a scheduled but unreleased job.

If a job has been scheduled and released, these messages will appear regardless of the status of this flag. In either case, the change may be made to the record by clicking the <YES> button.



Use less memory for forward scheduling

{Checkbox selection} If you check this box, you will be able to schedule bigger jobs, but they will take longer to process.

Allocate latest PO shipments first

{Checkbox selection} If you check this box, the latest PO shipments are allocated first, reserving the earliest POs for urgent requirements. For example, there may be a material requirement for 100 units of item ABC needed on November 1. Qube ERP™ may find three POs available to fill that requirement:

50	June 30
60	August 30
70	October 30

If you have selected this checkbox, Qube ERP™ will first allocate the 70 units on the October 30 PO and then allocate 30 more units from the August 30 PO. By processing this way, the 50 units coming in on June 30 would not be allocated to a material requirement schedule for three months later. Instead the October 30 shipment would be allocated, thereby reserving 50 units scheduled in June and the remaining 30 units scheduled in August for more urgent requirements.

When using this method, however, you will want to use the **Open POs** report and/or the **Reqs Proposed by MRP** report (sorted by item code) to identify open POs scheduled to come in soon to see if the scheduling procedure skipped over open POs. These skipped POs can then be rescheduled for later delivery, rather than have them delivered and unnecessarily increase inventory.

Time Fences

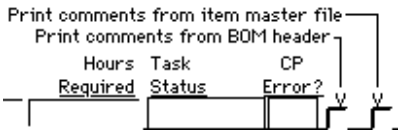
{Validated, date formats} Generally, when creating the master production schedule (MPS), the planner will want to employ both forecasts (projected demand) and sales orders (actual demand) in the calculations. However, these records should be treated differently based on how far out in time (planning horizon) they occur. For example, in the very near future, the planner may wish to disregard forecasts altogether, and concentrate only on actual sales orders. In

the far future of the planning horizon, existing sales orders would have been taken into consideration for any forecasts, so including the sales orders again would in effect be inflating the forecasts. Therefore, you would likely wish to include only forecast records in the calculations. In the mid term, however, both sales orders and forecasts would be important. It would not be so soon that forecast records would skew the numbers. Likewise, you might find that actual sales orders had eclipsed the forecasts. In that case, you would want to be sure to include them. This calculation, then, would likely be the greater of sales orders or forecasts.

This is exactly what demand and planning time fences accomplish. Prior to the *Demand Time Fence*, only actual demand (sales orders) will be considered. Between the two, the greater of sales orders or forecasts will be used to calculate the MPS. Beyond the *Planning Time Fence*, only forecasts will be used. In this way, the system can calculate the most accurate master production schedule. The date selected for the planning time fence and demand time fence must coincide with the start of an MPS period.

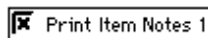
**Item Master
Comments are
normally printed
on Mfg Orders/
BOM Comments
are normally
printed on Mfg
Orders**

{Checkbox selection} If you check either or both boxes, the print comment settings will default on the **Manufacturing Order Header** window.



The defaults are executed when either adding manufacturing orders manually or when generating them using production scheduling. Note that the Print BOM comments option is applied only with fabricated items, while the Print Item comments option is applied for all items. When purchased tasks are released, the Print Item Comments

field value will be copied to the PO item Print Item Notes 1, shown on the **PO Items** window.

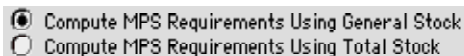


Assign batch codes to tasks...

{Checkbox selection} If you check this box, batch codes will be automatically assigned to tasks at release.

Compute MPS Requirements

You can choose whether to use general stock or total stock when computing MPS requirements.



You may override this preference on either the **MPS Flagged Items List** window or the **MPS Detail** window.

Number of Working Days This Year

{Numeric, editable} Enter the number of working days this year. Qube ERP™ uses this field when populating the **Months on Hand** and **Annualized Use** on the **Inventory Stock Quantities** windows.

Lead Time Variance

{Numeric, editable} Enter the number of days in this box that you wish to define as a lead time variance. This affects production scheduling by allowing PO shipments or manufacturing tasks to be selected which might otherwise remain unallocated. POs selected are those with an unallocated quantity due to be received prior to the date required in manufacturing or within **X** days after the date required in manufacturing, where **X** = lead time variance in days. Manufacturing tasks with unallocated quantities are treated similarly.

Qube ERP™ also delivers a message on the **Scheduling Audit** report that the selected PO will be late and would not have been selected except for the specified lead time variance; see [“Scheduling Audit Report” on page PLAN-112](#).

MPS periods

{Radio buttons} Use these radio buttons to set up your MPS bucket size by fiscal year or calendar year, and by weeks, months, or quarters. Use the **EDIT** button to change your selection (e.g., from Fiscal

Weeks to Calendar Months). The changes you make to these settings are reflected in the MPS Periods list on the far right of the screen, indicating the period number and the date the period begins:

MPS Periods	
Period	Begins
3	07/01/97
4	10/01/97
5	01/01/98
6	04/01/98
7	07/01/98
8	10/01/98
9	01/01/99
10	04/01/99
11	07/01/99
12	09/02/99

The list shows about a 3-year period, so if your buckets are set by month, you can view 35 periods, or if by week, 152 periods. You can view the current year, the year before, and the year after. To move the calendar ahead, however, you will need to click the *RESET MPS CALENDAR* button when you get to the end of your current calendar. For more information about MPS buckets, see [“Changing Bucket Size” on page PLAN-29](#).

Default to Memory Based Scheduling

{Checkbox} Check this box if you wish to use memory based scheduling as the default. Normally this is associated with **Forward Scheduling**, an optional module.

Schedule completion of production

{Numeric, editable} You may wish to establish a buffer between when production is scheduled to be complete and the start of the MPS period. Enter the desired number of days in this box.

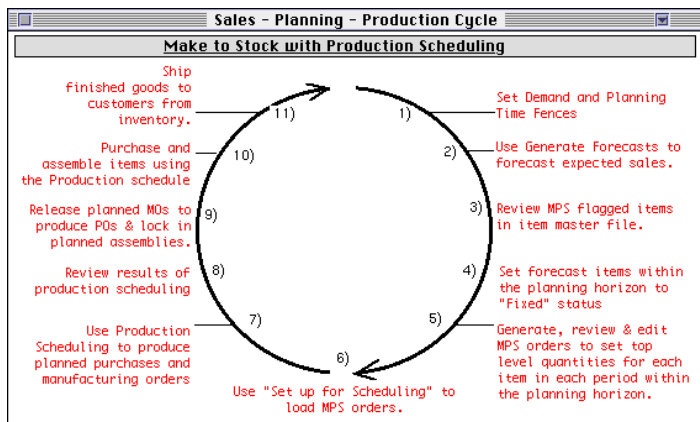
Reset MPS Calendar

{Button} Click this button to reset the MPS calendar. Redefining the MPS periods results in a calendar that starts on the first day of the first period of the prior year and ends on the last day of the last period of the next year; i.e., the calendar covers 3 years. As time passes, you will need to reset the calendar, using the *RESET MPS PERIOD CALENDAR* button. Resetting the calendar will advance its beginning and ending periods to be more appropriate to the current date.

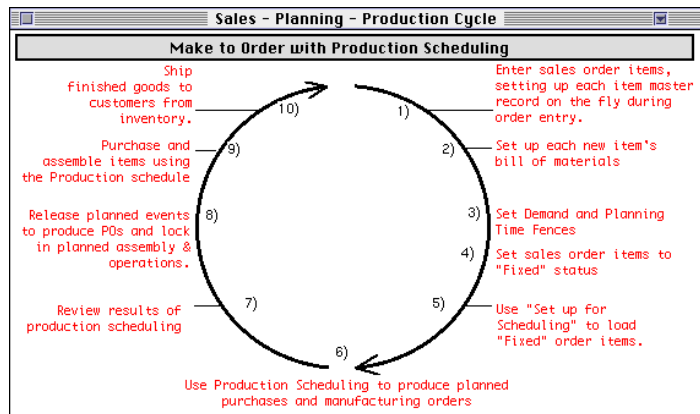
Production Planning Cycles

There are four buttons on the bottom of the MRP Preferences window which provide handy pictographs of each type of production planning cycle. These pictographs are for informational purposes only. To display them, click these buttons.

Make to Stock w/ Production Scheduling



Make to Order w/ Production Scheduling



Changing Bucket Size

If you change the bucket size from the default one fiscal week bucket size, Qube ERP™ will adjust the period for all open MPS orders so that they will be treated correctly when viewing expected stock levels on the MPS Detail window and when generating new MPS orders. If you change your bucket size from fiscal week to calendar months, the MPS Detail window will display the records in more consolidated groups and generate fewer MPS orders.

Before MPS orders, 1 Fiscal Week Bucket

Here's an example of a window which displays expected stock levels using a one fiscal week bucket, before MPS orders are generated:

Transaction Period	Transaction Type	Transaction Number	Transaction Date	Status	Transaction Quantity	Expected Balance
114	General Stock		03/10/98		6,000	6,000
114	General Stock		03/10/98		6,000	6,000
59	Sales Orders	2 Shipments	02/18/97	Planned	-77,000	-71,000
73	Sales Orders	4 Shipments	05/31/97	Planned	-5,000	-76,000
76	Sales Orders	1 Shipment	06/17/97	Planned	-19,000	-95,000
78	Sales Orders	1 Shipment	07/01/97	Planned	-1,000	-96,000
82	Sales Orders	1 Shipment	08/01/97	Planned	-2,000	-98,000
83	Sales Orders	2 Shipments	08/04/97	Planned	-21,000	-119,000
84	Sales Orders	2 Shipments	08/17/97	Planned	-20,000	-139,000
87	Sales Orders	2 Shipments	09/01/97	Planned	-13,000	-152,000
91	Sales Orders	1 Shipment	10/01/97	Planned	-10,000	-162,000

MPS orders, 1 Fiscal Week Bucket

If you generate MPS orders using this schedule, Qube ERP™ will generate six MPS orders, resulting in the following:

Transaction Period	Transaction Type	Transaction Number	Transaction Date	Status	Transaction Quantity	Expected Balance
114	General Stock		03/10/98		6,000	6,000
114	General Stock		03/10/98		6,000	6,000
57	MPS Order		02/09/97	Firm Plan	80,000	86,000
59	Sales Orders	FINAL	02/18/97	Planned	-77,000	9,000
73	Sales Orders	4 Shipments	05/31/97	Planned	-5,000	4,000
74	MPS Order		06/08/97	Firm Plan	20,000	24,000
76	Sales Orders	FINAL	06/17/97	Planned	-19,000	5,000
78	Sales Orders	1 Shipment	07/01/97	Planned	-1,000	4,000
81	MPS Order		07/27/97	Firm Plan	20,000	24,000
82	Sales Orders	1 Shipment	08/01/97	Planned	-2,000	22,000
83	MPS Order		08/10/97	Firm Plan	20,000	42,000
83	Sales Orders	FINAL	08/04/97	Planned	-21,000	21,000
84	Sales Orders	FINAL	08/17/97	Planned	-20,000	1,000
85	MPS Order		08/24/97	Firm Plan	20,000	21,000
87	Sales Orders	FINAL	09/01/97	Planned	-13,000	8,000
89	MPS Order		09/21/97	Firm Plan	10,000	18,000
91	Sales Orders	FINAL	10/01/97	Planned	-10,000	8,000

Before MPS orders, 1 Fiscal Month Bucket

Changing the MPS Period Calendar to fiscal months results in the following “before” display. Notice that the list is shorter, since the orders have been consolidated into larger buckets. The bottom line, however, is the same: an expected negative stock level of 162 units.

Transaction Period Type	Transaction Number	Transaction Date	Status	Transaction Quantity	Expected Balance
26 General Stock		03/10/98		6,000	6,000
26 General Stock		03/10/98		6,000	6,000
13 Sales Orders	2 Shipments	02/18/97	Planned	-77,000	-71,000
16 Sales Orders	4 Shipments	05/31/97	Planned	-5,000	-76,000
17 Sales Orders	1 Shipment	06/17/97	Planned	-19,000	-95,000
18 Sales Orders	1 Shipment	07/01/97	Planned	-1,000	-96,000
19 Sales Orders	5 Shipments	08/01/97	Planned	-43,000	-139,000
20 Sales Orders	2 Shipments	09/01/97	Planned	-13,000	-152,000
21 Sales Orders	1 Shipment	10/01/97	Planned	-10,000	-162,000

MPS orders, 1 Fiscal Month Bucket

Generating MPS orders using this data results in only five MPS orders. The bottom line, however, is the same: expected stock levels will be brought up to eight units by the end of the schedule.

Transaction Period Type	Transaction Number	Transaction Date	Status	Transaction Quantity	Expected Balance
26 General Stock		03/10/98		6,000	6,000
26 General Stock		03/10/98		6,000	6,000
12 MPS Order		01/31/97	Firm Plan	80,000	86,000
13 Sales Orders	FINAL	02/18/97	Planned	-77,000	9,000
16 MPS Order		05/31/97	Firm Plan	20,000	29,000
16 Sales Orders	4 Shipments	05/31/97	Planned	-5,000	24,000
17 MPS Order		06/30/97	Firm Plan	40,000	64,000
17 Sales Orders	FINAL	06/17/97	Planned	-19,000	45,000
18 MPS Order		07/31/97	Firm Plan	20,000	65,000
18 Sales Orders	1 Shipment	07/01/97	Planned	-1,000	64,000
19 MPS Order		08/31/97	Firm Plan	10,000	74,000
19 Sales Orders	FINAL	08/01/97	Planned	-43,000	31,000
20 Sales Orders	FINAL	09/01/97	Planned	-13,000	18,000
21 Sales Orders	FINAL	10/01/97	Planned	-10,000	8,000

It is easy to misunderstand this data when forecasts are involved, unless you are very careful. Here are some examples.

Bucket Size = 1 Fiscal Week

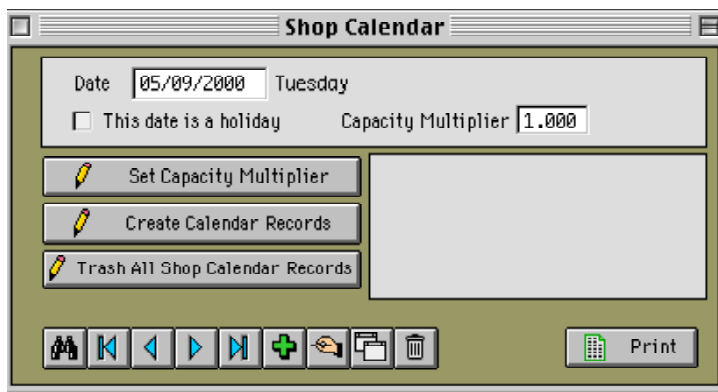
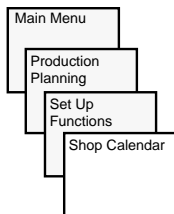
Transaction Period Type	Transaction Number	Transaction Date	Status	Transaction Quantity	Expected Balance
114 General Stock		03/10/98		6,000	6,000
114 General Stock		03/10/98		6,000	6,000
59 Sales Orders	2 Shipments	02/18/97	Planned	-77,000	-71,000
69 Sales Forecasts	1 Shipment	05/01/97	Planned	-50,000	-121,000
71 Sales Forecasts	1 Shipment	05/15/97	Planned	-50,000	-171,000
73 Sales Orders	4 Shipments	05/31/97	Planned	-5,000	-176,000
75 Sales Forecasts	1 Shipment	06/15/97	Planned	-50,000	-226,000
76 Sales Orders	1 Shipment	06/17/97	Planned	-19,000	-245,000
78 Sales Orders	1 Shipment	07/01/97	Planned	-1,000	-246,000
82 Sales Orders	1 Shipment	08/01/97	Planned	-2,000	-248,000
83 Sales Orders	2 Shipments	08/04/97	Planned	-21,000	-269,000
84 Sales Orders	2 Shipments	08/17/97	Planned	-20,000	-289,000
87 Sales Orders	2 Shipments	09/01/97	Planned	-13,000	-302,000
91 Sales Orders	1 Shipment	10/01/97	Planned	-10,000	-312,000

Bucket Size = 1 Fiscal Month

Transaction Period Type	Transaction Number	Transaction Date	Status	Transaction Quantity	Expected Balance
26 General Stock		03/10/98		6,000	6,000
26 General Stock		03/10/98		6,000	6,000
13 Sales Orders	2 Shipments	02/18/97	Planned	-77,000	-71,000
16 Orders & Forecasts	6 Shipments	05/01/97	Planned	-100,000	-171,000
17 Orders & Forecasts	2 Shipments	06/15/97	Planned	-50,000	-221,000
18 Sales Orders	1 Shipment	07/01/97	Planned	-1,000	-222,000
19 Sales Orders	5 Shipments	08/01/97	Planned	-43,000	-265,000
20 Sales Orders	2 Shipments	09/01/97	Planned	-13,000	-278,000
21 Sales Orders	1 Shipment	10/01/97	Planned	-10,000	-288,000

At first glance, these look inconsistent. You might expect the two displays to produce at least the same expected balance, but they do not. In fact, the displays are correct. Notice that periods 16 and 17 contain both orders and forecasts (records found in periods 69, 71, and 75 in the previous display). This period also falls before the demand time fence. Qube ERP™ ignores the forecasts which fall prior to the demand time fence and nets forecasts with orders when they fall between the demand and the planning time fence. Because of this, the net numbers are likely to be different.

Shop Calendar



The shop calendar is a list of all the days within a certain time period. Each day is marked as a normal workday or a holiday. The system will not schedule labor or materials requirements on holidays.

Use this window to set up working days, numbers of shifts, holidays, etc. All shop calendar records pertain to all work centers. For example, you may not schedule a holiday for some work centers and not others. However, you may schedule different numbers of shifts for each work center within the work center window.

When to Generate Shop Calendar Records

It is not necessary that all possible dates be entered into the shop calendar file. When production scheduling is being run and a calendar record is looked up, Qube ERP™ will insert new calendar records as it needs them. This will, however, act on the assumption that the company works on a five-day work week. Saturdays and Sundays will not be scheduled unless records have already been added to the Shop Calendar file and specified as workdays. Therefore, you should usually generate shop calendar records only for any holidays you wish to create or weekends you wish to open up for scheduling. You may also use this function to manipulate numbers of shifts, etc.

An exception to this rule would be any company which has exceptionally large scheduling requirements (very large item master files and deeply indented BOMs) and is looking for any way to speed up the production scheduling function.

Window Functions

Date

{Required, indexed, date format, primary find field} This is the date for the record on which you are working. It is also the primary index and find field for the record.

This date is a holiday

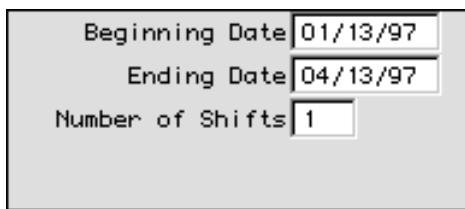
{Checkbox selection} If you select this box by checking it, this date will be considered a holiday, and no production will be planned for it. If you leave this box empty, it will be available for production. If you do not set up any shop calendar records, the system will assume all weekdays will be working days, and all weekend days will be holidays. To set weekend days as working days, enter the applicable dates, and click the **holiday** selection *OFF*.

of Shifts

{Numeric, 3 decimal places} Use this field to set the number of shifts for this date. The default is 1.000. The number in this field will be the multiplier for the **Normal number of SHIFTS worked per DAY is...** field in the **Work Center** window. For example, if you set this number to two, and the number of shifts worked in the work center record at two, the resulting number of shifts worked at that work center for that day would be *four*.

Set Number of Shifts

{Button} Clicking on this button displays the following fields in the **Shop Calendar** window:



The screenshot shows a window titled "Shop Calendar" with three input fields. The first field is labeled "Beginning Date" and contains the text "01/13/97". The second field is labeled "Ending Date" and contains the text "04/13/97". The third field is labeled "Number of Shifts" and contains the text "1".

Enter the beginning and ending dates and the number of shifts to set for those dates. The function will find each non-holiday record within the date range and set up the designated number of shifts for those records.

It is important that the selected work center record being scheduled be flagged not to restrict to single shifts. The following field is found on the **Work Center Rate & Capacity** window (see [“Work Centers & Processes Window” on page LAB-31](#)). The desired condition would be *OFF*:

☐ Restrict Scheduling to Only 1 Shift/day



Note: This function will not work unless a shop calendar record already exists for the date range in question.

Create Calendar Records

{Button} Clicking on this button displays the following fields in the Shop Calendar window:

Beginning Date	01/01/97
Ending Date	06/30/97
Number of Shifts	1
<input checked="" type="checkbox"/> Saturdays will be holidays.	
<input checked="" type="checkbox"/> Sundays will be holidays.	

Enter the beginning and ending dates and the number of shifts to set for those dates. Also indicate whether Saturdays and Sundays will be holidays. Click <SAVE>, and the function will create the calendar records for the date range indicated, and set the number of shifts for each day indicated.

Trash All Shop Calendar Records

{Button} Clicking on this button will display the following message:

	Trash All 120 Shop Calendar Records? Are you sure?
<input type="button" value="NO"/> <input type="button" value="YES"/>	

Clicking <YES> will delete all of the calendar records in the system, in effect resetting the calendar to one shift per day, Monday through Friday. Clicking <NO> will cause the function to abort.

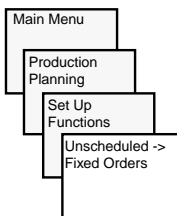
Print

{Button} Clicking this button will print the shop calendar for the remaining days of the current calendar year. This report looks like this:

Screen report						
World Class Industries						
Shop Calendar						
Period Covering 01/13/97 - 01/13/98						
Report Printed on 01/13/97 at 11:46, Page #1						
<u>Sunday</u>	<u>Monday</u>	<u>Tuesday</u>	<u>Wednesday</u>	<u>Thursday</u>	<u>Friday</u>	<u>Saturday</u>
January, 1997						
	13	14	15	16	17	** 18 **
** 19 **	20	21	22	23	24	** 25 **
** 26 **	27	28	29	30	31	
February, 1997						
						** 1 **
** 2 **	3	4	5	6	7	** 8 **
** 9 **	10	11	12	13	14	** 15 **
** 16 **	17	18	19	20	21	** 22 **
** 23 **	24	25	26	27	28	
March, 1997						
						** 1 **
** 2 **	3	4	5	6	7	** 8 **
** 9 **	10	11	12	13	14	** 15 **
** 16 **	17	18	19	20	21	** 22 **
** 23 **	24	25	26	27	28	** 29 **
** 30 **	31					

Note that all days which have been designated as holidays are surrounded by asterisks.

Unscheduled->Fixed Orders



"Unscheduled" -> "Fixed" Orders									
Load the List		Flag Selected Lines as "Fixed"		Flag Selected Lines as "Unscheduled"					
<input checked="" type="checkbox"/> Load Unscheduled Sales Orders		<input checked="" type="checkbox"/> Load Fixed Orders & Forecasts		<input type="checkbox"/> Load shipments flagged as CR Hold					
<input type="checkbox"/> Load Unscheduled Forecast		<input type="checkbox"/> Load Scheduled & Released Orders		<input checked="" type="checkbox"/> Do NOT load shipments flagged as CR Hold					
Sched. Date	Order-Line #	Customer	Zip Code	Item Code	Qty Back-Ordered	Mfg Last Updated	Status	Credit Status	
08/02/95	1857-1	10002	90112	725	2	AUG 17 93 12:34	Unsched.	Open	
08/02/95	1857-2	10002	90112	DRC3	5	AUG 8 93 21:08	Unsched.	Open	
10/09/94	1858-1	10001	92155	9111	14	MAY 13 94 16:28	Unsched.	Open	
09/24/97	1858-3	10001	92155	FRERIC	4	DEC 20 95 14:14	Unsched.	Open	
09/24/97	1858-4	10001	92155	725	12	JAN 17 96 15:42	Unsched.	Open	
09/24/97	1858-5	10001	92155	190	50	JAN 17 96 15:42	Unsched.	Open	
05/13/94	1930-1	10014	92658	RC999BTF/3	25	MAR 3 94 10:21	Unsched.	Open	
06/13/94	1930-1	10014	92658	RC999BTF/3	25	MAR 3 94 10:21	Unsched.	Open	
03/04/94	1931-2	10015	92658	9111	1	JUL 19 96 09:42	Unsched.	Open	
03/04/94	1931-3	10015	92658	453 KIT	10	JUL 19 96 09:42	Unsched.	Open	
03/15/94	1932-1	10001	92155	WHILK	100	NOV 19 96 10:54	Unsched.	Open	
03/15/94	1932-2	10001	92155	0001	10	FEB 9 96 16:04	Unsched.	Open	
03/15/94	1932-3	10001	92155	9111 FR/S	10	DEC 3 96 09:23	Unsched.	Open	
04/07/95	1939-1	10016	12345	9111	9	NOV 15 96 16:47	Unsched.	Open	
04/07/95	1939-2	10016	12345	9111	19	NOV 15 96 16:47	Unsched.	Open	
04/16/95	1940-1	10015	92658	0001	100	NOV 15 96 16:47	Unsched.	Open	
12/05/96	2027-1	10001	92155	9111	10	NOV 25 96 16:51	Unsched.	Open	
12/05/96	2027-3	10001	92155	9111 FRAME	5	DEC 21 96 09:20	Unsched.	Open	
08/02/95	1857-4	10002	90112	LAMP 1	3	AUG 17 93 12:34	Unsched.	Ready	
ABC COMPANY		Whole milk in quarts							

This window provides the ability to view Sales Orders and Forecasts in a list which can be selected based on the production planning and credit status of each item. It can also be used to set orders as "Fixed" or "Unscheduled." Having this window available can help determine which orders and forecasts should be scheduled in make to order environments.



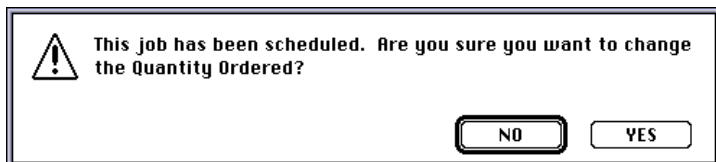
Note: This window would generally only be used when running the production scheduling function directly from sales orders and or forecasts; not MPS orders.

Window Functions

The primary function of this window is to allow the user to flag selected orders as "Fixed" or "Unscheduled." This provides a greater degree of control over how orders are handled in different situations.

Editing “Fixed” Orders

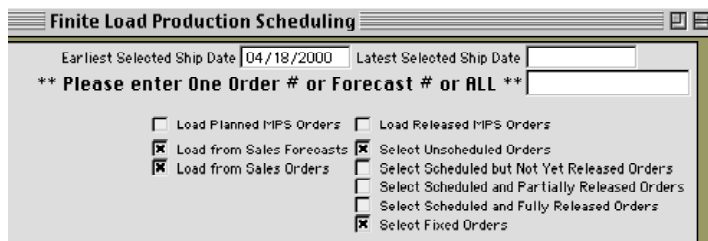
For example, if you try to edit an order which is flagged as “Fixed,” you will get a message similar to this:



This message will instruct the data entry people that this order has been scheduled, and discourages any changes to the order without first having a conversation with scheduling personnel.

Impact on Scheduling Windows

The other place where flagging an order as “Fixed” can have an impact is on the production scheduling queue windows. On both the Finite Load and Infinite Load Production Scheduling windows you will find the following selections;



Note the selections on the right side, allowing you to select whether or not to select Unscheduled Orders, Scheduled Orders in various stages of release, or Fixed Orders. Whichever of these you select will cause only those orders to load when you are loading the scheduling queue. This allows you to review sales orders and forecasts, flagging those you want to schedule as “Fixed” (thereby locking them in) and then scheduling only those which have the “Fixed” designation. This can make manipulating the scheduling data much easier to manage.

Window Buttons

Load the List

{Button} Clicking this button allows you to load the list with the selected types of jobs. The resulting list is based upon the choices made in the Checkbox selections in the section below this button.

<input checked="" type="checkbox"/> Load Unscheduled Sales Orders	<input checked="" type="checkbox"/> Load Fixed Orders & Forecasts	<input checked="" type="radio"/> Load shipments flagged as CR Hold
<input type="checkbox"/> Load Unscheduled Forecast	<input type="checkbox"/> Load Scheduled & Released Orders	<input type="radio"/> Do NOT load shipments flagged as CR Hold

Using the four checkboxes, you may load any combination of unscheduled sales orders or forecasts, fixed orders and forecasts, or scheduled and released orders. In addition, using the radio buttons on the right, you may choose either to load or not to load those shipments flagged as being on *credit hold* (the default is *do NOT load*). In order to make your selections, click on the appropriate boxes and radio buttons.

The records loaded into the list will be the sales order or forecast shipment records (see [“Shipping Records” on page OE-49](#)).

Flag Selected Lines as “Fixed”

{Button} Use this button to change the **MF^G Status** of the selected lines to `Fixed`.

Flag Selected Lines as “Unscheduled”

{Button} Use this button to change the **MF^G Status** of the selected lines to `Unscheduled`.

• To use these buttons

1. Click **<EDIT>** (or click either of these buttons once).
2. Select the lines you wish to change by clicking on them.

You may select contiguous lines by shift-clicking on them or click-dragging the items you wish to select. You may select multiple non-contiguous items by holding your command or control key down and clicking on the items to select.

3. Click the button to flag the orders.

This will cause the selected lines to display the word Fixed or Unscheduled in the **MFG Status** field.

4. Click <SAVE>.

The selected items will now display the appropriate Mfg Status.

Window Fields

Sched. Date

{Display only} This field displays the scheduled ship date of each sales order shipment in the list. Click on the column heading to sort on this field.

Order Line

{Display only} This field displays the order-line number of each sales order shipment in the list. Click on the column heading to sort on this field.

Customer

{Display only} This field displays the customer record for each sales order shipment in the list. Click on the column heading to sort on this field.

Zip Code

{Display only} This field displays the zip code for each sales order shipment in the list. Click on the column heading to sort on this field.

Item Code

{Display only} This field displays the item code of each sales order shipment in the list. Click on the column heading to sort on this field.

Qty Back Ordered

{Display only} This field displays the unshipped quantity for each sales order shipment in the list. Click on the column heading to sort on this field.

Last Updated

{Display only} This field displays the date each sales order shipment in the list was last updated. Click on the column heading to sort on this field.

Mfg Status

{Display only} This field displays the scheduled manufacturing status of each sales order shipment in the list. The status of each item

may be Scheduled, Unscheduled, Fixed or Ready. Items flagged as “Invoiced” will not show up in this list. Click on the column heading to sort on this field.

Credit Status

{Display only} This field displays the credit status of each sales order shipment in the list. The status of each item may be Forecast, Ready, CR Hold or Open. Click on the column heading to sort on this field.

Forecasting

MRP is, by definition, a look into your future. It is the process of identifying those things you *will* need to do, and an attempt to define *when and where* to do them. Therefore it is critical to get an idea of what you think you will sell outside your business to existing and new customers. This is particularly true of make-to-stock manufacturers. *Therefore, if you are a make-to-stock manufacturer, or have a make-to-stock component of your business, do not try to implement MRP or production scheduling without first going through the process of forecasting your sales.* In a make-to-order or make-to-stock environment, you need to drive requirements so as to cover your longest lead time item.

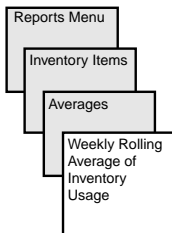
The second area where you should attempt to “forecast” is internal. Sometimes you will have several different product lines, or families, which will have different components and subassemblies in common.

Qube ERP™ allows you to set up MPS orders for down-line, or “dependent demand” components. Then, if you run production scheduling on these MPS orders, they will behave as if they were available stock for any upline item which requires them.

Of course, you still have to make them, but if you can identify components which are used in several different products, or product *families*, and plan for them as a unit, you might find that your production process flows much more smoothly than if these items just come up piecemeal on an as-needed basis.

You may use the **Where Used Report** and **Inventory Forecast Spreadsheet** to help identify items which may benefit from this multi-level planning strategy.

You might also find the **Weekly Rolling Average of Inventory Usage** report, found in the **Inventory Reports** window, handy for this purpose. This report is designed specifically to identify the usage of subassemblies. You may print this report by **Item Code** or by **Item Group**. When printed, this report looks like this:



Screen report							
World Class Industries							
Weekly Rolling Average of Inventory Usage							
Period Covering 01/01/95 - 12/31/97							
Report Printed on 02/12/97 at 15:11, Page #6							
Fiscal Week: 53 - 209							
Fiscal Week	Date of 1st Transm in the Current Week	Current Week No. of Transms	Current Week No. of Units	13-Week Total No. of Transms	13-Week Total No. of Units	13-Week Average No. of Transms	13-Week Average No. of Units
9111-FAB/SEW Cut & sewn fabric for 9111 chair							
53		66	916.97	858	11920.66	66.0	916.97
54		66	916.97	858	11920.66	66.0	916.97
55		66	916.97	858	11920.66	66.0	916.97
56		66	916.97	858	11920.66	66.0	916.97
57		66	916.97	858	11920.66	66.0	916.97
58	02/07/95	67	917.97	859	11921.66	66.1	917.05
59		67	917.97	860	11922.66	66.2	917.13
60		67	917.97	861	11923.66	66.2	917.20
61		67	917.97	862	11924.66	66.3	917.28
62	03/09/95	68	931.30	864	11938.98	66.5	918.38
63		68	931.30	866	11953.31	66.6	919.49
64		68	931.30	868	11967.63	66.8	920.59
65		68	931.30	870	11981.95	66.9	921.69

Note that the report is printed by fiscal week, and what you are looking at is rolling averages. This helps to smooth out the information and eliminate spikes in the data.

For additional information on working with MPS orders, see [“Master Scheduling” on page PLAN-61](#).

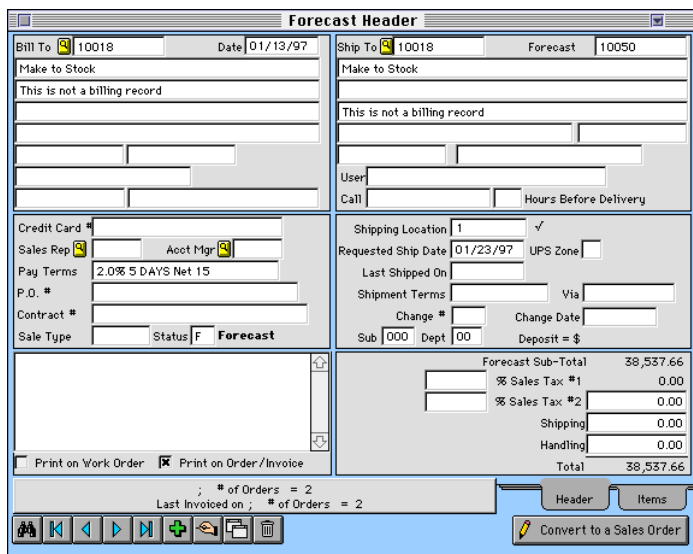
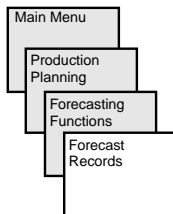


Hint: A good way to identify these parts is to use the Item Group and Item Subgroup fields found on Item Master File, Card #1. By strategically naming these items in these fields, you can quickly identify them for forecasting and scheduling purposes later on.



Note: While this may seem to defeat the notion of planning for and scheduling only independent demand items (see [“Independent vs. Dependent Demand” on page PLAN-62](#)), it really isn’t. The only time we perform this “bi-level” production planning process is when the dependent demand items are used in several different products (or assemble-to-order situations).

Forecast Records



The screenshot shows the 'Forecast Header' window with the following fields and values:

- Bill To: 10018, Date: 01/13/97, Ship To: 10018, Forecast: 10050
- Make to Stock: (empty)
- This is not a billing record: (checked)
- Credit Card #: (empty)
- Sales Rep: (empty), Acct Mgr: (empty)
- Pay Terms: 2.0% 5 DAYS Net 15
- P.O. #: (empty)
- Contract #: (empty)
- Sale Type: (empty), Status: F, Forecast: (empty)
- Shipping Location: 1, Requested Ship Date: 01/23/97, UPS Zone: (empty)
- Last Shipped On: (empty)
- Shipment Terms: (empty), Via: (empty)
- Change #: (empty), Change Date: (empty)
- Sub: 000, Dept: 00, Deposit: \$
- Forecast Sub-Total: 38,537.66
- % Sales Tax #1: 0.00
- % Sales Tax #2: 0.00
- Shipping: 0.00
- Handling: 0.00
- Total: 38,537.66
- Print on Work Order: (unchecked), Print on Order/Invoice: (checked)
- # of Orders: 2, Last Invoiced on: (empty), # of Orders: 2
- Buttons: Header, Items, Convert to a Sales Order

As mentioned previously in this documentation, you may generate your production plan or Master Production Schedule from sales orders and/or forecasts.

Case 1

In some companies, forecasts are a sales order function. These companies may wish to forecast sales orders; i.e., forecast records may be attached to actual customers as well as items. Then, as the sales orders materialize, they may be converted to sales orders using the **Convert Forecasts into Orders** function. These companies might be make-to-order manufacturers.

Case 2

Other companies may wish to forecast inventory items. In these cases forecasts would not reference customer records; rather, they would forecast the entire demand for an item over a period of time. These forecasts would then be blended into the master production schedule with sales orders for the same items using time fences (*see* [“Time Fences” on page PLAN-24](#)). Production scheduling would then be run from the master production schedule. These companies would probably be more make-to-stock manufacturers. In order to avoid confusion, you should create a customer record called “Make

to Stock,” as shown in the example above. Then, any inventory forecast should be tied to this “customer” record.

Regardless of which way you choose to manage your forecasts, they may be accessed through the **Forecast Records** selection of the **Forecasting Functions** section of the **Production Planning Functions** palette.

When you first make this selection, the **Forecast Header** window will be displayed as shown on the previous page. Clicking the **<ITEMS>** window tab in the lower right corner of the window will display the following window:

Main Menu

Production Planning

Forecasting Functions

Forecast Records -> Items

Forecast Items

10018 Make to Stock

Item Code	Date	Status	Ordered	Chance of Sale	B/O	Price	Unit	Extension
9111	01/13/97	F	70	100	70	550.538	EA	38,537.66
9111	01/13/97	F	70	100	70	550.538	EA	38,537.66

Series 9 chair Forecast 38,537.66

Notes

Print on Work Order Print on Order/Invoice

Rep Commission Batch Scheduling Priority Z Discounts %

Acct Mgr Comsn Budget \$ 52922.000 113.60 Hrs Pre-Invoice

Sched Ship Date	Requested Ship Date	Ordered	Chance of Sale	Back Ordered	Status	Sales Shipment Code
01/31/97	01/31/97	10	100	10	Unscheduled	10050-1-1
02/15/97	02/15/97	10	100	10	Unscheduled	10050-1-2
02/28/97	02/28/97	10	100	10	Unscheduled	10050-1-3
03/15/97	03/15/97	10	100	10	Unscheduled	10050-1-4
03/31/97	03/31/97	10	100	10	Unscheduled	10050-1-5
04/15/97	04/15/97	10	100	10	Unscheduled	10050-1-6

Header Items

Use this window to enter and edit forecast records just as you would any sales order or quotation. For information on the window attributes and how to operate on data in the window, see the section on [“Sales Orders” on page OE-29](#). Use the information on sales orders for the forecast window, as it is identical, with the following exceptions.

Attributes Unique to Forecast Window

Status

{Calculated} This field is not accessible in a forecast record. It will always contain the value **F** when in a forecast record.

This is necessary because forecast records, like quotations, are stored in the **Sales Order** file formats. They attain their unique qualities by virtue of the **F** in the **Status** field. This is not something you need to worry about; this field is automatically maintained by inserting the forecast record through the forecast window. However, it does help explain the similarity between the record types. This is also why, with the exception of those attributes outlined here, forecast records are maintained in the same way that quotations and sales orders are.

Convert to a Sales Order

{Button} Click on this button to convert the forecast record to a sales order. This would only apply when the forecast was applied to a customer record as in case one above. You can only use this procedure to insert a new sales order, not to add new items to an existing sales order. Specify the sales order's new number. If you enter an order number which matches an existing order number, Qube will display a warning.

When you click this button, the following message will appear.

Are you ready to convert forecast #10017 to a sales order?

NO

YES

Click **<NO>** to abort the procedure. Click **<YES>** and the following message will appear.

Click YES to Save the current forecast record; NO to delete it.

NO

YES

If you click **<YES>**, the function will create a sales order from this forecast and preserve the forecast record. This is handy for situations

where you get the same or similar forecasts and sales orders from a customer on a repeating basis, and you wish to preserve the forecast for future use. If you click <NO>, the function will create a sales order from the forecast record and then delete the forecast record from the data file, leaving only the newly created sales order.



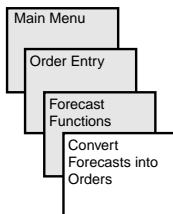
CAUTION: It is important to remember that if you elect to preserve the forecast record, you may be opening yourself up to potential problems when running production scheduling; you have now introduced two potential demand items (a forecast record which has been converted to a sales order *and* the original forecast record). Make sure you take this into consideration and determine how it will be dealt with prior to preserving forecast records that are being converted to sales order records.

Chance of Sale

{Numeric, percentage} Enter the probability that this sale will close into this field. This field is for informational purposes only. It does not impact production scheduling in any way (you could not, for example, schedule only 50% of the likelihood that a forecast would close; either it does or it doesn't). A better way to rank forecasts for the purposes of production planning is to use the **Scheduling Priority** field (see [“Scheduling Priority” on page OE-48](#)).

Using this field, you could code forecasts with 100% chance of closing with A, and those with little chance of closing with a lower letter. Then eliminate all of the forecasts below a certain level when running production scheduling. As forecast records become more likely to close, raise their grade, and so on. This provides a pretty good way of determining which forecasts to schedule.

Convert Forecasts into Sales Orders



Planned Ship Date	Forecast Order-Line #	Customer	Zip Code	Item Code	Prod'n Sched. Status	Forecast Quantity	Quantity to Order	Sales Order Number
06/12/93	10015-1	10005	34516	725	Not Sched.	4		
06/12/93	10015-1	10005	34516	725	Not Sched.	4		
10/15/93	10015-2	10005	34516	925	Not Sched.	5		
09/15/93	10015-2	10005	34516	925	Not Sched.	5		
08/15/93	10015-2	10005	34516	925	Not Sched.	5		
07/15/93	10015-2	10005	34516	925	Not Sched.	5		
06/12/93	10015-2	10005	34516	925	Not Sched.	5		
06/12/93	10015-4	10005	34516	925	Not Sched.	5		
02/01/96	10015-5	10005	34516	TOPLEVEL	Not Sched.	25		
06/16/93	10016-1	10004	90009	725	Not Sched.	50		
06/16/93	10016-2	10004	90009	925	Not Sched.	150		
01/01/95	10017-2	10002	90112	925	Not Sched.	5		
02/01/95	10017-2	10002	90112	925	Not Sched.	5		
03/01/95	10017-2	10002	90112	925	Not Sched.	5		
04/01/95	10017-2	10002	90112	925	Not Sched.	5		
05/01/95	10017-2	10002	90112	925	Not Sched.	10		
03/16/95	10018-1	10018		9111	Finalized	73		
03/10/95	10018-2	10018		9111 FR/S	Not Sched.	3		

If you are utilizing forecasts in a “Case 1” type model (see [“Case 1” on page PLAN-43](#)) where forecasts are more attached to specific customers and what they are likely to do, you may wish to convert them to sales orders rather than actually enter new sales orders as they materialize.

As mentioned earlier, this can be done individually on the forecast window by clicking the button *<CONVERT TO A SALES ORDER>* found on the **Forecast Header** window.

This is fine if you need to convert an entire forecast into a sales order. However, what if only one line item, or even one shipment record materialized? Or several individual line items on several different forecasts? You would not be able to manage these situations very well with the convert button on the header window.

This window provides an answer to these situations. It allows you to load all of the forecast shipment records in a single window and work on each individually, determining whether or not to convert them, how many should be converted, and whether or not to preserve the forecast record when converting. All other forecast shipment records will be untouched, whether they occupy the same forecast record or not. It is a very handy window for companies which maintain forecasts in a “Case 1” fashion.

Window Attributes

Note: Double-clicking on any of the lines in the list will cause the system to drill down to the actual forecast record.

Load Forecasts

{Button} Click on this button to load the forecast records into the window. All forecast records will load; there are no parameters to limit which records load. The records which load are the forecast shipment records. These are the shipment records which are displayed on the bottom of the forecast line item window:

Sched Ship Date	Requested Ship Date	Ordered	Chance of Sale	Back Ordered	Status	Sales Shipment Code	
06/12/93	06/12/93	5	100				
06/12/93	06/12/93	5	100		Unscheduled	10015-2-1	↑
07/15/93	06/12/93	5	100		Unscheduled	10015-2-6	
08/15/93	06/12/93	5	100		Unscheduled	10015-2-7	
09/15/93	06/12/93	5	100		Unscheduled	10015-2-8	
10/15/93	06/12/93	5	100		Unscheduled	10015-2-9	↓

Edit

{Button} Clicking this button allows you to edit any record in the list.

Save

{Button, visible only when in edit mode} Clicking <SAVE> will cause the function to search the list for any records which have a positive quantity in the **Quantity to Order** field and an order number in the **Sales Order Number** field. If it finds these conditions, the function will create a new sales order.

Cancel

{Button, visible only when in edit mode} Clicking <CANCEL> will cause the function to abort, leaving all records unchanged. The date will remain in the window as it appeared when you clicked the button; however, no records will have been edited. To restore the list, click the <LOAD FORECASTS> button and the screen will refresh.

Planned Ship Date

{Date field, display, editable} This field displays the planned ship date from the forecast shipment records as shown above. Changing this date leaves the original forecast record untouched, but provides a new shipment date for the resulting sales order. You may sort the data in the list by clicking on the column heading for this field.

Forecast Order-Line#

{Display only} This is the Forecast Line number of the forecast shipments. As there can be several shipments for each line number, this

number can appear in the list several different times. Make certain you are working with the correct shipment record when generating your sales orders. You may sort the data in the list by clicking on the column heading for this field.

Customer

{Display only} This is the customer name of the customer record tied to the forecast records. You may sort the data in the list by clicking on the column heading for this field.

Zip Code

{Display only} This is the zip code of the customer record tied to the forecast records. You may sort the data in the list by clicking on the column heading for this field.

Prod'tn. Sched. Status

{Display Only} This is the production scheduling status of each forecast shipment record. This field will display either “Finalized” for those records which have been scheduled, or “Not Sched.” for those records which have not. You may sort the data in the list by clicking on the column heading for this field.

Forecast Quantity

{Numeric, display, editable} This field initially displays the quantity in the forecast. When converting the forecast record to a sales order, the quantity in this field may be changed or left alone. Leaving it alone leaves the forecast record untouched. Changing the quantity will adjust the forecast quantity when the sales order is created. If you wish to eliminate the forecast quantity entirely, delete the quantity from this field. This will not delete the forecast line from the record; it will merely cause the quantity forecast to become zero, as shown below. You may sort the data in the list by clicking on the column heading for this field.

Forecast Items									
10005		CCC Company		10015 - 1		of 5			
Item Code	Date	Status	Ordered	Chance of Sale	B/O	Price	Unit	Extension	
725	06/12/93	F	0	100	0	332.500	EA	0.00	
725	06/12/93	F		100		332.500	EA		
925	06/12/93	F	25	100	25	500.500	EA	12,512.50	

Quantity to Order

{Numeric, editable} Enter the quantity to order in this field. You may enter any quantity in this field, even quantities exceeding the

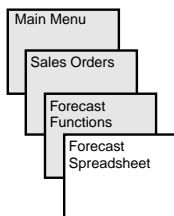
forecast quantity. Entering data in this field does not diminish the forecast quantity in any way; you must make this adjustment manually in the **Forecast Quantity** field, as show in the preceding paragraph. You may sort the data in the list by clicking on the column heading for this field.

Sales Order Number

{Alphanumeric, editable} You must enter the sales order number you wish to apply the forecast to in this field. If you do not, the system will not create a sales order when you click <SAVE>. You may enter a previously existing order number. If you do, the system will create a hyphenated concatenation of the two (for example, if you entered two cases of order number 1, the system would create order number 1-1 for the second instance, and 1-1-2 for the third, and so on). It is good, therefore, to enter a unique order number for each shipment to avoid confusion. You may sort the data in the list by clicking on the column heading for this field.

If you enter an order number which matches an existing order number, Qube will display a warning.

Forecast Spreadsheet



Item Code	Jan 95	Feb 95	Mar 95	Apr 95	May 95	Jun 95	Jul 95	Aug 95	Sep 95	Oct 95	Nov 95
925	5										
9111 FR/S			3								
CHERRY			1								
JAZZ			12								
THREAD			2								
9111			73								
7111											

Spreadsheet Windows

Qube ERP™ contains several windows which allow the presentation of data in spreadsheet form. For example, if you have several outstanding forecasts for an item with scheduled delivery dates in different time buckets, it is useful to be able to see this demand represented as one line on a window showing the total forecasts for each period, rather than listing all the different lines with no total.

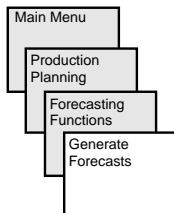
Backorders, forecasts, scheduled PO receipts, production material requirements and work center capacity requirements are all areas in which it is often helpful to be able to view large blocks of data summarized with total requirements for selected periods.

For detailed information on how to use the spreadsheet windows, see [“Spreadsheet Windows” on page GEN-87](#).

Adding Forecasts to the Data File

Qube ERP™ provides several ways of getting forecasts into the data file. The most straightforward method is to enter them manually, as you would any sales order or quotation record. This is accomplished through the **Forecast Header** and **Forecast Line Items** windows. In addition, you may use the automated **Generate Forecasts** window, or you may generate your forecast records outside the system and import them using the data importing functions (see [“Importing Forecasts” on page PLAN-57](#)).

Generate Forecasts Window



Generate Forecasts

Use average daily sales from through
to prepare a forecast for ☒ a period of calendar days, starting days from today
☐ the period from through

Prepare the forecast for ☒ all Items and All Customers
☐ just this Group code:
☐ just this Sub-Group code:
☐ just this Item Code:
☐ just this Customer Type:
☐ just this Customer

Sales should be expected to change by % in general, and by % due to seasonal variation.

Additional options:

☒ Use Scheduling Lot Size to set quantities needed if forecast brings stock below minimum.
☒ Recommend quantity which will bring stock to maximum levels?
After the sales analysis, ☒ just generate forecast records
☐ just print audit report
☐ generate forecast records and then print audit report
☐ Separate Each Ship-From Location

☒ Base Forecast on Sales Order Items
☐ Base Forecast on Sales Order Shipments

This window is designed to audit sales of items over a period of time and generate forecasts for them based on those sales. It provides a simple method of adjusting sales up or down in general and seasonally. You may use it to segment items by **Item**, **Customer**, **Group**, **Sub-group**, and **Customer Type** codes, and base forecasts on sales order items or shipments.

It is a good idea to carefully consider the time frame you wish to analyze. For example, you would probably not generate forecasts for the period of November 15 through January 15 by analyzing the period of June 15 through August 15. Rather, you would analyze a similar period for the preceding year and adjust the forecast up or down (using the percentage fields provided) based on your expectations.

The function will use this information to create one sales forecast record to a customer record whose company name is “**Build to Stock**.” If a customer record with the company name “**Build to Stock**” is not found in the customer file, one will be created by the

procedure. Shipment dates will be set up based on the number of units sold 15, 30, 45, 60 and 90+ days from the beginning date entered below.



Note: If you require a more sophisticated method of forecasting, you should generate forecasts outside of Qube ERP™ and import them as shown in the following section.

• Using the window to generate forecasts

1. Click <NEW>.

This will cause the window fields and buttons to be accessible.

2. Enter the date range you wish to analyze.

This date range determines the data you will analyze to generate the forecast information.

3. Indicate the period of time for which you wish to prepare a forecast.

You may do this in one of two ways. The first selection enables you to enter a period of calendar days, and indicate the starting date relative to today. The second selection provides the ability to enter a date range. In order to access these fields, you must click on the following radio button:

☒ the period from through

4. Indicate the items for which you wish to prepare the forecast.

You may delineate the items by Group, Sub-group or Item Code.

When you provide a single group or sub-group, the following check box becomes activated:

☒ Include all qualified items even if no sales are forecast.

This selection causes Qube ERP™ to add a forecast item with a quantity of zero if no sales are forecast. This can be useful if you wish to have all items found in a group (or sub-group) included on the forecast. This helps when you manually edit the forecast. All items in the group will already be listed so you won't forget them when you are doing the editing. Selected items can be removed if you wish.



Note: This will cause dependent as well as independent items to show up on the forecast, so be careful when utilizing this option.

5. Indicate whether sales are going up or down using the following fields:

Sales should be expected to change by % in general, and by % due to seasonal variation.

You may indicate a positive change by entering a positive number, and a negative change by entering a negative. If you enter an amount in both, the net result will be the accumulated value of both. For example, the above would yield a 15.5% increase in sales for this forecast run:

$$(100 \times 1.10) \times 1.05 = 115.5$$

6. Activate or deactivate the Additional Options section of the window.

Normally the quantities associated with each item will be the quantities found during the sales analysis portion of the proce-

dure. If, however, this box has been checked, the quantities will be based on the **Scheduling Lot Size** found on **Item Master File Card #2**.

If the scheduling lot size is a positive number, and if the quantity of expected sales is greater than the current general stock minus the minimum stock quantity, a quantity will be set based on the scheduling lot size. If, for example, expected sales for one item during the period equal 300 units, current stock is zero (0), minimum level is 300 units and maximum level is 400 units, the total quantity required to bring stock to maximum would be 700 units. But, if the scheduling lot size is 24 units (all builds are done in lots of 24 units), then the recommended quantity will be 720.

When this method is used, multiple ship dates will not be set up. The total quantity forecasted will be placed in one ship date, not several.

7. Determine whether you wish to generate forecasts, print the audit report, or both.

Generating forecasts will do just what it implies; create new forecast records in the data file. You may wish to print the audit report first. This will give you the ability to determine the impact of the forecasting procedure without actually entering the records. This can go much faster, and allow you to make setup changes based on the report information without having to delete the forecast records. This can be a useful and time-saving approach. The resulting report will look something like this:

Generate Forecasts Audit Report

Screen report							
World Class Industries							
Generate Forecast Audit Report, Forecast #10051 10051							
Period Covering 01/01/96 - 12/31/96 for Group, Sub Group							
Number of Sales Days Applied to Average Daily Sales = 90. Number of Sales Days Analyzed = 365							
Expected Change in Sales = 0%							
Report Printed on 01/14/97 at 12:34, Page #1							
Fiscal Week: 105 - 157							
Item Code	Description	Expected Sales Quantity	Current Stock	Quantity Committed to Sales	Expected Requirement	Min Stock Level	Scheduling Run Size
453 KIT	Reamer Kit	2	0	10	12	0	1
TOP	top item	2	0	500	502	0	1
Totals for Inventory Type							
9111	Series 9 chair	13	8	169	174	0	10
9111 FR/S	This is a PURCHASED SUBASSEMBLY	2	11	10	1	0	5
9111 FRAME	Assembled frame for 9111-C chair	10	0	5	15	0	5
Totals for Inventory Type FINE FURN							
LAMP1	Table Lamp	1	3	1	4	5	1
Totals for Inventory Type LIGHT							
10020	Closure, 38 mm HG white	74	0	300	374	0	5

8. Determine whether to base the forecast on shipments or sales order items.

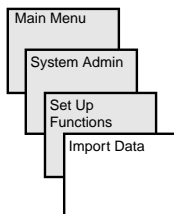
This can impact the timing of the actual forecasts as each sales order item can include many shipment records. This provides the ability to peg your forecasts to the order date of the items, or the actual shipment dates.



Note: Normally you would wish to base your forecasts on the actual sales orders, rather than the shipment dates. Often shipment dates can be impacted by your internal issues (stock-outs, etc.) rather than demand patterns (when your customers actually *want* the stuff). You are better off to base your forecasts on the demand patterns rather than the shipping patterns.

9. If you wish to schedule the Generate Forecast function with the Scheduled Events Manager, click the box <EXECUTE LATER>. See [“Scheduled Events Manager” on page GEN-47.](#)

Importing Forecasts



Import Starting Data

File Name: **Forecasts** [Import Data]

File Header? ☐ "Header" line with field names at start of file

Field Delimiter: ☒ Tab delimited ☐ Comma delimited

Available Fields	Fields to Import
Ship To Company	Item Code
Ship to address 1	Quantity ordered Number, 0 dec.
Ship to address 2	Scheduled ship date Date
Ship to city	Unit Price Number, 3 dec.
Ship to State	
Ship to Zip	
Ship to Country	
Sales tax rate	
Shipping charge	
Handling charge	
Forecast Header Note	
Item Code, Option 1	
Item Code, Option 2	
Item Code, Option 3	
Item Code, Option 4	
Item Code, Option 5	
Forecast Item Note	
Forecast Item Date	
Payment terms	
Probability of Sale	
Shipping terms	
Ship via	
Ship to Customer Code	
Ship-from Stock Location	

Required Item Code of the product that this customer is ordering. Must match an existing entry in the Item Master File window.

Some companies will wish to generate their forecasts outside the system. Perhaps they receive customer forecasts electronically through EDI or another method. Or, perhaps they generate their forecasts using a forecasting program or spreadsheet designed specifically for this purpose.

Qube ERP™ provides an easy way to import these forecast records using the data importing functions found in the System Administration module. For general information on using this window, see ["Import Data" on page SYS-145](#).

Only the four fields shown in the window above are absolutely required. All other fields may or may not be included as the user desires. If only the above fields are included, the function will find a customer record with the customer name **Build to Stock**. If this customer does not already exist in the data file, it will automatically be created by the function.

This function will build the forecast record using this data. For example, it will create a forecast header, insert the **Build to**

Stock customer record, and create the line items and shipment records, all from the supplied data as shown.

For example, the following spreadsheet data:

Forecast 1				
	A	B	C	D
1	8111	10	3/1/97	350
2	8111	10	3/15/97	350
3	8111	10	4/1/97	350
4	8111	10	4/15/97	350
5				
6				

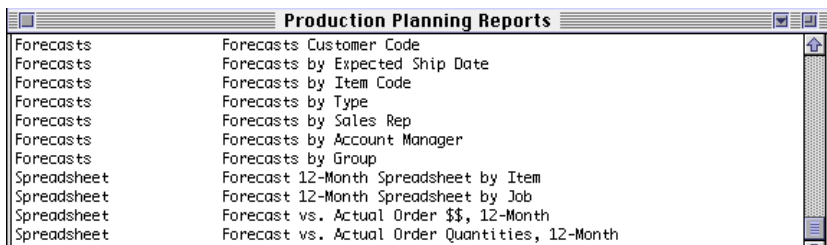
Yields the following forecast record:

Forecast Items									
10007 Build to Stock									
Item Code	Date	Status	Ordered	Chance of Sale	B/O	Price	Unit	Extension	
8111	10/01/97	F	40	100	40	350.000	EA	14,000.00	
8111	10/01/97	F	40	100	40	350.000	EA	14,000.00	
Chair - Series 8				Forecast		14,000.00			
Notes									
<input type="checkbox"/> Print on Work Order <input type="checkbox"/> Print on Order /Invoice									
Rep Commission		Batch		Scheduling Priority		Z		Discounts %	
Acct Mgr Comisn		Budget \$		3438.562		12.000 Hrs		Pre-Invoice	
Sched Ship Date	Requested Ship Date	Ordered	Chance of Sale	Back Ordered	Status	Sales Shipment Code			
03/01/97	03/01/97	10	100	10	Unscheduled	10014-1-1			
03/15/97	03/15/97	10	100	10	Unscheduled	10014-1-2			
04/01/97	04/01/97	10	100	10	Unscheduled	10014-1-3			
04/15/97	04/15/97	10	100	10	Unscheduled	10014-1-4			

Any additional data would merely enhance this forecast record with additional information.

Forecast Reports

There are a number of different forecast reports that are useful in helping to both develop forecasts and monitor their accuracy. They appear at the bottom of the **Production Planning Reports** window:



Monitoring the Accuracy of Your Forecasts

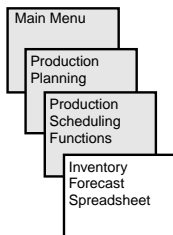
Of particular help in monitoring the accuracy of your forecasting process are the **Forecast vs. Actual Order Quantities, 12-Month Spreadsheet** reports.

The screenshot shows a "Screen report" window titled "World Class Industries". It displays a detailed report for "Forecast vs. Actual Order Quantities, 12-Month". The report covers the period from 01/01/95 to 12/31/95 and was printed on 02/12/97. The report shows data for two items: "0001 Description of 0001" and "9111 Series 9 chair". The data is presented in a table with columns for months from Jan 95 to Aug 95. The table includes Forecast Units, Orders Units, Difference (Orders - Forecast), and Variance %.

Item Code & Description	Jan 95	Feb 95	Mar 95	Apr 95	May 95	Jun 95	Jul 95	Aug 95
0001 Description of 0001								
Forecast Units								
Orders Units					100			
Difference (Orders - Forecast)					100			
Variance %					100			
9111 Series 9 chair								
Forecast Units			73					
Orders Units		12	4	30				
Difference (Orders - Forecast)		12	-69	30				
Variance %			-94.5%					

Note how this report provides detailed information about all types of items which are forecasted; subassemblies, finished goods and raw materials, based on their actual ship dates. It will show you how many items (or dollars, if you choose) you forecasted of each item, the actual amount received, the difference and the variance for each month during the time period. Using this report, you can get an excellent idea of how accurate your forecasts are for each item in each period. This information is very helpful when auditing your forecasting process.

Inventory Forecast Spreadsheet



The screenshot shows the 'Inventory Forecast Spreadsheet - By Month' window. It includes a header with a title bar and a toolbar with buttons for 'Load the Spreadsheet' and 'Graph It'. Below the toolbar are radio buttons for 'Select Days & Weeks', 'Select Weeks & Months', and 'Select Months & Quarters'. There are also checkboxes for 'Select One Item or ALL' and 'Select One Group or All'. The 'Start Date' is set to 02/01/2000 and the 'End Date' is 10/31/2001. The main area is a table with columns for months from February 00 to December 00. The rows list item codes from 0001 to 10002. The table shows demand data for each item across the months. At the bottom right, there are buttons for 'By Month' and 'By Quarter'.

Spreadsheet Windows

Qube ERP™ contains several windows which allow the presentation of data in spreadsheet form. For example, if you have several items scheduled for a work center for the same time bucket, it is useful to be able to see this demand represented as one line on a window showing the total requirements for each period, rather than listing all the different lines with no total. **Forecasts, backorders, scheduled PO receipts, production material requirements and work center capacity requirements** are all areas in which it is often helpful to be able to view large blocks of data summarized with total requirements for selected periods.

Like other spreadsheets within the system, the **Inventory Forecast Spreadsheet** provides a summarized view. This particular spreadsheet shows the result of all incoming and outgoing transactions projected for the items loaded on the spreadsheet during the time frame indicated. Drilling down on the spreadsheet window will display the **Master Production Detail** window.

For detailed information on how to use the spreadsheet windows, see [“Spreadsheet Windows” on page GEN-87.](#)

Master Scheduling

Make-to-stock (MTS) manufacturers normally wish to separate the manufacturing and scheduling processes from the ups and downs of order taking. Therefore, they tend to want to operate from the master production schedule. The tools for working with the Master Production Schedule, or MPS, are outlined in this section.

MPS Defined

If you look at the inputs which can be drawn upon for MRP, a couple come to mind immediately. First you might consider the actual sales orders which come in. These, certainly, represent demand on which you can bank.

In addition to sales orders, most planners take into consideration the forecasts for various inventory items. In fact, without accurate forecasting it is really impossible to make MRP work for you.

However, just running MRP from the forecasts and sales orders can sometimes be an “iffy” proposition. There are numerous reasons for this. Sales orders and forecasts can be fairly volatile records, changing significantly and often. If you tried to run your manufacturing operation solely from these inputs, you might end up changing your manufacturing plan every day. Secondly, there is a relationship between forecasts and sales orders which must be managed and maintained. For more information on how you can use Qube ERP™ for this purpose, see [*“Time Fences” on page PLAN-24.*](#)

The Master Production Schedule (MPS) can be very helpful in managing these issues. It provides an additional layer of planning between the actual sales orders and forecasts and the production planning process. Begin the process by using the sales orders and forecast records to generate the MPS records (or add them manually). Next, make whatever changes you feel necessary to the master schedule, taking into account overall plant capacities, ganging of similar jobs, etc. Finally, run the production planning function from the MPS. This allows you to level out and work with your demand inputs prior to running production scheduling.

Independent vs. Dependent Demand

Typically, not every record will be included in the master production schedule. This is because normally you wish to schedule only items which are classified as “independent demand.”

Independent demand items are those which you actually sell. In other words, the demand for those items is independent of other items which are scheduled to be manufactured or sold. Dependent demand items, on the other hand, are items whose demand is dependent on other items which are scheduled to be manufactured or sold. These items are typically components of other items. They are called dependent because you do not actually use them up unless another, “parent” item calls for them.

Understanding this, it becomes clear why dependent demand items are not included in the master production schedule. If you have an item which is solely a dependent demand item, and you include it in the master production schedule, you would acquire too much of that item. Why? Because the item is only acquired to meet the demand of the upline parent items in which it is a component. But those requirements will be met when you schedule those parent items. Their bills of material will be exploded, and at the right time and in the right quantities to meet that demand, a manufacturing order or purchase order will be generated to fulfill the requirements for the dependent demand items. If, at the same time, you included these items in the master production schedule, you would make additional requirements for them, and you would have too much. This defeats the purpose of MRP.

Some items have properties of both situations. These will be components of other items which are sold as either finished items themselves, or are sold as replacement or repair parts. Therefore, some of the time they are built to fulfill demand for an item in which they are a component (dependent demand), and sometimes they are sold to satisfy demand for themselves (independent demand).

You would wish to actually schedule some demand for such items, otherwise you would not have enough. Why? Because the dependent component of the production planning cycle will make or buy

enough of the item to account for your actual upline parent requirements. But when it comes time to sell the item as a replacement part, there will be none left to fulfill this independent demand, or you will have to take some which has been allocated to another job, and you will run out.

Therefore it is necessary to determine which items will be scheduled and which will not. Those items which will be scheduled using the MPS are those items which have an independent demand component. And you would schedule only the independent demand for those items. Any dependent demand would be scheduled from the upline, independent demand parent items.

This really only becomes an issue when dealing with MPS, or in some cases, forecast records. Any items found in a sales order will, by definition, have some independent demand (otherwise you would not sell it in a sales order). Normally, too, you would only forecast items which have independent demand.

Multi-Level Master Scheduling

As with most rules, this one has an exception. Often you will be able to identify product *families* which share common components. Some of these components will be items you make, and then use in several different finished products. Also, you will often find that many of these common components can be more efficiently planned for and produced if they are scheduled in and of themselves, rather than allowing the MRP process to schedule them in a more haphazard fashion. *This is particularly true in the case of standard options used in the **Option Selection** module.*

By identifying these items and entering MPS orders for the subassemblies in question, you can often set up a more efficient and less disruptive manufacturing schedule. It is good, then, to establish *these* “dependent” items as MPS Flagged Items (see [“Master Scheduled Item” on page INV-21](#)). Then, you may plan for them independently, entering MPS orders for them when and in the quantities it makes the most sense to produce them. These MPS orders will then create manufacturing orders for these items which will be available to be con-

sumed by other manufacturing orders (see [“Available to be used by other tasks” on page PLAN-132](#)).

Master Scheduled Item

In order to indicate to the system which items will be included in the master schedule, Qube ERP™ provides a flag on the **Item Master File, Card #1** window. This is the Master Scheduled Item check box, as shown in the screen shot below. All items which will be included in the master production schedule should have this box checked. See [“Master Scheduled Item” on page INV-21](#).

Check this box for independent demand items

Item Master File, Card #1

Item Code 8111 Chair - Series 8

Group FINE FURN Sub-Group

Option Class Sub-Class

Item Type FIN Grade

Revision Code Revision Date

Cost Updated 01/02/97 Inspect on Receipt

☐ Purchased ☒ Fabricated

G/L Sales Sub-Account 000

☐ 1st Article Produced

☐ 1st Article Approved

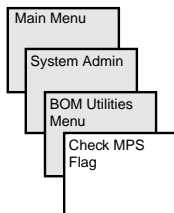
☒ Master Scheduled Item

☒ Active item

Qube ERP™ provides a utility for updating this field. It is found in the BOM Utilities menu. For information, see [“Scheduling Flag” on page SYS-161](#)

Check MPS Flag Utility

Qube ERP™ also provides an automated feature for setting up the **Master Scheduled Item** flag in your data file. This is handy for companies which have been using the system for some time and wish to move into using the MPS functionality of the system. This window is found under the **BOM Utilities** menu in the **System Administration** module (see [“Check MPS Flag” on page SYS-160](#)). Note the logic used for the selection of MPS items:



Item master records are normally flagged as Master Schedule (MPS) records if either of 2 conditions exist.

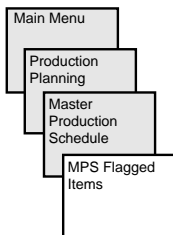
1. The item must either be a top level assembly (having a BOM but not being found in any other BOM) or
2. Sales records must be found associated with the item dated within a specified range.

Please enter 1 Item or ALL ALL

Please enter Beginning Date 02/12/96

Please enter Ending Date 02/12/97

MPS Flagged Items Window



Master Schedule Flagged Items List

☒ Load MPS Flagged Items
 ☐ Select All Groups, Sub-Groups & Types
☐ Load All Master Schedule Flagged Items
 ☐ Select 1 Group
☒ Load Only MPS Items which may need replenishment
 ☐ Select 1 Type

Start Date: _____ End Date: _____

☒ Compute MPS Requirements Using General Stock
 ☐ Compute MPS Requirements Using Total Stock

Item Code	Unit	Purchase or Fabricate	General Stock Quantity	File (Safety) Stock	Higher of Sales or Forecast	Qty in Open POs	Sched. in Production	Lead Time	Lot Size	Current Qty in Master Sched.
Q111	EA	Fab.	-11		207		10	20	10	335,000
Q25	EA	Fab.	-5		335	1			12	36,000
R00	EA	Fab.			10				1	10,000
TOPLEVEL	EA	Fab.	1		25				1	

This window provides a method of viewing and working with the inventory items which have been flagged as Master Scheduled Items (see [“Master Scheduled Item” on page PLAN-64](#)). You can also use the window to quickly and easily generate a master production schedule for all of the items in the list.

Window Attributes

Drill-Down

Double-clicking on any of the items in the list will take you to the **Master Production Schedule Detail** window for that item.

Load MPS Flagged Items

{Button} Click this button to load the MPS flagged items you designate with the radio buttons in this window. When you click this button, the buttons and **Type Code** field will become accessible and the **<SAVE>** and **<CANCEL>** buttons will be displayed.

Load All Master Schedule Flagged Items

{Radio Button} This radio button works in conjunction with the one just below it, “Load Only MPS Items which may need replenishment.” Whichever choice you make, you may also choose among those selections in the next column. Choose this button if you wish to load items whether or not they need replenishment. Click the one below it if you wish to load only those items which the system thinks may need replenishment.

Select All Groups, Sub-groups & Types

{Radio Button} This radio button is joined to the three below it. Only one of these selections may be made. Make this selection if you wish to load all records regardless of group, sub-group and type.

Select 1 Group

{Radio Button} Make this selection if you wish to load only one item group. You may use the Pop-Up List to the right of this field to make this selection. If you choose this option, the **Type Code** field below will change to reflect the group code as shown here. Enter the code for the group you wish to load.

Please enter a Group code.

Select 1 Sub-Group

{Radio Button} Make this selection if you wish to load only one item sub-group. If you choose this option, the **Type Code** field below will change to reflect the Sub-group code as shown here. Enter the code for the sub-group you wish to load.

Please enter a Subgroup code.

Select 1 Type

{Radio Button} Make this selection if you wish to load only one item type. If you choose this option, the **Type Code** field below will change to reflect the type code as shown here. It will also default to FIN, as shown in this example. Accept the default, or enter the code for the type you wish to load.

Please enter a Type code.

Compute MPS Requirements

You can choose whether to use general stock or total stock when computing MPS requirements.

- ☒ Compute MPS Requirements Using General Stock
☐ Compute MPS Requirements Using Total Stock

You may override this preference on either the **MPS Preferences** window or the **MPS Detail** window.

Save

{Button} Click <SAVE> to accept your choices and load the list.

Cancel	<i>{Button}</i> Click <CANCEL> to abort your choices and cancel the loading of the list.
Edit	<i>{Button}</i> Click <EDIT>, and a trash can and two arrows will appear on the right side of the window. Use the <i>arrows</i> to move selected records up and down in the list. Use the <i>trash can</i> icon to delete selected items from the list (you may get them back by reloading the list).
Item Code	<i>{Display only}</i> This is the item code of the items displayed in the list. You may sort the data in the list by clicking on the column heading for this field.
Unit	<i>{Display only}</i> This is the stockkeeping unit of measure of the items displayed in the list (see “Units of Measure” on page INV-26). You may sort the data in the list by clicking on the column heading for this field.
Purchase or Fabricate	<i>{Display only}</i> This is the purchasing/fabrication status of the items displayed in the list (see “Purchased/Fabricated” on page INV-19). You may sort the data in the list by clicking on the column heading for this field.
General Stock Quantity	<i>{Display only}</i> This is the current general stock quantity of the items displayed in the list. General stock is defined as the quantity available for production (see “Inventory General Stock Includes Stock Location #1 through Location #” on page SYS-111). You may sort the data in the list by clicking on the column heading for this field.
Min (Safety) Stock	<i>{Display only}</i> This is the minimum stock quantity of the items displayed in the list. If the quantity in general stock is less than this quantity, the record will load when you make the selection, <i>Load Only MPS Items which may need replenishment</i> . You may sort the data in the list by clicking on the column heading for this field.
Higher of Sales or Forecast	<i>{Display only}</i> When loading the records in the list, the function will look at the quantity forecast and the quantity on open orders for each

item. Whichever number is higher will be displayed in this field. It does not take time fences into account. You may sort the data in the list by clicking on the column heading for this field.

Qty In Open POs

{Display only} This is the quantity found in open purchase orders for the items displayed in the list. You may sort the data in the list by clicking on the column heading for this field.

Qty Sched. in Production

{Display only} This is the quantity found in open manufacturing orders for the items displayed in the list. You may sort the data in the list by clicking on the column heading for this field.

Lead Time

{Display only} This is the lead time for the items displayed in the list. Generally, only purchased items should have a lead time. You may sort the data in the list by clicking on the column heading for this field.

Lot Size

{Display only} This is the scheduling lot size for the items displayed in the list. When you click <GENERATE MASTER SCHEDULE>, this scheduling lot size number will be taken into account if you have allowed the MRP Preferences window to accommodate this (see [“Do not lot size when generating MPS orders” on page PLAN-23](#)). You may sort the data in the list by clicking on the column heading for this field.

Current Qty in Master Sched.

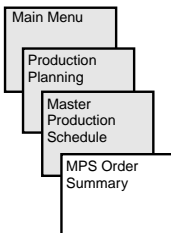
{Display only} This is the quantity found in open MPS orders for the items displayed in the list. You may sort the data in the list by clicking on the column heading for this field.

Generate Master Schedule

{Button} Click this button to generate the master schedule for items found in the list. When you click this button, the date fields below it will become available. Insert the beginning and ending date range for the period of time for which you wish to generate the MPS records. Then click <SAVE>. The function will look at each item in the list, compare the open sales orders and forecast records to the time fence selections, and generate the master schedule for each item accordingly (see [“Time Fences” on page PLAN-24](#)). The function

will only generate new MPS orders if it finds a need for more of the items to meet the existing demand. In other words, if there are items in the list because they have fallen below their minimum levels, or if they already include enough in the master production schedule to meet the required demand, no new MPS orders will be created.

MPS Order Summary Window



MPS Order Summary									
<input checked="" type="checkbox"/> Load Up (Planned) MPS Orders		<input type="checkbox"/> Select All Items		<input type="checkbox"/> Load MPS Orders		<input type="checkbox"/> Consolidate MPS Orders		<input type="checkbox"/> Select 1 item	
<input type="checkbox"/> Load Closed (Released) MPS Orders		<input type="checkbox"/> Select 1 item							
Scheduled Date	Date Entered	Date Released	Period	Group	Item Code	Quantity Required	Qty Used By MPS	Status	
01/18/1995	11/07/1995		-101	FINE FURN	9111	5.000		Planned	
03/10/1995	11/07/1995		-93	FINE FURN	9111	150.000		Planned	
07/14/1995	02/09/1996		-78	FINE FURN	9111	10.000		Planned	
06/07/1996	05/03/1996		-28	FINE FURN	9111	5.000		Planned	
01/04/1996	11/07/1995		-103	TABLE	925	12.000		Planned	
03/03/1995	11/07/1995		-94	TABLE	925	12.000		Planned	
05/04/1995	11/07/1995		-85	TABLE	925	12.000		Planned	
01/05/1995	11/07/1995		-102		R00	10.000		Planned	

Testing Rowing for Glove 0111 66 1

Use this window to view and work with all of the MPS orders in the data file. Using this window, you may edit the date, period, or item code of each MPS order, or delete any or all of them. You may also take a range of MPS orders and consolidate them.

• To load the MPS orders

1. Click **<LOAD MPS ORDERS>**.
2. Indicate the parameters of the items you wish to load.

See “Window Attributes” below for information on these parameters.

3. Click **<SAVE>**.

• To consolidate the MPS orders

1. Click **<CONSOLIDATE MPS ORDERS>**.
2. Select the lines to be consolidated.

See “Window Attributes” below for information on these parameters.

3. Click **<SAVE>**.


• To edit an MPS order

1. Click **<EDIT>**.
2. **Make changes to the Scheduled Date, Period, or Item Code data.**

See “Window Attributes” below for information on these fields.

3. Click **<SAVE>**.

• To delete an MPS order

1. Click **<EDIT>**.
2. **Select the items to delete using any of the standard methods of selecting an item in a list.**
3. Click .

The selected items will immediately be deleted without any warning. The **<CANCEL>** button will not restore these records. Therefore, take care before deleting any MPS orders.

Window Attributes

Double-clicking on any of the items in the list will take you to the **Master Production Schedule Detail** window for that item.

Load MPS Orders

{Button} Clicking this button will cause the MPS orders in the data file to load into this list, based on the selection parameters you choose. Clicking on this button will also provide access to those selection parameters.

Load Open (Planned) MPS Orders

{Check box selection} This check box will cause the function to load any MPS orders which have not yet been scheduled. You may choose to load both open and closed MPS orders.

Load Closed (Released) MPS Orders

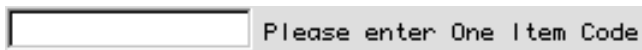
{Check box selection} This check box will cause the function to load any MPS orders within the data file which have already been scheduled. You may choose to load both open and closed MPS orders.

Select All Items

{Radio button selection} This radio button will cause all MPS orders to load, regardless of the item code for each. You may select all items, or only one. You may select either open or closed MPS orders, or both.

Select 1 Item

{Radio button selection} This radio button will display the following field on the window:



Enter the item code for the MPS orders you wish to load. This will cause only those MPS orders to load in the list. You may select either open or closed MPS orders, or both.

Edit

{Button} Click <EDIT> to make any changes necessary to the list. When you click <EDIT>, the following icons will be displayed at the top of the window.



Save

{Button} Click <SAVE> to preserve the changes you make to the list and write them to your data file.

Cancel

{Button} Click <CANCEL> to discard the changes you have made. These changes will remain in the list, but will not be written to the data file. In order to restore the list, reload the MPS orders.

Trash Can Icon

{Button} Click this icon to delete any selected MPS orders from the data file. This function does not simply delete them from the list, it actually deletes them from the data file itself. There is no warning message, and clicking the <CANCEL> button will not bring them

back, so you should use care when deleting MPS orders. Once they have been deleted, the following message will be displayed:



Scheduled Date

{Date field, editable} This field displays the scheduled date of the MPS orders in the list. You may change this field to reflect any date you wish. You may sort the data in the list by clicking on the column heading for this field.

Date Entered

{Date field, display only} This field displays the date each MPS order was entered into the system. You may sort the data in the list by clicking on the column heading for this field.

Date Released

{Date field, display only} If you have chosen to load any closed MPS orders, this field will display the date those MPS orders were scheduled using the production planning functions. The only way an MPS order can be released is by running production planning against it; therefore, an open MPS order will not display a release date.

Period

{Numeric field, editable} The period refers to the fiscal period as set up in the GL calendar. A typical year will have 52 weekly periods. If you find that the period of a record is over 52, it is because you have not closed the year. This can be an issue for Great Plains and Dynamics-linked users, as they often do not routinely close the year in Qube ERP™ for accounting purposes. While this is not a critical problem for non-Qube ERP™ Accounting users, many scheduling reports and functions do reference the period, so you may wish to monitor the GL calendar even if you are using Great Plains Accounting or Dynamics. (See [“General Ledger Calendar” on page GL-2.](#)) You may sort the data in the list by clicking on the column heading for this field.

Item Code

{Alphanumeric, validated, editable} This field displays the item code of the MPS orders in the list. You may change this field to reflect any valid item code you wish. You may sort the data in the list by clicking on the column heading for this field.

Quantity Required

{Numeric field, display only} This field displays the quantity required of the MPS orders in the list. You may sort the data in the list by clicking on the column heading for this field.

Qty Used by MRP

{Numeric field, display only} If you have chosen to load any closed MPS orders, this field will display the quantity which were scheduled using the production planning functions. The only way an MPS order can be used is by running production planning against it; therefore, an open MPS order will not display a quantity used by MRP. You may sort the data in the list by clicking on the column heading for this field.

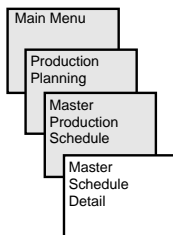
Status

{Display only} This field displays the status of the MPS orders in the list. MPS orders may be **Planned** or **Released**. Planned MPS orders are the equivalent of “open” MPS orders, and released MPS orders are the equivalent of “closed” MPS orders. The only way an MPS order can be released is to run the production planning function against it. You may sort the data in the list by clicking on the column heading for this field.

Item Description

{Display only} This field appears in the lower left corner of the data list. It does not have a field label. This field displays the item description of each MPS order.

Master Production Schedule Detail Window



Master Production Schedule Detail

Item Code: 9111 Series: 9 chair

Group: FINE FURN Sub-Group: ☐ Purchased General Stock: (11.000)

Option Class: Sub-Class: ☐ Fabricated Total Stock: 66.000

Type: FIN Grade: ☒ Active ☒ Master Scheduled Item

Lot Size: 10 Revision Date: 01/01/93

☒ Compute MPS Requirements Using General Stock
☐ Compute MPS Requirements Using Total Stock

Period Type	Transaction	Transaction Number	Transaction Date	Status	Transaction Quantity	Expected Balance
General Stock			01/17/00		-11.000	-11.000
General Stock			01/17/00		-11.000	-11.000
Sales Orders	9 Shipments		02/02/97	Planned	-9.000	-20.000
Mfg Orders	1 Receipt		06/18/98	Planned	10.000	-10.000

Start Date: 01/01/97 End Date: 03/17/00
Demand Time Fence: 01/01/95 Planning Time Fence: 12/31/97

☐ Display Each Transaction
☒ Display Period Totals Only

Load Planned Sales & Forecasts Load Open MPS Orders Load All Planned Events
Load Planned Mfg Orders Load Scheduled Receipts Generate Master Schedule, This Item

The **MPS Detail** window allows you to look at all events planned, or the projected available balance, for each item in the **Item Master File** over a designated period of time. It can also be used to display different types of events for each item for designated time periods. In addition, you can use the **MPS Detail** window to access the MPS Orders window from which you can create MPS records for one item at a time, rather than for all items as in the **MPS Summary** window. Or you can use it to generate MPS orders for each inventory item.

In Version 7.36, you can drill down from the **MPS Detail** window to see exactly which sales orders and forecasts are associated with a sales demand line in the list.

In other words, using this single window, the master planner can gain a handle on all projected events for any item in the system.

• To manually add an MPS order

1. Click **<EDIT>**.

2. Click .

The function will add a new MPS order record at the bottom of the list.

3. Edit the Transaction Date and Transaction Quantity fields to reflect the proper values.

4. Click <SAVE>.

•To edit an MPS order

1. Click <EDIT>.

2. Edit the Transaction Date and Transaction Quantity fields to reflect the proper values.

3. Click <SAVE>.

•To delete an MPS order

1. Click <EDIT>.

2. Select the items you wish to delete by using the standard methods of selecting items in a list.

3. Click .

4. Click <SAVE>.

Note: You may also add, edit, or delete MPS orders from the MPS Orders window. In many cases this window will make working with these records easier. See [“MPS Orders Window” on page PLAN-84.](#)

•To generate MPS orders and replenish negative stock levels

1. Click the button <LOAD ALL PLANNED EVENTS>.

2. Enter the date range you wish to analyze.

3. Click <SAVE>.

This will cause all planned events for the date range to load.

4. Click the button <GENERATE MASTER SCHEDULE, THIS ITEM>.

5. Click <YES>.

6. Review the newly generated MPS orders for dates and quantity.

You may edit them using the routine above

7. Use the Finite Load Production Scheduling or Infinite Load Production Scheduling windows to schedule the MPS orders for production.

Window Attributes

Commands Bar

{Button commands} Use the commands in the commands bar to find and scroll through the various records in the item master file. The find and scrolling commands will load the IMF information in the window header, and any planned events for the item which fall within the date range designated in the lower left corner of the window.

Edit


{Button command} Click <EDIT> to provide access to the edit fields on the window. The fields which may be edited are the **Item Description, Group, Sub-group, Option Class, Sub-Class, Grade, Lot Size, Revision Date**, and whether or not the item is a **Master Scheduled Item**. In addition, the <EDIT> button provides access to the **Transaction Date** and **Transaction Quantity** fields *for MPS orders* only.

Clicking <EDIT> also causes the following two icon buttons to be displayed on the right-hand side of the window, just next to the list.




Note: These buttons pertain to MPS orders only.

New

{Button} Click on the  icon to add new MPS orders to the data file manually.

Trash Can Icon

{Button} Click on the  icon to delete any selected MPS orders from the data file. As with the MPS Order Summary window, deletion of the MPS orders is immediate, and there is no undo, so be careful. If you do happen to accidentally delete one, however, you may easily restore it by adding another one manually.

You may also delete any of the other items from the list, although they will not be permanently removed from the data file and can be replaced by reloading the list.

Header Section

{Top window section} This section displays many fields which are drawn from the item master file. Some of these may be edited from this window, as outlined in the *<EDIT>* button section above. Others are shown for display purposes only. For detailed information about these fields, see [“Item Master File, Card #1” on page INV-13](#).

Compute MPS Requirements

You can choose whether to use general stock or total stock when computing MPS requirements.

- ☒ Compute MPS Requirements Using General Stock
☐ Compute MPS Requirements Using Total Stock

You may override this preference on either the **MPS Flagged Items List** window or the **MPS Preferences** window.

Start Date, End Date

{Date fields} Enter the date range for the transactions you wish to load in the window here. This will be true whenever you conduct any operation which loads records into the window. These operations include accessing any of the *<LOAD>* buttons in the bottom of the window, or using the **Commands Bar** at the top of the window to scroll forward and back or find a record. To change the dates in these

fields, you may access them by clicking on any of the <LOAD> buttons below or the <EDIT> button in the **Commands Bar**.

Time Fences

Enter the Demand Time Fence and Planning Time Fence dates. Prior to the *Demand Time Fence*, only actual demand (sales orders) will be considered. Between the two, the greater of sales orders or forecasts will be used to calculate the MPS. Beyond the *Planning Time Fence*, only forecasts will be used. In this way, the system can calculate the most accurate master production schedule. Dates associated with time fences must coincide with MPS period start dates on the **MRP Preferences** window. For more information, see [“Time Fences” on page PLAN-24](#).

Display Each Transaction

[Radio button selection] Selecting this option will cause all transactions of a type within a date range to load. This selection pertains to MPS orders, manufacturing orders, and scheduled receipts only. Sales orders and forecasts will always be displayed as period totals only. Therefore, when you click the button, <LOAD PLANNED SALES & FORECASTS>, this selection will not be available.

Manufacturing orders displayed with this radio button selected would be displayed in the list like this:

Transaction Period Type	Transaction Number	Transaction Date	Status	Transaction Quantity	Expected Balance
238 General Stock		01/16/97			
238 General Stock	1 Receipt	01/09/97	Firm Plan	10.000	10.000
237 MPS Order	3 Shipments	01/15/97	Planned	-30.000	-20.000
239 Planned Assembly	FINAL62321	01/23/97	Planned	10.000	-10.000
239 Planned Assembly	FINAL62331	01/24/97	Planned	10.000	
244 Sales Forecasts	3 Shipments	03/01/97	Planned	-30.000	-30.000
246 MPS Order	1 Receipt	03/07/97	Firm Plan	20.000	-10.000
246 Sales Forecasts	1 Shipment	03/15/97	Planned	-10.000	-20.000

Drill-down

You may drill down on sales orders, forecasts, POs, manufacturing orders and MPS orders; however, you may only drill down on lines referencing manufacturing or purchase orders when you select this option. Drilling down on MPS orders displays the MPS Orders window. Drilling down on sales orders and forecasts displays the first record in the period in which these items are referenced.

In Version 7.36, you can drill down from the **MPS Detail** window to see exactly which sales orders and forecasts are associated with a

sales demand line in the list. For example, this list shows that there are 5 sales orders found in period 56 whose demand totals 700 units.

Transaction Period Type	Transaction Number	Transaction Date	Status	Transaction Quantity	Expected Balance
56 Sales Orders	5 Shipments	01/25/99	Planned	-700.000	48.000
76 General Stock		06/17/99		748.000	748.000
56 Sales Orders	5 Shipments	01/25/99	Planned	-700.000	48.000

Which orders are these? To find the answer, simply double-click on the list line. Qube will present a display like this:

Sched. Date	Shipment Code	Customer	Zip Code	Item Code	Status	Qty Back-Ordered
01/25/99	9905690-12-1	GR0090	77021	100-130-PRR	Not Sched.	100
01/25/99	9905691-12-1	GR0090	77021	100-130-PRR	Not Sched.	200
01/25/99	9905692-11-1	GR0090	77021	100-130-PRR	Not Sched.	100
01/26/99	9905693-9-1	GR0090	77021	100-130-PRR	Not Sched.	200
01/28/99	9905773-13-1	GR0090	77021	100-130-PRR	Not Sched.	100

Display Period Totals Only

[Radio button selection] Selecting this option will cause all transactions of a type within the same fiscal periods to be rolled up into one line item in the list (see [“Period” on page PLAN-81](#)). For example, the above records would be displayed in the list like this:

Transaction Period Type	Transaction Number	Transaction Date	Status	Transaction Quantity	Expected Balance
238 General Stock		01/16/97			
238 General Stock		01/16/97			
237 MPS Order	1 Receipt	01/09/97	Firm Plan	10.000	10.000
238 Sales Orders	3 Shipments	01/15/97	Planned	-30.000	-20.000
239 Mfg Orders	2 Receipts	01/23/97	Planned	20.000	
244 Sales Forecasts	3 Shipments	03/01/97	Planned	-30.000	-30.000
246 MPS Order	1 Receipt	03/07/97	Firm Plan	20.000	-10.000
246 Sales Forecasts	1 Shipment	03/15/97	Planned	-10.000	-20.000

Load Planned Sales & Forecasts

[Button] Clicking this button will load all of the planned sales orders and forecasts for the item shown in the header section for the date range indicated.

Load Planned Mfg Orders

[Button] Clicking this button will load all of the planned manufacturing orders for the item shown in the header section for the date range indicated.

Load Open MPS Orders

[Button] Clicking this button will load all of the open MPS orders for the item shown in the header section for the date range indicated.

Load Scheduled Receipts

{Button} Clicking this button will load all of the open purchase order shipment records (scheduled PO receipts) for the item shown in the header section for the date range indicated.

Load All Planned Events


{Button} Clicking this button will load all of the planned events for the item shown in the header section for the date range indicated. Planned events are planned sales & forecasts, mfg orders, open MPS orders and scheduled PO receipts.

Generate Master Schedule, This Item

{Button} Clicking this button will cause the system to evaluate the projected stock status of the item showing in the window header and generate MPS orders to meet the scheduled demand. Insert the beginning and ending date range for the period of time for which you wish to generate the MPS records. Then click <SAVE>. The function will look at each item in the list, compare the open sales orders and forecast records to the time fence selections, and generate the master schedule for each item accordingly (see [“Time Fences” on page PLAN-24](#)). The scheduling lot size will be taken into account if you have allowed the MRP Preferences window to accommodate this (see [“Do not lot size when generating MPS orders” on page PLAN-23](#)). The function will only generate new MPS orders if it finds a need for more of the items to meet the existing demand.

Period

{Numeric field, display only} The period refers to the fiscal period as set up in the GL calendar. A typical year will have 52 weekly periods. If you find that the period of a record is over 52, it is because you have not closed the year. This can be an issue for Great Plains and Dynamics-linked users, as they often do not routinely close the year in Qube ERP™ for accounting purposes. While this is not a critical problem for non-Qube ERP™ Accounting users, many scheduling reports and functions do reference the period, so you may wish to monitor the GL calendar even if you are using Great Plains Accounting or Dynamics. (See [“General Ledger Calendar” on page GL-2](#).) Sort the data in the list by clicking on the column heading for this field.

Transaction Type	<p><i>{Display only}</i> This field will indicate the transaction type of each item in the list. The first item in the list will usually show “General Stock” in this field. General stock is defined as that inventory which is available to be used. It is possible that you might have stock which is available but the system does not know about it because it is not in a general stock location. Determine if this number is valid prior to generating MPS records (see “Inventory General Stock Includes Stock Location #1 through Location #” on page SYS-111).</p> <p>This general stock number is your current in stock quantity, so the date on that record will always be today. Therefore, it is possible that you might have records with earlier dates in the list, and this might show up lower in the list if you have sorted the list by date.</p> <p>In addition to the general stock you will find designations for Sales Forecasts, Sales Orders, P.O. Receipts, MPS Orders, MFG Orders, and Planned Assemblies.</p>
Transaction Number	<p>If you have loaded the list using the  Display Each Transaction selection, PO receipts and planned assemblies will display a transaction number in this field. In this case, you may drill down on each of these types of records by double-clicking on those records. Other types of items will display “1 Receipt,” “2 Shipments,” etc. in this field. These will also be displayed for PO receipts and manufacturing orders when you have displayed period totals only.</p>
Transaction Date	<p><i>{Date field, editable}</i> This field displays the date of each transaction in the list. You may change the value in this field for MPS orders only when you click the <EDIT> button. You may sort the data in the list by clicking on the column heading for this field.</p>
Status	<p><i>{Display only}</i> This field will display the status of each item in the list. Items may be Planned, Open, Released, etc., depending on the item type.</p>
Transaction Quantity	<p><i>{Numeric, editable}</i> This field displays the quantity of each item in the list. The value in this field may be positive or negative depending on the nature of the transaction. You may change the value in this</p>

field for MPS orders only when you click the <EDIT> button. You may sort the data in the list by clicking on the column heading for this field.

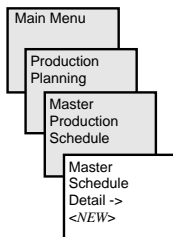
Expected Balance

{Display only} This field displays a running balance of the quantity in stock of the item after each transaction. This value is calculated as the items are loaded into the list, so the totals will change depending on which items you load and the date ranges selected. For the most accurate representation of your stock on hand, you should load all planned events for the item. When you do, this number will show you the net stock quantity after each event takes place.



Note: If you sort the list using any of the column labels, the values in this field will not be recalculated. Therefore it is possible for these numbers to be shown out of sequence.

MPS Orders Window



MPS Orders

Item Code: 9111 Series: 9 chair

Group: FINE FURN Sub-Group:

Option Class: Sub-Class:

Type: FIN Grade:

Lot Size: 10 Revision Date: 01/01/1993

☐ Purchased ☒ Master Scheduled Item

☒ Fabricated ☒ Active

General Stock: 0.000

Total Stock: 77.000

Schedule Date	Date Created	Date Released	Total Quantity	Quantity Filled	Quantity Open	Status
01/18/1995	11/07/1995		5	0	5	Planned
01/18/1995	11/07/1995		5		5	Planned
03/10/1995	11/07/1995		150		150	Planned
07/14/1995	02/09/1996		10		10	Planned
06/07/1996	05/03/1996		5		5	Planned

Buttons: [Icons] Load Related Manufacturing Order Tasks

This window is accessed by drilling down on any MPS order in the **Master Production Schedule Detail** window, or by clicking on the **<NEW>** button in the **Master Production Schedule Detail** window.

When you open this window, it will automatically load all of the MPS orders for the item which was displayed in the **Master Production Schedule Detail** window. You may display other items using the commands bar at the bottom of the window.

The window provides the ability to edit, add, or delete MPS orders for a specific item. Only the MPS orders for each item are displayed in this window, and all of the MPS orders for each item are displayed, regardless of date range.

When generating MPS Orders, Qube will assign the MPS order scheduled date as the date of the first order or forecast which generated the requirements (rather than the beginning date of the period just prior to the requirement).

• To edit an item in the list

1. Select the item you wish to edit.
2. Click **<EDIT>**.

3. Edit the values you wish to change.

You may change the **Scheduled Date**, **Date Created**, or **Total Quantity**.

4. Click <SAVE>.

•To add an item to the list

1. Click <NEW>.

2. Today's date will be defaulted into the Scheduled Date and Date Created fields.

3. Modify either date if desired and enter the proper amount in the Total Quantity field.

4. Click <SAVE>.

5. Repeat for any additional MPS orders you wish to add.

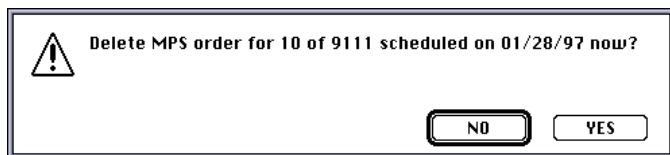
•To delete an item from the list

1. Select the item you wish to delete.

You may only select one item at a time.

2. Click <DELETE>.

The following message will be displayed.



3. Click <YES>.

This section shows you how to conduct these procedures. In order to conduct and manage the production planning process in Qube ERP™, you must have purchased and implemented the **Production Planning Module**.

What it Does

The Production Planning function will generate new production schedule records (manufacturing orders) for all pending sales orders, forecasts or MPS orders.

The function will look first to see if material requirements can be met from items in general stock locations or from items on purchase orders that are expected to be delivered before the date the materials are required. If not enough subassembly parts are found in these places, the requirements are scheduled for production using the information in the assemblies' BOMs. By the same token, if sufficient quantities of raw materials or other purchased parts are not available, vendor order requirements will be generated (taking into account the lead time for each ordered item) which will be converted to purchase orders during the eventual release of the production schedule.

Finite vs. Infinite Scheduling

Two basic methods of scheduling are available within Qube ERP™: Infinite and Finite Loading.

When using **Infinite Load Scheduling**, Qube ERP™ allocates to each work center as many hours and as much inventory as required to perform any task, regardless of the number of hours available.

Infinite Load Scheduling is handy for more flexible manufacturing environments, where resources can be moved around. It will schedule all jobs in all work centers as necessary to get them out by their designated ship dates without regard to work center capacity as defined in the work center record.

When work centers are overloaded, the master planner or production manager reallocates people and resources to accommodate the load.

Infinite load scheduling is also handy for shorter time horizons, because it tells you what you need to do in order to get orders out within the time horizon designated.

The total number of hours assigned to each work center will be the same under each method, but under finite scheduling the work will be spread out, never overloading any one work center for any day. The main drawback of the finite loading method is that it must do more work to achieve its more precise results. Therefore the process will take longer compared to using infinite load scheduling.

A disadvantage of infinite load scheduling is that work scheduled on a single calendar day may actually require several days to complete. If the start date is moved back to accommodate the additional days required to perform the work, purchased parts may not be scheduled for receipt in time, since the required date on purchase orders is based on the original start/finish date in production prior to leveling. The scheduling offset field on work center records assists in accommodating leveling normally associated with infinite load scheduling output. Users can force a fixed number of days into the schedule based on the work center at which the final step is performed. This provides a gap in which the actual production date can move without affecting on-time delivery of parts on related purchase orders.

Finite Load Scheduling, however, does take work center capacity into account. No work center will be scheduled more hours than are available to it, as specified in each work center record in the field labeled scheduled hours/day. If a task requires more hours than have been allocated as a work day for the specified work center, the additional time will be scheduled for the next day and this may result in fractional quantities. For example, if the work center's day is 8 hours and an item requires 9.107 hours to build, Finite Load Scheduling will schedule 8 hours the first day and 1.107 hours the next day, or 0.138 of a day.

If a work center shift is overloaded, the system backs up a shift and loads that shift, and so on. This is better for environments where work center capacities tend to be fixed. It is also a good model for running MRP over more long-term time horizons.

Under finite scheduling, Qube ERP™ schedules the necessary task using the constraints of due date, hours per shift, and number of shifts per day. The only non-constrained value is start date, so if there isn't enough time between today and the designated ship date to finish a job, the system will honor plant capacities and begin the process prior to “today,” and a critical path error is created.

Under infinite scheduling, this is not the case. Infinite scheduling loads the tasks using the constraint of ending (scheduled shipping) date only. It pays no attention to plant capacities. Therefore, it may overload work centers in order to get jobs finished between today and the date due. In this case, you would have no critical path errors (other than possible vendor lead time errors), but you could have overloaded work center issues. This is an excellent tool for determining which work centers are underloaded or overloaded, and can aid a manufacturing manager in scheduling flexible work centers.

A disadvantage of finite load scheduling is that jobs may not be scheduled to start and finish on consecutive days. In fact, there may be weeks or more between days where work is scheduled to be performed on a given job. Qube looks for available capacity with no consideration given to keeping workdays for a job contiguous. Sev-

eral separate tasks are created for a single job where, normally, once a job is started it continues through to completion. Infinite load scheduling creates a single task for a job at a work center. Users can then move the entire job to reflect when it will be started and completed.

Forward Scheduling

Forward scheduling is defined as the process of scheduling the production of a customer order by starting at today's date (or some specified future date) and working forward in time. No jobs will be scheduled to begin prior to today's date or the date production was specified to begin. Theoretically, this means tasks that are expected to have to be done earliest (like ordering any needed materials) are scheduled first, and then the next earliest tasks, and so forth until the step of final assembly of the ordered item. The result is that the final assembly is scheduled for completion at the earliest possible time after the start date. Forward scheduling answers the question, "If I start the process on day *X*, when could it be completed?"

This contrasts to backward scheduling, which starts with a desired delivery date at some point in the future. The final assembly step is scheduled to be completed one workday prior to that date, and then the second-level assembly steps are scheduled for just before that, and so forth, going backwards in time. At the end of this process, one of the production steps will be scheduled to start before all the others, and if this date is on or after today's date then the schedule can be accomplished. If the date of the earliest task is before today's date, then Qube ERP™ flags this as a "critical path error". Backward scheduling answers the question, "To deliver this on day *X*, when do I have to begin?"

Who Needs Forward Scheduling

This function is targeted mainly at job shops (build-to-order), where they frequently need to answer the question of "What is the earliest date we can deliver this order?" In fact, all types of companies (even make to stock) find themselves in occasional stockout situations and must, on occasion, guess at how soon deliveries can be made. When companies guess at delivery times without thorough analysis, they tend to pad inventory levels due to their low confidence in their delivery estimates, making stock levels higher than need be. This feature helps all types of companies by providing sophisticated analytical tools to:

1. help planners predict more accurate delivery times,

2. keep stock levels lower,
3. provide improved customer delivery performance and
4. reduce the occasions on which orders are lost due to their inability to deliver product.

Actual Forward Scheduling - the Critical Path

The critical path of an indented bill of materials is that combination of related steps which takes the longest to perform. The accumulated time to perform these interdependent steps is the time required to build the parent assembly, under conditions of zero inventory, no outstanding purchase orders and no outstanding manufacturing orders. The critical path, therefore, provides a logical starting point for forward scheduling.

In fact, there may be many paths in the BOM in which the time required to perform all purchases and assemblies is identical. There does not have to be only one critical path.

With many bills of material, determining the critical path is not simple. Here's a screen shot of a BOM that contains over 600 components and indents to 17 levels. What are the elements of its critical path(s)?

Bill of Materials			
C1D2705A4		CAMERA, 2705A4	
		Drawing	
Item Code	Quantity	Loc'n	Unit
DWG	0.00000	10	EA
DWG		10	EA
A9387G1	1.00000	12	A EA
.DWG		01	EA
.A9357P03	2.00000	02	EA
.A9331P09	14.00000	03	EA
.A9323P15	1.00000	04	EA
.A9331P13	15.00000	05	EA
.A9333P04	1.00000	06	EA
.A9359P12	1.00000	07	EA
.A9359P10	1.00000	08	EA
.A9375P03	1.00000	09	EA
C3145P1	1.00000	15	A EA
.C3145P5	1.00000		EA
.A9357P03	1.00000		EA
.A9331P09	4.00000		EA
A9375P01		16	EA
C1D2705A4/F	1.00000		A EA
.C1D2705A4/B1	1.00000		A EA
.C1D2705A4/B	1.00000		A EA
.D921464/K	1.00000		A EA
.DWG		01	EA
.C3141P1	1.00000	05	A EA
.C3141P1/FD	1.00000		A EA
.C3141P1/I	1.00000		A EA
.C3141P1/HD	1.00000		A EA
.C3030P1	0.33000		LF
.QC1	0.05000		A HR
.QCF	0.02000		A HR
.A9319P03	4.00000	06	EA
.A9319P40	4.00000	07	EA
.B9161G3	1.00000	10	A EA
.B9161G3/T	1.00000		A EA
.B9161G3/S	1.00000		A EA
.B9161G3/K	1.00000		A EA
.B9162P1	1.00000	16	EA
.A9319P81	200.00000	18	EA
.B9237P471J	1.00000	R01	EA
.B9237P471J	1.00000	R02	EA

Qube ERP™ provides a window which allows you to view the critical path of any bill of material. The same bill of material, seen from the **Critical Path View window**, shows clearly what the elements of its critical path are (in red on the system) and how much time is required to complete all steps in the path. The critical path time reflects all steps up to the last step in making the parent.

Critical Path Viewer									
CID2705A4		CAMERA, 2705A4							
BOM	Item Code	Critical Path	Quantity	Unit	Assy/Lead Time (In Days)	Time from Here	Longest Sub-Part Time	Level	
	CID2705A4		1.00000	EA			282.587	1	
	CID2705A4/F		1.00000	EA	0.489	0.489	282.587	2	
	. CID2705A4/B1		1.00000	EA	30.000	30.489	282.587	3	
	. . CID2705A4/B		1.00000	EA	0.042	30.531	282.587	4	
	. . . D9214G4/K		1.00000	EA	0.013	30.543	282.587	5	
	. . . . B9161G3		1.00000	EA		30.543	282.587	6	
	. . . . . B9161G3/T		1.00000	EA	0.031	30.575	282.587	7	
	. . . . . . B9161G3/S		1.00000	EA	42.000	72.575	282.587	8	
	. . . . . . . B9161G3/K		1.00000	EA	0.013	72.587	282.587	9	
	. . . . . . . . A9315P0		1.00000	EA	210.000	282.587	282.587	10	

Qube ERP™ Forward Scheduling

Qube ERP™ version 7.35 provides improved production scheduling capabilities by offering forward scheduling. The **Infinite/Finite Load Production Scheduling window** displays a new checkbox when you click the *PRODUCE MFG ORDERS FROM QUEUE* button. If the box is left unchecked, Qube ERP™ will execute its normal back scheduling procedures, using the scheduled ship dates set up in sales orders and forecasts or MPS orders. If the memory-based scheduling box and the forward scheduling box are checked, Qube ERP™ will do the following:

1. Analyze the indented bill of material for the first item in the scheduling queue, determining its critical path and how long it is likely to take to supply the required items under the assumption of zero stock, zero open POs and zero Manufacturing Orders.
2. The critical path time will be added to the forward scheduling start date, entered by the user, to come up with an estimated completion date.
3. The back scheduling algorithm will be executed in memory repeatedly until a solution is found which takes into account inventory general stock quantities, open POs and open manufacturing orders and which minimizes the time between the start (user entered) and delivery.
4. The solution will be written from memory to disk, creating the planned purchases, assemblies and operations recommended by the scheduling solution.
5. Qube ERP™ will then proceed down the scheduling queue to apply the same procedures to each item in the queue.

The Qube ERP™ forward scheduling process is really iterative optimized backward scheduling. This means that Qube ERP™ does the actual scheduling in a backwards direction, but it iterates the scheduling process to eliminate both “critical path errors” and any lag time between today’s date and the earliest start time for the job.

Let's look at some examples, starting with a job on which the customer has requested a delivery date of 3/1/98.

Scheduled Date	Shipment #	Customer	Item Code	Qty Back-Ordered	Order Batch	Priority	Status
03/01/98	2074-4-1	XYZ COMPANY	9111	100	1		

Backward infinite load scheduling produced these planned tasks:

Scheduled Date	Work Center or Vendor	Task #	Sales Shipment Code	Item Code	Quantity Required
01/28/98	ERGBEA	Eager Beavers	1 2074-4-1	WOOD	677.000
01/28/98	ERGBEA	Eager Beavers	1 2074-4-1	WOOD	176.000
01/28/98	TABMAK	The TableMaker	1 2074-4-1	FABRIC	177.000
02/06/98	ERGBEA	Eager Beavers	1 2074-4-1	THREAD	282.000
02/06/98	ERGBEA	Eager Beavers	2 2074-4-1	FORM	651.000
02/13/98	MORIND	Morris Industri	1 2074-4-1	STR WOOD	311.000
02/17/98	TABMAK	The TableMaker	1 2074-4-1	SANDEL	171.000
02/24/98	WOODWAR	Wood Warehouse	1 2074-4-1	BOX	71.000
02/25/98	ACME	Acme Supply Com	1 2074-4-1	CONDITIONER	173.000
02/27/98	CUT	Cutting & shopi	1 2074-4-1	COVER	213.000
02/27/98	SEW	Cut & sew fabri	1 2074-4-1	9111-FAB/SEW	475.000
02/27/98	MILL	Mill Room: Cut	1 2074-4-1	9111 FRAME	216.000
02/27/98	FIN	Wood finishing	1 2074-4-1	9111 FR/FIN	210.000
02/27/98	FINAL	Final Assembly	1 2074-4-1	9111	173.000

Several of the tasks involve critical path errors.

Scheduling the same shipment using infinite load forward scheduling with a start date of 2/25/98 produces these planned tasks:

Scheduled Date	Work Center or Vendor	Task #	Sales Shipment Code	Item Code	Quantity Required
02/25/98	TABMAK	The TableMaker	1 2074-4-1	FABRIC	236.000
02/25/98	TABMAK	The TableMaker	1 2074-4-1	FABRIC	651.000
02/25/98	ERGBEA	Eager Beavers	1 2074-4-1	WOOD	177.000
03/06/98	ERGBEA	Eager Beavers	1 2074-4-1	THREAD	1,194.000
03/06/98	ERGBEA	Eager Beavers	2 2074-4-1	FORM	749.000
03/13/98	MORIND	Morris Industri	1 2074-4-1	STR WOOD	667.000
03/17/98	TABMAK	The TableMaker	1 2074-4-1	SANDEL	189.000
03/24/98	WOODWAR	Wood Warehouse	1 2074-4-1	BOX	55.000
03/25/98	ACME	Acme Supply Com	1 2074-4-1	CONDITIONER	213.000
03/27/98	SEW	Cut & sew fabri	1 2074-4-1	9111-FAB/SEW	475.000
03/27/98	MILL	Mill Room: Cut	1 2074-4-1	9111 FRAME	210.000
03/27/98	FINAL	Final Assembly	1 2074-4-1	9111	216.000
03/27/98	FIN	Wood finishing	1 2074-4-1	9111 FR/FIN	173.000
03/27/98	CUT	Cutting & shopi	1 2074-4-1	COVER	

Note how the earliest planned event is the date the user set as the start date. No critical path errors were introduced. In order to make this work, however, Qube ERP™ changed the scheduled ship date on the sales order shipment from 3/1/98 to 3/28/98, which is the earliest date this shipment could be delivered assuming work on the order cannot begin until 2/25/98.



Timing Considerations

Sometimes it will be faster for you to run Qube ERP™ v7.35 backward scheduling and sometimes forward scheduling will be faster. The factors which determine this are:

1. Version 7.35 allocates from POs before general stock. A data file which contains many small open POs for each item and excess general stock will require that Qube ERP™ allocate from these POs before it allocates any available stock. This would take longer than v7.34 which would allocate the general stock first, satisfying the requirement before any open POs have to be even read into memory.
2. A scheduling queue which contains many unrealistic shipment dates (which would generate critical path errors) may require several forward scheduling iterations before finding a realistic solution. Since there is more work to do, this would take longer. How much longer would depend directly on how many iterations are needed to arrive at a solution for each scheduling task.

A report is provided of changes made by Forward Scheduling and is found in the Production Planning Reports list.

Production Planning Reports	
Changes	Ship Dates Changed by Forward Scheduling
Changes	Push Pull Report
Please Double Click to Enter Parameters	
Enter the Earliest Shipment Change Date 02/11/98	
Enter the Latest Shipment Change Date 02/18/98	
Enter a Job Code or "ALL" ALL	

Improvements in the Production Scheduling Algorithm

The production scheduling algorithm of Qube ERP™ version 7.35 has been improved in two important ways.

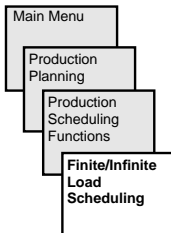
1. When using earlier versions of the Qube ERP™ production scheduling, the production of something far in the future may tie up current general stock unnecessarily. For example, a job may be scheduled for delivery 4 months in the future. Qube ERP™ will first look at general stock and will commit any parts it finds to fill the current requirement. If a rush job comes along later that needs those committed parts, Qube ERP™ must rec-

commend the purchase of new ones and wait for them to arrive, even though in reality it could have used the parts that are already in stock and ordered some new ones for the job due in 4 months. This approach may be best for cash flow, in that it puts to use materials on which money has already been spent, but it is not optimal in terms of the company's ability to deliver short lead time sales orders.

The production scheduling algorithm has been redesigned for version 7.35 so that available open purchase orders and unallocated manufacturing orders are looked at for available parts before general stock is allocated. The needed parts will still arrive on time for use in the manufacturing process and current general stock will still be available for other jobs that may need the stock more urgently.

2. The backward scheduling process allocates general stock, open POs and unallocated manufacturing orders first to the last steps in the production process. The last steps to be scheduled (and the first to be done) are given a lower priority. This is done because of the way the BOM tree structure is traversed, moving backward from the end point of the manufacturing process.

Production Scheduling Window



Infinite Load Production Scheduling

Earliest Selected Ship Date: 03/01/1995 Latest Selected Ship Date: 04/01/1995
** Please enter One Order # or Forecast # or ALL ** ALL

☐ Load Planned MFG Orders ☐ Load Released MFG Orders
☒ Load from Sales Forecasts ☒ Select Unscheduled Orders
☐ Load from Sales Orders ☐ Select Scheduled but Not Yet Released Orders
☐ Load Changes Only ☐ Select Scheduled and Partially Released Orders
☒ Select Scheduled and Fully Released Orders
☒ Select Fixed Orders

Date	Shipment #	Customer	Item Code	Qty Book-	Priority	Order Status
03/10/1995	10010-2-1	Build to Stock	9111 FM/G	9	1	Not Sched.
F 03/10/1995	10010-3-1	Build to Stock	QERRY	1	2	Not Sched.
F 03/10/1995	10010-4-1	Build to Stock	JAZZ	12	2	Not Sched.
F 03/10/1995	10010-5-1	Build to Stock	TURBAN	9	4	Not Sched.
F 03/16/1995	10010-1-1	Build to Stock	9111	73	5	Not Sched.

Buttons: Set up to Schedule, Load the Scheduling Queue, Edit the Queue, Produce Mfg Order's from Queue, View my Schedule

Qube ERP™ allows you to compute both the **MRP requirements** and **scheduling capacity requirements** at the same time.

One Window for Both

Both the finite and infinite load production scheduling functions are conducted from the same window (with different functions built in based on which selection - **Finite** or **Infinite** - you chose), so the documentation will only cover the window once. Where the two functions are different, the distinctions will be made.

The Qube ERP™ production scheduling function is designed to give the scheduler complete control and visibility. The function involves three steps:

1. Setting of priorities for scheduling;
2. Determining which shipments to schedule; and
3. Producing the schedule itself.

Window Attributes

{Button} Click this button to load the queue. After clicking the button, set the parameters using the selections at the top of the window. Click <SAVE>, and the selected records will load into the queue.

Load the Scheduling Queue

Qube ERP™ uses two status tracking fields: one to track what has been scheduled (internal, vendor, or both) and one to track what has been released (some internal, all internal, some vendor, all vendor).

Therefore, if you schedule vendor requirements and then release them, the scheduling and release status flags will know that the internal requirements have not yet been scheduled and will therefore continue to load the job into the scheduling queue. You may schedule the vendor requirements again, if you wish, since conditions may have changed requiring additional planned purchases. Or, if nothing has changed, the rescheduling of vendor requirements can be expected to produce no new planned purchases, since Qube ERP™ will simply allocate from existing POs.

After the queue is loaded, you can edit the order of the shipments by clicking on any of the column headings or using the *<EDIT THE QUEUE>* function.

Qube allows any job to be loaded back into the scheduling queue regardless of the release status. The user controls which jobs load based on the criteria selected (unscheduled, scheduled but not released, partially released, etc.). The user must decide how to load and edit the scheduling queue so that jobs that may have been issued to production, in part or in total, are not rescheduled. It is recommended that rescheduling of jobs that have been issued to production be handled on a case-by-case basis.

Earliest/Latest Selected Ship Dates

[Date fields] Enter the Scheduled Shipment date range provided which meets the selected criteria of the MPS orders or sales orders or forecasts you wish to schedule in these fields. Only those items which fall within the date range provided will load into the queue, and only those items in the queue will be scheduled when you run production scheduling.

Enter 1 Order #/ Item Code or ALL

[Alphanumeric, validated] The title and requirements for this field change depending on which types of records you wish to load into

the queue. If you are scheduling from **MPS orders**, the label on the field will appear like this:

**** Enter 1 Item Code or ALL ****

ALL

If, however, you are scheduling from **sales orders or forecast records**, the label will change to the following:

**** Please enter One Order * or Forecast * or ALL ****

ALL

Either way, the field provides the ability to narrow your production scheduling run to only one item or one job.

When you use this field to designate one job or one item, the production scheduling run will leave prior schedules in place and add this one to it. ***In other words, you may leave your schedule intact and add incremental jobs without impacting prior jobs.*** This can be a very powerful planning tool.

Load Planned MPS Orders

[Checkbox selection] If you are running production scheduling from the master production schedule, you must choose this selection. If you choose this selection, you will not be able to choose sales orders or forecasts during the same production scheduling run. When you make this selection, only MPS orders will load in the queue. This will be the defaulted selection if you have set your **MRP Preferences** window to the “Make to Stock” model; however, you may override it in this window (see [“Make to Order/Make to Stock” on page PLAN-22](#)).

Load from Sales Forecasts/Sales Orders

[Checkbox selections] If you are running production scheduling from sales orders or forecasts, you must choose one or both of these selections. If you choose these selections, you will not be able to choose MPS orders during the same production scheduling run. When you make these selections, only sales orders, forecasts, or both will load in the queue. This will be the defaulted selection if you have set your **MRP Preferences** window to the “Make to Order” model; however, you may override it in this window (see [“Make to Order/Make to Stock” on page PLAN-22](#)).

If you have miscellaneous items (such as LABOR) that you do not wish to schedule, you can prevent item codes from sales orders from appearing under Scheduling. To do this, turn off the Relieve Inventory flag on Item Master File Card #2. For more information, see [“Relieve Inventory” on page INV-37](#).

Load Changes Only

{Checkbox selection} If you wish to only include forecasts or orders which have been flagged as “changed,” in the scheduling queue, turn this checkbox on. The default for this selection is off.

Load Released MPS Orders

{Checkbox selection} If you wish to include MPS orders which have been previously scheduled, in the scheduling queue, turn this checkbox on. The default for this selection is off.

Select Unscheduled Orders

{Checkbox selection} If you wish to include forecasts or orders which have been flagged as “unscheduled” in the scheduling queue, turn this checkbox on. The default for this selection is off (see [“Unscheduled-> Fixed Orders” on page PLAN-36](#)).

Select Scheduled but Not Yet Released Orders

{Checkbox selection} If you wish to include forecasts or orders which have been flagged as “scheduled” in the scheduling queue but did not have any tasks from prior scheduling runs released, turn this checkbox on. The default for this selection is off.

Select Scheduled and Partially Released Orders

{Checkbox selection} If you wish to include forecasts or orders which have been flagged as “scheduled” in the scheduling queue and have been partially released, turn this checkbox on. The default for this selection is off.

Select Scheduled and Fully Released Orders

{Checkbox selection} If you wish to include forecasts or orders which have been flagged as “scheduled” in the scheduling queue and have been fully released, turn this checkbox on. The default for this selection is off.

Select “Fixed” Orders

{Checkbox selection} If you wish to include forecasts or orders which have been flagged as “fixed,” in the scheduling queue, turn

this checkbox on. The default for this selection is on (see [“Unscheduled-> Fixed Orders” on page PLAN-36](#)).

Scheduling Queue

{Display list} This is the list where jobs you wish to schedule are displayed. These may be either sales orders and/or forecasts, or MPS orders, but not both. Jobs will be scheduled in the order in which they appear in the scheduling queue, so learning how to manipulate data within the queue is important (note: all jobs are scheduled on a just-in-time basis; however, jobs higher in the queue will have first crack at required resources).

Columns

Type

{1 character, display only} This column has no title, but it does exist, just to the left of the **Scheduled Date** column. It can have one of three designations, O for sales orders, F for forecasts, and M for MPS orders.

Scheduled Date

{Date field, editable for forecasts only} This is the date for which the transaction is scheduled. If the record is a sales order or forecast, this date represents the **Sched Ship Date** as found on the **Sales Order/Forecast Items** windows. If the record is an MPS order, however, this date represents the **Transaction Date** as found on the **Master Production Schedule Detail** window. This is the date which is delimited in the **Earliest/Latest Selected Ship Date** fields. As records are loaded into the queue, they will first be sorted on this **Scheduled Date** field. When the records displayed are forecasts, you may edit this date. You may sort the data in the list by clicking on the column heading for this field.

Sales Order-Line

{Display only} This is the concatenation of the sales order or forecast order number and the line number. For example, if order number 100 had five line items, they would be designated as record numbers 100-1 through 100-5. The order-line number serves as the job number for all jobs in the system. A value will only appear in this field if you loaded sales orders or forecasts into the queue. MPS records do

not display order line numbers. You may sort the data in the list by clicking on the column heading for this field.

Customer

{Display only} If you have loaded sales orders or forecasts into the queue, the customer name for each item will be displayed here. MPS orders do not display customer names. You may sort the data in the list by clicking on the column heading for this field.

Item Code

{Display only} All jobs will display an item code, whether they are MPS orders or sales order/forecast items. These represent the items being scheduled. You may sort the data in the list by clicking on the column heading for this field.

Qty Backordered

{Display only} This represents the open quantity on each sales order, forecast, or MPS order record. As such, it is the quantity which will be scheduled. To edit this number, you must open the original record window. You may sort the data in the list by clicking on the column heading for this field.

Batch

{Display only} Each job batch will be scheduled independently of each other. This is not to be confused with the batch number represented in lot and batch tracking. Batch is a reference field only; each line in a queue is scheduled separately regardless of batch number.

Order Priority

{Alphanumeric, editable} This field provides a secondary sort for items within the same scheduled date, as well as serving as a visual cue when rearranging jobs.

Status

{Display only} This represents the status of each sales order, forecast, or MPS order record. The codes may indicate that the status is unscheduled, internally scheduled only, both internally and vendor scheduled, or vendor scheduled only. You can generate your own Ad Hoc Reports to control scheduling status (see [“Scheduling and Release Status Reports” on page PLAN-110](#)).

You can generate your own ad hoc reports using the file FIELDS. The field which contains what has been scheduled is

FI_SchedWhich. It contains three possible values:

- I= internal only
- V=vendor only
- VI=both internal and vendor

The field which stores the release status is named FI_RelWhat. It contains a more complex set of values:

- IS=Internal Selected
- IA=Internal All
- VS=Vendor Selected
- VA=Vendor All
- IAVA=Everything released

You can use these codes in queries to print different sets of shipments; e.g., only those which have been scheduled for vendor requirements but not yet internal requirements. If you print the scheduling queue, the report contains information about both the scheduling and the release status.

What are Scheduling Priorities?

The primary determinant of scheduling priorities is the shipment date shown in the transaction. When you load the queue, the records will load with the earliest ship dates at the top of the queue, and the latest ship dates loaded at the bottom, like this:

Scheduled Date	Sales Order-Line #	Customer	Item Code	Qty Back-Ordered	Batch	Order Priority
04/23/95	1021-2	ABC Company	DRC1	5	1	A
0 04/23/95	1021-2	ABC Company	DRC1	5	1	A
0 04/23/95	1021-3	ABC Company	DRC3	5	2	A
0 04/27/95	1022-2	ABC Company	9111	5	3	A
0 10/20/96	1856-1	XYZ Company	DR1	1	4	B
0 10/20/96	1856-2	XYZ Company	LAHP1	3	5	B
0 10/20/96	1856-3	XYZ Company	LAHP2	2	6	B
0 10/29/96	1858-3	AAA Company	DRC3	8	7	A
0 10/29/96	1855-3	AAA Company	DRC3	8	8	A
0 10/29/96	1855-2	AAA Company	7111	7	9	A
0 10/29/96	1858-2	AAA Company	7111	7	10	A
0 10/29/96	1855-1	AAA Company	725	2	11	A
0 10/29/96	1858-1	AAA Company	725	2	12	A
Chair - Oak Dining/Armless						

However, it is likely that there will be many records showing the same shipment date, as shown above. How does the system decide which to schedule first?

You may always edit the queue by clicking the **<EDIT THE QUEUE>** button (see [“Edit the Queue”](#) , below). However, you can also provide yourself a head start with the process and also give yourself a visual cue by using this **Order Priority** field.

When the records first load into the queue, they will first be sorted by date number, and then be sorted within date numbers by scheduling priority. This works primarily for sales orders and forecasts, however, as the only way the **Order Priority** can be added for MPS orders is from this window.

The values in this field can provide you with an important visual aid when you are editing the items in the queue. For example, if you have a sales order for an item due on February 28, and another due on March 3, the job for February 28 will be scheduled first, regardless of the priorities of the jobs. However, you might find that the item for March 3 has a priority of B, while that scheduled in February has a priority of Z. In this case, you might rearrange the scheduling queue so the B job has priority over the Z job, thereby allocating any scarce resources to the higher-priority job.

Another way these values can be used is to determine which forecasts to schedule and which to ignore if you are running MRP directly from forecasts and sales orders. Those forecasts with a better chance of closing could be coded with a higher priority. Those which have less of a chance of closing could be coded with a lower priority. Then you could choose to schedule only those items with a priority above a certain level by deleting those which fall below that level.

Setting the Scheduling Priorities

These priorities may be set in three different places. First, you may set it in the **Scheduling Priority** field on the **Customer Financial Info Window** (see [“Scheduling Priority” on page OE-22](#)). Any sales order for that customer will then default to the priority set in this field; however, this value may be changed in the sales order.

The second place you have an opportunity to set this order priority is on the jobs themselves on the **Sales Order/Forecast Line Item** win-

dows (see [“Scheduling Priority” on page OE-48](#)). You may override the value from the **Customer Financial Information** window; however, it will only change the value in the specific sales order line item, not the customer record or other sales order items. This value will then flow through to the scheduling queue.

The third place this field can be edited is on this window, itself. You may change the values in this field by clicking the **<EDIT THE QUEUE>** button and then changing the value in this field. If you do this, the value on the sales order or forecast record will be changed; the value in the customer record will not.



Note: This is the only way you can assign order priorities to MPS orders.

Edit the Queue

{Button} This button is only visible when there are items in the scheduling queue. When there are, you may use this function to edit selected fields, move items up and down, or delete them from the queue.

In addition to moving items up and down in the queue, you may edit the **Scheduled Date** for forecast records and the **Order Priority** for all items after clicking this button.

Click **<EDIT THE QUEUE>**. When you do, the following icons will be displayed on the right hand side of the window, next to the queue:



Up and Down Arrow Icons

You may use the up and down arrows to move items up and down the queue. While all items are scheduled in a just-in-time fashion, items at the top of the queue have first crack at required resources.

Trash Can Icon

You may use the trash can icon to delete any jobs from the queue. These jobs will only be deleted from the queue, not the data file. You may restore them to the queue at any time by clicking the button, *<LOAD THE SCHEDULING QUEUE>*.

• To move items up and down or delete them from the queue

1. Select the items which you wish to move.

You may move one item, or a group of items. Select groups of items using any of the techniques available in Qube ERP™ for selecting items in a list.

2. If you wish to move them up and down, click the *<UP>* or *<DOWN>* buttons until the items are positioned how you want them to be. If you wish to delete them, click .

3. Click *<SAVE>*.

Any job should be a candidate for rescheduling up until the point that the status for internal tasks is “some” or “all” internal released. Jobs that have internal tasks released to production must be carefully administered when being rescheduled so those tasks that are already released are de-allocated or deleted as appropriate.

Since Qube allocates materials and capacity on a first come, first served basis in the order that jobs appear in the scheduling queue, users may want to move jobs that have been previously scheduled ahead of jobs being scheduled for the first time. This will help reduce the amount of “nervousness” associated with the scheduling output from one scheduling run to the next.

Set Up to Schedule

{Button} Use this function to reset the production scheduling values for a new scheduling run. This function ensures that Qube ERP™ has the correct beginning numbers, especially the amount of current



general stock committed to scheduling which is therefore not available to this new run.

In version 7.35 and later, you should run this procedure before all production scheduling runs. This procedure verifies beginning balances used during the scheduling process and checks record integrity in a variety of scheduling-related files.

Scheduling and Release Status Reports

To view detailed information about the scheduling and release status, print the **Master Schedule of Items to be Shipped** report.

You can also generate your own ad hoc reports using the file FFIELD5. The field which contains what has been scheduled is FI_SchedWhich. It contains three possible values:

- I= internal only
- V=vendor only
- VI=both internal and vendor

The field which stores the release status is named FI_RelWhat. It contains a more complex set of values:

- IS=Internal Selected
- IA=Internal All
- VS=Vendor Selected
- VA=Vendor All
- IAVA=Everything released

You can use these codes in queries to print different sets of shipments; e.g., only those which have been scheduled for vendor requirements but not yet internal requirements. Scheduling status displays when loading shipments into the scheduling queue:

Scheduled Date	Sales Order-Line #	Customer	Item Code	Qty Back-Ordered	Order Batch	Priority	Status
09/24/97	1858-3	ABC COMPANY	9111 FR/FIN	5	19		
0 09/24/97	1858-3	ABC COMPANY	9111 FR/FIN	5	19		Un-Scheduled
0 09/24/97	1858-4	ABC COMPANY	725	10	17		Sched Internal Only
0 09/24/97	1858-5	ABC COMPANY	180	50	18		Un-Scheduled
0 06/17/97	2036-1	ABC COMPANY	9111	1	2		Sched Internal & Vendor
0 10/01/97	2036-1	ABC COMPANY	9111	10	22		Sched Internal & Vendor
0 06/17/97	2057-1	Highwater Furniture,	925	3	1		Un-Scheduled
0 07/15/97	2057-1	Highwater Furniture,	925	10	4		Un-Scheduled
0 07/26/97	2059-1	Highwater Furniture,	CHEERY	10	5		Sched Vendor Only
0 08/17/97	2065-1	Build to Stock	9111	10	12	Z	Un-Scheduled
0 08/17/97	2065-2	Build to Stock	9111	10	11	Z	Un-Scheduled
0 09/02/97	2070-1	ABC COMPANY	9111	10	15		Un-Scheduled
0 10/31/97	2070-3	ABC COMPANY	COMPUTER	1	25		Un-Scheduled
0 12/14/97	2074-1	XYZ COMPANY	0001	70	26		Un-Scheduled
0 01/02/98	2074-4	XYZ COMPANY	9111	10	27		Sched Internal & Vendor

If you print the scheduling queue, the report will contain information about both the scheduling and the release status.

When viewing sales shipments on the **Sales Order Items** window, the status display will be more detailed.

Sched Ship Date	Requested Ship Date	Ordered	Shipping	Invoiced	Back Ordered	Status	Sales Shipment Code
01/01/97	02/14/94	40	26	0			
01/01/97	02/14/94	40	26		40	Sched Vendor	1921-4-1
01/01/97	01/01/97	150			150	Sched Vendor	1921-4-2

Print Scheduling Queue

{Button} Once you have the queue to your liking, it is a good idea to print it prior to running production scheduling. Thereafter if there are things you do not like about the schedule, you can compare it to the scheduling queue to help you make adjustments prior to rerunning production scheduling.

Produce Manufacturing Orders from Queue

{Button} After printing the queue, you are ready to generate the production scheduling run. Click the **<PRODUCE MFG ORDERS FROM QUEUE>** button. This will cause the following message to be displayed;



Produce Manufacturing Orders from above list of 26 shipments?

Click **<NO>** to abort the function. Click **<YES>** to proceed. New selections will appear on the window after clicking this button.

Deleting and Deallocating tasks

After clicking the **<PRODUCE MFG ORDERS FROM QUEUE>** button, you will see the following message and new options:

Infinite Load

Earliest Selec

For Jobs in this Scheduling Queue, Qube erp™ will:

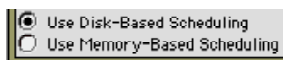
- ☐ Delete planned purchases, assemblies + operations and De-allocate material requirements from purchase orders.
- ☒ Delete Released Manufacturing Order Tasks
- ☐ De-Allocate Released Manufacturing Order Tasks

Qube allows you to either delete or deallocate released manufacturing order tasks. Deallocated purchase orders are not included in this report.

Qube deletes planned tasks only for jobs that are loaded in the scheduling queue. In addition, users must choose to either deallocate or delete released internal tasks associated with jobs in the queue. If a released task is deleted, the task record will no longer be available to record assembly transactions or labor usage against. If a released internal task is deleted, the associated paperwork should be retrieved from production and a non-scheduled assembly performed against any work that may have been completed.

Disk/Memory-Based Scheduling

Memory-based scheduling is required for forward scheduling; otherwise, use disk-based memory. Forward scheduling is only available on the **Sales Order Items** window.



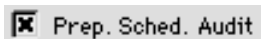
Stop After Deleting Old Records

If this box is checked, you can purge planned orders or whatever is selected, and then stop, instead of automatically running scheduling. This can be a useful tool for purging tasks and allocations associated with sales order lines to be canceled.



Scheduling Audit Report

[Checkbox selection] After you click the button <PRODUCE MANUFACTURING ORDERS FROM QUEUE>, the following checkbox also appears on the window, at the bottom right.



Enabling this selection prior to running MRP creates a **Production Scheduling Audit Report** during MRP which looks like this:

Screen report																
World Class Industries																
Finite Load Production Scheduling Events																
Report Printed on 08/29/96 at 09:08, Page #1																
Event Description	General Stock	Unit	Lead Time	Yield	Sched. Lot Size	Job Code	Gross Requir.	Qty Allocated from Avail. General Stock	Qty Allocated from Open P.O.s	Mfg Order Quantity	Lot Size Adjustmt	Remaining Available General Stock	Qty Remaining to Schedule	Event Number	PO Shipment Code	Mfg Order Task Code
0001	465.000	EA	7	100.0%	1											
Gross Requirement, Component on 06/18/92						1862-1-1	360					0	360.00000	26		Bohr - Table Leg
Adjust Up for Neg. Available Genl Stock						1862-1-1		465				0	825.00000	27		
Allocated from PO:						1862-1-1			50			0	775.00000	28	60004-1-1	
Allocated from PO:						1862-1-1			50			0	725.00000	29	60007-1-1	
Allocated from PO:						1862-1-1			50			0	675.00000	30	60007-1-2	
Allocated from PO:						1862-1-1			100			0	575.00000	31	60007-1-3	
Allocated from PO:						1862-1-1			50			0	525.00000	32	60007-1-4	
Create Mfg Order Task						1862-1-1				424		0	0.00000	33		EAGBEA45451
Gross Requirement, Component on 06/01/92						1862-2-1	272					0	272.00000	36		
Create Mfg Order Task						1862-2-1				272		0	0.00000	37		EAGBEA45281
0002	395.000	EA	7	100.0%	1											
Gross Requirement, Component on 06/18/92						1862-1-1	360					395	360.00000	34		Nat - Table Leg
Allocate from Available Genl Stock						1862-1-1		360				35	0.00000	35		
0003	127.000	EA	10	100.0%	1											
Gross Requirement, Component on 06/18/92						1862-1-1	60					127	60.00000	36		Casters - Table
Allocate from Available Genl Stock						1862-1-1		60				67	0.00000	37		
0004	0.000	EA	6	100.0%	1											
Gross Requirement, Component on 06/18/92						1862-1-1	120					0	120.00000	38		Brackets - Table
Create Mfg Order Task						1862-1-1				120		0	0.00000	39		MD8IND45461
0005	10.000	EA	10	100.0%	1											
Gross Requirement, Component on 06/01/92						1862-2-1	68					10	68.00000	33		Bracket - Chair
Allocate from Available Genl Stock						1862-2-1		10				0	58.00000	34		
Create Mfg Order Task						1862-2-1				58		0	0.00000	35		TABMAK45251

Changes in Finite Scheduling for Version 7.35

Version 7.34 and previous versions of Qube ERP™ created a manufacturing order header, a task, and all material requirements for every day on which work was expected to be performed. The scheduling audit appeared as shown above. Version 7.35 uses a different approach, creating a task and material requirements for only the total quantity required for all the days. Smaller task-day records are created to record the amount of time which must be spent working on the assembly over different days. Each task-day record is attached to a manufacturing order header. This new approach may require as little as half the time required by earlier versions of Qube ERP™! The great advantage is provided by fewer task and material requirements being created, which results in faster processing speed, faster reporting, and a smaller data file. There will also be fewer manufacturing order documents to print.

If you see manufacturing order headers with no tasks associated with them, these are headers which have only task-day records associated with them. While the task-day records are not needed when displaying lists of things to be assembled (on the Material Requirements Plan window), they are incorporated into the logic of the Capacity Requirements Plan window, the Work Center Load Spreadsheet window and all reports related to capacity requirements.

Reason for the report

MRP must evaluate scores of records involving plant capacity, existing POs, forecasts, sales orders, MPS orders, existing stock quantities, lot sizes, etc. Auditing a suspect production scheduling run can therefore be a daunting, if not impossible, task. The **Scheduling Audit report** provides the master planner with a detailed audit of all of the steps taken during the scheduling process. If there is any doubt about the results of the scheduling run, the planner may refer back to this report to see why the system made its calculations.



However, if you are scheduling many jobs with deep BOMs, the audit report can be hundreds of pages. It may be best to use the audit report as part of limited tests performed on suspect item codes.

This report also notes selected POs that will be late and were selected only because a lead time variance was specified, as shown in the following example. For more information, see [“Lead Time Variance” on page PLAN-26](#).

<u>FINISH</u>	-1,579.867	SF	30	100.0 %
Gross Requirement, Component on 08/01/97				
Create Matl Requirement				
Adjust Up for Neg. Available Genl Stock				
Allocated from PO dated 08/15/97 - Late PO by 14 days -				
Allocated from PO dated 06/29/97				
Allocated from PO dated 02/16/97				
Allocated from PO dated 02/16/97				
Create Mfg Order Task				

When to run the report

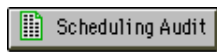
- In the early stages of setting up and running your MRP runs, you should probably elect to run this report.
- If you ever believe the results of your MRP run are suspect, you should choose to generate this report prior to regenerating the MRP run.
- If you have enough RAM, you might elect to always run the report. If, however, you have a limited amount of RAM, you should disable this selection prior to running MRP.

How the report is generated

The report is generated during the production scheduling run, [if you click this checkbox](#). Qube ERP™ stores all of these calculations in RAM. Because it is not writing any records to file, this process is very fast and does not affect the speed of the MRP process. The calculations are lost if you exit Qube before printing the report.

Printing the report

The data for this report is automatically captured during the scheduling run. After the production scheduling run is complete, the following button will appear in the lower right corner of the window:



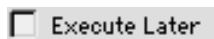
To print the Scheduling Audit report, click the button, and you will be asked whether to send the report to screen, file, printer, etc. Choose the proper selection, and the report will be output.



Remember: The report should be printed before you exit Qube, or it will be lost.

Execute Later

{Checkbox selections} In the lower left corner of the window, you will see this selection after clicking <PRODUCE MANUFACTURING ORDERS FROM QUEUE>:



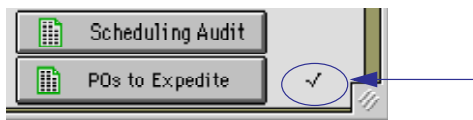
This selection brings up the Scheduled Events Manager. For information on how to use this function, see [“Scheduled Events Manager” on page GEN-47](#).

Save

{Button command} After setting these selections, click <SAVE> to begin executing the production scheduling process. The scheduling algorithm will run against all shipments listed in the scheduling queue in the order listed, top to bottom. The line being scheduled will be highlighted as the system runs down the list so you can see which job is being scheduled and how many more remain to be done.

Checkmark

If you have signed on as a Qube developer or system administrator, after a scheduling run you will see a checkmark in the lower right corner of the screen:



This is a debugging tool; contact QCI Technical Support before using. Clicking on this checkmark compares the BOMs of the Sales Order Items to the scheduling run results. Be warned, however, that this takes a long time to run!

POs to Expedite Report

{Button} In addition to the Scheduling Audit Report, the POs to Expedite Report will be generated when your run production scheduling. Unlike the scheduling audit, however, you do not have to click the ☒ Prep. Sched. Audit selection to access this report.

During the production scheduling run, the function identifies purchased parts for which there are projected stock shortages and no POs scheduled in time to meet the projected demand, and creates new proposed buys (planned purchases) for these items.

At the same time, it looks into the future and tries to determine if there are any open, unallocated POs which, if expedited, could meet the perceived demand. If it finds such PO records, it will flag them. Then, this report displays all of both types of records.

In each section, you will see the existing POs grouped together and sorted by the date they are scheduled to arrive. Following that, you will see all of the proposed, new POs grouped together. Using this information, the purchasing manager can contact each vendor and at-

tempt to expedite existing POs before actually creating new ones to meet the projected demand. The report will look similar to this:

World Class Industries

Purchasing Expediting Report

Period Covering 12/21/94 - 12/21/95

Report Printed on 06/06/96 at 12:01, Page #1

Fiscal Week: 130 - 182

Screen report

Item Code	PO, Req or Task Number	Scheduled Receipt Date	Planned Purchase Date	Needed to Manufacture Item Code	PO Quantity Back-Ordered	PO Qty Allocated to Production	Quantity for Planned	Job #	Days Lead Time	Vendor Name	Unit	Job Allocation	Total at Vendor for This PO Report	Status
0001	Bolts - Table Leg													
	60004-1-1	06/06/96		8111 FRAME	50				7	Eager Beavers	Each		Open	
	60007-1-1	06/12/96		8111 FRAME	50				7	Eager Beavers	Each		Open	
	60007-1-2	06/28/96		8111 FRAME	50				7	Eager Beavers	Each		Open	
	60007-1-3	07/13/96		8111 FRAME	100				7	Eager Beavers	Each		Open	
	60007-1-4	07/29/96		8111 FRAME	50				7	Eager Beavers	Each		Open	
	EAGBEA59801	03/06/96				600.000	825	209.1						
	EAGBEA59111	03/08/96				350.000	825	208.1						
	EAGBEA59271	04/05/96				400.000	825	207.1						
	EAGBEA59702	05/14/96				350.000	8111	207.2						
	EAGBEA59991	06/06/96				120.000	925	208.1						
	EAGBEA60091	06/14/96				120.000	925	209.1						
	Totals For 0001 Bolts - Table Leg				300		2,190.000							
0002	Nuts - Table Leg													
	60004-2-1	06/06/96		825 FED	50				7	Eager Beavers	Each		Open	
	Totals For 0002 Nuts - Table Leg				50		0.000							
0003	Casters - Table													
	60004-3-1	06/06/96		825 FED	50				10	Eager Beavers	Each		Open	
	Totals For 0003 Casters - Table				50		0.000							
0004	Brackets - Table													
	60011-2-1	07/27/96		825 FED	100				6	Morris Industries	Each		Open	
	MORIND59111	02/07/96				200.000	825	209.1						
	MORIND59111	03/08/96				120.000	825	208.1						
	MORIND59991	04/04/96				150.000	825	207.1						
	MORIND60001	06/05/96				40.000	925	208.1						
	MORIND60091	06/14/96				40.000	925	209.1						
	Totals For 0004 Brackets - Table				100		550.000							

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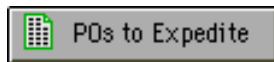
200

Existing POs

Recommended buys (planned purchases)

Printing the report

After the production scheduling run is complete, the following button will appear in the lower right corner of the window:



To print this report, click this button, and you will be asked whether to send the report to screen, file, printer, etc. Choose the proper selection, and the report will be output.

Note: The POs to Expedite report will be lost if you exit Qube ERP™ prior to printing the report. However, the Requisitions Proposed by MRP report prints both planned buys and open unallocated POs, so you can see which POs are already out there for each item for which a purchase has been recommended. This report is always available. For more information, see [“Requisitions Proposed by MRP \(By Date & Item\)”](#) on page PLAN-214.

Execute the Plan

The result of running the production scheduling function within Qube ERP™ is the generation of **Manufacturing Orders**. These manufacturing orders are records which tell you what needs to be done when, where the job needs to be performed, and what needs to be available to complete the job.

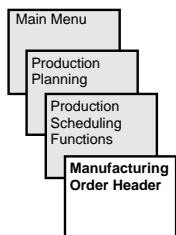
Each Manufacturing Order (MO) is a collection of tasks which are scheduled to occur at a work center or vendor on a particular date. Therefore, each work center will have only one manufacturing order for each day, although it might have several tasks.

MOs are time-phased if you ran finite scheduling. By compiling them into various lists, spreadsheets and graphs, the materials manager may compile the material requirements plan, the capacity requirements plan, and the production schedule.

If you ran the production schedule from the sales order or forecast records in the system, the MOs will also carry job numbers, which provide detailed job tracking capabilities in make-to-order environments.

The MOs also provide **routing information**. They indicate how much of each item is to be produced, where and on which date it should be produced, in which order to produce the various tasks, number of hours required to produce each task, and where the completed assemblies should be routed when completed.

Manufacturing Order Header Window



Task Under Produced	Qty Required	Qty Made So Far	Sales Order Line Number	Hours Required	Task Status	CP Error?
1 9111	10.000			11.360	Plan Assy NO	
1 9111	10.000			11.360	Plan Assy NO	

Manufacturing orders are displayed on two windows, the **Manufacturing Order Header**, as shown above, and the **Manufacturing Order Tasks** window, which follows this section.

Manufacturing orders may be entered manually or generated using the production scheduling function. It is important to note, however, that manufacturing orders which are entered manually will not be factored into production scheduling, either from a demand or supply perspective. Manually entered MOs are handy documents for imparting information and direction, but they stand alone.

Window Attributes

Manufacturing Order

{Calculated, unique index, display only} This field is calculated automatically when a manufacturing order is entered, either manually, or through production scheduling. It may not be changed by the user. The value of this field will always begin with the work center or vendor code at which the tasks are to be performed, followed by a numerical value. You may search, scroll, and find on this field.

Scheduled Production Date

{Date, calculated, index, editable} This is the date the task or tasks are scheduled to happen. It is automatically calculated by the system when production scheduling is run, or manually entered when a manual MO is entered. You may search, scroll, and find on this field.

Planned Purchase, Planned Assembly, Planned Operation

{Radio button selections} There are three types of manufacturing orders which are created by the system.

1. **Planned assemblies** are proposed assemblies of manufactured items. It is an event in which the bill of material components of an item are combined (assembled); the parent item is produced and the components are used up. When a planned assembly is logged into the system as completed via a scheduled assembly transaction, it will consume the component items and add to inventory the items assembled. It will also record labor at standard and actual values, thereby giving excellent visibility of the labor variances. Planned assemblies are generated from an item's bill of material, in that they are scheduled at the work centers referenced in the assemblies' BOMs, and the items produced and items backflushed from inventory come from the assemblies' BOMs. Planned assemblies will always have component parts which can be viewed in the **Production Order Tasks** window.
2. A **planned operation** represents a manufacturing step which involves only labor. Planned operations differ from planned assemblies in that the transaction upon completion results not in a change in inventory, but rather an increase in labor applied to a job. In other words, they are labor transactions only. The result of a planned operation is not the addition or consumption of inventory; rather it is the completion of scheduled labor, such as cutting, sanding, inspection, etc.

Sometimes this involves passing the subassembly or kit through a series of work centers, each of which performs a certain operation, bringing the item closer to a state in which it is ready for

the next step in the manufacturing process. Planned operations are defined by BOM routing steps.

Order Code	Description	Setup Time	Run Time	Labor Cost
1	CUT Cutting & shaping of foam	0.000	0.002	0.05600
2	METLRTH Metal Lathe	0.100	0.125	1.25000
3	DRILL Drill Press	0.125	0.125	1.00000
4	WELD Welding	0.250	0.250	2.50000
		0.10000	0.5020	4.80600

When scheduling is run on a BOM which contains a routing list, the resulting schedule will include a planned operation for each step in the routing, plus a planned assembly to add the parent item to stock and relieve its components. The planned assembly will occur at the work center referenced in the last operation step and on the last date on which the last operation step is scheduled.

Therefore the last operation step in a routing will contain two tasks. The first task will be the last operation; the second task will be the assembly of the fabricated item. The assembly will be scheduled requiring no labor, as shown here.

Task	Item to be Produced	Qty Required	Qty Made So Far	Sales Order	Hours Task Required	Status	CP Error?
1	ROD	13.000		MPS for 8111	3.250	Plan Assu	VES
2	ROD	13.000		MPS for 8111		Plan Labor	VES

Planned Assembly →

In these cases, you will need to close out both the routing and the assembly. Record the performance of any planned operation and associated assemblies using the **Labor to Planned Operations** window in the Labor module (see [“Labor Applied to](#)

[Planned Operations” on page JC-17](#)) or the MRP window (see [“Material Requirements Plan, Card 1” on page PLAN-139](#)).

3. **Planned purchases** are the items which the production scheduling function in Qube ERP™ has determined need to be bought in order to complete this scheduling plan. They indicate the date the PO must be generated, to whom it should be generated, and for how much of a given item. They are not requisitions or POs; they are proposed requisitions and POs. They deserve careful review before they are converted into POs.

Work Center/ From Vendor Field

{Indexed, alphanumeric, editable} This field displays the work center or vendor at which the operation is scheduled to occur. The work center or vendor is a key component in identifying the manufacturing order, as an MO is a collection of events which are scheduled to happen at a work center on a given date. Therefore, only one MO will be generated for each work center on each date.

Total Hours Required

{Calculated, numeric} This number is the total number of hours scheduled for all of the tasks on the manufacturing order. To change the value of this field you must change the **Hours Required** for each individual task.

Critical Path Error

{Calculated, Yes/No} Any process is a collection of events which must take place before the process is complete. These events might be those which can be completed independently of each other, or they may be events which rely on other events being completed. The critical path method (CPM) is a network planning technique for the analysis of a project's completion time by analyzing the shortest possible completion time. There is no time leeway or slack in activities along the critical path. Therefore, if the time to complete one or more jobs in the critical path increases, the total production time increases.

A critical path error, then, indicates that there is not enough time to complete a task. Qube uses a backward scheduling algorithm; i.e., it begins with the scheduled finish date of a job and works backwards along a timeline to the beginning task. Therefore a critical path error

occurs when a scheduled task ends up being scheduled before “today.” Critical path errors only occur when using finite scheduling, unless the lead time of purchased items is longer than the time available.

Comments

{Text, 3,000 characters} Use this area to record free-form comments about the entire manufacturing order. These will be printed in the header portion of the manufacturing order.

Task List

A manufacturing order is a collection of one or more tasks in a list. The following are descriptions of each of the columns in the list.

Task

{Numeric, calculated} Each task will have a task number. This field represents that number.

Print Order

In Version 7.36, you can control the order in which manufacturing order tasks print on the manufacturing order. The print order can be assigned any number; duplicates and blanks are allowed.

Part to be Produced

{15-Character, alphanumeric, validated} Every item in a manufacturing order must be a valid item in the item master file. This is the item code of the item to be produced. You may add to or edit this field manually.

Qty Required

{Numeric} This is the amount of the item to produce. You may edit this field manually.

Qty Made So Far

{Numeric} This is the amount of the item which has been completed. You may add or edit this field manually. This is normally a system-maintained value.

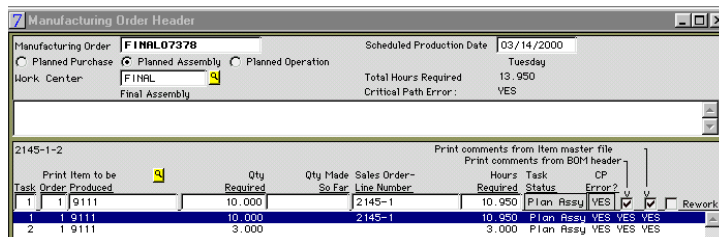
Sales Order Line Number

{Display only} Jobs are tracked through the system via the sale order or forecast line number. If you scheduled production using sales orders or forecasts, this field reflects the job number of each task in the production plan. Grouping and working with tasks by job number provides the ability for job tracking within the system. If you have

run production scheduling from MPS orders, however, you will lose this visibility. In this case, this field displays something like this:

MPS for 9111

In version 7.36 and greater, if you manually enter a task and leave the sales order-line empty, Qube assumes that the task is available for use by other requirements. If, on the other hand, you fill in the sales order-line number, Qube assumes that the item is being produced for a specific job and is therefore fully allocated.



Task	Order Produced	Qty Required	Qty Made So Far	Sales Order-Line Number	Hours Required	Task Status	CP Error?	Rework
1	1 9111	10.000		2145-1	10.950	Plan Assy	VES	<input checked="" type="checkbox"/>
2	1 9111	3.000			3.000	Plan Assy	VES	<input checked="" type="checkbox"/>

In the sample screen shot, the 20 on Task #1 will be specifically allocated for Sales Order Shipment 2145-1 while the quantity of 3 for Task #2 is available for any sales order.

Hours Required

[Numeric, editable] This field indicates the number of hours required at standard to complete the scheduled task. This number is the product of the number of SKUs to produce times the **Hours to Assemble** field from the Item Master File Card #2 or times hours per unit from a routing step. This amount of time is the labor standard when calculating labor variances. You may edit this field manually.

Task Status

[Display only] This field displays the status of each task:

- Released
- Completed
- Plan Assy
- Plan Labor
- Plan Purch
- Cxld
- Advice

CP Error?

{Display only} See [“Critical Path Error” on page PLAN-123.](#)

Print Comments

{Checkbox selection} You may elect to print the BOM Header and Item Master File Comments #1 data on the manufacturing order if you choose. To do so, click one or both boxes while in edit mode.

Rework

{Checkbox selection} If you check this box, you can enter “rework” manufacturing tasks. These differ from normal manufacturing orders in two ways:

1. Each task will be flagged as fully allocated, making it impossible to allocate these tasks to other manufacturing tasks.
2. Adding the rework task will not automatically add material requirements based on the bill of materials of the parent item, as Qube does with normal tasks. You will need to manually add the material requirements for a rework task, since they are likely to include only a small proportion of the BOM components and maybe even some components not found in the BOM.

The part being reworked should also be referenced as a component on the task window and moved to a non-general stock location until the rework activity is complete. This way the defective part is not treated as general stock for scheduling purposes and the defective part will be “consumed” when the reworked part goes into inventory via the assembly transaction.

Commands Bar

Use the commands bar to find and scroll on the indexed fields as outlined above. You may edit any manufacturing order, whether added manually or inserted by the production planning function. Also, you may add a manufacturing order manually by clicking the **<NEW>** button and filling in the required fields. In order to delete any manufacturing order, click the **<DELETE>** button. To delete a task from this window, click the **<EDIT>** button and delete the line item. Then click the **<SAVE>** button.



Note: Editing a line item in a manufacturing order header will not impact any of the component items in the task window. The two must be edited separately.

Change Material Quantities

{Checkbox selection} This checkbox is only visible after you make a change to the **Qty Required** field on the **Manufacturing Order Header** window. When you do, it appears in the lower left corner of the window, like this:



Sometimes you will want to be able to make changes to the Manufacturing Order Tasks independently of the information shown on the Manufacturing Order Header window. This selection provides that capability. When you create a manufacturing order manually or through production scheduling, the material requirements on the tasks window will be derived from the assembly's bill of material. You may wish to change the material requirements of one or two items (swapping an item or changing a quantity) without having values on the header window overriding it. In these cases, you need do nothing special; simply make the changes on the Tasks window.

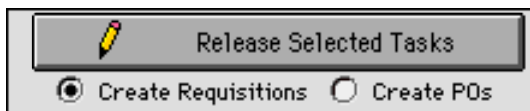
Sometimes, however, you might wish to change the quantities in the header window and have the values in the tasks window change with it. In these cases, you must be sure to check this box prior to clicking **<SAVE>**. Then the quantities of necessary components found in the Manufacturing Order Tasks window will be recalculated based on the new quantity required times the quantities of the items currently found in the item's bill of material.

Release Selected Tasks

Once manufacturing orders and tasks have been created, it is sometimes a good idea to release them. For a complete discussion on releasing manufacturing orders, see [“Release Manufacturing Orders” on page PLAN-170](#). Depending on the type of task, releasing them will have a different impact.

Releasing planned assemblies will have the effect of “finalizing” the transaction so subsequent MRP runs will not change or delete them. You may then run production scheduling in a “net change” fashion, creating new manufacturing orders only for jobs which have not been finalized. By releasing tasks from this window, you can be selective about which manufacturing orders are preserved and which are recalculated in the next scheduling run. After releasing a planned assembly, the record will remain in the data file.

Releasing planned purchases will have the effect of creating purchase orders or requisitions from the planned purchase. Click the button, *<RELEASE SELECTED TASKS>*, and the following two radio buttons will appear:



Internal tasks are normally released at the time they are issued to production or ready for issue. Internal tasks are generally also printed at the time of release. Users need to edit out jobs from the scheduling queue with internal tasks that are fully or partially released.

Create Requisitions

{Radio button} You may choose one or the other of the selections, but not both. Select *<CREATE REQUISITIONS>* if you have further review processes to perform prior to issuing purchase orders. Remember, planned purchases are manufacturing orders for items you buy. The reports and functions surrounding them are more geared to the manufacturing manager.

Requisitions, on the other hand, are instructions to the purchasing department. The functions and reports surrounding them are more geared to the purchasing personnel. Therefore, in many companies, it may make a lot of sense to create requisitions from the manufacturing orders and let the purchasing department handle it from there.

However, there are risks associated with releasing planned purchases and making them requisitions rather than POs. Requisitions are

not figured into MRP calculations until they are approved. Therefore, you risk having Qube recommend a double buy if a requisition sits around unapproved and production scheduling is run again.



Note: Production Scheduling will not recognize unapproved requisitions. Therefore, if you use the release function to create requisitions, any you wish to have calculated into your next MRP run should either be approved or converted to purchase orders.



Note: Only integer values are allowed on POs or requisitions. Fractional quantities less than 1 on planned purchases are rounded to 1 on POs and requisitions. Fractional quantities greater than 1 are rounded to the nearest integer value.

Create POs

{Radio button} As with all radio buttons, you may choose one or the other of the selections, but not both. In some organizations, the materials manager handles both production and purchasing functions. This or other issues may dictate the necessity of skipping the requisitioning process. In these cases, you may elect to create POs directly from the planned purchases. In this case, you may do so by choosing this selection.

After you release planned purchases, they are deleted from the list.

• To release a selected task

1. Select the items you wish to release.

You may release as many tasks in a list as you choose. Use the established methods for choosing the items you wish to release.

2. Click the button, *<RELEASE SELECTED TASKS>*.

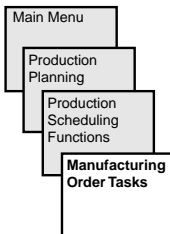
3. If the items being released are planned purchases, choose whether to create requisitions or POs. If they are not planned purchases, proceed to the next step.

4. Click **<SAVE>**.

- **To print the manufacturing order from the window**

1. While looking at the manufacturing order you wish to print, press **<CTRL/COMMAND-P>** on your keyboard.

Manufacturing Order Tasks



Manufacturing Order Task Detail

Order # **FINAL07400** 000000 Task: #1 Planned Assembly
 Work Center **FINA** Final Assembly Scheduled Prod'n Date 04/14/2000
 Item Code **0111** Item Description 16:060
 Quantity to Produce 30,000 EA Quantity Killed 0.000
 Quantity in Process 000 Sales Shipment # 7145-1-5
 Produced So Far 0.000 Lot Size 10 Send to: Wood Finishing 004
 Qty Available for Allocation 5,000 EA Available to be used by other tasks This is a Demand Task

Material Requirements

Component Item	Description of 0001	Quantity Required	Quantity Used So Far	Lot/Platn #	Allocated From Stock	Allocated From Pkg	Allocated From Task	Quantity Not Yet Allocated	Quantity Killed Short
0001	Description of 0001	3,360	0.000		3,360				
0111	Finished frame for 0 C	30,000						30,000	
0111	Cut & sewn fabric to A	30,000			10,000			20,000	
BOX	Packing box C	30,000				30,000			
CORR	Corrosion resistant bar	20,000					20,000		
FABRIC	Genetic material for A H	30,000					30,000		
FOAM	Foam used in making	150,000				150,000			
LEAF	Laminates in multiple	90,000				90,000			
LEAF-2	Laminates in subregion F	90,000				90,000			

Buttons: Manufacturing Orders, Tasks, Sort by Sequence, Print This Task, Open Drawing

The **Manufacturing Order Tasks** window provides **detailed information** on the **components** necessary to complete each task. Only planned assemblies will have components in this list.

Window Attributes

Many of the fields on the upper portion of this window are the same as those shown on the **Manufacturing Order Header** window. To avoid redundancy, this section will not review display-only fields from the header window.

Quantity to Produce

{Numeric, editable} This is the quantity to be produced of the item being manufactured. You may change this quantity; however, it will have no impact on any of the components in the list.

Quantity in Process

{Numeric, editable} Quantity in process is defined as “at the work center in which the assembly process is expected to take place but not yet completed.” This field may be manually updated. Qube will not update this field's value as a side effect of any other transaction.

Produced So Far

{Numeric, editable} This is the quantity of the item completed. You may change this quantity; however, it will not affect any of the components in the list. This is normally a system-maintained value.

Available for Allocation

{Display only} Normally this will show a quantity of zero. However, if you have set the **Sched Lot Size** field on **Item Master File, Card**

#2 to any value but 1, the scheduling function may very well set up a manufacturing order for a lot size multiple which is greater than the quantity required for the jobs currently being scheduled. For example, the lot size on an item may be 10, but the existing job being scheduled may require only 2. The scheduling function will still plan for 10 based on the lot size. That means that 8 of these items are available for other jobs that come up during this or future production scheduling runs. Therefore, the **Available for Allocation** field would display 8.

Quantity Kitted

This number indicates the quantity kitted.

Ready to Build

Version 7.36 provides the ability to quickly and easily identify assemblies which are ready to be built. An assembly which is “ready to build” is one which has all quantities of all components currently allocated from general stock. The ready to build condition is also displayed on the Material Requirements Plan window; see [“Ready to Build” on page PLAN-143](#).

The field which tracks this condition is updated during production scheduling and when any event is processed which updates the quantity allocated from general stock of any material requirement.

A utility is provided in the MRP Utilities menu to either initialize or validate these field values; see [“Check “Ready to Build” flag” on page SYS-181](#).

Lot Size

{Display only} This number indicates the total lot size.

Available to be used by other tasks

{Checkbox, display only} This checkbox is a little different from most in the system in that it is activated and changed only by the system. You cannot change the value in this checkbox. It indicates that the items scheduled to be manufactured in this manufacturing order are available for other items upline in the process. In other words, in a production scheduling run (either this or future runs), the MRP process will see this scheduled manufacturing order in the same way it would see available general stock (or an unallocated PO). Therefore

it would create no further requirements for this item unless upline demand exceeded the supply provided in this manufacturing order.

Two conditions can arise which will cause this box to be checked. The first is when the scheduling lot size (see [“Scheduling Lot Size” on page INV-40](#)) of an item causes a build which exceeds the requirements of the parts which triggered the requirement. For example, upline requirements for an item may have been six units; however, the scheduling lot size of the item may have been 10. Therefore, 10 of the item would be scheduled, but only six would be used up. Four would remain as being available for production. This box would then be checked by the system, and the **Allocated** field would indicate that only six are allocated, leaving four for future tasks (see [“Available for Allocation” on page PLAN-131](#)).

The other condition is in the case of multi-level master planning. The scheduler may identify subassemblies which can be planned and produced in a fashion which is more efficient or economical than the normal production scheduling run might infer (or you might be in an assemble-to-order environment where subassemblies are made to stock and then assembled when actual sales orders materialize). Therefore you could schedule builds of a subassembly part by entering MPS orders for the item. When you run production scheduling against these MPS orders, the system would see no sales orders, forecasts, or other upline demand for the item, and then it would be available for other tasks.

This is a Rework Task

{Checkbox selection} If you check this box, you can enter “rework” manufacturing tasks. These differ from normal manufacturing orders in two ways:

1. Each task will be flagged as fully allocated, making it impossible to allocate these tasks to other manufacturing tasks.
2. Adding the rework task will not automatically add material requirements based on the bill of materials of the parent item, as Qube does with normal tasks. You will need to manually add the material requirements for a rework task, since they are

likely to include only a small proportion of the BOM components and maybe even some components not found in the BOM.

Send to:

{Validated, editable} This is the work center code of the work center where the item should be sent on completion of this assembly or operation, based on BOM structure of the item on the sales order or MPS record. You may change this routing information if you choose.

Lot/Batch #

Enter the lot or batch number associated with the assembled item in this field. This field is only available if you have the Lot & Batch functionality of the system turned on. This field is intended to be used to pre-assign lot/batch numbers prior to production.

Comments

{Text, 3,000 characters} Use this area to record free-form comments about each manufacturing order task. These will be printed in the task portion of the manufacturing order.

Components List

This list displays all of the components necessary to make the task item and their status. You may accept the components as generated during the production planning process, or change them on this window. These items are related to, but independent of, the item's BOM; i.e., the items and quantities recommended in the manufacturing order task window come from the item's BOM. However, they can be edited at any time prior to the actual completion of the task without impacting the original bill of material. Then when the assembly transaction is recorded against the task, the newly edited items and/or quantities will be consumed.

Component Items

{Alphanumeric, validated} This is the item code of the components being used in the manufacturing process. All items used in the manufacturing process must be valid items in the item master file.

Description

{Display only} This is the description of the items being used in the manufacturing process as established in the item master file.



Drawing	<i>{Display only}</i> The drawing location field is displayed from the Bill of Materials file. You may sort on this field.
Quantity Required	<i>{Calculated, numeric, editable}</i> This is the recommended quantity of the items required to assemble the number of SKUs which appear in the Quantity to Produce field above. You may change this quantity prior to the actual completion of the task.
Quantity Used So Far	<i>{Calculated, numeric, not editable}</i> This is the quantity of components used so far in assembly transactions referencing a particular manufacturing order task.
Lot/Batch #	Enter the lot or batch number associated with each component in this field. This field is only available if you have the Lot & Batch module turned on.
Allocated from Gen'l Stock	<i>{Calculated, display only}</i> When the scheduling function begins, Qube ERP™ notes the quantity in general stock for each item. If there are units available in general stock for each item, and any have been allocated to this job, the allocated amount shows in this field.
Allocated from POs	<i>{Calculated, display only}</i> If there are units available in POs for each item, and any have been allocated to this job, the allocated amount shows in this field.
Allocated from Tasks	<i>{Calculated, display only}</i> If units have been allocated from other tasks to this job, the allocated amount shows in this field.
Not Yet Allocated	<i>{Calculated, display only}</i> This field shows the amount of units that are not yet allocated. No value should appear in this column unless manual changes affecting allocations have been made.
Quantity Kitted Short	This field assists in keeping track of shortages in any one assembly. It can be edited. Changes in a material requirement's kit shortage quantity or item code will be reflected immediately in the shortage record to ensure that they are always in sync. For more information, see “Material Requirements Plan, Card 2” on page PLAN-150.

Sort by Sequence

{Button} Click this button to sort the items in the order in which they were originally loaded into the record.

Print This Task

{Button} This command will print only the task you are viewing, rather than the entire manufacturing order. This is useful if you have several tasks associated with a manufacturing order and wish to print only one. The printed manufacturing order provides a **pick ticket and routing slip** for the job, indicating what needs to be made and where, how much to make, where to find the components, and where to send the completed job when finished.

It also provides space for the production personnel to record their progress on the job, and how much material was actually used. From this document, the production manager **can easily record the status of each job**, and keep **up-to-the-minute track of inventory levels** and locations, if needed.

The printed manufacturing order will look similar to this:

World Class Industries																																																															
Manufacturing Order #FINAL6300																																																															
Report Printed on 01/27/97 at 16:38, Page #1																																																															
Manufacturing Order # FINAL6300				Final Assembly		Issue Date: 01/27/97																																																									
Work Center Code FINAL				Cut & sew fabric		Required Date: 03/31/97																																																									
Shop Floor Location 200				Employee Initials		Sched Prod'n Date: 04/01/97																																																									
						Tuesday																																																									
Task Item Code to #	be Produced	Qty to Produce	Qty Completed	Sales Order-Line #	Hours Required	Start Time	Stop Time	Current Send to Gen'd Stock	Work Center																																																						
2 9111		5.000		1864-1	1.500			0.000	FIN Assembly																																																						
Chair - Series 9																																																															
<table border="1"> <thead> <tr> <th>Materials Required</th> <th>Component Item</th> <th>Unit</th> <th>Loc'n</th> <th>Bin</th> <th>Current Stock</th> <th>Qty Needed</th> <th>Qty Issued</th> <th>Back Ordered</th> </tr> </thead> <tbody> <tr> <td>Fabric - cut & sewn for 9111 c</td> <td>9111-FAB/SEW</td> <td>EA</td> <td>1</td> <td>SR-122</td> <td>5.000</td> <td>5.000</td> <td></td> <td></td> </tr> <tr> <td>Foam - cut for 9111 chair</td> <td>9111-FO/CUT</td> <td>EA</td> <td>1</td> <td>SR-89</td> <td>5.000</td> <td>5.000</td> <td></td> <td></td> </tr> <tr> <td>Frame - Finished for 9111-C ch</td> <td>9111-FR/FIN</td> <td>EA</td> <td>1</td> <td>SR-05</td> <td>1.000</td> <td>5.000</td> <td></td> <td></td> </tr> <tr> <td>Luminate in Antique White</td> <td>LAM-1</td> <td>EA</td> <td>1</td> <td>SR-04</td> <td>-26.000</td> <td>15.000</td> <td></td> <td></td> </tr> <tr> <td>Glue used to attach moisture b</td> <td>GLUE</td> <td>GL</td> <td>1</td> <td>SR-10</td> <td>7.000</td> <td>1.250</td> <td></td> <td></td> </tr> </tbody> </table>										Materials Required	Component Item	Unit	Loc'n	Bin	Current Stock	Qty Needed	Qty Issued	Back Ordered	Fabric - cut & sewn for 9111 c	9111-FAB/SEW	EA	1	SR-122	5.000	5.000			Foam - cut for 9111 chair	9111-FO/CUT	EA	1	SR-89	5.000	5.000			Frame - Finished for 9111-C ch	9111-FR/FIN	EA	1	SR-05	1.000	5.000			Luminate in Antique White	LAM-1	EA	1	SR-04	-26.000	15.000			Glue used to attach moisture b	GLUE	GL	1	SR-10	7.000	1.250		
Materials Required	Component Item	Unit	Loc'n	Bin	Current Stock	Qty Needed	Qty Issued	Back Ordered																																																							
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Glue used to attach moisture b	GLUE	GL	1	SR-10	7.000	1.250																																																									
Unscheduled Work:	Item Code to be Produced	Qty to Produce	Done Completed	Sales Order-Line #	Hours Required	Start Time	Stop Time																																																								

Open Drawing

Open Drawing

A button is provided for Mac OS users to allow an interface between other applications and Qube ERP™. It is often useful to prepare drawings related to item records. The drawings may be prepared in

applications such as Autocad or Illustrator or whatever you prefer. If the drawing document is titled and located correctly and if the workstation has sufficient RAM available to open the other application, clicking on the <OPEN DRAWING> button will open the correct document. Follow these rules to enable this function:

1. Identify the application used to store your drawings by entering its name on **System Set Up, Card #3**.

Name of application used to store Inventory Drawings	SuperCad
--	----------

2. Create a folder named Drawings.



3. Put the application (not just the document, but the application used to create the document, as well) into the **Drawings** folder.
4. Place the folder in the same directory as your data file. For example, if your data file is located on a file server volume in a folder named Data file, then the Drawings folder must be found in the same folder.
5. Name the document the same as the item code to which it applies. For example, if the item code is 12345-ABC/Rev 6, then you should label the drawing 12345-ABC/Rev6, as well. The naming must match exactly.

If all of the above steps are followed correctly, click the <OPEN DRAWING> button. Qube ERP™ will first open the application specified on the **System Set Up** window. Then it will look into the Drawings folder for a document prepared in the selected application with a document name matching the item code currently being viewed on the Manufacturing Task window. If it finds it, the document will be opened and displayed. If it does not find it, a message will be displayed that the document was not found.

MRP and CRP

Qube ERP™ generates both your material requirements plan and your capacity requirements plan at the same time. It determines which items you need to make or buy and when, and it will factor in your finite capacity constraints when time phasing these tasks. The result of the production planning function is to create the manufacturing order records which were covered in the previous section.

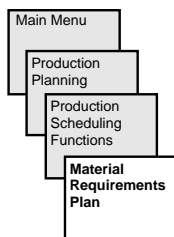
Viewing Scheduled Manufacturing Events

The production schedule may be viewed either in summary form, represented as a list of scheduled production events (purchases, assemblies and/or operations), or it can be viewed in detail, one manufacturing order at a time, as covered previously. By presenting and reviewing these manufacturing order records in different reports, lists, spreadsheets, graphs and windows, Qube ERP™ provides very flexible and powerful scheduling tools. This section will familiarize you with the various tools available to work with and control the production planning process.

The functions available for viewing these manufacturing orders are found in the following section:



Material Requirements Plan, Card 1



Scheduled Date	Work Center or Vendor	Ready to Print	Sales Order	Item Code	Quantity Required	Qty Made So Far	Quantity Kitted	Status
06/18/1998	ADMIN	*		9111	10,000			Print Assy
01/19/2000	FINAL	*	1 2079-1-1	9111	10,000			Plan Assy

Using this window you can view **virtually every task record for every job** in the system to quickly and easily see the current status on each job. From this window you can **edit any item's date, task number and item code**. As usual, the data in the list can be sorted by clicking on the column labels. Also, if you double-click on any item in the list, the specific manufacturing order will be displayed, so that it can be viewed or edited in detail.

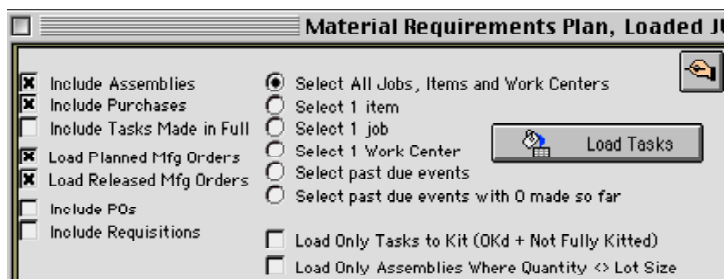
You can also use this window to control kitting and kit shortages. You may kit selected tasks; identify, view, manage, edit, and fill shortages, and reverse the kitting process to return a kit to a stockroom.

Window Attributes

Load Tasks

{Button} Click this button to load the manufacturing order tasks in the list. The records which are loaded into this and all material requirements planning lists are the manufacturing order tasks. These are the individual task records which load in the manufacturing order header window, not the material requirements for each task.

After clicking the <LOAD TASKS> button, the following items will become active and will need to be populated properly. Make your selections, then click <SAVE> to load the list, or <CANCEL> to stop.



Include Assemblies

{Checkbox selection} Select this box if you wish to include assemblies and planned operations in the list. If you disable this box, none of these records will load when you click <SAVE>.

Include Purchases

{Checkbox selection} Select this box if you wish to include planned purchases in the list. If you disable this box, none of these records will load when you click <SAVE>.

Include Tasks Made in Full

{Checkbox selection} Select this box if you wish to include tasks which have been completed in the list. By loading tasks made in full, you could identify those which have been completed along with those which still remain to be done, and thereby identify a job's status. If you disable this box, none of these records will load when you click <SAVE>.

Load Planned Manufacturing Orders

{Checkbox selection} Select this box if you wish to include planned manufacturing orders which have yet to be released in the list. If you disable this box, none of these records will load when you click <SAVE>.

Load Released Manufacturing Orders

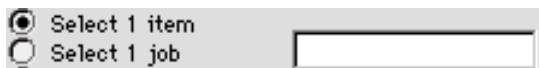
{Checkbox selection} Select this box if you wish to include manufacturing orders which have been released in the list. Released does not mean the same as "Made in Full." If you disable this box, none of these records will load when you click <SAVE>.

Select All Jobs, Items and Work Centers

{Radio button} This is the default selection for these radio buttons. This selection causes all jobs, items and work centers to be loaded, as permitted by the other selections made (i.e., planned purchases, planned assemblies, etc.).

Select 1 Item

{Radio button} Selecting this radio button causes the following field to be displayed:



Enter the Item Code for the records you wish to be loaded in the list. This will cause only those records which pertain to this item to be loaded in the list. This does not mean all of the items as designated in an item's BOM; it pertains to tasks related directly to this item code only.

Select 1 Job

{Radio button} Selecting this radio button causes the following field to be displayed:



Enter the Job Number (Sales Order-Line #) for the records you wish to be loaded in the list. This will cause only those records which pertain to this job to be loaded in the list.

Select 1 Work Center

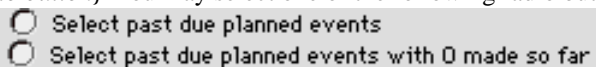
{Radio button} Selecting this radio button causes the following field to be displayed:



Enter the Work Center Code for the records you wish to be loaded in the list. This will cause only those records which pertain to this Work Center to be loaded in the list.

Select Past Due Planned Events

{ Radio button} You may select one of the following radio buttons:



You may choose to load all past-due planned events, or you may choose to load only past due planned events with 0 made so far. You may drill down from each displayed event, an advantage to using this window rather than generating a report.

Include POs/ Include Requisitions

{Checkbox selections} These selections are only available if you have activated either **Select 1 Item** or **Select 1 Job** above. If you have, you may also elect to include any POs or Requisitions associated with the item or job in the list.



Note: Planned purchases are manufacturing orders for proposed purchases. They have not yet been converted to requisitions or POs.

Load Only Assemblies Where Quantity <> Lot Size

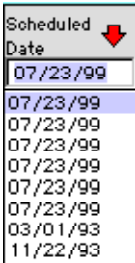
{Checkbox} If this is selected, Qube will not load planned purchases and will only load those tasks whose quantity required is different from the scheduled lot size.

Scheduled Date

{Date field, editable} This column displays the date the tasks were scheduled to be completed. This field may be edited. You may sort the data in the list by clicking on the column heading for this field.

In Version 7.36, you can edit multiple dates in the list. If you double-click on any list line while in **Edit** mode, Qube displays the **Calendar** window, allowing you to select a date from the calendar. If you then click the **SAVE** button from the **Calendar** window, Qube will replace the date selected from the calendar into the MRP list.

You can also copy any date down to any selected lines by using the “down arrow” button. This button is visible only during **Edit** mode:



Work Center or Vendor

{Display only} This column displays the work center code for each scheduled assembly or operation, or the vendor proposed for each planned purchase. You may sort the data in the list by clicking on the column heading for this field. The description for the work center or vendor is displayed in the column next to this field.

Ready to Build

Version 7.36 allows you to quickly and easily identify assemblies which are ready to be built by placing an asterisk in this field. An assembly which is “ready to build” is one which has all quantities of all components currently allocated from general stock. It is now very simple to identify assemblies which have some shortage of any material requirement and are therefore not ready to be built.

The field which tracks this condition is updated during production scheduling and when any event is processed which updates the quantity allocated from general stock of any material requirement.

A utility is provided in the MRP Utilities menu to either initialize or validate these field values; see [“Check “Ready to Build” flag” on page SYS-181](#).

Print Order

{Numeric, editable} In Version 7.36, you can control the order in which manufacturing order tasks print on the manufacturing order. The print order can be assigned to any number; duplicates and blanks are allowed.

Sales Shipment Code

{Display only} This column displays the sales shipment code for each task in the list. Each sales order has an order number, and can have many items. Each line item in a sales order will have a line-item number, and may have many shipments, each with its own **Sales Shipment Code**. Because of the time-sensitive nature of production planning, it is these shipments which are actually scheduled. Therefore it is the Sales Shipment Codes which are displayed in this list. You may sort the data in the list by clicking on the column heading for this field.

Item Code

{15-character, alphanumeric, validated, editable} This column displays the item code of the items being produced or purchased. In the case of planned purchases only, this item code may be changed with another valid item code. You may sort the data in the list by clicking on the column heading for this field.

Quantity Required

{Display only} This column displays the quantity required of each item on each task record. You may sort the data in the list by clicking on the column heading for this field.

Qty Made So Far

{Display only} This column displays the quantity of each task which has been completed to date. This number is dynamically updated each time the list is loaded. Using this number you can determine the status of any job. You may sort the data in the list by clicking on the column heading for this field.

Qty Kitted

{Display only} This number indicates the quantity kitted.

Status

{Display only} This column displays the status of each task. Planned assemblies and those made in full will display **Plan Assy**. Released assemblies will display **Releasd Assy**. Planned labor tasks will display **Plan Labor**. Released labor tasks will display **Releasd Labor**. Planned purchases will display **Plan Purch**. POs will display the term **PO** and the PO number next to it. Requisitions will display the term **Req** and the requisition number next to it. You may sort the data in the list by clicking on the column heading for this field.

View the status of any job by sorting the records by **Sales Shipment Code** (or loading only the records for that job), and viewing the hours remaining on each item for the job.

Item Description

{Display only} The item description for each record in the list is displayed in the lower left corner of the window.

Customer Description

{Display only} The customer description for each record in the list is displayed in the lower right corner of the window. This applies only if the manufacturing orders were generated from sales orders or forecasts. Manufacturing orders generated from MPS orders will not display a customer description.

Print Selected Manufacturing Order Tasks

{Button} Clicking this button allows selected scheduling tasks to be printed directly from this window.

Release Selected Manufacturing Orders

{Button} Releasing manufacturing orders will have the following impact.

1. When you release manufacturing orders for planned purchases, they are converted to POs or requisitions. If a PO already exists for a vendor created the same date you are running this function, the new items will be applied to it.
2. When you release manufacturing orders for planned assemblies or operations, the status changes from planned to released so they may be excluded from future scheduled runs.

Every time a release procedure is executed, Qube ERP™ checks the release status code of all shipments affected by the release as the last step in the procedure. For example, if you are viewing a single manufacturing order and click the **RELEASE SELECTED TASKS** button, Qube tracks the shipment code associated with each released task.

After the release has been executed, Qube ERP™ reads all tasks associated with each selected shipment. Since Qube ERP™ would expect this procedure to result in a “SOME” status, Qube ERP™ looks

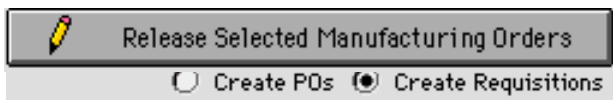
for the condition of one task associated with the selected shipment which is not released. This will confirm the SOME status.

At this point, Qube ERP™ stops reading tasks for the selected shipment and proceeds to the next shipment (if there is one).

If the release is performed from the **Release Manufacturing Orders** window, Qube ERP™ expects to produce an ALL status. As all tasks are being released, Qube ERP™ builds a list of associated shipments. When the release procedure is finished, Qube ERP™ checks each shipment, looking for a planned (not released) task associated with each shipment. If one is found, Qube ERP™ resets the shipment status to SOME status.

You may elect to release manufacturing tasks in three ways; from this window, from the **Manufacturing Order Header** window (see [“Release Selected Tasks” on page PLAN-127](#)), or from the **Release Manufacturing Orders** window (see [“Release Manufacturing Orders” on page PLAN-170](#)). Clicking this button activates the procedure for releasing selected manufacturing orders from this window.

Releasing planned purchases will result in a PO or unapproved requisition being created. When you click this button, the following radio buttons will appear underneath it. The result of the releasing operation will be impacted according to the selection you choose.



QCI recommends you use the **Material Requisition Plan** window as the primary tool to release tasks. This provides the greatest visibility and flexibility in controlling the release process.

• To release selected manufacturing orders

1. Click the button, **<RELEASE SELECTED MANUFACTURING ORDERS>**.

2. Select the items you wish to release.

You may select any combination of tasks in the list by using the accepted methods of selecting list items.

3. Choose whether to <CREATE POS> or <CREATE REQUISITIONS>.

This selection matters only if you are releasing planned purchases.

4. Click <SAVE>.

The function will release each record in turn. When releasing planned purchases, the records will be deleted from the list as they are released and converted to requisitions or POs. Other records will remain in the list and appear to be unchanged.

However, if you reload the list, you will see that their status has been changed from `Plan` to `Released`.

Kit Selected Manufacturing Orders

{Button} Clicking this button allows you to move materials required to perform an assembly between any two designated locations. First, you will be asked to select which of the tasks displayed in the list you want to move. After you select the list lines, Qube ERP™ displays the **Kit Select Mfg Order Tasks** window, which displays the material requirements plus all general stock locations which contain each component. For more information on this procedure, see [“Kitting Selected Tasks” on page PLAN-155.](#)

You may enter the quantity to kit, the pull-from location, and the send-to location.

The items and quantities moved are determined by the material requirements for each selected task (not by the current bill of material).

The resulting transactions can be viewed and edited by pressing the *Option* key (for Macintosh) or the *Control* key (for PCs) and double-clicking on each selected line of the list. Qube ERP™ will display the transactions on the **Change Stock Locations** window.

Reverse-Kit Select Mfg Order Tasks

{Button} Clicking this button allows you to reverse the kitting process to reflect the return of a kit to a stockroom. When executing a reverse-kit, Qube will look for quantities of each material requirement found in the non-general stock location that it was sent to, and require that the **Send To** location be a general stock location. This is the reverse of kitting, in which Qube looks for availability in general stock locations and requires that the send-to location be a non-general stock location. With kitting, stock will be sent to one location but may have been pulled from many general stock locations. With reverse-kitting, stock will be pulled from one location (where it was originally sent) but may be sent back to many general stock locations. For more information on this procedure, see [“Reverse-Kitting” on page PLAN-158](#).

Close Out Selected Manufacturing Orders

{Button} Clicking this button allows labor and/or assembly transactions for selected tasks to be executed directly from this window. This saves double entry of the product order task information, since this data is already loaded in the list.

Note that when an item is flagged as a Phantom Assembly, this function is NOT designed to preselect the lot and batch numbers for items that are lot- and batch-tracked.

• To close out manufacturing orders

1. Click the button **<CLOSE OUT SELECTED MANUFACTURING ORDERS>**.

Note that you can record partial completion of a manufacturing order task. A task is not considered closed until the quantity made so far equals or exceeds the quantity required.

2. Make sure the box **<Execute Transactions>** is selected.

Once selected, the window expands to provide an area to record quantity complete and labor hours used.

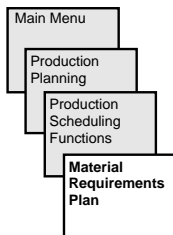
3. Tab through the lines that have activity to record.

The full quantity required and labor hours at standard will default. Key in actual quantities as appropriate.

4. Select the lines in the list that are to be processed and click <Save>.

Only highlighted lines with labor and quantity made values will be processed. Lines with quantity or labor hours that are not highlighted are ignored.

Material Requirements Plan, Card 2



Print Order	Task #	Item Code	Quantity Required	Lot Size	Qty in Process	Quantity Produced	Hours Remaining	Status	Scheduled Date
0	ADHIN067431	9111	10.000	10			11.360	Plan Assy	06/18/1998
1	ADHIN067431	9111	10.000	10			11.360	Plan Assy	06/18/1998
1	FTHAL075231	9111	10.000	10			12.310	Plan Assy	01/19/2000

On this window, you can select tasks to be split into lot sizes.

Window Attributes

Task Comment

Enter any descriptive comments into this field.

Split Tasks

{Button} When you click the *SPLIT TASKS* button, Qube displays a message:

Please select list lines whose task quantities will be split into scheduling lot sizes, now.

OK

You may select multiple list lines. After you click the *SAVE* button, Qube will read each selected list line and, if the quantity scheduled is less than the scheduling lot size, it will copy each selected line into a temporary list and display the selections on the **Split Select Mfg Order Tasks** window; for more information, see [“Splitting Tasks into Lot Sizes” on page PLAN-151](#).

Splitting Tasks into Lot Sizes

When you select tasks to be split from **Material Requirements Plan Card 2**, the **Split Select Mfg Order Tasks** window displays.

Date Scheduled	Quantity Required	Sched. Lot Size	Split Lot Size	Resulting Number of Tasks	Item Code	Description
01/01/00	10,000	10	10,000	1	0111	Series 9 chair
01/01/00	10,000	10	10,000	1	0111	Series 9 chair

Using the **Split Tasks** window, you may change the **Split Lot Size** to any number that is less than the quantity required. Qube will calculate the resulting number of tasks and display that number:

Date Scheduled	Quantity Required	Sched. Lot Size	Split Lot Size	Resulting Number of Tasks	Item Code	Description
05/17/1999	32,000	1	15,000	3	331336	Rapar Tenderizer Unseasoned 50
05/17/1999	32,000	1	15,000	3	331336	Rapar Tenderizer Unseasoned 50
05/21/1999	32,000	1	16,000	2	331382	Tomasso Alfredo Sauce No Msg 50
05/28/1999	32,000	1	17,000	2	LABEL T1187	Label Tomasso Alfredo Sc No Msg
04/26/1999	30,000	1	18,000	2	187848	Yeast Smoked Old # 187882
05/14/1999	30,000	1	19,000	2	331873	Gvg-Tri Kosher Beef Flav Veget

When specifying the size of the split lot, Qube may create a short final task to account for a rounding difference. For example, line 1 above would be split into two tasks of 15 units plus one task of 2 units; line 3 would be split into one task on 17 units plus one task of 15 units.

You may also split tasks by specifying the **Resulting Number of Tasks**. When this is done, Qube will recalculate the **Split Lot Size** by dividing the **Quantity Required** by the specified **Resulting Number of Tasks**, like this:

Date Scheduled	Quantity Required	Sched. Lot Size	Split Lot Size	Resulting Number of Tasks	Item Code	Description
05/17/1999	32,000	1	10,667	3	331336	Rapar Tenderizer Unseasoned 50
05/17/1999	32,000	1	10,667	3	331336	Rapar Tenderizer Unseasoned 50
05/21/1999	32,000	1	8,000	4	331382	Tomasso Alfredo Sauce No Msg 50
05/28/1999	32,000	1	16,000	2	LABEL T1187	Label Tomasso Alfredo Sc No Msg
04/26/1999	30,000	1	2,500	12	187848	Yeast Smoked Old # 187882
05/14/1999	30,000	1	3,333	9	331873	Gvg-Tri Kosher Beef Flav Veget

When you specify the **Resulting Number of Tasks**, Qube may find it impossible to divide the **Quantity Required** by the specified **Resulting Number of Tasks** with no remainder. Line 1 above, for example, would produce two tasks of 10.667 and one task of 10.666. Line 5 would produce eight tasks of 3.333 plus one task of 3.336.

Remove Selected Lines

This button allows selected lines to be removed from the list, producing a result like this:

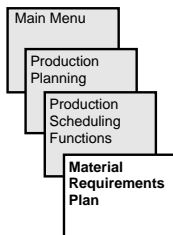
Date Scheduled	Quantity Required	Sched. Lot Size	Split Lot Size	Resulting Number of Tasks	Item Code	Description
05/17/1999	32.000	1	10.667	3	331336	Ropar Tenderizer Unseasoned 50
05/17/1999	32.000	1	10.667	3	331336	Ropar Tenderizer Unseasoned 50
05/14/1999	30.000	1	4.286	7	331873	Gvg-Tri Kasher Beef Flav Veget

If you click the **SAVE** button, Qube will split each task in the list. For example, if the lot size is 1 and the task quantity is 5, Qube will split the task into five tasks each for one unit. All material requirements will also be split. Only planned or released assemblies for which no quantities have been made so far will be split. Others will be ignored.

Qube will then display the results of the split procedure, showing only those tasks which were modified, like this:

Print Order	Task #	Item Code	Quantity Required	Lot Size	Qty in Process	Quantity Produced	Hours Remaining
42	BULK 1+2707642	331336	32.000	1			0.544
42	BULK 1+2707642	331073	10.667	1			0.181
43	BULK 1+270768	331073	10.667	1			0.181
44	BULK 1+2707613	331073	10.666	1			0.181
2	MATEER-B70737	331073	4.286	1			0.086
3	MATEER-B707314	331073	4.286	1			0.086
4	MATEER-B707315	331073	4.286	1			0.086
5	MATEER-B707316	331073	4.286	1			0.086
6	MATEER-B707317	331073	4.286	1			0.086
7	MATEER-B707318	331073	4.286	1			0.086
8	MATEER-B707319	331073	4.284	1			0.086

Material Requirements Plan, Card 3



Material Requirements Plan, Loaded MAR 10 00 09:19:37

Print	Order Task #	Part	Quantity Required	Quantity Kitted	Qty in Process	Quantity Produced to Allocate	Qty Avail	Reorder	Scheduled Date	OK to Kit
1	FINAL71041	9111	10.000				9.000		08/12/1999	
2	FINAL71042	CYMBITFR	15.000				1.000		08/18/1999	
3	FINAL71043	SOFT-BASIC	5.000						08/13/1999	
4	FINAL71044	FIN-BASIC	5.000						08/12/1999	
5	FINAL71045	SOFTSHARE	5.000						08/12/1999	
1	EAGBEA72251	FWHT	07.000						10/11/1999	
1	TACRA70101	FA001C	20.000						01/16/2000	
1	EAGBEA72301	FINISH	10.000						01/26/2000	
2	EAGBEA72302	H000	140.000						01/26/2000	
1	CRANE73451	SOLVENT ENU	1.000				1.000		02/11/2000	
2	CRANE73452	GLOVES	1.000						02/11/2000	
3	CRANE73453	DRILL 1/4"	10.000						02/11/2000	
4	CRANE73454	TENSION SPRING	5.000						02/11/2000	
1	HOBRHO73501	9111 SUB FRAME	20.000				4.000		02/15/2000	
1	MILL73501	9111 FRAME	20.000						02/15/2000	
1	CUT73501	COVER	20.000						02/15/2000	
1	CRANE73561	DRILL 3/4"	1.000						02/21/2000	
1	ACHE73601	SHRINK-WRAP	45.000						02/25/2000	
1	SEAT73601	9222	10.000				10.000		02/25/2000	
1	FINAL73601	9222	10.000				3.000		02/25/2000	
1	FINAL73602	9222	10.000				2.000		02/25/2000	
1	FIN73601	9111 FIN FRAME	10.000						03/28/2000	
1	EAGBEA73601	LAMINATE	160.000						03/28/2000	

Table Log Hits XYZ COMPANY

Card 1 Card 2 Card 3

Use this window to organize tasks for kitting or reverse kitting.

Window Attributes

Flag as OK to Kit

{Button} Select tasks, then click this button to flag the selected tasks as OK to kit.

Flag as Not OK to Kit

{Button} Select tasks, then click this button to flag the selected tasks as **NOT** OK to kit.

Kit Selected Manufacturing Order Tasks

{Button} Clicking this button allows you to move materials required to perform an assembly between any two designated locations. First, you will be asked to select which of the tasks displayed in the list you want to move. After you select the list lines, Qube ERP™ displays the **Kit Select Mfg Order Tasks** window, which displays the material requirements plus all general stock locations which contain each component. For more information on this procedure, see [“Kitting Selected Tasks” on page PLAN-155](#).

You may enter the quantity to kit, the pull-from location, and the send-to location.

The items and quantities moved are determined by the material requirements for each selected task (not by the current bill of material).

The resulting transactions can be viewed and edited by pressing the *Option* key (for Macintosh) or the *Control* key (for PCs) and double-clicking on each selected line of the list. Qube ERP™ will display the transactions on the **Change Stock Locations** window.

Reverse-Kit Select Mfg Order Tasks

{Button} Clicking this button allows you to reverse the kitting process to reflect the return of a kit to a stockroom. When executing a reverse-kit, Qube will look for quantities of each material requirement found in non-general stock locations and require that the **Send To** location be a general stock location. This is the reverse of kitting, in which Qube looks for availability in general stock locations and requires that the send-to location be a non-general stock location. With kitting, stock will be sent to one location but may have been pulled from many general stock locations. With reverse-kitting, stock will be pulled from one location (where it was originally sent) but may be sent back to many general stock locations. For more information on this procedure, see [“Reverse-Kitting” on page PLAN-158](#).

OK to Kit

If you clicked on the *FLAG AS OK TO KIT* button, the flag is displayed in this column.



Production Planning

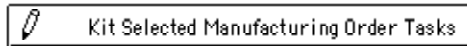
Control Over Kitting & Shortages

You can also use the **Material Requirements Plan** window to control kitting and kit shortages. You may kit selected tasks; identify, view, manage, edit, and fill shortages, and reverse the kitting process to return a kit to a stockroom.

Kitting Selected Tasks

• To kit selected tasks

1. Click the **KIT SELECTED MANUFACTURING ORDER TASKS** button:



2. Select lines in the list of tasks to kit.

Qube will then display these in the **Kit Select Mfg Order Tasks** window:

Kit Select Mfg Order Tasks							
Date Scheduled	Quantity Not Kit'd	Quantity to Kit	Item Code	Description	OK	Cancel	Send to Location
11/24/1999	500,000	500,000	WIN SL5120 TRK	WINSTAT300 SL5120 TRK			200
11/24/1999	500,000	500,000	WIN SL5120 TRK	WINSTAT300 SL5120 TRK			200
11/29/1999	100,000	100,000	LOH-1038	Loran - Parent PCB ID Controller			Short

Material Requirements							
Item Code	Location	Quantity Required	Quantity in Stock	Qty from Prior Kits in This List	Quantity to Fill	Quantity Shortage	Short
1072-00146	CONL 5x2 1" RT DUAL	1	500,000	111,000	111,000	289,000	200
1072-00146		20		189,000	189,000		
1072-00147	CONL 4 PIN HDR	1	500,000	474,000	474,000		OK
1072-00147		30		100,000	100,000		
1072-00147		30		200,000			
1072-00149	CONL 25x2 1" RT ANGL	1	500,000	500,000	500,000		OK
1072-00149	FINIT 7x17 1" CT TRAI B	1	500,000	500,000	500,000		OK
2011-00245	RES2 2.2K 5% 1/10W	1	0,000,000	0,074,000	000,000		OK

This window displays the material requirements plus all general stock locations which contain each component.

The top list contains the tasks selected to kit; the bottom list contains the material requirements required to kit each task. For each material requirement, Qube lists all general stock locations where a positive quantity of each material requirement may be found.

Note that the first component in the list (1072-00146) requires 500 units but only 211 units are found in stock (111 in location 1 and 100 in location 20). Qube indicates that this component

will be 208 units short. All components for which the required number is available will show an “OK” flag at the far right.

- To identify shortages, click on the label of the **Quantity Short** column. Qube will display the highest numbers at the top of the list.
- Click on the **Item Code** column label to restore the list to its normal sort (stock location within item code).

3. To kit a smaller quantity (so that no shortages will be involved, change the number shown in the Quantity to Kit field in the top list.

When you tab out of this field, Qube will recompute the quantities of each component required to kit this quantity and look for those quantities in each general stock location, like this:

Kit Select Mfg Order Tasks									
Date Scheduled	Quantity Not Kit#	Quantity to Kit	Item Code	Description	Send to Location	OK	Cancel		
11/24/1999	500.000	200.000	WIN-SLS120-1HK	WIN-SLS120-1HK	200				
11/24/1999	500.000	200.000	WIN-SLS120-TRK	WIN-SLS120-TRK	200				Short
11/29/1999	100.000	100.000	LOR-1038	Loran - Parent PCB ID Controller	200				

Material Requirements									
Item Code	Location	Quantity Required	Quantity in Stock	Qty from Prior Kits in this List	Quantity to Pull	Quantity Shortage	Short Location		
1072-00140	CONL 512 1" STRT DUAL	1	200.000	111.000	111.000			OK	
1072-00110		20	100.000		00.000				
1072-00147	CONL 4 PIN HDR	1	200.000	474.000	200.000			OK	
1072-00147		20	100.000						
1072-00147		30	200.000						
1072-00110	CONL 25x2 1" RT ANGL	1	200.000	020.000	200.000			OK	
1072-00140	CONL 20x5 1" CT PLAI D	1	200.000	600.000	200.000			OK	
2011-00243	RES2 2.2K 5W 1/10W	1	2,000.000	0,074.000	2000.000			OK	

You may also override the **Quantity to Pull** for each component for any of the available general stock locations, pulling more or less than is required. If you choose to pull less, Qube will recognize this as a shortage.

Note the column labeled “**Qty from Prior Kits in this List.**” This exists because different kits may require quantities of the same component. If the first kit required 10 units of component A, the next kit must not allow that same 10 units to show as available for its kit. Therefore, the quantity available to be pulled for a kit is the total quantity in general stock minus quan-

ties selected to be pulled for any kits above the currently selected kit. This can be seen in the example below:

Kit Select Mfg Order Tasks									
Date Scheduled	Quantity Not Kit	Quantity in Kit	Item Code	Description	<input checked="" type="checkbox"/> OK <input type="checkbox"/> Cancel	Send To Location			
12/29/1999	200,000	200,000	PHO-02-0026-01	Phobos In Switch Mezzanine		200			
12/09/1999	300,000	300,000	AIR 01300	Arrow Percent Assy 01300 6001		200			
12/10/1999	274,000	274,000	DELMA-26515-721	DELMA-26515-721		200			
12/14/1999	500,000	500,000	PHO-MMM10VF	Phobos MMM10VF RevA0		200		Short	
12/17/1999	150,000	150,000	DELMA-26518-721	DELMA-26518-721		200		Short	
12/27/1999	100,000	100,000	LOR 1030	Loran Percent PCB IQ Controller		200			
12/29/1999	200,000	200,000	PHO-02-0025-01	Phobos In Switch Main		200			
12/29/1999	200,000	200,000	PHO-02-0026-01	Phobos In Switch Mezzanine		200		Short	

Material Requirements									
Item Code	Location #	Quantity Required	Quantity in Stock	Qty from Prior Kits in this List	Quantity to Pull	Quantity Shortage	Short Location	Short	
1041 00020	XTAL1 25 MHZ HC42	1	200,000		0,000	194,000	200	Short	
1045-00160	CON1 JACK RJ-45 X 4 W/	200	200,000			200,000	200	Short	
2011-00210	RES2 0 OHM THFLM CHIP	1	4,000,000	25,840,000	500,000	4000,000		OK	
2012-00150	RES2 2.43K 1% 0805	200	900,000			900,000	200	Short	
2012-00205	RF02 100 OHM 1% 0605	1	000,000	4,501,000		000,000		OK	
2012-00288	RES2 681 OHM 1% 0805	1	3,200,000	7,134,000	2,500,000	3200,000		OK	
2012-00289	RES2 1K 1% 0805	1	000,000	8,282,000	2,500,000	000,000		OK	
2012-00301	RF02 4.75K 1% 0605	1	900,000	4,405,000		900,000		OK	
2012-00292	RF02 10K	1	4,200,000	6,514,000	500,000	4200,000		OK	
2012-00300	RES2 33.20HM 1% 1/10W	1	200,000	4,878,000		200,000		OK	
2012-00302	RES2 19.90HM 1% 1/10W	1	4,000,000	3,999,000		3999,000	14,000	Short	
2012-00310	RES2 2.21K 1% 1/10W 0805	1	900,000	4,701,000		900,000		OK	
2021 00150	CAP2 .001UF 10V+ X7R 05	1	14,000,000	35,500,000	10,000,000	14000,000		OK	

An example of the type of transaction produced from this kitting procedure is shown below:

Change Stock Locations									
Transaction Number	Transaction Date	Transaction Type	Posted On J/E #	To Period					
00000	01/10/2000	Kit Sched Assembly							

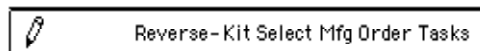
Item Code	Description	Quantity Lot/Batch #	From Location	To Location	Order Line # If Made to Order	Reason
1072-00146	CON1 5x2 1" STRT DUAL ROW HDR	111,000	1	200	1001-1	
1072-00146	CON1 5x2 1" STRT DUAL ROW HDR	111,000	1	200	1001-1	
1072-00116	CON1 5x2 1" STRT DUAL ROW HDR	100,000	20	200	1001-1	
1072-00147	CON1 4 PIN HDR	474,000	1	200	1001-1	
1072-00147	CON1 4 PIN HDR	20,000	20	200	1001-1	
1072 00140	CON1 25x2 1" HT DUAL FOOT HDR	500,000	1	200	1001-1	
1072-00140	CON1 25x2 1" ST DUAL ROW HDR	500,000	1	200	1001-1	
2011-00243	RES2 2.2K 5% 1/10W	6,500,000	1	200	1001-1	
2011-00244	RES2 0 OHM	500,000	1	200	1001-1	
2011-00246	RES2 0.2K 5% 1/10W	800,000	1	200	1001-1	
2013-00011	RES2 0.2K 5% 1/10W SMT	500,000	1	200	1001-1	
2021-00105	CAP2 2.2UF 10V 1206	1,000,000	1	200	1001-1	
2021-00100	CAP2 22UF 10V 1206	500,000	1	200	1001-1	
2021 00107	CAP2 47UF 10V 1206	1,000,000	1	200	1001-1	

Note that different quantities of different components are pulled from different locations, as specified in the kitting list window.

Reverse-Kitting

- To reverse the kitting process (to reflect the return of a kit to a stockroom)

1. Click the Reverse-Kit button:



Qube will look for quantities of each material requirement found in the location originally kitted to, and require that the **Send To** location(s) be a general stock location.

This is the reverse of kitting, in which Qube looks for availability in general stock locations and requires that the send-to location be a non-general stock location. With kitting, stock will be sent to one location but may have been pulled from many general stock locations. With reverse-kitting, stock will be pulled from one location (where it was originally sent) but may be sent back to many general stock locations. The labels on the window will reflect these differences:

☐ **Reverse-Kit Select Mfg Order Tasks**

Date Scheduled	Quantity Kitted	Quantity To De Kit	Item Code	Description	Pull From Location
11/24/1999	500.000	500.000	WIN-SLS120-TRK	WINSTATION SLS120 TRK	200
11/29/1999	100.000	100.000	LOR-1038	Loran - Parent PCB IQ Controller	200

Item Code	Material Requirements	Send To Location	Quantity Kitted	Quantity in Stock	Qty from Prior Kits in this List	Quantity To Return
1072-00145	CON1 5x2 1" ST RT DUAL	1				111.000
1072-00146	CON1 5x2 1" ST RT DUAL	20				100.000
1072-00147	CON1 4 PIN HDR	1				474.000
1072-00147	CON1 4 PIN HDR	20		74.000		26.000
1072-00148	CON1 25x2 1" RT ANGL	1		25.000		500.000
1072-00149	CON1 20x2 1" ST DUAL R	1		100.000		500.000
2011-00243	RES2 2.2K 5% 1/10W	1		174.000		0.000
2011-00244	RES2 0 OHM	1		584.000		500.000

2. Compare the items, stock locations and quantities in the Reverse-Kit window with those of the actual inventory transaction shown earlier.

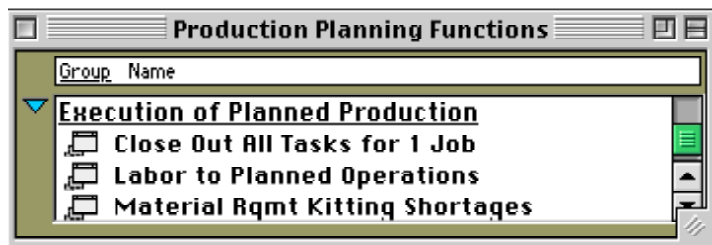
You will find that they match perfectly; the reverse-kit will move the same items in the same quantities back into the same locations from which they were originally pulled.

Viewing and Managing Shortages

If components were not found in sufficient quantities to produce a complete kit, you have a shortage. This can be seen in several ways.

• To view and manage shortages

1. Select Material Rqmt Kitting Shortages from the Production Planning Functions palette.



The Kitting Shortages window will display:

Kitting Shortages									
<input checked="" type="checkbox"/> Include Open Shortages	Beginning Date	01/01/1990	<input checked="" type="radio"/> Select All Jobs, Items and Work Centers						
<input type="checkbox"/> Include Closed Shortages	Ending Date	02/05/2000	<input type="radio"/> Select 1 Item						
<input type="checkbox"/> Include Canceled Shortages			<input type="radio"/> Select 1 Job						
<input type="checkbox"/> Load Shortages			<input type="radio"/> Select 1 Work Center						
Date	Material	Work Center	Order-Line #	Parent Item Code	Component Item Code	Quantity	Shortage	Status	
11/24/1999					1072-00110	299,000	299	Open	
11/24/1999	PROJ	Boise Production	1001-1-1	WIN-SLS120-IHK	1072-00110	299,000	299	Open	
11/24/1999	PROD	Boise Production	1001-1-1	WIN-SLS120-TRK	2021-00109	4,000	200	Open	
11/24/1999	PROD	Boise Production	1001-1-1	WIN-SLS120-TRK	2034-00200	38,000	200	Open	
11/24/1999	PROD	Boise Production	1001-1-1	WIN-SLS120-TRK	2034-00274	1,334,000	200	Open	
11/24/1999	PROD	Boise Production	1001-1-1	WIN-SLS120-IHK	2036-00010	475,000	200	Open	
11/29/1999	PROD	Boise Production	1005-1-2	LOR-1038	2034-00000	100,000	200	Open	
11/29/1999	PROD	Boise Production	1005-1-2	LOR-1038	2034-00035	9,000	200	Open	
11/30/1999	PROD	Boise Production	1005-1-2	SIM-4105020-TRK	1021-00004	70,000	200	Open	
11/30/1999	PROD	Boise Production	1005-1-2	SIM-4105020-IHK	105-00000	350,000	200	Open	
11/30/1999	PROD	Boise Production	1005-1-2	SIM-4105020-TRK	3078-00000	325,000	200	Open	
11/30/1999	PROD	Boise Production	1005-1-2	SIM-4105020-TRK	3091-00125	320,000	200	Open	

2. You can load open, closed or canceled shortages. You can select to load for one item, one work center, one job, or all.

A drill down function is provided. Double-click on any item in the list, and Qube will display the material requirement to

Q

Manufacturing Order Task Detail									
Order #	PH007267	000000					Task # 1	Planned Assembly	
Order Center	PH000	Boles Production Vorwerkcenter							
WHS-SLSLT-ZU-UNK	WHS-1 A IUM SLSLT-ZU-UNK						Colculated P/rdn Date	11/24/1999	
	Quantity: Kitted 0000,000						How Required this day	0.0000	
Only to Produce	0000,000	PH000					Order Shipment #	10661-1-1	
In Process	00					Can to:	PH000		
Order Date	01/0000	Kitted Short				Boles Production Vorwerkcenter 200			
Order for Allocation	<input type="checkbox"/>	Lot Size #	<input type="checkbox"/> Available to be used by other tasks. <input type="checkbox"/> This is a Rework Task				Lot/Seach #		

Click on the **Kitted Short** flag. Qube will respond by displaying all shortages associated with any material requirement of the selected task.

- This will cause all shortages for the selected item to be displayed on the Kitting Shortages window:

Quantity	Unit	Bin #1
----------	------	--------

Editing Shortages

You can track shortages in any one assembly from the **Mfg Order Task Detail** window, using the **Quantity Kitted Short** column on the right of the window. You can also make changes to the **Material Requirement Kitting Shortages** window.

• To edit shortages

1. Edit the Quantity Kitted Short column on the Mfg Order Task Detail window.

This field can be edited directly from this window. Changes in a material requirement's kit shortage quantity or item code will be reflected immediately in the shortage record to ensure that they are always in sync.

2. Edit the item code, shortage quantity, shortage date, shortage location, or shortage status on the Material Requirement Kitting Shortages window.

There are three valid status codes for shortage status: O = Open, C = Closed and X = Canceled.

Filling Shortages

Shortages may be filled in three ways: via PO receipt, assembly transaction, or moving stock from other locations.

The materials needed to fill the shortages may arrive via a PO receipt and be filled as a direct result of the PO receipt. Below is an example of a PO receipt which includes an item for which there is a shortage.

☐ **P.O. Receipts** ☐

Please Enter a Quantity Received and Where Sent. Then Press Enter

Vendor Code: **TTI, Inc.** ☒ Default Quantities to Zero ☐ Default Quantities to Full Amount

Transaction #: **88899** Header Comment: From Manufacturing Orders

Purchase Order: **9832** Item Comment:

Receipt Date: **01/10/2000**

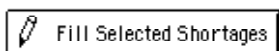
Requested by:

1 Shortage(s) for 289,000 Units required at location(s) 200

Item Code	Expected Receipt Date	Quantity Ordered	Quantity Received	Prev. Rec'd	Sent To Unit Location	Internal Lot/Batch #	Lot/Batch Expire Date	No. of Labels
1072-00116	11/20/1999	200			EN 1			
1011-00130	12/03/1999	51			EA 1			
1072-00146	11/23/1999	284			FA 1			
1072-00146	11/20/1999				CA 200			
1075-00181	12/20/1999	200			ER 1			
2012-00150	11/12/1999	400			EA 1			
2012-00150	12/20/1999	800			FA 1			
2012-00159	12/12/1999	500			CA 1			
2021-00154	12/12/1999	500			ER 1			
2021-00154	11/12/1999	32			ER 1			
2023-00011	12/10/1999	447			FA 1			
2023-00204	11/10/1999	1,000			ER 1			

Qube recognizes the shortage, displays a message, and makes sure there is a line in the list which references the shortage location, in case you want to send some of the quantity being received to stock and a different quantity to the location where the shortage is needed. Receiving the materials into the shortage location will reduce the shortage amount.

The materials manager may find quantities of required items in other locations and move them to general stock locations. Once the items are in a general stock location, you may use the **Kitting Shortages** window to fill the shortages. Alternatively, the material may not have been moved to the shortage location when the PO receipt was performed. But it may have been moved to a general stock location and therefore the **Kitting Shortages** window allows the shortage to be filled from there. To use this window to fill shortages, click this button:



If you click this button and select specific shortages from the list, Qube will display the **Fill Selected Material Requirement Shortages** window used to select where to move stock quantities.

☐ **Fill Selected Material Requirement Shortages**

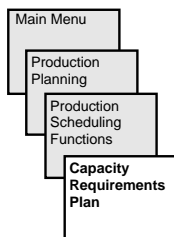
Shortage Date	Quantity Not Filled	Quantity To Fill	Item Code	Description	Send To Location
01/10/2000	200.000	200.000	1072-00146	CONL 5x2 1" STRT DUAL ROW HDR	200

OK Cancel

Item Code	Full From Location	Quantity Required	Quantity in Stock	Qty from Prior Kits in this List	Quantity To Pull
1072-00146	CONL 5x2 1" STRT DUAL	1	200.000	170.000	170.000
1072-00145		20	200.000	10.000	10.000
1072-00146		30	200.000	20.000	20.000

In this example, Qube finds quantities of the shortage item in three different general stock locations. You may select any or all of them to fill the selected shortage.

Qube ERP™ not only calculates your material requirements, but it also calculates your finite capacity requirements at the same time. These finite capacity requirements are generated in the form of manufacturing order tasks, which have been discussed in previous sections. By limiting the viewing of these tasks to only those relative to capacity (i.e., no planned purchases), Qube ERP™ presents you a view of just your capacity requirements plan.

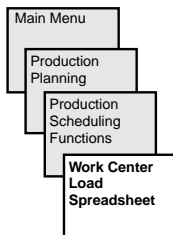


Capacity Requirements Plan									
<input checked="" type="checkbox"/> Include Open Tasks <input type="checkbox"/> Include Tasks Made In Full		Beginning Date <input type="text" value="01/01/2000"/> Ending Date <input type="text" value="03/24/2000"/>	<input type="button" value="Load Tasks"/>		<input type="radio"/> Select All Jobs, Items and Work Centers <input type="radio"/> Select 1 Item <input type="radio"/> Select 1 Job <input type="radio"/> Select 1 Work Center				
Scheduled Date	Work Center	Task	Order Line	Item Code	Sch. Total Hours	Sched. Hrs Remaining	Status		
01/19/2000	FINAL	Series 9 chair	1	2079-1	9111	12.310	12.310	Plan Assy	
01/19/2000	FINAL	Series 9 chair	1	2079-1	9111	12.310	12.310	Plan Assy	
						12	12		

This window is similar to the **Material Requirements Plan** window, with a few differences.

1. Since it deals with capacity, it displays only planned assemblies and operations.
2. Rather than showing the quantities required, the requirements are calculated and displayed in hours.
3. You may use this window to edit scheduled date, task number, and hours remaining, but you may not use the window to release any of the manufacturing orders. As in the case of the **Material Requirements Plan** window, you can sort on any of the column headings, and you may drill down to the source record of each of the items by double-clicking on it.

Work Center Load Spreadsheet



The screenshot shows the 'Work Center Load Spreadsheet - By Day' window. It features a top menu bar with options like 'Select Range', 'Select New Item', 'Select New Work Center', 'Load this spreadsheet', and 'Export to database'. Below the menu is a grid with columns for dates from 05/01 to 05/21 and a 'Totals' column. The rows represent different work centers: W144 (H HPS/DOY), W145 (H HPS/DOY), W147 (H HPS/DOY), and W148 (H HPS/DOY). The grid contains numerical data representing loads for each date and work center.

Spreadsheet Windows

Qube ERP™ contains several windows which allow the presentation of data in spreadsheet form. For example, if you have several items scheduled for a work center for the same time bucket, it is useful to be able to see this demand represented as one line on a window showing the total requirements for each period, rather than listing all the different lines with no total. **Forecasts, backorders, scheduled PO receipts, production material requirements and work center capacity requirements** are all areas in which it is often helpful to be able to view large blocks of data summarized with total requirements for selected periods.

For detailed information on how to use the spreadsheet windows, see [“Spreadsheet Windows” on page GEN-87.](#)

Color Bars on the Work Center Load Spreadsheet window

The work center load spreadsheet is designed to display a grid of data showing total hours or units planned at each work center on any given date. You can also choose to display color bars on top of the numbers. The window is designed to display this information graphically and allow you to manipulate the data by moving the color bars.

Restrictions

Although the window normally allows data to be displayed on this window based on days, weeks, months, and quarters, Qube ERP™ restricts the display to days when using color bars. Also, Qube ERP™ disables the Switch Cards function. Finally, when using color bars, if you close the window and reopen it later, the color bars will disappear. Reload the grid to see them again.

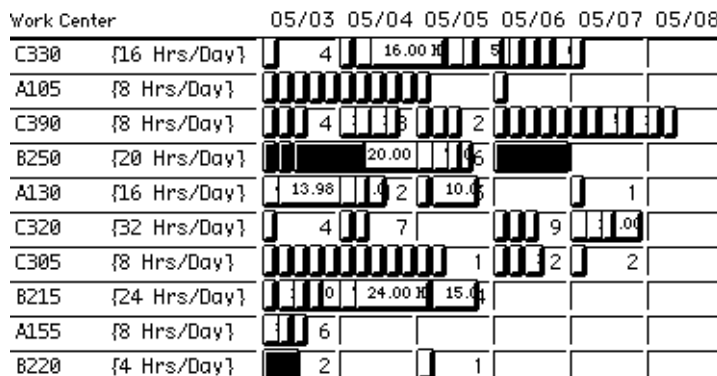
Note: Although it appears that the color bars are within the table grid, the table exists only to highlight the column and row boundaries and the color bars are not part of the table at all. Therefore, you cannot scroll up or down or right or left within the table to view more information. Qube ERP™ will set the window size to the maximum allowable depending on your resolution setting. If you are displaying at 800 x 600, Qube ERP™ will set this as 22 rows x 16 columns (not counting the work center list column or the column labels). If you are displaying at 1024 x 768, Qube ERP™ will set the maximum window size to allow 32 rows and 22 columns.

Understanding the Display

Each bar:

1. represents a task,
2. is placed in the cells based on the work center and the date assigned to each task,
3. is color coded to match with other color bars associated with the same job, and
4. is displayed in a horizontal size appropriate to the number of hours assigned to the task at the selected work center.

Note that a color bar which represents an 8-hour task at a work center whose capacity is 8 hours/day will be the same size as a task requiring 24 hours at a work center whose capacity is 24 hours/day. Both require a full day of work. This can be seen in the screen shot below.



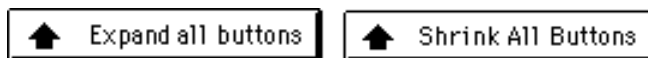
Contained in each color bar is information on the number of hours associated with each task, the item to be built, the number of units in process, and the job number. Since many of the color bars are very small, it is nearly impossible to read this information unless the bars can be expanded. To expand them, simply click on any bar. It will expand and hide any bars to the right, allowing the bar text to be read more easily:

from this to this

Qube ERP™ will also display the text in a text bar immediately above the grid:

3.47 Hrs, 0 in proc 2267M011U PARIS

A button is provided to expand or shrink all buttons with a single click:



A minimum size is assigned to each color bar; otherwise, tasks involving a very small amount of time would be nearly invisible.

Color bars are staggered to prevent some objects from being displayed on top of others, like this:



In this example, the first task requires 41 hours, but, on the same day, Qube finds another task that requires only 0.33 hours and another that requires only 0.07 hours, etc.

In case there is any question whether some jobs are displayed on top of other tasks, you may perform a Shift-Option-Click (Mac) / Shift-Alt-Click (PC) on any color bar to reduce its size, displaying anything hidden behind it.



Colors are selected from the 256 colors available, with about 30 dark colors eliminated because of the difficulty involved in reading text on top of these colors. All tasks associated with any one job will share the same color.

Jobs List

A jobs list displays in the upper right of the window, showing the color selected for the job, the job number and the customer's name (not used when scheduling to MPS orders).

5168-1-1	De-Ro-Ma 1983	
5169-1-1	Advertisina & Promo	
5170-4-1	Dellixo Epic/Surq.(I	
5170-5	Dellixo Epic/Surq.(I	
5171-1-1	Colabor Canada 1973	

The jobs list enables you to easily see all tasks associated with one job by double-clicking on the selected line in the jobs list. The jobs list line will turn red and all color bars (tasks) associated with the selected job will also turn red. When you double-click on another job, color bars previously turned red will be restored to their original color and then the color bars associated with the newly selected job will be turned red.

Drill Down

You can drill down by pressing Option-Click (Mac)/Alt-Click (PC) on the selected task. That task will be displayed on the **Capacity Requirements Plan** window. From there, you may drill down again to view the editable manufacturing order window.

You can also drill down to see a list of all tasks associated with any one job by performing an Option-Double-Click (Mac)/Alt-Double-Click (PC) on the jobs list.

Drag and Drop

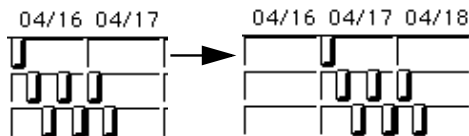
When you click the *EDIT* button, the “drag” and “drop” attributes are turned on for each object displayed on the window. Dragging an object to a different cell will change its work center and/or date. To do this, click on the color bar and hold the mouse down until the cursor arrow turns into a hand. Hold down the mouse and move the object to another cell. Then let up the mouse to drop the object into position. Qube will snap the object into position, just in case you do not place it precisely in the cell.

Some users may have difficulty with the physical mousing required to “drag and drop,” so Qube also provides a set of navigation tools (only displayed during edit mode).

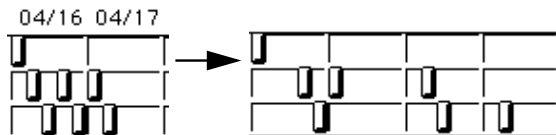


To use this tool, click on any object to select it. Then click on any of the arrows to change its position on the grid (up, down, left or right).

The right / left arrows provide additional capabilities. Let's say you want to move all tasks associated with any given job forward 3 days. Simply Shift-Option-Click (Mac)/Shift-Alt-Click (PC) on the right arrow and watch all color bars associated with that job move one cell to the right, like this:



Let's say you want to move all tasks for one job forward (or back) starting with one task, leaving the preceding tasks in place. Simply perform an Option-Click (Mac)/Alt-Click (PC), changing like this:



Cancel

If you move several objects (tasks) and then decide you want to start over or simply change your mind, the **Cancel** function will return all objects to their original position.

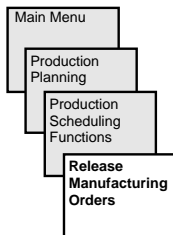
Save

If you have moved some objects and choose to accept these changes, Qube ERP™ will edit the work center and/ or task date associated with each change, updating associated material requirements, allocations and task-day records appropriately.

Reloading the Grid

When a reload is performed, Qube ERP™ will begin by removing all of the old color bars before creating a new display.

Release Manufacturing Orders



Release Manufacturing Orders

Include All Requisitions Proposed by M.R.P. which show a recommended shipping date
xxxx days in excess of the lead time.

xxxx = 365 calendar days

Planned purchases which do not fall within this range will be deleted.

Planned purchases which do fall within this range will be converted to requisitions.

☒ Release Vendor Requirements ☒ Release Internal Requirements

☒ Create Requisitions ☐ Adjust critical path error dates

☐ Create Purchase Orders

Release Planned Manufacturing Orders

☐ Issue Allocated General Stock to Location 200

Please Enter One Sales Order-Line # or ALL

ALL

Issue Allocated General Stock to Location 200

When you run production scheduling, usually the first operation is to delete all unreleased manufacturing orders for jobs in the scheduling queue. Therefore, once the production schedule process produces an acceptable model of production (as determined by viewing the scheduling reports), the schedule may be “released,” or locked in. Then, further production scheduling runs will have no impact over partially or fully released jobs that are excluded from the scheduling queue based on released status.

This window provides an automated way to release all manufacturing orders within the proper date range automatically. You may also use it to issue stock to your shop floor automatically.

You may also use this window to adjust critical path error dates to more realistic dates. Sometimes a production scheduling run will generate manufacturing order tasks with dates prior to “today.” This is referred to as a critical path error. An event scheduled to happen in the past is not a realistic event, since it cannot possibly happen on time. However, it is useful to allow such events to be generated so that you can see how far in the past events are being scheduled. These types of errors may point to incorrect lead times or, if the event is scheduled only a day or two earlier, the event may be accomplished soon enough to make the plan work.

Depending on their type, releasing manufacturing order tasks will have different results.

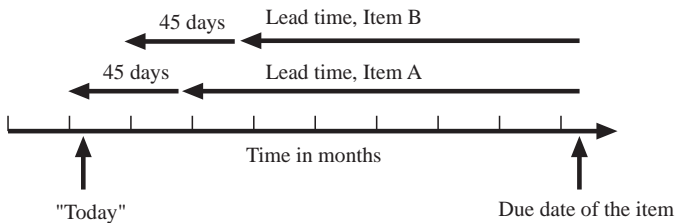
1. Releasing planned assemblies changes the status, allowing you to exclude associated jobs from subsequent MRP runs. You may then run production scheduling in a way that creates new manufacturing orders only for jobs which have not been finalized.
2. Releasing planned purchases will have the effect of creating purchase orders or requisitions, and deleting the manufacturing order.

Window Attributes

**xxxx = 365
calendar days**

{Numerics} This field refers to the information above it, which reads, “Include All Requisitions Proposed by M.R.P. which show a recommended shipping date xxxx days in excess of lead time.” This is the amount of lead time you need to add to POs and requisitions for internal processing.

Assume you run MRP once a week, and you only want to issue POs for those items which really need them at any given time. Whenever you run MRP, however, you should run it for the longest accumulative lead time you have to consider, as shown in the illustration:



Here you have two different items, required at the same time, approximately 8 1/2 months from now. Assume it requires 45 days to internally process a PO. Also assume that only those items which cross over “today” on the time line will be processed for purchasing.

All other items will be ignored (they will be picked up in future production scheduling runs, when the timing is more appropriate).

Now notice how neither item would normally be included, as neither item on its own triggers an activity today. However, if you add the 45-day internal processing time, Item A would be included. Item B, however, would not. Using this field, you can add any amount of time to vendor lead times for internal processing. The default is 365 days, but you may override this by typing in a new number.



Note: Any manufacturing orders for planned purchases which do not fall into the selected time parameters will be deleted during the release manufacturing orders function.

Release Vendor Requirements

{Checkbox selection} Click this box if you wish to release planned purchases and generate POs or requisitions from them. If this box is not checked, these records will be ignored. You must choose one or both of these selections.

Release Internal Requirements

{Checkbox selection} Click this box if you wish to release planned assemblies and operations, so they can be excluded during future scheduling runs. If this box is not checked, these records will be ignored. Choose one or both of these selections.

Adjust critical path error dates

{Checkbox selection} Click this box if you wish to adjust critical path error dates to more realistic dates. If you select this option, Qube ERP™ will display an explanation of exactly what will happen. In the description, the date displayed will be your current system date, which is 11/27/97 in the example shown below:

☒ Adjust critical path error dates
Planned purchases with critical path errors will have dates adjusted to 11 /27/97 plus the item lead time. For planned assemblies, the date will be set to 11 /27/97.

The result is that all planned events will be scheduled for “today” or later.

Create Requisitions

{Radio button} As with all radio buttons, you may choose one or the other of the selections, but not both. Select **<CREATE REQUISITIONS>** if you have further review processes to perform prior to issuing purchase orders. Remember, planned purchases are manufacturing orders for items you buy. The reports and functions surrounding them are more geared to the manufacturing manager. Requisitions, on the other hand, are instructions to the purchasing department. The functions and reports surrounding them are more geared to the purchasing personnel. Therefore, in many companies, it may make a lot of sense to create requisitions from the manufacturing orders and let the purchasing department handle it from there.



Note: Production Scheduling will not recognize unapproved requisitions. Therefore, if you use the release function to create requisitions, any you wish to have calculated into your next MRP run should either be approved or converted to purchase orders; otherwise, they will be ignored.

Create POs

{Radio button} As with all radio buttons, you may choose one or the other of the selections, but not both. In some organizations, the materials manager handles both production and purchasing functions. This or other issues may dictate skipping the requisitioning process. In these cases, you may elect to create POs directly from the planned purchases. In this case, you may do so by choosing this selection.

After releasing vendor requirements, all planned purchases will be deleted from the data file, whether POs or requisitions were created or not.

Release Planned Manufacturing Orders

{Button} Click this button to begin the releasing process. Once this button is clicked, you may make changes to the parameters discussed above and below. Then click **<SAVE>** to proceed with the releasing process, or **<CANCEL>** to abort.

Issue Allocated General Stock to Location xxx

{Checkbox selection} This function is used only if you have elected to use a common stock location on System Set Up, Card #3 (see [“Default “Pull From” & “Send To” Locations for Raw Materials and Assemblies” on page SYS-115](#)). If you have, you may issue all of the allocated general stock associated with the current production plan to that location in one step using this checkbox. All of the allocated stock the system finds in any general stock location (see [“Inventory General Stock Includes Stock Location #1 through Location #” on page SYS-111](#)) for all manufacturing orders being finalized in this function will be moved into the location specified on System Set Up, Card #3.



Note: The location you have specified on System Set Up, Card #3 must be a non-general stock location or clicking the *<RELEASE PLANNED MANUFACTURING ORDERS>* button will return the following error message:



Error: Location to send assemblies 1 is a general stock location.
This location must be >= 50.

OK

The resulting inventory transaction will look like this:

Transaction Number	Transaction Type	Date	Posted On J/E*	To Period
85154	Internal Move	02/04/97		

Item Codes	Type	Location	PG/Invoice Item #	Order Line # If Made to Order	Stock on Hand	Quantity	Unit	Lot/Batch #	Reason
0001	IN	200				280.000			
0001	OUT	1				280.000			
9111-FR/FIN	IN	200				1.000			
9111-FR/FIN	OUT	1				1.000			
9111-FRAME	IN	200				4.000			
9111-FRAME	OUT	1				4.000			
9111-FAB/SEN	IN	200				5.000			
9111-FAB/SEN	OUT	1				5.000			
9111-F0/CUT	IN	200				5.000			
9111-F0/CUT	OUT	1				5.000			
FORM	IN	200				1.000			

Bo l t s - Table Leg

Quantities Costs Non-Scheduled Scheduled

Reverse Sort by Item Code

This can be a real time saver by eliminating the steps of having to issue stock to each manufacturing order individually. It must be handled with care, however, in that all stock for all manufacturing orders being released will be moved to your non-general stock location and allocated. Therefore it becomes unavailable for other tasks.

Please Enter One Sales Order-Line # Or All

{Alphanumeric, validated} If you do not wish to release all of the manufacturing orders in the schedule, you may release all manufacturing orders for one selected job at a time. Simply enter the job number (sales order line number) of the job you wish to release in this field. All of the other functions will operate as outlined, but just for the records pertaining to this job.




Note: This field only works if you have run production scheduling from sales orders or forecast records. If you have run it from MPS orders, this would not work.

Issue Allocated General Stock to Location xxx

{Button} This button provides the same function as the checkbox with the same label; however, it does not release the manufacturing orders while doing so. It only issues the stock to the non-general

stock location. When you click this button, the following message will be returned:

**Create inventory transactions moving general stock allocated from the last scheduling run to non-general stock, now?**

Click <NO> to abort the function. Click <YES> to proceed.

Release Selected Tasks of One Manufacturing Order

It is also possible to release selected tasks found on one manufacturing order. For information on how to do this, see [“Release Selected Tasks” on page PLAN-127](#).

Releasing Strategies and Considerations

Two-Step Releasing Strategy

You may prefer to release in two steps. First, release planned purchases for the longest planning window necessary, say 6 to 8 months out, but only generate purchases for those which are really required (5- to 7-month lead times). Make sure you give yourself plenty of time to process the POs, say 30 to 45 days (see [“xxxx = 365 calendar days” on page PLAN-171](#)). As you run the release function, the planned purchases which need to will be converted to requisitions or POs; those which don’t will be deleted. When you run MRP again next week, some of those planned purchases will be converted to POs and reqs, but because they are closer to the delivery date, they are apt to be more accurate.

Next, using the Material Requirements Plan window, view the jobs which have been scheduled during the MRP run. You are apt to have many jobs, as you ran production scheduling for several months. However you probably really only need to schedule your shop for the next 1 to 4 weeks. Therefore, you should review the scheduled events further out than that, and delete all but the ones you need to worry about now.

Now it is safe to issue general stock when releasing the manufacturing orders, as you will only issue stock for the items you actually

need. Other manufacturing orders for other jobs will be generated later when you rerun MRP; long-lead time items will have been dealt with; you will have saved steps; and you are only dealing with those items which need to be handled right away.

More Flexible Scheduling

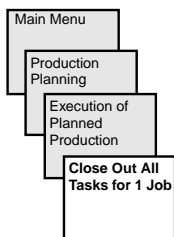
Many companies use the scheduled requirements as a plan from which POs are generated and shop orders are generated, but wish to leave the planned assemblies and operations unreleased. By not releasing the internal requirements they achieve more flexibility in handling changes to the plan.

Once manufacturing orders are released, they will not be changed or deleted by the system during subsequent production scheduling operations (they may be changed, but they must be changed manually).

Unreleased manufacturing orders, on the other hand, may be changed at any time. Therefore, if you do not like the schedule generated (i.e., if you feel the schedule is unrealistic and cannot be met by the manufacturing operation), you could change the master schedule or reschedule shipment dates and regenerate the production schedule based on new dates and quantities. All unreleased manufacturing orders would be cleared out, and the production schedule would be completely regenerated.

However, all completed items would be available for any jobs (new or old) which might require them. Therefore, you may wish to operate in a combined environment; release those jobs for which unique or priority items have already been produced or finalized in some way, and regenerate other jobs entirely by not releasing their manufacturing orders. This provides very flexible scheduling capabilities.

Close Out All Tasks for 1 Job



Close Out Tasks for 1 Job

This function allow the user to select one job (sales order-line) and direct the system to add multiple scheduled assembly transactions to the queue to close out these scheduled tasks. The net effect is to be able to accomplish in one step what may otherwise require 20, 30 or more steps to do.

After generating these transactions, the user should open the inventory module and view the multiple scheduled assemblies window and review the transactions in the queue.

Please enter one valid job number:

This window does just what it says; it loads all of the planned assemblies and planned operations for a specific job into the scheduled assemblies queue.

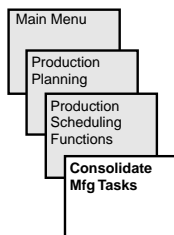
• To close all of the tasks for 1 job

1. Click **<NEW>**.
2. Enter the job number (sales order line number) for the job you wish to close out.
3. Click **<SAVE>** to proceed, **<CANCEL>** to abort the procedure.
4. You may repeat this step as many times as you like.
5. Proceed to the Multiple Scheduled Assemblies window and process the jobs in the queue.



Note: In order for this function to work, you must have run production scheduling from sales orders and/or forecasts. If you have run production scheduling from MPS orders, this will not work.

Consolidate Manufacturing Tasks



Production Scheduling may create tasks for the purchase or assembly of the same item, either in one or multiple scheduling run. This results from common subassemblies being used by multiple parent items and by multiple jobs requiring the scheduling of the same sets of components.

This procedure will consolidate the tasks and material requirements into one task for each unique item code found within the date range. The one remaining task will be given the date of the earliest task for that item found within the date range. This consolidation will minimize the number of manufacturing orders and therefore separate scheduled assembly transactions required to update the manufacturing orders.

NOTE: Any material requirements folded into earlier material requirements and which included allocations to POs will create holes in the production schedule (not yet allocated conditions), since the PO will not be able to provide the materials in time for the new earlier scheduled date. This can be cured using the Fill In Not Allocated button on the MRP Runs and Allocations window

Please enter One Item Code or ALL

☒ Select Planned Mfg Orders ☐ Select Released Mfg Orders

Please enter the Beginning Task Date.....

Please enter the Ending Task Date

This window provides a way to consolidate multiple manufacturing tasks for purchasing and assembly into one task.

• To consolidate tasks

1. Enter one item code, or all.
2. Select either planned or released manufacturing orders.
3. Enter the beginning and ending task dates.
4. Click the **OK** button.

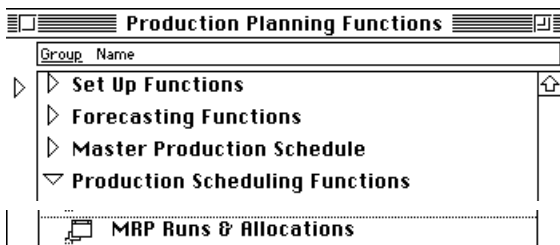
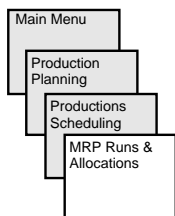
Allocations

Qube ERP™ tracks quantities allocated to production and quantities available for allocation. The tools used by Qube ERP™ in tracking allocations include two files, MRP runs and MRP allocations. One MRP run record is created each time a user executes production scheduling. These records show:

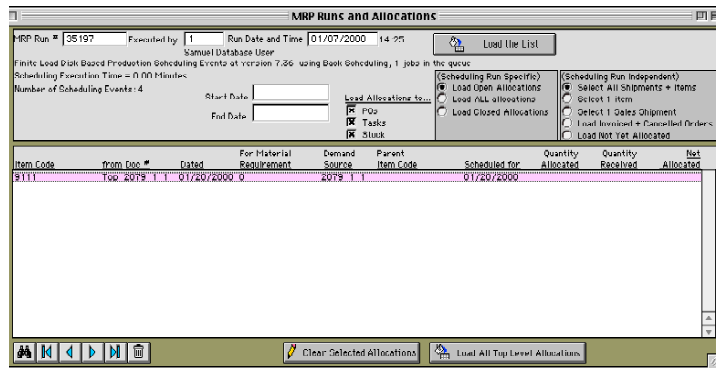
- Date of the run
- Who executed the run
- Number of jobs in the scheduling queue
- Scheduling execution
- Parameters of the run:
 - Finite or infinite load
 - Forward or backward scheduling
 - Version of Qube ERP™ effective during the run

In addition, Qube ERP™ creates a record of every allocation decision made during the scheduling run. For example, if some materials were found in stock that were allocated to production, Qube ERP™ saves this information (in the material requirements file {FPR-SHIP}). If quantities were allocated from a PO shipment or a manufacturing order task, Qube ERP™ saves this information (in the MRP allocations file {FMRP_Items}).

The data is displayed on the **MRP Runs and Allocations** window, which is accessed from the Production Planning Functions menu:



MRP Runs and Allocations Window



Item Code	from Doc. #	Dated	For Material Requirement	Demand Source	Parent Item Code	Scheduled for	Quantity Allocated	Quantity Received	Not Allocated
8111	2079.1.1	01/20/2000	0	2079.1.1		01/20/2000			

• To use this window

1. Use the *FIND* button to locate the desired MRP run.
2. Use the selection criteria in the upper right corner to select records within that run.

Window Attributes

MRP Run

{Display only} The MRP Run numbers are automatically generated by Finite/Infinite scheduling, and are required in order to use the Find function.

Executed By

{Display only}

Run Date and Time

{Display only}

Number of Scheduling Events

{Display only}

Start Date

{Display only}

End Date

{Display only}

Load the List button	Click on this button to load the list.
Load Allocations to...	Click on one or more of these checkboxes to load allocations to POs, Tasks, or Stock.
Load Open/Closed/All allocations	Click on a radio button to load open allocations, closed allocations, or all allocations. You may only choose one.
Select...	Click on a radio button to select one item only, one sales shipment only, load invoiced and canceled orders, or load not yet allocated orders. You may only choose one.
Item Code	<i>{Display only}</i>
From Doc#	<i>{Display only}</i>
Dated	<i>{Display only}</i>
For Material Requirement	<i>{Display only}</i>
Demand Source	<i>{Display only}</i> The demand source is the sales order shipment record, forecast, or MPS order whose demand generated the material requirements. Qube assigns this number.
Parent Item Code	<i>{Display only}</i>
Scheduled For	<i>{Display only}</i>
Quantity Allocated	<i>{Display only}</i>
Quantity Received	<i>{Display only}</i>
Net Allocated	<i>{Display only}</i>

Clear Select Allocations button

Click on the *CLEAR SELECT ALLOCATIONS* button to clear any highlighted allocation. As the button suggests, it will clear materials allocated to specific jobs as a result of production scheduling or clear manual allocations that may have been user assigned, usually when entering purchase order shipment lines. This is a tool designed primarily to perform cleanup in preparation for running production scheduling for the first time. It should not be used arbitrarily as it is an easy way to create “holes” in material requirements that users must then make sure are filled through replanning.

Load all Top Level Allocations button

Click on the *LOAD ALL TOP LEVEL ALLOCATIONS* button to load all top level allocations.

Updating the MRP Allocations

Several events require that the MRP allocations be updated.

1. **Production Scheduling Regeneration:** If you want to regenerate the schedule, Qube ERP™ will delete planned manufacturing orders, tasks, and material requirements, and all MRP allocations related to them. This means that allocations recorded in open POs, allocations of general stock and allocations of manufacturing order tasks will be backed out so that the MRP run can begin with a fresh start. Similar backing out of allocations occurs if a selected manufacturing order or task is deleted **but it does not occur if you purge manufacturing orders.**
2. **PO Receipts:** If a PO shipment was allocated to production, Qube ERP™ would update the open allocation quantity at the time of the PO receipt. The open quantity allocated from the PO shipment is reduced and the open PO allocation quantity of each MRP allocation related to that PO shipment is reduced. Since the allocation to production is effectively transferred from the PO to stock, the general stock allocation to production is increased. Further, the material requirement which produced the PO allocation will have its open general stock allocation increased.
3. **Scheduled Assembly Transactions:** By the time the assembly is ready to be built, all materials required to build the assembly are assumed to be in stock. If they were not, it would be impossible to execute the assembly. The scheduled assembly transaction will reduce the open quantities of stock allocated to production, since they are no longer needed. Deleting the scheduled assembly will restore these allocations appropriately.

Let's go through some examples to help understand how this function works. Here's a starting point, arrived at immediately after having run production scheduling:

MRP Runs and Allocations

MRP Run # Executed by Run Date and Time

Load the List

Samuel Database User

Infinite Load Disk Based Production Scheduling Events at version 7.36 using Back Scheduling, 0 jobs in the queue

Scheduling Execution Time = 0.00 Minutes

Number of Scheduling Events: 0

Start Date

End Date

Load Allocations to...

☒ P/Os

☒ Tasks

☒ Stock

(Scheduling Run Specific)

☐ Load Open Allocations

☐ Load ALL allocations

☐ Load Closed Allocations

(Scheduling Run Independent)

☒ Select All Shipments + Items

☐ Select 1 item

☐ Select 1 Sales Shipment

☒ Load Not Yet Allocated

Item Code	from Doc #	Dated	For Material Requirement	Demand Source	Parent Item Code	Scheduled for	Quantity Allocated	Quantity Received	Not Yet Allocated
0001	Stk PL Assy		ADMIN67431-4		9111	06/18/1998	2.240		
9111 FR/FIN	Stk PL Assy		ADMIN67431-5		9111	06/18/1998			10.000
9111-FAB/SEH	Stk PL Assy		ADMIN67431-1		9111	06/18/1998			10.000
COVER	Stk PL Assy		ADMIN67431-3		9111	06/18/1998			20.000
FOAM	Stk PL Assy		ADMIN67431-2		9111	06/18/1998			120.000
LAM-1	Stk PL Assy		ADMIN67431-6		9111	06/18/1998			30.000
LAM-2	Stk PL Assy		ADMIN67431-7		9111	06/18/1998			30.000

Fill in Not Allocated

Clear Selected Allocations

Load All Top Level Allocations

The lines in the list show that quantities have been allocated from general stock. If you double-click on the second line, Qube ERP™

will display the manufacturing order task and material requirements associated with that allocation, as shown below.

Manufacturing Order Task Detail

Mfg Order # **ADH1106743**

Work Center **ADH11** Administration of Request to Build Form

Item Code **9111** Series 9 chair

Quantity to Produce **10.000** Quantity Kitted **0.000**

Quantity in Process **0.000** Lot Size **10**

Produced So Far **0.000**

Available for Allocation **10.000** ☒ Available to be used by other tasks. ☐ This is a Rework Task

Task # **1** Planned Assembly

Scheduled Prodn Date **06/18/1998**

Hours Required this day **11.360**

Sales Shipment #

Send to:

Ready to Build

Material Requirements

Component Item	Description	Drawing	Quantity Required	Quantity Used So Far	Lot/Batch #	Allocated from Gen'l Stock	Allocated From POs	Allocated from Tasks	Not Yet Allocated	Quantity Kitted Short
9111 FR/FIN	Finished frame for		10.000							
0001	Description of 0001		2.240				2.240			
9111 FR/FIN	Finished frame for 9		10.000						10.000	
9111-FAB/SEW	Cut & sewn fabric fo		10.000						10.000	
COVER	Generic moisture bar		20.000						20.000	
F-UAT	Foam used in making		120.000						120.000	
LAM-1	Laminate in Antique		30.000						30.000	
LAM-2	Laminate in Aubergin		30.000						30.000	

Manufacturing Orders
 Tasks

Sort by Sequence
 Print This Task
 Open Drawing

Note that the allocation quantities for both items match. Similarly, you can see the PO allocations by double-clicking on one of the PO

allocations and noting that the numbers match; in this case 11 units of CONDITIONER.

Purchase Order Items									
ACME Supply Company						60171 - 1 of 1			
Item Code	Date	Status	Ordered	Received	B/O	Unit	Cost	Extension	
CONDITIONER	12/19/97	0	111	0	111	EA	1.00000	111.00	
CONDITIONER	12/19/97	0	111		111	EA	1.00000	111.00	
Different types of leather conditioners									111.00
G/L Account		6590-000/00							
		Miscellaneous Expense							
Job Allocation		XYZ COMPANY Chair - model 9111							
Print Item Notes 1		Unit Conversion Factor 1		Lead Time 0 Days		Reference #			
Print Item Notes 2		Unit Wt		Lbs		Rework		Taxable Code 2	
All Approved Mfrs are OK		Any Manufacturer is OK		Only 1 Manufacturer is OK		Selected Mfr			
Scheduled Receipt Date	Requested Receipt Date	Ordered	Received	B/O	Line	Status	Allocated to Prod'n Job Allocation	Shipped to Purchasing	Vendor Shipment Code
02/16/97	12/21/97	11	0	11	2	0	11 2074-4		
02/16/97	12/21/97	11		11	2	0	11 2074-4		60171-1-1

Finally, look at the highest level of summarization for each item, which is the "Scheduled Genl Stock" field displayed on the Stock Quantities window of the Item Master File. The numbers for CONDITIONER and THREAD are:

Allocated Genl Stock 0.458 Allocated Genl Stock 2.750

First, perform the PO receipts necessary to reduce the shortages. For example, the quantity allocated to PO shipments is reduced, from this:

Scheduled Receipt Date	Requested Receipt Date	Ordered	Received	B/O	Line	Status	Allocated to Prod'n Job Allocation	Shipped to Purchasing	Vendor Shipment Code
06/29/97	08/02/97	10	0	10	2	0	10 2074-4		
06/29/97	08/02/97	10		10	2	0	10 2074-4		60158-1-1

to this:

Scheduled Receipt Date	Requested Receipt Date	Ordered	Received	B/O	Line	Status	Allocated to Prod'n Job Allocation	Shipped to Purchasing	Vendor Shipment Code
06/29/97	08/02/97	10	10	0	2	C	2074-4		
06/29/97	08/02/97	10	10		2	C	2074-4		60158-1-1

After performing all four PO receipts for CONDITIONER, the MRP Allocations list shows that the 23 units received have been transferred from PO allocations to general stock allocations.

Item Code	from	Document #	Dated	For Material Requirement	Demand Source	Parent Item Code	Scheduled for	Quantity Allocated	Quantity Received	Net
0001	PO	60152-1-1	02/17/97	FINRL65921-7	2036-1-2	9111	04/28/98	2,240		2,240
9111 FR/FIN	Stock		02/17/97	FINRL65921-8	2036-1-2	9111	04/28/98	20,000		20,000
CONDITIONER	Stock	08/08/96	SEJ65921-3	2036-1-2	9111-FRB/SEJ	04/28/98	23,000			23,000
CONDITIONER	PO	60171-1-1	02/16/97	SEJ65921-3	2036-1-2	9111-FRB/SEJ	04/28/98	11,000		11,000
CONDITIONER	PO	60158-1-1	08/29/97	SEJ65921-3	2036-1-2	9111-FRB/SEJ	04/28/98	10,000		10,000
CONDITIONER	PO	60162-1-1	02/14/97	SEJ65921-3	2036-1-2	9111-FRB/SEJ	04/28/98	1,000		1,000
CONDITIONER	PO	60162-1-2	03/15/97	SEJ65921-3	2036-1-2	9111-FRB/SEJ	04/28/98	1,000		1,000

Also, the material requirement for the planned use of CONDITIONER also shows that 23 more units are now available in general stock.

Manufacturing Order Task Detail			
Mfg Order #	SEJ6692		99999 Task # 1 Planned Assembly
Work Center	SEJ Cut & sew fabric		Scheduled Prodn Date 04/28/98
Item Code	9111-FAB/SEJ Cut & sewn fabric for 9111 chair		Total Hours required 13,800
Quantity to Produce	23,000	HRS Quantity Kitted 0,000	Sales Order-Line # 2036-1
Produced So Far	0,000	HRS 2036-1-2	Send to: FINAL
Allocated	23,000	Final Assembly 801	
<input type="checkbox"/> Available to be used by other tasks.			

Material Requirements				
Component Items	Description	Quantity Required	Quantity Short	Allocated from
CONDITIONER	Different types of leather condit	23,000	0,000	Gen'l Stock
THREAD	Thread used in making furniture	23,000	20,250	2,750
CONDITIONER	Different types of leather condit	23,000		23,000

The total allocated general stock shown on the item master file stock quantities window also shows the correct total.

Allocated Gen'l Stock 23,000

Execute this scheduled assembly, using up the stock allocations. The material requirements related to the assembled item show the proper reduction in general stock allocation.

Material Requirements				
Component Items	Description	Quantity Required	Quantity Short	Allocated from
CONDITIONER	Different types of leather condit	23,000	0,000	Gen'l Stock
THREAD	Thread used in making furniture	2,750		
CONDITIONER	Different types of leather condit	23,000		

The MRP allocations have become zero for the selected items.

Item Code	from	Document #	Dated	For Material Requirement	Demand Source	Parent Item Code	Scheduled for	Quantity Allocated	Quantity Received	Net
0001	PO	60152-1-1	02/17/97	FINRL65921-7	2036-1-2	9111	04/28/98	2,240		2,240
9111 FR/FIN	Stock		02/17/97	FINRL65921-8	2036-1-2	9111	04/28/98	20,000		20,000
CONDITIONER	Stock	08/08/96	SEJ65921-3	2036-1-2	9111-FRB/SEJ	04/28/98	23,000			23,000
CONDITIONER	PO	60171-1-1	02/16/97	SEJ65921-3	2036-1-2	9111-FRB/SEJ	04/28/98	11,000		11,000
CONDITIONER	PO	60158-1-1	08/29/97	SEJ65921-3	2036-1-2	9111-FRB/SEJ	04/28/98	10,000		10,000
CONDITIONER	PO	60162-1-2	03/15/97	SEJ65921-3	2036-1-2	9111-FRB/SEJ	04/28/98	1,000		1,000
CONDITIONER	PO	60162-1-1	02/14/97	SEJ65921-3	2036-1-2	9111-FRB/SEJ	04/28/98	1,000		1,000

Finally, the total general stock allocation is reduced to zero for the item CONDITIONER.

Allocated Genl Stock

0.000

Task Allocations

Another source of allocations used during production scheduling is manufacturing order tasks. If the item being produced is lot sized and the initial requirement does not need the full lot size, additional quantities are available for use and allocation to other material requirements, thereby eliminating additional planned purchases and/or assemblies. For example, this item has a lot size of 50 and the requirement which created it needed only 9 units, leaving 41 units available for other requirements. Of the available 41 units, 20 were allocated to other material requirements during the same production scheduling run.

Tasks with allocations to other material requirements fall into two categories: planned assemblies and planned purchases. Execution of a planned assembly is the actual assembly. When this task is executed, creating 50 units of parent item 2065002, the quantity allocated to production in the item master file must be increased by 20 units, so that the 20 which have been allocated to two other material requirements will not be allocated to other requirements during another production scheduling run.

Manufacturing Order Task Detail																																	
Mfg Order #	RMFG6580		99999		Task # 3		Planned Assembly																										
Wkg Center	RMFG		A Div. Manufacturing		Scheduled Prodn Date		01/06/98																										
Item Code	20650002		652486		Total Hours Required		4.150																										
Quantity to Produce	50.000		HRS Quantity Kitted		0.000		Sales Order-Line #		716-1																								
Produced So Far	0.000		HRS		716-1-5		Send to:		RMFG																								
Allocated Initially	9.000		Lot Size		50		A Div. Manufacturing		6000																								
Allocated to Other tasks	20.000		<input checked="" type="checkbox"/> Available to be used by other tasks.		Lot/Batch #																												
<table border="1"> <thead> <tr> <th>Component Items</th> <th>Description</th> <th>Quantity Required</th> <th>Quantity Short</th> <th>Allocated from</th> <th>Lot/Batch #</th> </tr> </thead> <tbody> <tr> <td>30650007</td> <td>779086-207</td> <td>50.000</td> <td>0.000</td> <td>Genl Stock</td> <td></td> </tr> <tr> <td>31700030</td> <td>1-480319-0</td> <td>50.000</td> <td>50.000</td> <td>50.000</td> <td></td> </tr> <tr> <td>31800213</td> <td>61116-1</td> <td>100.000</td> <td>100.000</td> <td>100.000</td> <td></td> </tr> </tbody> </table>										Component Items	Description	Quantity Required	Quantity Short	Allocated from	Lot/Batch #	30650007	779086-207	50.000	0.000	Genl Stock		31700030	1-480319-0	50.000	50.000	50.000		31800213	61116-1	100.000	100.000	100.000	
Component Items	Description	Quantity Required	Quantity Short	Allocated from	Lot/Batch #																												
30650007	779086-207	50.000	0.000	Genl Stock																													
31700030	1-480319-0	50.000	50.000	50.000																													
31800213	61116-1	100.000	100.000	100.000																													

Manufacturing Orders
Tasks

Sort by Sequence
Print This Task

If the task represents a planned purchase, the next step in its life cycle is its release. Upon releasing a planned purchase which has allocations to other material requirements, Qube ERP™ will copy the allocated quantities into the PO shipment record so that this information is not lost. The data found in the planned task:

Manufacturing Order Task Detail			
Mfg Order #	EAGBER6575		Task # 1
Vendor	EAGBER	Eager Beavers	Scheduled Prodn Date
Item Code	0001	Description of 0001	Planned Purchase
Quantity to Produce	500.000		01/01/98
Produced So Far	0.000		Total Hours Required
Allocated Initially			0.000
Allocated to Other tasks	183.440	<input checked="" type="checkbox"/> Available to be used by other tasks.	Sales Order-Line #
			Send to:
			Lot/Batch #

is converted into the PO shipment, like this:

Scheduled Receipt Date	Requested Receipt Date	Ordered	Received	B/O	Line Status	Allocated to Prod'n Job Allocation	Shipped to Purchasing
01/08/98	01/08/98	500	0	500	2 0	183	Vendor Shipment Code
01/08/98	01/08/98	500		500	2 0	183	60173-1-1

If the release of the planned purchase results in a requisition instead of a PO and the requisition is later converted to a PO, Qube ERP™ will also maintain the pointers in the allocation records so that they follow the record containing the allocations. Without such maintenance, the allocations could not be updated reliably.

Deleting/Editing of allocated records

There are issues related to the handling of user attempts to delete POs, requisitions, tasks and even items to which production has been allocated. At the very least, Qube ERP™ must delete the associated MRP allocation records. In addition, Qube ERP™ will display a warning message if you attempt to delete records which the production plan depends on for allocations. It will also display a warning message if you change the item code of an item to which allocations have been made. Changing the item code of an allocated PO or task is the same as deleting the item, since the original required item will no longer be available.

The following are sample warning messages:



Material requirement records have allocated 10.000 units of THREAD from this PO. Your production plan will be unbalanced if you delete this task. Proceed anyway?



Material requirement records have allocated 172.240 units from this task. Your production plan will be unbalanced if you delete this task. Proceed anyway?

If you proceed anyway, you will essentially create a hole in your production plan. A material requirement shortage was going to be filled from a selected PO shipment or task. Now it won't be filled, so a planned assembly will be found in the production plan for which all material requirements are not likely to be available when they are needed.

Another type of change which could result in a hole in the production plan is the change of a scheduled receipt date on a PO shipment. If Qube ERP™ allocated a quantity because the shipment was expected on a selected date and you advance the date into the future so that it will no longer become available when the material requirement is scheduled for use, Qube ERP™ will recognize the change and remove the allocation previously shown in the PO shipment. Note the following example.

Scheduled	Requested					Allocated
Receipt Date	Receipt Date	Ordered	Received	B/O	LineStatus	to Prod'tn.
05/20/1998	05/28/1998	5000	0	5000	2 0	809

Five thousand units were ordered and 809 have been allocated to production. You can drill down to see exactly which material requirements have allocated materials from this PO shipment by holding down the CTRL or Option key on the keyboard and then double-clicking on the selected PO shipment. In this case, Qube ERP™ dis-

plays this list of 10 different allocations against this one PO shipment.

Item Code	from Document #	Dated	For Material Requirement	Demand Source	Parent Item Code	Scheduled for	Quantity Allocated	Quantity Received	Net Allocated
40-600-60900	PO 66711-2-1	05/20/1998	PUC673022-11	15-100-106	15-100-40009R	06/05/1998	264.000		264.000
40-600-60900	PO 66711-2-1	05/20/1998	PUC673013-11	15-100-104	15-100-40009R	06/05/1998	240.000		240.000
40-600-60900	PO 66711-2-1	05/20/1998	PUC67379-11	15-100-105	15-100-40009R	06/12/1998	240.000		240.000
40-600-60900	PO 66711-2-1	05/20/1998	PUC67376-7	15-100-105	35-100-PF49855	06/12/1998	16.000		16.000
40-600-60900	PO 66711-2-1	05/20/1998	PUC673014-24	15-100-104	15-100-40100	06/05/1998	15.000		15.000
40-600-60900	PO 66711-2-1	05/20/1998	PUC673023-24	15-100-106	15-100-40100	06/05/1998	15.000		15.000
40-600-60900	PO 66711-2-1	05/20/1998	PUC673710-24	15-100-105	15-100-40100	06/12/1998	15.000		15.000
40-600-60900	PO 66711-2-1	05/20/1998	PF8667378-5	15-100-105	35-100-PF3046	06/12/1998	2.000		2.000
40-600-60900	PO 66711-2-1	05/20/1998	PUC673024-19	15-100-106	35-100-PF1060	06/05/1998	1.000		1.000
40-600-60900	PO 66711-2-1	05/20/1998	PUC673711-19	15-100-105	35-100-PF1060	06/12/1998	1.000		1.000

The PO is scheduled for receipt on 5/20/98, which means that it will arrive in time for the selected material requirements (between 6/5/98 and 6/12/98). However, if you change the scheduled receipt date to 6/7/98, the shipment will no longer arrive in time for some of these allocations. The allocation quantity on the selected PO shipment changes from 809 to 274:

Scheduled Receipt Date	Requested Receipt Date	Ordered	Received	B/O	Line Status	Allocated to Prod'n
06/07/1998	05/28/1998	5000	0	5000	2 0	274
06/07/1998	05/28/1998	5000		5000	2 0	274

Drilling down from the PO shipment now shows a smaller number of allocations against the shipment. Those material requirements which are required by 6/5/98 (before the new scheduled receipt date) have been removed.

Item Code	from Document #	Dated	For Material Requirement	Demand Source	Parent Item Code	Scheduled for	Quantity Allocated	Quantity Received	Net Allocated
40-600-60900	PO 66711-2-1	06/07/1998	PUC67379-11	15-100-105	15-100-40009R	06/12/1998	240.000		240.000
40-600-60900	PO 66711-2-1	06/07/1998	PUC67376-7	15-100-105	35-100-PF49855	06/12/1998	16.000		16.000
40-600-60900	PO 66711-2-1	06/07/1998	PUC673710-24	15-100-105	15-100-40100	06/12/1998	15.000		15.000
40-600-60900	PO 66711-2-1	06/07/1998	PF8667378-5	15-100-105	35-100-PF3046	06/12/1998	2.000		2.000
40-600-60900	PO 66711-2-1	06/07/1998	PUC673711-19	15-100-105	35-100-PF1060	06/12/1998	1.000		1.000

The material requirements which have now lost their allocation source will show positive quantities in the Not Yet Allocated column, like this:

Material Requirements							
Component Item #	Description	Quantity Required	Quantity Used So Far Lot/Batch #	Allocated from Gen'l Stock	Allocated from POs	Allocated from Tasks	Not Yet Allocated
40-600-60900	Pvc, Clamp, 1 1/4 in Snapper	264.000	0.000				
10-410-48003	Light Tray 6200	44.000		44.000			
40-600-43300	Pvc, Elb, 3/4 Hxft Comb g	44.000				44.000	
40-600-46804	Pvc, Bhd, 1 in Blue	132.000			132.000		
40-600-46910	Pvc, Rdp, Loc Line Flow C	132.000			132.000		
40-600-47000	Pvc, Rdp, 1 Black Strain	132.000					
40-600-47105	Pvc, Clip, 2 Clic Soddies	110.000					132.000
40-600-60605	Pvc, Bhd, 1/2 in Blue	132.000					110.000
40-600-60850	Pvc, Clamp, 3/4 in Snapper	264.000		264.000			

Note: Because editing a single PO shipment record can require the updating of many material requirement allocations, you may notice some editing functions taking longer than you might expect. The example above is a good example of how five allocations had to be changed because one PO ship date changed.

Correcting “Holes” in your Production Plan

The MRP Runs and Allocations window provides a button which allows you to view all gaps in the production plan.

Load Not Yet Allocated

Loading this window with this option selected will display all of the material requirements which were just de-selected due to the re-scheduling of the PO shipment.

Item Code	from Document #	Dated	For Material Requirement	Demand Source	Parent Item Code	Scheduled for	Quantity Allocated	Quantity Received	Net Yet Allocated
40-600-60900	Stock Plan Assy	06/03/1998	PUC673022-11	15-100-106	15-100-400098	06/05/1998			244.000
40-600-60900	Stock Plan Assy	06/07/1998	PUC673015-11	15-100-104	15-100-400098	06/05/1998			240.000
40-600-60900	Stock Plan Assy	06/07/1998	PUC673014-24	15-100-104	15-100-401100	06/05/1998			15.000
40-600-60900	Stock Plan Assy	06/07/1998	PUC673023-24	15-100-106	15-100-401100	06/05/1998			15.000
40-600-60900	Stock Plan Assy	06/07/1998	PUC673024-19	15-100-106	35-100-PF1060	06/05/1998			1.000

When you load “Not Yet Allocated,” a button will be made visible labeled “Fill in Not Allocated.” Using this button enables you to fill selected gaps in the production plan.

Fill in Not Allocated

The standard production scheduling logic will be used (i.e., Qube ERP™ will look for open POs, unallocated tasks or unallocated general stock from which the requirement can be filled. If none can be found, Qube ERP™ will create a new task on the required date (planned purchase or assembly) to fill the gap.

Deleting Allocations to Invoiced & Cancelled Orders

The Allocations window allows you to select to load allocations to orders which have been cancelled or invoiced.

Start Date	End Date	<input type="radio"/> Select All Shipments & Items
01/01/98	05/27/98	<input type="radio"/> Select 1 item
		<input type="radio"/> Select 1 Sales Shipment
		<input checked="" type="radio"/> Load Invoiced + Cancelled Orders

After loading allocations, you can click the button at the bottom of the window to clear the allocations and delete the planning records.

Clear Selected Allocations

☒ Delete Material Requirements + Allocations

Response to Change

One of the most challenging jobs of managing a manufacturing company is to modify planned production events to the constant flow of changes in demand. Qube ERP™ records these changes and makes reports available to help you identify what has changed and then decide how you want to respond to the change.

Scheduling Net Change

Qube ERP™ allows you to easily adjust purchases and manufacturing orders related to scheduled shipments which have been changed. Changes handled by Qube ERP™ include:

- canceling a shipment
- increasing or decreasing a quantity
- changing a scheduled date.

The following is an example of how the new functions can be used.

1. View a sales shipment.

Begin with a sales shipment which has been run through production scheduling and for which there are manufacturing orders and, maybe, POs (if the planned purchases have been Released and therefore converted to POs or requisitions).

Sched Ship Date	Requested Ship Date	Ordered	Shipping	Invoiced	Back Ordered	Status	Sales Shipment Code
07/17/97	02/17/97	38		0			
07/17/97	02/17/97	38			38	Not Released	2036-1-2

2. Click the button labeled Schedule This Order.

Because all shipments on this order have already been run through scheduling, you will get a message like this:

No open items were found to schedule on order 2036

3. Edit the order, increasing the quantity from 38 to 57 (an increase of 50%).

4. Click the <Schedule This Order> button again.

Now Qube ERP™ will recognize that, although the shipment has been scheduled, something changed and the scheduled

events related to that shipment should be modified. The window will appear like this:

Schedule Shipments for Order 2036						
Date	Quantity Back-ordered	Quantity Scheduled	Quantity to Schedule	Item Code	Description	
07/17/97	57	38	19	9111	Series 9 chair	
07/17/97	57	38	19	9111	Series 9 chair	Quantity Change

This indicates that Qube ERP™ believes that all purchasing and production events related to this shipment should be increased appropriately (by 50%). If instead you canceled the order item, Qube ERP™ would display different information, like this:

Schedule Shipments for Order 2036						
Date	Quantity Back-ordered	Quantity Scheduled	Quantity to Schedule	Item Code	Description	
07/17/97		38	-38	9111	Series 9 chair	
07/17/97		38	-38	9111	Series 9 chair	Shipment Cancel

This indicates that Qube ERP™ believes that all purchasing and production events related to this shipment should be reduced by 100%, because the shipment has been canceled.

5. Give the sales order item one more shipment and schedule it.

Sched Ship Date	Requested Ship Date	Ordered	Shipping	Invoiced	Back Ordered	Status
07/17/97	02/17/97	57		0		
07/17/97	02/17/97	57			57	Not Released
08/01/97	08/01/97	10			10	Not Released

6. Then change the scheduled date associated with this shipment, like this:

Sched Ship Date	Requested Ship Date	Ordered	Shipping	Invoiced	Back Ordered	Status
07/17/97	02/17/97	57		0		
07/17/97	02/17/97	57			57	Not Released
09/01/97	08/01/97	10			10	Not Released

7. Now, clicking the <Schedule This Order> button produces this result:

Schedule Shipments for Order 2036						
Date	Quantity Back-ordered	Quantity Scheduled	Quantity to Schedule	Item Code	Description	
07/17/97	57	38	19	9111	Series 9 chair	
07/17/97	57	38	19	9111	Series 9 chair	
09/01/97	10	10	10	9111	Series 9 chair	Quantity Change Date Changed

Advice Records

Executing the scheduling requirements as shown will generate Advice records. Nothing is changed directly, since the events which Qube ERP™ thinks should be changed may already be in process and the recommended change may be inappropriate. These Advice records can be viewed by selecting Scheduling Advice from the Production Scheduling functions list.



Scheduling advice generated by the example on the Schedule Advice window looks like this.

Scheduling Advice									
<input checked="" type="checkbox"/> Include Advice on Planned Assemblies <input checked="" type="checkbox"/> Include Advice on Planned Purchases <input checked="" type="checkbox"/> Include Advice on Planned Labor Operations <input checked="" type="checkbox"/> Include Advice on POs Requisitions <input type="checkbox"/> Load Open Advice <input type="checkbox"/> Load Closed Advice		<input checked="" type="radio"/> Select All Jobs, Items and Work Centers <input type="radio"/> Select 1 Item <input type="radio"/> Select 1 Job <input type="radio"/> Select 1 Work Center or Vendor		<input type="button" value="Load Advice"/> <input type="button" value="Execute Advice"/> <input type="button" value="Delete Advice"/>					
Advice Date	Action Date	Target Type	Target Record #	Item Code	Recommended Quantity	Unit	Source	Change	Status
09/03/97	06/17/97	Planned Reassembly	F1NRL64501	9111	19.000	EA	2036-1-3	Open	
09/03/97	06/08/96	Purchase Order	60120-2-1	FORH	148.200	BF	2036-1-3	Open	Date chg 09/01/97->10/01/97
09/03/97	09/09/96	Purchase Order	60120-1-1	THREED	3.800	EA	2036-1-3	Open	Date chg 09/01/97->10/01/97
09/03/97	06/09/96	Purchase Order	60120-4-1	LRIH-2	91.200	EA	2036-1-3	Open	Date chg 09/01/97->10/01/97
09/03/97	06/09/96	Purchase Order	40062-4-1	LRIH-2	91.200	EA	2036-1-3	Open	Date chg 09/01/97->10/01/97
09/03/97	06/17/97	Planned Reassembly	F1NRL64501	9111	19.000	EA	2036-1-3	Open	Date chg 09/01/97->10/01/97
09/03/97	06/17/97	Planned Reassembly	F1LL04501	9111	38.000	EA	2036-1-3	Open	Date chg 09/01/97->10/01/97
09/03/97	06/29/97	Purchase Order	60157-4-1	F1NISH	76.000	SF	2036-1-3	Open	Date chg 09/01/97->10/01/97
09/03/97	06/29/97	Purchase Order	60157-5-1	LRIH-1	57.000	EA	2036-1-3	Open	Date chg 09/01/97->10/01/97
09/03/97	06/29/97	Purchase Order	60157-6-1	LRIH-2	57.000	EA	2036-1-3	Open	Date chg 09/01/97->10/01/97
09/03/97	06/30/97	Purchase Order	60159-2-1	BOX	19.000	EA	2036-1-3	Open	Date chg 09/01/97->10/01/97
09/03/97	06/30/97	Purchase Order	60157-2-1	FORH	114.000	BF	2036-1-3	Open	Date chg 09/01/97->10/01/97
09/03/97	07/30/97	Planned Purchase	TBRH64202	FBRIC	19.000	VD	2036-1-3	Open	Date chg 09/01/97->10/01/97
09/03/97	07/30/97	Planned Purchase	TBRH64201	FBRIC	33.250	VD	2036-1-3	Open	Date chg 09/01/97->10/01/97
09/03/97	07/30/97	Planned Purchase	ERG6ER64202	F1NISH	76.000	SF	2036-1-3	Open	Date chg 09/01/97->10/01/97

Qube ERP™ responds to difference changes in different ways. Cancellations, quantity reductions and date changes produce advice records that point to scheduled events (purchases &/or manufacturing orders), advising that the events be changed.

Quantity increases will generate additional manufacturing order events, much like running one new shipment through the normal scheduling queue does. No advice records are generated in the case of quantity increases.

The Scheduling Advice Window

The Scheduling Advice window displays three buttons. The Load button is self-explanatory. The other two buttons give you a choice of how to respond to the advice.

For example, you may wish to execute the advice. POs and Manufacturing orders will have dates or quantities changed by Qube ERP™ if you select this option. Each Advice record will be flagged as Executed. Or you can double-click on any selected line and deal with the changes of each event one at a time. For example, if you view a PO which Qube ERP™ believes should be advanced or changed in quantity, you may call the vendor to make the appropriate change. Then you would delete the advice, since you have already responded to it.

Changes may be scheduled using the Finite or Infinite Load Scheduling window as well. A check box is displayed labeled Load Changes Only.

- | | |
|--|---|
| <input type="checkbox"/> Schedule Planned MPS Orders | <input type="checkbox"/> Schedule Released MPS Orders |
| <input type="checkbox"/> Schedule from Sales Forecasts | <input type="checkbox"/> Select Unscheduled Orders |
| <input type="checkbox"/> Schedule from Sales Orders | <input type="checkbox"/> Select "Fixed" Orders |
| | <input checked="" type="checkbox"/> Load Changes Only |

The following are examples of what the scheduling queue looks like when this selection is made.

Scheduled			Qty Back-		Order	
Date	Sales Order-Line #	Customer	Item Code	Ordered	Batch	Priority
06/17/97	2036-1	ABC COMPANY	9111		2	
0 04/17/97	2036-2	ABC COMPANY	725	-21	1	Cancellation
0 06/17/97	2036-1	ABC COMPANY	9111		2	Qty. Changed
0 10/01/97	2036-1	ABC COMPANY	9111	10	3	Date Changed

When this selection is made, the button in the lower right corner will be relabeled to read Generate Scheduling Advice. Normally, this button is labeled Produce Mfg Orders from Queue.



Types of Changes

The following is a list of different ways things may change which should be reflected in your decisions as to what to purchase or manufacture and when.

1. A forecast is converted to a sales order.

Qube ERP™ will look up all production and purchase allocations to the forecast job number and change it to the new sales order item number.

2. A sales order item is canceled.

- 1) The status of all shipments related to the same sales order item will be changed to X (canceled).
- 2) The order item record will be date stamped with the date the record was edited.
- 3) Qube ERP™ will look to see if any purchase order records reference this job. If purchase shipments are found referencing the canceled job, the system will do the following:
 - All sales shipment records for that job will be flagged as having been changed in such a way that MRP may be impacted.
 - The system will also remove the job allocation from the purchase shipment record and change its scheduling status so that those items will be made available for the next scheduling run.
 - The job number of the canceled job will be copied into the purchase shipment record so that the report, *PURCHASES ALLOCATED TO CANCELLED JOBS* may be produced.
 - The purchase shipment record will also be date stamped to indicate when the cancellation took place (current system date at the work station of the user who canceled the job).

3. A sales order shipment quantity is reduced.

- 1) The shipment record will be date stamped with the date the record was edited.
- 2) The quantity of the sales shipment before the change will also be recorded.
- 3) The *PUSH-PULL* report may be run to determine which items were impacted by these changes (see [“Push-Pull Report” on page PLAN-211](#)).

4. A shipment quantity is increased.

- 1) The shipment record will be date stamped with the date the record was edited.
- 2) The *PUSH-PULL* report may be run to determine which items were impacted by these changes (see [“Push-Pull Report” on page PLAN-211](#)).

5. Sales order line item is deleted (along with all related scheduled shipment records).

- 1) No record will remain to serve as a reminder or for use in printing reports.
- 2) Deletions will not be allowed if any purchase or production reference is made to any of the jobs on the order.
- 3) If you wish to maintain an audit trail of these types of changes, you are better off to cancel, rather than delete, an item (see [“A sales order item is canceled.” on page PLAN-199](#)).

6. A sales shipment record is inserted.

- 1) If the item record has a canceled status (unlikely), the shipment status will also have a canceled status and therefore not be included in the next scheduling run.
- 2) If the item record has a non-canceled status, the new shipment record will be flagged to be included in the next scheduling run.

7. A scheduled sales shipment record is deleted.

- 1) The system will look for a reference to the job in production and purchase job allocations and not permit the deletion if any are found.
- 2) No record will remain to serve as a reminder or for use in printing reports.
- 3) If you wish to maintain an audit trail of these types of changes, you are better off to cancel, rather than delete, an item (see [“A sales order item is canceled.” on page PLAN-199](#)).

8. A sales shipment date is changed.

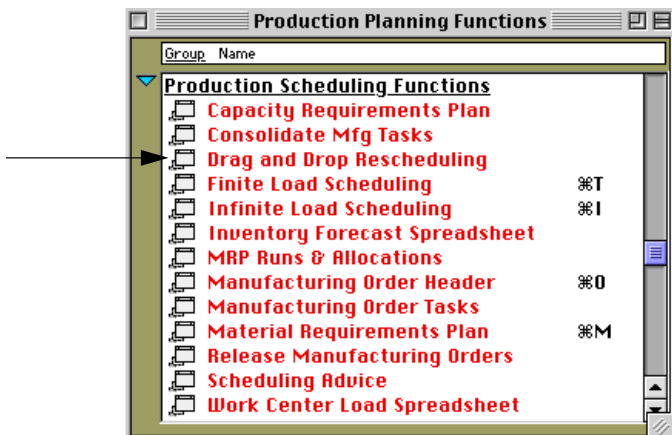
- 1) The shipment record will be date stamped with the date the record was edited.
- 2) The *PUSH-PULL* report may be run to determine which items were impacted by these changes (see [“Push-Pull Report” on page PLAN-211](#)).

9. A purchase order shipment date is changed.

- 1) The shipment record will be date stamped with the date the record was edited and the nature of the change.
- 2) The *PUSH-PULL* report may be run to determine which items were impacted by these changes (see [“Push-Pull Report” on page PLAN-211](#)).

Drag and Drop Rescheduling

Version 7.36 allows you to easily move manufacturing order tasks between work centers to facilitate load leveling. This function is accessed from the **Production Planning Functions** list, in the **Production Scheduling Functions** sublist:



The window is set up to allow you to view and change manufacturing events planned for up to three different work centers at a time.

Note: Anytime you manually change the date of a scheduled manufacturing order, you run the risk of scheduling an event too early or too late for an optimized schedule; i.e., materials required for an assembly may not be scheduled to be there in time for the new assembly date. Although the schedule created by Qube ERP's Production Scheduling functions ensures that all events are set up so that materials will be available when needed, manual adjustments cannot provide any guarantees. Also, note that moving a task from one work center to another may result in labor variances, since the hourly cost of the different work centers may vary. This would be seen as a variance on the assembly transaction, and would also show up on the trial post and actual posting of the related inventory transactions.

The Drag and Drop Rescheduling Window

☒ Load Planned Mfg Orders
☒ Load Released Mfg Orders
 Earliest Date: 10/01/98
 Latest Date: 10/30/98

☒ Select All Jobs, Items and Work Centers
☐ Select 1 item
☐ Select 1 job
☐ Select 1 Work Center

☒ Select past due planned events
☐ Select past due planned events with 0 made so far

Load Tasks

Scheduled Date	Work Center or Vendor	Task	Job Reference	Item Code	Quantity Required	Sch. Total Hours	Sched. Hrs Remaining	Status
10/07/98	MACH11	Machine 11 Work	8	85102720	1,200,000	6,912	6,912	Plan Assy
10/07/98	MACH11	Machine 11 Work	7	85104690	2,000,000	8,640	8,640	Plan Assy
10/07/98	MACH11	Machine 11 Work	6	82202755	600,000	3,456	3,456	Plan Assy
10/07/98	MACH11	Machine 11 Work	5	82002755	2,000,000	11,520	11,520	Plan Assy
10/07/98	MACH11	Machine 11 Work	4	80000372	300,000	1,296	1,296	Plan Assy
10/07/98	MACH11	Machine 11 Work	3	80070390	250,000	1,440	1,440	Plan Assy
10/07/98	MACH11	Machine 11 Work	2	81602700	150,000	2,589	2,589	Plan Assy
10/07/98	MACH11	Machine 11 Work	1	80000390	200,000	1,152	1,152	Plan Assy
10/21/98	MACH11	Machine 11 Work	6	82004515	41,600,000	12,896	12,896	Plan Assy
Work Center #1: MACH11 Machine 11 Work Center							151,065	
10/02/98	MACH12	Machine 12 Work	1	6388000750	200,000,000	32,000	32,000	Plan Assy
10/02/98	MACH12	Machine 12 Work	2	6586000305	10,000,000	0,000	0,000	Plan Assy
10/02/98	MACH12	Machine 12 Work	3	1372095	9,000,000	1,350	1,350	Plan Assy
10/12/98	MACH12	Machine 12 Work	1	6385000307	288,000,000	25,920	25,920	Plan Assy
10/14/98	MACH12	Machine 12 Work	1	6385000607	26,000,000	35,840	7,280	Plan Assy
10/15/98	MACH12	Machine 12 Work	2	6397001072	108,000,000	47,520	47,520	Plan Assy
10/15/98	MACH12	Machine 12 Work	1	6394001070	118,800,000	16,632	16,632	Plan Assy
10/19/98	MACH12	Machine 12 Work	1	6387000181	10,000,000	10,000	10,000	Plan Assy
10/19/98	MACH12	Machine 12 Work	2	6387000185	25,000,000	29,500	29,500	Plan Assy
Work Center #2: MACH12 Machine 12 Work Center							239,572	
10/01/98	MACH14	Machine 14 Seco	2	60003-4-1	6390000471	1,000	1,000	Plan Assy
10/01/98	MACH14	Machine 14 Seco	5	84704435	30,000,000	5,700	5,700	Plan Assy
10/08/98	MACH14	Machine 14 Seco	2	87524281	20,000,000	3,200	3,200	Plan Assy
10/08/98	MACH14	Machine 14 Seco	3	87524335	20,000,000	3,000	3,000	Plan Assy
10/09/98	MACH14	Machine 14 Seco	1	84702715	2,500,000	1,300	1,300	Plan Assy
10/09/98	MACH14	Machine 14 Seco	2	84704300	10,000,000	1,500	1,500	Plan Assy
10/12/98	MACH14	Machine 14 Seco	1	6389000150	76,000,000	42,000	31,920	Plan Assy
10/15/98	MACH14	Machine 14 Seco	1	87504281	25,000,000	4,000	4,000	Plan Assy
10/15/98	MACH14	Machine 14 Seco	2	87504335	20,000,000	3,000	3,000	Plan Assy
Work Center #3: MACH14 Machine 14 Secondary Operations Work Center							71,221	

Purpose of this Window

Use this window to level loads among work centers, by dragging tasks from a heavily loaded work center to a more lightly loaded work center.

Window Characteristics

Load Planned MFG Orders

[Checkbox] Check this box to load all planned manufacturing orders. You may also check the following option.

Load Released MFG Orders

[Checkbox] Check this box to load all released manufacturing orders. You may also check the previous option.

Earliest Date

[Date field] Enter the earliest date of the range you wish to view.

Latest Date	<i>{Date field}</i> Enter the latest date of the range you wish to view.
Select All Jobs, Items and Work Centers	<i>{Radio button}</i> If you select this button, Qube ERP™ will select all jobs and items for all work centers specified previously. There is a limit of three work centers.
Select 1 item/job/ Work Center	<i>{Radio buttons}</i> Select one of these buttons to have Qube ERP™ select a particular job, item, or work center.
Select past due planned events/ with 0 made so far	<i>{Radio buttons}</i> Select one of these buttons to have Qube ERP™ select all past due planned events, or just past due planned events with 0 made so far.
Load Tasks	<i>{Button}</i> Click the LOAD TASKS button to start using the Drag and Drop Rescheduling window.

• Reschedule Tasks Using Drag and Drop

1. Click the **LOAD TASKS** button.

You will be prompted to enter the date range and at least one work center code; you may enter up to three work centers.

2. Enter the beginning and ending dates of the range you wish to view, and the work center codes.

3. Press the **ENTER** key.

Qube loads the lists and displays the total number of hours assigned to each work center over the selected time period.

4. Click the **EDIT** button and select a line that you would like to move from one work center to another.

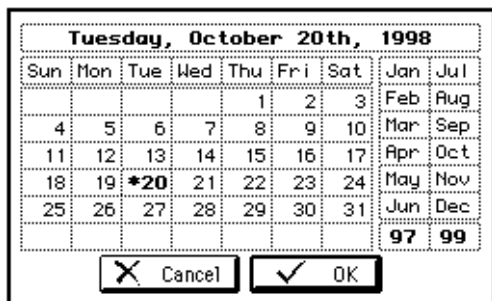
This function **ONLY** works when you are in Edit mode, and only when one work center is selected.

5. To move the line, hold your mouse button down and drag the line.

The arrow cursor turns into a hand, and the selected list is highlighted. When you drag the line to a different work center, that list will be highlighted. When you release the mouse button, Qube removes the line from the original list, adds it to the new list, and also updates the total number of hours.

6. To change the dates associated with each line, double-click on the line you wish to change.

Qube will display the calendar:



If you select a different date and click the **OK** button, Qube ERP will change the date of the selected list line to the new date that you selected on the calendar. You can **ONLY** display the calendar if you are in Edit mode.

7. After making all your changes, click the **SAVE** button.

Qube ERP will make the appropriate updates, creating new manufacturing order headers where needed and updating material requirements and material allocations to maintain data integrity.

For example, in the sample window shown previously, work center MACH14 has a much lighter load than the other two work centers. In the following example, two tasks were dragged from the over-

loaded work center, changing the relative loads so that they are more evenly distributed:

10/02/98	MACH12	Machine 12 Work	2	6586000305	10,000.000	0.000	0.000	Plan Assy	↑	
10/02/98	MACH12	Machine 12 Work	3	1372095	9,000.000	1.350	1.350	Plan Assy		
10/12/98	MACH12	Machine 12 Work	1	6385000307	288,000.000	25.920	25.920	Plan Assy		
10/14/98	MACH12	Machine 12 Work	1	6385000607	26,000.000	35.840	7.280	Plan Assy		
10/15/98	MACH12	Machine 12 Work	1	6394001070	118,800.000	15.632	15.632	Plan Assy		
10/19/98	MACH12	Machine 12 Work	1	6387000181	10,000.000	10.000	10.000	Plan Assy		
10/21/98	MACH12	Machine 12 Work	1	1343281	2,500.000	2.300	2.300	Plan Assy		
10/22/98	MACH12	Machine 12 Work	1	1120678	30,000.000	5.700	5.700	Plan Assy		
10/22/98	MACH12	Machine 12 Work	2	1120679	15,000.000	2.250	2.250	Plan Assy	↓	
Work Center #2: MACH12 Machine 12 Work Center							162.552			
10/01/98	MACH14	Machine 14 Seco	2	60003-4-1	6390000471	10,000.000	1.000	1.000	Plan Assy	↑
10/01/98	MACH14	Machine 14 Seco	5	84704435	30,000.000	5.700	5.700	Plan Assy		
10/08/98	MACH14	Machine 14 Seco	2	60004-2-1	87524281	20,000.000	3.200	3.200	Plan Assy	
10/08/98	MACH14	Machine 14 Seco	3	60004-3-1	87524335	20,000.000	3.000	3.000	Plan Assy	
10/09/98	MACH14	Machine 14 Seco	1	84702715	2,500.000	1.300	1.300	Plan Assy		
10/09/98	MACH14	Machine 14 Seco	2	84704300	10,000.000	1.500	1.500	Plan Assy		
10/12/98	MACH14	Machine 14 Seco	1	6389000150	76,000.000	42.000	31.920	Plan Assy		
10/15/98	MACH14	Machine 14 Seco	1	87504281	25,000.000	4.000	4.000	Plan Assy		
10/15/98	MACH14	Machine 14 Seco	2	87504335	20,000.000	3.000	3.000	Plan Assy	↓	
Work Center #3: MACH14 Machine 14 Secondary Operations Work Cen							148.241			

MRP Reports

Most system reports are not mentioned in this documentation because there are so many, and most are very intuitive.

There are many reports in the Production Planning Reports window, however, which provide the mission-critical data necessary to manage the scheduling process. Because these reports are so integral to the production planning process, they are covered in this section.

MRP Summary Report

This report is different from any other report in the MRP Reports window in that it is not a report used in the production scheduling process. Rather it is a stand-alone function and report which is calculated and used in and of itself.

Note: If you are applying the Outwork model, then before running the Material Requirements Summary report you must perform the Send Kits to Vendor function for any outwork POs that have been created. If you do not perform this function first, the Material Requirements Summary report will not display the correct amount in the Additional Inventory Required column. Outwork POs are not considered “real” until the Send Kits to Vendor function is performed.

This report analyzes all forecasts and/or sales orders within a given period and tells you what you need to make and buy to meet that demand. It will not time-phase that demand, nor tell you where to make it. This is not related to production scheduling in any way; however, it can help determine what needs to be made and bought, and the calculations from this report can be used to generate POs and requisitions.

This report is included in the base package. For information on how to use this report to generate POs, see [“Generate POs or Reqs. Stock to Max” on page PUR-35](#).

The report provides the following choices in the setup parameters:

Please Double Click to Enter Parameters

Please Enter Beginning Transaction Date 02/07/97
Please Enter Ending Transaction Date 03/07/97
Please Enter One Inventory Group or ALL? ALL
Please Enter One Inventory Sub-Group or ALL? ALL

Print Only Items Requiring More Stock? NO
Re-Print Based on Earlier Computations? NO
Base on General Stock? (Enter NO to base on Total Stoc YES
Select Sales Orders? YES
Select Sales Forecasts? YES
Sort by Item Code? NO
Sort by Item Code with Type? YES
Begin with Reset of MRP Flag? YES

Enter date ranges to determine the time frames for which you wish to run the report. You may choose whatever time periods you wish. If you elect to perform multiple runs of this report, be sure to move already allocated stock to non-general stock locations (see below) and allocate POs to specific jobs prior to subsequent report runs.

Use the **Group** and **Subgroup** designations to determine which of these you wish to run. You may use all or any one in each or both of these fields.

Print Only Items Requiring More Stock?

This allows you to limit the report to only those items which will require more stock to meet the demand during the specified time periods. If you wish to see all items, whether they reflect shortages or not, enter **No** in this field.

Reprint Based on Earlier Computations?

Enter **No** in this field if you wish to recalculate your MRP requirements and print the results. Enter **Yes** if you wish to base the report on a previous run. In this case you would get no new information. The **Yes** choice is used only to reprint the report in case you need a copy or have misplaced it. Reprinting the report is much faster than recalculating the report.

Base on General Stock?

If you wish to base your MRP calculations only on that which is in general stock locations (see [“Inventory General Stock Includes Stock Location #1 through Location #” on page SYS-111](#)), you should enter **Yes** in this field. If not, enter **NO**. This function provides the ability to eliminate stock which is already allocated to production, or to previous runs of this report.

Select Sales Orders?

Enter **Yes** in this field if you wish to include sales orders in your calculations.

Select Sales Forecasts?

Enter **Yes** in this field if you wish to include sales forecasts in your calculations.

Sort by Item Code?

Enter **Yes** in this field if you wish the report to be sorted by item code only. This will pay no attention to item type.

Sort by Item Code with Type?

Enter **Yes** in this field if you wish the report to be sorted by item code within item type (RAW, RES, SUB, FIN, EXP).

Begin with Reset of MRP Flag?

Qube ERP™ uses a device called an MRP Flag to speed the production of this and other reports (as much as five times). If a function is illegally interrupted, the MRP Flag can be set incorrectly. This usually results in more items being included in the report than are required. If you find that running this report takes longer than you think it should, begin with this flag set to **Yes**.

MRP Summary Report

Screen report													
World Class Industries													
Material Requirements Summary Orders and Forecasts, Based on General Stock													
Period Covering 01/01/95 - 03/15/97													
Report Printed on 02/15/97 at 16:07, Page #1													
Selected Group = ALL, Selected Sub-Group = ALL													
Item Code	Description	Unit	Unit Cost	Quantity in Stock	Quantity on Open P.O.s	Onorder Open P.O.s	Quantity Committed to Sales	Additional Inventory Required	Value of Additional Inventory	Item Type	Min Qty	Max Qty	General Stock Less Committed to Sales
9111	Series 9 chair	Each	520.22000	-4000	0.000		169.000	173.000		FIN			-173.000
915	Painted 915 Table	Each	284.40000	0.000	1.000		5.000	4.000		FIN			-5.000
RCD	Totting Rotating for Stew	Each	64.00000	0.000	0.000		10.000	10.000		FIN			-10.000
WHMLK	Whole milk in quarts	QT	8.83080	298.000	0.000		10.000	0.000		FIN			288.000
0001	Description of 0001	Each	101.00000	-31.652	982.000		887.928	0.000		RAW			-919.580
0002	Table Leg Nuts	Each	0.30000	40.000	11.000		415.000	362.000	108.60	RAW			-373.000
0003	Table Casters	Each	2.00000	0.000	0.000		616.000	616.000	12.320	RAW			-616.000
0004	Table Brackets	Each	10.00000	42.000	475.000		32.000	0.000		RAW			10.000
0010	Item #10	Each	20.00000	0.000	0.000		1,000.000	1,000.000	20,000.00	RAW			-1,000.000
0011	Item #11	Each	22.00000	0.000	0.000		1,000.000	1,000.000	22,000.00	RAW			-1,000.000
10020	Clorox, 38 mm HG white	MG	0.07350	0.000	455.000		300.000	0.000		RAW			-300.000
150	Medium Suede	YD	10.00000	2.000	28.000		87.500	57.500	1,150.00	RAW			-85.500
154	Glinnet	YD	24.00000	0.000	0.000		1.750	1.750	45.50	RAW			-1.750
4001	Waco Mineral Oil	GA	6.00000	45.533	17.000		232.000	169.667	1,013.00	RAW			-186.667
CHERRY	Cherry wood	Bd Ft	1.50000	-78.000	0.000		121.000	199.000	298.50	RAW			-199.000
FIN-1	Finish in light oak	Each	2.00000	150.000	0.000		16.000	0.000		RAW			134.000
FIN-2	Finish in Black Oak	Each	2.00000	740.000	0.000		4.000	0.000		RAW			736.000
FOAM	Foam used in making furniture	Bd Ft	3.00000	-331.932	78.000		1,014.000	1,247.932	3,803.80	RAW			-1,345.932
JAZZ	Jazz Pulver	SF	60.00000	15.750	0.000		54.750	19.000	1,140.00	RAW			-19.000
LABORER5	Misc labor at \$25 per hour	MN	0.00000	0.000	0.000		145.000	145.000		RAW			-145.000
LAM-1	Laminate in Antique White	Each	4.00000	-186.966	36.000		507.000	637.966	2,631.86	RAW			-693.966
MAPLE	Maple wood	Bd Ft	0.80000	140.000	0.000		500.000	476.000	380.80	RAW			-476.000
SANDEL	Sandel Moisture Barrier	SF	0.52000	-136.000	533.000		369.000	0.000		RAW			-505.000
STR WOOD	Structural wood used in frame - not visible	Bd Ft	6.00000	-17.000	33.000		638.000	621.000	3,732.00	RAW			-655.000
THREAD	Thread used in making furniture	Each	0.30000	0.000	2.000		171.000	169.000	50.70	RAW			-171.000
7111	Series 7 Chair	Each	421.00000	0.000	95.000		32.000	0.000		RES	2	4	-32.000
715	715 Table/Chair Dining/Arms & Headrest	Each	651.00000	45.000	0.000		4.000	0.000		RES	5	8	41.000
DR-2	Chair/Chair Dining/Arms	Each	300.00000	11.000	0.000		2.000	0.000		RES	12	24	10.000
DR-3	Chair/Chair Dining/Arms & Headrest	Each	400.00000	27.000	5.000		5.000	0.000		RES	12	24	22.000
LAMP1	Table Lamp	Each	261.00000	3.000	0.000		4.000	1.000	261.00	RES	5	10	-1.000
2ND	2nd level	Each	41.00000	0.000	0.000		1,000.000	1,000.000		SUB			-1,000.000
9111 FR/IN	Finished frame for 9111-C chair	Each	444.80000	2.000	10.000		169.000	157.000		SUB			-157.000
9111 FR/S	This is a PURCHASED SUBASSEMBLY	Each	1,031.90000	11.000	0.000	179.000	5.000	0.000		SUB			8.000
9111 FRAME	Assembled frame for 9111-C chair	Each	210.00000	0.000	0.000		319.000	319.000		SUB			-319.000
9111-FAB/SEW	Cut & sew fabric for 9111 chair	Each	15.30000	0.000	0.000		169.000	169.000		SUB			-169.000
9111-FOC/UT	Cut foam for 9111 chair	Each	36.76000	0.000	0.000		169.000	169.000		SUB			-169.000
915FIN	915 After Step FIN	Each	246.40000	0.000	0.000		4.000	4.000		SUB			-4.000
915KIT	Kit for 915 Table	Each	236.40000	0.000	0.000		4.000	4.000		SUB			-4.000
915MILL	915 After Step MILL	Each	236.40000	0.000	0.000		4.000	4.000		SUB			-4.000
COVER	Generic moisture barrier to cover foam top item	SF	2.44800	46.000	0.000		64.000	18.000		SUB			-18.000
TOP		Each	100.00000	0.000	0.000		500.000	500.000		SUB			-500.000
Raw Materials Investment Required to Fill Open Orders										57,853.76			

C

information about which items have this designation, how many are scheduled, lot sizes, etc. This does not provide information about the MPS orders in the system. The Master Production Schedule, next, provides this information.

Screen report																
World Class Industries																
MPS Flagged Items																
Report Printed on 02/07/97 at 09:54, Page #1																
Item Code	Description	Unit	Type	Flag	MPS Purchase or Produce	Group Code	Sub-Group Code	Total Stock	General Stock	Minimum Stock	Highest of Sales or Forecast	Open PO Quantity	Scheduled in Production	Lead Time	Lot Size	Current Qty in Master Schedule
8111	Chair - Series 8	EA	FIN	YES	Purchased	PINE FURN		2,000	0,000				2	0	1	
825	Table - Series 8	EA	FIN	YES	Purchased	TABLE		25,000	0,000				2	0	1	
9111	Chair - Series 9	EA	SUB	YES	Purchased	PINE FURN		0,000	0,000			10,000	2	0	1	
DR1	Ensemble #1 - Dining Room	EA	FIN	YES	Purchased	ENSEMBLE	DINING	0,000	0,000				2	0	1	
DR2	Chair - Oak Dining/Armless	EA	RES	YES	Purchased	ENSEMBLE	GENERIC	12,000	12,000	12			2	14	1	
DR3	Chair - Oak Dining/With Arms	EA	RES	YES	Purchased	ENSEMBLE		0,000	0,000	12			2	14	1	
DR3	Chair - Oak Dining/Arms & Headrest	EA	RES	YES	Purchased	ENSEMBLE		0,000	0,000	12			2	14	1	
HTCH1	Hutch - Oak/Wood Doors	EA	RES	YES	Purchased	ENSEMBLE	GENERIC	4,000	4,000	1			2	15	1	
HTCH2	Hutch - Oak/Chair Doors	EA	RES	YES	Purchased	ENSEMBLE		0,000	0,000	10			2	14	1	

Master Production Schedule

This provides a printout of all of the MPS orders in the system. Use it to compare your master schedule to the resulting MRP run. This will help you in deciding how to maintain and change the master schedule in reference to the production plan.

Screen report									
World Class Industries									
Master Production Schedule (MPS Orders)									
Period Covering 01/07/97 - 03/07/97									
Fiscal Week: 158 - 166									
Report Printed on 02/07/97 at 09:29, Page #1									
Item Code	Description	Sched. Production Date	Period	Date Entered	Date Released	Quantity Required	Quantity Supplied To Date	Status	
9111	Series 9 chair	03/10/95	62	11/07/95		75	0	Planned	
9111	Series 9 chair	07/14/95	81	02/09/96		10	0	Planned	
9111	Series 9 chair	07/28/95	81	11/07/95		15	0	Planned	
9111	Series 9 chair	06/07/96	128	05/03/96		5	0	Planned	
9111	Series 9 chair	03/05/97	165	01/21/97		100	0	Planned	
925	Finished 925 Table	01/04/95	53	11/07/95		12	0	Planned	
925	Finished 925 Table	03/03/95	61	11/07/95		12	0	Planned	
925	Finished 925 Table	05/04/95	70	11/07/95		12	0	Planned	

Master Schedule

This report is not designed to print one line for each sales order. It is designed to print one line for each item committed to be shipped within each fiscal week and to print the total quantity of that item required in that week.

This information is useful when working with the master schedule in make-to-order situations. It is critical information in make-to-order environments. Before running the production planning function, you should always refer to this report. It provides information about the

quantity required, quantity in stock, scheduled ship date and status of each sales order shipment in the system.

World Class Industries

Requisitions Proposed by MRP 90 Days Beyond Lead Time

PO Date Range = 01/01/98 - 06/16/98

Report Printed on 04/16/98 at 07:49, Page #1

Record	Buy	Sched	Top Level	Unit	Task	Task	PO	PO	Lead
Type	Date	Receipt	Date	Cost	Quantity	Value	Quantity	Value	Time
Task	78-8044-5133-0	RES, 220/330 Ohm, 8 PIN,	03/19/98	04/16/98	04/17/98	0.18000	200	36	28
Task	78-8044-5133-0	RES, 220/330 Ohm, 8 PIN,	04/23/98	05/21/98	05/22/98	0.18000	1,200	216	28
Task	78-8044-5133-0	RES, 220/330 Ohm, 8 PIN,	05/27/98	06/24/98	06/25/98	0.18000	1,600	288	28
PO	78-8044-5133-0	RES, 220/330 Ohm, 8 PIN,	03/04/98	06/08/98		0.18000			
		78-8044-5133-0	RES, 220/330 Ohm, 8 PIN,				3,782	540	28
Task	78-8044-5642-0	DIODE, IR EMITTING	02/16/98	04/13/98	04/14/98	0.47000	27	13	56
PO	78-8044-5642-0	DIODE, IR EMITTING	02/06/97	05/27/98		0.47000		100	141
		78-8044-5642-0	DIODE, IR EMITTING				27	13	56
Task	78-8044-5727-9	BACK BAR,HEADS	12/25/97	02/05/98	05/22/98	0.12000	715	86	42
PO	78-8044-5727-9	BACK BAR,HEADS	03/06/98	03/13/98		0.12353		8,175	1,050
		78-8044-5727-9	BACK BAR,HEADS				715	86	42
Task	78-8057-3000-5	BRKT, MTG, RIGHT, 405	02/16/98	04/13/98	04/14/98	0.87000	141	123	56
PO	78-8057-3000-5	BRKT, MTG, RIGHT, 405	03/12/97	05/27/98		0.87000		200	174
		78-8057-3000-5	BRKT, MTG, RIGHT, 405				141	123	56

Requisitions Proposed by MRP (By Date & Item)

This report is designed to show you the vendor requirements which resulted from a scheduling run. When sorted and totaled by item code, the report is useful as a shopping list for the purchasing agent, showing the quantities of each item required and when the requirements are scheduled. When sorted and subtotaled by month needed, the report is most useful for the controller, as it shows the financial commitment which would be made for each month if you accepted the material requirements recommended by the scheduling process.

These are not requisitions or POs; they are *proposed* requisitions. As such, they reflect no vendor information, and costs are reflected at standard. This report also prints both planned buys and open unallocated POs, so you can see which POs are already out there for each item for which a purchase has been recommended. This report is always available, and is a good alternative to the [“POs to Expedite Report”](#).

If the production planner finds that items must be changed (batched together, increased, decreased, moved forward, backward, etc.), the records may be edited in the **Manufacturing Orders** window. This report may be printed from two different perspectives; by date, or by item code. The following is shown by date.

Screen report										
World Class Industries										
Requisitions Proposed by MRP 365 Days Beyond Lead Time										
Report Printed on FEB 7 97 at 11:13, Page #1										
Item Code	Description	Proposed Date	Vendor	Standard Unit Cost	Total Quantity Required	Lead Time	Days From Today	Critical Path	Excess?	Value
WOOD	Wood - Generic record for all woods	FEB 25 97	MANUAL CHECK	0.00000	25.000	30	18	NO		0.00
Totals For February, 1997					25.000					0.00
FINISH	Finish - Generic record for all finishes	MAR 2 97	No Vendor Specified	0.00000	12.000	30	23	NO		0.00
FABRIC	Fabric - generic record for all fabrics	MAR 2 97	No Vendor Specified	0.00000	8.750	30	23	NO		0.00
FINISH	Finish - Generic record for all finishes	MAR 2 97	No Vendor Specified	0.00000	15.000	30	23	NO		0.00
GLUE	Glue used to attach moisture barrier to foam	MAR 7 97	Eager Beaver	3.03000	10.000	20	28	NO		30.00
WOOD	Wood - Generic record for all woods	MAR 12 97	MANUAL CHECK	0.00000	25.000	30	33	NO		0.00
THREAD	Thread used in making furniture	MAR 12 97	Eager Beaver	0.15150	5.000	20	33	NO		0.75
FOAM	Foam used in making furniture	MAR 12 97	Eager Beaver	1.51500	30.000	20	33	NO		45.00
GLUE	Glue used to attach moisture barrier to foam	MAR 12 97	Eager Beaver	3.03000	0.500	20	35	NO		1.52
GLUE	Glue used to attach moisture barrier to foam	MAR 12 97	Eager Beaver	3.03000	1.250	20	33	NO		3.75
WOOD	Wood - Generic record for all woods	MAR 12 97	MANUAL CHECK	0.00000	25.000	30	33	NO		0.00
STK WOOD	Wood - Structural used in frames	MAR 13 97	Morris Industries	3.03000	10.000	14	34	NO		30.00
FABRIC	Fabric - generic record for all fabrics	MAR 19 97	No Vendor Specified	0.00000	8.750	30	40	NO		0.00
FINISH	Finish - Generic record for all finishes	MAR 19 97	No Vendor Specified	0.00000	15.000	30	40	NO		0.00
FABRIC	Fabric - generic record for all fabrics	MAR 19 97	No Vendor Specified	0.00000	8.750	30	40	NO		0.00
FOAM	Foam used in making furniture	MAR 28 97	Eager Beaver	1.51500	30.000	20	49	NO		45.00
GLUE	Glue used to attach moisture barrier to foam	MAR 28 97	Eager Beaver	3.03000	0.500	20	49	NO		1.52
GLUE	Glue used to attach moisture barrier to foam	MAR 28 97	Eager Beaver	3.03000	1.250	20	49	NO		3.75
Totals For March, 1997					106.870					161.61

Allocations of Purchase Orders & Approved Requisitions

This report provides information about which POs and approved requisitions have been allocated and to which jobs. This report is useful for viewing unallocated or partially allocated POs following a production scheduling run.

Screen report										
World Class Industries										
Allocation of Purchase Orders & Approved Requisitions, Fully Allocated & Not Fully Allocated										
Period Covering 08/07/96 - 08/07/97										
Report Printed on 02/07/97 at 12:14, Page #1										
Fiscal Week: 215 - 267										
#	PO or Req Number	Date Needed	Lead Time	Vendor Name	Unit	Quantity Ordered	Quantity Received	Unit Cost	Open Dollar Value	Allocated to Job Production Allocation
0001	Bolts - Table Leg									
9	60007	03/11/97	7 Days	Eager Beavers	Each	550	0	0.25000	137.50	550 10006-2
2	60007	03/01/97	7 Days	Eager Beavers	Each	50	0	0.25000	12.50	50 10006-2
1	60007	02/13/97	7 Days	Eager Beavers	Each	50	0	0.25000	12.50	50 10006-2
1	60004	02/07/97	7 Days	Eager Beavers	Each	100	50	0.25000	12.50	50 10006-2
9	60007	12/19/96	7 Days	Eager Beavers	Each	1200	0	0.25000	300.00	1200 10006-1
9	60007	11/05/96	7 Days	Eager Beavers	Each	1200	0	0.25000	300.00	1200 10006-2
9	60007	09/26/96	7 Days	Eager Beavers	Each	600	0	0.25000	150.00	600 10006-1
Totals For 0001 Bolts - Table Leg						3,750	50		925.00	3,700
0002	Nuts - Table Leg									
9	60007	12/19/96	7 Days	Eager Beavers	Each	1,150	0	0.15000	172.50	1,150 10006-1
9	60007	09/26/96	7 Days	Eager Beavers	Each	600	0	0.15000	90.00	600 10006-1
Totals For 0002 Nuts - Table Leg						1,750	0		262.50	1,750
0004	Brackets - Table									
4	60008	09/26/96	6 Days	Morris Industries	Each	200	0	5.00000	1,000.00	200 10006-1
5	60008	12/19/96	6 Days	Morris Industries	Each	300	0	5.00000	1,500.00	300 10006-1
Totals For 0004 Brackets - Table						500	0		2,500.00	500
0005	Bracket - Chair									
4	60006	11/04/96	10 Days	The TableMaker	Each	300	0	1.00000	300.00	300 10006-2
4	60006	03/10/97	10 Days	The TableMaker	Each	175	0	1.00000	175.00	175 10006-2
Totals For 0005 Bracket - Chair						475	0		475.00	475

Q

This report is similar to the Master Schedule of Items to be Shipped report; however, it will let you know which records would be included for various planning horizons. This is a report which should be run prior to running production scheduling. This is especially good for make-to-order manufacturers.

This report provides a spreadsheet-style look at which items are scheduled to be produced in which weeks. It also provides a look at the number of items scheduled, quantities completed, and number of hours required to produce those items. This report is designed as a tool for the master planner, after production scheduling is run. The date selection may be set up to print any 13-week period.

Weekly Production Schedule by Job

This report provides information on when each job is scheduled to be run. This is a useful report for the planner, and anyone else in the organization who is interested in job status. These might include customer service and sales order personnel, along with the purchasing department. You can run this report for one job or all jobs. This and the above report are designed for overall views of the production schedule. The date selection may be set up to print any 13-week period.

Screen report											
World Class Industries											
Weekly Production Schedule by Job - All Jobs											
Period Covering 05/01/97 - 07/24/97											
Report Printed on 02/07/97 at 12:25, Page #1											
Fiscal Week: 253 - 265											
	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of	Week of
	05/01/97	05/08/97	05/15/97	05/22/97	05/29/97	06/05/97	06/12/97	06/19/97	06/26/97	07/03/97	07/10/97
Job 10006-1: 600 825 for Make to Stock											
Quantities Schedule	0.0	0.0	0.0	0.0	28.0	5.0	5.0	5.0	105.0	5.0	5.0
Quantities Completed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hours Require	0.000	0.000	0.000	0.000	36.500	40.000	40.000	40.000	90.000	40.000	40
Job 10006-2: 600 825 for Make to Stock											
Quantities Schedule	526.3	80.0	68.7	66.7	176.7	0.0	0.0	0.0	100.0	0.0	0.0
Quantities Completed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hours Require	40.000	40.000	40.000	40.000	61.000	0.000	0.000	0.000	30.000	68.000	0

Daily Production Schedule (by Job # and Item)

The Daily Production Schedule series focuses on the burden of each work center measured in scheduled hours of production time each day. It can summarize the requirements to show only the total hours required or it can print supporting detail to show what jobs require that work and what kind of progress has been made so far in completing those jobs. This report is presented in spreadsheet form and can be printed by job, by item or by work center. The date selection may be set up to print a 13-day period. The report is identical to the weekly production schedule except that it provides a more detailed look for the period.

Daily Production Schedule by Work Center

This report can be used by the production manager to determine the load schedule of each work center on each day. It can help identify over- and under-loaded work centers. Used in conjunction with *infinite scheduling*, it can help identify bottle-neck situations, providing the production manager with information about where additional re-

sources could be deployed to help meet service demands. This report is designed to be run after production.

Screen report												
World Class Industries												
Daily Production Schedule by Work Center, All Work Centers, Number of Schedule Hours												
Period Covering 05/01/97 - 05/14/97												
Report Printed on 02/07/97 at 12:47, Page #1												
Fiscal Week: 253 - 255												
	Day of 05/01/97	Day of 05/02/97	Day of 05/03/97	Day of 05/04/97	Day of 05/05/97	Day of 05/06/97	Day of 05/07/97	Day of 05/08/97	Day of 05/09/97	Day of 05/10/97	Day of 05/11/97	Day of 05/12/97
Work Center ASSY Assembly												
Job #10006-2, Task #1									8.000			8.000
Job #10006-2, Task #1												
Job #10006-2, Task #1												
Job #10006-2, Task #1												
Job #10006-2, Task #1												
Job #10006-2, Task #1												
Job #10006-2, Task #1												
Job #10006-2, Task #1												
Job #10006-2, Task #2												
Job #10006-2, Task #1		3.000										
Job #10006-2, Task #1		5.000										
Job #10006-2, Task #1	8.000											
Sub-Total for each Work Center	8.000	8.000			8.000	8.000	8.000	8.000	8.000			8.000

Job Traveler

This document focuses on specific jobs and allows you to see the scheduled tasks required to complete the job plus the material requirements. It can be attached to a job as it is being routed through the system. The material requirements can be printed immediately following each task listed and accumulated and printed at the top, or you may print only labor requirements and not print the material requirements. You can elect to page break for each job, and you can elect to print one job or all within a given date range.

Screen report												
World Class Industries												
Job Traveler												
Period Covering 01/01/96 - 12/31/96												
Report Printed on 06/06/96 at 13:32, Page #1												
Fiscal Week: 183 - 235												
Job Number	Work Center & Material Requirements	Purchase or Production Date	Item to be Purchased or Assembled	Component Quantity Required	Hours Required	Start Time	Stop Time	Quantity Scheduled	Quantity Produced			
1963 I ABC Company												
Operation CUT	Cutting	Sched'd	Item = 9111 Chair - Series 9					0	0 Open			
Operation METLATH	Metal Lathe		07/05/96 ROD Rod - Steel, 5		0.002			1.000	HRS			
Operation DRILL	Drill Press		07/05/96 ROD Rod - Steel, 5		0.225			1.000	HRS			
Operation WELD	Welding		07/05/96 ROD Rod - Steel, 5		0.125			1.000	HRS			
Assembly WELD	Welding		07/05/96 ROD Rod - Steel, 5		0.250			1.000	HRS			
Assembly WELD	Welding		07/05/96 ROD Rod - Steel, 5		0.000			1.000	HRS			
Assembly MLL	S1000 Mill Room: Cut & shape wood elements:		07/05/96 9111-FRAME Frame - Assembl	0.500 FT	1.000			1.000	EA			
Assembly MLL	CHEERY Wood - Cherry			5.000 BF								
Assembly MLL	STR WOOD Wood - Structural used in frames			2.000 BF								
Assembly MLL	GLUE Glue used to attach moisture barrier to foam			2.000 GL								
Assembly MLL	ROD Rod - Steel, finished for chairs			1.000 EA								
Assembly CUT	Cutting		07/12/96 9111-FD/CUT Foam - cut for	6.000 BF	0.500			1.000	EA			
Assembly CUT	FOAM Foam used in making furniture			3.000 SF								
Assembly CUT	BOSTON Fire Rating - Boston			0.112 GL				3.000	SF			
Assembly CUT	GLUE Glue used to attach moisture barrier to foam			0.112 GL								
Assembly FIN	FIBERGLAS Fiberglass Barrier - Fiberglass		07/12/96 BOSTON Fire Rating - B	9.000 SF	0.333			5.000	EA			
Assembly FIN	Wood finishing		07/12/96 9111-FR/IN Frame - Finish	5.000 EA								
Assembly FIN	FIN-1 Finish in Light Oak			15.000 EA								
Assembly FINAL	Final Assembly		07/12/96 9111 Chair - Series	6.000 EA	1.800			6.000	EA			
Assembly FINAL	9111-FAB/SEW Fabric - cut & sewn for 9111 chair			6.000 EA								
Assembly FINAL	9111-FD/CUT Foam - cut for 9111 chair			6.000 EA								
Assembly FINAL	9111-FR/IN Frame - Finished for 9111 C chair			6.000 EA								
Assembly FINAL	LAM-1 Laminate in Antique White			10.000 EA								
Assembly FINAL	GLUE Glue used to attach moisture barrier to foam			1.500 GL								
Assembly SEW	Cut & sew fabric		07/12/96 9111-FAB/SEW Fabric - cut &	0.600				1.000	EA			

Production Exceptions

This report provides you with information about scheduled tasks which have either not been performed at all or which have been performed late. If a manufacturing order schedules 10 units of item X to be assembled on January 5th and only 5 units are assembled, the remaining 5 units will appear on this report as being late. If none of the units were assembled, it would also appear. You can define “late” differently each time you run the report by entering the number of days past the scheduled date that are acceptable.

This report should be run every day by the production manager.

When jobs have missed a scheduled date, the planner can reschedule the manufacturing order tasks and then run the **Push-Pull Report** to determine if any other tasks need to be changed, or if overtime needs to be scheduled. When jobs are really late, the production manager should talk to customer service personnel to determine if the customer needs to be contacted about changing the delivery date.

To handle assembly changes, the planner should use the **Material Requirements Plan** window to view and change assembly events so that they reflect the changes he made in vendor deliveries. The window allows you to sort the list by Sales Order-Line # (job #) to make it easier to view all scheduled tasks for any job and to advance the scheduled production dates for each assembly step.

Screen report										
World Class Industries										
Production Exceptions Report										
Period Covering 05/06/96 - 08/06/96										
Report Printed on 05/06/96 at 13:26, Page #1										
Fiscal Week: 201 - 214										
Job Number	Work Center & Material Requirements	Finished Item	Item to be Assembled	Delivery Quantity	Sched Date	Actual Prodn Date	Days Late	Qty Scheduled	Qty Produced	
1962-1 ASSY	Albert Antecave 625 Table - Series 5		625 TOP Table Top - Series 9	0	05/23/96	No Tracuts	14	0.125		
1962-1 ASSY	Albert Antecave 625 Table - Series 5		625 TOP Table Top - Series 9	0	05/22/96	No Tracuts	15	1.000		
1962-1 ASSY	Albert Antecave 625 Table - Series 5		625 TOP Table Top - Series 9	0	05/21/96	No Tracuts	16	1.000		
1962-1 ASSY	Albert Antecave 625 Table - Series 5		625 TOP Table Top - Series 9	0	05/20/96	No Tracuts	17	1.000		
1962-1 ASSY	Albert Antecave 625 Table - Series 5		625 TOP Table Top - Series 9	0	05/09/96	No Tracuts	28	0.750		
1962-1 ASSY	Albert Antecave 625 Table - Series 5		625 TOP Table Top - Series 9	0	05/08/96	No Tracuts	29	1.000		
1962-1 ASSY	Albert Antecave 625 Table - Series 5		625 TOP Table Top - Series 9	0	05/07/96	No Tracuts	30	1.000		
1962-1 ASSY	Albert Antecave 625 Table - Series 5		625 TOP Table Top - Series 9	0	05/06/96	No Tracuts	31	1.000		

Work Center Load Report

This report summarizes the number of hours allocated to each work center for each day and the tasks it has been assigned to perform. This report should be run every time production scheduling is run. It is a list of all jobs which should go through each work center on each day. The planner uses this report in conjunction with the individual manufacturing orders to manage the individual work centers.

Screen report										
World Class Industries										
Work Center Load Report - Detail										
Period Covering 01/01/97 - 12/31/97										
Fiscal Week: 236 - 288										
Report Printed on 02/07/97 at 13:33, Page #1										
Sched. Prod'n or Receipt Date	PO or Production Order #	Task #	Item Code	Quantity Required	Quantity Supplied To Date	Task Status	Hours Required	Sales Order Line Number	Send to	
ASSY 01/01/97	ASSY6210	1 Assembly	825 PED Pedestal Assembly - 825 Table	4000	0.000	Not Final	8.000	10006-1 Make to Stock	FINAL	
01/02/97	ASSY6211	1 Assembly	825 PED Pedestal Assembly - 825 Table	4000	0.000	Not Final	8.000	10006-1 Make to Stock	FINAL	
01/03/97	ASSY6212	1 Assembly	825 PED Pedestal Assembly - 825 Table	4000	0.000	Not Final	8.000	10006-1 Make to Stock	FINAL	
01/06/97	ASSY6215	1 Assembly	825 PED Pedestal Assembly - 825 Table	4000	0.000	Not Final	8.000	10006-1 Make to Stock	FINAL	
01/07/97	ASSY6216	1 Assembly	825 TCP Table Top - Series 8 Table	0.750	0.000	Not Final	6.000	10006-1 Make to Stock	FINAL	
01/07/97	ASSY6216	2 Assembly	825 PED Pedestal Assembly - 825 Table	1.000	0.000	Not Final	2.000	10006-1 Make to Stock	FINAL	
01/08/97	ASSY6217	1 Assembly	825 TCP Table Top - Series 8 Table	1.000	0.000	Not Final	8.000	10006-1 Make to Stock	FINAL	
01/09/97	ASSY6218	1 Assembly	825 TCP Table Top - Series 8 Table	1.000	0.000	Not Final	8.000	10006-1 Make to Stock	FINAL	
01/10/97	ASSY6219	1 Assembly	825 TCP Table Top - Series 8 Table	1.000	0.000	Not Final	8.000	10006-1 Make to Stock	FINAL	
01/13/97	ASSY6222	1 Assembly	825 TCP Table Top - Series 8 Table	1.000	0.000	Not Final	8.000	10006-1 Make to Stock	FINAL	
01/14/97	ASSY6223	1 Assembly	825 TCP Table Top - Series 8 Table	1.000	0.000	Not Final	8.000	10006-1 Make to Stock	FINAL	

Material Requirements List

The **Material Requirement** series of reports focuses on the materials needed by each work center on any given day. It will tell you what materials the work center needs and how much of each, compare these requirements with the current stock levels, and print the locations where stock quantities can be found. You can select one job, one work center, or all, plus a given date range.

This report is used by the materials manager to make sure that the right materials are in the right place at the right time. It should be printed at least every week for all items at all work centers for at least the entire week, if not longer. Using this report in conjunction with



Work Center Schedule

This report is presented in spreadsheet form and is sorted and totaled by work center. The date selection may be set up to print any 13-day period. The report is used to see the relative time demands on each work center for each day and to identify unscheduled or over-scheduled (if infinite scheduling was used) days for each work center.

Screen report							
World Class Industries							
Production Order Tasks							
Period Covering 01/07/97 - 04/07/97							
Report Printed on 02/07/97 at 14:01. Page #1							
Fiscal Week: 236 - 249							
Planned Date		Status			Planned Quantity	Quantity Completed	Job
8111 FR/FIN Frame - Finished for 8111-C chair							
04/01/97	Plan Assy	Assembly	Assembly		3.333	0.000	10006-2
04/02/97	Plan Assy	Assembly	Assembly		13.333	0.000	10006-2
04/03/97	Plan Assy	Assembly	Assembly		13.333	0.000	10006-2
04/04/97	Plan Assy	Assembly	Assembly		13.333	0.000	10006-2
04/07/97	Plan Assy	Assembly	Assembly		13.333	0.000	10006-2
					56.665	0.000	
8111 FRAME Frame - Assembled for 8111-C chair							
03/11/97	Plan Assy	Assembly	Assembly		4.000	0.000	10006-2
03/12/97	Plan Assy	Assembly	Assembly		8.000	0.000	10006-2
03/13/97	Plan Assy	Assembly	Assembly		8.000	0.000	10006-2
03/14/97	Plan Assy	Assembly	Assembly		8.000	0.000	10006-2
03/17/97	Plan Assy	Assembly	Assembly		8.000	0.000	10006-2
03/18/97	Plan Assy	Assembly	Assembly		8.000	0.000	10006-2
03/19/97	Plan Assy	Assembly	Assembly		8.000	0.000	10006-2
03/20/97	Plan Assy	Assembly	Assembly		8.000	0.000	10006-2
03/21/97	Plan Assy	Assembly	Assembly		8.000	0.000	10006-2
03/24/97	Plan Assy	Assembly	Assembly		8.000	0.000	10006-2
03/25/97	Plan Assy	Assembly	Assembly		8.000	0.000	10006-2
03/26/97	Plan Assy	Assembly	Assembly		8.000	0.000	10006-2
03/27/97	Plan Assy	Assembly	Assembly		8.000	0.000	10006-2
					100.000	0.000	
825 PPD Pedestal Assembly - 825 Table							
01/07/97	Plan Assy	Assembly	Assembly		1.000	0.000	10006-1
					1.000	0.000	

Shop Calendar Report

This prints the current shop calendar for any selected date range in regular calendar format. Holidays are indicated by having the date enclosed in asterisks (like “** 12 **”). This report should be printed prior to running the production schedule, or after to determine what days might be opened up in order to meet tight schedules.

Screen report						
World Class Industries						
Shop Calendar						
Period Covering 01/01/97 - 04/07/97						
Report Printed on 02/07/97 at 14:14. Page #1						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
January, 1997						
** 5 **	6	7	1	2	3	** 4 **
** 12 **	13	14	8	9	10	** 11 **
** 19 **	20	21	15	16	17	18
** 26 **	27	28	22	23	24	25
			29	30	31	
February, 1997						
** 2 **	3	4	5	6	7	** 1 **
** 9 **	10	11	12	13	14	** 8 **
** 16 **	17	18	19	20	21	** 15 **
** 23 **	24	25	26	27	28	** 22 **

Production Order Tasks

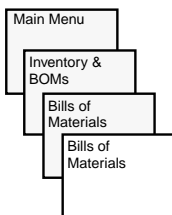
This report provides useful information about each task which is scheduled to be completed within a date range. It can be printed by the production manager to determine what needs to be completed during specified time intervals. It can be sorted and subtotaled by item or date, as shown in the two examples below.

Screen report				
World Class Industries				
Production Order Tasks				
Period Covering 01/07/97 - 04/07/97				
Report Printed on 02/07/97 at 14:01, Page #3				
Fiscal Week: 236 - 249				
Planned Date	Status			Job
	Planned Quantity	Quantity Completed		
ROD Rod - Steel, finished for chairs				
03/04/97	Plan Labor	Assembly	Metal Lathe	10006-2
03/04/97	Plan Labor	Assembly	Cutting	10006-2
03/05/97	Plan Labor	Assembly	Drill Press	10006-2
03/05/97	Plan Labor	Assembly	Metal Lathe	10006-2
03/06/97	Plan Labor	Assembly	Welding	10006-2
03/06/97	Plan Labor	Assembly	Drill Press	10006-2
03/07/97	Plan Labor	Assembly	Welding	10006-2
03/10/97	Plan Labor	Assembly	Welding	10006-2
03/11/97	Plan Labor	Assembly	Welding	10006-2
03/11/97	Plan Assy	Assembly	Welding	10006-2
	100.000	0.000		
	1,000.000	0.000		

Screen report				
World Class Industries				
Production Order Tasks				
Period Covering 01/07/97 - 04/07/97				
Report Printed on 02/07/97 at 14:16, Page #6				
Fiscal Week: 236 - 249				
Planned Date	Status			Job
	Planned Quantity	Quantity Completed		
04/01/97	Plan Assy	Assembly	Assembly	10006-2 8111 FR/FIN
04/01/97	Plan Assy	Assembly	Assembly	10006-1 825 TOP
	3.333	0.000		
	0.750	0.000		
	4.083	0.000		
04/02/97	Plan Assy	Assembly	Assembly	10006-2 8111 FR/FIN
	13.333	0.000		
	13.333	0.000		
04/03/97	Plan Assy	Assembly	Assembly	10006-2 8111 FR/FIN
	13.333	0.000		
	13.333	0.000		
04/04/97	Plan Assy	Assembly	Assembly	10006-2 8111 FR/FIN
	13.333	0.000		
	13.333	0.000		
04/07/97	Plan Assy	Assembly	Assembly	10006-2 8111 FR/FIN
	13.333	0.000		
	13.333	0.000		

Bills of Material

Bill of Materials Window



Bill of Materials									
9111		9111 Chair				<input type="checkbox"/> Engineering BOM			
Drawing				Material					
Item Code	Quantity	Loc'n	Unit	Labor Value & Overhead Value		Material	Level	Option Class	
9111-FAB/SEW	1.00000	A	EA	15.00000		1.15000	2		
9111-F0/CUT	1.00000	B	A EA	15.00000		1.15000	2	FABRIC	
9111 FR/FIN	1.00000	C	P EA	13.78034		15.47583	2		
LAM-1	3.00000	D	A EA	16.88900		216.49380	2		
FINAL	1.00000	E	EA			6.00000	2	LAMINATE	
LAM-2	3.00000	F	A HR	11.56069			2		
BOX	1.00000	G	EA			4.50000	2	LAMINATE	
FABRIC	1.00000	H	EA			1.00000	2	* BOX	
			YD				2	* FABRIC	
Cut & sewn fabric for 9111 chair				57.23003		244.61963			
Subtotals from Item Master File, Card 1:				57.23003		244.61963			
BOM Comments Effectivity Dates Dimensional Factors Option Setup Stock Qty									
Load Indented Load Flat Invert Routing									

This window is used in creating, viewing and editing bill of material records. Notice how the accumulated labor and material values are totaled separately for each component item.

RAM Requirements

The bills of material function provides the ability to record indented bills and uses lists for this purpose. In order for this to function correctly, however, your computer must have at least 16 megabytes of RAM available. At least 8 megabytes of RAM should be allocated to Qube ERP™ to ensure that this function will work properly.

Structuring Your Bills of Material

It is important to understand that subassemblies are usually defined by the processes which produce them. For example, the above assembly is a finished 9111 Chair. The bill of material you see depicted is the final stage of assembly, which is performed at work center FINAL. On average, it takes 0.1000 hours to complete this operation. Therefore, the components necessary to complete the operation, plus the work center and a labor rate (0.1000) are included in this bill of material. That way, all of the components necessary to complete the assembly will come together at the right time and place to perform the operation.

Now view the other items in the bill of material above. The first three items in the list are also assemblies, each defined by the operations being performed on them, and the work centers where the operations are completed. If the third item in the list is double-clicked on, the following information is displayed:

Bill of Materials									
9111		9111 Chair						<input type="checkbox"/> Engineering BOM	
Drawing				Material			Level	Option	
Item Code	Quantity	Loc'n	Unit	Labor Value	Overhead Value		Class		
9111 FRAME	2.00000		EA	12.00012	216.49380	2			
9111-FAB/SEW	1.00000	A	EA	15.00000	1.15000				
9111-F0/CUT	1.00000	B	P EA	13.78034	15.47583				
9111 FR/FIN	1.00000	C	A EA	16.88900	216.49380				
LAM-1	3.00000	D	EA		6.00000				
9111 FR/FIN Finished frame for 9111-C chair									
9111 FRAME	2.00000		A EA	12.00012	216.49380				
FINISH	4.00000		SF				* FINISH		
FIN	0.61111		A HR	4.88888					

Note how the 9111 FR/FIN is comprised of a 9111 FRAME and a FINISH, and is made in 0.61111 of an hour at work center FIN. If there were any other components necessary at this stage for this subassembly, they would appear in this BOM. If these components were needed after this stage in the process, they would appear in an “up-line” bill of material. If they were needed in a previous stage of manufacture, they would appear in a downline BOM.

The important thing to understand is that each stage of assembly has its own item master file record and bill of material. This is what causes multi-level (indented) bills of material.

This is also what allows production scheduling to time-phase MRP runs. Obviously an item’s subassemblies must be completed prior to that item being completed. By nesting a subassembly and its components inside another assembly, you are providing the product structure necessary to manage the manufacturing flow later, when you begin to run production scheduling.

Adding or Editing a Bill of Material

• To add or edit a bill of material

1. Click the <FIND> button.

2. **Type the Item Code of the assembly to which you wish to add the Bill of Material. This must be either a subassembly or finished good. Press <ENTER>, and the item will appear in the window.**

If this item already has a bill of material, its BOM components will be displayed provided your user preferences are set up to allow this (see [“Load BOMs automatically...” on page SYS-78](#)). If they are not, you may display the BOM items by clicking the button, <LOAD>, or the items will be displayed when you click the <EDIT> button.

3. **Click the <EDIT> button.**
4. **Enter each item in the bill of material. Make sure you enter them in the order in which you wish to have them displayed.**

Unless you have activated the function which allows you to enter items on the fly from a the bill of materials window (see [“Adding Items to the Item Master File While Editing BOMs” on page BOM-11](#)), the system will require that each item you enter into the bill of material be a predefined item in the **item master file** with its own item code, description, etc. You may enter any type of item in a bill of material, including finished goods and expense items.

5. **Enter a work center or routing in the BOM.**

Entering a **work center** indicates that this item will go through one work center. At the end of the process at that work center, the assembly will be added to inventory, and the component items will be decremented from inventory.

Entering a **routing**, however, indicates this item must go through a series of work centers before the assembly is completed and the component items are decremented. This is done

by inserting a routing in the record (see [“Routing Lists” on page BOM-21](#)).

You may also enter a **Queue Time work center**. A Queue Time work center is treated by Qube ERP™ as a work center which defines a delay in processing (e.g., paint drying).

Note: Queue Time work centers may be used in routings but should not be used as standalone work center references in bills of material.

Below is a screenshot of an appropriate reference to a queue time work center:

BOM Routing Operations					
Production Operations for 1 1418		CASING ASSY.		6842689	
Order Code	Work Center Description	Machine Code	Set up Time	Run Time	Labor Cost
20 0	Queue time work center		50.000	0.00000	0.00000
5 84	REMOVE FROM STORES				
10 2	CLEAN -2 CASE AND				
20 0	Queue time work center	AG31	50.000	0.22000	1.78200
30 2	FILE -2 SMALL END		0.480	0.62000	5.02200
60 2	FILE -2 LARGE END		0.340	0.54000	4.37400
80 43	X-RAY PER EIS 1200	RMP1		0.98000	7.93800

For more information about queue time, see [“Queue Time Work Centers” on page LAB-39](#).



Note: All items which are going to be scheduled must include a work center or routing in the BOM.

6. Click <SAVE>.

The function will display the following message:

Item Cost or Labor changed. Update all other Bills of Materials, NOW?

NO

YES

This function will make changes to all “upline” assemblies which have costs that have been impacted by the changes you have made. You may elect to roll up the costs now by clicking

<YES>, or do it later by clicking <NO>. If you are entering or editing several BOMs, or you know that your change is liable to impact many items in your data file, you would be better off to wait and do it later. If, on the other hand, you are changing only very few BOMs, and you know that the change won't impact many items in the item master file, you may click <YES>.

Window Fields

Item Code

[Required, 15-character alphanumeric, validated] The window provides two data entry fields for the item code. The first, at the top of the window, is provided for the item code of the parent item, or assembly, which bill of material is being displayed. The second, which is displayed as the first field in the edit list, is the item code for each component in the bill of material. Every item, whether parent or component, must have a valid item code. These codes are established in the item master file. See [“Item Code” on page INV-13](#). You may use the popup lists on the window to find the item code for each field. Or you may use the reference list function to look up item codes, or enter them directly.



Note: You may also set the system up to allow the user to enter items on the fly from the BOM window if you choose. See [“Audit Subassemblies Within the BOM” on page BOM-10](#).

Description

[Display only] The information in this field is displayed from the item description field.

Engineering BOM

[Checkbox] Check this box if this is an engineering BOM.

Quantity

[Required, numeric] Enter the quantity of each component into this field. The quantity in this field refers to the stockkeeping unit of measure of each item.



Note: This field provides for five decimal places of precision; however, all inventory transactions within the system will be displayed to three places. The notion is that in cases where very small quantities are called out in the bill of materials, many of them will be produced. Therefore you should keep this in mind when setting up your bills of material.

Drawing Loc'tn

{Four characters, alphanumeric} This field is provided as a “reference designator,” to indicate where items which are called out in the bill of material appear in technical drawings, etc. If you need to provide more information than this field will accommodate, you may use the item comments fields.

Unit

{Display only} This is the stockkeeping unit of measure as set up on Item Master, Card #1.

Labor Value

{Calculated, display only} The value in this field reflects the current labor (labor plus overhead applied to labor) cost component of the item. If this item is a subassembly, this labor component will be derived from the item’s bill of material. If the item is a raw material, it will have no labor value. If the item is a work center or routing, it will be the labor value as derived from the work center or routing records. This is an extended value, reflecting the product of each item’s labor and labor overhead value times the number of items used in this bill of material.

Material & Overhead Value

{Calculated, display only} The value in this field reflects the current material (material cost plus overhead applied to material) cost component of the item. If this item is a subassembly, this material component will be derived from the item’s bill of material. If the item is a raw material, this will reflect the current material cost of the item. If the item is a work center or routing, it will have no material value. This is an extended value, reflecting the product of each item’s ma-

terial and material overhead value times the number of items used in this bill of material.

Level	<i>{Display only}</i> This refers to the level of each item in the bill of material. The parent item is regarded as level 1. The next level down is level 2, and so on. When viewing a “flat” BOM, this will always show “2.” It becomes significant when you are viewing an indented BOM, as then it will provide information as to which items are nested within each subassembly.
Option Class	The option class of each item is entered on the Item Master File, Card #1 window. The word GENERIC in the Sub-Group field identifies an item which, when found in a BOM, is expected to be exchanged for a selected option. For more information on option classes, see <i>“Option Class and Sub-Group Codes” on page OPT-30.</i>
Window Buttons/Tabs	
BOM	<i>{Card tab}</i> Click this card tab to view the main Bill Of Materials data entry window.
Comments	<i>{Card tab}</i> Click this card tab to view the Bill Of Materials Comments window.
Effectivity Dates	<i>{Card tab}</i> Click this card tab to view the Bill Of Materials Effectivity Dates window.
Dimensional Factors	<i>{Card tab}</i> This card tab appears only if the Modular Building Option Selection feature is activated. Click this card tab to view the Bill Of Materials Dimensional Factors window.
Option Setup	<i>{Card tab}</i> Click this card tab to view the Bill Of Materials Option Setup window.
Stock Quantity	<i>{Card tab}</i> This feature is only available in Version 7.36. Click this card tab to view the Bill Of Materials Component Stock Quantity window.

Load Indented

{Button} Clicking this button will load the indented BOM for this item. The indented BOM will display the complete structure of the item, providing a detailed view of all subassemblies and components, all the way down to the raw material level. When you first load an indented BOM, it will look similar to this:

Bill of Materials						
925 Finished 925 Table						
Item Code	Quantity	Drawing Loc'n	Unit	Labor Value & Overhead Value		Level
925/FIN	1.00000		EA	43.00000	98.10000	2 Option Class
925/FIN	1.00000	A	EA	43.00000	98.10000	2
925/HILL	1.00000	A	EA			3
925/KIT	1.00000	A	EA			4
925 TOP	1.00000	A	EA			5
...WOOD	2.00000	BF				6 * WOOD
...0002	24.00000	EA				5
...0003	4.00000	EA				5
...0004	8.00000	EA				5
...0001	1.00000	EA				5
...LAMINATE	8.00000	SF				5 * LAMINAT
925 LENS	4.00000	A	EA			5
...WOOD	4.00000	BF				6 * WOOD
...KIT	0.50000	A	HR			4
...HILL	4.00000	A	HR			4
...FIN	2.00000	A	HR			3
FINAL	4.00000	A	HR	40.00000		2
925 After Step FIN				83.00000	98.10000	
Subtotals from Item Master File, Card 1:				83.00000	98.10000	

Load Flat

{Button} Click this button to load the first-level items in each BOM when you find or scroll through the BOM records. This button enables the system to avoid loading BOMs automatically when these functions are performed. This can save a lot of time when you are dealing with BOMs which have many items. See [“Load BOMs automatically...” on page SYS-78.](#)

Invert

{Button} Click this button to reverse the order in which the BOM items are loaded.

Routing

{Button} Click on this button to add a routing to a bill of material. For more information, see [“Routing Lists” on page BOM-21.](#)

Sorting the BOM

You may sort any BOM list, indented or flat, by clicking on any column heading.

Printing a BOM

You may print any BOM by pressing <CTRL/CMD-P>. When you print the BOM, using the <CTRL/CMD-P> function, and an indented BOM is displayed, the indented BOM will print. If, on the other hand, a flat BOM is displayed on the window when you print, the following message will be displayed:

Show Costs on Report?

NO

YES

Clicking <YES> will print a report which looks like the following:

Screen report									
World Class Industries									
Bill of Materials at Current Cost for item 8111, Chair - Series 8									
For 8111, Chair - Series 8									
Report Printed on 11/22/96 at 11:19, Page #1									
Component	Drawing		Labor	Material	Unit	Quantity	Extended	Extended	
Item Code	Location	Description	Unit Cost	Unit Cost		Required	Labor Cost	Material Cost	
8111-FAB/SEW		Fabric - cut & sewn for 8111 chair	12.00000	51.77500	EA	1.00000	12.00000	51.77500	
8111-FO/CUT		Foam - cut for 8111 chair	14.00000	9.33600	EA	1.00000	14.00000	9.33600	
8111 FR/FIN		Frame - Finished for 8111-C chair	15.60600	24.00000	EA	1.00000	15.60600	24.00000	
LAM-1		Laminate in Antique White		2.00000	EA	3.00000	0.00000	6.00000	
GLUE		Glue used to attach moisture barrier to foam		3.00000	GL	0.25000	0.00000	0.75000	
FINAL		Final Assembly	8.00000		HR	0.30000	2.40000	0.00000	
Total Cost of For 8111, Chair - Series 8							44.00000		91.86100
							Grand Total Cost		135.86700

The costs printed reflect the current costs for the bill of material.

If you click <NO>, however, the printed BOM will look like this:

Screen report						
World Class Industries						
Bill of Materials at Current Cost for item 8111, Chair - Series 8						
Report Printed on 11/22/96 at 11:34, Page #1						
Drwg	Quantity	Component			Effective	Expiration
Locn	Required	Unit	Item Code	Description	Date	Date
For 8111, Chair - Series 8						
These are the comments from the BOM header window.						
1.00000 EA		8111-FAB/SEW		Fabric - cut & sewn for 8111 chair		
These are the comments from each line in the BOM. These comments are from the first line in the BOM. These are entered by clicking on the Comments button on this window.						
1.00000 EA		8111-FO/CUT		Foam - cut for 8111 chair		
1.00000 EA		8111 FR/FIN		Frame - Finished for 8111-C chair		
3.00000 EA		LAM-1		Laminate in Antique White	01/01/96	12/31/96
0.25000 GL		GLUE		Glue used to attach moisture barrier to foam	01/01/96	12/31/96
0.30000 HR		FINAL		Final Assembly		

In this case, the printout will display the BOM comments and effectivity dates as entered on those windows. In all cases, the printout of

the bill of material will be sorted in the order that the BOM appears on the window.

Audit Subassemblies Within the BOM

The system also has a capability which allows the user to look into any subassembly referenced as a component in a BOM to make sure entries are being made correctly. Simply double click on the subassembly line. The BOM list will split in two, showing the BOM of the subassembly in the lower half. You can also double click on any subassembly in the bottom portion to audit the bill to any indented level.

Item Code	Quantity	Loc'n	Unit	Labor Value	& Overhead Value	Level
925/MILL	1.00000		EA	27.00000	98.10000	2 Option Class
925/FIN	1.00000		A EA	43.00000	98.10000	
925/MILL	1.00000		A EA			
925/KIT	1.00000		A EA			
925 TUP	1.00000		A EA			
925 After Step FIN						
925/MILL	1.00000		A EA	27.00000	98.10000	
FIN	2.00000		A HIN	16.00000		
925 After Step FIN				83.00000	98.10000	
Subtotals from Item Master File, Card 1:				83.00000	98.10000	

To drill down to the Item Master Record for the sub-assembly, press the **ALT** key and double-click on a PC, or press the **OPTION** key and double-click on a Mac.



Adding Items to the Item Master File While Editing BOMs

It is possible to add items to the item master file while editing bills of materials. To turn on this function, view **System Set Up, Card #3** and edit the window so there is an **X** in the following box.

☒ Allow adding new items to Item Master File during BOM entry

You should also enter an asterisk in the following field on the same window:

Code to Request Next Sequential Number

Now, enter the items in the bill of material just as you would any existing item. If you know the item code you wish to assign, enter it into the **Item Code** field. If you do not know the item code you wish to assign, type the **Code to Request Next Sequential Number**, as defined in the field above. In this case it would be an asterisk. When you do this, the system will assign a sequential number to the item code when you click **<SAVE>**. You may use this code as many times as necessary during this procedure.

Next enter the **Quantity**, **Drawing Location**, **Unit of Measure** (which will default to EA) and the **unit material cost** of the item in the **Material & Overhead Value** field (after you click **<SAVE>**, the function will calculate the extended material cost and insert it into this field).

In the example shown below, the cost of each new item is \$5.00. When saved, the **Material & Overhead Value** will be calculated as \$50.00.

Item Code		Drawing		Unit	Labor Value	Material & Overhead Value	Level
		Quantity	Loc'tn				
*		10.00000	A24	EA		5.00000	0
*		10.00000	A24	EA		5.00000	

Next, you can edit the description in the **Description** field, or leave the defaulted value as shown here:

New item added by user 1 editing BOM 9111

When you click <SAVE>, the resulting values will look like this:

Item Code	Quantity	Loc'n	Unit	Labor Value & Overhead Value	Material	Level
15201	10.00000	A24	EA		50.00000	2
15201	10.00000	A24	EA		50.00000	2

Note that the asterisk in the item code has been changed to the next sequential number, and the material cost has been changed to 50.00.

In addition to saving the bill of material, this function will also create a new item in the Item Master File. That record will look something like this:

Item Master File, Card #1			
Item Code	15201	New item added by user 1 editing BOM 9111	
Group		Sub-Group	
Option Class		Sub-Class	
Item Type	RAW	Grade	
Revision Code		Revision Date	
Cost Updated	11/22/96	<input type="checkbox"/> Inspect on Receipt	<input checked="" type="radio"/> Purchased <input type="radio"/> Fabricated <input type="checkbox"/> 1st Article Produced <input type="checkbox"/> 1st Article Approved <input type="checkbox"/> Master Scheduled Item <input checked="" type="checkbox"/> Active item
Material Cost	5.00000	# Sales Units per Shipping Unit	0.00
Freight In	0.00000	Weight per sales unit (lbs).....	0.00
Material O/H	0.0000	Cubic Feet per Sales Unit.....	0.00
Outwork	0.00000	Stockkeeping Unit.....	EA
Labor	0.0000	Purchasing Unit.....	EA = 1.00 SKUs
Labor O/H	0.0000	Sales Unit.....	EA = 1.00 SKUs
Total Cost	5.0000		

Notice that the function has created a new item with all of the information that can be calculated from the bill of material window, including item code, description cost, and unit of measure. The item type is derived from the default value set up on the **System Set Up Window, Card #3**:

Default Item Type for new items **RAW**

BOM Comments Window

Use this window to enter comments on a bill of material. You may enter comments for each item on a BOM (**item comments**), or for the entire bill of material (**header comments**).

Header Comments

Item Comments

Item Code	Comments
0111	Series 0 chair These are comments which apply to the entire bill of material, not just one component within the bill.
FINAL	Put the frame and upholstery together & package it up. Be sure to use stiffeners on the corners for additional protection. This comment field applies to each component in the BOM
9111-FAB/SEW	
9111-FG/CUT	
9111 FR/FIN	
LAM-1	
FINAL	Put the frame and upholstery together & package it up. Be sure to use
LAM-2	

The header comments can be printed on both **Flat BOM** reports and on **manufacturing orders**, while the item comments can be printed on the **Flat BOM** report showing no costs. In addition, the **item comments** can be printed on the kit list reports found under **Production Planning Reports**.

Production Planning Reports

- Kit Indented BOM Selected Quantity One Item
- Kit Flat BOM Selected Quantity of 1 Item
- Kit Flat BOM All Items on One Sales Order

Please Double Click to Enter Parameters

Please Enter Beginning Effectivity Date 06/16/97
Please Enter Ending Effectivity Date 06/16/97
Please Enter a Quantity for Each Item
Please Enter One or Several Inventory Items

Use Stockkeeping Units (YES) or Purchase Units (NO)? YES
Value Kit at Current Cost (YES) or Standard Cost (NO)? YES
Print "Note 1" Field from Component Item Master File? NO
Combine All Occurrences of the Same Item in a BOM? NO
Print Comment Lines from BOM records? YES

View my Schedule
Reduce or Enlarge 85% Orientation
Add to My Reports
Load My Reports

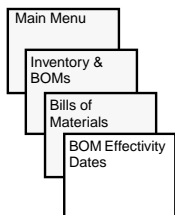
In order to print the header comments on a **manufacturing order**, you must have the following check box set to on:

Print comments from item master file			
Print comments from BOM header			
Hours Task	CP		
Required Status	Error?		
30.000	Released	F	NO
12.500	Released	Assy	NO
30.000	Released	Assy	NO

When the comments are set to print, they will appear on the manufacturing order like this.

Task #	Item Code to be Produced	Qty to Produce	Qty Completed	Sales Order- Line #	Hours Required	Start Time
2	8111 Chair - Series 8	100.000		1860-2	30.000	
These are the comments from the BOM header window.						

BOM Effectivity Dates Window



Bill of Materials Effectivity Dates

9111 Series 9 chair

Revisions

Item Code	Description	Drawing Location	Effective Date	Expiration Date	Earliest Rev.	Latest Rev.
9111 FAD/SCM	Cut & sewn fabric for 9111		01/01/1900	12/31/1999		
9111 FAD/SCM	Cut & sewn fabric for 9111		01/01/1900	12/31/1999		
9111-FD/CUT	Cut foam for 9111 chair		01/01/1980	12/31/1999		
9111 FR/FIN	Finished frame for 9111-C c		01/01/1980	12/31/1999		
9111-1	Laminate in Aubergine White		01/01/1980	12/31/1999		
FINAL	Final Assembly					
LAM-2	Laminate in Aubergine		01/01/1980	12/31/1999		

BOM Comments Effectivity Dates Dimensional Factors Option Setup Stock Qty

Load Indented Load Flat BOM

About the Function

This function allows a bill of material to be set up with phase-in and phase-out dates for each component. Setting BOMs up this way, a company does not have to create multiple items & BOMs for each new revision. Instead, they can use one BOM per item which lists all of the various components and the dates on which the use of each component was in effect.

In the above example, all components except Final Assembly will begin being used on 01/01/80, and will be discontinued on 12/31/99.

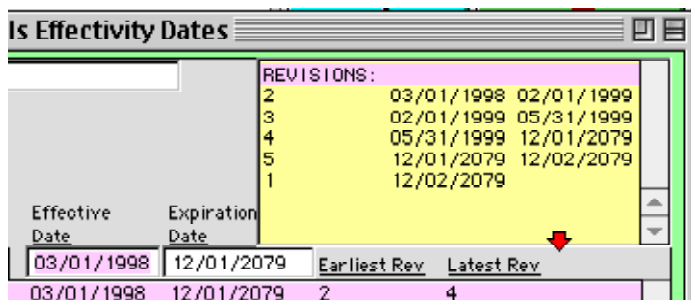
All scheduling and inventory transaction functions will be based on these effectivity dates. In addition, the current and standard costs of any item will be based on the value of only those items in the BOM which are currently in effect. Production scheduling and kit list reports also pay attention to the effectivity dates to determine which components to include and which to exclude. A **REVISIONS** button links you to the **Revisions + Engineering Change Orders** window, which displays various revisions associated with the selected BOM. The only way to see the revision list is to click on the **EDIT** button. For more information, see [“Controlling BOM Revision References” on page INV-176](#).

If you print any BOM reports, only those items which appear in the BOM as of the date the report was printed will be displayed.

• To enter BOM effectivity dates

1. Find the BOM you wish to edit.
2. Click <EDIT>.

The upper right corner displays revision information:



The screenshot shows a window titled "Is Effectivity Dates". It contains a list of revisions and a table of effective and expiration dates.

Effective Date	Expiration Date	Earliest Rev	Latest Rev
03/01/1998	12/01/2079	2	4

The revisions list is as follows:

Revision	Effective Date	Expiration Date
2	03/01/1998	02/01/1999
3	02/01/1999	05/31/1999
4	05/31/1999	12/01/2079
5	12/01/2079	12/02/2079
1	12/02/2079	

3. Enter the Effective date for each item.

If you are currently editing the **Effective Date** field and double-click on a revision from the list, Qube will fill in both the Effective and Expiration dates from the selected revision.

4. Enter the Expiration date for each item.

Components may span more than one revision. Therefore, you may tab to the **Expiration Date** field and select a different revision code. In this case, Qube will fill in only the Expiration Date from the selected revision.

5. Make sure you <TAB> out of each field which you are editing.

6. Click <SAVE>.

When you do, the following window will be displayed:

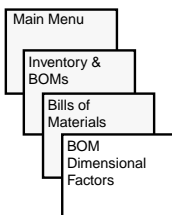
Item Cost or Labor changed. Update all other Bills of Materials, NOW?	<input type="button" value="NO"/>
	<input checked="" type="button" value="YES"/>

Clicking <YES> will update the current costs only for all items which are impacted by this effectivity date change. For more information on rolling up bills of material, see [“Reconstruct BOMs” on page BOM-35](#).

Non-Effective Items

When items appear on a bill of material but are out of their effectivity range, they will show on the BOM with no costs reflected. If you see items on a bill of material which show no costs, but you know that they do have cost components in their item records, it is probably because their effectivity ranges are out of date.

Dimensional Factors Window



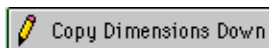
Bill of Materials Dimensional Factors									
9111		9111 Chair		Dimensions of Parent Item					
				Length	Width	Height			
				2.00	2.00	4.00			
Item Code	Quantity	Description	Length Factor	Width Factor	Height Factor				
9111-FAB/SEW	1.00000	Cut & sewn fabric for 9111 cha	100.00	50.00	25.00	%			
9111-FB/CUT	1.00000	Cut foam for 9111 chair	100.00	50.00	25.00				
9111 FR/FIN	1.00000	Finished frame for 9111-C chai	100.00	50.00	25.00				
LAM-1	3.00000	Laminate in Antique White	100.00	50.00	25.00				
FINAL	1.00000	Final Assembly	100.00	50.00	25.00				
LAM-2	3.00000	Laminate in Aubergine	100.00	50.00	25.00				
BOX	1.00000	Packing box	100.00	50.00	100.00				
FABRIC	1.00000	Generic record for all fabrics	100.00	50.00	25.00				

About the Function

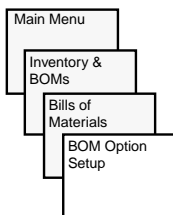
This card tab appears on the main **Bill of Materials** window only if the Modular Building Option Selection feature is activated.

Sometimes the quantity of components used to build an item will vary with its dimensions. Qube ERP™ allows you to take advantage of this and further simplify your item master file and your bills of materials. An example is found in the modular building industry. Modules may be engineered as 12 x 12, 12 x 24, 24 x 48, 24 x 60, etc. Hundreds of different sizes may be built. All of these sizes can be represented with only one bill of material, using the Qube ERP™ dimensional factors. This capability involves the entry of data in three different places. For information on entering this data, see [“Dimensional Factors” on page OPT-51](#).

The **COPY DIMENSIONS DOWN** button is enabled only during data entry. This is most useful with large BOMs where the dimensional factors are the same for many BOM components. Using the button allows you to enter the dimensional factors once instead of separately for each BOM component. With a 100-element BOM, this could reduce data entry from 300 entries down to only 3.



Option Setup Window



Bill of Materials Option Setup

9111 9111 Chair

Item Code	Quantity	Unit	Item	T Family	Material	Casing Type	Pur / Prime	Lead
							Fab	Time
9111-FAB/SEW	1.00000	EA	SUB	FINE FURN		FABRIC	F	0
9111-FAB/SEW	1.00000	EA	SUB	FINE FURN		FABRIC	F	0
9111-FD/CUT	1.00000	EA	SUB	FINE FURN	FRAME		F	0
9111 FR/FIN	1.00000	EA	SUB	FINE FURN	FRAME		F	0
LAH-1	3.00000	EA	RAW	FINE FURN		LAMINATE	P	30
FINAL	1.00000	HR	LAB					0
LAH-2	3.00000	EA	RAW	FINE FURN		LAMINATE	P	30
BOX	1.00000	EA	RAW		GENERIC	BOX	P	3
FABRIC	1.00000	VD	RAW	FINE FURN	GENERIC	FABRIC	P	30

Cut & sewn fabric for 9111 chair

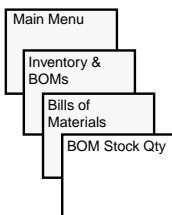
BOM Comments Effectivity Dates Dimensional Factors Option Setup Stock Qty

Load Indented Load Flat

About the Function

Use this window to designate and review options set up for the bill of material. For more information on setting up options, [see “Set Up” on page OPT-30](#) in the Order Configuration User Guide.

Component Stock Quantities Window



Bill of Materials Component Stock Quantities

Quantities of Parent Item: 6 373 0

9111 Chair

Item Code	Quantity	Description	Non-Allocated General Stock	Committed to Sales	Quantity Available
9111-FAB/SEW	1.00000	Cut & sewn fabric for 9111 cha	6	373	
9111-FD/CUT	1.00000	Cut foam for 9111 chair	2		2
9111 FR/FIN	1.00000	Finished frame for 9111-C chai		9	1
LAN-1	3.00000	Laminate in Antique White	2	1	1
FINAL	1.00000	Final Assembly	9		9
LAN-2	3.00000	Laminate in Aubergine		5	
BOX	1.00000	Packing box	27		27
FABRIC	1.00000	Generic record for all fabrics	3		3

BOM Comments Effectivity Dates Dimensional Factors Option Setup Stock Qty

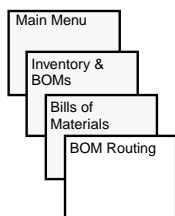
Load Indented Load Flat

About the Function

This feature is only available in Version 7.36, and only if you have the **Available to Promise** feature. It provides the ability to easily view stock quantities of BOM components. This can come in handy for companies who often delay the assembly of higher level assemblies until just prior to shipment. In this case, the user is never concerned with the stock quantities of the top-level item, but rather with the stock quantities of the components required to build the top-level item.

Use the **Bill of Materials Component Stock Quantities** window to display flat or indented BOMs. This window can be set up to function together with the order entry process; if Qube notices that the **Bill of Materials Component Stock Quantities** window is open while you are entering order items, Qube will redraw the **Bill of Materials Component Stock Quantities** window to show the BOM of each item currently being entered. The redraw occurs when you tab out of the item code field.

Routing Lists



BOM Routing Operations						
Production Operations for 450 KIT Reamer Kit						
Order	Work Center	Description	Machine Code	Set up Time	Run Time	Labor Cost
1	03	Cut Steel		0.600	0.02000	0.16000
2	04	Center Drill		0.600	1.00000	10.00000
3	11	Braze Preparation		0.300	0.01500	0.12000
4	12	Braze		0.250	0.01000	0.08000
5	13	O. D. Rough		0.800	0.01200	0.06600
6	21	Flute		0.750	0.10000	0.80000
7	90	Inspect			0.00400	0.03200
8	99	Stock			0.00500	0.04000
				3.10000	1.10000	11.32800

As covered earlier in this section, a bill of material may have a list of materials plus one work center, where the labor is performed. Instead of a work center, however, it may refer to a routing list to indicate that the assembly passes through several work centers in which the subassembly is processed. The routing list may also reference a Queue Time work center, which is a work center that defines a delay in processing (e.g., paint drying).

Routing Lists Defined

Routings provide a way to reference multiple work centers in a single BOM. A BOM routing list is defined as a list of work centers through which an assembly may pass for labor operations to occur.

Benefits

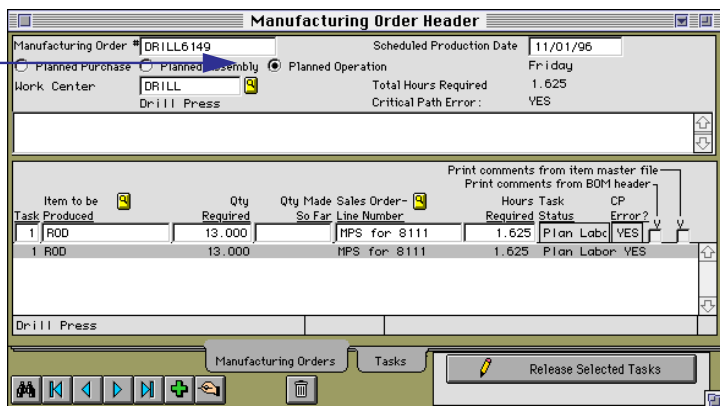
The major benefit of this approach is that you can refer to multiple work centers without requiring additional indented BOM layers.

Routing and Production Planning

In data files where this feature has been enabled, the production planning function will schedule an event in addition to assemblies and purchases: scheduled employee time charges, or planned operations. These are scheduled events where no material is added (only labor). In addition to providing greater control of your scheduling

process without adding complexity to your bills of material, this approach also provides much greater visibility over job status.

Planned Operation



The screenshot shows the 'Manufacturing Order Header' window. At the top, the 'Manufacturing Order' is 'DRILL6 149' and the 'Scheduled Production Date' is '11/01/96'. Below this, three radio buttons are present: 'Planned Purchase' (unselected), 'Planned Assembly' (unselected), and 'Planned Operation' (selected). The 'Work Center' is 'DRILL' and the 'Drill Press' is specified. The 'Total Hours Required' is '1.625' and the 'Critical Path Error' is 'YES'. A table below shows the task details:

Task	Item to be Produced	Qty Required	Qty Made Sales Order- So Far	Line Number	Hours Task Required	Status	CP	Error?
1	R00	13.000		HPS for 8111	1.625	Plan Labor	YES	
1	R00	13.000		HPS for 8111	1.625	Plan Labor	YES	

At the bottom, there are tabs for 'Manufacturing Orders' and 'Tasks', and a button labeled 'Release Selected Tasks'.

Planned Assemblies vs. Planned Operations

The difference between a planned assembly and a planned operation is that upon completion, an assembly yields a subassembly and uses up the materials that go into it. In other words, a newly manufactured item is added to inventory and component items are deducted. These are transacted through the **Scheduled** and **Nonscheduled Assembly Transactions** windows.

An operation, on the other hand, uses only labor. No new item is produced and tracked into inventory, and no component items are used up. These transactions are recorded in the **Labor Applied to Planned Operations** window, found in the **Personnel & Labor** module.

There is one exception to this, however. At the last step of a routing operation an assembly is created, and needs to be reflected. Therefore, in these cases both a planned operation and a planned assembly

will be created in the manufacturing order. This will only happen at the last step, however.

Planned Assembly

Task	Item to be Produced	Qty Required	Qty Made Sales Order- So Far	Line Number	Hours Required	Task Status	CP Error?
1	ROD	13.000		MPS for 8111		Plan Asst	YES
2	ROD	13.000		MPS for 8111	3.250	Plan Labor	YES

Note that only the routing, or planned operation, transaction above reflects any labor. The sole purpose of the planned assembly is to reflect the usage of the raw materials and the production of the completed item. All labor in a routing is reflected in **planned operations**.

Using Routings without Production Planning

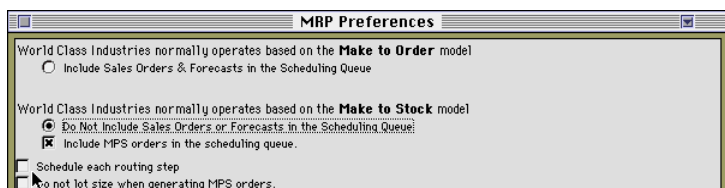
This function can also be used to help compute and document the amount of time each labor process step requires. For example, without the use of the routing list, it would require some manual calculations to determine how much time to assign to the labor function for a particular bill of material. Perhaps the assembly begins by sending a kit to the floor and then having the kit pass through several different work centers at which various labor operations are performed. In fact, the hourly rate at each work center may be different.

Without access to routing lists, the user would have to record on a separate spreadsheet which work centers apply to which BOM and how much set up and run time is expected to be used at each.

Then the value of the time spent at each labor operation would have to be computed and totaled. The total would then be entered into the work center quantity field in the BOM. The user would have to make sure that a work center record was created which showed the exact hourly value of the average time spent at the actual several labor operations.

The major drawback of this approach is that it becomes very difficult to go back to the BOM to see if the labor item and value allocations were set up correctly. Having the routing list available as part of your computerized data file allows you to maintain a record of the labor steps assigned to any BOM and to easily audit these entries after the fact.

When the routing list function is used only to record and facilitate auditing of labor tasks for each BOM, but you do not wish it to impact production planning, the **MRP Preferences Window** should be set up to not schedule each routing step prior to running production planning.



This results in planned assemblies which allocate the total time required for a BOM spent for all work centers included in the routing list, at the first work center listed. For example, in the case of the routing shown above, all of the time would be scheduled for work center CUT, because that is the first work center in the list. And the resulting transaction would be an assembly; not a planned operation. It would require relatively little data entry to record completion of the scheduled assembly.

If you decide to schedule each routing step, more data entry is required to indicate that each scheduled labor operation has been performed. However, if your business requires this much detail in its planning and job costing, then this is the proper set up for your business.

If, on the other hand, you do wish to schedule each routing step as indicated in the previous section, you must have this option checked.

Setting Up Routings

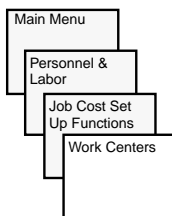
• To set up a routing BOM

1. Create a new work center called ROUTING.

The Routing Work Center

The code ROUTING must be set up in advance as a valid **Work Center Code** on the **Work Centers & Processes** window. An example is shown below. A shop floor location number must be entered (200 in the example); however, this number is not referenced so any number is okay.

Work Centers & Processes Window



Work Center Code CUT
Description/Process Cutting & shaping of foam
Job Cost Bucket

Last updated: 05/21/1998
Shop floor location # is 200
Scheduled HOURS per SHIFT is 8
Normal number of SHIFTS worked per DAY is 1
Normal number of DAYS worked per WEEK is 5
Note: This value is not used in production scheduling.
It is used only in setting up the Work Center Load Spreadsheet

Default Send-To Location 200
☒ Pull components from location 200
☐ Pull components from location 200

Average hourly rate per resource (Current)	Labor	Overhead	Total	Overhead Rate
Fifo Rate	4.00000	0.00000	4.00000	0.000 %

☐ This is a Queue Time Work Center
☐ Restrict Scheduling to Only 1 Shift/day
☐ This is the default work center (entered if user forgets to add a work center to the BOM)
Backscheduling Offset (for top level item only) 0 Days

Resources

2. Find the BOM to which the routing will apply.

Go to the **Bill of Materials** window and find the correct item. If the item does not already have a BOM, you will need to enter it.

Enter all of the items which will be used up during the entire routing procedure (often, but not always, this is only one item, such as a piece of steel. When it comes time to enter the work center record, enter ROUTING, as shown below. Leave the

quantity field blank, as it will be calculated from the routing BOM. Then click <SAVE>.

Item Code	Quantity	Loc'n	Unit	Labor Value & Overhead Value	Level	Option	Class
ROUTING	8.00000		HR	95.00000	2		
S1000	0.50000		EA	95.00000	2		

Please see routing list for steps & cost

95.00000 0.00000

BOM Comments Effectivity Dates

Load Invert Indented BOM Routing

3. Open the BOM Routing Operations window.

The **BOM Routing Operations** window is accessed from the **Bill of Materials** window, or from the **Bill of Materials** section in the **Inventory and BOM Functions** palette. View the bill of material to which the routing will apply and click the button labeled <ROUTING>.



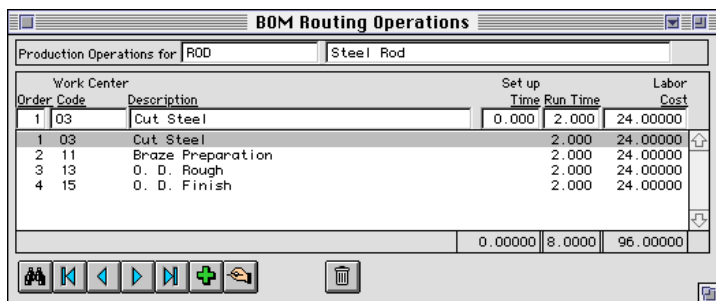
Note: If you have not entered the ROUTING item in the BOM, you will receive the following error message when you click the Routing button:

No Routing work center record was found in the BOM for 8111 FRAME. Please add that to the BOM first.

OK

4. Create the Routing BOM.

Enter data as shown here. Make sure that each step has a **Work Center Code**, **Set Up Time** (if needed), and **Run Time**. The **Labor Cost** will be derived from the work center record.



The screenshot shows the 'BOM Routing Operations' window. At the top, it says 'Production Operations for: ROD' and 'Steel Rod'. Below this is a table with columns: 'Order Code', 'Description', 'Set up Time', 'Run Time', and 'Labor Cost'. The table contains four rows of data:

Order Code	Description	Set up Time	Run Time	Labor Cost
1 03	Cut Steel	0.000	2.000	24.00000
1 03	Cut Steel		2.000	24.00000
2 11	Braze Preparation		2.000	24.00000
3 13	O. D. Rough		2.000	24.00000
4 15	O. D. Finish		2.000	24.00000
		0.00000	8.0000	96.00000

At the bottom of the window, there are several icons for navigation and saving, including a printer, back, forward, and a trash can.

Entries of the work centers in the routing list and the amount of run time entered for each work center on the list will determine the **expected cost of labor** used in the BOM and the total labor cost for the parent item. Set up time, run time and labor cost is updated in the BOM and the parent item automatically by the system after you save the record.

Totaling Time in the BOM and Item Master File

When **ROUTING** has been entered as the work center for a BOM, the **Quantity** (amount of time spent at the work center) field becomes a calculated field. Normally, the user manually enters this number. But in this case, the system is being notified that more than one work center will be referenced in the **routing list**. The total amount of time entered for each work center in the routing list will be used to edit the quantity applied to quantity field in the BOM.

The value of time for each work center referenced in the routing list may be different (i.e., one work center in the list may be a \$10/hour work center; another may be a \$25/hour work center). Qube ERP™ will calculate the extended value of the time spent at each work center and total both the amount of time and the value of the time at each labor step. The extended value of the time spent at work centers in the routing list will be copied into the BOM list. The result is that the

quantity and value information in the three levels of records (routing list, BOM and Item Master File) will be consistent.

Processing Time

The routing list makes it possible to set up processing time in the Qube ERP™ data file. An example of processing time might be paint drying. You know that an item has to dry for 36 hours; however, it does not require any labor, and no capacity constraints are involved.

To use this function to establish processing time, set up a work center which describes the process taking place. It may also be scheduled to take place at a location. In this case, we set up a work center called paint drying at location 600:

Work Center Rate & Capacity

Work Center Code: DRY
 Description: Paint Drying

Last updated..... 11/25/96
 Shop floor location # is 600
 Scheduled HOURS per SHIFT is 0
 Normal number of SHIFTS worked per DAY is 0
 Normal number of DAYS worked per WEEK is 0

Next, enter the item in a routing, and show only **set up** time (no **run** time).

BOM Routing Operations

Production Operations for: ROD Rod - Steel, finished for chairs

Order Code	Work Center	Description	Set up Time	Run Time	Labor Cost
1	CUT	Cutting & shaping of foam	0.000	0.002	0.06720
2	METLATH	Metal Lathe	0.100	0.125	1.50000
3	DRILL	Drill Press		0.125	1.20000
4	WELD	Welding		0.250	3.00000
5	DRY	Paint Drying	36.000		
			36.10000	0.5020	5.76720

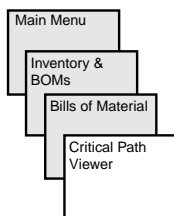
Now when production planning is scheduling this item, it will know that it has to sit at work center **DRY** for 36 hours prior to moving on. And, because it uses no run time, no capacity constraints will be applied.

Routing List Reports

A routing list can be printed one at a time by viewing the routing list and pressing <CTRL/COMMAND-P>. Or you can select **Flat Routing Sheet** from the **Bill of Materials** reports list.

Bills of Materials Reports	
Flat	Flat BOM Showing Costs
Flat	Flat BOM Showing No Costs
Flat	BOM Components Scheduled to Expire
Flat	Routing Sheet
Indented	Indented Bill of Material
Indented	Routing Sheet
Where Used	Not Used report (items not found in any BOM's)

Critical Path Viewer



The critical path of an indented bill of materials is that combination of related steps which takes the longest to perform. The accumulated time to perform these interdependent steps is the time required to build the parent assembly, under conditions of zero inventory, no outstanding purchase orders and no outstanding manufacturing orders. The critical path, therefore, provides a logical starting point for forward scheduling. (For more information about forward scheduling, see [“Forward Scheduling” on page PLAN-92.](#))

In fact, there may be many paths in the BOM in which the time required to perform all purchases and assemblies is identical. There does not have to be only one critical path.

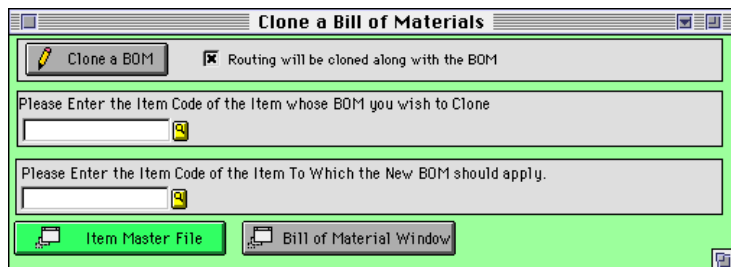
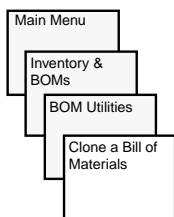
With many bills of material, determining the critical path is not simple. This BOM contains over 600 components and indents to 17 levels. What are the elements of its critical path(s)?

Bill of Material			
C1D2705A4		CAMERA, 2705A4	
		Drawing	
Item Code	Quantity	Loc'n	Unit
DHG	0.00000	10	EA
DHG	10		EA
A9387G1	1.00000	12	EA
DHG	01		EA
A9357P03	2.00000	02	EA
A9331P09	14.00000	03	EA
A9323P15	1.00000	04	EA
A9331P13	15.00000	05	EA
A9333P04	1.00000	06	EA
A9359P12	1.00000	07	EA
A9359P10	1.00000	08	EA
A9375P03	1.00000	09	EA
C3145P1	1.00000	15	EA
C3145P5	1.00000		EA
A9357P03	1.00000		EA
A9331P09	4.00000		EA
A9375P01	16		EA
C1D2705A4/F	1.00000		EA
C1D2705A4/B1	1.00000		EA
C1D2705A4/B	1.00000		EA
D9214G4/K	1.00000		EA
DHG	01		EA
C3141P1	1.00000	05	EA
C3141P1/FD	1.00000		EA
C3141P1/I	1.00000		EA
C3141P1/HD	1.00000		EA
C3030P1	0.33000		LF
QC1	0.05000		EA
QC1	0.02000		EA
A9319P03	4.00000	05	EA
A9319P40	4.00000	07	EA
B9161G3	1.00000	10	EA
B9161G3/T	1.00000		EA
B9161G3/S	1.00000		EA
B9161G3/K	1.00000		EA
B9162P1	1.00000	16	EA
A9319P81	200.00000	18	EA
B9237P471J	1.00000	R01	EA
B9237P471J	1.00000	R02	EA

Qube ERP™ provides a window which allows you to view the critical path of any bill of material. Here's the same bill of material seen from the **Critical Path View window**, showing clearly what the elements of its critical path are and how much time is required to complete all steps in the path.

Critical Path Viewer									
CID2705A4		CAMERA, 2705A4							
BOM	Item Code	Critical Path	Quantity	Unit	Assy./Lead Time (In Days)	Time from Here	Longest Sub-Part Time	Level	
	CID2705A4		1.00000	EA			282.587	1	
	CID2705A4/F		1.00000	EA	0.489	0.489	282.587	2	
	. CID2705A4/B1		1.00000	EA	30.000	30.489	282.587	3	
	. . CID2705A4/B		1.00000	EA	0.042	30.531	282.587	4	
	. . . D9214G4/K		1.00000	EA	0.013	30.543	282.587	5	
	. . . . B9161G3		1.00000	EA		30.543	282.587	6	
	. . . . . B9161G3/T		1.00000	EA	0.031	30.575	282.587	7	
	. . . . . B9161G3/S		1.00000	EA	42.000	72.575	282.587	8	
	. . . . . B9161G3/K		1.00000	EA	0.013	72.587	282.587	9	
	. . . . . A9315P0		1.00000	EA	210.000	282.587	282.587	10	

BOM Utilities



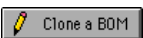
Clone a BOM

This function enables you to create a BOM for an item which does not yet have a BOM by copying the BOM from another item. Using this function, you can find an item similar to the one you are creating, copy the BOM contents of that item into the new item, and make a few changes. Often a few changes in an existing BOM are easier to enter than a new bill of material from scratch.

This function is also handy for making BOM revisions when you wish to preserve the old revision along with the new. In these cases you would need to attach the revision numbers to the item code. We will see how to manage this in a later section.

When you clone a BOM, the **Component Item** notes will copy to the new BOM, but the **BOM Header** comments won't. This is because BOM header comments are part of the **Item Master File** record and are not affected by a **Clone BOM** procedure.

•To clone a BOM

1. Click the button, .
2. Enter the Item Code of the item whose BOM you wish to clone into the top item code field. You may use the Pop-Up or Reference List functions to locate the item code. Then press <TAB>.
3. Enter the Item Code of the item to which you wish to clone the BOM contents. You may use

the **Pop-Up or Reference List** functions to locate the item code. Then press **<TAB>**.

If this item already has a BOM, the following message will be displayed:

The item you selected already has a BOM. Add the new BOM onto it?	NO
	YES


If you click **<YES>**, you may proceed. If you click **<NO>**, the function will return you to the lower field to add a new item number. Proceeding will add the contents of the cloned BOM to the existing contents of the target BOM.

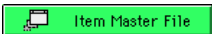
- If the BOM being cloned has a routing BOM, you may wish to clone that as well. If so, check this box:**

☒ Routing will be cloned along with the BOM

Otherwise, leave the box unchecked.

- Click the *SAVE* button.**

To view the new BOM, click the button, .

To view the new item, click the button, .

Managing Revisions Using the Clone a BOM Function

While Qube ERP™ doesn't really manage revisions, there is a workaround which works fairly well. It combines the ability to clone a BOM, and change item codes.

•To change a revision for item 9111

- Create a new item called 9111, Rev B (or whatever).**
- Use the Clone a BOM function to copy the contents of 9111 into 9111 Rev B.**

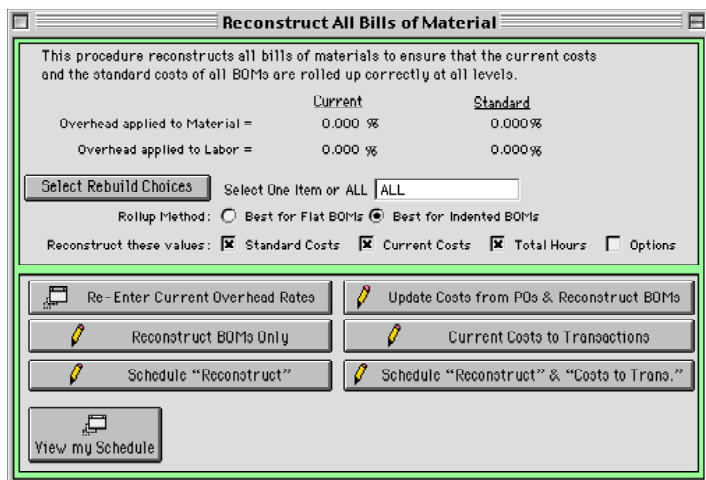
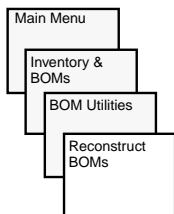
3. In the item master file, change the item code of 9111 to 9111 Rev A (or whatever).

The function will automatically sweep through all of the instances of 9111 and change them to 9111 Rev A. This will be true for all sales orders, inventory transactions, etc.

4. Edit the BOM for 9111 Rev B to make any changes you wish to include.

After doing so, you may change this item code back to 9111, or leave it at 9111 Rev B.

Reconstruct BOMs



Qube ERP™ allows costs for selected items to be manually edited without rolling up these costs through all levels of the BOMs. This is useful when it is necessary to edit the unit costs for many items and the user prefers to roll up the cost change for all items only once, rather than doing it individually for each changed item.

Note that if you have Option Selection installed, the number of options within assemblies will directly affect how long the Reconstruct BOMs procedure takes. The options need to be rebuilt for every assembly, so a datafile with a large number of options may take hours.

Before Starting to Reconstruct BOMs

1. **Back up your data file.**
2. **Log all other users off the system.**
3. **Print an Inventory by Item Code at Standard Cost report.**



Reconstruction of bills of material is a lengthy process and should never be interrupted. If the process is interrupted, immediately revert to your backup data file. If you did not have a backup data file, contact QCI technical support immediately before proceeding with your data file.

Window Buttons

Select Rebuild Choices

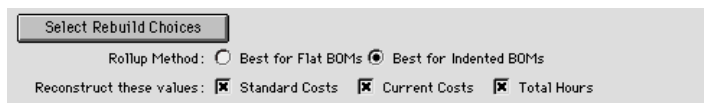
Rollup Method

[Radio button selections] If you have many indented BOMs in your data file, you should choose the selection, **Best for Indented BOMs**. If, on the other hand, your data file is comprised of mostly flat BOMs, the **Best for Flat BOMs** selection will work better for you.

Reconstruct these values

Standard Costs

[Check box selection] This selection will only be visible if you have access to the **Inventory Standard Costs** window. If you have this access, this section of the window will look like this:



Select Rebuild Choices

Rollup Method: ☐ Best for Flat BOMs ☒ Best for Indented BOMs

Reconstruct these values: ☒ Standard Costs ☒ Current Costs ☒ Total Hours

If you do not, this section of the window will look like this:



Select Rebuild Choices

Rollup Method: ☐ Best for Flat BOMs ☒ Best for Indented BOMs

Reconstruct these values: ☐ Standard Costs ☒ Current Costs ☒ Total Hours

An Important Word About Standard Costs

You may check both standard and current costs, and Qube ERP™ will roll up both standard and current costs for all items in the **Item Master File**. When selecting this function, remember that if the standard costs change in your inventory, your inventory value changes, and may disagree with the value reflected in your general ledger, unless you enter an adjusting journal entry.

If you are managing your standard costs as prescribed in the **Inventory Standard Costs** section of this manual, this should cause you no difficulty, except possibly if you are using the **Effectivity Dating** function.

How can this happen? If you have items which are set to expire in BOMs, and other items set to be activated, and roll up the standard

costs of your bills of material, it is entirely possible that the standard costs of the assemblies in which those items appear (or disappear) might change. Then, again, the value of the inventory you have in stock will change.

Managing Standard Cost Rollups & Effectivity Dating

1. **Use User Access Privileges to provide access to the Inventory Standard Costs and BOM Reconstruct functions to only those users who understand the full implications of both.**
2. **Immediately before running the Reconstruct BOMs function, print an Inventory by Item Code at Standard Cost report.**

Make sure you print the report for all items, and make sure the effectivity date range accounts for the changes that will impact the BOM rollup you are about to conduct. In other words, you would want to include only those items which are in effect just prior to the BOM rollup function.

3. **Run the Reconstruct BOMs functions.**
4. **Immediately after running the reconstruct BOMs function, reprint the Inventory by Item Code at Standard Cost report.**

Make sure that all of the item groups, etc., which were printed before are printed again. Also be sure that the effectivity dates reflect those items which are now in effect since the BOM reconstruction.

5. **Compare the total inventory values of the two standard cost reports.**
6. **If there was a difference in your total inventory value, create a manual journal entry reflecting the difference.**

This should bring the inventory value in the GL in line with the value reflected on the inventory reports.

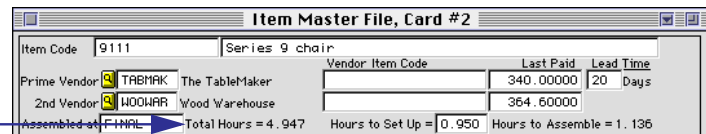
For further information, see [“Impact of Changing Standard Costs” on page GL-13.](#)

Current Costs

[Checkbox selection] If you wish to roll up current costs during the **BOM Reconstruct** function, activate this selection.

Total Hours

[Check box selection] **Item Master File, Card #2** provides a display field, **Total Hours**:



Item Master File, Card #2			
Item Code	9111	Series	9 chair
Prime Vendor	TABMAK	The TableMaker	
2nd Vendor	WOODHAR	Wood Warehouse	
Assembled at	FHRL	Total Hours =	4.947
		Hours to Set Up =	0.950
		Hours to Assemble =	1.136

Making this (**Current Cost Rollup**) selection will roll up the values and update this field as well. Not selecting the function will leave this field unaffected.

In order to make any of these choices, click the **SELECT ROLLUP METHOD** button. Click on your preferences, and then click **SAVE**.

Re-Enter Current Overhead Rates

You may use these fields to set up material and labor overhead rates at current costs. Standard overhead rates are set up on the **Inventory Standard Costs** window, found on the **General Ledger** functions palette.

To establish your current overhead rates, click the button, **<RE-ENTER CURRENT OVERHEAD RATES>**. Enter the appropriate rate for each cost component, and click **<SAVE>**. When you run the BOM reconstruction process, the current cost overhead rates will be calculated.

Update Costs from POs & Reconstruct BOMs

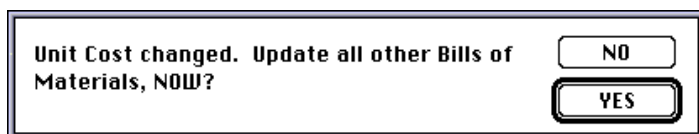
When Qube ERP™ values your inventory, it is based either on current or standard costs (Note: in the general ledger, inventory is always valued at standard. Current costs are the costs stored on the inventory master file, card #1, and are used in various reports, etc. *For more information, see **Inventory Standard Costs in the General Ledger** section of this manual.*)

This function provides the ability to read the most recent purchased cost for each item, copy it into the current cost field, and reconstruct the BOMs based on these costs, all in one routine. This process can take a long time, so it is important to run it when you have enough time to complete the process. Aborting the BOM reconstruct process before it is complete can be problematic.

Reconstruct BOMs Only

If you make a cost change in a component part which exists in bills of material, this cost change will impact all of those items in which it is used. In order for this cost change to be reflected in those assemblies, you must reconstruct the bills of material, which recalculates the cost of all items based on the costs of the items within them.

Qube ERP™ provides the choice to run this procedure any time you make a cost change that impacts other items. This is accessed from the item master file window when a cost change is made. The following dialog box is presented:



This can be a very handy way to quickly reconstruct the costs of a few items when making only a few cost changes.

However, when you need to make several cost changes, this method can be very clumsy, particularly when you have components which appear in many bills of material. In these cases you would probably wish to delay the reconstruction of the bills of material until you could do them all at once.

This **Reconstruct BOMs Only** function provides this ability. It will reconstruct the costs in your bills of material, based on your existing current and standard costs.

This particular function will reconstruct the bills of material of all assemblies in the item master file. It bases its calculations on the values

set in your inventory item master file, and will impact both standard and current costs.



Note: After the BOM reconstruction process is complete, current and standard costs are still likely to be different for each item. This function does not match the two, it only ensures that all bills of material reflect accurately the current and standard costs of their components.

Current Costs to Transactions

After reconstructing bills of material, you may wish to copy the new costs to unposted inventory transactions. Then, when those transactions are posted to the general ledger, the new current costs will be stored in the transaction to provide you with an accurate current/standard cost comparison and current job cost information at the time of posting.

This procedure impacts only the current cost of each inventory transaction. Standard costs are managed from the Inventory Standard Cost window in the General Ledger module. Therefore, no general ledger accounts will be impacted; this information is provided for informational and job cost purposes only.

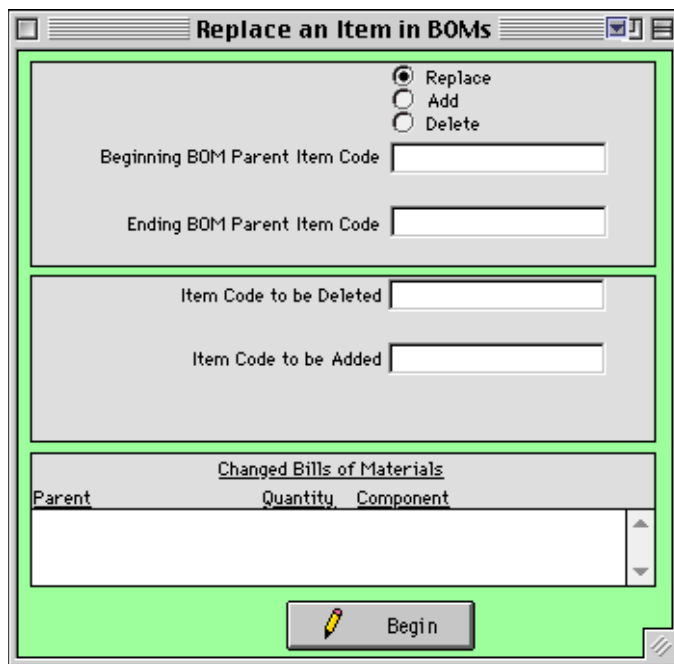
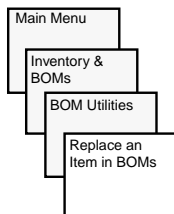
Schedule “Reconstruct”

Clicking this button activates the **Scheduled Events Manager** function, and allows your schedule the **Reconstruct BOMs Only** function. For information on how to use this function, see [“Scheduled Events Manager” on page GEN-47](#).

Schedule “Reconstruct” & “Costs to Trans”

Clicking this button activates the **Scheduled Events Manager** function, and allows your schedule the Reconstruct BOMs and the **Current Costs to Transactions** functions. For information on using this function, see [“Scheduled Events Manager” on page GEN-47](#).

(Global Search & Replace an Item in BOMs



The screenshot shows a software window titled "Replace an Item in BOMs". It contains three main sections. The top section has three radio buttons: "Replace" (selected), "Add", and "Delete". Below these are two text input fields labeled "Beginning BOM Parent Item Code" and "Ending BOM Parent Item Code". The middle section has two more text input fields labeled "Item Code to be Deleted" and "Item Code to be Added". The bottom section is titled "Changed Bills of Materials" and contains a table with columns "Parent", "Quantity", and "Component". The table is currently empty. At the bottom right of the window is a "Begin" button with a pencil icon.

This function provides the ability to change all instances of an item in all bills of material (global search and replace). You may choose to replace, add, or delete an item.

• To replace an item in a BOM

1. Click **<BEGIN>**.
2. Type the Item Code of the item you wish to remove from all of the BOMs in which it appears, and press **<TAB>**.
3. Type the Item Code of the item which will replace the item being deleted.

4. Click <SAVE>.

Qube ERP™ will display a message to confirm the replacement:



Replace component 26-1002-8882-3 with component 26-1002-9686-7 in all BOMs whose parent item falls within the range of 78-8026-6069-2 - 78-8026-6093-20?

If you click <YES>, the function will find all occurrences of the item being deleted and replace it with the new item number. It will then roll up all impacted bills of material for any cost differences which might have occurred, and change the current costs of all impacted items.



Note: Because this function may take a long time to run, you may wish to run it only when you have time to allow your system to run unattended.

After the transaction is complete, the window will display the results of the transaction:

☐
Replace an Item in BOMs
☑ ☒ ☒

☒ Replace
☐ Add
☐ Delete

Beginning BOM Parent Item Code
78-8026-6063-2

PC,FAB,ENCODE-DECODE,REV

Ending BOM Parent Item Code
78-8026-6069-2A

PCB ASSY, ENCODE/DECODE

Item Code to be Deleted
26-1002-8882-3

CAP, 33 pf, 10%, 50V, CER

Item Code to be Added
26-1002-9686-7

RES, 68 Ohm, 5%, 1/4W, CF

Changed Bills of Materials		
Parent	Quantity	Component
78-8026-6069-2	1.000000	26-1002-9686-7
78-8026-6069-2A	1.000000	26-1002-9686-7

⬆
⬇
⬇

You may double-click on any line in the **Changed Bills of Materials** list to drill down to the BOM and perform additional editing, or you may press <CMD-P> or <CTRL-P> to print the list.

• To delete an item from a BOM

1. Click <BEGIN>.
2. Type the Item Code of the item you wish to remove from all of the BOMs in which it appears, and press <TAB>.

3. Click <SAVE>.

The following window will appear:

☐
Replace an Item in BOMs
☑ ☐ ☐

☐ Replace
☐ Add
☒ Delete

Beginning BOM Parent Item Code 78-8026-6069-2
PCB ASSY, ENCODE/DECODE

Ending BOM Parent Item Code 78-8026-6093-2D
PCB ASSY, SERVO CONTROL,

Item Code to be Deleted 78-8026-6067-6
PC,FAB,ENCODE-DECODE,REV

Changed Bills of Materials

Parent	Quantity	Component	
78-8026-6069-2	2.000000	78-8026-6067-6	↑
78-8026-6069-2A	2.000000	78-8026-6067-6	
78-8026-6093-2	2.000000	78-8026-6067-6	
78-8026-6093-2D	2.000000	78-8026-6067-6	↓

Note that the **Item Code to be Added** field no longer appears.

• To add an item to a BOM

1. Click <BEGIN>.

2. Type the Item Code of the item you wish to add to the BOM, and press <TAB>.

3. Click <SAVE>.

The following window will appear:

☐
Replace an Item in BOMs
☑ ☐ ☐

☐ Replace
☒ Add
☐ Delete

Beginning BOM Parent Item Code 78-8026-6069-2
PCB ASSY, ENCODE/DECODE

Ending BOM Parent Item Code 78-8026-6093-2D
PCB ASSY, SERVO CONTROL,

Item Code to be Added 78-8026-6067-6
PC,FAB,ENCODE-DECODE,REV

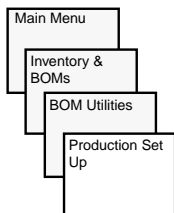
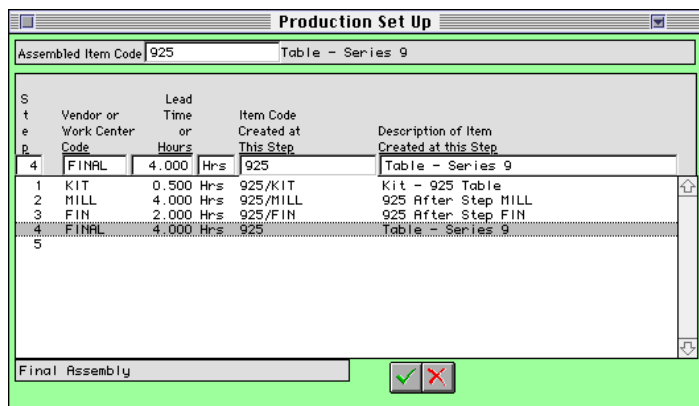
Default Quantity 3.00000

Changed Bills of Materials

Parent	Quantity	Component	
78-8026-6069-2	3.00000	78-8026-6067-6	↑
78-8026-6069-2A	3.00000	78-8026-6067-6	□
78-8026-6093-2	3.00000	78-8026-6067-6	□
78-8026-6093-2D	3.00000	78-8026-6067-6	↓

Note that the **Item Code to be Deleted** field no longer appears, and that a field now appears that displays the **Default Quantity**.

Production Set Up

Production Set Up

Assembled Item Code: 925 Table - Series 9

Step	Vendor or Work Center Code	Lead Time or Hours	Item Code Created at This Step	Description of Item Created at this Step
4	FINAL	4.000 Hrs	925	Table - Series 9
1	KIT	0.500 Hrs	925/KIT	Kit - 925 Table
2	MILL	4.000 Hrs	925/MILL	925 After Step MILL
3	FIN	2.000 Hrs	925/FIN	925 After Step FIN
4	FINAL	4.000 Hrs	925	Table - Series 9
5				

Final Assembly

✓ ✗

Two Types of Routings

As noted earlier, the system provides two ways of establishing routings. One is to set up separate routings for each job, as covered in [“Routing Lists” on page BOM-21](#). The second is to apply work centers directly to BOMs. The results of this type of set up in the manufacturing process is to create actual assemblies after each production step. This is important when assemblies are being made to stock.

Production Setup

The Production Set Up function is designed to automate the second of these two choices. It avoids the time-consuming process of entering every subassembly and BOM from the beginning through the end of the process. It is used to create intermediate inventory item codes and bills of materials to allow all steps in the production process to be created in one step.

The above screen represents a series of steps which might be required in the complete assembly of 925.

• To use production setup

1. Enter the bottom-level and top-level assemblies in the item master file.

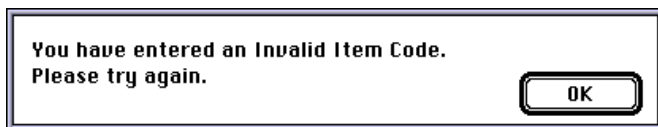
For the automated production set up function to work correctly, both the bottom-level assembly (usually the kit) plus its bill of

material and the top-level assembly should be created in the Item Master File. Then all intermediate subassemblies can be created using the production set up function.

If you do not set up the bottom level item and its bill of materials first, the top level item will show no material cost. Then you will have to go back and create a BOM for the bottom level item and roll the cost impact of that up through all levels. This can be avoided by creating the bottom level item and its BOM before using the production set up function.

2. **Open the Production Set Up window.**
3. **Click <NEW>, and enter the Item Code of the top-level assembly in the Assembled Item Code field, and press <TAB>.**

If you enter an incorrect item code, the following message will be returned:



At this point, you will need to enter the correct item code, or if you have not already done so, return to the item master file and enter it into the system.

If you have entered a valid item code, you will now be in the field labeled **Step 1**.

4. **Press <TAB>, and enter the Vendor Code or Work Center Code for the first step.**

If the item is a subcontracted, or “outworked” part, you will need to enter a vendor code. Otherwise, enter the work center code for the first step of the operation. If the first item is a kit, then you would enter the area where the item is kitted, as shown in the example above.

5. <TAB> into the Lead Time or Hours field.

As the cursor enters the **Lead Time or Hours** field, the balance of the fields in the data entry line will be populated with the system's "best guess." Enter the number of hours if this is a work center; the number of days if it is a vendor.

6. <TAB> into the Item Code field.

This field will contain an item code which is generated by the system. If you have already created the bottom level item, perhaps a "kit," change this item code to reflect the proper item code of the item being included in the assembly. If you have not, you may use the system generated code, or use another, more appropriate code.

7. <TAB> into the Description field.

Again, the system has either generated a description, or pulled one from the item master file. You may change this field.

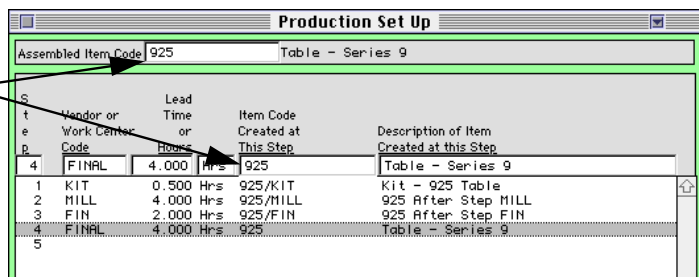
8. Continue entering each step in the operation.

Continue this process for each step in the operation, *until you get to the step for the final assembly*. Make sure you enter a work center, hours, etc., for each step of the operation.

9. Enter the top level assembly.

This is different from the other items in the list, because you will need to enter the item code which you entered at the beginning of this process.

These codes need to match



Step	Work Center or Vendor Code	Lead Time or Hours	Item Code Created at This Step	Description of Item Created at this Step
4	FINAL	4.000 Hrs	925	Table - Series 9
1	KIT	0.500 Hrs	925/KIT	Kit - 925 Table
2	MILL	4.000 Hrs	925/MILL	925 After Step MILL
3	FIN	2.000 Hrs	925/FIN	925 After Step FIN
4	FINAL	4.000 Hrs	925	Table - Series 9
5				

10. Click <SAVE>.

The function will generate any intermediate items in the item master file, and tie each bill of material together.

Validation of Item Codes, Work Center Codes and Vendor Codes

Codes entered into the **Work Center /Vendor Code** field will cause the system to first look up the code to see if it represents a work center. If none is found, it will look for a vendor having that code. If none is found again, a message will be displayed indicating that an invalid code was entered.

You have entered an Invalid Work Center or Vendor Code. Try again.

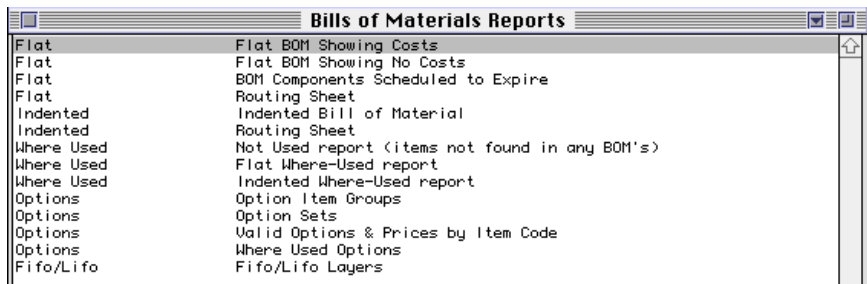
OK

Lead Time or Hours

The lead time entered for subcontractors must be done in whole integers, while the hours required for assembly at a work station can be entered in up to three decimal places. If, therefore, you enter a non-integer when referencing a step which goes out to a subcontractor, the system will change your entry to a whole integer. Note that all lead time is done in days, so that it is consistent.

BOM Reports

The system offers a complete set of BOM reports which can be accessed by selecting Bill of Material Reports from the Inventory Reports sub-menu:



Bills of Materials Reports	
Flat	Flat BOM Showing Costs
Flat	Flat BOM Showing No Costs
Flat	BOM Components Scheduled to Expire
Flat	Routing Sheet
Indented	Indented Bill of Material
Indented	Routing Sheet
Where Used	Not Used report (items not found in any BOM's)
Where Used	Flat Where-Used report
Where Used	Indented Where-Used report
Options	Option Item Groups
Options	Option Sets
Options	Valid Options & Prices by Item Code
Options	Where Used Options
Fifo/Lifo	Fifo/Lifo Layers

BOMs and kits lists can be printed flat or indented based on any effectivity date range. Selecting to print any of these BOM reports will display a parameter set (in addition to the other report parameters) which allows the user to specify the effectivity date range to be printed, as seen below:

Enter Selection Parameters or Click Cancel.

Please Enter Beginning Effectivity Date 11/25/96
Please Enter Ending Effectivity Date 11/25/96

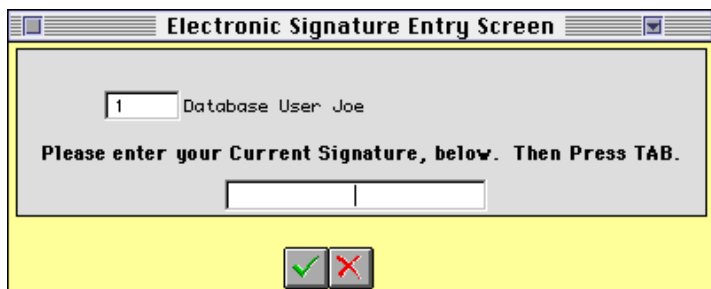
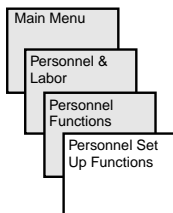
A report is also provided to enable the user to find out in advance which BOM components are scheduled to expire within any set date range. This is found in the BOM Reports list.

Kit Indented BOM

This report is found in the **MRP Reports** section and allows the user to enter a list of items needed to assemble and have Qube ERP™ print an indented bill of material for each, multiplying the quantity required to assemble one times the number of units the user has specified. The output can be used by the stockroom to prepare kits for distribution to the shop floor just prior to the assembly of the items. The output may be prepared either as a normal report or in a format designed to fit on labels.

Personnel Set Up Functions

Electronic Signatures



In order to get the most from the **User Access Privileges** function, it is wise to assign each user an **Electronic Signature**. (While “electronic signature” is really just a fancy name for a password, it has been named that to distinguish it from the **Omnis7 Password** function discussed in the following section.) Each user will have both a log-on (also called the **employee**, or **user**) code and an **Electronic Signature**. This is because as time passes, you will wish to keep the employee codes the same, but you may, at regular intervals, change electronic signatures, thereby enhancing system security.

- **To assign the electronic signature for any or all users**

1. **Open the Electronic Signatures window.**
2. **Find the user record you wish to change, and then click <EDIT>.**

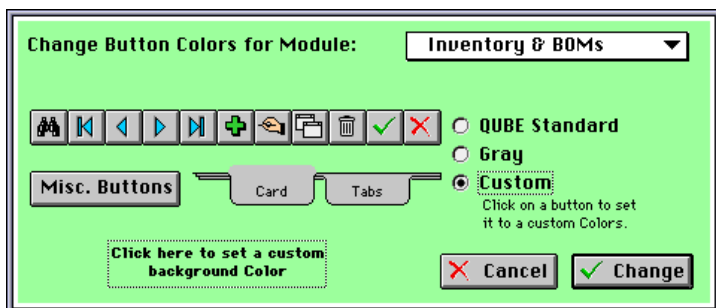
The window will ask you to enter your **Current Signature** and press <TAB>. If this is the first time you have ever done this, leave it BLANK (as this is the current signature), and press <TAB>. If you have already assigned this user a signature and are changing it, enter it now, and then, press <TAB>. The window will now appear like this:

Please enter your New Signature, below. Then click Save.

3. Enter the new Electronic Signature, and click <SAVE>.

Be very careful that you get it right, as you will not get another chance to enter it before clicking save!

My Colors

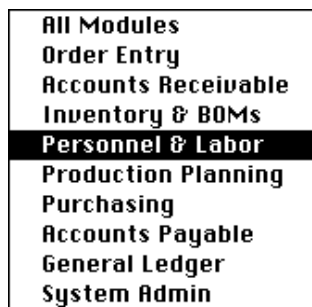


This function allows a user to customize the colors on his or her windows only.

The user can select the **Qube standard**, **all gray** (a common standard in today's software) or **custom colors** (e.g., all **delete** buttons red, all **new** buttons green, etc.)

- **To apply a custom background color selection to one module at a time or to all modules**

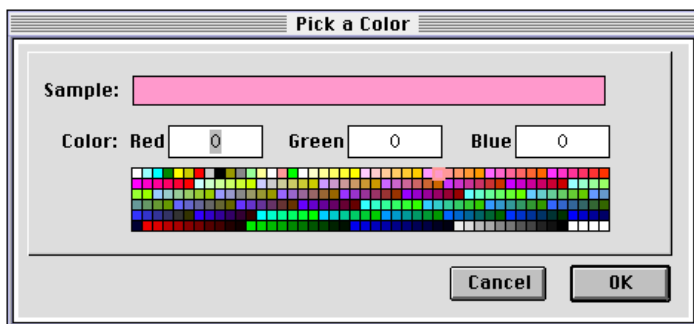
1. To select one module, click on the drop-down module menu and select the desired module.
2. To select all modules, make sure that selection is highlighted in the drop-down menu.



3. Then click on the following selection:

Click here to set a custom background Color

4. The following window will appear.

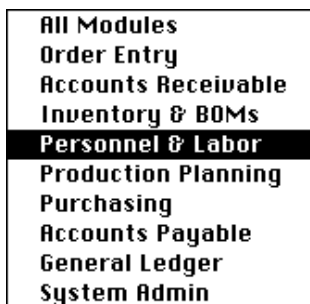


5. Select the color you wish, and click <OK>.

You may do this for each background in each module.

- **To apply Qube Standard or Gray color selections to one module or to all modules**

1. To select one module, click on the drop-down module menu and select the desired module.
2. To select all modules, make sure that selection is highlighted in the drop-down menu.



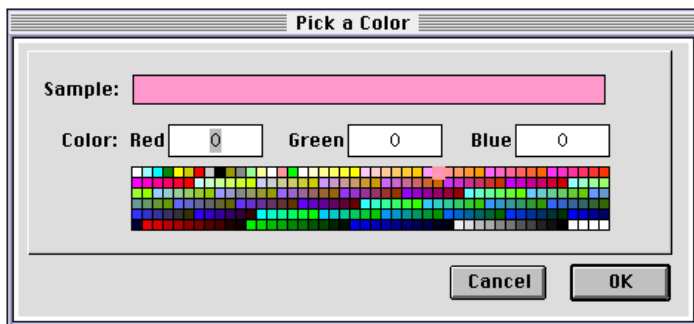
3. Then select one of the following options.



Note: The three radio buttons in the right-hand portion of the window will apply both button and background colors at the same time. Therefore, if you select Gray and then click <SAVE>, both button colors and window backgrounds will be changed to gray for whichever module you have selected.

- **To colorize specific buttons and background colors in all or specific modules**

1. Click radio button next to *CUSTOM*. Then click the button you wish to colorize. The following window will appear.



2. Select the color you wish, and click <OK>.

You may do this for each button in each module.

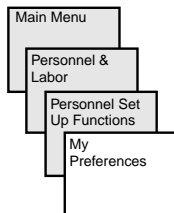
3. Click <CHANGE>.

The system will sweep through all of the windows selected and make the desired changes. This could take a little while.



The coloration will apply to each copy of the Qube ERP™ application, resident on each hard drive. If an update is delivered later, the colorize function will have to be performed again.

My Preferences



My Preferences:

Module & Help Bars:

- ☐ Display Omnis help bar on startup
- ☐ Position Module Bar at the Top
- ☐ Position Module Bar at the Right
- ☐ Show Module Bar at Startup
- ☒ Show Text in Module Bar
- ☒ Position Module Bar at the Bottom
- ☐ Position Module Bar at the Left

Reporting:

- ☒ Use large font Report window
- ☒ Keep report lists in memory after they're loaded
- Default destination for reports: ☒ Screen ☐ Printer ☐ File

Function Selection Display & Menus:

- ☐ Function descriptions are Black
- ☒ Function descriptions are Red
- ☐ Function descriptions are Green
- ☐ Function descriptions are Blue
- ☐ Function descriptions are Multi-colored

- ☒ Hide functions for which I have no viewing privileges (for shorter functions lists)
- ☒ Save lists in RAM when closing long list windows

Number of menus which may be installed on my screen

Default Display of Functions Lists:

- ☒ Summary List (Subtitles Only)
- ☐ Alphabetical List + Command Keys (No Subtitles)
- ☐ Detail List + Command Keys (Grouped with Subtitles)

- ☒ Load BOMs automatically when doing Find, Frwd, Back while viewing the BOM window.

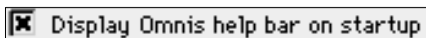
Display these lists on the Executive Information Window

<input checked="" type="checkbox"/> Booked Orders	<input checked="" type="checkbox"/> Purchases	<input checked="" type="checkbox"/> Cash Flow	<input checked="" type="checkbox"/> Production
<input checked="" type="checkbox"/> Invoiced Sales	<input checked="" type="checkbox"/> Inventory	<input checked="" type="checkbox"/> Receivables & Payables	

Apply These Preferences to Other Users

The **My Preferences** window allows the user to make decisions that directly impact the working environment of Qube ERP™. These preferences are specific to each user. The system administrator may wish to allow access to this window for each user, or it can be used by the administrator to set up preferences for various users based on their duties and knowledge of the Qube ERP™ system.

Display Omnis Help Bar on Startup



Some windows in Qube ERP™ utilize the **Omnis 7 Help Bar**. This is a bar at the bottom of the window which will display helpful comments about certain fields and buttons when the cursor is placed on top of them. This help bar looks like this:

The Customer Code may be up to 10 alpha-numeric characters (all caps). It may be automatically calculated by the system or manually.

This function has not been fully implemented, however it is available in some windows. It is not designed to be the primary help function; this **User's Guide**, the **On-Line Help** and **Task Assistant** are the primary Qube ERP™ help devices. However users might find it helpful, at least when first learning the system to activate this help bar. To activate the **Help Bar**, click the box *ON*.

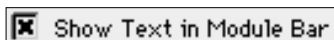
Module Bar Controls



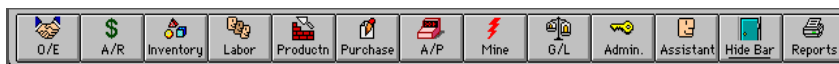
These functions allow you to determine where the **Qube ERP™ module bar** will be displayed. You can choose to display it at the top, bottom, left or right of your screen. You can also move the module bar out of its normal position; however, Omnis 7 will still take up the area where the bar resides, so this is of questionable value to the user. The module bar, as displayed at the bottom of the window, without text, looks like this:



You can also choose to have text appear in the module bar by clicking on the box:



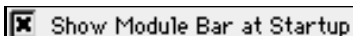
When you display the module bar with text, it looks like this:



The size of your screen and your familiarity with the system will determine where you elect to place the module bar and whether or not

to include text in it. With the addition of Tool Tips (below), this option is no longer necessary.

If you wish to have the Module Bar appear on your screen when you start the system, click the following box *ON*.

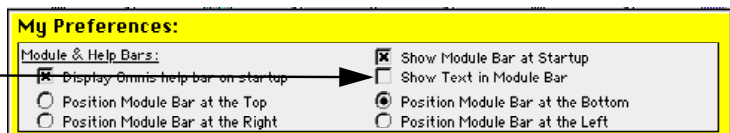


Otherwise, click it *OFF*, and the module bar will not appear until you click the <MODULE BAR> button.

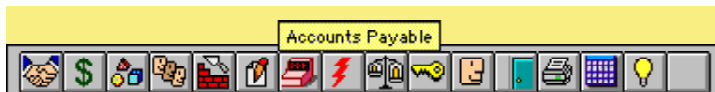
Tool Tips

Tool Tips are new in this release; when the mouse cursor pauses over a button on the **Module Bar**, a brief message displays. It is no longer necessary to use the show text option on the **My Preferences** window, and QCI recommends you leave it turned off.

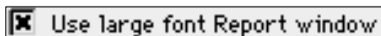
Leave this box unchecked



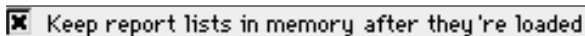
Here is an example of Tool Tips:



Printer Controls



Qube provides two views for the reports window; one a bit larger and easier to read than the other. For versions 7.35 and later, the system administrator should turn this option on for all users. This gives the windowed version of the reports parameters.



Each time the reports window is loaded, the list of reports must be regenerated. This can take a little time, especially if you have a slow network. By clicking the box **on** as shown above, you can have your

computer keep these lists in RAM once they've loaded for the first time (in each session). Thereafter, they will load much quicker when you open the reports window for those reports that you have already loaded once in the current session. The downside is that this setting takes more RAM, so if you are running Qube with a limited amount of memory, you would probably elect to turn this function off.

Default destination for reports: ☒ Screen ☐ Printer ☐ File

The selection made on the preferences window determines which selection will be defaulted on the reports window as shown here:

☒ Screen
☐ HP LaserJet
☐ File

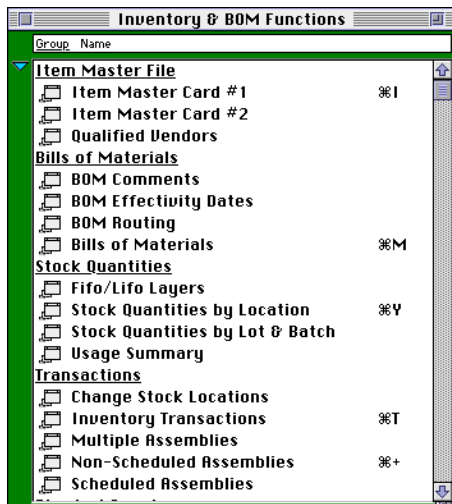
If you normally want to look at reports on the screen before printing to paper, select **screen**. If you normally print them directly to the printer, select **printer**. You can even select **file**, if you normally dump the reports to a spreadsheet format. Note that this is only the default; the selection may be changed as the report is printed.

Function Selection Display & Menus

☒ Display Function Buttons window (not the colorized list) when changing modules.

This is an old design, and should only be used by users who implemented the system prior to **January 1, 1996**. Newer users should leave this check box *OFF*. When this selection is *OFF*, the **Function**

Selection Lists will be displayed. An example of a function list is shown here:



This selection is only visible when the **Display Functions Buttons**

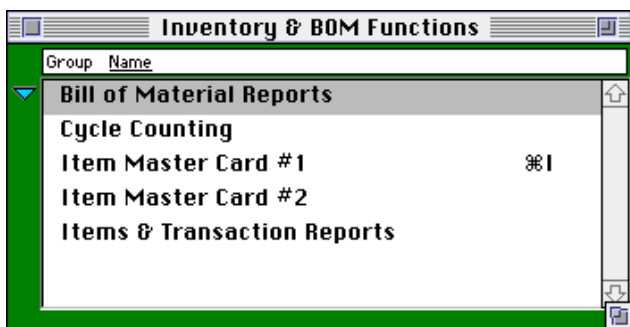
<input checked="" type="radio"/> Function descriptions are Black	<input type="radio"/> Function descriptions are Green
<input type="radio"/> Function descriptions are Red	<input type="radio"/> Function descriptions are Blue
<input type="radio"/> Function descriptions are Multi-colored	

Window selection is clicked *OFF*. This applies to the function descriptions in the Function Lists. Using colors for the descriptions can make them easier to see and read for some users. Selecting Black will cause the lists to be loaded most quickly, since coloration takes some time. The longest time is required to colorize Multicolored. This again, is a matter of personal choice.

<input checked="" type="checkbox"/> Hide functions for which I have no viewing privileges (for shorter functions lists)

This selection is only visible when the **Display Functions Buttons** **Window** selection is clicked *OFF*. This choice allows the user to view more simplified lists of functions available in each module.

For example, a user may have access to only three of the windows in the inventory module. If the **Hide Functions** box is not activated, the user will see a long list of functions, most of which he or she cannot choose to access, as shown on the previous page. If, on the other hand, this selection is activated, the functions list would be much shorter and selections easier. An example is shown here:



This choice is most effective when displaying lists by name (see below). Note that if a user does not have access to one window in any set of windows, none of the windows in that set will be displayed as available. For example, the system administrator may have selected to disallow access to the **Bill of Material** windows for a particular user. The **Bill of Material** window includes three different windows (components, comments and effectivity dates). All three windows will display in the functions list if access is allowed for the bill of material function. None of the three will be displayed if access is not allowed for the **Bill of Material** function.

☒ Save lists in RAM when closing long list windows

As with the reports lists, sometimes other lists can take a little time to load unless you have fast computers and networks. This time can be reduced dramatically by choosing this selection. Whenever you first load a list during a Qube session, you will also be loading it in RAM. Then, when you need to return to the list later, it will already be loaded, and will appear much faster. As with reports lists, there

is a memory penalty with this function, so only use it if you have plenty of RAM.

Default Display of Functions Lists:

- ☒ Summary List (Subtitles Only) ☐ Alphabetical List + Command Keys (No Subtitles)
☐ Detail List + Command Keys (Grouped with Subtitles)

Qube ERP™ allows you to display function selection lists in three different ways; subtitles only, subtitles and detail, and all detail in alphabetical order with no subheads. This selection allows you to determine the **default view** for each of these lists. If you turn on **Summary List {Subtitles Only}** and then double-click a subtitle in a function selection list, the list displays in the order that features were added to Qube, rather than in alphabetical order.

Number of menus which may be installed on my screen

2

The Qube ERP™ design allows as many modules to be open as you like. This includes the **function selection menus**. This control will determine how many of these menus can be opened at once. If you have a very large monitor, you may select four to six or more. If you are working on a smaller monitor, you will find that fewer menus may be mounted before they begin to “drop off” the edge of your screen and therefore become invisible. In these cases, it is best to limit the number to fewer menus.



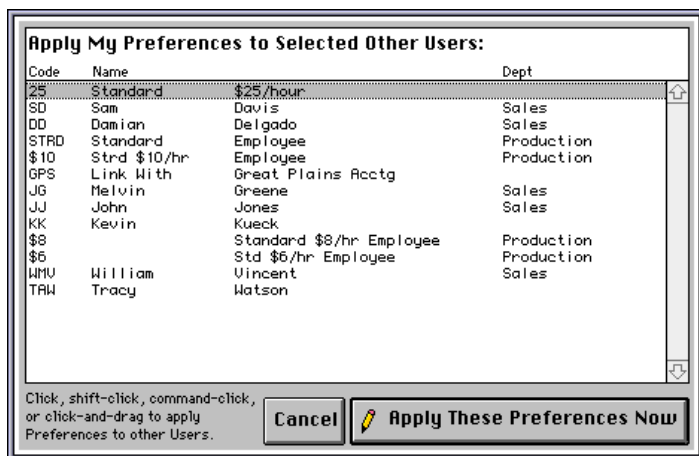
Apply These Preferences to Other Users

This function is designed to assist a system administrator in setting up users. The user access privileges list for the **Labor module** includes an option to enable or disable this function for selected users.

Function	Access Privileges			
Apply Preferences to Other Users	<input checked="" type="checkbox"/> View	<input checked="" type="checkbox"/> Add	<input checked="" type="checkbox"/> Edit or Delete	<input checked="" type="checkbox"/> Print
Apply Preferences to Other Users	YES	YES	YES	YES

If this function is disabled for a selected user, the button will not be displayed when the window is opened.

Clicking on this button will display the following window:



Apply My Preferences to Selected Other Users:

Code	Name	Dept
Z5	Standard	\$25/hour
SD	Sam	Davis
DD	Damian	Delgado
STRD	Standard	Employee
\$10	Strnd \$10/hr	Employee
GPS	Link With	Great Plains Acctg
JG	Melvin	Greene
JJ	John	Jones
KK	Kevin	Kueck
\$8		Standard \$8/hr Employee
\$6		Std \$6/hr Employee
WMU	William	Vincent
TAW	Tracy	Watson

Click, shift-click, command-click, or click-and-drag to apply Preferences to other Users.

All the system users will be displayed automatically. You can sort the users by clicking on the column heading upon which you wish to sort. Once you have the records sorted appropriately, select which users these preferences should be applied to. You may select multiple users by clicking, shift-clicking or click-dragging (for several contiguous users), and CTRL/Command-clicking (for several non-contiguous users). Once you have the users selected, click the button, **<APPLY THESE PREFERENCES>**. If you make a mistake, you may click **<CANCEL>** and start over.

Load BOMs automatically

{Check box} When this box is on (an **X** appears in it), the **Bill of Materials** window will automatically load all of the items for each bill of material when a record which has one appears in it. Bills of material can often have many items, sometimes as many as several hundred. Therefore, this automatic loading function can often take up a lot of time. When you are scrolling through BOMs or just opening the window, having to wait for many records to load can be annoying. These users would wish to have this function turned *OFF*, and then load the BOMs manually by clicking the **<LOAD>** button. On the other hand, if you have relatively few items in your flat BOMs, loading them would be very fast, and having to click the **<LOAD>** button every time may be an annoyance. If you are operating under these circumstances, you should make sure this switch is *ON*. See ["Load Indented" on page BOM-8.](#)

Personnel Functions

The following have been covered elsewhere in the documentation.
You may find these sections as follows:

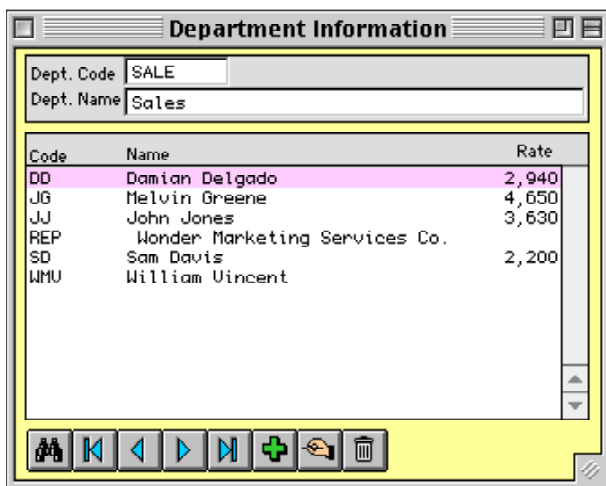
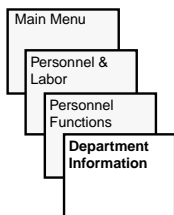
Commission Terms

See [“Managing Commissions” on page COM-10.](#)

Outside Reps

See [“Outside Reps” on page COM-3.](#)

Department Information



Code	Name	Rate
DD	Damian Delgado	2,940
JG	Melvin Greene	4,650
JJ	John Jones	3,630
REP	Wonder Marketing Services Co.	
SD	Sam Davis	2,200
WMU	William Vincent	

Use this window to set up different departments in the data file.
These departments may be used to print out reports of employees
and reps by department.

In order to use a department designation in other records, it must be
defined in this window.

Dept. Code

{Four character, All Caps} Enter the department code in this field.
This is the code which will be used elsewhere to designate each de-
partment, so use codes that are easy to remember.

Dept. Name

{Alphanumeric} Enter the department description in this field.

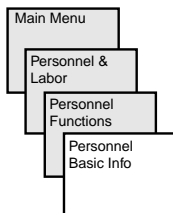
Employee List

The employees will be displayed in this list after you have entered the department designations in the employee record (see [“Department Code” on page LAB-19](#)).

•To set up a new department

1. Click **<NEW>**.
2. Enter the Dept. Code and Dept. Name.
3. Click **<SAVE>**.

Personnel Basic Information



Personnel Basic Info

Employee Code: 1

Last/First name: Database User / Samuel

Address: 1234 Dependable Data Lane

City/State/ZIP: Information City CA 90000

Telephone: 415-666-7700 Fax: 415-888-7777

G/L Sub Account: 000 For Labor Transactions Office: Title:

eMail Address: 0

Social security: 101-44-8899 Default GL Account:

Sex: M Male

Marital status: M Married Date of Hire: 01/01/1990

Date of birth: 01/01/1952 Date Terminated:

Department: ADM Administration

Entitled Vacation Days: 14 Sick Leave Days: 7

In Emergency, Contact: Helen Keller at 408-999-4444

☒ Authorized to Approve Purchase Orders

☐ Responsible for Weekly System Update

Weekly System Updates last performed on:

Comments: This is a 500 character text-wrap comment field.

Buttons: Letter, Main Card, Pay Rates, Sales Data, Commissions

The employee file uses four different windows. The above window collects & displays the most basic information about each employee.

Employee Code

{All Caps, unique } This field contains five characters. It might contain the employee's initials or payee code (from your payroll system). This is the code the employee will use to log onto the system.

Name & Address Fields

Enter the employee's name and address information into these fields.

GL Sub-Account

{Validated } Entries to this field affect how **employee time charges** are posted to the general ledger. If you have multiple payroll payable accounts, entries to this field will direct the posting to one of these accounts. If you have only one payroll payable account, you should enter 000 into this field. Additional information on sub-accounts can be found in the GL section of the manual.

Social Security

Enter the employee's Social Security number in this field.

Default GL Account

{Validated } Entries into this field impact the default GL code entered by the system when cash disbursements are created for each

employee. For example, if an employee is a sales rep who is paid primarily on commissions, his default GL account should probably be the sales commissions account. If the employee is paid primarily on salary, his default GL account should probably be a salaries and wages account.

Sex *{Validated}* Enter F or M into this field.

Marital Status *{Validated}* Enter M (married), S (single), D (divorced), W (widowed) or leave the field empty.

Date of Hire *{Valid date field}* Enter the date the employee was hired into this field.

Date of Birth *{Valid date field}* Enter the date the employee was born into this field.

Date Terminated *{Valid date field}* Enter the date the employee was terminated into this field.

Department Code *{Four characters, All Caps, Validated }* This field is four characters and may be either numbers, letters or a combination of both. The department code entered in this field must match one of the codes entered into the **Department Information** window (see [“Department Information” on page LAB-16](#)).

Entitled Vacation Days *{Numeric}* Enter the number of vacation days per year to which the employee is entitled in this field.

Sick Leave Days *{Numeric}* Enter the number of sick leave days per year to which the employee is entitled in this field.

Emergency Contact Enter the name and phone number of the person to contact in an emergency into this field.

Authorized to Approve Purchase Orders?

{Check box selection} Click in this check box if the employee has the authority to approve purchase orders. Without this field being checked, the employee will not have access to the **Approved by** or **PO Authorized Amount** fields on the **Purchase Order Header** window. In addition, the user will not be granted access to the **Approve Requisitions** window functions unless this box is checked.

Responsible for Weekly System Update?

{Check box selection} Since the weekly updates are so important in maintaining accurate data, the system allows you to select an employee who is assigned this responsibility and enter this into the computer data base. For information about the weekly update procedures, see [“Manage Regularly Scheduled Events” on page SYS-60.](#)

Weekly System Updates last performed on

{Date field} Enter the date when the system updates were last performed in this field.

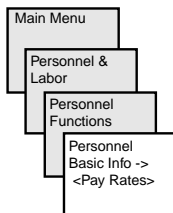
Comments

{3,000 characters, free form text} Enter any comments about the employee in this field. These comments are for informational purposes only, and are not printed on any reports.

Picture

{Picture field} You may use the cut and paste function to paste a copy of the employee's picture in this field.

Pay Rates Information



EMPLOYEES: Pay Rates Information

Employee Code: 1 Database User: Joe Date Effective: 01/01/95

Base Monthly Rate: \$ 1250.00 /Month

Additional Compensation as % of base pay:

Unemployment Insurance.....	5.00 %	\$ 62.50 /Month
Pension Plan.....	10.00 %	\$ 125.00 /Month
Payroll Tax.....	5.00 %	\$ 62.50 /Month
Workmen's Compensation.....	6.00 %	\$ 75.00 /Month
Health & Accident Insurance.....	12.00 %	\$ 150.00 /Month
Other.....	2.00 %	\$ 25.00 /Month

Total Monthly Rate.....\$ 1750.00 /Month

Hourly Rate (based on 173-hour month).....\$ 10.11561 /Hour

Main Card Pay Rates Sales Data Commissions

This window provides an area to collect and display information about employee compensation. The information collected here will impact the labor costs associated with inventory when entering **Employee Time Charges** and **Work Center Rates**.

Date Effective

{Date field} If employee time charges have been entered prior to the pay rate change having been recorded, these time charges will be charged to the job at the old rate. The user may then enter the new pay rate and enter the effective date. The function will notice that there has been a pay rate change and return the following message.

Change Unposted Time Charges 01/01/90 & later to new pay rate?

If the user clicks <YES>, the system will proceed to do this. Only unposted employee time charges will be effected, however.

Base Monthly Rate

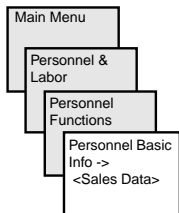
{Numeric} Enter the monthly pay rate of the employee here. If the employee is on an hourly rate, you can derive the monthly rate by multiplying the hourly rate by 173.

Additional Compensation Fields

If any additional compensation needs to be factored into this employee's pay package, enter these numbers in the fields provided. These are percentage fields, each with two decimal places. Therefore if the pension plan were five and one-half percent, you would enter 5.5 into the **Pension Plan** field.

The cumulative total of the **Base Monthly Rate** plus the additional compensation in these fields will all be added to calculate the **Total Monthly Rate** and the **Hourly Rate** in the bottom of the window. These total labor rates will then be the basis of all labor rates calculated in work centers and employee time charges.

Employee Sales Data



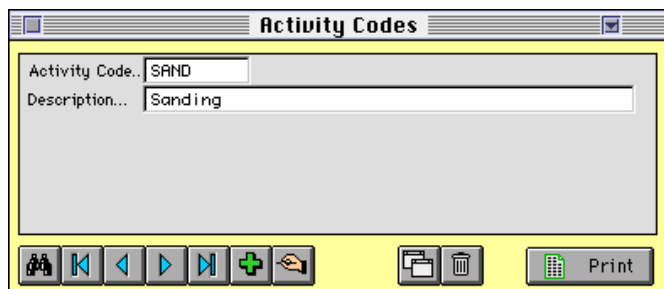
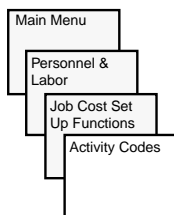
Employee Sales Data			
REP	Wonder Marketing Services Co.		
Period	Dollars Sold	# of Orders	Average Order Size
#1: 01/01/94	13862.50	1	13862.50
#2: 02/01/94	2752.18	3	917.39
#3: 03/01/94	0.00	0	0.00
#4: 04/01/94	2699.00	0	2699.00
#5: 05/01/94	0.00	0	0.00
#6: 06/01/94	3475.00	1	3475.00
#7: 07/01/94	3822.50	0	3822.50
#8: 08/01/94	0.00	0	0.00
#9: 09/01/94	0.00	-1	0.00
#10: 10/01/94	0.00	0	0.00
#11: 11/01/94	1150.00	1	1150.00
#12: 12/01/94	800.00	-1	-800.00
#13: 01/01/95	0.00	0	0.00
#14: 02/01/95	0.00	0	0.00
Totals	28561.18	4	7140.30

This window automatically tracks sales and return information on each sales rep and employee record in the data file. All of the fields are calculated display fields. You may not edit the information on this window from this window; it is calculated automatically by the system when sales orders are invoiced.

All calculations are based on accounting periods as set up in the General Ledger Calendar window. The totals reflect invoiced sales for each accounting period in the current year. Any negative numbers, as shown above, reflect returns in those accounting periods.

Job Cost Set Up Functions

Activity Codes



The screenshot shows a window titled "Activity Codes". It has two input fields: "Activity Code.." with the value "SAND" and "Description..." with the value "Sanding". Below the fields is a toolbar with icons for adding, deleting, and navigating records. A "Print" button is located at the bottom right of the window.

Use this window to establish **Activity Codes** to be used in the labor tracking windows. You can enter as many activity codes as you wish. They are used to classify the types of activities that your labor force is applying to different items at different workstations.

Window Attributes

Activity Code

{Eight characters, alphanumeric, required} Enter the code for each activity in this field. This will be the code used to reference each activity elsewhere in the system.

Description

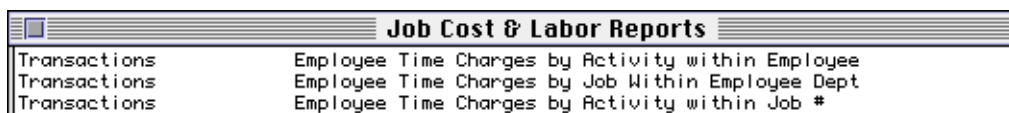
{25 characters, alphanumeric, required} Enter the description for each activity in this field.

Print

{Button} Clicking this button prints a report of all of your activity codes and their descriptions.

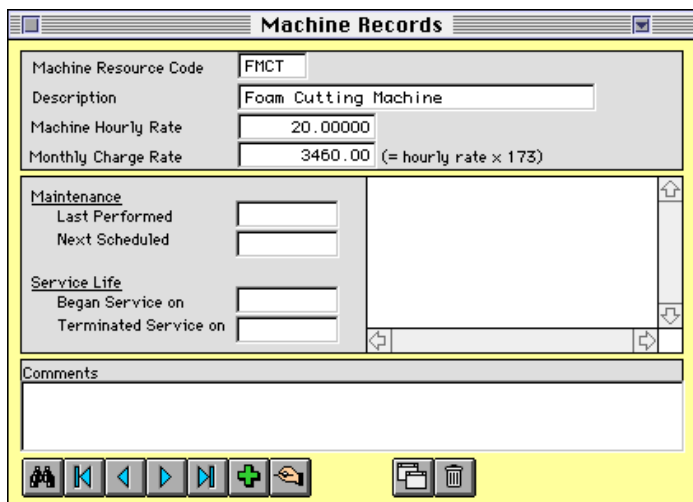
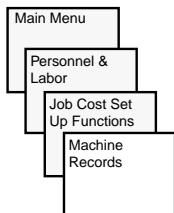
Reports

Qube ERP™ provides a couple of **Employee Time Charges by Activity** reports. These can be found in the Job Cost & Labor Reports window:



Job Cost & Labor Reports	
Transactions	Employee Time Charges by Activity within Employee
Transactions	Employee Time Charges by Job Within Employee Dept
Transactions	Employee Time Charges by Activity within Job #

Machine Records



The screenshot shows a 'Machine Records' window with the following fields and sections:

- Machine Resource Code:** FMCT
- Description:** Foam Cutting Machine
- Machine Hourly Rate:** 20.00000
- Monthly Charge Rate:** 3460.00 (= hourly rate x 173)
- Maintenance:**
 - Last Performed: []
 - Next Scheduled: []
- Service Life:**
 - Began Service on: []
 - Terminated Service on: []
- Comments:** []

At the bottom, there is a toolbar with icons for a machine, navigation arrows, a plus sign, a hand, a folder, and a trash can.

You may enter codes and descriptions of machines which may be used as resources in **Work Center Records**, in much the same way that personnel records can. Each machine can be assigned a service life, some maintenance information, and a machine rate for costing purposes. The latter is the most significant purpose of this window.

Window Attributes

Machine Resource Code

{Five characters, alphanumeric, required} Enter the code for each machine record in this field. This will be the code used to reference each machine elsewhere in the system.

Description

{35 characters, alphanumeric} Enter the description for each machine record in this field.

Machine Hourly Rate

{Calculated, numeric} Enter the hourly rate you wish to apply to each machine in this field. If you enter a value in this field, this value will be multiplied by 173 and that value will be inserted in the **Monthly Charge** field below. If you prefer to enter a monthly charge and have the value of this field calculated, you may do so.

Monthly Charge Rate

See Machine Hourly Rate, above.

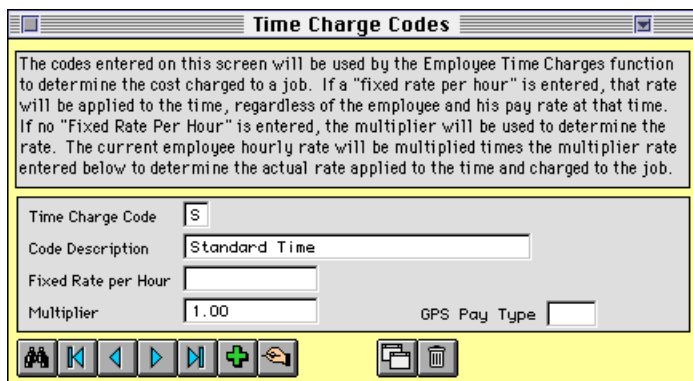
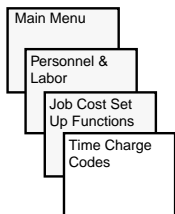
Maintenance

{Two fields, date formats} Enter the date maintenance was **Last Performed**, and the date when it is **Next Scheduled**.

Service Life

{Two fields, date formats} Enter the date when the machine was introduced into service, and when it was taken out of service (if no longer available). These dates will not impact machine cost or availability in the work centers.

Time Charge Codes



The screenshot shows a window titled "Time Charge Codes". It contains a text box with instructions: "The codes entered on this screen will be used by the Employee Time Charges function to determine the cost charged to a job. If a 'fixed rate per hour' is entered, that rate will be applied to the time, regardless of the employee and his pay rate at that time. If no 'Fixed Rate Per Hour' is entered, the multiplier will be used to determine the rate. The current employee hourly rate will be multiplied times the multiplier rate entered below to determine the actual rate applied to the time and charged to the job." Below the text box are several input fields: "Time Charge Code" with the value "S", "Code Description" with the value "Standard Time", "Fixed Rate per Hour" (empty), "Multiplier" with the value "1.00", and "GPS Pay Type" (empty). At the bottom of the window is a toolbar with icons for back, forward, search, and other functions.

This window is used to enter **Time Charge Codes**, which must be created by the user before entering labor transactions. The records entered will be used by the **Employee Time Charges** function to determine the cost charged to a job.

Time Charge Code

{1 character, alphanumeric, required} Enter the code you will use to identify time charges in this field. Some codes which you may wish to use are suggested:

“S” (Straight time)

“O” (Overtime)

“D” (Double time)

“V” (Vacation time)

“K” (SicK time)

“H” (Company Holiday time)

Code Description

{35 characters, alphanumeric, required} Enter a description for each code in this field.

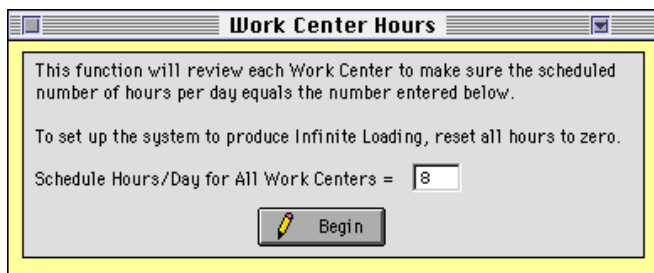
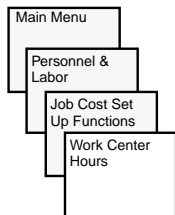
Fixed Rate per Hour

{Numeric, optional} If a **Fixed Rate per Hour** is entered, that rate will be applied to the time, regardless of the employee and his pay rate at that time. If no **Fixed Rate Per Hour** is entered, the **Multiplier** will be used to determine the rate.

Multiplier

{Numeric, optional} When entering **Employee Time Charges**, the employee's current hourly rate will be multiplied times the **Multiplier** rate entered in this field to determine the actual rate applied to the time and charged to the job. For example, if you wished to have a time and one-half rate, you would enter 1.5 in this field. Make sure to enter 1 for all rates which are billed at straight time.

Work Center Hours




Work Center Hours

This function will review each Work Center to make sure the scheduled number of hours per day equals the number entered below.

To set up the system to produce Infinite Loading, reset all hours to zero.

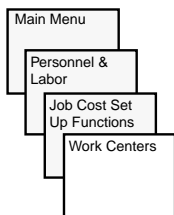
Schedule Hours/Day for All Work Centers =

 **Begin**

This function is used to provide a uniform number of hours for each work center record in the data file. It should only be used if all work centers within your organization are scheduled for the same number of hours per shift.

You may set up all work centers for **Infinite Loading** by setting up each work center as zero.

Work Centers & Processes Window



Work Centers & Processes

Work Center Code MILL
Description/Process Mill Room: Cut & shape wood elements
Job Cost Bucket

Last updated: 02/22/2000

Shop floor location # is 200
Scheduled HOURS per SHIFT is 0
Normal number of SHIFTS worked per DAY is 1
Normal number of DAYS worked per WEEK is 5
Note: This value is not used in production scheduling.
It is used only in setting up the Work Center Load Spreadsheet

Default Send-To Location 51
☒ Pull components from location 1
☐ Pull components from location 200

	Labor	Overhead	Total	Overhead Rate
Average hourly rate per resource (Current)	6.00000	6.00000	12.00000	100.000 %
Standard Rate	6.00000	0.00000	6.00000	0.000 %

☐ This is a Queue Time Work Center
☐ Restrict Scheduling to Only 1 Shift/day
☐ This is the default work center (entered if user forgets to add a work center to the BOM)

Backscheduling Offset (for top level item only) 0 Days

Resources

A **Work Center** is defined as a functional area in which some assembly or labor operation is carried on. The work center window is used to set up a unique work center code, hourly rate and shop floor location, as well as some scheduling capacity information. Costing resources may consist of a collection of employees and machines or only employees (one or more) or only machines (one or more).

You can choose the locations used to send assemblies to and pull components from when performing assembly transactions. Each work center has its own default Send-To location. If this field is left empty (zero), Qube ERP™ will use the default send-to location designated on System Set Up Card #3:

Default "Send to" location for Assemblies 51

You may also select for each work center whether to pull the components of an assembly from the work center's shop floor location or from the location designated on System Set Up Card #3:

Default "Pull From" location for Assemblies

Window Attributes

Work Center Code

{All Caps, unique, validated, required} Enter the code you will use to identify each work center in this field. The system must be able to uniquely distinguish between work center records and vendor records. Therefore, it is important that you not enter a work center code which duplicates any vendor code and the system will disallow it if you do so by mistake. It will also disallow a work center code which duplicates any employee code.

Description/ Process

{Alphanumeric, required} Enter a description for each work center in this field. You may also designate a work center as a Queue Time work center. A Queue Time work center is treated by Qube ERP™ as a work center which defines a delay in processing (e.g., paint drying).

Job Cost Bucket

{Four digits, numeric, optional} If you have purchased and activated the Advanced Job Costing Module, enter the job cost bucket.

Last Updated

{Display only} This field displays the date this work center was last updated.

Shop Floor Location Number

{Validated, required, non-zero} This code must be filled in and should represent the shop floor location assigned to this workstation. While a work center will be situated at an inventory location, inventory locations are not necessarily work centers. If the work center is used only for the production of *scheduled jobs* on manufacturing orders, the location should be a *non-general stock location*. If the work center is used for the assembly of *unscheduled jobs*, it should normally be a *general stock location*. For a complete discussion of gen-

eral and non-general stock locations, see [“Inventory General Stock Includes Stock Location #1 through Location #” on page SYS-111.](#)

The **Shop Floor Location** relates directly to the **Inventory Location Code** as defined in the **Inventory** module. When a new work center is added, the system will also add an inventory location record containing the same inventory location and code as that found in the work center record, unless, of course, one already exists with a different description (see [“Location Codes Window” on page INV-144.](#))

If the Work Center description is changed and the description prior to this change is found to be the same as the description of the location record, the description shown on the location record will also change to the new description. If the description of the location record is different from that of the work center record prior to the change, it will be assumed that the user wants the two records to be described differently and no change will be made to the location record.

Work center records may be set up to share shop locations, or may be required to be unique. Allowing work centers to share locations can greatly simplify inventory management and reduce the number of negative stock levels in your data file. For information on how to manage these choices, see [“Simplified Control of Inventory Movement” on page INV-149.](#)

Scheduled HOURS per SHIFT is...

{Numeric, required} This number reflects the number of labor hours available at each work center during each shift, i.e., it is the work center’s capacity. Once this capacity is set, you may use the finite production scheduling function to schedule each work center. Qube ERP™ uses a backward scheduling algorithm which means that each job is scheduled starting with its scheduled completion date. As each shift at each work center is filled up, the system backs up a shift until it derives the scheduled beginning date of the job. The number of hours entered in this field determines how many items may be scheduled during a work shift.



Note: The number in this field is not necessarily the number of hours the work center is “open” each shift. The number should refer to the hours of capacity available during each shift. If two employees labor for eight hours per day, and their operations are independent of each other, you might find you have about 14 - 15 hours per shift available. If, on the other hand, those two employees are required to operate one machine, you would only have 7 - 8 hours available during the same shift. However, it is still necessary to log both employees in the work center for costing purposes.

Normal number of SHIFTS worked per DAY is...

{Numeric} Enter the number of shifts *normally* worked per day at this work center. This is the *normal* number of shifts worked per day, and is the basis for the **Shop Calendar** calculations. For example, if you set up to work two shifts per day on this window, and the **Shop Calendar** window indicated two shifts per day, the result would be *four shifts per day* (see [“Shop Calendar” on page PLAN-32](#)).

Normal number of DAYS worked per WEEK is...

{Numeric} Enter the number of days *normally* worked per week. This, too, may be overridden by the **Shop Calendar** by designating holidays or removing them (see [“Shop Calendar” on page PLAN-32](#)).

Default Send-To Location

{Numeric} You may enter the number of the location to which you want to send the assembly, or leave this field empty. If the field is empty (zero), Qube ERP™ will use the default send-to location designated on System Set Up Card #3. See [“System Set Up, Card #3 Window” on page SYS-108](#).

Pull components from location ...

{Radio Buttons} You may select, for each work center, whether to pull the components of an assembly from the work center’s shop floor location (200 in this example) or from the location designated on System Set up Card #3 (1 in this example). See [“System Set Up, Card #3 Window” on page SYS-108](#).

Hourly Rates

The **Hourly Rate** fields display the labor and overhead costs for each work center. These costs are derived from the various resource records entered into the **Work Center Resources** window. Both average current costs and standard overhead rate for the work center are displayed in this area, and may also be entered on the **Work Centers & Processes** window (if user access privileges have been set; for more information, see [“Inventory Standard Costs” on page GL-10](#) and [“Overhead Percentage” on page INV-136](#)). These costs work much the same as the costs in the inventory file as set up in **Item Master File, Card #1**.

Current costs in the work center change any time you add or change a labor rate or resource in the **Work Center Resources** window. The standard overhead rate, on the other hand, can be entered for individual work centers on the **Work Centers & Processes** window, or can be monitored and changed for all work centers on the **Inventory Standard Costs** window in the **General Ledger** module. The work center record for FIN shown above would appear in the **Inventory Standard Costs** window like this:

- Main Menu
- General Ledger
- GL Set Up Functions
- Inventory Standard Costs

Item Code
FIN

Std Costs Updated on
02/20/97
By
D Joe

Item Type
LAB
☐ Active

	Current Unit Costs	Standard Unit Costs
Material	\$ 0.00000	\$ 0.00000
Freight In	\$ 0.00000	\$ 0.00000
Overhead as % Material	\$ 0.00000	\$ 0.00000
Outwork	\$ 0.00000	\$ 0.00000
Labor	\$ 11.50000	\$ 8.00000
Overhead as % Labor	\$ 2.30000	\$ 2.00000
Total Unit Cost	\$ 13.80000	\$ 10.00000
Overhead applied to Material =	1.000%	5.000%
Overhead applied to Labor =	20.000%	25.000%

Print

Edit All

Update Unposted Transactions

Edit Zero Standard Cost Purchased Items

Edit Standard Overhead Rates

For information on managing standard costs, see [“Inventory Standard Costs” on page GL-10.](#)

This is a Queue Time Work Center

{Check box selection} You may designate a work center as a Queue Time work center. A Queue Time work center is treated by Qube ERP™ as a work center which defines a delay in processing (e.g., paint drying). For more information, see [“Queue Time Work Centers” on page LAB-39.](#)

This is a non-scheduling work center

{Check box selection} This option is only available in version 7.35 and earlier versions of Qube ERP™. Sometimes companies will wish to include a scheduling work center in a BOM, along with other work centers for cost purposes. For example, assume you have a very expensive machine which shares a work center with a very inexpensive one. But the inexpensive work center is the bottleneck process. You must include the inexpensive work center for scheduling purposes, however if this were the only work center included in the BOM, your costs would not be reflected accurately.

By adding a record for the second, more expensive work center and the time involved there, you can more accurately reflect the costs involved. However, each bill of material can include only one scheduling work center (when routings are not used).

By flagging the more expensive (costing) work center as a Non-Scheduling work center, you will be able to include both. The inexpensive process will drive the production plan, while the costing will be based on the combination of both.

Restrict Scheduling to Only 1 Shift/day

{Check box selection} Check this box for each work center which always works only one shift per day. Then, when generating **shop calendar** records for more than one shift, these work centers will be restricted to one shift.

This is the default work center

{Checkbox selection} For production scheduling to work properly, all BOMS for items being scheduled must contain a work center or routing record. If they do not production scheduling would not work.

To eliminate the possibility of the production scheduling process aborting because you forgot to enter a work center in a BOM, Qube ERP™ provides the ability to designate a “default work center.” Then, if the production scheduling function runs across a bill of material which needs to be scheduled but does not include a work center, this default will be used.

Only one work center can be the default work center. Therefore, anytime you click the *<THIS IS THE DEFAULT WORK CENTER>* check box, any others which have been designated as the default work center will be unmarked as such.



Note: If you fail to designate a work center as the default, the system will automatically assign this designation to the first work center in the file.

The cost of work which goes on at each work center is based on the average hourly rate per resource used at each Work Center, and is displayed on the Work Center screen.

Back Scheduling Offset

Enter the number of days offset for back scheduling. You can control the number of days prior to the scheduled ship date that the final assembly task will be scheduled. If you leave the default value of zero, Qube will schedule the top-level item to be completed one day prior to the scheduled ship date.

Work Center Reports

There are two ways of printing a **Work Center** list. The reports are found in the Job Cost & Labor Reports window and are labeled **Work Centers by Work Center Code** and also **Work Centers by Shop Floor Location**.

Job Cost & Labor Reports	
Work Centers	Work Center List by Shop Floor Location
Work Centers	Work Center List by Work Center Code

Queue Time Work Centers

Very often, manufacturing processes include steps where parts are required to sit for a period of time before succeeding activities can be started. Some examples of these types of processes are burn-in of electrical assemblies, drying time for painted parts, curing time for adhesives, or cooling time for food items. A Queue Time work center is treated by Qube ERP™ as a work center which defines a delay in processing.

Queue time work centers may have an unlimited number of jobs in process at any given time. The number of days a job resides in a queue time work center will be based on the amount of time a part is required to sit and the amount of time per day the queue time work center is active. For example, if a queue time work center is available 8 hours per day and a part is required to sit for 16 hours, then the part will be scheduled for “processing” at the queue time work center for a total of 2 days.

Below is a screenshot of an appropriate reference to a queue time work center:

BOM Routing Operations						
Production Operations for		1 1418	CASING ASSY.	6842689		
Work Center		Machine		Set up	Labor	
Order Code	Description	Code	Time	Run Time	Cost	
20 Q	Queue time work center		50.000	0.00000	0.00000	
5 84	REMOVE FROM STORES					
10 2	CLEAN -2 CASE AND	AG31		0.22000	1.78200	
20 Q	Queue time work center		50.000			
30 2	FILE -2 SMALL END		0.480	0.62000	5.02200	
60 2	FILE -2 LARGE END		0.340	0.54000	4.37400	
80 43	X-RAY PER EIS 1200	RMP1		0.98000	7.93800	

Notice that the time required at the Queue Time work center is entered in the Set Up Time column. Qube ERP™ does not allow entry of time in the Run Time column when a Queue Time work center is referenced. Qube ERP™ assumes unlimited capacity for Queue Time work centers. Therefore, time allocated per piece (run time) is not appropriate. Referencing a Queue Time work center in a non-routing bill of material is also not appropriate, since this would create a planned assembly for which there would be no material requirements.

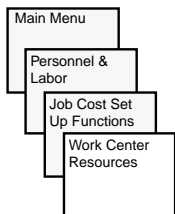
Since unlimited work center capacity is assumed, Qube ERP™ may allocate many queue time tasks at the queue time work

center on any given day. You can see how queue time is treated in the following extract from a production scheduling audit.

```
Routing Operation 60 at 2 (FILE -2 LARGE E) on 10/24/97 .....
Routing Operation 30 at 2 (FILE -2 SMALL E) on 10/24/97 .....
Routing Operation 20 at Q (Queue time work) on 10/24/97 {Q} .....
Routing Operation 20 at Q (Queue time work) on 10/23/97 {Q} .....
Routing Operation 20 at Q (Queue time work) on 10/22/97 {Q} .....
Routing Operation 20 at Q (Queue time work) on 10/21/97 {Q} .....
Routing Operation 20 at Q (Queue time work) on 10/20/97 {Q} .....
Routing Operation 20 at Q (Queue time work) on 10/17/97 {Q} .....
Routing Operation 20 at Q (Queue time work) on 10/16/97 {Q} .....
Routing Operation 10 at 2 (CLEAN -2 CASE A) on 10/16/97 .....
Routing Operation 5 at 84 (REMOVE FROM STO) on 10/16/97 .....
Create Mfg Order Task (for operation) for 03/06/98 .....
```

The queue time required in this case was 7 days. Qube ERP™ responded by setting up a queue time event for each of 7 days. The next non-queue time event was scheduled in the available time after all queue time had been accounted for.

Work Center Resources



The screenshot shows the 'Work Center Resources' window. At the top, there's a tab labeled 'CUT' and a search icon with the text 'Cutting'. Below this is a table with columns: 'Employee or Machine Code', 'Description', 'Add or Average', and 'Cost Per Hour'. The table contains two entries: 'FMCT' with 'Foam Cutting Machine' and 'ADD' with a cost of '20.00000', and '\$8' with 'Std \$8/hr Employee' and 'AVERAGE' with a cost of '8.00000'. A total cost of '28.00000' is displayed at the bottom right. At the bottom of the window are navigation icons (back, forward, search, etc.) and a 'Work Center' button.

Employee or Machine Code	Description	Add or Average	Cost Per Hour
FMCT	Foam Cutting Machine	ADD	20.00000
\$8	Std \$8/hr Employee	AVERAGE	8.00000

28.00000

Work Center

The costs associated with each work center depend on its resources, what their hourly rates are, and how much time each manufacturing process consumes in a work center. You may enter this information on the above window, which can be accessed by clicking on the button labeled **Resources** on the **Work Center** window. The work center resources act as the bill of labor for work centers and is analogous to the bill of materials for an assembled item. It may contain references to employees or machines, or both.

Window Attributes

Employee or Machine Code

{All Caps, Validated} Enter the **Employee Code** or **Machine Code** for each resource you wish to add in this field. After you press <TAB>, the system will display the resource's description and its hourly rate. If an hourly rate does not display, check the employee and machine files to make sure you entered a rate for the resource in its window.

Add or Average

{All caps, Validated} Valid entries are either **ADD** or **AVERAGE**. Entering **ADD** will add the **Cost Per Hour** of the resource you entered to the total value of the work center. Entering **AVERAGE** will include the value of the resource as an average of all the resources.

Changing Work Center Resources

After a work center has been created and its resources have been entered to compute its hourly rate, you are ready to reference the work center in bills of material or routing lists. You may also enter the re-

sources after referencing the work center in BOMs. However, changing the resources may change the value of the work center and require a roll up through all BOMs referencing the work center. This can be time consuming.

Labor Reports

Labor reports are found in the **Job Cost & Labor Reports** window.
These reports are listed in several groups:

Job Cost & Labor Reports	
Labels	Employee Labels
Labels	Outside Rep Labels
Employees/Reps	Department List
Employees/Reps	By Last Name
Employees/Reps	Outside Reps List
Export	Employee Time Charges Exported to Excel
Job Cost	Sorted by Job (Sales Order-Line) Number
Job Cost	By Sales Order # (Select by Date)
Job Cost	By Sales Order # (Select by Date, No Labor Detail)
Job Cost	By Sales Order # (Select by Period)
Job Cost	By Sales Order # (Select by Period, No Labor Detail)
Job Cost	Sorted by Invoice Number
Job Cost	Sorted by Item Code
Job Cost	Sorted by Customer Name
Job Cost	Sorted by Sales Rep
Job Cost	Inventory Transactions by Job
Job Cost	Payables Transactions by Job within GL Dept
Job Cost	Transactions by Transaction Date
Returns	Serial Numbered Returns by Return Order-Item Number
Returns	Serial Numbered Returns by Item Code
Returns	Serial Numbered Returns by Serial Number
Returns	Return Problems by Customer Code
Returns	Return Problems by Item Code
Returns	Return Problems by Return Order Code
Returns	Return Problems by Serial Number
Transactions	Routing: Estimated vs Actual Time Charges
Transactions	Routing: Expected Late Jobs
Transactions	Problems, Situations and Conditions Log
Transactions	Actual vs Standard labor by Date
Transactions	Actual vs Standard labor by Item Code
Transactions	Actual vs Standard labor by Job #
Transactions	Actual vs Standard labor by Work Center
Transactions	Time Charged to Planned Operations
Transactions	Employee Time Charges by Activity within Employee
Transactions	Employee Time Charges by Job Within Employee Dept
Transactions	Employee Time Charges by Activity within Job #
Transactions	Employee Time Charges by Employee
Transactions	Employee Time Charges by Sales Type
Transactions	Employee Time Charges by Order Number
Work Centers	Work Center List by Shop Floor Location
Work Centers	Work Center List by Work Center Code