

HansaWorld Enterprise

Integrated Accounting, CRM
and ERP System for
Mac OS X, Windows, Linux,
PocketPC 2003 and AIX

Production Module

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Preface

The HansaWorld Enterprise range of products contains a number of powerful accounting, CRM and ERP systems for the Windows, Mac OS X, Linux, PocketPC 2003 and AIX environments.

The programs are designed to make administration and accounting as easy and fast as possible. They are similar in operation regardless of platform. In the specific areas where there are significant differences, these are described and illustrated in full. In all other cases illustrations are taken from the Windows XP version.

This manual covers the Production module in HansaWorld Enterprise. Prior to reading it, you should already be familiar with the Work Area in HansaWorld Enterprise (its modules, registers, windows, menus and buttons, covered in the 'Introduction to HansaWorld Enterprise' manual). This manual assumes knowledge of the Item register (described in the 'Items and Pricing' manual) and of the Stock module.

Text in square brackets - [Save], [Cancel] - refers to buttons on screen.

Information in this document is subject to change without notice and does not represent a commitment on the part of HansaWorld. The Software described in this document is a sophisticated information management system. Features are liable to alteration without notice. This documentation is not intended as a *de facto* representation of the system, but as an overview of its facilities. It cannot be exhaustive in all respects. Whilst effort is made to ensure the accuracy of the information published concerning the features and use of HansaWorld software, it is still possible that certain functions mentioned may not be fully implemented, may not be available under certain circumstances, or may possibly relate to a future release of the software. Errors and omissions excepted. HansaWorld accepts no contingent liabilities. All HansaWorld software related transactions are subject to HansaWorld's Conditions of Sale and Software Licence Agreement. All rights reserved.

How these manuals are organised

Introduction to HansaWorld Enterprise

Introduction	Installing HansaWorld Enterprise, the basic ideas
Work Area	Basic elements of HansaWorld Enterprise: modules, registers, windows, menus, functions, buttons
Accounting Principles	About the place of HansaWorld Enterprise in your business, integration between ledgers, objects
Starting Work	Entering opening balances

Manuals for each Module

Assets	Asset accounting, calculation of depreciation using user-definable depreciation models, revaluation
Cash Book	Inward and outward cash transactions, receipts and payments
Consolidation	Multi-company reporting, subsidiaries and daughter companies
Contracts	Periodic invoicing and repeat billing, contract renewals, contract quotations, contracts from invoices
CRM	Time management using daily or monthly calendar formats. Contact and customer history. Customer letters and mailshots. Target time. Employee time statistics
Currency	Multi-currency in all modules
Customers, Suppliers and Contact Persons	Customers and suppliers, customer categories and reports
Expenses	Payments to and from employees
Items and Pricing	Products and services, pricing
Job Costing	Project management. Recording time, expenses and purchases. Instalments. Pricing by consultant, project, task and time of day. Budgets and quotations
Mail	Internal mail, external mail (email), conferences, off-line local mail, chat
Nominal Ledger	Transactions, simulations, budgets and revised budgets. Error correction. Account reconciliation. Transaction templates. Flexible management and financial reports with multi-dimensional analysis and drill-down to transaction level
Production	Multi-level assemblies from components
Purchase Ledger	Purchase invoices, payments and payment suggestions, creditor reports, prepayments, accruals, acceptance
Purchase Orders	Purchase orders, goods receipts and purchase pricing
Quotations	Sending quotations, call backs, pipeline management, opportunity forecasting, and conversion ratio reports
Report Generator	User-definable reports
Sales Ledger	Invoices, receipts, debtor reports and documents, deposits and prepayments, accruals
Sales Orders	Orders and deliveries. Invoices from orders
Service Orders	Management of service stock, invoicing of repairs, warranties
Stock	Deliveries, goods receipts and stock movements, batch and serial number tracking, multi-location stock management
System Module	Settings and parameters. System-wide usage

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***HansaWorld
Enterprise
Production***

The Production Module

The HansaWorld Enterprise Production module is designed to facilitate the construction of assembled Items from components. Two types of assembled Item are catered for—

- Items that are assembled on the point of delivery. These Items are never held in stock: the components will be removed from stock when the delivery is made;
- Items that are assembled in advance of delivery and held in stock. Appropriate stock level adjustments will be made for the components and assembled Items at the time of construction or assembly.

Examples and Work Flow

Introduction - The Assembled Item and its Recipe

These examples will demonstrate using a Production to assemble an Item to be held in stock. To illustrate the process, we will describe building a hifi rack from various components.

The examples assume Production I-cost, Production W-cost and Discarded Production Cost Accounts have been specified in the Account Usage Stock setting in the Stock module.

Start by recording the hifi rack in the Item register. This should be marked as a Stocked Item—

The screenshot shows the 'Item: Inspect' window with the following details:

- Item No.:** 80601
- Description:** HiFi Rack
- Unit:** PCS
- Base Price:** 75.00
- Base Price Change:** 13/3/2009
- Price Factor:** (empty)
- Item Formulae:** (empty)
- Markup %:** 0
- Bonus %:** (empty)
- Objects:** (empty)
- Classification:** (empty)
- Item Type:**
 - ☐ Plain
 - ☒ Stocked Item
 - ☐ Structured Item
 - ☐ Service
- ☐ Treat Item as Material on Project

After saving the Item record, choose 'Create Recipe' from the Operations menu. A new Recipe is opened. A Recipe is a list of the components (with quantities) that are needed to produce or build the assembled Item. Components are also known as "Input Items": enter the quantity of each component required to build the assembled Item in the In field. Enter the

assembled Item (also known as the “Output Item”) on the last row, with the quantity that will be built in the Out field. If a cost such as labour will be incurred when building the Output Item, enter this in the W-cost (Work Cost) field in one of the Input rows, as shown in the illustration below —

Recipe: Inspect

Operations: [New] [Duplicate] [Cancel] [Save]

Code: 80601 Comment: HiFi Rack

Normal Prod Qty: 1 Time to Setup: Language: ☐ Closed

Min Prod Qty: Days to Produce: Minutes: Seconds: ☐

Fixed Assembly Days: Hours to Produce: Number Produced: 1

Res. mgr. Colour: Black Extra Prod Qty: Standard Batch: 1

Default Routing: Instructions:

	Item	Specification	In	Out	Rel.	I-cost	W-cost
1	80110	Glass Shelf	5.00			5.00	10.00
2	80111	40 cm Steel Box Section	10.00			0.50	
3	80112	50 cm Steel Box Section	10.00			0.50	
4	80113	90 cm Steel Sheet	2.00			0.75	
5	80114	36 cm Steel Sheet	2.00			0.50	
6	80115	Hex Screw	20.00			0.10	
7	80116	Spiked Feet	4.00			1.00	
8	80117	Rubber Shelf Seat	20.00			0.10	
9	80118	End Cap	4.00			0.20	0.00
10	80601	HiFi Rack		1.00		46.30	

☐ Locked Cost of In-Items: 56.3 Value of Out-Items: 46.3

When you save the Recipe, the Recipe Code will be copied to the Recipe field on the 'Recipe' card of the assembled Item—

The screenshot shows the 'Item: Update' window with the 'Recipe' tab selected. The window has a title bar with 'Item: Update' and standard window controls. Below the title bar is a toolbar with 'New', 'Duplicate', 'Cancel', and 'Save' buttons. The main area is divided into several sections. The top section contains fields for 'No.' (80601), 'Group', 'Description' (HIFI Rack), and checkboxes for 'Closed' and 'Not For Sales'. Below this is a tabbed interface with 'Pricing', 'Stock', 'Warehouse', 'Costs', 'Recipe' (selected), 'A/C', 'Varieties', 'Texts', 'Cost Model', and 'User Values'. The 'Recipe' tab contains fields for 'Recipe' (80601), 'Invoice Recipe', 'Contract Item', 'Rental Invoicing', 'Warranty Months' (0), 'Alternative Code', 'Warning', 'Barcode', 'Commodity Code', 'EKN Code', 'Colour' (Gray), and a checkbox for 'Paste Components during Entry'. Below this is a section for 'Dom. Sales A/C' (110), 'EU Sales A/C' (115), 'Export Sales A/C' (117), 'Dom. Cost A/C', 'EU Cost A/C', 'Export Cost A/C', 'Dom. VAT Code' (1), 'EU VAT Code' (3), 'Export VAT Code' (2), and 'Components Usage'. At the bottom are fields for 'Variety Mask', 'Report Order', and 'Subsets'.

Field	Value
No.	80601
Group	
Description	HIFI Rack
Closed	<input type="checkbox"/>
Not For Sales	<input type="checkbox"/>
Recipe	80601
Invoice Recipe	
Contract Item	
Rental Invoicing	
Warranty Months	0
Alternative Code	
Warning	
Barcode	
Commodity Code	
EKN Code	
Colour	Gray
Paste Components during Entry	<input type="checkbox"/>
Dom. Sales A/C	110
EU Sales A/C	115
Export Sales A/C	117
Dom. Cost A/C	
EU Cost A/C	
Export Cost A/C	
Dom. VAT Code	1
EU VAT Code	3
Export VAT Code	2
Components Usage	
Calculate Perception Taxes	<input type="checkbox"/>
Calculate Withholdings Taxes	<input type="checkbox"/>
Variety Mask	
Report Order	
Subsets	

This field connects the assembled Item to its Recipe. Save the Item to confirm.

Building the Assembled Item

You should use the Production register to build an Output Item and add it to stock. At the same time, the Input Items will be removed from stock.

To use the Production register, follow these steps—

1. Create a new Production and specify the Recipe. The Input and Output Items will be listed in the matrix —

Production: New

Operations [New] [Duplicate] [Cancel] [Save]

No. 5026 Name HiFi Rack Status ☒ Created ☐ Cancelled ☐ Started ☐ Finished ☐ Finished but Discarded

Recipe 80601 Start Date End Date 5/11/2009

Qty 1 Start Time End Time

Location PROD Machine

Inspector Person

Prod. Ord. Discarded Reason

Actual Qty Routing

Item	Descr.	Serial No.	In	Out	Rel.	I-cost	W-cost	Coeff
1	80110	Glass Shelf	5.00			5.00	10.00	
2	80111	40 cm Steel Box Section	10.00			0.50		
3	80112	50 cm Steel Box Section	10.00			0.50		
4	80113	90 cm Steel Sheet	2.00			0.75		
5	80114	36 cm Steel Sheet	2.00			0.50		
6	80115	Hex Screw	20.00			0.10		
7	80116	Spiked Feet	4.00			1.00		
8	80117	Rubber Shelf Seat	20.00			0.10		
9	80118	End Cap	4.00			0.20	0.00	
10	80601	HiFi Rack		1.00		46.30		
11								
12								
13								

In Weight 38.28 Out Weight 40

The Location will be taken from the 'Sales' card of your Person record.

2. As far as the Input Items are concerned, a Production is treated as a standard outgoing stock transaction. So, if you are using the Do Not Allow Over Delivery option in the Stock Settings setting in the Stock module, you will not be able to approve the Production if you do not have enough stock of the components in the Production Location. You can quickly look up the available stock level of the components in the Production Location using the 'Item Status' function on the Operations menu.

If you need to move the components to the Production Location to finish the Production, save the Production and then choose 'Create Stock Movement' from the Operations menu—

Stock Movement: Inspect

Operations [New] [Duplicate] [Cancel] [Save]

No. 25 ☐ Reserved Reason
 Ord. Date 5/11/2009 Sent Date Received Date
 From Location WHS Via Location To Location PROD

Positions Objects Items Currency Durations Freight

From Position To Position For Production 5026
☐ Manual Pick ☐ Send To Forklift Queue

Objects
 Comment

Item	Req. Qty	Sent Qty	Rcvd. Qty	Description	R. Old Unit Pr.	R. Extra Cost	R. New Unit Pr.
1 80110	5			Glass Shelf	0.00		0.00
2 80111	10			40 cm Steel Box Section	0.00		0.00
3 80112	10			50 cm Steel Box Section	0.00		0.00
4 80113	2			90 cm Steel Sheet	0.00		0.00
5 80114	2			36 cm Steel Sheet	0.00		0.00
6 80115	20			Hex Screw	0.00		0.00
7 80116	4			Spiked Feet	0.00		0.00
8 80117	20			Rubber Shelf Seat	0.00		0.00
9 80118	4			End Cap	0.00		0.00
10							



☐ Confirmed ☐ Sent ☐ Received
 Sent Qty Rcvd. Qty Non Accounted Extra Costs


A Stock Movement will be created that, by default, will move the exact quantities of the components required for the Production from the Main Location to the Production Location. Change the From Location and the Required Quantities as necessary. When the components arrive at the Production Location, enter the Received Quantities, mark the Stock Movement as Received and save it.

- When work begins, mark the Production as Started and save it. The Start Time and Date will be updated with the current time and date.

4. When work finishes, mark the Production as Finished and save it. The End Time will be updated. Stock levels of the assembled Item and the components will be updated, as will the stock valuation in the Nominal Ledger. This is the posting in the Nominal Ledger—

Transaction: Inspect

Operations   New Duplicate Cancel Save

No. 5026 Trans. Date 5/11/2009 Reference 

Text

	Account	Objects	Description	Base 1 Debit	Base 1 Credit	V-Cd
1	740		Stock Valuation		46.30	A
2	231		Production Work Cost		10.00	B
3	740		Stock Valuation	56.30		C
4	468		Base Currency Round Off		0.00	D
5						E
6						F
7						G
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
Difference Base 1				0.00		
Difference Base 2				0.00		
Total				56.30	56.30	
Total				89.37	89.37	

The value of the components is credited to the Stock Account, while the value of the Output Item is debited to the same Account. The Work Cost is credited to the Work Cost Account. For details about how these Accounts are chosen, please refer to the 'Nominal Ledger Transactions from Production Records' section below on page 218.

- The assembled Item will be placed in the Production Location. To move it to another Location, choose 'Create Stock Movement' from the Operations menu once again. A Stock Movement will be created to implement this move—

Stock Movement: Inspect

Operations [New] [Duplicate] [Cancel] [Save]

No. 26 ☐ Reserved Reason
 Ord. Date 5/11/2009 Sent Date Received Date
 From Location PROD Via Location To Location

Positions Objects Items Currency Durations Freight

From Position To Position For Production 5026
☐ Manual Pick ☐ Send To Forklift Queue

Objects
 Comment

Item	Req. Qty	Sent Qty	Rcvd. Qty	Description	R. Old Unit Pr.	R. Extra Cost	R. New Unit Pr.
1 80601	1			HiFi Rack	56.30		56.30
2							
3							
4							
5							
6							
7							
8							
9							
10							

☐ Confirmed ☐ Sent ☐ Received
 Sent Qty Rcvd. Qty Non Accounted Extra Costs

Choose a To Location. When the assembled Item arrives there, enter the Received Quantity, mark the Stock Movement as Received and save it.

Additional Production Costs

As well as posting a Work Cost from a Production (e.g. for labour) as described in the previous example, you can also post the running costs for the Machine used to build the assembled Item. Follow these steps—

1. You should have a record in the Asset register in the Assets module for the Machine. As well as allowing you to account for the depreciation of the Machine, you can use this Asset record to post its running costs. On the 'Costs' card, enter a Running Cost for the Machine. This should be an hourly figure—

Asset: Inspect

Operations [New] [Duplicate] [Cancel] [Save]

Inventory No. ☐ Inactive

Description

Category N/L Class

Purchase Owner Models Values **Costs**

Running Cost/hr Idle Cost/hr

Production Objects

Supplier Name

Pur. Inv. No. Sup. Inv. No.

Purch. Date Purch. Value

Prod. Date VAT

Serial No. Not Reclaimed

Warranty No. New/Used

Contract No. Objects

Comment

2. In the Production Settings setting, choose the Auto Calculate Cost of Produced Items option, and specify a Machine Cost Item—

The screenshot shows the 'Production Settings: Inspect' dialog box with the 'Cost Items' tab selected. The 'Machine Cost Item' is set to 'MACHINE'. The 'Auto Calculate Cost of produced Items' checkbox is checked. The 'Time' section has 'Actual Time' selected. The 'Add Work Cost' and 'Add Discarded Cost' checkboxes are unchecked. The 'Work Cost per Hour' field is empty. The 'Run Time Act. Type', 'Setup Act. Type', 'Move Act. Type', and 'Queue Act. Type' fields are also empty.

Options		Cost Items	
Machine Cost Item	MACHINE	Run Time Act. Type	
Labour Cost Item		Setup Act. Type	
Setup Cost Item		Move Act. Type	
Move Cost Item		Queue Act. Type	
Queue Cost Item			

Time

☒ Actual Time
☐ Fixed Time



☒ Auto Calculate Cost of produced Items
☐ Add Work Cost
☐ Add Discarded Cost

Work Cost per Hour

The Machine Cost Item should be a Service Item.

- Enter a Production, choose the Recipe and specify the Asset in the Machine field. When you save the Production for the first time, the Auto Calculate Cost of Produced Items option will cause an extra row to be added for the Machine Cost—

Production: Inspect

Operations   New Duplicate Cancel Save

No. 5027 Name HiFi Rack Status ☒ Created ☐ Cancelled ☐ Started ☐ Finished ☐ Finished but Discarded

Recipe 80601 Start Date End Date 5/11/2009

Qty 1 Start Time End Time

Location PROD Machine WELD1

Inspector Person

Prod. Ord. Discarded Reason

Actual Qty Routing

Items Comment



	Item	Descr.	Serial No.	In	Out	Rel.	I-cost	W-cost	Coeff
1	80110	Glass Shelf		5.00			0.00	10.00	
2	80111	40 cm Steel Box Section		10.00			0.00		
3	80112	50 cm Steel Box Section		10.00			0.00		
4	80113	90 cm Steel Sheet		2.00			0.00		
5	80114	36 cm Steel Sheet		2.00			0.00		
6	80115	Hex Screw		20.00			0.00		
7	80116	Spiked Feet		4.00			0.00		
8	80117	Rubber Shelf Seat		20.00			0.00		
9	80118	End Cap		4.00			0.00	0.00	
10	80601	HiFi Rack			1.00		10.00		
11	MACHINE	Machine cost		1.00			0.00		
12									
13									






In Weight 38.28 Out Weight 40

- When work begins, mark the Production as Started and save it. The Start Time and Date will be updated with the current time and date. When you are recording the Machine Cost, marking a Production as Started is an important step because it marks the date and time when use of the Machine starts.

5. When work finishes, change the End Date if necessary, mark the Production as Finished and save it. The End Time will be updated. The Machine Cost will be calculated, and placed in the extra row. In this example, the Production took three hours, and the Running Cost of the Machine (from the Asset) is 2.50 per hour—

Production: Inspect

Operations   New Duplicate Cancel Save

No. 5027 Name HiFi Rack Status  Created  Cancelled  Started  Finished  Finished but Discarded

Recipe 80601 Start Date 5/11/2009 End Date 5/11/2009

Qty 1 Start Time 12:15:00 End Time 15:15:00

Location PROD Machine WELD1

Inspector Person

Prod. Ord. Discarded Reason

Actual Qty Routing



Items Comment


	Item	Descr.	Serial No.	In	Out	Rel.	I-cost	W-cost	Coeff
1	80110	Glass Shelf		5.00			5.00	10.00	
2	80111	40 cm Steel Box Section		10.00			0.50		
3	80112	50 cm Steel Box Section		10.00			0.50		
4	80113	90 cm Steel Sheet		2.00			0.75		
5	80114	36 cm Steel Sheet		2.00			0.50		
6	80115	Hex Screw		20.00			0.10		
7	80116	Spiked Feet		4.00			1.00		
8	80117	Rubber Shelf Seat		20.00			0.10		
9	80118	End Cap		4.00			0.20	0.00	
10	80601	HiFi Rack			1.00		63.80		
11	MACHINE	Machine cost		1.00			7.50		
12									
13									

In Weight 38.28 Out Weight 40

In the resulting Nominal Ledger Transaction, the Machine Cost is added to the Work Cost and is posted to the Work Cost Account. On the debit side, it is added to the value of the Output Item and posted to the Stock Account—

Transaction: Inspect

Operations   New Duplicate Cancel Save

No. 5027 Trans. Date 5/11/2009 Reference 

Text

	Account	Objects	Description	Base 1 Debit	Base 1 Credit	V-Cd
1	740		Stock Valuation		46.30	A
2	231		Production Work Cost		17.50	B
3	740		Stock Valuation	63.80		C
4	468		Base Currency Round Off		0.00	D
5						E
6						F
7						G
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

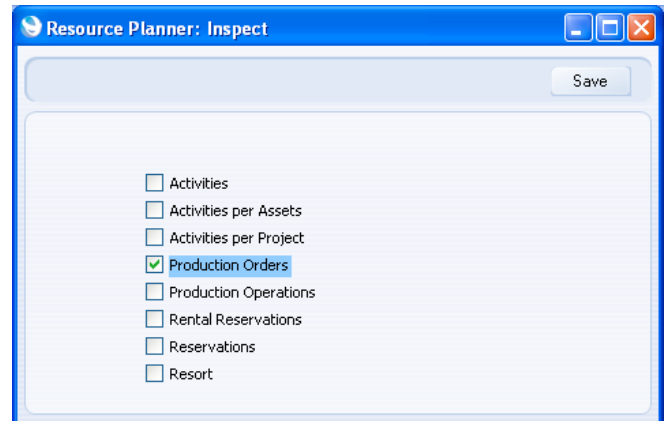
Difference Base 1 0.00 Total 63.80 63.80

Difference Base 2 0.00 Total 101.27 101.27

Scheduling Productions

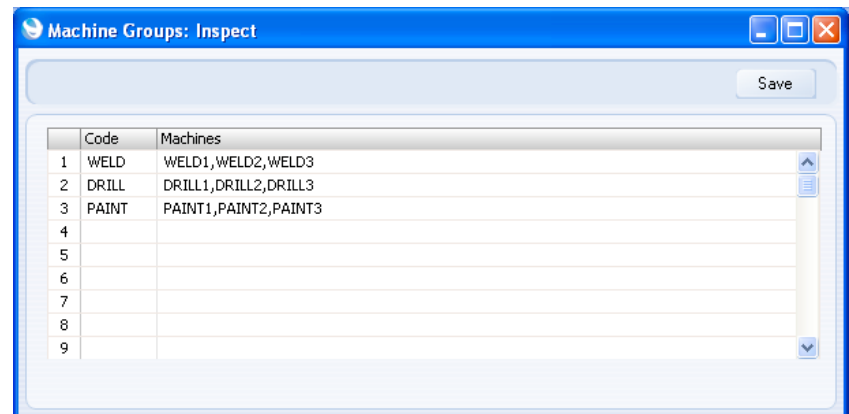
If you have the Resource Planning module, you can use it and the Production Order register to help schedule work on Productions. Follow these steps—

1. Using the Resource Planner setting in the Resource Planning module, choose to display Production Orders in the Resource Planner.



2. You should have records in the Asset register in the Assets module for each of the Machines you use for Productions. As well as allowing you to account for the depreciation of the Machines, these records will allow you to schedule the work for each Machine.

You should now divide your Machines into groups, using the Machine Groups setting in the Production module. Each group should represent a different type of work (e.g. all welding machines should be in the same group). List the Machines in each group, separated by commas—



3. Having assigned the Machines to Machine Groups, you can now specify the operating hours of the Machines, using the Machine Hours register.

Group	Colour	Description
WELD	Gray	
Monday Start	for	8.0 hours
Tuesday Start	for	8.0 hours
Wednesday Start	for	8.0 hours
Thursday Start	for	8.0 hours
Friday Start	for	8.0 hours
Saturday Start	for	0.0 hours
Sunday Start	for	0.0 hours

In this example, all Machines belonging to the “WELD” Group can work for eight hours a day, beginning at 8 am. They will not work at weekends. The colour will signify idle time in the Resource Planner.

If you do not enter a record in this register for a particular Machine Group, it will be assumed that the Machines in that Group will be in constant use.

- The next step is to connect Machines to Recipes (i.e. to specify the Machines that can be used to assemble each Output Item). You should do this using the Production Item Alternative register—

	Machine	Default Recipe	Alternate Recipe	Alternate Routing
1	WELD2	80601		
2	WELD3	80601		
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

In this example, we have specified that three Machines can be used to produce Item 80601 (the hifi rack), with a preference to use “WELD1”. All three Machines will produce the hifi rack using the same Recipe.

- In the Recipe, you should now specify the time required to build the assembled Item. You can do this using the various To Produce fields (Days, Hours, Minutes, Seconds) fields. One day in this case means a 24-hour day. For example, if the build time is 28 hours, enter “1” in the Days to Produce field and “4” in the Hours to Produce field. These times refer to one application of the Recipe: i.e. they are the times required to produce the Out Qty of the Output Item. You can also specify a Fixed Assembly Days and/or a Time to Setup if the Machine will need calibration or configuration work before the Production will start. These times are independent of the quantity produced (i.e. of the Out Qty).

Use the Standard Batch field to specify how many applications of the Recipe are usually built at one time. It is recommended that you specify a Standard Batch, because this will be the default quantity in Productions created during the scheduling process.

You should also specify a colour for the Resource Planner.

Recipe: Inspect

Operations: [New] [Duplicate] [Cancel] [Save]

Code: 80601 Comment: HiFi Rack

Normal Prod Qty: 1 Time to Setup: Language: ☐ Closed

Min Prod Qty: Days to Produce: Hours to Produce: 3.00 Minutes: Seconds:

Fixed Assembly Days: Number Produced: 1

Res. mgr. Colour: Red Extra Prod Qty:

Standard Batch: 2

Default Routing:

Instructions:

Item	Specification	In	Out	Rel.	I-cost	W-cost
1	80110 Glass Shelf	5.00			5.00	10.00
2	80111 40 cm Steel Box Section	10.00			0.50	
3	80112 50 cm Steel Box Section	10.00			0.50	
4	80113 90 cm Steel Sheet	2.00			0.75	
5	80114 36 cm Steel Sheet	2.00			0.50	
6	80115 Hex Screw	20.00			0.10	
7	80116 Spiked Feet	4.00			1.00	
8	80117 Rubber Shelf Seat	20.00			0.10	
9	80118 End Cap	4.00			0.20	0.00
10	80601 HiFi Rack		1.00		46.30	

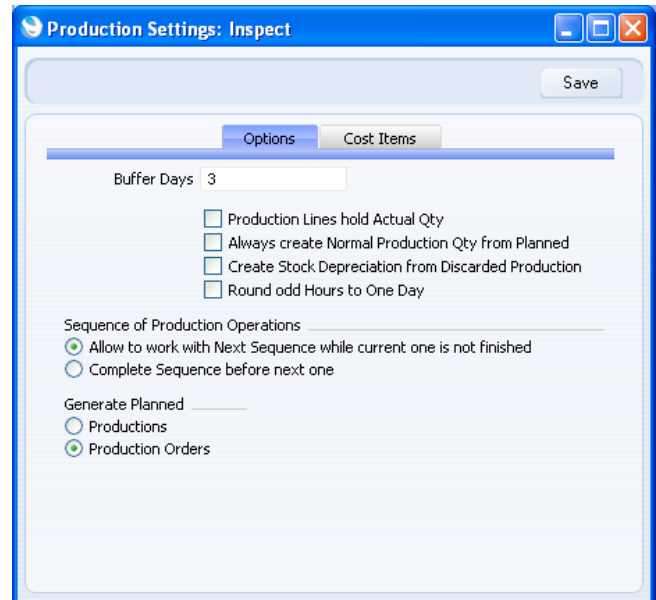
☐ Locked Cost of In-Items: 56.3 Value of Out-Items: 46.3

6. As the configuration work is complete, you can now use the Production Order register to schedule your Productions. You will probably create Production Orders in three ways—
 - i. The ‘Create Planned Records’ Maintenance function in the Production and Sales Orders modules will create Production Orders to schedule the assembly of Output Items that you have sold in advance. To be sold in advance, the Output Item must be included in a Sales Order with a Planned Delivery Date.
 - ii. You can use the Sales Forecast register in the MRP module to predict the future monthly sales of Output Items. From a Sales Forecast record, you can create a Production Plan for each month,

and from there you can use the 'Create Productions' Maintenance function to schedule the assembly of the Items that you expect to sell.




iii. You can enter Production Orders yourself.

You can decide whether the Maintenance functions mentioned in points i and ii will create Productions or Production Orders, using the Generate Planned options in the Production Settings setting —



In this example, we will work from a Sales Order with a Planned Delivery Date of 30 November—

Order: Inspect

Operations    New Duplicate Cancel Save

No. 1000001 Name Against All Odds Trading Co
 Customer 001 ☐ Closed ☐ Reserved

Date Items Currency Del. Terms Inv. Address Del. Address

Date 5/11/2009 Planned Del. 30/11/2009 Desp. Date Time
 Pay. Terms 30 Salesman FF Order Type Normal
 Our Ref. Attn. Joseph Conrad
 Object Cust. Ord. No. Class

Item	Qty	Description	Unit Price	%	Sum
1 80601	10	HIFI Rack	75.00		750.00
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Currency GBP Freight VAT 131.25 Subtotal 750.00
☐ OK Ext. Tax TAX2 Base 881.00 TOTAL 881.00

We can bring the Item into the Production process by running the ‘Create Planned Records’ Maintenance function. This will result in the following Production Order —

Production Order: Inspect

Operations [New] [Duplicate] [Cancel] [Save]

No. 14 Name HiFi Rack Qty 10 Status ☒ Created ☐ Cancelled ☐ Accepted ☐ Started ☐ Finished ☐ Reserved

Recipe 80601 Should Start 22/11/2009

Due Date 30/11/2009

Location PROD Person

Machine WELD1 Queue Pos

Language Extra Prod Qty

Routing

Comment Items Planned Time Actual Time

Instruction

Comment

Objects

Item	Descr.	In	Out	Objects
1 80110	Glass Shelf	5.00		
2 80111	40 cm Steel Box Section	10.00		
3 80112	50 cm Steel Box Section	10.00		
4 80113	90 cm Steel Sheet	2.00		

The Machine chosen is the Default Machine for the Output Item, as set in the Production Item Alternative register (step 4 above). You can choose a different Machine, providing it is one that can be used to build the Output Item.

In this case, we ran the ‘Create Planned Records’ Maintenance function using the Ignore Current Stock Levels option. The Qty in the header of the Production Order is therefore the same as the quantity in the Sales Order. As the Item History report illustrated earlier shows, there are already two hi-fi racks in stock, so if we had not used the Ignore Current Stock Levels option, the Qty in the Production Order would have been eight.

The Should Start Date is calculated from the Planned Delivery Date using the various times in the Recipe (step 5), the Machine Hours (step 3) and the Qty in the header.

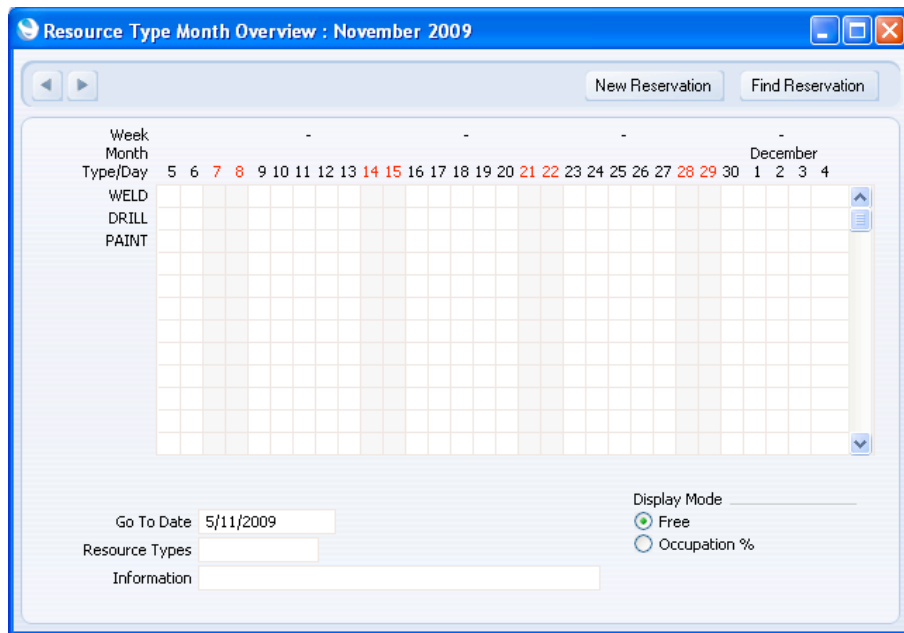
7. When you are ready to include the Production Order in your schedule, mark it as Accepted and save. The Production Order will be placed in a queue for the Machine, and its position in the queue will be shown in the Queue Pos field—

Item	Descr.	In	Out	Objects
1 80110	Glass Shelf	5.00		
2 80111	40 cm Steel Box Section	10.00		
3 80112	50 cm Steel Box Section	10.00		
4 80113	90 cm Steel Sheet	2.00		

A new Production Order will always be placed at the back of the queue, even if those ahead of it in the queue are not needed until later.

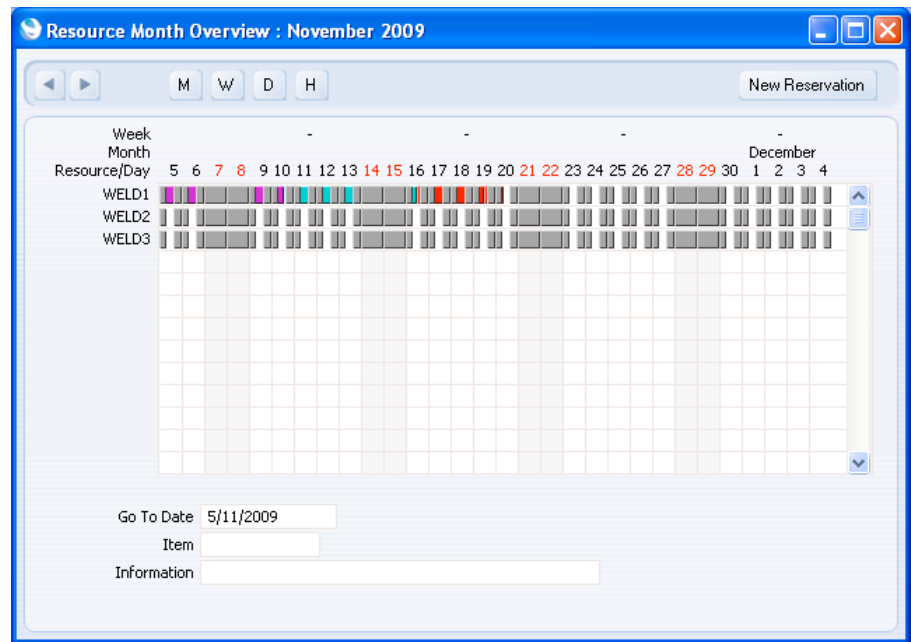
8. To see a graphical representation of the queue, open the Resource Planner by clicking the [Resources] button in the Master Control panel.

The 'Resource Type Month Overview' window shown overleaf opens, with Machine Groups listed in a column down the left-hand side of the window.



If you are using more than one of the options in the Resource Planner setting (step 1 above), the column down the left-hand side of the window will include records of different kinds. For example, if you are using the Production Orders and Projects options in the Resource Planner setting, the column down the left-hand side of the window will list Machine Groups and Projects. Therefore it is recommended that you use Project Numbers that make it easy for all users to distinguish Projects from Machine Groups in this window.

To see the Production Orders in the queues for the Machines in a Machine Group, double-click the Machine Group—



In this example, the grey bars signify when the Machines are not working (step 3 above). The purple, blue and red areas are Production Orders in the queue. These Production Orders use different Recipes, hence the different colours.

You can drag a Production Order up or down to another Machine, providing it is one that can be used to build the Output Item. The dragged Production Order will be placed at the end of the other Machine's queue.

9. To see a textual representation of the queue, produce a Production Queue report for the Machine—

P. Order	Recipe	Comment	Machine	Queue	Left	Due Date
12	80603	Deluxe HiFi Rack	WELD1	1	10	10/11/2009
13	80604	Exclusive HiFi Rack	WELD1	2	10	20/11/2009
14	80601	HiFi Rack	WELD1	3	10	30/11/2009
No of Production Orders					3	

10. To move a Production Order to a different position in the queue, first open the Production Order. You can do this by double-clicking the coloured bar representing the Production Order in the Resource Planner, or by clicking the Production Order Number in the Production Queue report. Then, choose 'Move in Queue' from the Operations menu—

Specify Move in Queue

Run

New Position: 3

Enter the new position in the queue and click the [Run] button. The Production Order will be moved to the new position in the queue. For example, if you move a Production Order from third place in the queue to second, its Queue Pos field will be changed from “3” to “2”, and the Queue Pos in the Production Order that was previously second in the queue will be changed from “2” to “3”.

11. The purpose of Production Orders is to organise and schedule Productions, including allocating the work to the appropriate Machines. Production Orders do not control the assembly process itself, and nor do they update stock levels of the Input and Output Items or the stock valuation in the Nominal Ledger. To achieve these, you need to create a Production from a Production Order. You can do this using two methods—
 - i. Open the Production Order and choose ‘Finish Batch’ from the Operations menu; and
 - ii. If you are using the Production Time Entry interface, a Production will be created automatically from a Production Order when you begin work on it.

In this example, we will describe the first method. For details of the second, please refer to the section entitled ‘The Production Time Entry Interface’ below on page 39.

When you use 'Finish Batch', a new Production will be opened, in a window entitled 'Production: New' signifying that it has not yet been saved —

Production: New

Operations [New] [Duplicate] [Cancel] [Save]

No. [] Name HiFi Rack Status ☒ Created ☐ Cancelled ☐ Started ☐ Finished ☐ Finished but Discarded

Recipe 80601 Start Date [] End Date 5/11/2009

Qty 2 Start Time [] End Time []

Location PROD Machine WELD1

Inspector [] Person []

Prod. Ord. 14 Discarded Reason []

Actual Qty [] Routing []



Item	Descr.	Serial No.	In	Out	Rel.	I-cost	W-cost	Coeff
1	80110 Glass Shelf		5.00			5.00	10.00	
2	80111 40 cm Steel Box Section		10.00			0.50		
3	80112 50 cm Steel Box Section		10.00			0.50		
4	80113 90 cm Steel Sheet		2.00			0.75		
5	80114 36 cm Steel Sheet		2.00			0.50		
6	80115 Hex Screw		20.00			0.10		
7	80116 Spiked Feet		4.00			1.00		
8	80117 Rubber Shelf Seat		20.00			0.10		
9	80118 End Cap		4.00			0.20	0.00	
10	80601 HiFi Rack			1.00		46.30		
11								
12								
13								






In Weight 76.56 Out Weight 80

As a default, the Standard Batch size from the Recipe will be copied to the Qty field in the header. This is the number of applications of the Recipe. In this example, one application of the Recipe will produce one hifi rack, so the result of the Production illustrated is that two hifi racks will be produced. If one application of the Recipe produced two hifi racks (i.e. if the Out Qty in the matrix is "2"), then two applications of the Recipe would produce four hifi racks. If the Standard Batch in the Recipe is blank, you will need to enter a Quantity yourself before proceeding.

12. Process the Production in the usual way, as described in the 'Building the Assembled Item' section above on page 14. This is the Finished Production—

Production: Inspect

Operations   New Duplicate Cancel Save

No. 5028 Name HiFi Rack Status  Created  Cancelled  Started  Finished  Finished but Discarded

Recipe 80601 Start Date 5/11/2009 End Date 5/11/2009

Qty 2 Start Time 13:55:00 End Time 16:55:00

Location PROD Machine WELD1

Inspector Person

Prod. Ord. 14 Discarded Reason

Actual Qty Routing

Items Comment

Item	Descr.	Serial No.	In	Out	Rel.	I-cost	W-cost	Coeff
1	80110 Glass Shelf		5.00			5.00	10.00	
2	80111 40 cm Steel Box Section		10.00			0.50		
3	80112 50 cm Steel Box Section		10.00			0.50		
4	80113 90 cm Steel Sheet		2.00			0.75		
5	80114 36 cm Steel Sheet		2.00			0.50		
6	80115 Hex Screw		20.00			0.10		
7	80116 Spiked Feet		4.00			1.00		
8	80117 Rubber Shelf Seat		20.00			0.10		
9	80118 End Cap		4.00			0.20	0.00	
10	80601 HiFi Rack			1.00		60.05		
11	MACHINE Machine cost		1.00			3.75		
12								
13								

In Weight 76.56 Out Weight 80

Note that the unit cost of the Output Item is slightly different to that illustrated above on page 21. While the actual Work and Machine Costs are the same, two Output Items have been produced (as shown in the Quantity field in the header) instead of one in the previous example, so on a per unit basis these Costs have been halved.

13. If the Production did not result in sufficient assembled Items to fulfil the Production Order, select 'Finish Batch' again to create a new Production. As you create Productions, you can monitor the progress of the Production Order by selecting 'Production Order Status' from the Operations menu—

Production Order Journal
 Operations

Production Order Journal HansaWorld, Print date: 5/11/2009 11:26
Radio Import/Export Ltd **Production Order 14**

Number	Due Date	Queue	Machine	Recipe	Comment	Prod. Qty
14	30/11/2009	3	WELD1	80601	HiFi Rack	10
Produced:						2
Discarded:						
Left to Produce:						8

Production	Date	Person	Weight	Prod Qty
5028	5/11/2009		80	2

14. When the Production Order has been fulfilled, mark it as Finished and save. It will be removed from the queue for the Machine (the Queue Pos field will be made blank). The other Production Orders in the queue will not have their Queue Pos fields renumbered. The queue is calculated by sorting the Production Orders by Queue Pos, but the Queue Pos is an arbitrary number that does not necessarily represent the actual position in the queue.

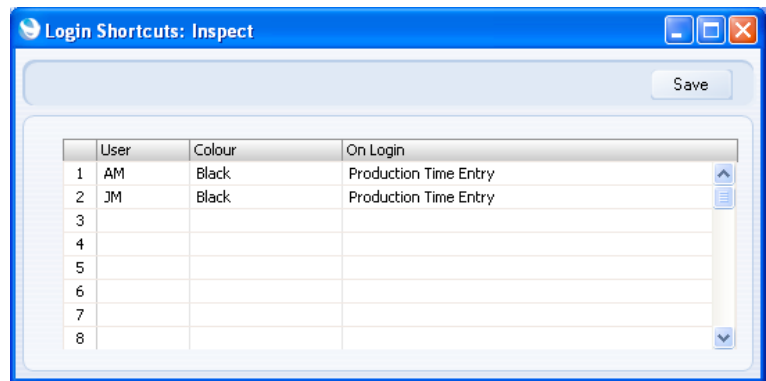
The Production Time Entry Interface

The Production Time Entry interface allows you to register the time spent working on Productions in a simple manner that does not require you to search for Productions or Production Orders. As you complete each Production, it will be marked as Finished automatically, thus updating stock levels and the stock valuation in the Nominal Ledger. Activities will also be created and marked as Done automatically: these will record the various running costs incurred in completing each Production.

The Production Time Entry interface reduces the time spent administering Productions, thus increasing efficiency. It is designed for use in environments where there is a Production Manager who will administer Production Orders (entering them, choosing the Recipe and Machine, and managing the queues), and where Production Operatives working on each Production only need to record the times they begin and end work and the quantities they produce.

To configure the Production Time Entry interface, follow these steps—

1. The first step is to specify that the Production Time Entry interface should be used when particular members of staff log in to your HansaWorld Enterprise system. Change to the User Settings module and open the Login Shortcuts register—



Specify each Person in the first column using 'Paste Special' if necessary, and enter "Production Time Entry" in the third column, again using 'Paste Special' if necessary. The third column determines the window each Person will see when they first log in. Any Person not listed will see the standard Master Control panel.

2. If you are using the Production Time Entry interface, the time spent working on Productions will be recorded in Activities. These Activities will be created automatically. The next step is to specify the Activity

Types that are to be used in these Activities. Open the Production Settings setting and go to the 'Cost Items' card—

The screenshot shows the 'Production Settings: Inspect' dialog box with the 'Cost Items' tab selected. The dialog has a 'Save' button in the top right corner. Below the tab bar, there are two columns of input fields. The left column contains 'Machine Cost Item' (with 'MACHINE' entered), 'Labour Cost Item', 'Setup Cost Item', 'Move Cost Item', and 'Queue Cost Item'. The right column contains 'Run Time Act. Type', 'Setup Act. Type', 'Move Act. Type', and 'Queue Act. Type'. Below these fields, there is a 'Time' section with two radio buttons: 'Actual Time' (selected) and 'Fixed Time'. Further down, there are three checkboxes: 'Auto Calculate Cost of produced Items' (checked), 'Add Work Cost' (unchecked), and 'Add Discarded Cost' (unchecked). To the right of these checkboxes is a 'Work Cost per Hour' input field.

Each automatic Activity will be assigned one of two Activity Types. The first Type will be used in Activities recording the time spent working on each Production. These are “Run Time” Activities, and they will use the Run Time Activity Type that you specify in this setting. Run Time Activities will always be created, because they are used to control the operation of the Production Time Entry interface.

The second Type will be used in Activities that record the time spent preparing for each Production (e.g. time required to calibrate the Machine). These are “Setup” Activities, and they will use the Setup Time Activity Type that you specify in this setting. Setup Activities are optional: if you want Setup Activities to be created, check the Add Work Cost box.

As well as causing Setup Activities to be created, the Add Work Cost option will also cause a Work Cost to be added to each Production, for the Run Time and the Setup Time. The total time will be calculated from the two Activities, and the cost will be the Work Cost per Hour in the Production Settings setting.

Production Settings: Inspect

Save

Options Cost Items

Machine Cost Item	MACHINE	Run Time Act. Type	MACHI
Labour Cost Item		Setup Act. Type	SETUP
Setup Cost Item		Move Act. Type	
Move Cost Item		Queue Act. Type	
Queue Cost Item			

Time

☒ Actual Time

☐ Fixed Time

☒ Auto Calculate Cost of produced Items

☒ Add Work Cost

☐ Add Discarded Cost

Work Cost per Hour 0.75

- The configuration work is now complete. If you are a Production Operative and it has been specified in the Login Shortcuts register that you will use the Production Time Entry interface when you log in (step 1), the first window that you will see when you do so will be the 'Register Time' window —

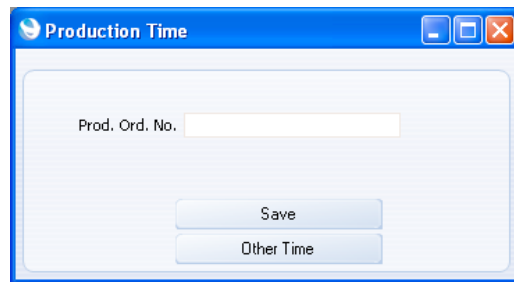
Register Time

Production Time

Other Time

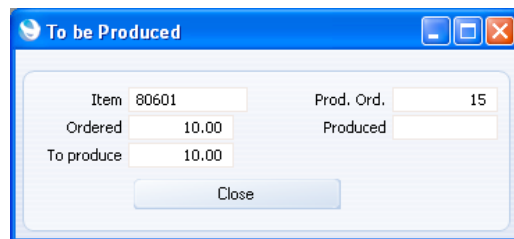
Calendar Report

4. When you start working on a Production Order, click the [Production Time] button. The 'Production Time' window opens—



The 'Production Time' window is a small dialog box with a blue title bar. It contains a single text input field labeled 'Prod. Ord. No.' and two buttons below it: 'Save' and 'Other Time'.

5. As a Production Operative, enter the Production Order Number supplied by your Production Manager and click the [Save] button. The 'To be Produced' window appears, showing you the Item that the Production Order requires you to produce, the Production Order Number, the quantity required by the Production Order, the quantity produced so far, and the quantity remaining to be produced—



The 'To be Produced' window is a small dialog box with a blue title bar. It displays production details for Item 80601 and Production Order 15. The fields are as follows:

Field	Value
Item	80601
Prod. Ord.	15
Ordered	10.00
Produced	
To produce	10.00

A 'Close' button is located at the bottom of the window.

These fields are not enterable, and simply provide you with a reminder of the current Production job.

6. When you have finished work on the Production, click the [Close] button to close the 'To be Produced' window. The 'Register Time' window illustrated in step 3 appears. Click the [Production Time] button again. The 'Specify Produced Quantities' window opens —

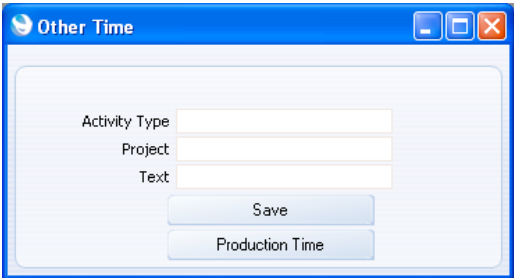
Complete the window as described below, then click the [Save] button.

- Produced** Enter the quantity you have produced.
- Discarded** If you produced and then discarded any final Items, enter the quantity discarded.
- For example, if you produced ten final Items, of which nine were good and one had to be discarded, enter “9” in the Produced field above and “1” in the Discarded field.
- Discarded Reason** **Paste Special** Standard Problems setting, Production/Service Orders module
- If you discarded any final Items, you must enter a Reason before you can close the window.
- Setup Time (min.)** The Setup Time is the time required to configure a Machine or work station before you can begin work (e.g. calibration, replenishing fluids). Enter the Setup Time here.
- Production Order** This field provides a reminder of the Production Order you are working on.
- Set Production Order as Finished**
- Check this box if you want to mark the Production Order as Finished. You should do this if you have produced all the Items required in the Production Order, and there is no more work required.

- 7. When you click the [Save] button, the ‘Specify Produced Quantities’ window closes, to be replaced by the ‘Register Time’ window illustrated in step 3. Click the [Production Time] button again as described in step 4 to begin work on the next Production Order.
- 8. If you quit HansaWorld Enterprise between steps 5 and 6, the Production Order will remain open in your name. When you next log in and click the [Production Time] button in the ‘Register Time’ window, you will be taken immediately to the ‘Specify Produced Quantities’ window described in step 6.
- 9. If you need to work on a Project instead of a Production Order, click the [Other Time] button in the ‘Register Time’ or ‘Production Time’ windows.

If you are already working on a Production Order, the ‘Specify Produced Quantities’ window illustrated in step 6 will appear. Complete this window as described in that step and click the [Save] button. The Production Order will no longer be open in your name. When the ‘Register Time’ window appears, click the [Other Time] button again.

The ‘Other Time’ window will appear—



Use this window to create an Activity that will record your work on the Project. Complete it as described below, then click the [Save] button.

Activity Type	Paste Special	Activity Types setting, CRM module
		Enter the Activity Type, which represents a specific job or task (e.g. cabling, training, analysis).
Project	Paste Special	Project register, Job Costing module
		Specify the Project that you are working on. You must enter a Project before you can save.

Text Enter some text to be copied to the Activity, perhaps describing the task.

When you click [Save], an Activity will be created, with the current time as the Start Time. It will not have an End Time, meaning it is regarded as “in progress”.

When you finish working on the Project, you need to end the Project Activity. Click the [Production Time] or [Other Time] buttons in the ‘Register Time’ window—

- If you click the [Production Time] button, the ‘Production Time’ window illustrated in step 4 will appear. When you enter a Production Order Number and click save, the End Time in the Project Activity will be updated and the Activity will be marked as Done. The Activity will therefore be closed. The Production Order will be opened in your name, as described in step 5.
- If you click the [Other Time] button, the ‘Other Time’ window will appear. Enter the details of the next Project you will work on, and click [Save]. In fact, this will only close the first Project Activity. The ‘Other Time’ window will appear again. Enter the details of the next Project again, and click [Save]. This time a new Activity will be created, for the second Project. This two-stage process allows you to stop working on a Project, to take a break or because it is the end of the day.

In both cases, when the Project Activity is closed, an appropriate Project Transaction will be created automatically, if the Activity Type belongs to an Activity Class whose Create Project Transaction box is checked. Please refer to the ‘Job Costing’ module for more details about Project Transactions.

When a Production Operative specifies a Production Order Number in the ‘Production Time’ window (step 4 above) and saves, the consequences in the Production Order, Production and Activity registers are as follows—

- a. The Production Order will be marked as Started automatically.
- b. If the Production Order is Cancelled or Finished, the Production Operative will be told ‘Check Production Order Status’, meaning that no more work can be carried out against the selected Production Order, and the Production Operative should specify another one.

The Production Order must also have been assigned to a Machine. If this is not the case, the Production Operative will be told ‘Check Production

Order Machine', and again no work on the Production Order will be possible.

- c. A new Production will be created from the Production Order automatically. The Status of this Production will be Started—

Production: Inspect

Operations [Print] [Copy]

New Duplicate Cancel Save

No. 5031 Name HiFi Rack

Recipe 80601 Start Date 6/11/2009 End Date 6/11/2009

Qty 10 Start Time 13:54:52 End Time

Location PROD Machine WELD1

Inspector Person AM

Prod. Ord. 15 Discarded Reason

Actual Qty Routing

Status: ☐ Created ☐ Cancelled ☒ Started ☐ Finished ☐ Finished but Discarded

Item	Descr.	Serial No.	In	Out	Rel.	I-cost	W-cost	Coeff
1	80110 Glass Shelf		5.00			5.00	10.00	
2	80111 40 cm Steel Box Section		10.00			0.50		
3	80112 50 cm Steel Box Section		10.00			0.50		
4	80113 90 cm Steel Sheet		2.00			0.75		
5	80114 36 cm Steel Sheet		2.00			0.50		
6	80115 Hex Screw		20.00			0.10		
7	80116 Spiked Feet		4.00			1.00		
8	80117 Rubber Shelf Seat		20.00			0.10		
9	80118 End Cap		4.00			0.20	0.00	
10	80601 HiFi Rack			1.00		46.30		
11								
12								
13								

In Weight Out Weight 0

Note that the Qty in the header of this Production is the entire quantity needed to fulfil the Production Order. The Standard Batch size from the Recipe is not used.

As Production Manager, do not create this Production in advance. If your Production Operatives are using the Production Time Entry interface, this Production must be created automatically from that interface. If you create this Production in advance, the Activity described in point d below will not be created, and therefore the time spent by the Operative working on the Production will not be recorded properly. So, if you need to use the Operations menu of the Production to create a Stock Movement to move the components to the Production Location (e.g. workshop) you must wait for the Operative to create the Production. If

you need to enter the Stock Movement in advance, enter it directly to the Stock Movement register.

- d. A “Run Time” Activity will be created, to record the time spent working on the Production. The Activity Type in this Activity will be the Run Time Activity Type specified in the Production Settings setting, and the Start Time and Date will be the current time and date. The Text of the Activity will be taken from the Activity Type, the Recipe and the quantity of the Production—

Activity: Inspect

Operations [Print] [Refresh] [Phone] [New] [Duplicate] [Cancel] [Save]

Text: Machines Cost, 10.00 * HiFi Rack

Type: MACHI Persons: AM

Language: Cc:

Priority: Supervisor: Result: ☐ Private ☐ Done

Time Customer Text Sub Alarm Resources Service User Defined

Start Time: 13:54:52 Start Date: 6/11/2009 Task Type: ☒ Calendar ☐ To Do ☐ Timed To Do ☐ Work Hours

End Time: End Date: 6/11/2009 Calendar: ☒ Time ☐ Profile ☐ Don't Show

Cost (Time): Time Class:

Project: Name:

Customer: Telephone:

Invoice Item: Contact:

Code	Text
1	
2	
3	
4	
5	
6	
7	

End Activity

The Production Number will be copied to the Production field on the ‘Service’ card of the Activity.

As mentioned in step 8 above, if the Production Operative quits HansaWorld Enterprise between steps 5 and 6, the Production Order will remain open in their name. This is because this Activity exists (and it is not marked as Done) and because the Production illustrated in point c is marked as Started and contains the Operative’s signature in its Person field.

When the Production Operative completes the 'Specify Produced Quantities' window (step 5 above), the consequences are as follows—

- e. If the operator chose the Set Production Order as Finished option, the Production Order will be marked as Finished (irrespective of whether the required Quantity has been produced).
- f. The End Time and Date in the Run Time Activity (from point d above) will be updated, and the Activity will be marked as Done. This will free the operator to work on another Production Order.

Activity: Inspect

Operations [Print] [Copy] [Phone] [New] [Duplicate] [Cancel] [Save]

Text: Machines Cost, 10.00 * HiFi Rack

Type: MACHI Persons: AM

Language: Cc:

Priority: Supervisor: Result: ☐ Private ☒ Done

Time Customer Text Sub Alarm Resources Service User Defined

Start Time: 14:24:00 Start Date: 6/11/2009 Task Type: ☒ Calendar ☐ To Do ☐ Timed To Do ☐ Work Hours

End Time: 16:59:36 End Date: 6/11/2009 Calendar: ☒ Time ☐ Profile ☐ Don't Show

Cost (Time): 02:35:00 Time Class:

Project: Customer: Invoice Item: Name: Telephone: Contact:

	Code	Text
1		
2		
3		
4		
5		
6		
7		

[End Activity]

- g. If the operator entered a Setup Time in the 'Specify Produced Quantities' window and if you are using the Add Work Cost option in the Production Settings setting, a second Activity will be created, to record the Setup Time (a "Setup Activity"). The Text of the Activity will be taken from the Activity Type, the Recipe and the quantity of the Production. This Activity will be marked as Done —

The screenshot shows the 'Activity: Inspect' window with the following fields and options:

- Text:** Setup Cost, 10.00 * HiFi Rack
- Type:** SETUP
- Persons:** AM
- Language:** (empty)
- Cc:** (empty)
- Priority:** (empty)
- Supervisor:** (empty)
- Result:** (empty)
- Private:** ☐
- Done:** ☒
- Time Card:**
 - Start Time: 13:54:52
 - End Time: 14:24:00
 - Cost (Time): 00:30:00
 - Start Date: 6/11/2009
 - End Date: 6/11/2009
 - Time Class: (empty)
- Task Type:**
 - ☒ Calendar
 - ☐ To Do
 - ☐ Timed To Do
 - ☐ Work Hours
- Calendar:**
 - ☒ Time
 - ☐ Profile
 - ☐ Don't Show
- Project:** (empty)
- Customer:** (empty)
- Invoice Item:** (empty)
- Name:** (empty)
- Telephone:** (empty)
- Contact:** (empty)
- Table:**

Code	Text
1	
2	
3	
4	
5	
6	
7	
- Buttons:** New, Duplicate, Cancel, Save, End Activity



The Production Number will be copied to the Production field on the 'Service' card of the Activity.






The Setup Time is assumed to occur at the beginning of the time spent working on the Production. For example, if work starts at 12:00, the Run Time Activity will be created with a Start Time of 12:00 (point d above). When work ends at 15:00, an End Time of 15:00 will be added to this Activity (point f). If the operator specifies a Setup Time of 20 minutes, the Start Time in this Activity will be changed to 12:20 and a Setup Activity will be created, running from 12:00 to 12:20.

- h. If you are using the Add Work Cost option in the Production Settings setting, a Work Cost will be added to the Production, calculated using

the total Cost (Time) of the labour and Setup Time Activities and the Work Cost per Hour specified in the Production Settings setting.

Production: Inspect

Operations   New Duplicate Cancel Save

No. 5031 Name HiFi Rack Status  Created  Cancelled  Started  Finished  Finished but Discarded

Recipe 80601 Start Date 6/11/2009 End Date 6/11/2009
 Qty 10 Start Time 13:23:27 End Time 17:24:08
 Location PROD Machine WELD1
 Inspector Person AM
 Prod. Ord. 15 Discarded Reason
 Actual Qty Routing

Items Comment

Item	Descr.	Serial No.	In	Out	Rel.	I-cost	W-cost	Coeff
1	80110 Glass Shelf		5.00			5.00	10.00	
2	80111 40 cm Steel Box Section		10.00			0.50		
3	80112 50 cm Steel Box Section		10.00			0.50		
4	80113 90 cm Steel Sheet		2.00			0.75		
5	80114 36 cm Steel Sheet		2.00			0.50		
6	80115 Hex Screw		20.00			0.10		
7	80116 Spiked Feet		4.00			1.00		
8	80117 Rubber Shelf Seat		20.00			0.10		
9	80118 End Cap		4.00			0.20	0.227	
10	80601 HiFi Rack			1.00		57.07686		
11	MACHINE Machine cost		1.00			0.75416		
12								
13								

In Weight Out Weight 0

In this case, the various calculations are —

Work Cost (from the Recipe) per unit	10.00
Set Up Cost (30 mins @ 0.75 per hour from Production Settings) per unit	0.038
Run Time Cost (2 hrs 31 mins @ 0.75 per hour) per unit	<u>0.189</u>
Total	0.227

Machine Cost (3 hrs 01 mins @ 2.50 per hour from the Asset) per unit 0.75416

- i. The Production will be marked as Finished automatically, stock levels of the components and the final Item will be adjusted, and a Nominal Ledger Transaction will be created, to adjust the stock valuation in the Nominal Ledger. For more details about this Transaction, please refer to the 'Nominal Ledger Transactions from Production Records' section below on page 218.

- j. As noted in point c above, when the Production is created, the Qty in the header will be the entire quantity needed to fulfil the Production Order. The Operative may not produce this Qty, and therefore will enter a lower Produced quantity in the 'Specify Produced Quantities' window. This quantity will be copied to the Qty field in the Production, overwriting what was previously there. The Run Time and Setup Activities will be updated and the Work Cost they represent will be transferred to the Production as described in points f - h above, and the Production will then be marked as Finished as described in point i.

For example, if the Qty in the Production Order is ten, then the Qty in the Production will also be ten at first. If the Operative produces two units, then the Qty in the Production will be updated to two before it is marked as Finished. When work on the Production Order restarts, a new Production will be created with a Qty of eight. The 'To be Produced' window will show that ten were ordered, two have been produced already, and eight are still required.

- k. If the Operative entered both Produced and Discarded quantities in the 'Specify Produced Quantities' window, the Production will be updated with the Produced quantity before being marked as Finished, as described in point j above. A second Production will be created for the Discarded quantity. This second Production will be marked as Finished but Discarded, thus removing the components from stock and updating the stock valuation in the Nominal Ledger. The two Productions will be connected to each other through the Attachments facility. The second Production will usually not add any final Items to stock. However, if you are using the Create Stock Depreciation from Discarded Production option in the Production Settings setting, the Discarded final Items will be added to stock, and an automatic Stock Depreciation will then remove them. If you are using the Add Discarded Cost option in the Production Settings setting, the value of the second (Discarded) Production will be added to the first (Finished) Production as a Work Cost, and therefore this value will be included in the stock value of the "good" Items.
- l. If the Operative only enters a Discarded quantity in the 'Specify Produced Quantities' window (i.e. if everything produced during a shift was discarded), a second Production will be created for the Discarded quantity, in all respects as described in point k. However, the original Production will remain untouched (i.e. the Qty in the header will not be updated and the Status will remain Started), and the Run Time Activity will not be updated as described in point f. In other words, the original Production will remain "in progress", the assumption being that the Operative will return to that Production and attempt to produce the quantity required. If this assumption is not correct, please refer to points i

- vi below for details about closing the Production and freeing the Operative to work on another job (if you need to account for the Work Costs of the discarded work, you will need to do so by creating a Nominal Ledger Transaction yourself).

It may be that the Production Operative enters the wrong Production Order Number in the 'Production Time' window in step 3. If so, you (or the Production Operative, depending on access rights) can proceed as follows—

- i. Locate the Run Time Activity that was created when the Production Operative entered the wrong Production Order Number (point d above). You can do this from the Production Operative's computer by clicking the [Calendar Report] button in the 'Register Time' window, or from any computer by opening the Calendar, entering the Production Operative's signature and clicking the [Report] button towards the top right-hand corner.
- ii. Open the Activity by clicking its Comment in the report, and go to the 'Service' card.

Activity: Inspect

Operations [Print] [Copy] [Phone] [New] [Duplicate] [Cancel] [Save]

Text: Machines Cost, 10.00 * HiFi Rack

Type: MACHI Persons: AM

Language: Cc:

Priority: Supervisor: Result: ☐ Private ☒ Done

Time Customer Text Sub Alarm Resources **Service** User Defined

Serial No. Item Prod. Oper.

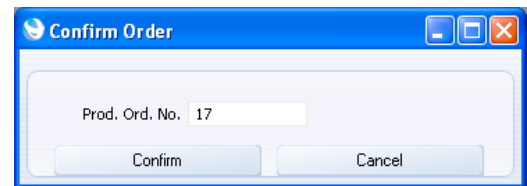
Service Order Invoice Item Production 5031

Resort Event

- iii. Note the Production Number in the Production field.
- iv. Delete the Activity.
- v. Locate the Production in the Production register and open it. Mark it as Cancelled and save. You can also remove the Production Operative's signature from the Person field, although this is not essential.
- vi. The Production Operative can now click the [Production Time] button in the 'Register Time' window and enter the correct Production Order Number.

Usually, a Production Operative can only work on one Production Order at a time. The Operative will choose the Production Order at the moment they start working (step 4 above), and enter the quantity they produce when they finish (step 6 above). The Operative will then repeat the cycle for the next Production Order. If a particular Operative needs to work on more than one Production Order at a time, grant that Operative access to the 'Allow Multiple Active Productions' Action in their Access Group. If you are such an Operative, replace steps 4-6 in the earlier sequence with these steps—

10. On signing in, the 'Register Time' window will appear. Click the [Production Time] button and enter the first Production Order Number. After clicking the [Save] button, the 'To be produced' window will appear as already described. Click the [Close] button as usual: the 'Register Time' window will re-appear.
11. Click the [Production Time] button again and enter the second Production Order Number. After clicking the [Save] button, you will be asked to confirm—



12. Click the [Confirm] button to confirm that you want to begin work on the second Production Order (or [Cancel] if the Number is not correct). The 'To be produced' window will appear as normal. Click the [Close] button to return to the 'Register Time' window.
13. Repeat steps 11 and 12 as required.
14. When you have finished work, click the [Production Time] button in the 'Register Time' window again. When the 'Production Time' window

appears, enter the Production Order Number from step 10 and click [Save]. You must enter the Production Order Number from step 10 (i.e. the first Production Order Number that you registered), not one from step 11. Repeating the Production Order Number from step 10 signals to HansaWorld Enterprise that you are no longer entering the Production Orders on which you are starting work, and are now recording that you have finished work.

15. Complete the 'Specify Produced Quantities' window as already described and click [Save].
16. The 'Specify Produced Quantities' window will re-appear, with the second Production Order Number already entered. Complete the window as appropriate for this Production Order and click [Save].
17. Step 16 will be repeated for each Production Order.
18. When you have completed step 16 for each Production Order, you be returned to the 'Register Time' window so that you can repeat the cycle.

Please refer to the 'System Module' manual for more details about Access Groups.

Assembly in Stages

A single Production record represents the process of removing components from stock and assembling them into the final Item. The removing of components from stock, the adding of the final Item to stock and the updating of the stock valuation in the Nominal Ledger all occur at the same moment. A single Production record cannot therefore represent a complex Production process with several assembly stages, where components are not all removed from stock at the same time. To meet this requirement, you can use Routings and Production Operations to divide a Production into stages, with the following benefits—

- You can record each stage of the Production process separately, so you will always know exactly how each Production is progressing;
- Components will be removed from stock as you use them, not at the end of the entire Production process; and
- You can record Work in Progress in the Nominal Ledger.

We will adapt the example hifi rack to illustrate the use of multi-stage Productions by dividing the assembly process into the following stages—

- i. The rack will include five shelves. Each shelf will consist of a glass sheet on a metal frame. The glass will sit on rubber seats to isolate it from the metal.

The first stage is to construct the metal frames by welding square-section metal tubes together.

- ii. The left and right sides of the metal frames will each be attached to a metal support, and each support will have two spiked feet.

The second stage is to construct the two metal supports by pressing metal sheet into shape and welding sections together.

- iii. Holes will be drilled in the frames for the rubber seats, and threaded holes will be drilled in the supports for the spiked feet.
- iv. The frames and supports will be painted.
- v. The rubber seats will be pressed into the frames.
- vi. The spiked feet will be screwed into the supports.
- vii. The final assembly stage will see the frames and supports joined together using hex bolts and the glass shelves will be placed on the frames. Final cosmetic tidying will see plastic end caps being placed on the ends of the supports.

While the first two stages can be completed simultaneously, the others must be completed in order. For example, the components cannot be painted before they have been built, and final assembly cannot take place until the paint has dried.

To divide the Production process into the seven stages, follow these steps—

1. The first step is to determine the stage to which each component belongs. Open the Recipe and go to flip B—

Recipe: Inspect

Operations: [New] [Duplicate] [Cancel] [Save]

Code: 80601 Comment: HiFi Rack

Normal Prod Qty: 1 Time to Setup: Language: ☐ Closed

Min Prod Qty: Days to Produce: Hours to Produce: 3.00 Minutes: Seconds: Number Produced: 1

Fixed Assembly Days: Extra Prod Qty: Res. mgr. Colour: Red

Standard Batch: 2 Default Routing: Instructions:

Item	Specification	Description	Material	Recipe
1	80110	Glass Shelf	COMPONENT	-
2	80111	40 cm Steel Box Section	WELD_SHELVES	-
3	80112	50 cm Steel Box Section	WELD_SHELVES	-
4	80113	90 cm Steel Sheet	WELD_SUPPORTS	-
5	80114	36 cm Steel Sheet	WELD_SUPPORTS	-
6	80115	Hex Screw	COMPONENT	-
7	80116	Spiked Feet	FEET	-
8	80117	Rubber Shelf Seat	SEATS	-
9	80118	End Cap	COMPONENT	-
10	80601	HiFi Rack	ASSEMBLY	Recipe

☐ Locked Cost of In-Items: 56.3 Value of Out-Items: 46.3

Assign a Material to each Input Item (and to the Output Item as well).

A “Material” is a generic name for the type of Input Item (for example, “FEET” or “SEATS”), or for the task (for example, “WELD_SHELVES”). In essence, the Material indicates the Input Items that will be used during a particular Production stage. In this example, the Input Items marked “WELD_SHELVES” will be used for stage i (constructing the metal shelf frames), while the Input Items marked “WELD_SUPPORTS” will be used for stage ii (constructing the metal supports). When stage i is completed, all Input Items marked “WELD_SHELVES” will be removed from stock, as this stage requires those Input Items to be welded together to produce five shelf frames.

The three Input Items marked “COMPONENT” will all be used (removed from stock) at the same time. If they were to be used at

different stages in the Production process, we would need to differentiate their Materials, for example to “COMPONENT_A”, “COMPONENT_B” and so on. In fact this has been done in the example: the spiked feet and rubber seats could also be described as components, but they will be needed at different times in the process.

The Output Item should also be given a Material. This Material controls when the Output Item will be added to stock.

In this example, no Input Item has been given a Material such as “PAINT”. This is because no Input Items will be used during stage iii (painting the frames and support). This is for illustrative purposes in the example only: in reality it would be necessary to monitor paint usage and therefore paint would be an Input Item in the Recipe.

As shown in the illustration, there is no need to list the Input Items so that those with the same Material are together, and there is also no need to list them in the sequence in which they will be used. This sequence will be determined in the next steps.

2. While the Recipe is open, return to flip A and remove the W-cost (Work Cost). When you divide the Production process into stages, you should assign costs to each stage, not to the process as a whole.
3. The next step is to define each stage in the Production process. These stages are known as “Operations”. In the example, there will be seven Operations, as described at the beginning of this section.

You should define these Operations using the Standard Operations setting. This is the Standard Operation representing the first stage in the process —

Standard Operation: Inspect

Code: MAKE_SHELF_FR Comment: Making Shelf Frames

Machine Group: Display Group:

Materials Time Instructions

	Material	Qty	Unit	Description
1	WELD_SHELVES			Welding Shelves
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				

Each Standard Operation contains a list of the Materials. These Materials connect the Standard Operation to some of the Items in the Recipe, indicating which of those Items are needed by the Operation. In the example illustrated above, there is one Material, “WELD_SHELVES”. This means that when the Standard Operation is completed, all Input Items marked “WELD_SHELVES” in the Recipe will be removed from stock. In our Recipe there are no Output Items marked “WELD_SHELVES” but if there were and if they were Stocked Items, they would be added to stock.

The number of Standard Operations and the Materials that they contain will depend on the particular Production process. For example, in this case we have dedicated an Operation to welding steel box section to produce shelf frames, and we will have a separate Operation representing the drilling of holes in the shelf frames for the rubber seats (stage iii). If

the same Person will weld and then drill, we could have a single Operation for these two tasks. If so, however, it would not be possible to account separately for the wear and tear to the various Machines used (e.g. the welder and the drill). This is described in a separate example below on page 69.

In the example, we will enter seven Standard Operations representing the seven stages, as follows—

Std Operation	Materials
MAKE_SHELF_FRAMES	WELD_SHELVES
MAKE_SUPPORTS	PRESS WELD_SUPPORTS
DRILL	DRILL
PAINTING_RACK	PAINT
SEATS	SEATS
FEET	FEET
FINAL_ASSEMBLY	COMPONENT ASSEMBLY

4. Having entered the seven Standard Operations, the next stage is to specify the sequence in which they should be carried out. This sequence is known as a “Routing”, and is defined using the Routings setting—

The screenshot shows a software window titled "Routing: Inspect". At the top, there are navigation buttons (back, forward) and action buttons (New, Duplicate, Cancel, Save). Below these, there are input fields for "Code" (containing "RACK") and "Comment" (containing "Assembly of Hifi Rack"). The main area is a table with the following data:

	Operations	Description	Sequence	Sub
1	MAKE_SHELF_	Making Shelf Frames	1	A
2	MAKE_SUPPOR	Make Supports	2	B
3	DRILL	Drill Holes in Frames	3	
4	PAINTING_RA	Painting Hifi Rack Components	4	
5	SEATS	Screw Rubber Seats into Shelf Mounts	5	
6	FEET	Screw Spiked Feet into Supports	6	
7	FINAL_ASSEM	Final assembly	7	
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				

List the Operations in the grid, using the Sequence field to set the order in which they should be completed.

5. The final configuration step is to return to the Recipe and enter the Routing in the Default Routing field—

The screenshot shows the 'Recipe: Inspect' window with the following fields and values:

- Code: 80601
- Comment: HiFi Rack
- Normal Prod Qty: 1
- Min Prod Qty:
- Fixed Assembly Days:
- Res. mgr. Colour: Red
- Standard Batch: 2
- Default Routing: RACK
- Instructions:
- Time to Setup:
- Days to Produce:
- Hours to Produce: 3.00
- Number Produced: 1
- Extra Prod Qty:
- Language: ☐ Closed
- Minutes:
- Seconds:

Below the fields is a table with 10 rows and 8 columns:

	Item	Specification	In	Out	Rel.	I-cost	W-cost
1	80110	Glass Shelf	5.00			5.00	
2	80111	40 cm Steel Box Section	10.00			0.50	
3	80112	50 cm Steel Box Section	10.00			0.50	
4	80113	90 cm Steel Sheet	2.00			0.75	
5	80114	36 cm Steel Sheet	2.00			0.50	
6	80115	Hex Screw	20.00			0.10	
7	80116	Spiked Feet	4.00			1.00	
8	80117	Rubber Shelf Seat	20.00			0.10	
9	80118	End Cap	4.00			0.20	0.00
10	80601	HiFi Rack		1.00		46.30	

At the bottom of the window, there is a 'Locked' checkbox, 'Cost of In-Items' set to 46.3, and 'Value of Out-Items' set to 46.3.



If a Recipe has a Routing, you cannot specify a Work Cost in any of the Input rows. Please refer to the next section, 'Additional Production Costs with Production Operations' below on page 69, for details about recording the costs associated with Production Operations.

So, in brief—

- The Default Routing determines the order in which the Operations will be carried out; and
- the Materials determine the Input (and Output) Items that will be used (and produced) by a particular Operation.

6. As the configuration work is complete, you can now use the Recipe in a Production. When you do so, the Routing will be brought in as well—

Production: New

Operations   New Duplicate Cancel Save

No. 5033 Name HiFi Rack Status ☒ Created ☐ Cancelled ☐ Started ☐ Finished ☐ Finished but Discarded

Recipe 80601 Start Date End Date 6/11/2009

Qty 1 Start Time End Time

Location PROD Machine

Inspector Person

Prod. Ord. Discarded Reason

Actual Qty Routing RACK

Items Comment

	Item	Descr.	Serial No.	In	Out	Rel.	I-cost	W-cost	Coeff
1	80110	Glass Shelf		5.00			5.00		
2	80111	40 cm Steel Box Section		10.00			0.50		
3	80112	50 cm Steel Box Section		10.00			0.50		
4	80113	90 cm Steel Sheet		2.00			0.75		
5	80114	36 cm Steel Sheet		2.00			0.50		
6	80115	Hex Screw		20.00			0.10		
7	80116	Spiked Feet		4.00			1.00		
8	80117	Rubber Shelf Seat		20.00			0.10		
9	80118	End Cap		4.00			0.20	0.00	
10	80601	HiFi Rack			1.00		46.30		
11									
12									
13									

In Weight 38.28 Out Weight 40

7. If necessary, move stock of the Input Items into the Production Location using a Stock Movement.

8. The next stage is to implement the Routing and its Standard Operations. Save the Production and choose 'Create Production Operations' from the Operations menu. This function uses the Standard Operations listed in the Routing as templates to create Production Operations specific to the Production. One Production Operation will be created from each Standard Operation, to be saved in the Production Operation register. While the Production is still open, you can produce a list of the connected Production Operations by choosing 'Production Status' from the Operations menu—

Production Status

Operations [Printer Icon] [Search]

Production Status **HansaWorld, Print date: 6/11/2009 11:46**
Radio Import/Export Ltd **Production 5033**
Overview

Comment	Sequence	Status	In	Out	Cost
<u>Production 5033</u>				Created	
<u>Making Shelf Frames</u>	1	Created	1.00		10.00
<u>Make Supports</u>	2	Created	1.00		2.50
<u>Drill Holes in Frames</u>	3	Created	1.00		
<u>Painting Hifi Rack Components</u>	4	Created	1.00		
<u>Screw Rubber Seats into Shelf Mounts</u>	5	Created	1.00		2.00
<u>Screw Spiked Feet into Supports</u>	6	Created	1.00		4.00
<u>Final assembly</u>	7	Created	1.00		27.80
Stock Mov.					
31					

You can open an individual Production Operation from this report—

Production Operation: Inspect

Operations: [New] [Duplicate] [Cancel] [Save]

No. 51 Prod. Order Prod. No. 5033
 Qty 1 Actual Qty
 Start Date 6/11/2009 End Date 6/11/2009
 Comment Making Shelf Frames
 Sequence 1

Status:
☒ Created
☐ Cancelled
☐ Started
☐ Finished
☐ Finished and Discarded

Items Time Comment Instructions

Item	Descr.	Serial No.	In	Out	Rel.	Unit Cost	Coeff
1	80111	40 cm Steel Box Section	10.00			0.50	
2	80112	50 cm Steel Box Section	10.00			0.50	
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

9. In effect, each Production Operation is a Production in miniature. As with a Production, when work starts, mark the Production Operation as Started and save it. When work finishes, enter the quantity produced in the Actual Qty field. In the example illustrated, this will be one, even though five shelf frames will have been produced. The Actual Qty does not refer to the number of units produced, but to the number of implementations of the Operation. Then, mark the Production Operation as Finished and save it. The relevant quantities of the Input Items will be removed from stock. If the Production Operation contains an Output Item that is a Stocked Item, the relevant quantity will be added to stock.

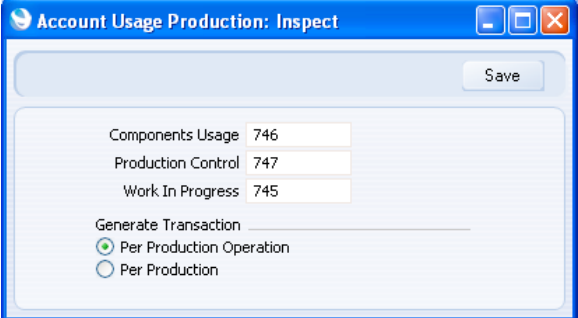
You have a choice about how to update the stock valuation in the Nominal Ledger, as follows—

- You can update the stock valuation in the Nominal Ledger each time you Finish a Production Operation. In this case, the value of the

Production so far will be posted to a Work In Progress Account. This will be cleared when you Finish the last Production Operation.

- You can wait until Finishing the Production before updating the stock valuation in the Nominal Ledger, posting every removal and addition to stock at once. All Production Operations must be Finished before you can Finish the Production.



Make this choice and specify the Work In Progress Account using the Account Usage Production setting—




The screenshot shows a software window titled "Account Usage Production: Inspect". Inside the window, there is a "Save" button in the top right corner. Below it, there are three input fields with their respective values: "Components Usage" with value "746", "Production Control" with value "747", and "Work In Progress" with value "745". Below these fields is a section labeled "Generate Transaction" which contains two radio button options: "Per Production Operation" (which is selected, indicated by a green dot) and "Per Production" (which is unselected, indicated by a grey dot).

The Production Operation illustrated above will update the stock valuation in the Nominal Ledger by creating the following Transaction—

Transaction: Inspect

Operations   New Duplicate Cancel Save

No. 51 Trans. Date 6/11/2009 Reference 

Text: Making Shelf Frames

	Account	Objects	Description	Base 1 Debit	Base 1 Credit	V-Cd
1	740		Stock Valuation		10.00	A
2	745		Work in Progress	10.00		B
3						C
4						D
5						E
6						F
7						G
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						



Difference Base 1 0.00 Total 10.00 10.00


Difference Base 2 0.00 Total 15.88 15.88

The value of the Input Items is removed from the Stock Account and added to the Work In Progress Account.

The final Production Operation will update the stock valuation in the Nominal Ledger by creating the following Transaction—

Transaction: Inspect

Operations   New Duplicate Cancel Save

No. 57 Trans. Date 6/11/2009 Reference 

Text Final assembly

	Account	Objects	Description	Base 1 Debit	Base 1 Credit	V-Cd
1	740		Stock Valuation		27.80	A
2	740		Stock Valuation	46.30		B
3	745		Work in Progress		18.50	C
4						D
5						E
6						F
7						G
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
	Difference Base 1			0.00		
	Difference Base 2			0.00		
	Total			46.30	46.30	
	Total			73.49	73.49	

The value of the Input Items used in the final Production Operation is removed from the Stock Account, and the value of the Output Item is added. The value of the previous Production Operations is removed from the Work In Progress Account.

10. On returning to the Production, selecting 'Production Status' from the Operations menu once again now shows that all Production Operations have been Finished—

Production Status					
Operations		Search			
Production Status		HansaWorld, Print date: 6/11/2009 11:59			
Radio Import/Export Ltd		Production 5033			
		Overview			
Comment	Sequence	Status	In	Out	Cost
Production 5033				Created	
Making Shelf Frames	1	Finished	1.00	1.00	10.00
Make Supports	2	Finished	1.00	1.00	2.50
Drill Holes in Frames	3	Finished	1.00	1.00	
Painting Hifi Rack Components	4	Finished	1.00	1.00	
Screw Rubber Seats into Shelf Mounts	5	Finished	1.00	1.00	2.00
Screw Spiked Feet into Supports	6	Finished	1.00	1.00	4.00
Final assembly	7	Finished	1.00	1.00	27.80
Stock Mov.					
31					

Now you can mark the Production as Finished, and create a Stock Movement to move the Output Item from the Production Location to a storage Location (e.g. warehouse or shop).

Additional Production Costs with Production Operations

When you use Production Operations to build a Production, you can record four separate types of running costs, as follows—

Labour	the cost of labour
Setup	the cost of setting up the Machine e.g. calibration or replenishing fluids or consumables
Move	the cost of moving parts either from stock to the first Production Operation or from one Production Operation to the next
Queue	the cost incurred in waiting for parts to be ready e.g. waiting for paint to dry or heated parts to cool. Queue time is also known as “non-instant availability”.

You can calculate these four running costs using one of two methods—

Actual Time	The costs will be based on the time actually taken to complete a Production Operation
Fixed Time	Costs will be fixed in advance of the Production Operation taking place.

The Running Cost per Hour in the Asset record is not used to calculate a Machine’s running costs if you are using Production Operations. Therefore you should include this cost in one of the four cost types described above.

Follow these steps—

1. In the Production Settings setting, use the Time options on the ‘Cost Items’ card to choose whether you will record Actual or Fixed Time—

Production Settings: Inspect

Save

Options Cost Items

Machine Cost Item	MACHINE	Run Time Act. Type	MACHI
Labour Cost Item	LABOUR	Setup Act. Type	SETUP
Setup Cost Item	SETUP	Move Act. Type	
Move Cost Item	MOVE	Queue Act. Type	
Queue Cost Item	QUEUE		

Time

☐ Actual Time
☒ Fixed Time

☒ Auto Calculate Cost of produced Items
☒ Add Work Cost
☐ Add Discarded Cost

Work Cost per Hour 0.75

If you choose the Fixed Time option as in the illustration, you should also specify Labour, Setup, Move and Queue Cost Items. When you create each Production Operation, it will contain an extra row for each cost type, using the Items specified here. If you choose the Actual Time option, you only need specify a Labour Cost Item. In both cases, enter a Work Cost per Hour.

Steps 2-5 below describe the Fixed Time option, while steps 6-9 describe the Actual Time option.

2. If you are using the Fixed Time option, you should now specify the times required to complete each Operation, on the 'Time' card of each Standard Operation record—

The screenshot shows a software window titled "Standard Operation: Inspect". At the top, there are navigation buttons: a left arrow, a right arrow, and buttons for "New", "Duplicate", "Cancel", and "Save". Below these, there are two rows of input fields: "Code" with the value "MAKE_SHELF_FR" and a dropdown arrow, and "Comment" with the value "Making Shelf Frames" and a link icon. Below these are "Machine Group" and "Display Group" input fields. A tabbed interface is present with three tabs: "Materials", "Time" (which is selected and highlighted in blue), and "Instructions". Under the "Time" tab, there are four time input fields arranged in two rows: "Setup Time" (00:15:00), "Queue Time" (00:15:00), "Move Time" (empty), and "Run Time" (01:00:00).

These are the times required for the whole Operation, not per unit.

- When you create the Routing record, the times from each Standard Operation will be copied to flip B. You can change the times for a particular Routing if necessary. For example, a Standard Operation might contain the times required to complete four Items, as the usual quantity produced. A particular Recipe may require five to be produced, so you will need to adjust the times in the Routing accordingly.

Routing: Inspect

Code: RACK Comment: Assembly of Hifi Rack

Operations	Description	Run Time	Setup T.	Queue T.	Move T.
1	MAKE_SHELF_	01:00:00	00:15:00	00:15:00	
2	MAKE_SUPPOR	01:00:00	00:30:00	00:15:00	
3	DRILL	00:05:00	00:01:00		
4	PAINTING_RA	01:00:00	00:15:00	06:00:00	
5	SEATS	00:05:00			
6	FEET	00:05:00			
7	FINAL_ASSEM	01:30:00			
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

Buttons: New Duplicate Cancel Save

Flips: A B

4. When you create the Production Operations for a Production, the Cost Items specified in the Production Settings setting will be added to the 'Items' card of each Production Operation, with quantities calculated from the Routing —

The screenshot shows the 'Production Operation: Inspect' window. It has a top bar with 'Operations' and buttons for 'New', 'Duplicate', 'Cancel', and 'Save'. Below this, there are input fields for 'No.' (58), 'Qty' (1), 'Start Date' (6/11/2009), 'Comment' (Making Shelf Frames), 'Sequence' (1), 'Prod. Order', 'Actual Qty', 'End Date' (6/11/2009), 'Prod. No.' (5034), and 'Status' (Created). The 'Status' field has radio buttons for 'Created', 'Cancelled', 'Started', 'Finished', and 'Finished and Discarded'. Below the input fields, there are tabs for 'Items', 'Time', 'Comment', and 'Instructions'. The 'Items' tab is selected, showing a table with columns: Item, Descr., Serial No., In, Out, Rel., Unit Cost, and Coeff. The table contains 15 rows, with the first 6 rows having data and the remaining 9 rows being empty. The data rows are:

Item	Descr.	Serial No.	In	Out	Rel.	Unit Cost	Coeff
1	80111 40 cm Steel Box Section		10.00			0.00	
2	80112 50 cm Steel Box Section		10.00			0.00	
3	LABOUR Labour		1.00			0.75	
4	SETUP Setup cost		0.25			0.75	
5	MOVE Move cost		0.00				
6	QUEUE Queue cost		0.25			0.75	
7							
8							
9							
10							
11							
12							
13							
14							
15							

5. As normal, when work starts, mark the Production Operation as Started and save it. When work finishes, enter the quantity produced in the Actual Qty field, mark the Production Operation as Finished and save it. The relevant quantities of the Input Items will be removed from stock. If you are updating the stock valuation in the Nominal Ledger from each Production Operation, the total value of the four cost items will be credited to the Work Cost Account and debited to the Work in Progress Account (together with the value of the Input Items removed from stock). The value will be calculated using the Work Cost per Hour specified in the Production Settings setting.

In this case, the various calculations are—

Set Up Cost (15 minutes @ 0.75 per hour from Production Settings)	0.1875
Labour (1 hour @ 0.75 per hour from Production Settings)	0.75
Queue Cost (15 minutes @ 0.75 per hour from Production Settings)	<u>0.1875</u>
Total (rounded to two decimal places)	1.13

Transaction: Inspect

Operations [Print] [Copy]

New Duplicate Cancel Save

No. 58 Trans. Date 6/11/2009 Reference

Text: Making Shelf Frames

	Account	Objects	Description	Base 1 Debit	Base 1 Credit	V-Cd
1	740		Stock Valuation		10.00	A
2	231		Production Work Cost		1.13	B
3	745		Work in Progress	11.13		C
4						D
5						E
6						F
7						G
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
	Difference Base 1			0.00		
	Difference Base 2			0.00		
	Total			11.13	11.13	
	Total			17.68	17.68	

6. If you are using the Actual Time option in the Production Settings setting, you need to use Activities to record the time you spend on each Production Operation. You should create these Activities from each Production Operation while its Status is Created or Started, using the 'Create Activity' function on the Operations menu. Before selecting this function, enter Start and End Dates and Times in the Production Operation, as these will be transferred to the Activity—

The Activity Type will be taken from the Activity Types, Subsystems setting in the CRM module. If you entered your Signature on the 'Comment' card of the Production Operation, it will be copied to the Persons field in the Activity. Otherwise, enter it to the Activity yourself. Mark the Activity as Done and save.

If you create these Activities in advance, you can also use them for scheduling purposes, as described in the 'Scheduling Production Operations' section below on page 78.

7. Repeat step 6 as necessary.
8. Choose 'Add Labour' from the Operations menu of the Production Operation. This will add a row to the Production Operation with the Labour Cost Item and Work Cost per Hour specified in the Production Settings setting. The quantity will be the total time for all Done Activities created from the Production Operation—

Production Operation: Inspect

Operations New Duplicate Cancel Save

No. 65 Prod. Order Prod. No. 5035
 Qty 1 Actual Qty
 Start Date 6/11/2009 End Date 6/11/2009
 Comment Making Shelf Frames
 Sequence 1

Status
☒ Created
☐ Cancelled
☐ Started
☐ Finished
☐ Finished and Discarded

Items Time Comment Instructions

	Item	Descr.	Serial No.	In	Out	Rel.	Unit Cost	Coeff
1	80111	40 cm Steel Box Section		10.00			0.00	
2	80112	50 cm Steel Box Section		10.00			0.00	
3	LABOUR	Labour		0.25			0.75	
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

9. When work finishes, enter the quantity produced in the Actual Qty field, mark the Production Operation as Finished and save it. The relevant quantities of the Input Items will be removed from stock. If you are updating the stock valuation in the Nominal Ledger from each Production Operation, the value of the Labour Cost Item will be credited to the Work Cost Account and debited to the Work in Progress Account (together with the value of the Input Items removed from stock).

Transaction: Inspect

Operations [Print] [Refresh]

New Duplicate Cancel Save

No. 65 Trans. Date 6/11/2009 Reference

Text Making Shelf Frames

	Account	Objects	Description	Base 1 Debit	Base 1 Credit	V-Cd
1	740		Stock Valuation		10.00	
2	231		Production Work Cost		0.19	
3	745		Work in Progress	10.19		
4	140		Stock Gain	0.00		
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Difference Base 1 0.00 Total 10.19 10.19

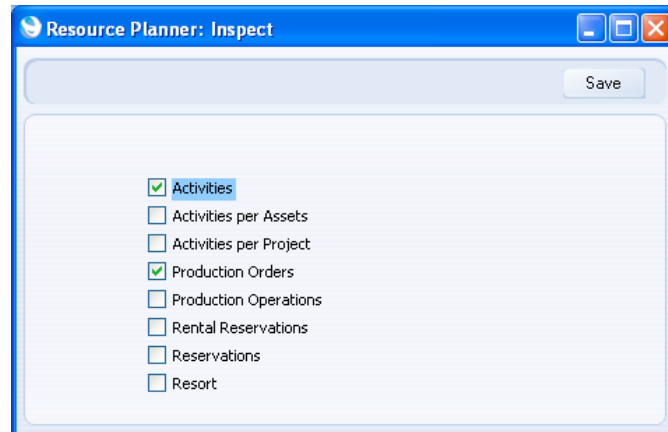
Difference Base 2 0.00 Total 16.18 16.18

10. If you are using the Fixed Time option as described in steps 2-5, you can also use the Actual Time method ('Create Activity' and 'Add Labour') to add an extra cost to a particular Production Operation.

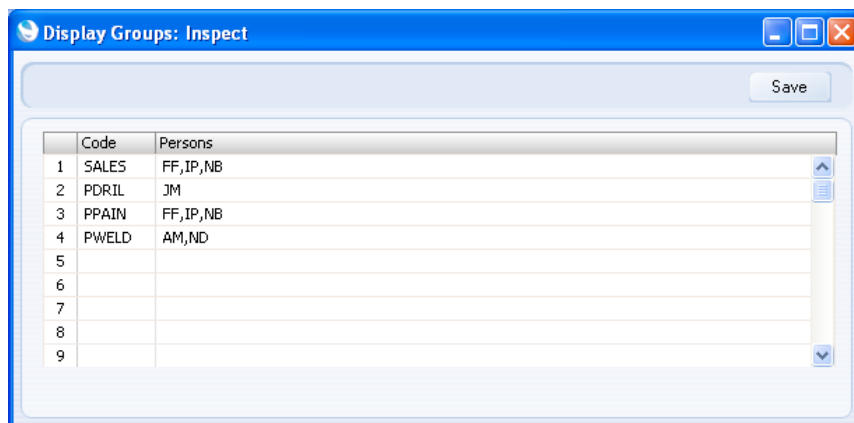
Scheduling Production Operations

If you have the Resource Planning module, you can use it to help schedule the work of members of staff on Production Operations. Follow these steps—

1. In the Resource Planner setting in the Resource Planning module, choose the Activities option.



2. You should now divide your personnel into groups, using the Display Groups setting in the System module.



List the Persons in each Group, separated by commas. If you are also using the Resource Planner to schedule work on Production Orders as described above on page 23, it is recommended that you use different Codes in the Machine Groups and Display Groups settings.

3. The next step is to specify the Display Groups whose members are capable of undertaking each task or Operation. You should do this in each Standard Operation record—

Standard Operation: Inspect

Code: MAKE_SHELF_FR | Comment: Making Shelf Frames

Machine Group: | Display Group: PWELD

Materials | Time | Instructions

	Material	Qty	Unit	Description
1	WELD_SHELVES			Welding Shelves
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				

4. In the Recipe, specify a colour for the Resource Planner.

Recipe: Inspect

Operations: [New] [Duplicate] [Cancel] [Save]

Code: 80601 Comment: HiFi Rack

Normal Prod Qty: 1 Time to Setup: Language: ☐ Closed

Min Prod Qty: Days to Produce: Hours to Produce: 3.00 Minutes: Seconds:

Fixed Assembly Days: Number Produced: 1

Res. mgr., Colour: Red Extra Prod Qty:

Standard Batch: 2

Default Routing: RACK

Instructions:

Item	Specification	In	Out	Rel.	I-cost	W-cost
1	80110 Glass Shelf	5.00			5.00	
2	80111 40 cm Steel Box Section	10.00			0.50	
3	80112 50 cm Steel Box Section	10.00			0.50	
4	80113 90 cm Steel Sheet	2.00			0.75	
5	80114 36 cm Steel Sheet	2.00			0.50	
6	80115 Hex Screw	20.00			0.10	
7	80116 Spiked Feet	4.00			1.00	
8	80117 Rubber Shelf Seat	20.00			0.10	
9	80118 End Cap	4.00			0.20	0.00
10	80601 HiFi Rack		1.00		46.30	

☐ Locked Cost of In-Items: 46.3 Value of Out-Items: 46.3

5. When you create the Production Operations for a Production, the Display Groups will be copied from each Standard Operation to the 'Comment' card of the corresponding Production Operation—

The screenshot shows a software window titled "Production Operation: Inspect". At the top, there are navigation buttons: a back arrow, a forward arrow, and a tab labeled "Operations". To the right of the "Operations" tab are buttons for "New", "Duplicate", "Cancel", and "Save".

The main area contains several input fields:

- No.:** 72
- Qty:** 1
- Start Date:** 6/11/2009
- End Date:** 6/11/2009
- Comment:** Making Shelf Frames
- Sequence:** 1
- Prod. Order:** (empty)
- Actual Qty:** (empty)
- Prod. No.:** 5036
- Status:** A list of radio buttons: ☒ Created, ☐ Cancelled, ☐ Started, ☐ Finished, ☐ Finished and Discarded.

Below these fields is a horizontal tab bar with four tabs: "Items", "Time", "Comment" (which is currently selected and highlighted in blue), and "Instructions".

Under the "Comment" tab, there are more input fields:

- Location:** PROD
- Language:** (empty)
- Machine Group:** (empty)
- Display Group:** PWELD
- Comment:** Making Shelf Frames
- Discarded Reason:** (empty)
- Actual Machine:** (empty)
- Actual Person:** (empty)

Choose the Person for each Operation—

Production Operation: Inspect

Operations New Duplicate Cancel Save

No.	72	Prod. Order		Prod. No.	5036
Qty	1	Actual Qty		Status	
Start Date	9/11/2009	End Date	9/11/2009	<input checked="" type="radio"/> Created	
Comment	Making Shelf Frames			<input type="radio"/> Cancelled	
Sequence	1			<input type="radio"/> Started	
				<input type="radio"/> Finished	
				<input type="radio"/> Finished and Discarded	

Items Time **Comment** Instructions

Location	PROD	Discarded Reason	
Language			
Machine Group		Actual Machine	
Display Group	PWELD	Actual Person	AM
Comment	Making Shelf Frames		

6. For the Operation to appear in the Resource Planner assigned to the Person, you need to create an Activity. This Activity will of course also appear in the Person's Calendar, so the Person can become aware of the job through the Calendar or the Resource Planner. To create the Activity, choose 'Create Activity' from the Operations menu —

Activity: Inspect

Operations [Print] [Copy] [Paste] [Phone] [New] [Duplicate] [Cancel] [Save]

Text: Making Shelf Frames

Type: RUN Persons: AM

Language: Cc: FF

Priority: Supervisor: Result: ☐ Private ☐ Done

Time Customer Text Sub Alarm Resources Service User Defined

Start Time: 09:00:00 Start Date: 9/11/2009 Task Type: ☒ Calendar ☐ To Do ☐ Timed To Do ☐ Work Hours

End Time: 10:30:00 End Date: 9/11/2009 Calendar: ☒ Time ☐ Profile ☐ Don't Show

Cost (Time): 01:30:00 Time Class:

Project: Name:

Customer: Telephone:

Invoice Item: Contact:

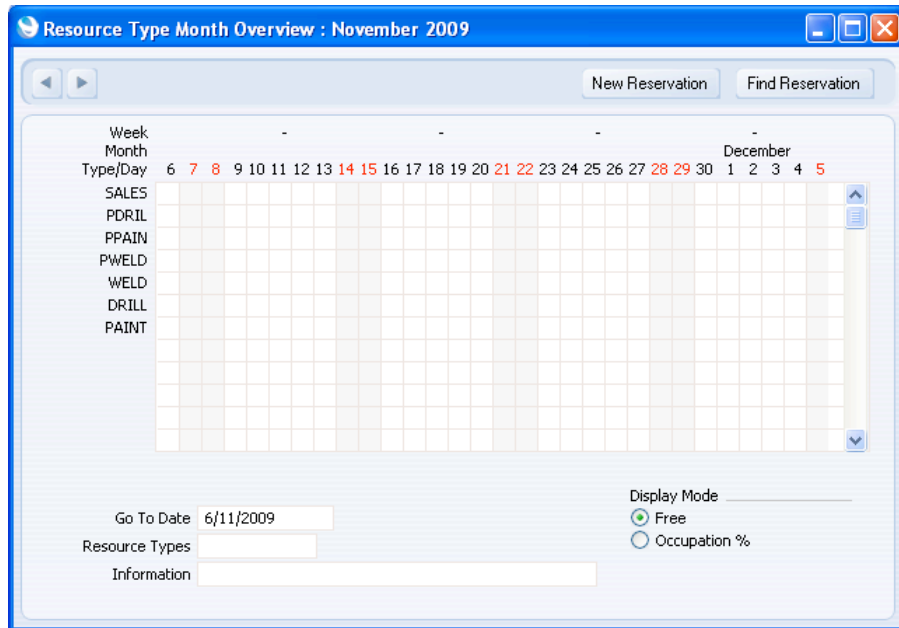
	Code	Text
1		
2		
3		
4		
5		
6		
7		

[End Activity]

The Start and End Dates and Times and Person will be copied from the Operation, and your Signature as the creator of the Activity will appear in the Cc field. The Production and Production Operation Numbers will be copied to the 'Service' card, while the Activity and the Production Operation will be connected to each other through the Attachments facility. The Activity Type will be taken from the Activity Types, Subsystems setting.

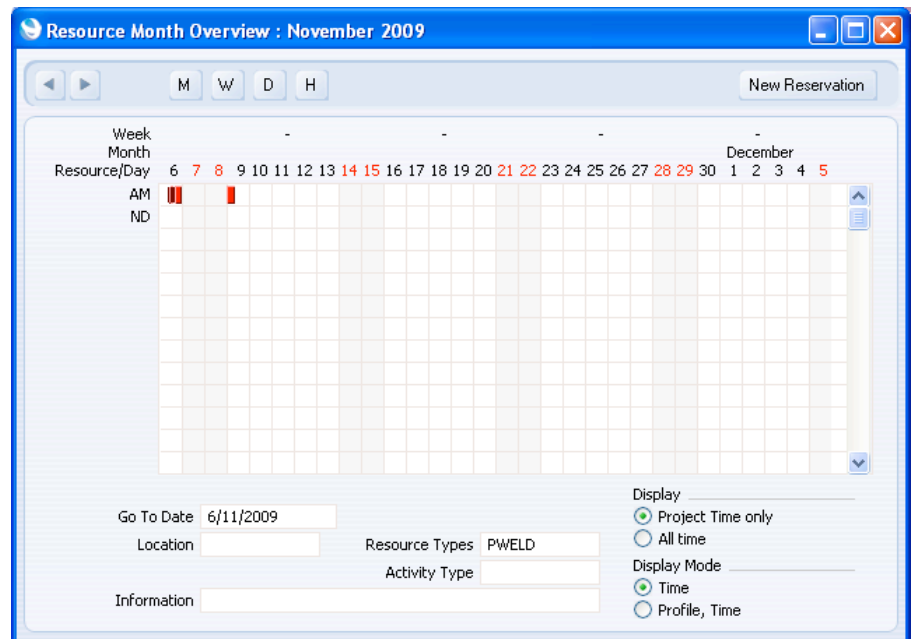
- Open the Resource Planner by clicking the [Resources] button in the Master Control panel.

The 'Resource Type Month Overview' window opens, with Display Groups listed in a column down the left-hand side of the window.



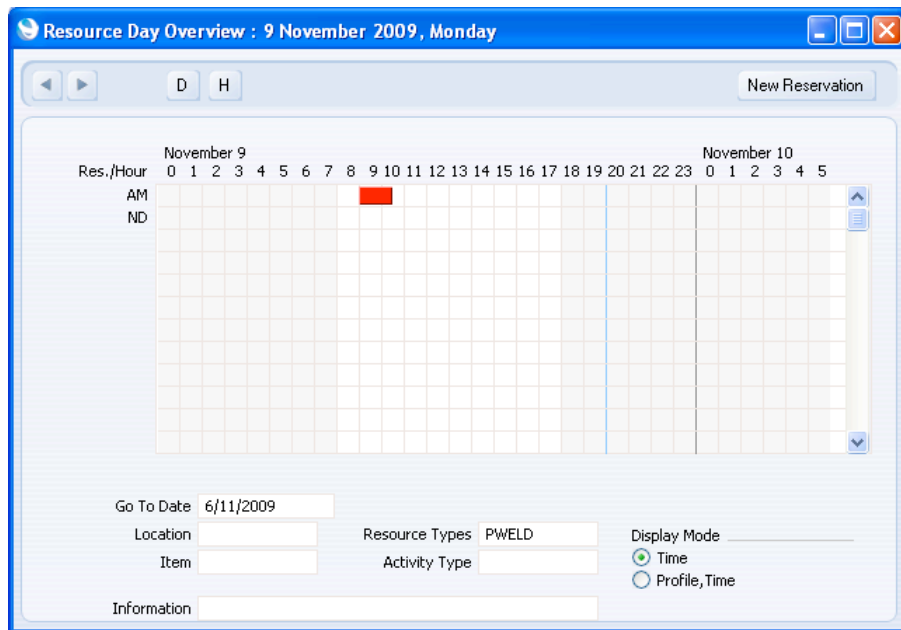
If you are using more than one of the options in the Resource Planner setting (step 1 above), the column down the left-hand side of the window will include records of different kinds. For example, if you are using the Production Orders and Activities options in the Resource Planner setting, the column down the left-hand side of the window will list Machine Groups and Display Groups. Therefore it is recommended that you use Machine and Display Group Codes that can easily be distinguished by all users, as mentioned in step 2 above.

8. To see the Activities assigned to the Persons in a Display Group, double-click the Display Group in the 'Resource Type Month Overview' window illustrated in step 7—



In this example, the red bar signifies an Activity, with the colour taken from the Activity Class to which the Activity Type belongs.

To get a better view of a day, double-click on a date above the grid to open the 'Resource Day Overview'. This shows the Activities scheduled for that day —



Whether you are looking at a month or a day, you can drag an Activity up or down to another Person. To change the date or time of an Activity, open it by double-clicking its coloured bar in the Resource Planner.

Sub-Assemblies with Production Operations (Phantom Items)

It is likely that a complex Production process with several assembly stages will use sub-assemblies. You can configure Production Operations to take sub-assemblies into account.

The first stage in building the example hifi rack is to construct the metal shelf frames by welding square-section metal tubes together. These metal shelf frames could be considered to be sub-assemblies, since the same shelf frame could be used in different Production processes (for example, hifi racks with three, four and, as in the example, five shelves).

Follow these steps—

1. Create a new Item for the metal shelf frame. This should be a Plain Item.

The screenshot shows the 'Item: Inspect' window with the following details:

- Title Bar:** Item: Inspect
- Buttons:** Operations, New, Duplicate, Cancel, Save
- Fields:**
 - No.: 80108
 - Group: [Empty]
 - Description: Metal Shelf Frame
 - ☐ Closed
 - ☒ Not For Sales
- Tabs:** Pricing (selected), Stock, Warehouse, Costs, Recipe, A/C, Varieties, Texts, Cost Model, User Values
- Pricing Tab Fields:**
 - Unit: [Empty]
 - Base Price: [Empty]
 - Base Price Change: 4/9/2009
 - Price Factor: [Empty]
 - Item Formulae: [Empty]
 - Markup %: [Empty]
 - Bonus %: [Empty]
 - Objects: [Empty]
 - Classification: [Empty]
- Item Type:**
 - ☒ Plain
 - ☐ Stocked Item
 - ☐ Structured Item
 - ☐ Service
- Other:**
 - ☐ Treat Item as Material on Project

2. Create a Recipe for the Item. In this example, the metal shelf frame will be made up using the 40 and 50 cm lengths of steel box section that were in the original top-level Recipe. Although the top-level Recipe requires five frames, the result of the sub-assembly Recipe should be one unit (in the Normal Prod Qty field). This gives you the flexibility of being able to use the sub-assembly in other Production processes with the appropriate quantities—

Recipe: Inspect

Operations: [New] [Duplicate] [Cancel] [Save]

Code: 80108 Comment: Metal Shelf Frame Language: []

Normal Prod Qty: 1 Time to Setup: [] Days to Produce: [] Hours to Produce: [] Minutes: [] Seconds: []

Min Prod Qty: [] Number Produced: 1 Extra Prod Qty: []

Fixed Assembly Days: [] Res. mgr.: Colour: Black Standard Batch: 1 Default Routing: []

Instructions: []

Item	Specification	In	Out	Rel.	I-cost	W-cost
1	80108 Metal Shelf Frame		1.00			
2	80111 40 cm Steel Box Section	2.00			1.00	0.00
3	80112 50 cm Steel Box Section	2.00			1.00	0.00
4						
5						
6						
7						
8						
9						
10						

☐ Locked Cost of In-Items: 4 Value of Out-Items: 0

On flip B, enter the same Material that was used for these components in the top-level Recipe—

The screenshot shows the 'Recipe: Inspect' window with the following details:

- Code:** 80108
- Comment:** Metal Shelf Frame
- Normal Prod Qty:** 1
- Min Prod Qty:**
- Fixed Assembly Days:**
- Res. mgr. Colour:** Black
- Standard Batch:** 1
- Default Routing:**
- Instructions:**
- Time to Setup:**
- Days to Produce:**
- Hours to Produce:**
- Number Produced:** 1
- Extra Prod Qty:**
- Language:** ☐ Closed
- Minutes:**
- Seconds:**

Item	Specification	Description	Material	Recipe
1	80108	Metal Shelf Frame	WELD_SHELVES	Recipe
2	80111	40 cm Steel Box Section	WELD_SHELVES	Recipe
3	80112	50 cm Steel Box Section	WELD_SHELVES	Recipe
4				
5				
6				
7				
8				
9				
10				

☐ Locked Cost of In-Items: 4 Value of Out-Items: 0

If one of the components is itself a Plain Item with a Recipe, do not specify a Material here but in the Recipe that produces that Item.

- Return to the Item from step 1 and enter the Recipe in the Recipe field. This Item is now a “Phantom” Item. A Phantom Item is a Plain Item with a Recipe. It is an Item that only exists momentarily during the Production process. Because of this, it is not an Item that can be sold, and therefore you may want to mark it as Not For Sales as shown in the Illustration in step 1. This will mean the Item will not be included in the Items ‘Paste Special’ list or in the Price List report.

- Open the top-level Recipe and replace the components representing the two lengths of steel box section with the new Phantom Item, with the appropriate In Qty—

Recipe: Inspect

Operations: [New] [Duplicate] [Cancel] [Save]

Code: 80601 Comment: HIFI Rack

Normal Prod Qty: 1 Time to Setup: Language: ☐ Closed

Min Prod Qty: Days to Produce: Hours to Produce: 3.00 Minutes: Seconds: Number Produced: 1

Fixed Assembly Days: Extra Prod Qty: Res. mgr., Colour: Red Standard Batch: 2 Default Routing: RACK

Instructions:

Item	Specification	In	Out	Rel.	I-cost	W-cost
1	80110 Glass Shelf	5.00			5.00	
2	80108 Metal Shelf Frame	5.00				
3	80113 90 cm Steel Sheet	2.00			0.75	
4	80114 36 cm Steel Sheet	2.00			0.50	
5	80115 Hex Screw	20.00			0.10	
6	80116 Spiked Feet	4.00			1.00	
7	80117 Rubber Shelf Seat	20.00			0.10	
8	80118 End Cap	4.00			0.20	0.00
9	80601 HIFI Rack		1.00		46.30	
10						

☐ Locked Cost of In-Items: 36.3 Value of Out-Items: 46.3

On flip B, make sure that the Phantom Item does not have a Material—

The screenshot shows the 'Recipe: Inspect' window for a 'HiFi Rack' (Code: 80601). The window is divided into several sections:

- Operations:** Includes buttons for 'New', 'Duplicate', 'Cancel', and 'Save'.
- Parameters:**
 - Code: 80601
 - Comment: HiFi Rack
 - Normal Prod Qty: 1
 - Min Prod Qty: (empty)
 - Fixed Assembly Days: (empty)
 - Res. mgr. Colour: Red
 - Standard Batch: 2
 - Default Routing: RACK
 - Instructions: (empty)
 - Time to Setup: (empty)
 - Days to Produce: (empty)
 - Hours to Produce: 3.00
 - Number Produced: 1
 - Extra Prod Qty: (empty)
 - Language: (empty)
 - ☐ Closed
 - Minutes: (empty)
 - Seconds: (empty)
- Item List Table:**

Item	Item	Specification	Description	Material	Recipe
1	80110	Glass Shelf		COMPONENT	-
2	80108	Metal Shelf Frame			Recipe
3	80113	90 cm Steel Sheet		WELD_SUPPORTS	-
4	80114	36 cm Steel Sheet		WELD_SUPPORTS	-
5	80115	Hex Screw		COMPONENT	-
6	80116	Spiked Feet		FEET	-
7	80117	Rubber Shelf Seat		SEATS	-
8	80118	End Cap		COMPONENT	-
9	80601	HiFi Rack		ASSEMBLY	Recipe
10					
- Footer:**
 - ☐ Locked
 - Cost of In-Items: 36.3
 - Value of Out-Items: 46.3

You only need specify Materials for Phantom Items in the sub-assembly Recipe that produces the Phantom Item (as shown in step 2), not in the top-level Recipe. The Material connects the component with the Operation that will remove it from stock. A component that is a Phantom Item is also a Plain Item. So, it is not held in stock and so cannot be removed from stock. If you specify a Material for a Phantom Item in the top-level Recipe, this will be interpreted as an attempt to remove that Item from stock. As a result, you will not be able to complete the Production process and instead you will be told, “Quantity has not been produced yet”.

- In this example, we are still using the “WELD_SHELVES” Material: the only change was to move this Material from the top-level Recipe to the Recipe that produces the Phantom Item. There is therefore no need to change the Routing or any of the Standard Operations. If we had used a different Material in the Phantom Recipe, then we would now have to

update the Routing and/or the Standard Operations so that the shelf frames would be built at the correct stage in the process.

Remember that each Standard Operation contains a list of the Materials that will be used during a particular stage in the Production process. The Material connects the Standard Operation to some of the Input Items in the Recipe. For example, if the Material is “WELD_SHELVES”, all Input Items marked “WELD_SHELVES” will be removed from stock when the Standard Operation is completed. The “WELD_SHELVES” Items can be in the top-level Recipe or, as in this case, in a lower-level Phantom Recipe.

6. The configuration work is complete, so you can now use the revised Recipe in a Production. After creating the Production and specifying the Recipe, and after moving stock of the Input Items into the Production Location using Stock Movements, you can use the ‘Create Production Operations’ function to create Production Operations.

In our example, the change to the Phantom Item will only affect the first Production Operation. Previously (as illustrated above on page 64), the effect of the first Production Operation was to remove the steel box section from stock. Now, the steel box section will again be removed from stock, but the shelf frames will be produced—

Production Operation: Inspect

Operations: [New] [Duplicate] [Cancel] [Save]

No. 79 Prod. Order Prod. No. 5037
 Qty 1 Actual Qty
 Start Date 10/11/2009 End Date 10/11/2009
 Comment Making Shelf Frames
 Sequence 1

Status:
☒ Created
☐ Cancelled
☐ Started
☐ Finished
☐ Finished and Discarded

Item	Descr.	Serial No.	In	Out	Rel.	Unit Cost	Coeff
1 80108	Metal Shelf Frame			1.00		2.00	
2 80111	40 cm Steel Box Section		2.00			0.50	
3 80112	50 cm Steel Box Section		2.00			0.50	
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

As the shelf frames are Plain Items (and as they will exist for only a short while), they will not be added to stock (they will not be included in the Stock List report) when you Finish the Production Operation. As with other Production Operations, when you Finish the Production Operation, the value of the components will be added to the Work In Progress Account, not to the Stock Account.

7. In some cases, it might not be appropriate to use Phantom Items. It might be that the Production process is a long one, in which case you might want components that are produced early in the process to appear in your stock valuation for period they exist (i.e. you want stock levels to be maintained, and you want their value to be held in the Stock Account not

the Work In Progress Account). Or it might be that you sell components (spare parts) as well as assembled Items.

If so, change the procedure described above in the following ways—

- i. In step 1, the Item should be a Stocked Item. You can still mark it as Not For Sales if you want to prevent it being sold as an Item in its own right.
 - ii. Create the Recipe as described in step 2 and be sure to specify Materials on flip B.
 - iii. Enter the sub-assembly Item into the top-level Recipe as described in step 4. However, as the sub-assembly is a Stocked Item, you should specify a Material on flip B. Usually this will not be the same Material that you used in the sub-assembly Recipe. The Materials in the sub-assembly Recipe will connect the sub-assembly components to a particular Standard Operation i.e. they indicate the stage in the Production process when the sub-assembly components will be removed from stock and when the sub-assembly will be built and added to stock. The Material in the top-level Recipe will connect the sub-assembly itself to a particular Standard Operation i.e. it indicates the stage in the Production process when the sub-assembly will be removed from stock and built in to the final assembly. In the case of the Phantom Item, as it was never added to stock, there is no need to use a Material in the top-level Recipe to specify when it should be removed from stock. Indeed and as previously mentioned, if you do, you will not be able to complete the Production process.
 - iv. As already mentioned, the Production Operation that produces the sub-assembly will debit the Stock Account not the Work in Progress Account, because the sub-assembly is a Stocked Item. However, the Production Operation that removes the sub-assembly from stock will debit the Work In Progress Account as normal.
8. The Recipe that produces a sub-assembly might itself be a complex multi-stage process and therefore will need its own Routing. If this is the case, the result of the Recipe must be a Phantom Item. In this case, when you create Production Operations from a Production, the relevant Operations both for the final Item and for the sub-assembly will be created. If the sub-assembly is a Stocked Item, then only the Operations for the final Item will be created, not those for the sub-assembly.

If a sub-assembly has its own Routing (and, especially, if the sub-assembly contains a further sub-assembly with a Routing), then you will need to plan the Sequence of the Operations carefully.

The second stage in building the example hifi rack is to construct the two metal supports by pressing metal sheet into shape and welding sections together. We will now convert this stage into a sub-assembly with its own Routing. Follow these steps—

- i. Create a new Item for the metal support, as described in step 1 above. This must be a Plain Item.
- ii. Create a Recipe for the Item, as described in step 2 above. On flip B, enter the Materials as appropriate—

Recipe: Inspect

Operations: [New] [Duplicate] [Cancel] [Save]

Code: 80109 Comment: Metal Support

Normal Prod Qty: 1 Time to Setup: Language: ☐ Closed

Min Prod Qty: Days to Produce: Minutes: Seconds:

Fixed Assembly Days: Hours to Produce: Number Produced: 1

Res. mgr. Colour: Black Extra Prod Qty:

Standard Batch: 1

Default Routing:

Instructions:

Item	Specification	Description	Material	Recipe
1	80109	Metal Support	WELD_SUPPORTS	Recipe
2	80113	90 cm Steel Sheet	PRESS_LONG	-
3	80114	36 cm Steel Sheet	PRESS_SHORT	-
4				
5				
6				
7				
8				
9				
10				

☐ Locked Cost of In-Items: 4 Value of Out-Items: 0

- iii. Return to the Item from step i and enter the Recipe in the Recipe field. Mark it as Not For Sales if necessary.

- iv. As described in step 4 above, open the top-level Recipe and replace the components representing the two sizes of metal sheet with the new Phantom Item—

Recipe: Inspect

Operations: [New] [Duplicate] [Cancel] [Save]

Code: 80601 Comment: HiFi Rack

Normal Prod Qty: 1 Time to Setup: Language: ☐ Closed

Min Prod Qty: Days to Produce: Hours to Produce: 3.00 Minutes: Seconds: Number Produced: 1

Fixed Assembly Days: Extra Prod Qty: Res. mgr., Colour: Red Standard Batch: 2 Default Routing: RACK

Instructions:

Item	Specification	Description	Material	Recipe
1	80110	Glass Shelf	COMPONENT	-
2	80108	Metal Shelf Frame		Recipe
3	80109	Metal Support		Recipe
4	80115	Hex Screw	COMPONENT	-
5	80116	Spiked Feet	FEET	-
6	80117	Rubber Shelf Seat	SEATS	-
7	80118	End Cap	COMPONENT	-
8	80601	HiFi Rack	ASSEMBLY	Recipe
9				
10				

☐ Locked Cost of In-Items: 33.8 Value of Out-Items: 46.3

Remove the Material from this Item on flip B.

- v. Create the Standard Operations and the Routing for the sub-assembly, and then return to the Recipe from step ii and enter the Routing in the Default Routing field. This is the Routing—

The screenshot shows a software window titled "Routing: Inspect". At the top, there are buttons for "New", "Duplicate", "Cancel", and "Save". Below these buttons, there is a text field for "Code" containing "SUPPORTS" and a "Comment" field containing "Make Supports". The main area of the window is a table with the following columns: "Operations", "Description", "Sequence", and "Sub". The table contains three rows of data:

Operations	Description	Sequence	Sub
1 PRESS_LONG	Pressing Long Metal Plate into Shape	2	1
2 PRESS_SHORT	Pressing Short Metal Plate into Shape	2	2
3 WELD_SUPPORT	Welding Supports	3	

The table has 22 rows in total, with rows 4 through 22 being empty. On the right side of the table, there is a vertical scroll bar and a small panel with labels "A" and "B".

In this illustration, we have used the same names for the Operations as for the Materials for clarity.

The first two Operations have the same Sequence number, but different Sub Sequence numbers. These two Operations represent pressing different sizes of metal sheet into shape, so they can take place simultaneously. The two pieces of shaped metal sheet will then be welded together, so this Operation has a later Sequence number. The Sequence numbers are 2 and 3, to fit in with the top-level Routing.

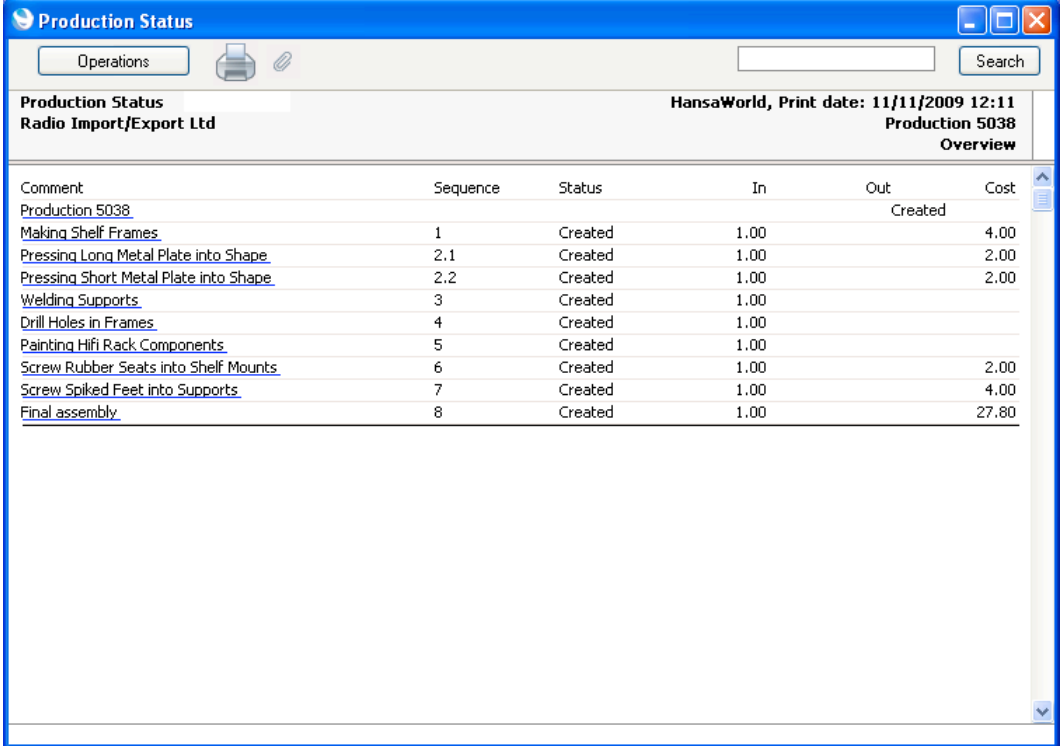
- vi. Open the top-level Routing and adjust the Sequence numbers so that the sub-assembly will fit in correctly—

The screenshot shows the 'Routing: Inspect' window. At the top, there are navigation buttons (back, forward) and action buttons (New, Duplicate, Cancel, Save). Below these, there are input fields for 'Code' (RACK) and 'Comment' (Assembly of Hifi Rack). The main area is a table with columns: Operations, Description, Sequence, and Sub. The table contains 22 rows. The first six rows are populated with data, showing a sequence of operations from 1 to 8. There is a gap in the sequence between 7 and 8. The 'Sub' column has a dropdown menu with options A and B. The 'Sub' column for row 6 is set to 'A'.

Operations	Description	Sequence	Sub
1 MAKE_SHELF_	Making Shelf Frames	1	A
2 DRILL	Drill Holes in Frames	4	B
3 PAINTING_RA	Painting Hifi Rack Components	5	
4 SEATS	Screw Rubber Seats into Shelf Mounts	6	A
5 FEET	Screw Spiked Feet into Supports	7	
6 FINAL_ASSEMB	Final assembly	8	
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

Note the gap in the Sequence for the sub-assembly.

Note too that there is no reference to the sub-assembly in the top-level Routing. The function that creates Production Operations from a Production will first check the Production for Phantom Items with Routings (i.e. for Plain Items with Recipes that have Routings) and create the relevant Production Operations (for the sub-assemblies). It will then refer to the top-level Routing (the one quoted in the Production) and again create the relevant Production Operations (for the top-level Item). So the Production Operations will not be created in the correct sequence, but the Sequence numbers will ensure you can execute them in sequence—



The screenshot shows a software window titled 'Production Status' for 'Radio Import/Export Ltd'. It displays a table of production operations for 'Production 5038'. The table has columns for Comment, Sequence, Status, In, Out, and Cost. The operations are listed in sequence from 1 to 8, all with a status of 'Created'. The total cost for the final assembly is 27.80.

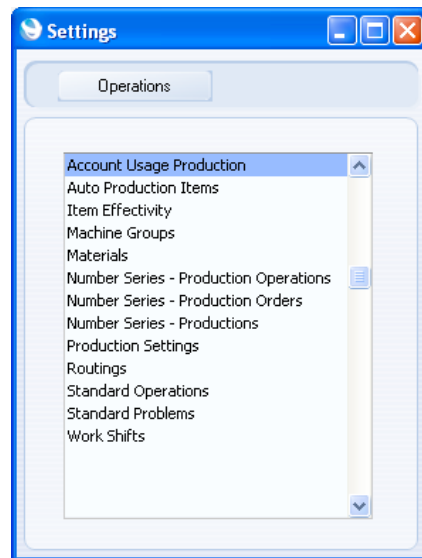
Comment	Sequence	Status	In	Out	Cost
Production 5038				Created	
Making Shelf Frames	1	Created	1.00		4.00
Pressing Long Metal Plate into Shape	2.1	Created	1.00		2.00
Pressing Short Metal Plate into Shape	2.2	Created	1.00		2.00
Welding Supports	3	Created	1.00		
Drill Holes in Frames	4	Created	1.00		
Painting Hifi Rack Components	5	Created	1.00		
Screw Rubber Seats into Shelf Mounts	6	Created	1.00		2.00
Screw Spiked Feet into Supports	7	Created	1.00		4.00
Final assembly	8	Created	1.00		27.80

It would of course be possible to fine-tune the sequence so that the supports and the shelf frames are built at the same time. An added refinement might be to add a Routing to the Recipe that builds the shelf frames to move the drilling of holes (currently step 4 in the sequence) from the top level to the sub-assembly level.

Settings

Introduction

The Production module contains the following settings —



To edit a setting, ensure you are in the Production module using the [Module] button in the Master Control panel or using the Ctrl-0/⌘-0 keyboard shortcut. Then, click the [Settings] button in the Master Control panel. The list shown above appears. Then, double-click the relevant item in the list. You can also use the Ctrl-S/⌘-S keyboard shortcut to open the ‘Settings’ list.

Account Usage Production

This setting allows you to determine the Accounts that will be used as defaults in your Production transactions. Take care to ensure that the Accounts that you specify here exist in the Account register.

Components Usage, Production Control

Paste Special

Account register, Nominal
Ledger/System module

The standard Nominal Ledger Transaction from a Production or Production Operation will credit the value of the components to a Stock Account, credit the Work Cost to a Production W-cost Account, and debit the value of the final Item to a Stock Account.

This Transaction therefore simply removes the value of the components from stock and adds the value of the final Item to stock. It will therefore not be possible to distinguish the value of Items removed from stock to be used in Productions from the value of the same Items removed from stock for other purposes (e.g. Delivery or Stock Depreciation). If you need to make such a distinction, you can do so using Components Usage and Production Control Accounts. If you specify both a Components Usage Account and a Production Control Account, the Transaction will contain additional postings, debiting the value of the components to the Components Usage Account and crediting that value to the Production Control Account.

The Components Usage and Production Control Accounts will first be from the Item Group to which the component Item belongs (if you are using the Use Item

Groups for Cost Accounts option in the Cost Accounting setting in the Stock module). If these Accounts are empty or you are not using the Use Item Groups for Cost Accounts option, they will be taken from the component Item (in the case of the Components Usage Account only) or from this setting.

Work In Progress Paste Special

Account register, Nominal
Ledger/System module

Production Operations allow you to carry out Productions in stages. You will be able to remove components from stock at any stage, and add the final Item to stock when the final stage is completed. Apart from the final stage, you will not be adding to stock, but you will need to account for the work carried out so far. The Work in Progress Account is used for this purpose. This Account will be debited with the value of each intermediate Production Operation, and credited with the value of the final Production Operation. This Account will only be used if you are using the Per Production Operation option below.

In Transactions created from intermediate Production Operations, the Work In Progress Account will be taken from the Item Groups to which the component Items belong (if you are using the Use Item Groups for Cost Accounts option in the Cost Accounting setting in the Stock module) or from this setting. In the Transaction created from the final Production Operation, the Work In Progress Account will be taken from the Item Group to which the Output Item belongs (if you are using the Use Item Groups for Cost Accounts option) or from this setting.

Generate Transaction

If you are using Production Operations to build Productions in stages, use these options to specify whether you want separate Nominal Ledger Transactions to be created from each Production Operation, or a single final Transaction to be created from the Production. The first option allows you to record the value of each Production Operation in the Nominal Ledger in the Work In Progress Account (specified above).

If you choose the Production Operation option, the sequence in which you Finish each Production Operation becomes significant. In particular, the Transaction from the final Production Operation, which debits the value of the final Item to the Stock Account and credits this value to the Work In Progress Account, may not be correct if there are earlier Operations in the sequence that you have not yet Finished. Therefore, if you choose this option, it is recommended that you also use the Complete Sequence Before Next One option in the Production Settings setting. This will ensure that you mark the Operations as Finished in the correct order.

Note that stock levels of components will always be reduced and those of final Items will always be increased from Production Operations. If you choose the Production option, therefore, there may be a difference between the stock valuation in the Stock List report and in the Nominal Ledger.

If you choose the Production option, you should also allow Transactions to be created from Productions in the Sub Systems setting in the Nominal Ledger and in the Number Series - Productions setting. If you choose the Production Operation option, you should again allow Transactions to be created from Productions in the Sub Systems setting (the Productions option in this setting applies to both Productions and Production Operations) and in the Number Series - Production Operations setting.

This option only applies to Productions that will be built in stages (Productions with Routings). Productions without Routings will always generate Nominal Ledger Transactions (subject to the Sub Systems and the Number Series - Productions settings).

Auto Production Items

This setting will be useful if you have Recipes in which you can substitute various different component Items to produce the same final Item. For example, you may have a Recipe to produce chocolate milk, which requires milk powder as a component or ingredient. Milk powder is a generic component: when the Recipe simply calls for milk powder, you can in fact use Brand A Milk Powder or Brand B Milk Powder, supplied in 5 kg or 10 kg sacks, and the resulting chocolate milk will be the same.

Using a generic Item (also known as a “Produced Item”) as a component in the Recipe in this way means you will only need one Recipe for chocolate milk, instead of many Recipes with each of the milk powder variations. This will minimise the number of Recipes you need to set up and maintain, and also make the choice of the correct Recipe in Production records simple and easy.

To work with Auto Production Items, follow these steps—

1. In the Item register, enter records for the specific Items, such as “Brand A Milk Powder, 5 kg”, “Brand B Milk Powder, 10 kg” and so on, and for the generic Item—

The image displays three sequential screenshots of the 'Item: Inspect' window, illustrating the process of adding new items to the system.

First Screenshot (Top): The 'No.' field is set to 'MPSA' and the 'Description' is 'Milk Powder - Brand A - 5 kg'. The 'Closed' checkbox is unchecked, and 'Not For Sales' is also unchecked.

Second Screenshot (Middle): The 'No.' field is set to 'MPSB' and the 'Description' is 'Milk Powder - Brand B - 10 kg'. The 'Closed' checkbox is unchecked, and 'Not For Sales' is also unchecked.

Third Screenshot (Bottom): The 'No.' field is set to 'MPG' and the 'Description' is 'Milk Powder - Generic - 1 kg'. The 'Closed' checkbox is unchecked, and 'Not For Sales' is also unchecked. Below the description, the 'Pricing' tab is selected, showing fields for 'Unit', 'Base Price', 'Base Price Change' (set to '1/12/2009'), 'Price Factor', and 'Item Formulae'. The 'Item Type' section shows four radio button options: 'Plain', 'Stocked Item' (which is selected), 'Structured Item', and 'Service'.

2. Create Purchase Items for the specific Items in the usual way—

Purchase Item: Inspect

New Duplicate Cancel Save

Item: MPSB Desc.: Milk Powder - Brand B - 10 kg
 Supplier: 511 Name: Roman Candles SpA
 Location: ☒ Default

Price Texts

Purchase Item: Inspect

New Duplicate Cancel Save

Item: MPSB Desc.: Milk Powder - Brand B - 10 kg
 Supplier: 508 Name: Tyrell, Inc
 Location: ☐ Default

Price Texts

Price	5.00	Purchase Cost	<input type="text"/>
Currency	<input type="text"/>	Unit Conv.	<input type="text"/>
Supplier Item	<input type="text"/>	Supplier Unit	<input type="text"/>
Norm Ord Qty	1	Min Ord Qty	1
Producer	<input type="text"/>	Country of Origin	<input type="text"/>
Salesman	FF	Sales Group	<input type="text"/>
Delivery Days	1		

3. Enter the Recipe. This is an example Recipe for chocolate milk—

Recipe: Inspect

Operations: [New] [Duplicate] [Cancel] [Save]

Code: Comment:

Normal Prod Qty: Time to Setup: Language: ☐ Closed

Min Prod Qty: Days to Produce: Minutes: Seconds:

Fixed Assembly Days: Hours to Produce: Number Produced: Extra Prod Qty:

Res. mgr. Colour:

Standard Batch:

Default Routing:

Instructions:

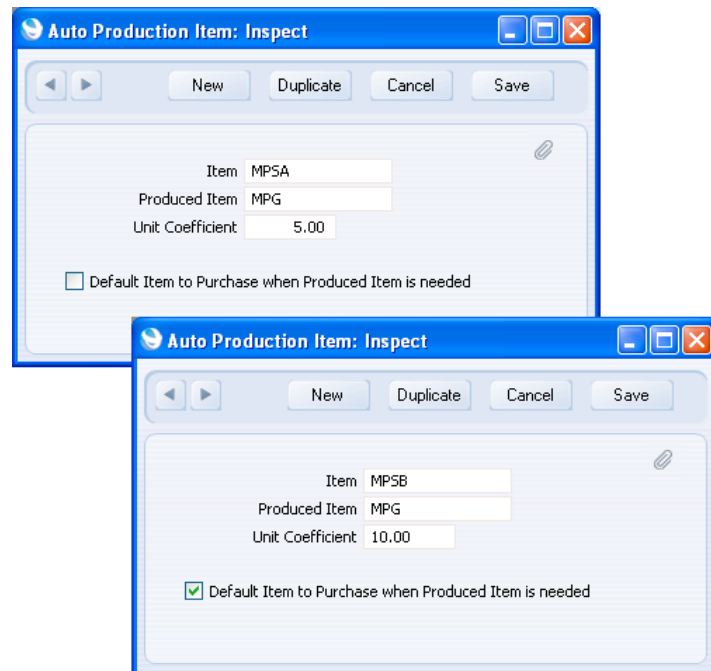
Item	Specification	In	Out	Rel.	I-cost	W-cost
1	MPG Milk Powder - Generic - 1 kg	1.00				0.00
2	CFG Chocolate Flavouring - Generic - 50 g	1.00				0.00
3	BCMP Box for Chocolate Milk Powder - 1 kg	1.00				0.00
4	CMP Choclate Milk Powder - 1 kg		1.00			
5						
6						
7						
8						
9						
10						

☐ Locked Cost of In-Items: Value of Out-Items:

Two components in this Recipe (the milk powder and the chocolate flavouring) are generic. Where a generic component is called for, you can in fact use any one of a number of specific Items. For example, you can use Brand A Milk Powder or Brand B Milk Powder as the generic milk powder. The end result, the chocolate milk powder, will be the same, irrespective of which specific Items you use as components.

- Having entered the generic Item and the specific Items in the Item register, you then need to connect them together. This connection will state that a particular specific Item can be used when a Recipe calls for a particular generic Item. For example, such connections will mean that when the Recipe calls for “milk powder”, you can send either Brand A Milk Powder or Brand B Milk Powder to the production area, depending on what you have in stock at the time. You can make these connections using the Auto Production Items setting, available in the MRP and Production modules.

Double-clicking 'Auto Production Items' in the 'Settings' list in the MRP or Production modules opens the 'Auto Production Items: Inspect' window listing the Auto Production Items that have already been entered. Double-click a record in the list to edit it, or add a new record by clicking the [New] button in the Button Bar. When the record is complete, save it by clicking the [Save] button in the Button Bar or by clicking the close box and choosing to save changes. To close it without saving changes, click the close box.

**Item****Paste Special**

Item register

Enter here a specific Item that you can use when a Recipe calls for a generic Item. Following the example used in this description, you should enter the Item representing Brand A Milk Powder or Brand B Milk Powder here.

Produced Item**Paste Special**

Item register

Specify the generic Item here (in the example, the Item for "milk powder"). As shown in the illustration, it is likely you will need to enter several Auto Production Item records for the same Produced Item, with different Items specified in the field above.

Unit Coefficient If the two Items are supplied and used in different Units, enter the ratio between them here. The ratio should represent how many Produced Items can be made from one Item. For example, if you measure the Produced Item in multiples of 1 kg, and the Item is supplied in 10 kg sacks, enter “10” here.

Default Item to Purchase when Produced Item is needed

If you have several Auto Production Item records for the same Produced Item, use this check box to choose which one is to be treated as the Default Auto Production Item. This is the Item that you prefer to purchase when the Recipe calls for the generic Item. For example, you can use this check box to signify your preference to purchase Brand B Milk Powder over Brand A Milk Powder. This is described in step 5 below.

You can only have one Default Auto Production Item for a particular Produced Item (generic Item).

5. The MRP module allows you to plan future Productions, including the purchasing of the necessary quantity of components. This module is fully described in the ‘MRP’ manual. In brief, the process will be as follows—
 - i. A Production Plan is a list of assembled Items, showing how many of each you need to build during a particular period (e.g. a month). You can enter a Production Plan yourself, or you can create one based on estimated sales requirements that you have recorded in the Sales Forecast register.

In this example Production Plan, we have specified that we need to produce 2000 x 1 kg chocolate milk powder—

Production Plan: Inspect

Operations New Duplicate Cancel Save

No. 1 Description Period 1/12/2009 - 31/12/2009 Creation Date 1/12/2009

Item	Description	Start Date	Prod. Days	Needed Date	Suggested Qty	Adjusted Qty
1	CMP	28/12/2009	3	31/12/2009	2000	
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

☒ OK ☐ Closed

- ii. After approving a Production Plan, you should then use the 'Create Purchase Order Plan' Maintenance function to create a Purchase Order Plan. This will list the quantities of each component that you need to purchase in order to produce the assembled Items in the Production Plan.

Illustrated below is the Purchase Order Plan containing the components that we need to purchase in order to produce 2000 x 1 kg chocolate milk powder—

Purchase Order Plan: Inspect

Operations New Duplicate Cancel Save

No. 1 Description

Period 1/12/2009 - 31/1/2010 Supplier Date 28/12/2009

Item	Description	Order Date	Del. Days	Needed Date	Suggested Qty	Adjusted Qty
1	BCMP Box for Chocolate Milk Powder	27/12/2009	1	28/12/2009	2000	
2	CFG Chocolate Flavouring - Generic	27/12/2009	1	28/12/2009	2000	
3	MPG Milk Powder - Generic - 1 kg	27/12/2009	1	28/12/2009	2000	
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

☐ OK ☐ Closed

In this example, the chocolate flavouring and the milk powder are both generic components. As they are generic, we cannot issue Purchase Orders for them. Instead, we need to issue a Purchase Order for a specific Item such as Brand A Milk Powder or Brand B Milk Powder. The Item to Order field on flip C of the Purchase Order Plan will suggest the specific Items that we should order—

Purchase Order Plan: Inspect

Operations New Duplicate Cancel Save

No. 1 Description Period 1/12/2009 - 31/1/2010 Supplier Date 28/12/2009

Item	Description	Item to Order	Pur. Ord. No.	Suggested Qty	Adjusted Qty
1	BCMP Box for Chocolate Milk Powder - 1			2000	
2	CFG Chocolate Flavouring - Generic - 5	CF5B		2000	
3	MPG Milk Powder - Generic - 1 kg	MPSB		2000	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

☐ OK ☐ Closed

The suggested Item is taken from the Auto Production Item record that is marked as the Default Auto Production Item (step 4 above). Before we approve the Purchase Order Plan, we could change the Item to Order, but only to another Item that has been connected to the generic component in an Auto Production Record. For example, as illustrated in step 4 above, the generic Item for milk powder MPG has two connected specific Items, MPSA and MPSB, with MPSB being the default. We could therefore change the Item to Order to MPSA but not to any other Item.

- iii. After approving the Purchase Order Plan, you can then use the 'Create Purchase Orders' Maintenance function to create the relevant Purchase Orders.

This is one of the Purchase Orders created to satisfy the Purchase Order Plan illustrated above—

Purchase Order: Inspect

Operations [Print] [Refresh] [Help] [New] [Duplicate] [Cancel] [Save]

No. 3001 Name Roman Candles SpA
 Supplier 511 Signers
☐ Closed ☐ Price Incl VAT

Trans. Date 27/12/2009 Plan. Del. 28/12/2009 Pur. Ref.
 Pay. Terms 30 P/Order Class Attn.
 Our Ref Order Type Normal Objects

Item	Qty	Unit	Description	Unit Price	%	Sum	V-Cd
1	CFSB	2000	Chocolate Flavouring - Brand B - 50 g	0.04		80.00	S
2	MPSB	200	Milk Powder - Brand B - 10 kg	4.90		980.00	S
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

Currency GBP Freight 0 Customs 0 Subtotal 1060.00
☐ OK Pallets Ext. Tax VAT 185.50 TOTAL 1245.50

If flip C of a Purchase Order Plan contains an Item to Order, this Item is the one that will be included in the Purchase Order. The Supplier and pricing information is taken from the Default Purchase Item illustrated in step 2.

In this example, the generic component requirement is 2000 (i.e. 2000 x milk powder 1 kg). However, the specific Item is supplied in 10 kg bags. We therefore entered a Coefficient of 10 in the relevant Auto Production Item record, as illustrated in step 4, and this Coefficient has determined the Qty of 200 in the Purchase Order.



The Location in the Purchase Order (i.e. the Location to which the Items will be delivered) should be a warehouse and not the

Production area or workshop. The default Location will be taken from the Person record belonging to the user who created the Purchase Order by running the 'Create Purchase Orders' Maintenance function. If no Location has been specified in the relevant Person record, the Location in the Purchase Order will be empty.

You can of course issue *ad hoc* Purchase Orders for specific Items yourself. They do not necessarily have to result from the Production planning process or from the MRP module as described here.

6. When the specific Item arrives, you will receive it into stock in your warehouse (i.e. in the Location specified in the Purchase Order) using a Goods Receipt as normal —

Goods Receipt: Inspect

Operations   New Duplicate Cancel Save

No. 6166 Trans. Date 28/12/2009
 Sup. No. 511 Name Roman Candles SpA
 Pur. Order No. 3001 Location WH5

Comment Items Currency Extra Costs Freight



Comment
 Objects PO Contract ☐ Price Incl VAT

Item	Qty	Unit	Description	Unit Price	Cost Price	Sum
1	CF5B	2000	Chocolate Flavouring - Brand B - 50 g	0.04	0.04	80.00
2	MP5B	200	Milk Powder - Brand B - 10 kg	4.90	4.90	980.00
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

☒ OK Qty 2200 Freight 0 Customs 0 Cost Price 1060.00
 Ext. Tax 0.00 Subtotal 1060 VAT 185.5 Total 1245.5

7. Now you can use a Stock Movement to move the Items from the warehouse to the Production area or workshop—

Stock Movement: Inspect

Operations   New Duplicate Cancel Save

No. 44 ☐ Reserved Reason

Ord. Date 28/12/2009 Sent Date Received Date 28/12/2009

From Location WHS Via Location To Location PROD

Positions Objects Items Currency Durations Freight

From Position To Position For Production

☐ Manual Pick ☐ Send To Forklift Queue

Objects

Comment

Item	Req. Qty	Sent Qty	Rcvd. Qty	Description	R. Old Unit Pr.	R. Extra Cost	R. New Unit Pr.
1 CFSB	2000		2000	Chocolate Flavouring - B	0.04		0.04
2 MPSB	200		200	Milk Powder - Brand B -	4.90		4.90
3							
4							
5							
6							
7							
8							
9							
10							

☒ Confirmed ☐ Sent ☒ Received

Sent Qty Rcvd. Qty 2200 Non Accounted Extra Costs

When you mark the Stock Movement as Received and save it, the Items will be moved to the Production area as usual. Stock levels will be adjusted, as will the stock valuation in the Nominal Ledger. In addition, one Production for each row in the Stock Movement will be created automatically and immediately marked as Finished. In effect, these Productions will convert the specific Items into generic Items. This is the Production that converts the Brand B Milk Powder to generic milk powder—

Production: Inspect

Operations [New] [Duplicate] [Cancel] [Save]

No. 5056 Name Stock Movement Number 44

Recipe Start Date 28/12/2009 End Date 28/12/2009

Qty 1 Start Time 22:48:05 End Time 22:48:05

Location PROD Machine

Inspector Person FF

Prod. Ord. Discarded Reason

Actual Qty Routing

Status: ☐ Created ☐ Cancelled ☐ Started ☒ Finished ☐ Finished but Discarded

Item	Descr.	Serial No.	In	Out	Rel.	I-cost	W-cost	Coeff
1	MPSB Milk Powder - Brand B - 10 kg		200.00			4.90		
2	MPG Milk Powder - Generic - 1 kg			2000.00		0.49		
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

In Weight Out Weight

As a result, the Production area now contains 2000 kg of generic milk powder, which you can now use to produce chocolate milk powder.

For such a Production to be created automatically from a Stock Movement, three conditions must be met—

- i. There must be a record in the Auto Production Items setting with the specific Item (i.e. the Item in the Stock Movement) in the Item field and the generic Item in the Produced field. The conversion from the Received Quantity in the Stock Movement (also the In Qty in the

Production) to the Out Qty in the Production will be governed by the Coefficient in the Auto Production Item record.

- ii. The Type of the To Location in the Stock Movement (i.e. the Production area or workshop) must be “Production” —

Item Effectivity

You can use this setting together with the Item Effectivity report to monitor the use and performance of consumable Items in the production process.

You can enter separate records in this setting for each individual consumable Item to record how many Output Items it was used to produce. For example, each time you change a cutting disc in a Machine, you can enter the number of Output Items produced by the previous one in the existing Item Effectivity record, approve it, and then create a new Item Effectivity record for the new cutting disc. Alternatively, you can maintain a single record for the cutting disc as a general Item, updating the same Item Effectivity record each time you fit a new cutting disc to the Machine. This second method may help you compare cutting discs with different specifications, purchased from different Suppliers.

If you are using the first method, you can produce the Item Effectivity report using the Overview option to display the information in those records as if

you were using the second method. This option adds the figures in all records with the same Item/Supplier/Machine combination to provide totals.

To work with this setting, first ensure you are in the Production module, and then click the [Settings] button in the Master Control panel or use the Ctrl-S/⌘-S keyboard shortcut to open the 'Settings' list. Double-click 'Item Effectivity' in the list. The 'Item Effectivity: Browse' window lists the Item Effectivity records that have already been entered: double-click one to modify it or click [New] to create a new record. When the record is complete, click the [Save] button in the Button Bar to save changes and close it using the close box, or click the close box if you don't want to save changes.

No. This field contains the unique identifying number of each Item Effectivity record. This number is generated automatically.

Machine **Paste Special** Asset register, Assets module
Enter the Machine to which the consumable Item has been fitted.

Start Date, End Date
Paste Special Choose date
Enter the dates when you started using the consumable Item and when you stopped using it. The End Date cannot be earlier than the Start Date.

Start Time, End Time
Paste Special Current Time
Enter the times when you started using the consumable Item and when you stopped using it.

Item	Paste Special	Item register
		Specify the consumable Item here. This must be an Item in the Item register.
Supplier	Paste Special	Suppliers in Contact register
		Specify the Supplier from whom you purchased the consumable Item.
		If you are maintaining a single Item Effectivity record for each general consumable Item, updating it each time you fit a new one, you can use this field to compare the performance of similar Items from different Suppliers.
Used Qty		Enter the quantity of the consumable Item that you have used. If you are maintaining a single Item Effectivity record for each general consumable Item, you should update this field each time you fit a new one to the Machine. If you are entering separate records in this setting for each individual consumable Item, you will always enter "1" here.
		You do not have to enter a Used Qty before saving an Item Effectivity record, but you must do so before marking it as OK.
Produced		Use this field to record the number of Output Items produced by the consumable Item. If you are maintaining a single Item Effectivity record for each general consumable Item, you should update this field each time you fit a new one to the Machine. If you are entering separate records in this setting for each individual consumable Item, enter the quantity produced when using an individual Item.
		You do not have to enter a figure here before saving an Item Effectivity record, but you must do so before marking it as OK.
Comment		Use this field to record any general comments about the Item Effectivity record.
OK		When the Item Effectivity record is complete, mark it as OK and save it. You will no longer be able to make any changes. You cannot reverse this action. If you are maintaining a single Item Effectivity record for each general consumable Item, you will need to update the record each time you fit a new one to the Machine and

therefore you should never mark it as OK. An Item Effectivity record does not have to be marked as OK for it to appear in the Item Effectivity report.

Machine Groups

This setting allows you to divide your company's Machines into groups. These groups might represent the different Recipes that the machines can produce. Dividing Machines into Machine Groups will help with resource planning: please refer to page 23 above for an illustrated example.

Each Machine should have its own record in the Asset register in the Assets module. This register will allow you to account for each Machine's depreciation. Please refer to the 'Assets' manual for details. You should record each Machine in the Asset register before entering Machine Groups.

Double-clicking 'Machine Groups' in the 'Settings' list in the Production module opens the 'Machine Groups: Inspect' window listing the Machine Groups that have already been entered. To add a new record, simply enter its details on the first blank line and click [Save] to save and close. Click the close box to close without saving changes.

	Code	Machines
1	WELD	WELD1,WELD2,WELD3
2	DRILL	DRILL1,DRILL2,DRILL3
3	PAINT	PAINT1,PAINT2,PAINT3
4		
5		
6		
7		
8		
9		

Code

Specify a unique identification Code for each Machine Group. You can use up to five alphanumeric characters. Use a Code that makes it easy to distinguish Machine Groups from other records in the Resource Planner, but do not use a Code that is the same as a Machine Code (Asset's Inventory Number).

Machines	Paste Special	Asset register, Assets module
	Enter the Asset (Inventory) Number of each Machine (Asset) that belongs to the Machine Group, separated by commas.	
	If you need to use 'Paste Special' to enter several Machines, type the comma before opening the 'Paste Special' list. This will cause the next Machine to be added to those already entered. Otherwise, the previous Machine will be overwritten.	
	A particular Machine can belong to more than one Machine Group.	

Materials, Standard Operations, Routings

The Production Operation feature in HansaWorld Enterprise allows you to configure and implement a complex Production process with several assembly stages. This feature offers the following benefits—

- You can record each stage of the Production process separately, so you will always know exactly how each Production is progressing;
- Components will be removed from stock as you use them, not at the end of the entire Production process; and
- You can record Work in Progress in the Nominal Ledger.

Dividing a Production process into stages requires you to determine the following—

1. What the stages are;
2. Which components will be used in each stage (and which assembled Items if any will result from each stage); and
3. The sequence in which the stages should be carried out.

In HansaWorld Enterprise, the term given to a stage in the Production process is "Operation". There are two types of Operation—

- When you divide a Production process into stages, you will first create template or model Operations. These are known as "Standard Operations". A Standard Operation record should contain the normal specifications for a stage in the process.

- When you implement a Production process, you will create a Production record in the normal way and choose the Recipe. You will then create Operations specific to that Production, using the relevant Standard Operations as templates. The Operations that are specific to a particular Production are known as “Production Operations”.

To divide a Production process into stages, follow the steps described below. In these steps we will use as an example a basic Production process that requires three stages: welding, painting and assembly. The Recipe will include Input Items for all three stages: the metal (e.g. box section and/or metal sheet) used in first stage, the paint used in the second stage and the nuts and bolts used in the third stage. The third stage will also result in an assembled Item (a set of shelves) being added to stock.

1. Define the various stages by entering separate records for each stage in the Standard Operations setting.

The example process will require three Standard Operations: “WELDING”, “PAINTING” and “SHELF_ASSEMBLY”.

Depending on the circumstances, you may find that you can define a single generic Standard Operation such as “PAINTING” that can be used in many Recipes. In other cases (for example single- and multi-colour painting), you may need to define several more precise Standard Operations, so that you can choose the most appropriate one for each Recipe.

The Standard Operations setting is described in more detail below on page 124.

2. Now you should allocate the Input and Output Items in the Recipe to the relevant Operation. To do this, you need to classify those Items according to their type or task. This classification is given the name “Material”. A Material is simply a name for the basic type of Item or task, but it is also the mechanism that connects the Items with the Operations.

In the example Recipe, the Input Items for metal box section will be used during the first Operation, paint will be used during the second Operation, and the nuts and bolts will not be required until the final Operation. To use the nuts and bolts as an example, proceed as follows—

- i. Define the Material(s) that you need in the Materials setting. In this example, create a Material “NUTS_AND_BOLTS”.

- ii. You will have listed the nuts and bolts of various sizes as separate Input Items in the Recipe, so that you can control stock of each size. As you will use the nuts and bolts at the same time, and they are all the same type of Item, you can assign the “NUTS_AND_BOLTS” Material to each of these Items on flip B of the Recipe.
- iii. You will use the nuts and bolts as part of the assembly stage of the Production process. Open the “SHELF_ASSEMBLY” Standard Operation that represents this stage of the process and include “NUTS_AND_BOLTS” in the list of Materials.

Steps ii and iii connect specific Input Items (the nuts and bolts) with a particular stage in the Production process (in this case, the last stage). The nuts and bolts will be removed from stock when this stage is completed.

As “SHELF_ASSEMBLY” is the final Standard Operation, it should also include a Material such as “FINAL_ITEM”. The Material of the Output Item in the Recipe should also be “FINAL_ITEM”. This connects the Output Item with the final “SHELF_ASSEMBLY” Operation: when this Operation is completed, the Output Item will be added to stock.

The Materials setting is described in more detail below on page 128.

3. Use the Routings setting to define the order in which the Operations should be carried out.

In the example Production process, the Routing will specify that the “WELDING” Operation will be first, followed by “PAINTING” and finally by “SHELF_ASSEMBLY”.

The Routings setting is described in more detail below on page 133.

4. Having configured the Routing, return to the Recipe and enter the Routing in the Default Routing field.

To implement a multi-stage Production process, create a Production record in the normal way and choose the Recipe. As the Production represents a multi-stage process, you cannot simply mark it as Finished in order to remove the components from stock and add the assembled Item to stock. Instead, you need to create the Production Operations that represent each stage in the process, and mark each Operation as Finished in turn.

Choose ‘Create Production Operations’ from the Operations menu of the Production. This function uses the Standard Operations as templates to create Production Operations specific to the Production, as follows—

1. The function will refer to the Routing specified in the Production to obtain the sequence of Standard Operations.
2. The function will then refer to the first Standard Operation in the sequence to obtain a list of Materials.
3. The function will then look in the Production to find the Input and Output Items that share the first Material in the list in step 2.

If an Input Item in the Production has a Recipe (i.e. the Input Item is a sub-assembly), the function will also look in the sub-assembly Recipe for Input and Output Items with the Material in question.

4. A Production Operation will be created, containing the Input and Output Items found in step 3.
5. Step 3 is repeated for each Material in the Standard Operation, and the Input and Output Items that share those Materials will be added to the Production Operation created in step 4.
6. Steps 2-5 are repeated for each Standard Operation in the Routing.

If any of the Input Items in the Production are Phantom Items (Plain Items with Recipes) whose Recipes contain Routings, the sequence described above will be carried out for those Routings first, before being carried out for the Routing in the Production itself.

You can now work through the Production Operations in turn. In effect, each Production Operation is a Production in miniature. As you Finish each one, the relevant Input Items will be removed from stock and the relevant Output Items if any and if they are Stocked Items will be added to stock. If you have specified in the Account Usage Production setting that Nominal Ledger Transactions are to be created after each Production Operation, the value of the Production Operation will be posted to the Work In Progress Account (again, specified in the Account Usage Production setting). Work In Progress will be cleared when you Finish the last Production Operation in the sequence.

More details about the Production Operation register can be found below on page 243.

The Standard Operations setting

The first step when dividing a Production process into stages is to determine what the stages are. You should enter each stage as a separate record in the Standard Operations setting.

Standard Operations are essentially templates. They should contain the usual specifications for each stage in the process. When you create Production Operations from a Production, they will be created using the relevant Standard Operations as templates. Production Operations represent the same stages in the process as the Standard Operations, but are specific to the individual Production. If there is something unusual about a Production Operation (e.g. it takes longer than expected to complete), you can register this in the Production Operation without disturbing the template Standard Operation.

To work with the Standard Operations setting, first ensure you are in the Production module, and then click the [Settings] button in the Master Control panel or use the Ctrl-S/⌘-S keyboard shortcut to open the 'Settings' list. Double-click 'Standard Operations' in the list. The 'Standard Operations: Browse' window lists the Standard Operation records that have already been entered: double-click one to modify it or click [New] to create a new record. When the record is complete, click the [Save] button in the Button Bar to save changes and close it using the close box, or click the close box if you don't want to save changes.

Standard Operation: Inspect

Code: SHELF_ASSEMBLY Comment: Final Assembly

Machine Group: Display Group:

Materials Time Instructions

	Material	Qty	Unit	Description
1	NUTS_AND_BOLTS			Nuts and bolts
2	FINAL_ITEM			Final Assembly
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				

Header

Code	Specify a unique identification Code for the Standard Operation.	
Comment	Enter a name for the Standard Operation.	
Machine Group	Paste Special	Machine Groups setting, Production module
	Used as default in	Production Operations
	Specify here the Machine Group that contains the Machines that you can use to carry out the work represented by the Standard Operation.	
	The Machine Group will be copied to each Production Operation that you create from this template.	
Display Group	Paste Special	Display Groups setting, System module
	Used as default in	Production Operations
	Specify here the Display Group that contains the Persons that can carry out the work represented by the Standard Operation.	
	The Display Group will be copied to each Production Operation that you create from this template.	

Materials Card

Use the 'Materials' card to list the Materials that will be used as part of the Standard Operation. When you create a Production Operation from a Production using the Standard Operation as a template, every Input and Output Item in the Production that has been assigned one of these Materials will be copied to the Production Operation. Please refer to the description of the Materials setting below on page 128 for an example.

Material	Paste Special	Materials setting, Production module
	Choose a Material from the Materials setting. You can also enter an <i>ad hoc</i> Material if necessary.	
Qty	When you create a Production Operation from a Production using the Standard Operation as a template, every Input and Output Item in the Production with the Material specified above will be copied to the Production Operation. Usually, the In Qty or Out Qty as	

appropriate will be copied from the Production row to the corresponding Production Operation row. However, if you enter a Quantity here, it will be copied to the relevant Production Operation row instead. If the Production row has an In Qty, this Quantity will be copied to the In Qty field in the Production Operation row. Otherwise, it will be copied to the Out Qty field. This figure will therefore take priority over the In and Out Quantities in the Production (which themselves will have been taken from the Recipe). As this figure applies to a Material not an Item, it will be used as the In or Out Quantity for every Item in the Production with that Material.

Unit	Paste Special	Units setting, Sales Ledger
	Enter the Unit that the Quantity above refers to. This is for information only.	
Description	The Description is copied from the Materials setting.	

Time Card

Materials

Time

Instructions

Setup Time01:00:00

Queue Time02:00:00

Move Time03:00:00

Run Time04:00:00

Setup Time, Queue Time, Move Time, Run Time

Used as default in Routings

Use these four fields to stipulate the time required for the Standard Operation, as follows—

Setup	the time required to set up the Machine or otherwise prepare for the Standard Operation e.g. calibration or replenishing fluids or consumables.
Queue	the time required to wait for parts to be ready from the previous Standard Operation e.g. waiting for paint to dry or heated parts to cool. Queue time is also known as “non-instant availability”.
Move	the time required to move parts from stock or from the previous Standard Operation.

Run Time the time required for the Standard Operation itself.

These are the times required for the entire Standard Operation, not to produce one unit. They will be copied to the Routing record and from there to each Production Operation created using the Standard Operation as a template. You can adjust the times in the Routing if necessary.

If you are using the Fixed Time option in the Production Settings setting, the 'Items' card of each Production Operation will contain extra rows for each type of Time. The Item Numbers in these rows will be the Setup, Queue, Move and Labour Cost Items specified in the Production Settings setting, and the Unit Cost in each case will be the Work Cost per Hour in the same setting. The In Qty in each of these rows (number of hours) will be the times from the relevant Routing row which, by default, will be the times specified here. These extra rows allow you to account for the running costs of the Operation.

If you are using the Actual Time option in the Production Settings setting, you can still specify times here. In this case, these times will not be used to account for the running costs of the Operation, but you can use them as guides, to give an idea of how much time is required for the Operation (they will be copied to the 'Time' card of each Production Operation).

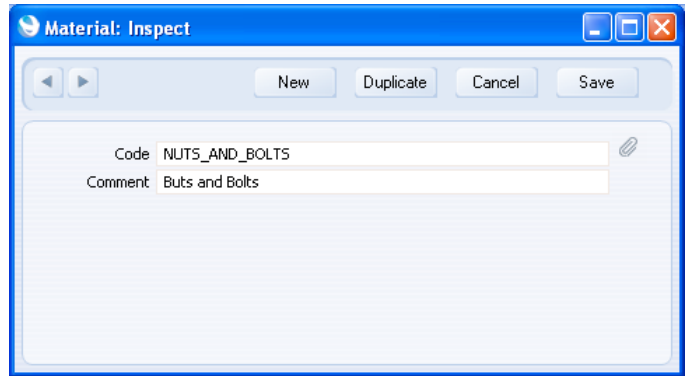
Instructions Card

Use the 'Instructions' card to record details about how to carry out the Standard Operation. These Instructions will be copied to the 'Instructions' card of each Production Operation.

The Materials setting

Materials allow you to determine the components that will be used in each stage in the Production process (and the assembled Items if any that will result from each stage). A "Material" is simply a name for the basic type of Input or Output Item or task, but it is also the mechanism that connects the Items with the Standard Operations (i.e. with the stages in the Production process).

To work with the Materials setting, first ensure you are in the Production module, and then click the [Settings] button in the Master Control panel or use the Ctrl-S/⌘-S keyboard shortcut to open the 'Settings' list. Double-click 'Materials' in the list. The 'Materials: Browse' window lists the Materials that have already been entered: double-click one to modify it or click [New] to create a new record. Enter a Code and Name and, when the record is complete, click the [Save] button in the Button Bar to save changes and close it using the close box, or click the close box if you don't want to save changes.



Illustrated below is a Recipe in which the Input and Output Items have all been assigned Materials—

Recipe: Inspect

Operations New Duplicate Cancel Save

Code: 80602 Comment: Set of Five Shelves

Normal Prod Qty: Time to Setup: Language: ☐ Closed

Min Prod Qty: Days to Produce: Minutes: Seconds:

Fixed Assembly Days: Hours to Produce: Number Produced: Extra Prod Qty:

Res. mgr. Colour: Black

Standard Batch: Default Routing: Instructions:

Item	Specification	Description	Material	Recipe
1	80111	40 cm Steel Box Section	WELDING	-
2	80112	50 cm Steel Box Section	WELDING	-
3	80140	Paint (litre)	PAINTING	-
4	80150	Large Bolt	NUTS_AND_BOLTS	-
5	80151	Small Bolt	NUTS_AND_BOLTS	-
6	80155	Large Nut	NUTS_AND_BOLTS	-
7	80156	Small Nut	NUTS_AND_BOLTS	-
8	80602	Set of Five Shelves	FINAL_ITEM	Recipe
9				
10				

☐ Locked Cost of In-Items: 112.79 Value of Out-Items: 112.79

This Recipe will require three stages (i.e. three Operations): welding, painting and assembly. This is the Standard Operation for the assembly stage—

Standard Operation: Inspect

◀▶

NewDuplicateCancelSave

CodeSHELF_ASSEMBLYCommentFinal AssemblyMachine GroupMachine GroupDisplay Group

MaterialsTimeInstructions

	Material	Qty	Unit	Description
1	NUTS_AND_BOLTS			Nuts and bolts
2	FINAL_ITEM			Final Assembly
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				

The assembly stage will use the “NUTS_AND_BOLTS” and “FINAL_ASSEMBLY” Materials. The Input and Output Items with these Materials in the Recipe will therefore be assigned to this stage.

When you enter the Recipe in a Production and create Production Operations from that Production, this is the equivalent Production Operation—

Production Operation: Inspect

Operations: [New] [Duplicate] [Cancel] [Save]

No. 96 Prod. Order Prod. No. 5039
 Qty 1 Actual Qty
 Start Date 12/11/2009 End Date 12/11/2009
 Comment Final Assembly
 Sequence 3

Status:
☒ Created
☐ Cancelled
☐ Started
☐ Finished
☐ Finished and Discarded

Item	Descr.	Objects	In	Out	Material
1	80150	Large Bolt	12.00		NUTS_AND_BOLTS
2	80151	Small Bolt	8.00		NUTS_AND_BOLTS
3	80155	Large Nut	12.00		NUTS_AND_BOLTS
4	80156	Small Nut	8.00		NUTS_AND_BOLTS
5	80602	Set of Five Shelves		1.00	FINAL_ITEM
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

This Production Operation allows you to remove the nuts and bolts from stock when you use them, and the final Item will be added to stock at the same time.

If you need to use any of the nuts and bolts at another time, e.g. during the welding stage, you will need to separate them in the Recipe (and therefore in the Production) by entering the “welding nuts and bolts” and the “assembly nuts and bolts” on separate rows even if they have the same Item Number, and you will need to mark them using a different Material. For example, you might need “NUTS_AND_BOLTS_A” and “NUTS_AND_BOLTS_B” as Materials, or, to be clearer, “NUTS_AND_BOLTS_WELD” and “NUTS_AND_BOLTS_ASSEM”. This will ensure the correct nuts and bolts in the correct quantities will be used and removed from stock at the appropriate stage in the process.

The Routings setting

Having used Standard Operations to divide a Production process into stages, and Materials to assign the Input and Output Items to those stages, you can now use Routings to determine the order in which the Operations are to be carried out.

To work with the Routings setting, first ensure you are in the Production module, and then click the [Settings] button in the Master Control panel or use the Ctrl-S/⌘-S keyboard shortcut to open the 'Settings' list. Double-click 'Routings' in the list. The 'Routings: Browse' window lists the Routing records that have already been entered: double-click one to modify it or click [New] to create a new record. When the record is complete, click the [Save] button in the Button Bar to save changes and close it using the close box, or click the close box if you don't want to save changes.

The screenshot shows the 'Routing: Inspect' window. At the top, there is a title bar with the text 'Routing: Inspect' and standard window controls. Below the title bar is a toolbar with buttons for 'New', 'Duplicate', 'Cancel', and 'Save'. The main area contains a table with the following data:

Operations	Description	Sequence	Sub
1 WELDING	Welding	1	A
2 PAINTING	Painting	2	B
3 SHELF_ASSEMBLY	Final Assembly	3	
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

At the bottom right of the table, there is a vertical scrollbar and a small 'v' icon.

Header

Code	Specify a unique identification Code for the Routing record.
Comment	Enter a name for the Routing record.

A Routing record is a list of the Operations that make up a Production process. In effect, it's a schedule of the process. Use the grid that takes up the majority of the window to list those Operations, and to specify the order in which they are to be carried out.

Flip A

Operations	Paste Special	Standard Operations setting, Production module
		When you enter a Standard Operation here, its Comment and the various times will be brought in to the appropriate fields.
Description		When you choose a Standard Operation in the field above, its Comment will be placed here.
Sequence, Sub		Use the Sequence field to specify the order in which the Standard Operations are to be carried out. If more than one Operation can be carried out at the same time, give them the same Sequence numbers, and different Sub Sequence numbers. For example, it might be possible to build two sub-assemblies simultaneously, because the building of one does not depend on the other one already existing. But both sub-assemblies must be complete before they can be brought together to make a whole, so the assembly stage should have a later Sequence number.

*Flip B***Setup Time, Queue Time, Move Time, Run Time**

	Default taken from	Standard Operation
	Used as default in	Production Operations
	Use these four fields to stipulate the time required for the Operation, as follows—	
Setup	the time required to set up the Machine or otherwise prepare for the Operation e.g. calibration or replenishing fluids or consumables.	

Queue	the time required to wait for parts to be ready from the previous Operation e.g. waiting for paint to dry or heated parts to cool. Queue time is also known as “non-instant availability”.
Move	the time required to move parts from stock or from the previous Operation.
Run Time	the time required for the Operation itself.

These are the times required for the entire Operation, not to produce one unit. They will be copied from the Standard Operation record and from here onward to each Production Operation created using the Standard Operation as a template. You can adjust the times here if necessary (for example, the times in the Standard Operation may be sufficient to produce four units, but the particular application of the Operation in a particular Routing may produce five units).

If you are using the Fixed Time option in the Production Settings setting, the ‘Items’ card of each Production Operation will contain extra rows for each type of Time. The Item Numbers in these rows will be the Setup, Queue, Move and Labour Cost Items specified in the Production Settings setting, and the Unit Cost in each case will be the Work Cost per Hour in the same setting. The In Qty in each of these rows (number of hours) will, by default, be the times specified here. These extra rows allow you to account for the running costs of the Operation.

If you are using the Actual Time option in the Production Settings setting, you can still specify times here. In this case, these times will not be used to account for the running costs of the Operation, but you can use them as guides, to give an idea of how much time is required for the Operation (they will be copied to the ‘Time’ card of each Production Operation).

Once you have entered a Routing record, the division of a Production process into stages is almost complete. The final task is to enter the Routing in the Default Routing field in the Recipe—

Recipe: Inspect

Operations New Duplicate Cancel Save

Code: 80602 Comment: Set of Five Shelves

Normal Prod Qty: Time to Setup: Language: ☐ Closed

Min Prod Qty: Days to Produce: Minutes: Seconds:

Fixed Assembly Days: Hours to Produce: Number Produced: Extra Prod Qty:

Res. mgr. Colour: Black

Standard Batch: Default Routing: SHELVING

Instructions:

Item	Specification	In	Out	Rel.	I-cost	W-cost
1	80111 40 cm Steel Box Section	8.00			5.00	
2	80112 50 cm Steel Box Section	12.00			5.00	
3	80140 Paint (litre)	1.00			0.75	
4	80150 Large Bolt	12.00			0.50	
5	80151 Small Bolt	8.00			0.25	
6	80155 Large Nut	12.00			0.25	
7	80156 Small Nut	8.00			0.13	
8	80602 Set of Five Shelves		1.00		112.79	
9						
10						

☐ Locked Cost of In-Items: 112.79 Value of Out-Items: 112.79

Having done so, when you specify the Recipe in a Production, the Default Routing will be copied from that Recipe to the Production as well. You can then use the 'Create Production Operations' function on the Operations menu to create the Production Operations as instructed in the Routing and as described above on page 124. The Production Operation register is described below on page 243.

Number Series - Production Operations

Use this setting to define the number sequences for Production Operations in a similar manner to that described for Productions immediately below.

Number Series - Production Orders

Use this setting to define the number sequences for Production Orders in a similar manner to that described for Productions immediately below.

Number Series - Productions

Each record in the Production register has its own unique identifying number, based on a sequential series. When you enter a new record, the next number in the series will be used. If required, you can have a number of such sequences running concurrently, perhaps representing different years or different departments.

Use this setting to define these sequences, or Number Series. The different series should not overlap. If you leave the setting empty, Production Numbers will start at 1 and continue consecutively.

When you enter a Production, the next number in the first valid Number Series entered to this setting will be used as a default; change to the first unused number in any other Number Series using 'Paste Special'.

For each number sequence, you have a measure of control over whether Nominal Ledger Transactions will be generated automatically when you approve Production records in that sequence. Using 'Paste Special' from the N/L field brings up a selection list containing two options: "GenTrans" and "Do Not GenTrans". Select the first option if Nominal Ledger Transactions are to be generated and the second if they are not. In effect, this feature is an exclusionary one in that you can only choose to not have Nominal Ledger Transactions created for a particular number sequence. If the overall preference (set in the Sub Systems setting in the Nominal Ledger) is to not have such transactions created, you cannot decide to have them created for a single sequence.

When you double-click 'Number Series - Productions' in the Settings list, the following window appears—

No.	Date		From	To	Comment	N/L
	From	To				
1	5000	5999	1/1/2009	31/12/2009	London Office	GenTrans
2	50000	50999	1/1/2009	31/12/2009	Manchester Of	GenTrans
3						
4						
5						
6						
7						
8						
9						
10						
11						

Enter each required Number Series on the first blank line. The Comment will be shown in the 'Paste Special' list, so enter some text that will help you choose a number from the correct sequence. Then, click the [Save] button in the Button Bar to save the changes. To close the window without saving changes, click the close box.

Production Settings

This setting contains some miscellaneous options controlling the behaviour of various aspects of the Production module.

Options Card

Production Settings: Inspect

Save

Options Cost Items

Buffer Days: 3

☐ Production Lines hold Actual Qty

☐ Always create Normal Production Qty from Planned

☐ Create Stock Depreciation from Discarded Production

☐ Round odd Hours to One Day

Sequence of Production Operations

☒ Allow to work with Next Sequence while current one is not finished

☐ Complete Sequence before next one

Generate Planned

☐ Productions

☒ Production Orders

Buffer Days

If the Machines that you use in the production process require some down time between jobs, perhaps for cleaning or calibration, specify the duration of that down time here, in days. This down time will apply to every Machine.

This information will be used by the 'Create Planned Records' Maintenance function in the Sales Orders and Production modules, and by the 'Create Planned Records from Orders' function, also in the Sales Orders module. These functions create Production Orders or Productions for Stocked Items with Recipes that have been included in Sales Orders with future Planned Delivery Dates (i.e. for Items that you have sold and that you need to build or assemble). The dates of these Production Orders or Productions will be calculated from the Planned Delivery Dates of the Sales Orders, the various lead times in the appropriate Recipes (i.e. Days, Hours,

Minutes and Seconds to Produce, Time to Setup and Fixed Assembly Days), the number of Buffer Days specified here, and the working hours of the Machine recorded in the Machine Hours register. This ensures you will build or assemble the goods just before they are scheduled for delivery to the Customer.

The number of Buffer Days will also be used when calculating Start Dates in Production Plans in the MRP module. Please refer to the 'MRP' manual for more details.

Production Lines hold Actual Qty

Use this option to specify whether the quantities shown in Production and Production Operation rows represent a single application of the Recipe or the total quantities required.

For example, a Recipe states that two components are required to produce one final Item. When you use this Recipe in a Production with the requirement to produce two final Items, you will enter "2" in the Qty field in the header of the Production record. If you are using this option, the In Qty of the component will change from "2" to "4", and the Out Qty of the final Item will change from "1" to "2". If you are not using this option, the In Qty of the component will stay at "2", and the Out Qty of the final Item will stay at "1".

This option does not apply to Production Orders. The quantities shown in Production Order rows will always represent a single application of the Recipe. When you create a Production from a Production Order using the 'Finish Batch' Operations menu function or the Production Time Entry interface, the calculation of the quantities in the new Production rows will depend on this option. Please refer to page 39 above for more details about the Production Time Entry interface.

Always create Normal Production Qty from Planned

This option affects the calculation of quantities in Production Orders and Productions created by the 'Create Planned Records' Maintenance function in the Sales Orders and Production modules, and by the 'Create Planned Records from Orders' function, also in the Sales

Orders module. These functions create Production Orders or Productions for Stocked Items with Recipes that have been included in Sales Orders with future Planned Delivery Dates (i.e. for Items that you have sold and that you need to build or assemble).

If you do not use this option, these functions will create Production Orders or Productions for the exact quantity that you have sold. If you use this option, they will create Production Orders or Productions for the exact quantity or the Normal Prod Qty in the relevant Recipes, whichever is the larger. For example, if you have sold 10 of an Item but the Normal Prod Qty in its Recipe is 20, these functions will create a Production for Qty 10 if you are not using this option and Qty 20 if you are. If you have sold 21, then this option will have no effect and a Production for Qty 21 will be created in both situations.

Create Stock Depreciation from Discarded Production

If an operative uses the Production Time Entry interface to record that some of what has been produced has been discarded, a second Production will be created for the discarded quantity. This second Production will be marked as Finished but Discarded, thus removing the components from stock and updating the stock valuation in the Nominal Ledger. The two Productions will be connected to each other through the Attachments facility. The second Production will usually not add any final Items to stock. However, if you are using this option, the Discarded final Items will be added to stock, and an automatic Stock Depreciation will then remove them.

Please refer to page 39 above for more details about the Production Time Entry interface.

Round odd Hours to One Day

You can use the 'Create Planned Records' Maintenance function in the Sales Orders and Production modules, and the 'Create Planned Records from Orders' function, also in the Sales Orders module to create Production Orders or Productions for Stocked Items with Recipes that have been included in Sales Orders with future Planned Delivery Dates (i.e. for Items that you have sold and that you need to build or assemble). The dates of

these Production Orders or Productions will be calculated from the Planned Delivery Dates of the Sales Orders, the various lead times in the appropriate Recipes (i.e. Days, Hours, Minutes and Seconds to Produce, Time to Setup and Fixed Assembly Days) and the number of Buffer Days specified above.

If the result of this calculation is not be a whole number of days, it will usually be rounded down, unless you are using this option.

For example, if the lead time is 4 days 23 hours and you are not using this option, then the date of the Production or Production Order will be four days before it is needed. If you are using this option, the date will be five days before it is needed.

This option is also used as described above in the MRP module to calculate the dates in Production Plans and, from there, in Productions or Production Orders.

Sequence of Production Operations

When you create a sequence of Production Operations from a Production, these options will control how strictly that sequence must be followed.

If you choose the first option, you will be able to mark the Production Operations as Started and Finished in any order.

If you choose the second option, you will be able to mark the Production Operations as Started in any order, but you will have to mark them as Finished in sequence order.

In both cases, you will be able to have more than one Production Operation marked as Started at any one time.

It is recommended that you choose the second option if you have chosen in the Account Usage Production setting to have Nominal Ledger Transactions from Production Operations. In this case, the sequence in which you Finish each Production Operation becomes significant. In particular, the Transaction from the final Production Operation, which debits the value of the final Item to the Stock Account and credits this value to the Work In Progress Account, may not be correct if there

are earlier Operations in the sequence that you have not yet Finished. This option will ensure that you mark the Operations as Finished in the correct order.

Generate Planned There are various Maintenance functions that you can use to create Production Orders or Productions remotely.

For example, you can use the 'Create Planned Records' Maintenance function in the Sales Orders and Production modules, and the 'Create Planned Records from Orders' function, also in the Sales Orders module to create Production Orders or Productions for Stocked Items with Recipes that have been included in Sales Orders with future Planned Delivery Dates (i.e. for Items that you have sold and that you need to build or assemble).

You can use the Sales Forecast register in the MRP module to predict the future monthly sales of Output Items. From a Sales Forecast record, you can create a Production Plan for each month, and from there you can use the 'Create Productions' Maintenance function to schedule the assembly of the Items that you expect to sell.

Use these options to specify whether these functions will create Productions or Production Orders for these Items.

Cost Items Card

Production Settings: Inspect

Save

Options Cost Items

Machine Cost Item MACHINE

Labour Cost Item LABOUR

Setup Cost Item SETUP

Move Cost Item MOVE

Queue Cost Item QUEUE

Run Time Act. Type MACHI

Setup Act. Type SETUP

Move Act. Type

Queue Act. Type

Time

☐ Actual Time

☒ Fixed Time

☒ Auto Calculate Cost of produced Items

☒ Add Work Cost

☐ Add Discarded Cost

Work Cost per Hour 0.75

Machine Cost Item Paste Special**Item register**

The Auto Calculate Cost of Produced Items option below allows you to record the running costs of the Machines used in Productions. If you are using this option, you must also specify a Machine Cost Item here, you should specify Running Costs/hr in the Asset records for your Machines ('Costs' card) and you should specify such an Asset in the Machine field in each Production.

If you are using this feature, an extra row containing this Item will be added to each Production when you first save it. This row will record the running cost of the Machine used during the Production process. The running cost will be taken from the Running Costs/hr field in the relevant Asset record, and from the Start and End Time of the Production. When you mark the Production as Finished and save it, the running cost will be added to the value of the assembled Item (i.e. it will be debited to the Stock Account), and it will be credited to the Production W-cost Account.

The choice of the Production W-cost Account will depend on whether you are using the Use Item Groups for Cost Accounts option in the Cost Accounting setting in the Stock module. If you are, and you specify a Machine Cost Item here that belongs to an Item Group in which you have specified a Production W-cost Account, that Account will be used. If you are not using this option or the Item Group does not have a Production W-cost Account, the W-cost Account will be taken from the Account Usage Stock setting.

If a Production has a Routing, the extra row for the running cost will not be added to the Production but instead will be added to each Production Operation.

The Machine Cost Item must be a Service Item.

Labour Cost Item, Setup Cost Item, Move Cost Item, Queue Cost Item

Paste Special

Item register

If a Production has a Routing, running costs will be calculated at Production Operation level. You can record four separate types of running costs, as follows—

Labour	The cost of labour.
Setup	The cost of setting up the Machine e.g. calibration or replenishing fluids or consumables.
Move	The cost of moving parts either from stock to the first Production Operation or from one Production Operation to the next.
Queue	The cost incurred in waiting for parts to be ready e.g. waiting for paint to dry or heated parts to cool. Queue time is also known as non-instant availability.

If you are using the Fixed Time option (below), these four fields (Labour Cost Item, Setup Cost Item, Move Cost Item and Queue Cost Item) allow you to record these costs when completing a Production Operation. In this case, you need to specify an Item in each of these four fields. Each Item must be a Service Item. Each time you create a Production Operation, it will contain four extra rows: one for each of these Items. These rows allow you to record the various running costs incurred by the Production Operation. The In Qty in each of these

rows (number of hours) will be taken from the Routing specified in the Production or from the Standard Operation record specified in the Routing. The Unit Cost will be the Work Cost per Hour (below).

If you are using the Actual Time option (below), you only need specify a Labour Cost Item. Again, this should be a Service Item. You will record the labour time required for the Production Operation first by creating Activities using the 'Create Activity' function on the Operations menu of the Production Operation. This Item will appear in the Item field of all Activities created in this way. You will then bring these Activities into the Production Operation using the 'Add Labour' function on the same menu. The 'Add Labour' function will add an extra row containing the Labour Cost Item to the Production Operation. The In Qty of this row (number of hours) will be the total Cost (Time) of these Activities (providing they have been marked as Done), and the Unit Cost will be the Work Cost per Hour (below).

In both cases (Fixed Time and Actual Time), when you mark a Production Operation as Finished, the choice of the Account(s) that will be credited with these running costs will depend on whether you are using the Use Item Groups for Cost Accounts option in the Cost Accounting setting in the Stock module. If you are, and you specify Items in these four fields that belong to Item Groups in which you have specified Production W-cost Accounts, those Accounts will be used. If you are not using this option or the Item Groups do not have Production W-cost Accounts, the W-cost Account will be taken from the Account Usage Stock setting.

These Items must all be Service Items.

Run Time Act. Type

Paste Special	Activity Types setting, CRM module
----------------------	------------------------------------

The Production Time Entry interface is a simple interface that allows you to work on a Production while automatically recording Labour and Setup Time. If you are using this interface, when you start work on a Production, an Activity will be created automatically, with the time you started work as the Start Time. This

Activity is known as a “Run Time” Activity. When you finish working on the Production, the Run Time Activity will be updated automatically with the time when work stopped, and the Activity will be marked as Done.

Specify here the Activity Type that you want to be used in each Run Time Activity.

Please refer to page 39 above for more details about the Production Time Entry interface.

Setup Act. Type	Paste Special	Activity Types setting, CRM module
------------------------	----------------------	------------------------------------

The Production Time Entry interface is a simple interface that allows you to work on a Production while automatically recording Labour and Setup Time. When you finish working on a Production, you will have the opportunity to enter a Setup Time (e.g. time spent calibrating the Machine or replenishing fluids before starting work on the Production). If you enter a Setup Time and if you are using the Add Work Cost option (below), an Activity will be created automatically to record this time. This Activity is known as a “Setup Activity” and will be marked as Done.

Specify here the Activity Type that you want to be used in each Setup Activity.

Please refer to page 39 above for more details about the Production Time Entry interface.

Time

Use these options to specify whether you will record actual or fixed time against Production Operations.

Actual

Recording actual time against a Production Operation is a two-stage process. You should first create Activities using the ‘Create Activity’ function on the Operations menu of the Production Operation, and then bring these Activities into the Production Operation using the ‘Add Labour’ function on the same menu. This function will add an extra row containing the Labour Cost Item specified above to the Production Operation. The In Qty of this row (number of hours) will be the total Cost (Time) of these Activities (providing they have been

marked as Done), and the Unit Cost will be the Work Cost per Hour (below).

Fixed

If you are using this option, whenever you create a Production Operation record from a Production, it will contain extra rows for each of the cost types, using the Labour Cost Item, Setup Cost Item, Move Cost Item and Queue Cost Item specified above. The In Quantities of these rows (number of hours) will be taken from the Routing specified in the Production or from the Standard Operation record specified in the Routing. The Unit Cost in each case will be the Work Cost per Hour (below).

Auto Calculate Cost of produced Items

Please refer to the description of the Machine Cost Item above on page 144 for details of this option.

Add Work Cost

This option is used for three purposes.

First, if you are using the Production Time Entry interface and you want an Activity to be created for Setup Time using the Setup Activity Type specified above, check this box. Run Time Activities will always be created.

Second, if you are using the Production Time Entry interface together with this option, a Work Cost will be added to each Production automatically. This will be calculated using the total Cost (Time) of the Setup and Run Time Activities and the Work Cost per Hour specified below. Since each Production will be marked as Finished automatically, you will not be able to change this Work Cost. If you have specified a Number Produced in the Recipe, the Cost (Time) of the Setup Activity will be divided by this figure before being added into the calculation.

Finally, use this option if you would like a Work Cost to be added to each new Recipe automatically. This Work Cost will be calculated using the Work Cost per Hour specified below and the time required for the Recipe (the total of the Time to Setup and the Days, Hours, Minutes and Seconds to Produce). The Work Cost will be placed in the W-cost field in the last Input row in the Recipe. If

the Recipe has a Number Produced, this will be used to calculate a Work Cost per unit. You cannot change this calculated Work Cost figure, but you can in effect adjust it by specifying another Work Cost (which can be negative if necessary) in one of the other Input rows. This feature does not apply to Recipes with Routings.

Please refer to page 39 above for more details about the Production Time Entry interface.

Work Cost per Hour

The Work Cost per Hour is used for four purposes.

First, if you are using the Fixed Time option above, this will be the hourly rate for Labour, Setup Time, Move Time and Queue Time that will be added automatically to Production Operations when you create them from Productions.

Second, if you are using the Actual Time option above and you use the 'Add Labour' Operations menu function to add time to Production Operations from Activities, this will be the hourly rate.

Third, if you record time against a Production using the Production Time Entry interface and you are using the Add Work Cost option above, then this time will be added automatically to the Production as a Work Cost using the hourly rate specified here.

Finally, if you are using the Add Work Cost option above, a Work Cost will be added to each new Recipe automatically. This Work Cost will be calculated using the Work Cost per Hour specified here and the time required for the Recipe (the total of the Time to Setup and the Days, Hours, Minutes and Seconds to Produce). The Work Cost will be placed in the W-cost field in the last Input row in the Recipe. If the Recipe has a Number Produced, this will be used to calculate a Work Cost per unit. This feature does not apply to Recipes with Routings.

Please refer to page 39 above for more details about the Production Time Entry interface.

Add Discarded Cost

If an operative uses the Production Time Entry interface to record that some of what has been produced has been discarded, a second Production will be created for the discarded quantity. This second Production will be marked as Finished but Discarded, thus removing the components from stock and updating the stock valuation in the Nominal Ledger. The two Productions will be connected to each other through the Attachments facility. If you are using this option, the value of the second (Discarded) Production will be added to the first (Finished) Production as a Work Cost, and therefore this value will be included in the stock value of the “good” Items.

Please refer to page 39 above for more details about the Production Time Entry interface.

Routings

Please refer to page 133 above for details of this setting.

Standard Operations

Please refer to page 124 above for details of this setting.

Standard Problems

Use this setting to record reasons for discarding finished Productions. Please refer to the ‘Service Orders’ manual for full details.

Work Shifts

If you define your Work Shifts in this setting, you can then use the Production Journal report to list the Productions worked on during a particular Work Shift. A Production will satisfy this requirement if its Start Time and End Date comply with the specified Work Shift record. If a Production has an End Date that complies with the Work Shift record but its Start Time is blank, it will not be included in the report.

To work with this setting, first ensure you are in the Production module, and then click the [Settings] button in the Master Control panel or use the Ctrl-S/⌘-S keyboard shortcut to open the ‘Settings’ list. Double-click ‘Work

[New] to create a new record. When the record is complete, click the [Save] button in the Button Bar to save changes and close it using the close box, or click the close box if you don't want to save changes.

The screenshot shows a window titled "Work Shift: Inspect". At the top right are standard window control buttons. Below the title bar is a button bar with "New", "Duplicate", "Cancel", and "Save". The main content area has the following fields and options:

- Code:** MON
- Comment:** Monday
- Start Time:** 08:00:00
- End Time:** 17:00:00
- Days of the week checkboxes:**
 - ☒ Monday
 - ☐ Tuesday
 - ☐ Wednesday
 - ☐ Thursday
 - ☐ Friday
 - ☐ Saturday
 - ☐ Sunday or Bank Holidays

Enter a Code and Comment for the Work Shift, and specify the Start and End Time. Click the check box(es) as appropriate: you could, for example, have a single Work Shift record for standard time during the week, and a separate one for overtime, in which case you would click all five week day check boxes in both records.

A Work Shift marked as Sunday will include work on bank holidays. For example this would include work on Christmas Day, even if Christmas Day is not a Sunday. If Christmas Day is a Monday, work on Christmas Day will not be included in a Work Shift marked as Monday.

To use the bank holiday feature, you must list the holidays in your country in the Bank Holidays setting in the System module.

Bank Holidays: Inspect

Country: Comment:

☐ Monday
☐ Tuesday
☐ Wednesday
☐ Thursday
☐ Friday
☒ Saturday
☒ Sunday

	Date	Special Day
1	1/1/2009	NYD
2	2/1/2009	NYD2
3	10/4/2009	GF
4	13/4/2009	EM
5	4/5/2009	EMBH
6	25/5/2009	SPBH
7	31/8/2009	SUBH
8	25/12/2009	CD
9	26/12/2009	BD
10	1/1/2010	NYD
11	2/4/2010	GF
12	5/4/2010	EM
13	3/5/2010	EMBH
14	31/5/2010	SPBH
15	30/8/2010	SUBH
16	27/12/2010	CD
17	28/12/2010	BD
18		
19		
20		
21		
22		

Every date listed in the matrix in the Bank Holidays setting will count as a bank holiday as far as Work Shifts are concerned. Also if you click one of the check boxes in the Bank Holidays setting (e.g. the Monday check box), every Monday in the year will then count as a bank holiday, so work on Mondays will be included in Work Shifts marked as Sundays.

The Item Register

This register is fully described in the 'Items and Pricing' manual.

When entering assembled Items, a distinction should be made between Items that are assembled at the moment of delivery and those that are assembled in advance of delivery and held in stock. This distinction is made using the Item Type options on the 'Pricing' card. In both cases, the assembly process (the components used, and the quantities required) is governed by a Recipe. Recipes are described below on page 155.

The screenshot shows the 'Item: Inspect' window with the 'Pricing' tab selected. The window contains the following fields and options:

- Operations:** New, Duplicate, Cancel, Save
- Item No.:** 10125
- Group:** (empty)
- Description:** Video Starter Kit (10 x DVD-R, SCART cable)
- Options:**
 - ☐ Closed
 - ☐ Not For Sales
- Tabs:** Pricing (selected), Stock, Warehouse, Costs, Recipe, A/C, Varieties, Texts, Cost Model, User Values
- Pricing Tab Fields:**
 - Unit:** (empty)
 - Base Price:** 15.00
 - Base Price Change:** 10/12/2008
 - Price Factor:** (empty)
 - Item Formulae:** (empty)
 - Markup %:** (empty)
 - Bonus %:** (empty)
 - Objects:** (empty)
 - Classification:** (empty)
- Item Type:**
 - ☐ Plain
 - ☐ Stocked Item
 - ☒ Structured Item
 - ☐ Service
 - ☐ Treat Item as Material on Project

Stocked Items

Use this option for Items which are assembled in advance of delivery and which are to be held in stock. Assembly of such Items is carried out using the Production register (described below on page 196). When a Production record is marked as "Finished", the stock levels of the Input Items (the

components) are reduced, and the stock of the Output Item (the assembled Item) is increased.

A component can itself be an assembled Item. This must be a Stocked Item, itself produced using a Production record. When such a sub-assembly is produced, its stock will be increased. When it is used as a component, its stock will be decreased. An assembled Item can be made up of several levels of sub-assemblies.

Structured Items

Use this option for Items that are assembled at the moment the delivery is made. Structured Items are never held in stock: when they are delivered to Customers, stock levels of their components are reduced.

Phantom Items

A “Phantom Item” is a Plain Item with a Recipe. This is an Item that only exists momentarily during a complex Production process. If the Recipe representing the Production process has a Routing, the various stages or Operations in the Routing can produce sub-assemblies to be used later in the process. These sub-assemblies can be Phantom Items. The components used to produce a Phantom Item will be removed from stock at the relevant point but, being a Plain Item, the Phantom Item will never be held in stock. Please refer to page 86 above for more details and an example.

The Recipe Register

A Recipe is the list of the components (including quantities) needed to build an assembled Item. The Recipe is therefore the Bill of Materials for that Item.

Before you can enter a Recipe, you should enter the result of the Recipe (the assembled Item) in the Item register as described above on page 153. After defining the Recipe using the Recipe register as described here, return to the Item record for the assembled Item and specify the Recipe on the 'Recipe' card.

If you specify that the assembled Item is a Structured Item using the options on the 'Pricing' card of the Item record, the Recipe will be applied at the moment of delivery. Enter the Item Number of the assembled Item in an Order and create a Delivery as usual. Stock levels for each of the components will be reduced according to the Recipe when you approve the Delivery. The Structured Item itself will never be held in stock.

If the assembled Item is a Stocked Item, you must build it prior to delivery using the Production register and hold it in stock. When you mark the Production record as Finished and save it, stock levels for the components will be decreased as appropriate and those for the assembled Item increased.

To work with Recipes, ensure you are in the Production module and click the [Recipes] button in the Master Control panel to open the Recipe register. Alternatively, if you are in the Stock module, click the [Settings] button in the Master Control panel and double-click 'Recipes' in the subsequent list. In both cases, click the [New] button in the Button Bar to create a new Recipe record.

Recipe: Inspect

Operations: [New] [Duplicate] [Cancel] [Save]

Code: 80601 Comment: HiFi Rack

Normal Prod Qty: 1 Time to Setup: Language: ☐ Closed

Min Prod Qty: Days to Produce: Minutes: Seconds: ☐

Fixed Assembly Days: Hours to Produce: 3.00 Number Produced: 1 Extra Prod Qty: ☐

Res. mgr. Colour: Red Standard Batch: 2 Default Routing: RACK

Instructions:

Item	Specification	In	Out	Rel.	I-cost	W-cost
1	80110 Glass Shelf	5.00			5.00	
2	80111 40 cm Steel Box Section	10.00			0.50	
3	80112 50 cm Steel Box Section	10.00			0.50	
4	80113 90 cm Steel Sheet	2.00			0.75	
5	80114 36 cm Steel Sheet	2.00			0.50	
6	80115 Hex Screw	20.00			0.10	
7	80116 Spiked Feet	4.00			1.00	
8	80117 Rubber Shelf Seat	20.00			0.10	
9	80118 End Cap	4.00			0.20	0.00
10	80601 HiFi Rack		1.00		46.30	

☐ Locked Cost of In-Items: 46.3 Value of Out-Items: 46.3

Code The Code for the Recipe can be up to 20 characters long. It is recommended that you use a Code that is similar to the Item Number of the assembled Item.

Comment A description of the assembly.

Normal Prod Qty This field is only used if the result of the Recipe is a Stocked Item. If this is the case, specify here how many times the Recipe will usually be used in a single Production or Production Order record.

When you specify the Recipe in a Production or Production Order, this figure will be placed in the Qty field in the header of the Production or Production Order as a default.

If you create a Production or Production Order from a Sales Order with a Planned Delivery Date using the 'Create Planned Records' or 'Create Planned Records from Orders' Maintenance function, this figure will be

placed in the Qty field in the header of the new Production or Production Order as a default if it is larger than the quantity in the Sales Order and if you are using the Always create Normal Production Qty from Planned option in the Production Settings setting.

The Qty field in the header of a Production or Production Order is the number of applications of the Recipe. For example, if the Out quantity of the Recipe is “2” (entered in the row containing the Output Item) and the Recipe is applied five times in a Production record (i.e. the Qty in the Production header is “5”), the result will be ten units of the Output Item being added to stock.

Take care with the Normal Prod Qty if the Output Item or any of the components are Serial Numbered at unit level. For example, a Recipe contains a Serial Numbered component with an In Qty of two and the Normal Prod Qty is also two. When you use the Recipe in a Production, the Production will contain four rows each with a In Qty of one, allowing you to enter Serial Numbers individually (In Qty * Normal Prod Qty). Therefore, you must specify a Normal Prod Qty if any of the Items are Serial Numbered. If you do not, the Serial Numbered Item will not be copied to the Production because you are effectively multiplying by zero. In addition, if you are not using the Production Lines hold Actual Qty option in the Production Settings setting, you must enter “1” here. If the Normal Prod Qty should in reality be greater than one, make the adjustment by increasing the In and Out Quantities of each Item.

Language

Paste Special

Languages setting, System module

Used as default in

Production Orders and Productions

The Language specified here will be copied to all Production Orders and Productions that use the Recipe, where it will determine the Form that will be used when you print documents from those records, and the printer that will be used to print them. Please refer to the section describing documents in the ‘Working Environment’ chapter in the ‘Introduction to HansaWorld Enterprise’ manual for more details.

Min Prod Qty If you create a Production or Production Order from a Sales Order with a Planned Delivery Date using the 'Create Planned Records' or 'Create Planned Records from Orders' Maintenance function, this figure will be placed in the Qty field in the header of the new Production or Production Order as a default if it is larger than the quantity in the Sales Order. However, if you are using the Always create Normal Production Qty from Planned option in the Production Settings setting and the Normal Prod Qty immediately above is larger than this minimum, the Normal Prod Qty will be used instead.

Time to Setup, Fixed Assembly Days, Days to Produce, Hours to Produce, Minutes, Seconds

These fields are only used if the result of the Recipe is a Stocked Item, as follows—

Days to Produce The number of days required to build a single application of the Recipe (i.e. the number of days required to build the Out Qty). One day is 24 hours.

Hours to Produce The number of hours required to build a single application of the Recipe.

Minutes The number of minutes required to build a single application of the Recipe.

Seconds The number of seconds required to build a single application of the Recipe.

If you specify any combination of Days, Hours, Minutes and Seconds, they will be added together.

Fixed Assembly Days

This is a constant figure irrespective of the quantity being built (i.e. it is for work that is carried out once per production run, and so will be the same irrespective of the number of applications of the Recipe). Again, one day is 24 hours.

Time to Setup This is a constant figure irrespective of the quantity being built (i.e. it is for work that is carried out once per production run, and so will

be the same irrespective of the number of applications of the Recipe).

This field uses a time format. For example, if the Time to Setup is two hours, enter “02:00:00”. The maximum time is 23:59:59.

For example, the Recipe might represent the assembly of an Item from moulded plastic components. The time taken to retrieve the set of moulds from the store, order the raw materials and set up the assembly line is the same irrespective of the quantity being built. Enter this time to the Fixed Assembly Days or the Time to Setup fields, depending on its duration and on whether you need to account for the costs. The remainder of the production time is taken up by pouring the plastic into the moulds, letting it cool, assembling the components and packaging them. If there is only one set of moulds, this can only be done for one unit at a time and therefore you should record this time in the Days, Hours, Minutes or Seconds to Produce fields, again depending on the duration.

These fields will be used together with the number of Buffer Days specified in the Production Settings setting to schedule the building of assembled Items as required. With the exception of the Fixed Assembly Days field, these fields can also be used to calculate Work Costs. These two features are now described.

The scheduling feature begins with the ‘Create Planned Records’ Maintenance function in the Sales Orders and Production modules, and with the ‘Create Planned Records from Orders’ function, also in the Sales Orders module. These functions create Production Orders or Productions for Stocked Items with Recipes that have been included in Sales Orders with future Planned Delivery Dates (i.e. for Items that you have sold and that you need to build or assemble). The dates of these Production Orders or Productions will be calculated using the Planned Delivery Dates of the Sales Orders, these lead times in the appropriate Recipes, the number of Buffer Days specified in the Production Settings setting, and the working hours of the Machine recorded in the Machine Hours register. This ensures you will

build or assemble the goods just before they are scheduled for delivery to the Customer.

For example—

Planned Delivery Date of Sales Order (qty 2)	January 25
Days to Produce for the first unit (from Recipe)	2
Days to Produce for the second unit (from Recipe)	2
Fixed Assembly Days (from Recipe)	1
Buffer Days (from Production Settings)	5
Date of Production or Production Order	January 15

If the total lead time calculated in this way is not be a whole number of days, it will usually be rounded down, unless you are using the Round odd Hours to One Day option in the Production Settings setting. For example, if the lead time is 4 days 23 hours and you are not using this option, then the date of the Production or Production Order will be four days before it is needed. If you are using this option, the date will be five days before it is needed. The lead time may not be a whole number of days if you have specified a number of Hours, Minutes or Seconds to Produce (depending on the quantity to be produced), and will not be a whole number of days if you have specified a Time to Setup.

Please refer to page 274 below for details about how the Machine's working hours (recorded in the Machine Hours register) will affect the calculation of the lead time.

If you have specified a Number Produced in the Recipe (below), the Days, Hours, Minutes and Seconds to Produce will be divided by this figure before being included in the calculation.

These times will also be used when calculating Start Dates in Production Plans in the MRP module. Please refer to the 'MRP' manual for more details.

The 'Create Planned Records' functions will also create any necessary Purchase Orders for the components. These will be dated using the Delivery Days from the Default Purchase Items for the components, ensuring they arrive in time for the assembly process to be completed.

The costing feature begins with the Add Work Cost option in the Production Settings setting. If you are using this option, a Work Cost will be added to each new Recipe automatically. This Work Cost will be calculated using the Work Cost per Hour specified in the same setting and the time required for the Recipe (the total of the Time to Setup and the Days, Hours, Minutes and Seconds to Produce: the Fixed Assembly Days is not included). The Work Cost will be placed in the W-cost field in the last Input row in the Recipe.

For example—

Days to Produce (1 day, converted to hours)	24
Hours to Produce	3
Time to Setup (Hours)	<u>3</u>
Total Hours	30
Work Cost per Hour	0.10
Total Work Cost (for one application of the Recipe, placed in the W-cost field in the last Input row)	3.00

The calculation of this Work Cost figure is also affected by the Number Produced. Please refer to the description of this field below on page 162 for details.

You cannot change this calculated Work Cost figure, but you can in effect adjust it by specifying another Work Cost (which can be negative if necessary) in one of the other Input rows.

This feature does not apply to Recipes with Routings.

Closed

Check this box if the Recipe can no longer be used. Closed Recipes will appear in the 'Recipes: Browse' window but not in the Recipes 'Paste Special' list.

If the result of a Closed Recipe is a Structured Item and you use that Item in an Order, Invoice or other sales or stock transaction, you will not be able to save the transaction. It is therefore recommended that you mark the Structured Item as Closed as well, to remove it from the Item 'Paste Special' list so that you do not use it by mistake in sales transactions.

Res. mgr. Colour Paste Special Choices of possible entries

All Accepted and Started Production Orders with a particular Recipe will appear in the same colour in the Resource Planner. Choose that colour using this field.

Number Produced

The Time to Setup, the Days, Hours, Minutes and Seconds to Produce and the Fixed Assembly Days fields above usually refer to one application of the Recipe i.e. they are the times required to produce the Out Qty of the Output Item. If this is not the case, specify here the number of applications of the Recipe to which these times refer.

First, the Number Produced will affect the calculation of lead times when you use the 'Create Planned Records' and 'Create Planned Records from Orders' functions to create Productions or Production Orders, and also when you create Productions or Production Orders from the MRP module. If you have specified a Number Produced, the Days, Hours, Minutes and Seconds to Produce will be divided by this figure before being included in the calculation. To repeat the example previously used in the section describing the various time fields above but with a Number Produced of two—

Planned Delivery Date of Sales Order (qty 2)	January 25
Days to Produce for the first unit (from Recipe, divided by 2)	1
Days to Produce for the second unit (from Recipe, divided by 2)	1
Fixed Assembly Days (from Recipe)	1
Buffer Days (from Production Settings)	5
Date of Production or Production Order	January 17

Second, if you are using the Add Work Cost option in the Production Settings setting to have a Work Cost added to each new Recipe automatically, entering a Number Produced will change the calculation of the Work Cost. Again, repeating the example used in the description of the various time fields above, the effect will be as follows—

Days to Produce (1 day, converted to hours)	24
Hours to Produce	3
Time to Setup (Hours)	<u>3</u>
Total Hours	30
Work Cost per Hour	0.10
Total Work Cost (for one application of the Recipe)	3.00
Number Produced	2
Work Cost per Unit (placed in W-cost field in last Input row)	1.50

This field is also used together with the Production Time Entry interface and the Add Work Cost option. The Add Work Cost option means that Setup and Run Time Activities will both be created for each Production that you work on, and a Work Cost will be added to each Production automatically. This will be calculated using the total Cost (Time) of the Setup and Run Time Activities and the Work Cost per Hour (also specified in the Production Settings setting). If you have specified a Number Produced in the Recipe, the Cost (Time) of the Setup Activity will be divided by this figure before being added into the calculation.

Standard Batch Specify here the number of applications of the Recipe that the Machine will usually build. For example, if you need to fill the Machine with enough raw materials to produce four applications of the Recipe each time you use it, enter “4” in this field. When you create a Production from a Production Order using the ‘Finish Batch’ function on the Operations menu, this figure will be copied to the Qty field in the header of that Production (irrespective of the Qty in the Production Order).

Take care with the Standard Batch if the Output Item or any of the components are Serial Numbered at unit level. For example, a Recipe contains a Serial Numbered

component with an In Qty of two and the Standard Batch is also two. When you create a Production from a Production Order that uses the Recipe, the Production will contain four rows each with a In Qty of one, allowing you to enter Serial Numbers individually (In Qty * Standard Batch). Therefore, you must specify a Standard Batch if any of the Items are Serial Numbered. If you do not, the Serial Numbered Item will not be copied to the Production because you are effectively multiplying by zero. In addition, if you are not using the Production Lines hold Actual Qty option in the Production Settings setting, you must enter “1” here. If the Standard Batch should in reality be greater than one, make the adjustment by increasing the In and Out Quantities of each Item.

Default Routing	Paste Special	Routings setting, Production module
	<p>If the Recipe represents a Production process that has been divided into stages, specify a Routing here. This is effectively a schedule of the process, specifying the stages and the order in which they should be carried out.</p> <p>If the Recipe has a Routing, you should assign a Material to each of the Input and Output Items (on flip B). Materials will connect the Items to the relevant stages in the process.</p> <p>You cannot enter a Work Cost in any of the Input rows if the Recipe has a Routing. Instead, you should record the Work Costs either by specifying times in each Standard Operation or using Activities. Please refer to the description above on page 147 of the Time options (Actual and Fixed) in the Productions Settings setting for more details.</p> <p>Note that if you use a Recipe with a Routing in a Production Order, you cannot then work on the resulting Productions using the Production Time Entry interface.</p>	
Instructions	<p>Use these three lines to record instructions about how the Recipe should be used. These instructions will be copied to Production Orders.</p>	

Use the grid area that takes up most of the screen to list the Input Items (i.e. the components that will be used to build the final assembly) and to specify

the Item Number of the assembly or the finished product (i.e. the result of the Recipe). This must be a Structured Item or a Stocked Item. If you will use the Production register to build the Item, or if the result of the Recipe will itself be used as a component in another Recipe, it must be a Stocked Item. A Recipe can result in more than one assembly or finished product: if so, they should all be the same Type (i.e. all Structured Items or all Stocked Items).

Flip A

Item	Paste Special	Item register
	<p>Enter the Item Numbers of each of the Input Items (i.e. the components) and of the Output Item(s) (i.e. the finished product). You can list the Items in any order.</p> <p>You cannot use Structured Items as components. With one exception, you also cannot use Plain Items as components or as assembled Items. If you need a Recipe to contain costs such as electricity, labour, etc as components, these costs should be Service Items, not Plain Items. You will not be able to use the 'Disassemble' function to dismantle a Production that contains a component that is a Plain Item. The exception is that a Plain Item with a Recipe (a "Phantom" Item) can be a component in a Recipe that has a Default Routing. Please refer to page 86 above for more details of Phantom Items and an example.</p> <p>You can use an Item with Varieties as a component or as a finished Item. You must enter the combined Item/Variety Number (i.e. you must choose a specific Variety). Use 'Paste Special' from this field or from the In or Out Qty fields to ensure the combined Number is correct. Please refer to the 'Items and Pricing' manual for more details about Varieties.</p> <p>In addition to the 'Paste Special' feature, you can use the 'Item Search' function on the Operations menu to add Items to the Recipe. This function is described below on page 171.</p> <p>If the Recipe is one you will use in a Production Order and you will work on the resulting Productions using the Production Time Entry interface, the Recipe cannot contain any Serial Numbered Items. The Production Time Entry interface is simplified to the extent that Serial Numbers cannot be registered.</p>	

Specification	The Item Name from the Item register will be placed here when you enter the Item Number.
In	<p>Enter the quantity of each component required to make or build the finished product. Do not enter an In Qty for the assembled Item(s).</p> <p>If an Item is Serial Numbered at unit level, you can enter the full required In Quantity. When you use the Recipe in a Production, the Production will contain the appropriate number of rows each with a In Qty of one, allowing you to enter Serial Numbers individually.</p> <p>In any Nominal Ledger Transactions arising from Production records using this Recipe, the credit amount will be taken from the rows with an In Qty (i.e. Input Items).</p>
Out	<p>This field contains the quantity of assembled Items that can be made from the components listed above. Usually, this will be just one, and it must be one if the Out Item is a Structured Item.</p> <p>If an Item is Serial Numbered at unit level, you can enter the full required Out Quantity. When you use the Recipe in a Production, the Production will contain the appropriate number of rows each with a Out Qty of one, allowing you to enter Serial Numbers individually.</p> <p>In any Nominal Ledger Transactions arising from Production records using this Recipe, the debit amount will be taken from the rows with an Out Qty (i.e. Output Items).</p>
Rel.	<p>Relativity. You must use this field if the result of the Recipe is that more than one Item will be assembled (i.e. there is more than one row in the Recipe with an Output Item). Enter a figure in each row representing an Output Item. When you mark a Production using this Recipe as Finished, the total stock value of the Input Items will be calculated using the appropriate Cost Models. The stock values of the Output Items will then be calculated from that total using the ratio that you enter here.</p> <p>The Relativity figures are not percentages but ratios. For example, the total stock value of the Input Items is 103 and there are two Output Items with Relativities of 30 and 60 respectively. The stock value of the first Output</p>

Item will be $103 * 30 / (30 + 60)$, and the stock value of the second Output Item will be $103 * 60 / (30 + 60)$. If the Out Qty of the first Output Item is two, then the unit stock value of the first Output Item will be $103 * 30 / ((2 * 30) + 60)$, and the stock value of the second Output Item will be $103 * 60 / ((2 * 30) + 60)$.

If the Recipe has more than one Output Item, you will not be able to save it if you have not specified a Relativity figure in every row with an Output Item.

I-cost

Input Cost value (per unit). If the row contains an Input Item, enter the unit Cost Price for the Item. The default will be the Cost Price of the Item. The cost shown in this field is NOT the same as the stock value calculated using the usual Cost Model. You can update this figure to the latest Cost Price in the Item record using the 'Update Recipes' Maintenance function.

If the row contains an Output Item (i.e. the assembled Item), enter the unit cost value of that Item. This will usually be the sum of the Cost Prices of the Input Items, taking quantities into account. Again, the default will be the Cost Price of the Item, and again you can update the figure using the 'Update Recipes' function. In this case, however, 'Update Recipes' will change the figure to the latest sum of the Cost Prices of the Input Items, and optionally will copy this new sum figure to the Cost Price field in the Item record for the assembled Item.

The total Input Costs are shown in the Cost of In-Items field in the footer, while the total Output Costs are shown in the Value of Out-Items field.

W-cost

The W-cost is the Work Cost incurred in building or assembling the Recipe. Usually, this will be cost of the labour required to build the assembled Item.

You should only specify a Work Cost if the result of the Recipe is a Stocked Item that you will build using the Production register. If the result is a Structured Item, the Work Cost will be ignored.

You should enter the Work Cost in a row featuring an Input Item, as shown in the illustration above. This ensures the Work Cost will correctly be credited to the Production W-cost Account in any Nominal Ledger

Transactions arising from Production records using this Recipe. If you enter the Work Cost in an Output row, the Work Cost will incorrectly be debited (not credited) to the Production W-cost Account.

You can usually place the Work Cost in any Input row except the last one. The exception is when you are using the Use Item Groups for Cost Accounts option in the Cost Accounting setting in the Stock module and you have specified Production W-cost Accounts in your Item Groups. If so, the Production W-cost Account will be taken from the Item Group to which the Item in the row with the Work Cost belongs. In this case, therefore, you should be sure to enter the Work Cost in the correct row in the Recipe, so that the correct Account is credited. If you are not using the Use Item Groups for Cost Accounts option or you have not specified a W-cost Account in the relevant Item Group, the Production W-cost Account will be taken from the Account Usage Stock setting.

Although you should enter the Work Cost in an Input row, the figure is independent of the In Qty in that row. For example, if the Work Cost is 10.00, enter 10.00: do not enter 5.00 if the In Qty is 2.

The Work Cost should be the total cost incurred through one application of the Recipe. For example, if the Out Qty of the assembled Item is 2, this means that one application of the Recipe will add two assembled Items to stock. If the cost incurred in assembling these two Items is 10.00, enter 10.00 as the Work Cost. Do not enter the cost per unit, 5.00.

If you are using the Add Work Cost option in the Production Settings setting, a Work Cost will be added to the Recipe automatically. This Work Cost will be calculated using the Work Cost per Hour specified in the same setting and the time required for the Recipe (the total of the Time to Setup and the Days, Hours, Minutes and Seconds to Produce). The Work Cost will be placed in the W-cost field in the last Input row in the Recipe. You cannot change this Work Cost figure itself, but you can in effect adjust it by specifying another Work Cost (which can be negative if necessary) in one of the other Input rows.

Work Cost values are included in both the Cost of In-Items and Value of Out-Items fields in the footer.

You cannot enter a Work Cost if the Recipe has a Routing (the automatic addition of a Work Cost controlled by the Add Work Cost option will not occur in this situation). If a Recipe has a Routing, you should record the Work Costs either by specifying times in each Standard Operation or using Activities. Please refer to the description above on page 147 of the Time options (Actual and Fixed) in the Productions Settings setting for more details.

Flip B

Description Use this field to record notes about the Item and its use in the Recipe.

Material **Paste Special** Materials setting, Production module

If the Recipe has a Routing (i.e. it represents a Production process that has been divided into stages), you should assign a Material to each Input and Output Item (unless an Input Item is a Plain Item with its own Recipe, in which case you should leave this field empty and assign Materials in that Recipe).

The Material is the mechanism that connects each Item to a stage (i.e. to an Operation) in the process. In the case of an Input Item, the Material determines the stage in the process when it will be removed from stock. In the case of an Output Item, the Material determines when the completed Item will be added to stock.

Please refer to page 128 above for more details and an example.

Recipe This field shows whether the Item is an assembly (i.e. it has a Recipe specified on its 'Recipe' card). This is updated automatically and can't be changed.

Footer

Locked Once you are certain the Recipe is correct, you should check this box to prevent further changes. Once you have used a Recipe in a transaction (e.g. Delivery or Production), you should not change it, especially if the

result of the Recipe is a Structured Item whose Paste Components During Entry box is not checked. In this case, changing the Recipe will introduce inaccuracies into the stock records, so the Recipe will be marked as Locked automatically when you use it in a Delivery for the first time. However, before the Delivery stage is reached and before even using such a Structured Item in a Sales Order, it is recommended that you lock its Recipe yourself. Otherwise, if you include the Item in a Sales Order and then change the Recipe, the 'Order' figures (quantities on unfulfilled Sales Orders) for the components in the 'Item Status' window (and many reports) will become incorrect. Please refer to the 'Items and Pricing' manual for full details about the 'Item Status' window.

If it subsequently becomes necessary to change a Recipe, you should not do so. Instead you should create a new one (and attach it to a new Stocked or Structured Item).



Do not change a Recipe once it has been used in a stock transaction.

Cost of In-Items This field contains the sum of the costs of the Input Items ($W\text{-cost} + (I\text{-cost} * In\ Qty)$). If the assembled Item is a Stocked Item, you should transfer this value to the Cost Price field on the 'Costs' card of the Item record for the assembled Item, either manually or using the 'Update Recipes' Maintenance function in the Production module (described below on page 279). This will ensure that gross margin calculations are correct when you sell the assembled Item.

Value of Out-Items

This field contains the sum of the costs of the Output Items.

Operations Menu

Operations	
Open Production Item Alternative	
Item Search	Shift+Ctrl+F

The Operations menu for the ‘Recipe: New’ and ‘Recipe: Inspect’ windows is shown above. There is no Operations menu for the ‘Recipes: Browse’ window.

Open Production Item Alternative

This function creates and opens a new record in the Production Item Alternative register for the Output Item in the Recipe. This register connects Output Items, Machines and Recipes, allowing you to specify the Machines that you can use to produce the Output Item, and the Recipes that you will use with each Machine. Please refer to page 239 below for more details.

Item Search

You can use this function to search for Items that you can then add to the Recipe. This function is therefore an alternative to the ‘Paste Special’ feature. Place the insertion point in the Item field in any row and then select ‘Search’ from the Operations menu. The following window opens—

Search for

Enter here the string (e.g. part of an Item Number or Name) that you are looking for. You must make an entry in this field, otherwise no search will be carried out.

Classification	Paste Special	Item Classifications setting, Sales Ledger
	If you enter an Item Classification here, the search for the string that you specified in the field above will be restricted to Items belonging to that Classification.	
Search In	Specify the field in which you want to search.	
Press [Run] to activate the search. A report will be printed to screen, listing the Items found. If you click on an Item Number in the report, the Item will be added to the Recipe in the first empty row.		

The Production Order Register

The Production Order is a tool you can use to help schedule work on Productions.

You will usually need to use Production Orders in two circumstances—

1. You sell assembled or built Items in advance (in Sales Orders with future Planned Delivery Dates) and you need to schedule the assembly or building of those Items so that you can deliver them on time; and/or
2. You use the MRP module to forecast sales of assembled or built Items, and you need to schedule the assembly or building of the forecast quantities of those Items.

Maintenance functions exist that you can use to create Production Orders from Sales Orders with Planned Delivery Dates and from Sales Forecasts. You can also create Production Orders yourself. When you mark a Production Order as Accepted, it will be placed in a queue for the relevant Machine. Each Machine has its own queue. You can then monitor the queue for each Machine, and change the position of individual Production Orders in that queue. The main tools that you can use to monitor queues are the Resource Planner and the Production Queue report.

When a Production Order reaches the front of the queue, you should create a Production from it, to begin the Production process. Creating a Production from a Production Order is necessary because the purpose of Production Orders is solely to organise and schedule Productions, including allocating the work to the appropriate Machines. Production Orders do not control the assembly process itself, and nor do they update stock levels of the Input and Output Items or the stock valuation in the Nominal Ledger.

You can create a Production from a Production Order using two methods—

- i. Open the Production Order and choose 'Finish Batch' from the Operations menu; and
- ii. If you are using the Production Time Entry interface, a Production will be created automatically from a Production Order when you begin work on it. This interface will be useful if you have a Production Manager administering Production Orders, and where Production Operatives working on each Production only need to record the times they begin and end work and the quantities they produce. The Production Manager can instruct an Operative to work on a particular Production Order, and the corresponding Production will be created automatically when the

Operative begins work. The Production Time Entry interface is described above on page 39.

The Production Order will remain in the queue until you mark it as Finished.

For details about the preparation steps you need to follow in order to use the Resource Planner to manage Production Orders, and for an example work flow with illustrations, please refer to page 23 above.

Entering a Production Order

You will probably create Production Orders in three ways—

1. The 'Create Planned Records' Maintenance function in the Production and Sales Orders modules will create Production Orders to schedule the assembly of Output Items that you have sold in advance. To be sold in advance, the Output Item must be included in a Sales Order with a Planned Delivery Date.
2. You can use the Sales Forecast register in the MRP module to predict the future monthly sales of Output Items. From a Sales Forecast record, you can create a Production Plan for each month, and from there you can use the 'Create Productions' Maintenance function to schedule the assembly of the Items that you expect to sell.
3. You can enter Production Orders yourself.

You can decide whether the Maintenance functions mentioned in points 1 and 2 will create Productions or Production Orders, using the Generate Planned options in the Production Settings setting.

To open the Production Order register, ensure you are in the Production module and click the [Production Orders] button in the Master Control panel. The 'Production Orders: Browse' window is opened, showing Production Orders already entered.

No.	Done	Due Date	Should Start	Recipe	Name
1	✓	19/3/2009	15/3/2009	PLAS1	Grade 1 Plastic Bag
2		19/3/2009	15/3/2009	PLAS1	Grade 1 Plastic Bag
3		19/3/2009	15/3/2009	PLAS1	Grade 1 Plastic Bag
4		19/3/2009	15/3/2009	PLAS1	Grade 1 Plastic Bag
5		19/3/2009	15/3/2009	PLAS1	Grade 1 Plastic Bag
6		19/3/2009	15/3/2009	PLAS1	Grade 1 Plastic Bag
7		19/3/2009	15/3/2009	PLAS1	Grade 1 Plastic Bag
8		19/3/2009	15/3/2009	PLAS1	Grade 1 Plastic Bag
9				80501	Table, stainless steel
10				80501	Table, stainless steel
11		19/3/2009	15/3/2009	PLAS1	Grade 1 Plastic Bag



The Status column shows “✓” for Cancelled and Finished Production Orders and blank for other Production Orders. You can set this Status for each Production Order using the options in the header of the Production Order screen.


As in all browse windows you may sort the list by clicking on the column headings. To reverse any sort, simply click once again on the column heading. You can also scroll the list with the scroll bars. Finally, you can search for a record by entering a keyword in the field in the top right-hand corner. When you press the Return or Enter key, the first record with a match for the keyword in the current sort column will be highlighted.

To enter a new Production Order, click [New] in the Button Bar or use the Ctrl-N (Windows and Linux) or ⌘-N (Mac OS X) keyboard shortcut. Alternatively, highlight a Production Order similar to the one you want to enter and click [Duplicate] on the Button Bar.

The ‘Production Order: New’ window is opened, empty if you clicked [New] or containing a duplicate of the highlighted Production Order.

Production Order: Inspect

Operations   New Duplicate Cancel Save

No. 14 Name HiFi Rack Status 

Recipe 80601 Qty 10 ☒ Created ☐ Cancelled ☐ Accepted ☐ Started ☐ Finished

Due Date 30/11/2009 Should Start 22/11/2009 ☐ Reserved

Location PROD Person

Machine WELD1 Queue Pos

Language Extra Prod Qty




Routing

Comment Items Planned Time Actual Time

Instruction

Comment

Objects

	Item	Descr.	In	Out	Objects
1	80110	Glass Shelf	5.00		 A
2	80111	40 cm Steel Box Section	10.00		 B
3	80112	50 cm Steel Box Section	10.00		
4	80113	90 cm Steel Sheet	2.00		

Since the amount of information stored about each Production Order will not fit on a single screen, the Production Order window has been divided into four cards. At the top of each is the header. There are four named buttons ('tabs') in the header.

Comment Items Planned Time Actual Time

By clicking the tabs you can navigate between cards. The header is always visible, as a reminder of the Production Order you are working with.

Header

No.**Paste Special**

Select from another Number Series

The number of the Production Order record. The default is the first unused number in the number sequence in the first valid row in the Number Series - Production Orders setting. You may change this number, but not to one that has already been used. If you are working in a multi-user system, the Production Order Number is assigned when you first save the Production Order. After you save a Production Order, you can still change the Number, providing the Status of the Order is Created.

Name

The name of the Recipe appears here after you specify a Recipe in the field below.

Status

At any time a Production Order can be in one of five states, to help with the work flow and for reporting purposes. These states are as follows—

Created

When you first enter a record in the Production Order register, it will be marked as Created. Created Production Orders are marked with a blank in the Status column in the 'Production Orders: Browse' window. If you need to see a list of Created Production Orders (i.e. Production Orders that are not yet in the queue for the relevant Machine), produce a Production Planning report.

Cancelled

In the case where you raise a Production Order in error or the job is cancelled before work has

started, you should change the Status of the Production Order to Cancelled to signify that no work should be carried out and that no Productions are to be created from it. When you save the record, the End Date and Time (on the 'Actual Time' card) will be updated. Once a Production Order has been marked as Cancelled and saved, it can no longer be modified. Cancelled Production Orders are marked with a "√" in the 'Production Orders: Browse' window.

Accepted

When you need to place the Production Order in the queue for the Machine, mark it as Accepted and save it. Its position in the queue will be shown in the Queue Pos field. You must mark a Production Order as Accepted and save it before you can create Productions from it. Accepted Production Orders are marked with a blank in the Status column in the 'Production Orders: Browse' window.

Started

As soon as work starts, you should change the Status of the Production Order to Started. When you save the record, the Start Date and Time (on the 'Actual Time' card) will be updated. The Production Order will be placed in the queue for the Machine if it is not already there (i.e. if the Queue Pos field is empty and the previous Status was Started).

If you have created a Production from a Production Order and marked that Production as Started, the Status of the Production Order will be upgraded to Started automatically, if it is not already Started.

The Production Order must have a Machine before you can mark it as Started, and that Machine must be one that is capable of producing the Output Item. This is controlled using the Production Item Alternative register.

A Production Order must be Accepted or Started before you can create Productions from it.

Started Production Orders are marked with a blank in the Status column in the 'Production Orders: Browse' window.

Finished

Check this box to confirm that the Production work instructed by the Production Order has been completed. The End Date and Time will be updated. Once you have marked a Production Order as Finished and saved it, you will no longer be able to modify it. Finished Production Orders are marked with a "√" in the 'Production Orders: Browse' window.

Recipe

Paste Special

Recipe register, Production module

Used as default in

Productions

Specify the Recipe whose Production you are planning. The appropriate Input and Output Items together with quantities will be listed in the grid below.

When you enter the Recipe, if there is a record in the Production Item Alternative register for the Output Item, a Machine will be brought in to the field below. If you change the Machine, the Recipe and Input and Output Item may change as well, again depending on the Production Item Alternative record.

Qty

The number of applications of the Recipe required by the Production Order.

This field is not affected by the Production Lines hold Actual Qty option in the Production Settings setting. Therefore the In and Out Quantities in the Production Order rows will always be the relevant quantities for one application of the Recipe. For example, a Recipe states that two components are required to produce one final Item. When you use this Recipe in a Production Order representing the eventual requirement to produce two final Items, you will enter "2" in this field. The In Qty of the component will stay at "2", and the Out Qty of the final Item will stay at "1". When you create a Production from the Production Order using the 'Finish Batch' function on the Operations menu or through the Production Time Entry interface, the In and Out Quantities in the new Production will take the

Production Lines hold Actual Qty option into account. In the example, the In Qty in the Production will be “4” and the Out Qty will be “2” if you are using this option, and “2” and “1” respectively if not.

In a new Production Order, the default will be as follows—

Production Order entered directly to the Production Order register

The default Qty will be the Normal Prod. Qty from the Recipe.

Production Order created from a Sales Order using the ‘Create Planned Records’ or ‘Create Planned Records from Orders’ Maintenance functions

The default Qty will be the Sales Order quantity (or the Min Prod. Qty in the Recipe if this is greater). If this default is less than the Normal Prod. Qty in the Recipe and you are using the Always create Normal Production Qty from Planned option in the Production Settings setting, the Normal Prod. Qty will be the default.

Due Date	Paste Special	Choose date
	<p>The Due Date is the date when the Production Order should be completed (i.e. the date by when the Qty above should have been assembled or built and received into stock).</p> <p>If you created the Production Order from a Sales Order using the ‘Create Planned Records’ or ‘Create Planned Records from Orders’ Maintenance functions, the Planned Delivery Date from the Sales Order will be copied here.</p>	
Should Start	Paste Special	Choose date
	<p>The date when work should begin, in order for it to be completed by the Due Date above.</p> <p>If you created the Production Order from a Sales Order using the ‘Create Planned Records’ or ‘Create Planned Records from Orders’ Maintenance functions, the Should Start date will be calculated from the Due Date, taking into account the Fixed Assembly Days, the Days,</p>	

Hours, Minutes and Seconds to Produce and the Time to Setup recorded in the Recipe, the Buffer Days and the Round Odd Hours To One Day option in the Production Settings setting, and the working hours of the Machine, specified in the Machine Hours register. The Days, Hours, Minutes and Seconds to Produce together are the time required to produce a single unit, while the Fixed Assembly Days and the Time to Setup are independent of the quantity being produced. For example —

Planned Delivery Date of Sales Order (qty 2)	January 25
Days to Produce for the first unit (from Recipe)	2
Days to Produce for the second unit (from Recipe)	2
Fixed Assembly Days (from Recipe)	1
Buffer Days (from Production Settings)	5
Should Start Date	January 15

If you have specified a Number Produced in the Recipe, the Days, Hours, Minutes and Seconds to Produce will be divided by this figure before being included in the calculation.

If you created the Production Order from a Production Plan using the 'Create Productions' Maintenance function in the MRP module, the Should Start and Due Dates in the Production Order will be copied from the Start and Needed Dates respectively in the relevant row in the Production Plan. In this Production Plan row, the Start Date will have been calculated from the Needed Date using the formula described in the previous paragraph. So, the Should Start date in a Production Order will be calculated using the same formula, irrespective of whether that Production Order was created from a Sales Order or a Production Plan.

If you enter a Production Order yourself directly to the Production Order register, no default will be offered to the Should Start field, even after you specify the Recipe, Machine and Qty.

Location	Paste Special	Locations setting, Stock module
	Default taken from	Person record for current user
	Used as default in	Productions
<p>The stock Location from where the components will be taken and where assembled Items are to be stored.</p> <p>You can leave this field empty, even if you are using the Require Location option in the Stock Settings setting in the Stock module. However, you will have to specify one in all Productions resulting from the Production Order. Bear in mind, however, that you will have to specify one in all Productions resulting from the Production Order. So, if those Productions will be created through the Production Time Entry interface, you should specify the Location here because you will not have the opportunity to do so in the Productions.</p>		
Person	Paste Special	Person register, System module
	Used as default in	Productions
	<p>You can use this field to record the Person responsible for this Production Order or the Person carrying out the work.</p>	
Machine	Paste Special	Asset register, Assets module
	Used as default in	Productions
	<p>Specify the Machine or tool that you will use to carry out the work.</p> <p>The purpose of a Production Order is to schedule work on a Production, placing it in the queue for a Machine. You must therefore specify a Machine before you can mark the Production Order as Accepted or Started. This allows you to see the Production Order in the queue for the relevant Machine in the Resource Planner and the Production Queue report. You must also have specified a Machine in a Production Order before you can create a Production from it, either using the 'Finish Batch' Operations menu function or through the Production Time Entry interface.</p> <p>When you enter the Recipe in the field above and if you have entered a record in the Production Item Alternative register for the Output Item in that Recipe, the Default</p>	

Machine from that record will be copied here. If that Production Item Alternative record does not have a Default Machine, the Machine in the first row with the Recipe will be used. If you need to change to another Machine, it must be to a Machine that is listed in that Production Item Alternative record. Changing the Machine may cause the Recipe and Input and Output Item to change as well. Again, this is controlled by the Production Item Alternative record.

If the Machine is an Asset that has Production Objects specified on its 'Costs' card, those Objects will be copied to the field on the 'Comment' card below and also to the 'Comment' card of all Productions created from the Production Order.

Queue Pos

This field shows the position of the Production Order in the queue for the Machine.

You cannot type an entry into this field. It will be given an entry automatically when you mark the Production Order as Accepted or Started and save it. This automatic entry will place the Production Order at the end of the queue for the Machine. If you need to move it to a different position in the queue, use the 'Move in Queue' function on the Operations menu.

When you Finish a Production Order, this field will be made blank, thus removing it from the queue. The Queue Positions of the later Production Orders in the queue will not be updated (e.g. number two in the queue will remain number two, even though there is no longer a number one). Therefore it is recommended that you produce a Production Queue report for the Machine before using the 'Move in Queue' function, to ascertain the Queue Positions of all Production Orders in the queue. This will allow you to move the Production Order to the correct position in the queue.

Language

Paste Special

Languages setting, System module

Default taken from

Recipe

You can use the Language to determine the Form that will be used when you print the Production Order, and the printer that will be used to print it. This can include

sending the document to a fax machine, if your hardware can support this feature. Do this in the 'Define Document' window for the Production Order and Routing Production Order documents, as described in the 'Working Environment' chapter in the 'Introduction to HansaWorld Enterprise' manual.

Routing

Paste Special

Routings setting, Production module

Default taken from

Recipe

Used as default in

Productions

If the Recipe represents a Production process that has been divided into stages, the Default Routing specified in that Routing will be copied here. This is effectively a schedule of the process, specifying the stages and the order in which they should be carried out.

If the Production Order has a Routing, each of the Input and Output Items will take a Material from the relevant Recipe row (visible on flip B of the Production Order). The Material is the mechanism that connects each Item to a stage (i.e. to an Operation) in the process. In the case of an Input Item, the Material determines the stage in the process when it will be removed from stock. In the case of an Output Item, the Material determines when the completed Item will be added to stock.

Please refer to page 128 above for more details about Routings and Production Operations and an example.

Note that if a Production Order has a Routing, you cannot then work on the resulting Productions using the Production Time Entry interface.

Reserved

Check this box if you want to reserve stock of the In Items for this Production Order. When you deliver similar Items, HansaWorld Enterprise will maintain sufficient stock for this Production Order until its connected Productions are marked as Finished or Discarded.

Comment Card

	Comment	Items	Planned Time	Actual Time
Instruction				
Comment				
Objects				

Instructions

Use these three lines to record instructions about the Production Order. These instructions will be copied from the Recipe.

Comment

Any comment entered here will be copied to the 'Comment' card of Productions created from the Production Order.

Objects

Paste Special Object register, Nominal Ledger/System module

Default taken from Machine (Asset)

You can assign up to 20 Objects, separated by commas, to each Production Order. You might define separate Objects to represent different departments, cost centres or product types. This provides a flexible method of analysis that can be used in Nominal Ledger reports. Usually the Objects specified here will represent the Machine.

If you have specified as the Machine an Asset that has Production Objects specified on its 'Costs' card, those Objects will be copied here as defaults.

The Objects shown here are for information only. When you create a Production from the Production Order, the Objects on the 'Comment' card of that Production will once again be taken from the Asset record for the Machine. So, if you change this field, that change will not be carried through to the Production.

Items Card

When you specify a Recipe in the header, the appropriate Input and Output Items together with quantities will be listed in the grid. Any modifications that you make will apply to the particular Production Order only. If you have

not specified a Recipe, you can use the grid to build up an *ad hoc* recipe. The Items listed here will be copied to all Productions that you create from the Production Order.

Production Order: Inspect

Operations [New] [Duplicate] [Cancel] [Save]

No. 14 Name HiFi Rack Status ☐ Created ☐ Cancelled ☐ Accepted ☒ Started ☐ Finished ☐ Reserved

Recipe 80601 Qty 10

Due Date 30/11/2009 Should Start 22/11/2009

Location PROD Person

Machine WELD1 Queue Pos 3

Language Extra Prod Qty

Routing

Comment Items Planned Time Actual Time

Item	Descr.	In	Out	Objects
1	80110 Glass Shelf	5.00		
2	80111 40 cm Steel Box Section	10.00		
3	80112 50 cm Steel Box Section	10.00		
4	80113 90 cm Steel Sheet	2.00		
5	80114 36 cm Steel Sheet	2.00		
6	80115 Hex Screw	20.00		
7	80116 Spiked Feet	4.00		
8	80117 Rubber Shelf Seat	20.00		
9	80118 End Cap	4.00		
10	80601 HiFi Rack		1.00	
11				
12				
13				

Flip A

Item

Paste Special

Item register

Default taken from

Recipe

Enter the Item Number of each of the Input Items (i.e. of the components) and of the Output Item (i.e. the assembled Item). You can list the Items in any order.

Each Production Order is responsible for a single level of assembly: it will not create sub-assemblies as well (unless the Production Order has a Routing, in which case the eventual Production Operations will include sub-assemblies if appropriate).

The Output Item (i.e. the result of the Production Order) must be a Stocked Item. More than one Stocked Item can result from a single Production Order.

With one exception, you cannot use Plain Items as components or as assembled Items. If you need the Production Order to contain costs such as electricity, labour, etc as components, these costs should be Service Items, not Plain Items. You will not be able to use the 'Disassemble' function to dismantle a resulting Production if it contains a component that is a Plain Item. The exception is that a Plain Item with a Recipe (a "Phantom" Item) can be a component in a Production Order that has a Routing. Please refer to page 86 above for more details of Phantom Items and an example.

You can use an Item with Varieties as a component or as a finished Item. You do not need to enter a combined Item/Variety Number (i.e. you do not need to choose a specific Variety) if the Status of the Production Order is Created, but you will need to do so if the Status is Accepted or Started. Use 'Paste Special' from this field or from the In or Out Qty fields to ensure the combined Number is correct. Please refer to the 'Items and Pricing' manual for more details about Varieties.

If you will process the Production Order using the Production Time Entry interface, the Production Order cannot contain any Serial Numbered Items. The Production Time Entry interface is simplified to the extent that Serial Numbers cannot be registered.

Descr.

Item description from the Recipe or Item record.

In

Default taken from Recipe

Enter the quantity of each component required to make or build the finished product. Do not enter an In Qty for the assembled Item(s).

The Production Lines hold Actual Qty option in the Production Settings setting does not apply to Production Orders. Therefore, this figure should always be the quantity of the component required to complete one application of the Recipe. This figure will therefore remain unchanged if you change the Qty in the header.

When you create a Production from the Production Order using the 'Finish Batch' function on the Operations menu or through the Production Time Entry interface, the In and Out Quantities in the new Production will take the Production Lines hold Actual Qty option into account.

You can change this figure in a particular Production Order if necessary.

Out

Default taken from Recipe

This field contains the quantity of assembled Items that can be made from the components listed above.

The Production Lines hold Actual Qty option in the Production Settings setting does not apply to Production Orders. Therefore, this figure will be the quantity of the final Item that will be built by one application of the Recipe. This figure will therefore remain unchanged if you change the Qty in the header.

When you create a Production from the Production Order using the 'Finish Batch' function on the Operations menu or through the Production Time Entry interface, the In and Out Quantities in the new Production will take the Production Lines hold Actual Qty option into account.

You can change this figure in a particular Production Order if necessary.

Objects

Paste Special Object register, Nominal
Ledger/System module

Default taken from Item

You can assign up to 20 Objects, separated by commas, to each row. You might define separate Objects to represent different departments, cost centres or product types. This provides a flexible method of analysis that can be used in Nominal Ledger reports. Usually the Objects specified here will represent the Item.

The Objects shown here are for information only. When you create a Production from the Production Order, the Objects in the rows of that Production will once again be taken from the Item records. So, any changes to this field will not be carried through to the Production row.

*Flip B***Material****Paste Special**

Materials setting, Production module

Default taken from

Recipe

If the Production Order has a Routing (i.e. it represents a Production process that has been divided into stages), you should assign a Material to each Input and Output Item (unless an Input Item is a Plain Item with its own Recipe, in which case you should leave this field empty and assign Materials in that Recipe).

The Material is the mechanism that connects each Item to a stage (i.e. to an Operation) in the process. In the case of an Input Item, the Material determines the stage in the process when it will be removed from stock. In the case of an Output Item, the Material determines when the completed Item will be added to stock.

Please refer to page 128 above for more details and an example.

Width, Height, Depth**Default taken from**

Item

These fields contain the dimensions of the Item.

If the Item is one that is built by area or volume, you can have the In or Out quantities calculated by multiplying the dimensions together. If you would like to use this feature, first check the Enable Quantity Calculation box in the Item Settings setting in the Sales Ledger. Then, check the Calculate Quantity box for the Unit that has been assigned to the Item. If the Item is built by area, choose the Two Dimensions option in the Unit record, and the In or Out quantities will be calculated from the Width and Height. If the Item is built by volume, choose the Three Dimensions option in the Unit record, and the In or Out quantities will be calculated from the Width, Height and Depth. Please refer to the description of the Units setting in the 'Sales Ledger' manual for details and an example.

Planned Time Card

Comment		Items		Planned Time		Actual Time	
Days duration	1	Time duration	00:00:00				

Days duration, Time duration

These fields show how much time will be needed to complete the Production Order. This information is calculated from the Fixed Assembly Days, the Days, Hours, Minutes and Seconds to Produce and the Time to Setup recorded in the Recipe.

The Buffer Days in the Production Settings setting and the relevant record in the Machine Hours register are not included when calculating the Days duration and the Time duration. Therefore, these fields show the actual work time required. The required calendar time including breaks could be longer.

These fields will be updated each time you change the Qty in the header. You cannot change these fields.

Actual Time Card

Comment		Items		Planned Time		Actual Time	
Start Date	5/11/2009	End Date	5/11/2009				
Start Time		End Time	16:55:00				

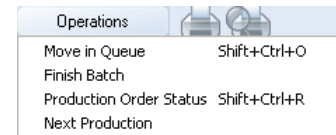
Start Date, Start Time

The current date and time will be placed here when you mark the Production Order as Started and save it. If they are blank, they will also be updated when you first mark a Production connected to the Production Order as Started. You cannot change these fields.

End Date, End Time

The current date and time will be placed here when you mark the Production Order as Finished or Cancelled and save it. If they are blank, they will also be updated when you first mark a Production connected to the Production Order as Finished. You cannot change these fields.

Operations Menu



The Operations menu for the 'Production Order: New' and 'Production Order: Inspect' windows is shown above. There is no Operations menu for the 'Production Orders: Browse' window.

Move in Queue

When you mark a Production Order as Accepted or Started and save it, it will be placed at the end of the queue for the Machine. Use this function if you need to move it to a different position in the queue.

When you choose this function, the 'Specify Move in Queue' window will appear, showing the existing Queue Position—



Enter the new Queue Position and click the [Run] button. The Production Order will be moved to the new position, which will be shown in the Queue Pos field.

When you Finish a Production Order, the Queue Pos field will be made blank, thus removing the Production Order from the queue. The Queue Positions of the later Production Orders in the queue will not be updated (e.g. number two in the queue will remain number two, even though there is no longer a number one). Therefore it is recommended that you produce a Production Queue report for the Machine before using the 'Move in Queue' function, to ascertain the Queue Positions of all Production Orders in the queue. This will allow you to move the Production Order to the correct position in the queue.

If the function does not update the Queue Position when expected, the probable reasons are—



1. The Status of the Production Order is not Accepted or Started.
2. Changes to the Production Order have not been saved.

Finish Batch


The purpose of a Production Order is solely to organise and schedule Productions, including allocating the work to the appropriate Machines. Production Orders do not control the assembly process itself, and nor do they update stock levels of the Input and Output Items or the stock valuation in the Nominal Ledger. These tasks belong to Productions. So, when a Production Order reaches the front of the queue for a Machine and it is time for work to begin, you should use this function to create a Production from it.

When you select the function, a new record will be created in the Production register. It is opened in a new window, entitled 'Production: New'. This means that it has not yet been saved. After amendment if necessary, save the record by clicking the [Save] button in the Button Bar. Alternatively, if you no longer require the Production, click [Cancel].

Production: New

Operations   New Duplicate Cancel Save

No. Name Status ☒ Created ☐ Cancelled ☐ Started ☐ Finished ☐ Finished but Discarded

Recipe Start Date End Date 

Qty Start Time End Time

Location Machine

Inspector Person

Prod. Ord. Discarded Reason

Actual Qty Routing

Items Comment

Item	Descr.	Serial No.	In	Out	Rel.	I-cost	W-cost	Coeff
1	80110 Glass Shelf		5.00			5.00		
2	80111 40 cm Steel Box Section		10.00					
3	80112 50 cm Steel Box Section		10.00					
4	80113 90 cm Steel Sheet		2.00					
5	80114 36 cm Steel Sheet		2.00					
6	80115 Hex Screw		20.00			0.10		
7	80116 Spiked Feet		4.00			1.00		
8	80117 Rubber Shelf Seat		20.00			0.10		
9	80118 End Cap		4.00			0.20	0.00	
10	80601 HiFi Rack			1.00		46.30		
11								
12								
13								

In Weight Out Weight

Virtually all the information entered for the Production Order is transferred to the appropriate fields of the Production, reducing the typing load and minimising the risk of error. The End Date in the new Production will be the current date, while the Start Date and the Start and End Times will be empty. The Qty in the header of the Production will be the Standard Batch quantity from the Recipe (if the Standard Batch is blank, the Qty in the header of the Production will also be blank). If the Production Order does not have a Recipe, the Qty in the Production header will be one. If you are using the Production Lines hold Actual Qty option in the Production Settings setting, the In and Out Quantities in the Production rows will be recalculated (Qty in the header * In or Out Quantity from the Recipe row), as the Production Lines hold Actual Qty option does not apply to Production Orders.

If the Production Order Qty is greater than the Standard Batch quantity in the Recipe, you will need to create more than one Production from the Production Order. There is no control over how many Productions you can create from an individual Production Order. You will therefore need to monitor progress of the Production Order carefully. One tool you can use is the 'Production Order Status' function described immediately below. When

the assembly process is complete (i.e. when there is a sufficient number of Productions for the Qty in the header of the Production Order, and these Productions are all Finished), mark the Production Order as Finished and save it. This will remove the Production Order from the queue, and will also prevent the creation of further Productions.

If the function does not create a Production when expected, the probable reasons are—

1. The Status of the Production Order is not Accepted or Started.
2. You have not specified a Machine in the Production Order.
3. There is no valid record in the Number Series - Productions setting. This problem will usually occur at the beginning of a new year.

If the In and Out Quantities in the new Production are all zero, the probable cause is that the Standard Batch in the Recipe is blank and therefore the Qty in the Production header will also be blank. If you are using the Production Lines hold Actual Qty option in the Production Settings setting, this will cause the In and Out Quantities all to be zero.

Please refer to the description of the Production register below on page 196 for more details about Productions.

Production Order Status

This function produces a Production Order Journal report for the Production Order currently open in a record window. This report contains full details of the selected Production Order, and lists all connected Productions.

Production Order Journal						
Operations			Search			
Production Order Journal			HansaWorld, Print date: 5/11/2009 11:26			
Radio Import/Export Ltd			Production Order 14			
Number	Due Date	Queue	Machine	Recipe	Comment	Prod. Qty
14	30/11/2009	3	WELD1	80601	HiFi Rack	10
					Produced:	2
					Discarded:	
					Left to Produce:	8
Production	Date	Person		Weight	Prod Qty	
5028	5/11/2009			80	2	

If the Production Order Qty is greater than the Standard Batch quantity in the Recipe, you will need to create more than one Production from the Production Order. As you can open an individual Production record by clicking on a Production Number in the report, you can use this report as a starting point to monitor progress both of the Production Order and of the connected Productions.

The Production Register

You should use this register to produce Stocked Items using Recipes i.e. to build them from components for holding in stock. Such “Productions” are normally the result of a Production Order. When you mark a Production as “Finished” and save it, the stock levels of the Input Items will be reduced, and the stock of the Output Item(s) will be increased. A Nominal Ledger Transaction can be generated if required (i.e. if you are maintaining a stock valuation in the Nominal Ledger). To ensure this happens, all Output Items should be Stocked Items.

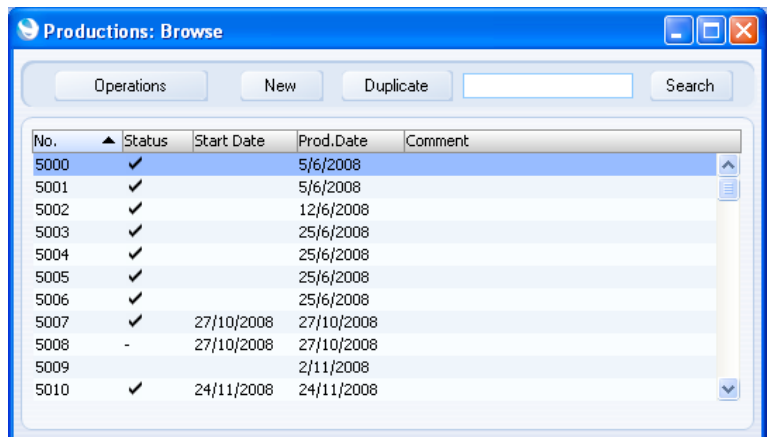
Entering a Production record

You can enter records to the Production register using the following methods—

1. You can enter Productions directly to the Production register.
2. You can create Productions in batches for Output Items whose stock levels have fallen below Minimum Levels. To do this, open the ‘Productions: Browse’ window and choose ‘Create Productions’ from the Operations menu.
3. You can create Productions from Production Orders, using the ‘Finish Batch’ Operations menu function.
4. The ‘Create Planned Records’ Maintenance function in the Production and Sales Orders modules will create Productions to schedule the assembly of Output Items that you have sold in advance. To be sold in advance, the Output Item must be included in a Sales Order with a Planned Delivery Date.
5. You can use the Sales Forecast register in the MRP module to predict the future monthly sales of Output Items. From a Sales Forecast record, you can create a Production Plan for each month, and from there you can use the ‘Create Productions’ Maintenance function to schedule the assembly of the Items that you expect to sell.

You can decide whether the Maintenance functions mentioned in points 4 and 5 will create Productions or Production Orders, using the Generate Planned options in the Production Settings setting.

The use of the Production register is now described in detail. To open the Production register, ensure you are in the Production module and click the [Productions] button in the Master Control panel. The 'Productions: Browse' window is opened, showing Productions already entered.



No.	Status	Start Date	Prod.Date	Comment
5000	✓		5/6/2008	
5001	✓		5/6/2008	
5002	✓		12/6/2008	
5003	✓		25/6/2008	
5004	✓		25/6/2008	
5005	✓		25/6/2008	
5006	✓		25/6/2008	
5007	✓	27/10/2008	27/10/2008	
5008	-	27/10/2008	27/10/2008	
5009			2/11/2008	
5010	✓	24/11/2008	24/11/2008	

The Status column is blank for Created Productions or shows “✓” for Cancelled and Finished Productions and “-” for Started Productions. You can set this Status for each Production using the options in the header of the Production screen.

As in all browse windows you may sort the list by clicking on the column headings. To reverse any sort, simply click once again on the column heading. You can also scroll the list with the scroll bars. Finally, you can search for a record by entering a keyword in the field in the top right-hand corner. When you press the Return or Enter key, the first record with a match for the keyword in the current sort column will be highlighted.

To enter a new Production, click [New] in the Button Bar or use the Ctrl-N (Windows and Linux) or ⌘-N (Mac OS X) keyboard shortcut. Alternatively, highlight a Production record similar to the one you want to enter and click [Duplicate] on the Button Bar.

The 'Production: New' window is opened, empty if you clicked [New] or containing a duplicate of the highlighted Production.

Production: Inspect

Operations [New] [Duplicate] [Cancel] [Save]

No. 5026 Name HiFi Rack

Recipe 80601 Start Date 5/11/2009 End Date 5/11/2009

Qty 1 Start Time 19:23:00 End Time 19:24:26

Location PROD Machine

Inspector Person

Prod. Ord. Discarded Reason

Actual Qty Routing

Status
☐ Created
☐ Cancelled
☐ Started
☒ Finished
☐ Finished but Discarded

Items Comment

	Item	Descr.	Serial No.	In	Out	Rel.	I-cost	W-cost	Coeff
1	80110	Glass Shelf		5.00			5.00	10.00	
2	80111	40 cm Steel Box Section		10.00			0.50		
3	80112	50 cm Steel Box Section		10.00			0.50		
4	80113	90 cm Steel Sheet		2.00			0.75		
5	80114	36 cm Steel Sheet		2.00			0.50		
6	80115	Hex Screw		20.00			0.10		
7	80116	Spiked Feet		4.00			1.00		
8	80117	Rubber Shelf Seat		20.00			0.10		
9	80118	End Cap		4.00			0.20	0.00	
10	80601	HiFi Rack			1.00		56.30		
11									
12									
13									

In Weight 38.28 Out Weight 40

Since the amount of information stored about each Production will not fit on a single screen, the Production window has been divided into two cards. At the top of each is the header. There are two named buttons ('tabs') in the header.

Items Comment

By clicking the tabs you can navigate between cards. The header is always visible, as a reminder of the Production you are working with.

Header

Production: Inspect

Operations

NewDuplicateCancelSave

No.5026

NameHiFi Rack

Status

Recipe80601

Start Date5/11/2009

End Date5/11/2009

Qty1

Start Time19:23:00

End Time19:24:26

LocationPROD

Machine

Inspector

Person

Prod. Ord.

Discarded Reason

Actual Qty

Routing

Items

Comment

No.	Paste Special	Select from another Number Series
The number of the Production record. The default is the first unused number in the number sequence in the first valid row in the Number Series - Productions setting. You may change this number, but not to one that has already been used. If you are working in a multi-user system, the Production Number is assigned when you first save the Production record.		
Name	The name of the Recipe appears here after you specify a Recipe in the field below.	
Status	At any time a Production record can be in one of five states, to help with the work flow and for reporting purposes. These states are as follows—	
Created	When you first enter a record in the Production register, it will be marked as Created. Created Productions are marked with a blank in the Status column in the ‘Productions: Browse’ window.	
Cancelled	In the case where you raise a Production record in error or the job is cancelled before work has started, you should change the Status of the Production to Cancelled to signify that no work should be carried out. Once a Production record has been marked as Cancelled and saved, it can no longer be modified. Cancelled Production records are marked with a “√” in the ‘Productions: Browse’ window.	

If the Production has a Routing, you must mark all connected Production Operations as Cancelled before you can Cancel the Production itself.

Started

As soon as work starts, you should change the Status of the Production record to Started. When you save the record, the Start Date and Time (below) will be updated, if they are blank. Started Production records are marked with a “-” in the ‘Productions: Browse’ window.

If you are accounting for the running costs of the Machine used for the Production (i.e. you have a record in the Asset register in the Assets module representing the Machine in which you have entered a Running Cost per Hour, you are using the Auto Calculate Cost of Produced Items option in the Production Settings setting and you have specified a Machine Cost Item in the same setting), you should take care to mark each Production as Started when you start work, to update the Start Date and Time. This will help ensure the duration of the Production and therefore the running costs of the Machine are correct.

Finished

Check this box to confirm that the Production work has been completed and the assembled Items delivered to stock. The stock levels of the assembled Items and the components will be updated when the record is saved. The Start and End Times will be updated, if they are blank. Once you have marked a Production record as Finished and saved it, you will no longer be able to modify it. Finished Production records are marked with a “√” in the ‘Productions: Browse’ window.

Switch on the Do Not Allow Over Delivery option in the Stock Settings setting if you do not want to be able to create negative stock of the components. If you are using this option, you will not be able to save a Production record marked as Finished if there is not enough stock of any of the components to carry out the assembly.

If you have so determined in the Sub Systems setting in the Nominal Ledger, a Nominal Ledger Transaction will be created in the Transaction register when a Production record is marked as Finished and saved. The nature of this Transaction is described in the section entitled 'Nominal Ledger Transactions from Production Records', below on page 218.

When you mark the Production record as Finished and save it, the I-cost of each Input Item will be updated with the appropriate unit stock value and the cost of the Output Item(s) will be recalculated accordingly, taking the Rel. field into account if appropriate. These figures will be used in the resulting Nominal Ledger Transaction to update the Nominal Ledger stock valuation of each Item. The unit stock value of each Input Item will be calculated using the Cost Model specified in the relevant Item or Item Group record. If that Cost Model is Default, the Primary Cost Model specified in the Cost Accounting setting will be used.

If you are accounting for the running costs of the Machine used for the Production as described in the Started section immediately above, be sure to check the End Date is correct before marking the Production as Finished. This will ensure the correct running cost will be posted.

If the Production has a Routing, you must mark all connected Production Operations as Finished before you can Finish the Production itself.

Finished but Discarded

Check this box to confirm that the Production work has been completed, and that for some reason the assembled Items were discarded. The stock levels of the components will be updated when the record is saved, but not those of the assembled Items. The Out Qty in the Production will be set to zero. The End Time (below) will be updated, as will the Start Time if it is empty. You must also specify a Reason for Discarding before

you can save the Production. Once a Production record has been marked as Finished but Discarded and saved, it can no longer be modified. Discarded Production records are marked with a “√” in the ‘Productions: Browse’ window.

In other respects, this option is similar to Finished, described above. For details about the resulting Nominal Ledger Transaction, please refer to the section entitled ‘Nominal Ledger Transactions from Production Records’, below on page 218.

Recipe	Paste Special	Recipe register, Production module
When you specify the Recipe to be used by the Production record, the appropriate Input and Output Items together with quantities and Cost Prices will be listed in the grid below.		

Start Date, End Date

Paste Special	Choose date
----------------------	-------------

These dates represent the period when the work represented by this Production record is to be carried out.

These fields are important in Production records created by the ‘Create Planned Records’ Maintenance function in the Sales Orders module. This function schedules Productions for Items on Sales Orders, so that the assembly work is carried out just before the Items are scheduled for delivery to the Customer. The Start and End Dates are calculated from the Planned Delivery Date of Sales Orders and the Fixed Assembly Days and Days to Assemble Each Unit from the Recipe. If it is necessary to create Purchase Orders for any components, these will be dated using the Delivery Days from the Default Purchase Items for the components, ensuring they arrive in time for the assembly process to be completed.

In Production records that you enter directly to the Production register, by default the Start Date will be blank and the End Date will be the current date. If the

Start Date field is still empty, the current date will be placed there automatically when you mark a Production as Started and save it.

You can use these dates to calculate the running cost of the Machine used in the Production: please refer to the description of the Machine field below on page 206 for details.

Qty

The number of applications of the Recipe required by the Production.

The way this field interacts with the In and Out Quantities in the rows depends on the Production Lines hold Actual Qty option in the Production Settings setting. For example, a Recipe states that two components are required to produce one final Item. When you use this Recipe in a Production with the requirement to produce two final Items, you will enter “2” in this field. If you are using the Production Lines hold Actual Qty option, the In Qty of the component will change from “2” to “4”, and the Out Qty of the final Item will change from “1” to “2”. If you are not using this option, the In Qty of the component will stay at “2”, and the Out Qty of the final Item will stay at “1”. In both cases, when you Finish the Production, four components will be removed from stock, and two final Items will be added.

In a new Production, the default will be as follows—

Production entered directly to the Production register

The default Qty will be the Normal Prod. Qty from the Recipe.

Production created from a Production Order

The default Qty will be the Standard Batch quantity from the Recipe. If the Standard Batch is blank, the Qty in the Production will also be blank by default.

Production created from a Sales Order using the ‘Create Planned Records’ or ‘Create Planned Records from Orders’ Maintenance functions

The default Qty will be the Sales Order quantity (or the Min Prod. Qty. in the Recipe if this is

greater). If this default is less than the Normal Prod. Qty in the Recipe and you are using the Always create Normal Production Qty from Planned option in the Production Settings setting, the Normal Prod. Qty will be the default.

Production created from a Production Order using the Production Time Entry interface

The default Qty will be the Qty from the Production Order, less any quantity that has already been produced. When work on the Production finishes, this Qty will be updated to the quantity produced, as entered in the 'Specify Produced Quantities' window.

If you are not using the Production Lines hold Actual Qty option, you must set this field to "1" if the Output Item or any of the components are Serial Numbered at unit level. If you need several applications of the Recipe, increase the number of rows containing the Serial Numbered Items (each should have an In or Out Qty of one), and multiply the In and Out Quantities of the non-Serial Numbered Items appropriately. If you are using the Production Lines hold Actual Qty option and at least one of the Items is Serial Numbered at unit level, you can enter any quantity in this field. The In and Out Quantities in each row will be updated. Then, list the Serial Numbered Items individually in the grid: do not do this before changing the Qty in the header because then the In and Out Quantities in the individual rows will be updated incorrectly.

You cannot enter a negative quantity here. If you need to dismantle an assembled Item, you should find the original Production and use the 'Disassemble' function on the Operations menu. This will ensure the assembled Item is correctly removed from stock and the components are put back into stock.

If the Production has a Routing and you create Production Operations from it, this Qty will be copied to each Production Operation. Afterwards, you will not be able to change this figure, in the Production or in the Production Operations.

Start Time	Paste Special	Current Time
	<p>The time when the work represented by this Production record began. If this field is empty, the current time will be placed here automatically when you mark a Production as Started and save it.</p> <p>You can use this Start Time to calculate the running cost of the Machine used in the Production: please refer to the description of the Machine field below on page 206 for details.</p>	
End Time	Paste Special	Current Time
	<p>The time when the work represented by this Production record finished. If this field is empty, the current time will be placed here automatically when you mark a Production as Finished and save it.</p> <p>You can use this End Time to calculate the running cost of the Machine used in the Production: please refer to the description of the Machine field below on page 206 for details.</p>	
Location	Paste Special	Locations setting, Stock module
	Default taken from	Production Order or Person record for current user
	<p>The stock Location from where the components are taken and where assembled Items are to be stored. If you leave the field empty, stock from all Locations will be available.</p> <p>If you have specified a Main Location in the Stock Settings setting, leaving this field blank means that stock from the Main Location will be used. However, if you are using the Require Location option in the same setting, you must enter a Location before you can mark the Production as Finished and save it. If the Production has a Routing and you are using the Require Location option, you must enter a Location before you can mark the Production as Started: this Location will be copied to the Production Operations when you create them.</p>	

Machine	Paste Special	Asset register, Assets module
	<p>The Machine or tool that you used to carry out the work.</p> <p>If you are using the Auto Calculate Cost of Produced Items option in the Production Settings setting, you have specified a Machine Cost Item in the same setting, and you have specified a Running Cost/hr in the Asset record for the Machine ('Costs' card), then an extra row will be added to the Production when you first save it. This row will use the Start and End Time of the Production (above) to record the running cost of the Machine. When you approve the Production (mark it as Finished, or Finished but Discarded) and save it, the running cost will be added to the value of the final Item and so will be debited to the Stock Account, and will be credited to the Production W-cost Account. If you are using this feature, you should mark every Production as Started at the relevant moment (to ensure the Start Date and Time are correct) and also check the End Date is correct before approving each Production, as this field will not be updated automatically.</p> <p>If the Machine is an Asset that has Production Objects specified on its 'Costs' card, those Objects will be copied to the field on the 'Comment' card (described below on page 216).</p>	
Inspector	Paste Special	Person register, System module
	<p>If the result of the Production is to be inspected before the Production record can be marked as Finished, specify the initials of the inspector here.</p>	
Person	Paste Special	Person register, System module
	<p>You can use this field to record the Person responsible for this Production or the Person carrying out the work.</p>	
Prod. Ord.	<p>If the Production was created from a Production Order, the Production Order Number will appear here. This field cannot be modified.</p>	

Discarded Reason Paste Special

Standard Problems setting,
Production/Service Orders
modules

If you have marked the Production as Finished but Discarded, specify here the reason for the discarding. You must specify a Reason in a Discarded Production before you can save it.

Routing**Paste Special**

Routings setting, Production
module

Default taken from

Recipe or Production Order

If the Recipe represents a Production process that has been divided into stages, the Default Routing specified in that Routing will be copied here. This is effectively a schedule of the process, specifying the stages and the order in which they should be carried out.

If the Production has a Routing, each of the Input and Output Items will take a Material from the relevant Recipe row (visible on flip B of the Production). The Material is the mechanism that connects each Item to a stage (i.e. to an Operation) in the process. In the case of an Input Item, the Material determines the stage in the process when it will be removed from stock. In the case of an Output Item, the Material determines when the completed Item will be added to stock.

If the Production has a Routing, you cannot simply mark the Production as Finished in order to remove the components from stock and add the assembled Item to stock. Instead, you need to use the 'Create Production Operations' Operations menu function described below on page 236 to create the Production Operations that represent each stage in the process, and then mark each Operation as Finished in turn. Only once you have done this can you return to the Production to mark it as Finished.

When you enter a new Production, the Routing will usually be copied from the Recipe or originating Production Order. You can change to another Routing, and, in the case of an *ad hoc* Production that does not have a Recipe, you can specify the Routing yourself. However, you can only do this before you have saved

the Production for the first time and, after saving, if the Status is Created. After changing the Status to Started and saving, you will no longer be able to change the Routing.

Please refer to page 128 above for more details about Routings and Production Operations and an example.

Items Card

When you specify a Recipe in the header, the appropriate Input and Output Items together with quantities and Cost Prices will be listed in the grid. Any modifications that you make will apply to the particular Production record only. If you have not specified a Recipe, you can use the grid to build up an *ad hoc* recipe. If the Production was created from a Production Order, the Input and Output Items will be taken from that Production Order.

Items		Comment							
Item	Descr.	Serial No.	In	Out	Rel.	I-cost	W-cost	Coeff	
1	80110	Glass Shelf		5.00		5.00	10.00		A
2	80111	40 cm Steel Box Section		10.00		0.50			B
3	80112	50 cm Steel Box Section		10.00		0.50			C
4	80113	90 cm Steel Sheet		2.00		0.75			D
5	80114	36 cm Steel Sheet		2.00		0.50			E
6	80115	Hex Screw		20.00		0.10			
7	80116	Spiked Feet		4.00		1.00			
8	80117	Rubber Shelf Seat		20.00		0.10			
9	80118	End Cap		4.00		0.20	0.00		
10	80601	HIFI Rack			1.00	56.30			
11									
12									
13									

In Weight 38.28

Out Weight 40

Flip A

Item

Paste Special

Item register

Default taken from Recipe or Production Order row

Enter the Item Number of each of the Input Items (i.e. of the components) and of the Output Item (i.e. the assembled Item). You can list the Items in any order.

If a component is itself an assembly, you should first build sufficient stock using other Production records. Each Production record is responsible for a single level of assembly: it will not create sub-assemblies as well (unless the Production has a Routing, in which case the

resulting Production Operations will include sub-assemblies if appropriate).

The Output Item (i.e. the result of the Production) must be a Stocked Item. More than one Stocked Item can result from a single Production record.

With one exception, you cannot use Plain Items as components or as assembled Items. If you need the Production to contain costs such as electricity, labour, etc as components, these costs should be Service Items, not Plain Items. You will not be able to use the 'Disassemble' function to dismantle the Production if it contains a component that is a Plain Item. The exception is that a Plain Item with a Recipe (a "Phantom" Item) can be a component in a Production that has a Routing. Please refer to page 86 above for more details of Phantom Items and an example.

You can use an Item with Varieties as a component or as a finished Item. You must enter the combined Item/Variety Number (i.e. you must choose a specific Variety). Use 'Paste Special' from this field or from the In or Out Qty fields to ensure the combined Number is correct. Please refer to the 'Items and Pricing' manual for more details about Varieties.

In addition to the 'Paste Special' feature, you can use the 'Item Search' function on the Operations menu to add Items to the Production. This function is described below on page 228.

Descr.	Item description from the Recipe, Production Order row or Item record.	
Serial No.	Paste Special	Serial Numbers of Items in stock
	In the case of an Input Item, if necessary enter the Serial Number of the Item you use in the assembly process. In the case of an Output Item, enter the Serial Number you give to the assembly.	
	You must use separate rows for Items that are Serial Numbered at unit level, each with an In or Out Quantity of one. This allows you to record separate Serial Numbers and enables their correct removal from stock.	

If you use a single Production record to assemble a large quantity of a Serial Numbered Item, you can use the 'Generate Serial Nos for Out Items' function on the Operations menu to help enter consecutive Serial Numbers. Enter the appropriate number of rows with Output Items and specify the lowest Serial Number for the first one. Then select the function: the remaining rows will gain a Serial Number, each incremented by one.

If you have not specified a Location in the header, the 'Paste Special' list will show the Serial Numbers of Items in all Locations, with an indication of the Location in which each Item is stored. However, if you have specified a Location, only those Serial Numbers stored in that Location will be shown.

By default, if an Input or Output Item uses Serial Numbers, you must specify a Serial Number here before you can Finish the Production. If you do not assign Serial Numbers to Output Items immediately, you should use the No Serial No. on Goods Receipts option in the Stock Settings setting. This will allow you to Finish Productions without Output Item Serial Numbers. You will still have to specify Input Item Serial Numbers, but in this case there will be no 'Paste Special' list, and no check will be carried out that the Serial Number you have used is valid (i.e. one that is currently in stock).

In

Default taken from Recipe or Production Order row

Enter the quantity of each component required to make or build the finished product. Do not enter an In Qty for the assembled Item(s). This quantity must be one if the Input Item is Serial Numbered at unit level.

If you are using the Production Lines hold Actual Qty option in the Production Settings setting, this figure will be the quantity of the component required to complete the Production (i.e. to build the Quantity specified in the header). This figure will be recalculated automatically each time you change the Qty in the header. If you are not using the Production Lines hold Actual Qty option, this figure will be the quantity of the component required to complete one application of the Recipe. This figure will therefore remain unchanged if you change the Qty

in the header. In both cases, you can change this figure in a particular Production if necessary.

If a Nominal Ledger Transaction is generated from this Production record, its credit amount will be taken from the total I-cost of rows with an In Qty (i.e. Input Items).

Out

Default taken from Recipe or Production Order row

This field contains the quantity of assembled Items that can be made from the components listed above. Usually, this will be just one, and it must be one if the Out Item is Serial Numbered at unit level.

If you are using the Production Lines hold Actual Qty option in the Production Settings setting, this figure will be the quantity of the final Item that will be built by the number of applications of the Recipe specified in the Quantity field in the header. This figure will be recalculated automatically each time you change the Qty in the header. If you are not using the Production Lines hold Actual Qty option, this figure will be the quantity of the final Item that will be built by one application of the Recipe. This figure will therefore remain unchanged if you change the Qty in the header. In both cases, you can change this figure in a particular Production if necessary.

If a Nominal Ledger Transaction is generated from this Production record, its debit amount will be taken from the total I-cost of rows with an Out Qty (i.e. Output Items).

Rel.

Default taken from Recipe

Relativity. You must use this field if the result of the Production is that more than one Item will be assembled (i.e. there is more than one row in the Production with an Output Item). The Production might produce different Items (with different Item Numbers) or it might produce more than one of the same Item with Serial Numbers. Enter a figure in each row representing an Output Item. When you mark the Production as Finished, the total stock value of the components will be calculated using the appropriate Cost Models. The stock values of the Output Items will then be calculated from that total using the ratio that you enter here.

The Relativity figures are not percentages but ratios. For example, the total stock value of the Input Items is 103 and there are two Output Items with Relativities of 30 and 60 respectively. The stock value of the first Output Item will be $103 * 30 / (30 + 60)$, and the stock value of the second Output Item will be $103 * 60 / (30 + 60)$. If the Out Qty of the first Output Item is two, then the unit stock value of the first Output Item will be $103 * 30 / ((2 * 30) + 60)$, and the stock value of the second Output Item will be $103 * 60 / ((2 * 30) + 60)$.

If the Production has more than one Output Item and you have marked it as Finished, you will not be able to save it if you have not specified a Relativity figure in every row with an Output Item.

I-cost

The cost value (per unit) of the component or assembled Item. When you specify a Recipe in a Production, the I-cost from the relevant row in the Recipe will be placed here. However, when you save the Production for the first time, this figure will be replaced by the Item's unit stock value (if the row contains an Input Item) or by a unit value calculated from the total value of the components (if the row contains an Output Item). This figure will be used in the Nominal Ledger Transaction generated when you mark the Production as Finished or Discarded and save it. If the Input or Output quantity is greater than one, this field will show the average unit stock value.

If you change the Item Number or change the Input or Output quantity, the I-cost is not always updated immediately. If you need to update the figure, use the 'Calculate Cost' function on the Operations menu. In any case, the figure will be updated as described in the previous paragraph each time you save the Production, up to and including the time when you mark it as Finished or Discarded.

If the row contains an Input Item, this figure (i.e. the Item's unit stock value) will be calculated using the Cost Model specified in the relevant Item or Item Group record. If that Cost Model is Default, the Primary Cost Model specified in the Cost Accounting setting will be used.

If the row contains an Output Item, this figure will usually be the sum of the I-costs of the Input Items plus the W-cost, taking quantities into account. If there is more than one Output Item, this total will be distributed according to the ratios entered in the Rel. column. This figure will become the new stock value of the Output Item(s).

W-cost**Default taken from** Recipe

The W-cost is the Work Cost incurred in finishing the Production. Usually, this will be cost of the labour required to build the assembled Item.

You should enter the Work cost in one of the rows featuring an Input Item, as shown in the sample illustration above. This ensures the Work Cost will correctly be credited to the Production W-cost Account in the Nominal Ledger Transaction generated from the Production record. If you enter the Work Cost in an Output row, the Work Cost will incorrectly be debited (not credited) to the Production W-cost Account.

You can usually place the Work Cost in any Input row except the last one. The exception is when you are using the Use Item Groups for Cost Accounts option in the Cost Accounting setting in the Stock module and you have specified Production W-cost Accounts in your Item Groups. If so, the Production W-cost Account will be taken from the Item Group to which the Item in the row with the Work Cost belongs. In this case, therefore, you should be sure to enter the Work Cost in the correct row in the Production, so that the correct Account is credited. If you are not using the Use Item Groups for Cost Accounts option or you have not specified a W-cost Account in the relevant Item Group, the Production W-cost Account will be taken from the Account Usage Stock setting.

Although you should enter the Work Cost in an Input row, the figure is independent of the In Qty in that row. For example, if the Work Cost is 10.00, enter 10.00: do not enter 5.00 if the In Qty is 2.

The Work Cost should be the total cost incurred through one application of the Recipe. For example, if the Out Qty of the assembled Item is 2, this means that one

application of the Recipe will add two assembled Items to stock. If the cost incurred in assembling these two Items is 10.00, enter 10.00 as the Work Cost. Do not enter the cost per unit, 5.00.

You cannot enter a Work Cost if the Production has a Routing. If a Production has a Routing, you should record the Work Costs either by specifying times in each Standard Operation or using Activities. Please refer to the description above on page 147 of the Time options (Actual and Fixed) in the Productions Settings setting for more details.

Coeff

Default taken from Item

The Unit Coefficient of the Item is shown here, taken from the 'Stock' card of the Item. If you are maintaining stock quantities using different units of measurement, this coefficient is the ratio between those units of measurement.

Flip B

Objects

Paste Special Object register, Nominal Ledger/System module

Default taken from Item

You can assign up to 20 Objects, separated by commas, to each row. You might define separate Objects to represent different departments, cost centres or product types. This provides a flexible method of analysis that can be used in Nominal Ledger reports. Usually the Objects specified here will represent the Item.

In any Nominal Ledger Transactions generated from a Production record, any Objects specified here will be assigned to the credit posting for the Item (if the Item is an Input Item) or to the debit posting (if it is an Output Item). This assignment will merge these Objects with those of the parent Production record (shown on the 'Comment' card).

Material	Paste Special	Materials setting, Production module
	Default taken from	Recipe or Production Order row
	<p>If the Production has a Routing (i.e. it represents a Production process that has been divided into stages), you should assign a Material to each Input and Output Item (unless an Input Item is a Plain Item with its own Recipe, in which case you should leave this field empty and assign Materials in that Recipe).</p> <p>The Material is the mechanism that connects each Item to a stage (i.e. to an Operation) in the process. In the case of an Input Item, the Material determines the stage in the process when it will be removed from stock. In the case of an Output Item, the Material determines when the completed Item will be added to stock.</p> <p>Please refer to page 128 above for more details and an example.</p>	

Flip C

Best Before	Paste Special	Choose date
	<p>If an Output Item is perishable, enter a Best Before date here.</p> <p>If you have entered a Serial or Batch Number as well, when you mark the Production as Finished and save it, a record will be created in the Batch Specifications setting in the Stock module recording the Best Before date of the Item or Batch.</p> <p>When you sell the Item, the Best Before date will be brought in to the Delivery record. If you want it to be printed on delivery documentation, include the “Best Before Date” field in your Form design. If you want to prevent the sale of Items that have passed their Best Before date, use the Batch Status and Batch Quality Control settings in the Service Orders module, described in the ‘Service Orders’ manual.</p>	

Flip D

Weight	Default taken from	Item
	This field contains the unit Weight of the Item.	

Width, Height, Depth

Default taken from Item

These fields contain the dimensions of the Item.

If the Item is one that is built by area or volume, you can have the In or Out quantities calculated by multiplying the dimensions together. If you would like to use this feature, first check the Enable Quantity Calculation box in the Item Settings setting in the Sales Ledger. Then, check the Calculate Quantity box for the Unit that has been assigned to the Item. If the Item is built by area, choose the Two Dimensions option in the Unit record, and the In or Out quantities will be calculated from the Width and Height. If the Item is built by volume, choose the Three Dimensions option in the Unit record, and the In or Out quantities will be calculated from the Width, Height and Depth. Please refer to the description of the Units setting in the ‘Sales Ledger’ manual for details and an example.

Flip E

Dis. Row FIFO If the Production is disassembling a previous Production, the final I-cost values from that Production will be placed in these fields. Please refer to page 225 below for more details about disassembly.

Footer

In Weight This field contains the sum of the Weights of the Input Items. Individual Item Weights (per unit) are shown on flip D.

Out Weight This field contains the sum of the Weights of the Output Items.

Comment Card

Items

Comment

Comment

Objects

Start Time

19:23:00

End Time

19:24:26

Break Time

Language

Comment	Any comment to describe the record.	
Objects	Paste Special	Object register, Nominal Ledger/System module
	Default taken from	Machine (Asset)
	<p>You can assign up to 20 Objects, separated by commas, to each Production record. You might define separate Objects to represent different departments, cost centres or product types. This provides a flexible method of analysis that can be used in Nominal Ledger reports. Usually the Objects specified here will represent the Machine.</p> <p>In any Nominal Ledger Transactions generated from this Production record, any Objects specified here will be assigned to both the debit and the credit postings.</p> <p>If you have specified as the Machine an Asset that has Production Objects specified on its 'Costs' card, those Objects will be copied here as defaults.</p>	
Start Time, End Time	Paste Special	Current Time
	The time when the work represented by this Production record started and ended.	
Break Time	Use this field to record the total duration of any interruptions in the work between the Start and End Times.	
Language	Paste Special	Languages setting, System module
	Default taken from	Recipe
	<p>You can use the Language to determine the Form that will be used when you print the Production, and the printer that will be used to print it. This can include sending the document to a fax machine, if your hardware can support this feature. Do this in the 'Define Document' window for the Production, Production Picking List and Routing Production documents, as described in the 'Working Environment' chapter in the 'Introduction to HansaWorld Enterprise' manual.</p>	

Inspecting and Approving Production Records

When you have completed the assembly process, you should check and approve the instructing Production record. When you approve and save it, stock levels of the components will be reduced and that of the Output Item will be increased. There are two ways to approve a Production record—

1. With the Production record on screen, click the Finished check box (assuming the Production was completed successfully), or the Finished but Discarded check box (if there was a failure) and save.
2. Select a Production record by clicking on it in the 'Productions: Browse' window, and select 'Finish' from the Operations menu. By holding down the Shift key you can highlight a batch of Production records to approve at a single stroke using this method.

On approval, if so defined in the Sub Systems setting in the Nominal Ledger and in the Number Series - Productions setting, a cost accounting Transaction will be created in the Nominal Ledger. Please refer to the section below on page 218 entitled 'Nominal Ledger Transactions from Production Records' for details of the Accounts used by this Transaction.



Once you have marked a Production record as Finished or Finished but Discarded, you will no longer be able to change it.

If you have marked a Production record as Finished and saved it, you can reverse this action using the 'Disassemble' function on the Operation menu, described below on page 225.

Nominal Ledger Transactions from Production Records

When you mark a Production record as Finished and save it, a Nominal Ledger Transaction will be generated automatically if you have so determined in the Sub Systems setting in the Nominal Ledger and in the Number Series - Productions setting. This Transaction will contain two sets of credit postings, one for the Input Costs and one for the Work Cost—

1. The Input Costs will be credited to the Stock Account from the Location.
2. If the Location does not have a Stock Account, or you have not specified a Location, and if you are using the Use Item Groups for Cost Accounts option in the Cost Accounting setting in the Stock module, the Input

Costs will be credited in the appropriate proportions to the Stock Accounts of the Item Groups to which the Input Items belong.

3. In all other circumstances (i.e. if you are not using the Use Item Groups for Cost Accounts option or an Input Item does not belong to an Item Group), the Production I-cost Account, as specified on the 'Stock' card of the Account Usage Stock setting in the Stock module, will be credited.

If you have specified Objects in any of the rows, separate credit postings will be made for each Object/Account combination. If you have specified Objects on the 'Comment' card, they will be assigned to all credit postings.

The choice of Stock Account described in steps 1 and 2 above means that it will not be possible to distinguish the value of Items removed from stock to be used in Productions from the value of the same Items removed from stock for other purposes (e.g. Delivery or Stock Depreciation). If you need to make such a distinction, specify Components Usage and Production Control Accounts in the Account Usage Stock setting, in the Item records for the components and/or in the Item Groups to which the components belong. If you do so (i.e. if you specify both a Components Usage Account and a Production Control Account), the Transaction will contain additional postings, debiting the value of the components to the Components Usage Account and crediting that value to the Production Control Account.

If you are using the Use Item Groups for Cost Accounts option, the Work Cost will be credited to a W-cost Account chosen as follows—

1. The W-cost Account will be the Production W-cost Account specified in the Item Group to which the Item in the row with the Work Cost belongs.
2. If this Item Group does not have a Production W-cost Account, the W-cost Account will be taken from the Account Usage Stock setting.
3. If there is no W-cost Account in the Account Usage Stock setting, the Stock Account in the Item Group to which the Item in the row with the Work Cost belongs will be used as the W-cost Account.

Therefore, if you are using the Use Item Groups for Cost Accounts option and you have specified Production W-cost Accounts in your Item Groups, be sure to enter the Work Cost in the appropriate row in the Production before marking it as Finished, so that the correct Account is credited.

If you are not using the Use Item Groups for Cost Accounts option, the Work Cost will always be posted to the W-cost Account in the Account Usage Stock setting. In this case, you will not be able to save a Finished Production with a Work Cost if you have not specified a W-cost Account in the Account Usage Stock setting.

If any components in the Production are Service Items, they will be treated as Work Cost. Their value will be credited to a W-cost Account chosen as described above, using if appropriate the Production W-cost Account in the Item Groups to which the Service Items belong.

If the Production contains a row for Machine Cost (i.e. you are using the Auto Calculate Cost of Produced Items option in the Production Settings setting, you have specified a Machine Cost Item in the same setting, and you have specified a Running Cost/hr in the Asset record for the Machine specified in the Production), the Machine Cost will also be credited to a W-cost Account. This will be chosen as described above, using if appropriate the Production W-cost Account in the Item Group to which the Machine Cost Item belongs.

The value of the Output Item(s) will be debited to an Account chosen as follows—

1. The value of the Output Item(s) will be debited to the Stock Account from the Location.
2. If the Location does not have a Stock Account, or no Location has been specified, and if you are using the Use Item Groups for Cost Accounts option in the Cost Accounting setting, the Stock Account of the Item Group to which the Output Item belongs will be debited.
3. In all other cases, the Production I-cost Account on the 'Stock' card of the Account Usage Stock setting will be debited.

If you have specified Objects on the 'Comment' card, they will be assigned to all debit postings.

When you first specify a Recipe in a Production record, the Input and Output Costs in each row will be taken from that Recipe. Each time you save the Production, these figures will be updated with the Item's unit stock value (if the row contains an Input Item) or by a unit value calculated from the total value of the components including the Work Cost (if the row contains an Output Item). The unit stock value of each Input Item will be calculated using the Cost Model specified in the relevant Item or Item Group record. If that Cost Model is Default, the Primary Cost Model specified in the Cost Accounting setting will be used.

If you have marked the Production as Finished but Discarded, there will be no Output Costs because the Out Qty in the Production will be zero. Therefore in this case the Input and Work Costs will be balanced by a debit posting of the same value to the Discarded Production Cost Account, again as specified in the Account Usage Stock setting.

Illustrated below is an example of a Nominal Ledger Production Transaction—

Transaction: Inspect

Operations [Print] [Refresh] [New] [Duplicate] [Cancel] [Save]

No. 5026 Trans. Date 5/11/2009 Reference

Text

	Account	Objects	Description	Base 1 Debit	Base 1 Credit	V-Cd
1	740		Stock Valuation		46.30	A
2	231		Production Work Cost		10.00	B
3	740		Stock Valuation	56.30		C
4	468		Base Currency Round Off		0.00	D
5						E
6						F
7						G
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
	Difference Base 1			0.00		
	Difference Base 2			0.00		
	Total			56.30	56.30	
	Total			89.37	89.37	

In practice, one possible way to operate is as follows—

1. Place each component in an Item Group where the Stock Account is a Components Stock Account;
2. Place each assembled Item in an Item Group where the Stock Account is a Finished Goods Stock Account;
3. The Locations where components and assembled Items are stored do not have their own Stock Account; and
4. The Production Location has a Work in Progress Account as its Stock Account.

When using the Use Item Groups for Cost Accounts option, the result will be—

1. When you receive the components into stock using a Goods Receipt, the Components Stock Account will be debited;
2. When you move the components to the Production Location using a Stock Movement, the Components Stock Account will be credited and the Work in Progress Account debited;
3. The Production will both debit and credit the Work in Progress Account. Any Work Cost will be included in the debit posting to the Work in Progress Account and credited to a Work Cost Account;
4. When you move the assembled Item to its Location using a Stock Movement, the Work in Progress Account will be credited and the Finished Goods Stock Account debited.

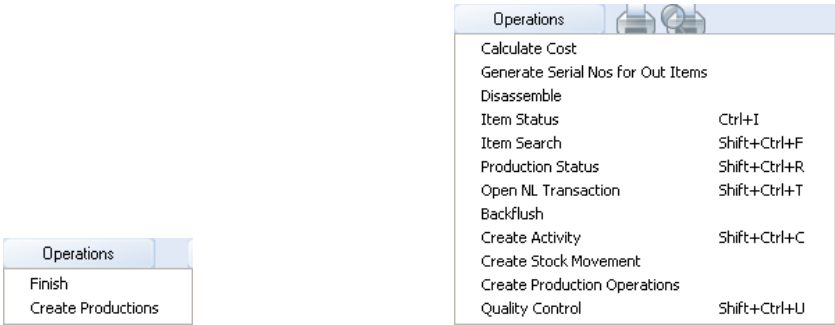
If a Production has a Routing, you have a choice about how to update the stock valuation in the Nominal Ledger, as follows—

- You can update the stock valuation in the Nominal Ledger each time you Finish a Production Operation. In this case, the value of the Production so far will be posted to a Work In Progress Account.
- You can wait until Finishing the Production before updating the stock valuation in the Nominal Ledger, posting every removal and addition to stock at once. All Production Operations must be Finished before you can Finish the Production.

You should make this choice using the Generate Transaction options in the Account Usage Production setting. If you choose the second option, the Transaction will be as described above. Please refer to the 'Nominal Ledger Transactions from Production Operations' section below on page 265 for details of the first option.

Once the Transaction has been generated, you can look at it straight away using the 'Open NL Transaction' function on the Operations menu.

Operations Menu



The Operations menus for the Production register are shown above. On the left is that for the ‘Productions: Browse’ window: highlight one or more Production records (hold down the Shift key while clicking) in the list before selecting the function. On the right is that for the ‘Production: New’ and ‘Production: Inspect’ windows.

Finish

This command is available on the Operations menu only from the ‘Productions: Browse’ window. It permits the marking of a Production record as Finished and is therefore the equivalent of checking the Finished box in the Production record. You can also select several Production records in the ‘Productions: Browse’ window (hold down the Shift key to select a range of Production records in the list) and approve them all at once. Remember that this action causes stock levels to be changed and that therefore once it has been carried out you will no longer be able to modify those Production records.

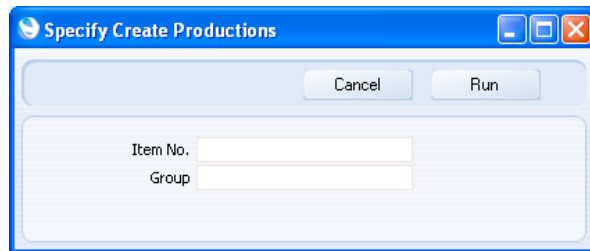
Create Productions

This function creates Production records by comparing stock levels with minimum stock quantities for each Stocked Item that has a Recipe. The Production records will be saved in an unapproved state. You can print the Production records in a single batch, using the [Documents] button in the Master Control panel or the Ctrl-D/⌘-D keyboard shortcut. Approving Productions is described above on page 218, while printing is covered below on page 303.

In comparing stock levels with the Minimum Level (shown on the ‘Stock’ card of the Item), unfulfilled Sales Orders and unapproved Production records are taken into account. So, for example, a new Production record will not be created for a Stocked Item with a Minimum Level of 1 if there is already an unapproved Production record.

Since the Production records created by this function are unapproved, no account is taken of the stock levels of the components or of any Serial Number requirements. The Quantity in each Production record is taken from the Normal Prod Qty of the corresponding Recipe: it is not determined by the stock shortfall.

Selecting 'Create Productions' opens the following dialogue box —



Item No.	Paste Special	Item register
	Range Reporting	Alpha
	Use this field to ensure the function considers the stock position of a particular Item or range of Items.	
Group	Paste Special	Item Group register, Sales Ledger
	Range Reporting	Alpha
	Use this field to ensure the function considers the stock position of the Items of a particular Item Group.	

Press the [Run] button to start the generation of Production records. When the process is finished, the new records will be available for viewing, modifying and approval in the Production register.

Calculate Cost

If you change the Item Number or change the Input or Output quantity in a Production row, the I-cost is not always updated immediately. If you need to update these figures using the relevant Cost Model (in the case of Input Items) or to a unit value calculated from the total value of the components and the W-cost (in the case of Output Items), use this function. In any case, these figures will always be updated when you save the Production, up to and including the time when you mark it as Finished or Discarded.

The function has no effect once the Production has been marked as Finished or Discarded and saved.

Generate Serial Nos for Out Items

This function can be useful when you assemble a large quantity of a Serial Numbered Item and you need to enter many consecutive Serial Numbers.

Enter the appropriate number of rows with Output Items in the Production record and specify the lowest Serial Number for the first one. Then select the function: the remaining rows will gain a Serial Number, each incremented by one.



The Status of the Production must be Created or Started, otherwise the function will not generate Serial Numbers.

Disassemble

Use this function when you need to reverse the effects of a Production record. This may be because you disassembled an assembled Item and returned its components to stock, because you marked a Production record as Finished incorrectly, or because a Finished Production record contained an error.

Find and open the Production record that is to be reversed, and select 'Disassemble' from the Operations menu. The function will create and open a new Production record that is the reverse of the original (i.e. the Input Items in the original Production will be Output Items in the new record, and the original Output Item will now be an Input Item).

Production: Inspect

Operations   New Duplicate Cancel Save

No. 5040 Name HiFi Rack

Recipe 80601 Start Date 5/11/2009 End Date 6/11/2009

Qty 1 Start Time 19:23:00 End Time 19:24:26

Location PROD Machine

Inspector Person

Prod. Ord. Discarded Reason

Actual Qty Routing

Status

- ☒ Created
- ☐ Cancelled
- ☐ Started
- ☐ Finished
- ☐ Finished but Discarded

Items Comment

	Item	Descr.	Serial No.	In	Out	Rel.	I-cost	W-cost	Coeff
1	80601	HiFi Rack		1.00			56.30		
2	80110	Glass Shelf			5.00	0.54	5.00		
3	80111	40 cm Steel Box Section			10.00	0.108	0.50		
4	80112	50 cm Steel Box Section			10.00	0.108	0.50		
5	80113	90 cm Steel Sheet			2.00	0.032	0.75		
6	80114	36 cm Steel Sheet			2.00	0.022	0.50		
7	80115	Hex Screw			20.00	0.043	0.10		
8	80116	Spiked Feet			4.00	0.086	1.00		
9	80117	Rubber Shelf Seat			20.00	0.043	0.10		
10	80118	End Cap			4.00	0.017	0.20		
11									
12									
13									

In Weight 38.28 Out Weight 40

The new Production record will be opened in a window entitled 'Production: Inspect'. This means that it has already been saved, and is being opened for checking.

When you mark the record as Finished and save it, the Input Costs of each Item will be updated, a Nominal Ledger Transaction will be generated, reversing the one created by the original Production record, and the stock levels of the assembled Items and the components will be updated. The assembled Item will be removed from stock, and the components will be returned to stock.

Each component will be returned to stock with the cost that was deducted from stock when you used it in the assembly process i.e. the cost of each component will be copied from the Production that you are disassembling.

The assembled Item will be removed from stock with a cost that will be calculated using the Cost Model specified in the relevant Item or Item Group record. If that Cost Model is Default, the Primary Cost Model specified in the Cost Accounting setting will be used. Disassembly will therefore be treated as a normal removal from stock.

There may be a difference in the value of the assembled Item in the original Production and in the disassembling Production. There can be two reasons for this. First, the original Production may include a Work Cost. If so, the value of this Work Cost will be debited to the Stock Gain Account from the disassembling Production. Second, the calculated value of the assembled Item may have changed between assembly and disassembly. For example, other examples of the assembled Item may have been assembled or otherwise received into stock in the intervening time, changing the weighted average value of that Item. If this is the case, the difference will be debited (if the value has increased) or credited (if it has decreased) to the Disassemble Variance Account. The calculated value of the assembled Item at the time of disassembly will be shown in the I-Cost field on flip A of the 'Items' card in the disassembly Production, while the value at the time of assembly will be shown in the Dis. Row FIFO field on flip E. The Stock Gain and Disassemble Variance Accounts will be taken from the Account Usage Stock setting.

The two Production records will be connected to each other through the Attachments facility. This allows you to open the original Production quickly and easily from the disassembly record, or to open the disassembly from the original Production.

You will not be able to disassemble a Production if any of the components are Plain Items. For this reason, you should not use Plain Items as components in Recipes or Productions. If you need a Recipe or Production to contain costs such as electricity, labour, etc as components, these costs should be Service Items, not Plain Items.

Item Status

This function provides instant feedback for the Item shown in the Production row containing the cursor or highlighted in the 'Paste Special' window listing Items. Information displayed in a new window includes the quantity in stock, the quantity on order and the quantity shippable.

Please refer to the 'Items and Pricing' manual for full details of this function.

Item Search

You can use this function to search for Items that you can then add to the Production. This function is therefore an alternative to the 'Paste Special' feature. Place the insertion point in the Item field in any row and then select 'Search' from the Operations menu. The following window opens—

Search for Enter here the string (e.g. part of an Item Number or Name) that you are looking for. You must make an entry in this field, otherwise no search will be carried out.

Classification **Paste Special** Item Classifications setting, Sales Ledger

If you enter an Item Classification here, the search for the string that you specified in the field above will be restricted to Items belonging to that Classification.

Search In Specify the field in which you want to search.

Press [Run] to activate the search. A report will be printed to screen, listing the Items found. If you click on an Item Number in the report, the Item will be added to the Production in the first empty row.

Open NL Transaction

When you mark a Production record as Finished and save it, if so defined in the Sub Systems setting in the Nominal Ledger and in the Number Series - Productions setting, a Nominal Ledger Transaction will be created. This function allows you to view that Transaction.

Select this function to open the Transaction in a new window.

Backflush

This function can be useful if the Production is a complex one with several assembly stages (i.e. if the Production has a Routing) and you have created the Production Operations representing those stages using the 'Create Production Operations' function (described below on page 236). You must mark all these Production Operations as Finished before you can Finish the parent Production itself. Usually you will do this in each Production Operation individually. However, if you need to mark every Production Operation as Finished at once, you can do so using this function. In every Production Operation connected to the Production, the Qty will be copied to the Actual Qty, the Status will be changed to Finished, stock levels will be updated and, if appropriate, the stock valuation in the Nominal Ledger will also be updated.

Create Activity

You can use this function to create records in the Activity register in the System module. This can be useful for technicians who like to use the Activity register and Calendar to schedule their work. No default Activity Type will be offered. The Task Type of the new Activities will be Calendar, and the Symbol will be Other.

When you select the function, the following screen appears, where you can create a new Activity—

The screenshot shows the 'Activity: Inspect' window with the following fields and options:

- Operations** tab selected.
- Buttons:** New, Duplicate, Cancel, Save.
- Text:** [Empty field]
- Type:** [Empty field]
- Language:** [Empty field]
- Priority:** [Empty field]
- Persons:** AM
- Cc:** [Empty field]
- Supervisor:** [Empty field]
- Result:** [Empty field]
- Private:** ☐
- Done:** ☐
- Task Type:**
 - ☒ Calendar
 - ☐ To Do
 - ☐ Timed To Do
 - ☐ Work Hours
- Calendar:**
 - ☒ Time
 - ☐ Profile
 - ☐ Don't Show
- Start Time:** 19:23:00
- End Time:** 19:24:26
- Cost (Time):** 00:01:00
- Start Date:** 5/11/2009
- End Date:** 5/11/2009
- Time Class:** [Empty field]
- Project:** [Empty field]
- Customer:** [Empty field]
- Invoice Item:** [Empty field]
- Name:** [Empty field]
- Telephone:** [Empty field]
- Contact:** [Empty field]
- Table:**

	Code	Text
1		
2		
3		
4		
5		
6		
7		
- End Activity** button.

A new record is opened in a window entitled 'Activity: Inspect'. This means that it has already been saved, and is being opened for checking. The Start Date of the Activity will be the Start Date of the Production, and its End Date will also be copied from the Production. The Person of the Activity will be the Person from the Production, while the current user's initials will appear in the Cc field. The Production Number will be copied to the Production Number field on the 'Service' card of the Activity. After amendment if

necessary, save the record in the Activity register by clicking the [Save] button in the Button Bar and close it using the close box. Alternatively, if you no longer require the Activity, remove it using the 'Delete' function on the Record menu. In either case, you will be returned to the Production window.

The Production record and the Activity will remain connected to each other through the Attachments facility. This allows you to open the Production quickly and easily when reviewing the Activity, or to open the Activity from the Production. When viewing the Activity or Production, click the button with the paper clip image to open a list of attachments. Then double-click an item in this list to open it.

The Production does not have to be saved before you can create an Activity.



Please refer to the 'CRM' manual for full details of the 'Activity: Inspect' window.

Create Stock Movement

If there is insufficient stock of components in the Location specified in the header to complete the Production (you can ascertain this information using the 'Item Status' function described above on page 227), you can use this function to move any stock that might exist elsewhere into that Location. You can also use this function when the Production is Finished, to move the assembled Item out of the assembly area to another Location. In both cases, you must save the Production before you can use the function, and there must be a Location specified in the header of the Production (unless you have specified a Main Location in the Stock Settings setting, in which case that Location will be used).

When you select the function, a new record will be created in the Stock Movement register (in the Stock module). It is opened in a new window, entitled 'Stock Movement: Inspect'. This means that it has been created and saved and is being opened for amendment and approval.

Stock Movement: Inspect

Operations   New Duplicate Cancel Save

No. 25 ☐ Reserved Reason

Ord. Date 5/11/2009 Sent Date Received Date

From Location WHS Via Location To Location PROD

Positions Objects Items Currency Durations Freight

From Position To Position For Production 5026

☐ Manual Pick ☐ Send To Forklift Queue

Objects

Comment

	Item	Req. Qty	Sent Qty	Rcvd. Qty	Description	R. Old Unit Pr.	R. Extra Cost	R. New Unit Pr.
1	80110	5			Glass Shelf	0.00		0.00
2	80111	10			40 cm Steel Box Section	0.00		0.00
3	80112	10			50 cm Steel Box Section	0.00		0.00
4	80113	2			90 cm Steel Sheet	0.00		0.00
5	80114	2			36 cm Steel Sheet	0.00		0.00
6	80115	20			Hex Screw	0.00		0.00
7	80116	4			Spiked Feet	0.00		0.00
8	80117	20			Rubber Shelf Seat	0.00		0.00
9	80118	4			End Cap	0.00		0.00
10								

☐ Confirmed ☐ Sent ☐ Received

Sent Qty Rcvd. Qty Non Accounted Extra Costs

The contents of the Stock Movement will depend on the Status of the originating Production record. The Stock Movement illustrated above is an example of a Stock Movement created from a Production where the Status is Created or Started. In this case, the Location from the header of the Production (or, if this is blank, the Main Location if there is one) is copied to the To Location field of the Stock Movement to enable you to move the components to that Location. The Main Location specified in the Stock Settings setting will be copied to the From Location field (the Location from which the stock is to be moved). The Text and For Production fields of the Stock Movement will both contain a reference to the Production from which it was created. All Input rows with Stocked Items from the Production will be transferred to the Stock Movement. The Requested Quantity in each Stock Movement row will be the exact Quantity needed to complete the Production. This will be the In Qty in each Production row, less any quantity that has been moved in a previous Stock Movement (i.e. one of any status with the same Production Number in the For Production field). There will be no attempt to calculate the existing stock level in the Production Location and to move in the balance.

Change the From Location if necessary, enter the Received Quantities, check the Received box and click the [Save] button to save.

The components will be moved into the To Location. If you are using the Do Not Allow Over Delivery option in the Stock Settings setting, you will not be able to approve and save the Stock Movement if there is insufficient stock in the From Location for the transfer. If you would like to ascertain whether the From Location has sufficient stock for the transfer before approving and saving the Stock Movement, use the 'Item Status' function on the Operations menu or produce a Stock List report.

When you save the Stock Movement, the R. Old Unit Price and R. New Unit Price will be changed to an actual stock value, providing there is a Received Quantity. If you have entered an R. Extra Cost, this will be included in the R. New Price. These figures will be recalculated each time you save the Stock Movement, and when you approve it. If you have specified a Via Location and a Sent Quantity, the S. Old Unit Price and S. New Unit Price on flip B will similarly be recalculated, taking any S. Extra Cost into account. The Old Unit Price(s) will be calculated using the Cost Model specified in the relevant Item or Item Group record. If that Cost Model is Default, the Primary Cost Model specified in the Cost Accounting setting will be used. If you specify an Extra Cost, the value of the Item in the FIFO/LIFO queue will be adjusted to include the Extra Cost, as will the overall Weighted Average figure for the Item, shown on the 'Costs' card of the Item record. If you are using the Weighted Average per Location option in the Cost Accounting setting in the Stock module, the Extra Cost will also be included in the Weighted Average figure for the Item in the To Location.

If the Status of the originating Production is Finished, the new Stock Movement will appear as follows—

Stock Movement: Inspect

Operations [New] [Duplicate] [Cancel] [Save]

No. 35 ☐ Reserved Reason
 Ord. Date 7/11/2009 Sent Date Received Date
 From Location PROD Via Location To Location

Positions Objects Items Currency Durations Freight

From Position To Position For Production 5026
☐ Manual Pick ☐ Send To Forklift Queue

Objects
 Comment

	Item	Req. Qty	Sent Qty	Rcvd. Qty	Description	R. Old Unit Pr.	R. Extra Cost	R. New Unit Pr.
1	80601	1			HiFi Rack	56.30		56.30
2								
3								
4								
5								
6								
7								
8								
9								
10								

☐ Confirmed
☐ Sent
☐ Received Sent Qty Rcvd. Qty Non Accounted Extra Costs

In this case, the Location from the header of the Production (or, if this is blank, the Main Location if there is one) will be copied to the From Location field of the Stock Movement, to enable the moving of the assembled Item(s) from that Location. All Output rows with Stocked Items from the Production will be transferred to the Stock Movement. The Quantity in each Stock Movement row will be the exact Quantity built by the Production. The R. Old and R. New Unit Prices will be the Input Cost from the Production row.

Enter a To Location (the Location to which the stock is to be moved), check the Received box and click the [Save] button to save.

No Stock Movement will be created if you use this function from a Production whose Status is Cancelled.

You can use Access Groups to control who can create Stock Movements from Productions. To do this, deny access to the 'Stock Movement from Production' Action. Access Groups are described in the 'System Module' manual.

You can also create Stock Movements from Productions using the Production Picking List document. As well as creating the relevant Stock Movements, this document will also print picking lists that warehouse staff can use to transfer components from the warehouse to the production area and, when Productions have Finished, to transfer assembled Items from the production area to the warehouse. This document is described below on page 297.

Please refer to the 'Stock Module' manual for full details of the 'Stock Movement: Inspect' window.

Create Production Operations

If the Production is a complex one with several assembly stages (i.e. if the Production has a Routing), you cannot simply mark the Production as Finished in order to remove the components from stock and add the assembled Item to stock. Instead, you need to use this function to create the Production Operations that represent each stage in the process, and then mark each Operation as Finished in turn.

Selecting this function opens the 'Specify Create Production Operations' window shown below. If the window does not open and the Production has a Routing, the probable reason is that the Qty field in the header of the Production is empty.



Click the [Run] button in the Button Bar to confirm that you want to create Production Operations. The function will create Production Operations specific to the Production, as follows—

1. The function will refer to the Routing specified in the Production to obtain the sequence of Standard Operations.
2. The function will then refer to the first Standard Operation in the sequence to obtain a list of Materials.

3. The function will then look in the Production to find the Input and Output Items that share the first Material in the list in step 2.

If an Input Item in the Production has a Recipe (i.e. the Input Item is a sub-assembly), the function will also look in the sub-assembly Recipe for Input and Output Items with the Material in question.

4. A Production Operation will be created, containing the Input and Output Items found in step 3.
5. Step 3 is repeated for each Material in the Standard Operation, and the Input and Output Items that share those Materials will be added to the Production Operation created in step 4.
6. Steps 2-5 are repeated for each Standard Operation in the Routing.

If any of the Input Items in the Production are Phantom Items (Plain Items with Recipes) whose Recipes contain Routings, the sequence described above will be carried out for those Routings first, before being carried out for the Routing in the Production itself.

You can produce a Create Production Operations report before using this function to preview the Production Operations that will be created.

If the 'Specify Create Production Operations' window illustrated above appears but no Production Operations are created, the probable reason is that there is no valid record in the Number Series - Production Operations setting. This problem will usually occur at the beginning of a new year.

More details about the Production Operation register can be found below on page 243.

Quality Control

This function will be useful in cases where the assembled Item produced by the Production is one that should be subject to a quality control cycle. For example, the Item might be perishable. Place the insertion point in a row containing an assembled Item (which must be Serial Numbered at unit or batch level) and select this function. A new record will be created in the Batch Quality Control setting in the Service Orders module.

Batch Quality Control: New

Operations New Duplicate Cancel Save

Item: 80601

Batch/Serial No.: 091113

Analyse Date: 13/11/2009 Result:

Next Analyse Date: New Best Before:

Tested By: AM

Comment: HiFi Rack

Register: Production No.: 5041

Template: RACK

Test	Comment	Unit	From	To	Result
1	PAINT	Check Paint Quality	0.00	0.00	
2	TOL	Check Tolerances	0.00	0.00	
3	WELD	Check Welding	0.00	0.00	
4					
5					
6					

OK

The new Batch Quality Control record will be opened in a window entitled 'Batch Quality Control: New'. This means that it has not yet been saved. The Item Number, Serial Number and Comment will be taken from the Production row, the Analyse Date will be the current date, and your Signature as the current user will be placed in the Tested By field. The Production Number will also be copied to the Batch Quality Control record. If you have configured a Batch Quality Control Template for the Item containing a list of the Tests that should be carried out to ensure the Item meets quality standards, it will appear in the Template field and the Tests will be listed in the matrix. Save the record to bring the Item into the quality control cycle.

If the function does not create a Batch Quality Control record when expected, the probable causes are—

1. You did not place the insertion point in a Production row before selecting the function.
2. The row containing the insertion point does not have an Out Qty.
3. The Item in the row containing the insertion point is not Serial Numbered at unit or batch level.

Please refer to the 'Service Orders' manual for more details about the Batch Quality Control setting.

The Production Item Alternative Register

The Production Item Alternative register connects Output Items, Machines and Recipes. You should enter a separate record in this register for each Output Item that you produce. Use this record to list the Machines that you can use to produce the Output Item, and the Recipes that you will use with each Machine.

The information in Production Item Alternative register will be used in the following situations—

- When you specify a Recipe in a Production Order and if you have entered a record in the Production Item Alternative register for the Output Item in that Recipe, the Default Machine from that record will be copied to the Production Order. If that Production Item Alternative record does not have a Default Machine, the Machine in the first row with the Recipe will be used.
- If you create a Production Order using the 'Create Planned Records' or 'Create Planned Records from Orders' Maintenance functions in the Sales Orders module or the 'Create Productions' Maintenance function in the MRP module, the Machine in that Production Order will be chosen as described in the previous point.
- If you change the Machine in a Production Order, you must do so to a Machine that is listed in the Production Item Alternative record for the Output Item (i.e. to a Machine that can produce the Item). You can change the Machine in a Production Order itself or by dragging and dropping the Production Order from one Machine to another in the Resource Planner. If the new Machine uses a different Recipe, that Recipe will be copied to the Production Order, and the Input and Output Items will be changed accordingly.

To work with Production Item Alternatives, ensure you are in the Production module and click the [Prod. Item Alternatives] button in the Master Control panel to open the Production Item Alternative register. Click the [New] button in the Button Bar to enter a new record to the register.

	Machine	Default Recipe	Alternate Recipe	Alternate Routing
1	WELD2	80601		
2	WELD3	80601		
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Item No.**Paste Special**

Item register

You should enter one record to the Production Item Alternative register for each Output Item. Specify the Output Item here. The Production Item Alternative record should be a list of the Machines that you can use to produce the Output Item, and the Recipes that you will use together with those Machines.

Start Date, End Date**Paste Special**

Choose date

If the Production Item Alternative record can only be used for a certain period, specify that period using these fields.

This period is only used by Production Plans. If you have entered Start and End Dates in a Production Item Alternative record and you enter the Item specified above in a Production Plan that falls between those

dates, the Recipe in that Production Item Alternative record will be copied to flip C of the Production Plan row. Otherwise (i.e. if the relevant Production Item Alternative record does not have Start and End Dates), the Recipe on flip C of a Production Plan row will be taken from the relevant Item record.

Default Machine, Machine

Paste Special

Asset module, Assets module

The Default Machine should be the Machine that you will usually use to produce the Item in the field above. Use the grid to list the other Machines that can produce the Item together with the Recipes that those Machines will use.

The Default Machine will be copied to all Production Orders where the Item is the Output Item.

If you do not specify a Default Machine, the Machine copied to Production Orders that you enter yourself will be the Machine in the row containing the Recipe that you enter in the Production Order. Production Orders that you create using the various Maintenance functions will use the Machine in the row containing the Recipe specified in the Item record. Therefore, if you do not specify a Default Machine, be sure to enter a row with the Recipe used in the Item record and appropriate Machine.

If you change the Machine in an existing Production Order, the Recipe in that Production Order will be changed as well, to the Recipe in the row with that Machine. The Input and Output Items will be changed accordingly.

When you save a Production Order, a check will be made that the Machine can produce the Item (i.e. the Machine is listed in the Production Item Alternative record for the Item).

Recipe, Default Recipe

Paste Special

Recipe register, Production module

Having entered a Default Machine in the header and listed alternative Machines in the rows, you should also

specify the Recipes that those various Machines will use. You can use the same Recipe with several Machines.

The Recipe in the header will be used as a default in only one circumstance. If you have entered Start and End Dates in a Production Item Alternative record and you enter the Item in a Production Plan that falls between those dates, this Recipe will be copied to flip C of the Production Plan row. Otherwise (i.e. if the relevant Production Item Alternative record does not have Start and End Dates), the Recipe on flip C of a Production Plan row will be taken from the relevant Item record.

If you change the Machine in an existing Production Order, the Recipe in that Production Order will be changed as well, to the Recipe in the row with that Machine. The Input and Output Items will be changed accordingly.

The Production Operation Register

A single Production record represents the process of removing components from stock and assembling them into the final Item. The removing of components from stock, the adding of the final Item to stock and the updating of the stock valuation in the Nominal Ledger all occur at the same moment. A single Production record cannot therefore represent a complex Production process with several assembly stages, where components are not all removed from stock at the same time. To meet this requirement, you can use Routings and Production Operations to divide a Production into stages, with the following benefits—

- You can record each stage of the Production process separately, so you will always know exactly how each Production is progressing;
- Components will be removed from stock as you use them, not at the end of the entire Production process; and
- You can record Work in Progress in the Nominal Ledger.

The term given to a stage in the Production process is “Operation”. There are two types of Operation—

- When you divide a Production process into stages, you will first create generic Operations, known as “Standard Operations”. These should contain the average specifications for each stage or Operation.
- When you implement a Production process, you will create a Production record in the normal way and choose the Recipe. You will then create Operations specific to that Production, using the relevant Standard Operations as templates. The Operations that are specific to a particular Production are known as “Production Operations”.

For details about configuring a complex Production process with several assembly stages, please refer to the description of the Materials, Standard Operations and Routings settings beginning above on page 128. An illustrated example can be found above on page 54.

Entering a Production Operation

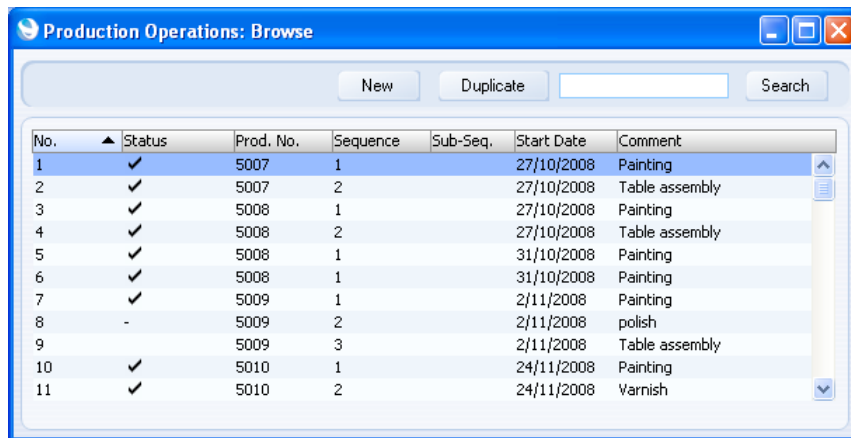
You must create new Production Operations from Productions, and you can only do so from a Production that has a Routing and a Qty specified in the header. With such a Production open, select the ‘Create Production

Operations' function from the Operations menu. The 'Specify Create Production Operations' window will open: click the [Run] button to confirm that you want to create Production Operations. The appropriate Production Operations will be created, using the Standard Operations specified in the Routing as templates. Please refer to the description of the 'Create Production Operations' function above on page 236 for more details about how the function will use Materials, Standard Operations and the Routing to create Production Operations. You cannot enter Production Operations directly to the Production Operation register.

In effect, each Production Operation is a Production in miniature. After creating them, you should work through them in turn, marking each as Finished until the process is complete. As you Finish each Production Operation, the relevant components will be removed from stock. When you Finish the last one, the final assembled Item will be added to stock. You will then be able to return to the Production and mark this as Finished as well.

You can find the Production Operations that are connected to a particular Production in two ways—

1. Open the Production and choose 'Production Status' from the Operations menu. A report will be printed to screen, listing the Production Operations that are connected to the Production. You can open a Production Operation by drilling down on the Comment of a Production Operation in the report.
2. Ensure you are in the Production module and open the Production Operation register by clicking the [Production Operations] button in the Master Control panel. The 'Production Operations: Browse' window is opened, showing Production Operations already entered.



No.	Status	Prod. No.	Sequence	Sub-Seq.	Start Date	Comment
1	✓	5007	1		27/10/2008	Painting
2	✓	5007	2		27/10/2008	Table assembly
3	✓	5008	1		27/10/2008	Painting
4	✓	5008	2		27/10/2008	Table assembly
5	✓	5008	1		31/10/2008	Painting
6	✓	5008	1		31/10/2008	Painting
7	✓	5009	1		2/11/2008	Painting
8	-	5009	2		2/11/2008	polish
9		5009	3		2/11/2008	Table assembly
10	✓	5010	1		24/11/2008	Painting
11	✓	5010	2		24/11/2008	Varnish

Sort the list by Production Number (click on the Prod. No. column heading) and then search for the Production that you need by entering its Number in the field in the top right-hand corner and pressing the Enter key. Open a Production Operation by double-clicking.

In both cases, the Production Operation will be opened, in a window entitled 'Production Operation: Inspect'.

Since the amount of information stored about each Production Operation will not fit on a single screen, the Production Operation window has been divided into four cards. At the top of each is the header. There are four named buttons ('tabs') in the header.



By clicking the tabs you can navigate between cards. The header is always visible, as a reminder of the Production Operation you are working with.

Header

No. The number of the current Production Operation. The default is the first unused number in the number sequence in the first valid row in the Number Series - Production Operations setting. You cannot change this number.

Prod. Order **Default taken from** Production

If you created the Production Operation from a Production that was itself created from a Production Order, the Production Order Number will appear here. You cannot change this field.

Prod. No. **Default taken from** Production

The Number of the Production from which you created the Production will appear here. You cannot change this field.

Qty **Default taken from** Production

The number of applications of the stage of the Recipe required by the Production Operation.

The way this field interacts with the In and Out Quantities in the rows depends on the Production Lines hold Actual Qty option in the Production Settings setting. For example, a stage of a Recipe states that two components are required to produce one final Item. When you create a Production Operation that represents two applications of this Recipe stage, this field will contain "2". If you are using the Production Lines hold Actual Qty option, the In Qty of the component will contain "4", and the Out Qty of the final Item will

contain “2”. If you are not using this option, the In Qty of the component will contain “2”, and the Out Qty of the final Item will contain “1”.

You cannot change this Qty. Creating the Production Operation will also mean you will no longer be able to change the Qty in the parent Production.

Actual Qty

The number of applications of the stage of the Recipe actually carried out in completing the Production Operation. You must enter a figure here before you can mark the Production Operation as Finished, or Finished and Discarded.

This field interacts with the In and Out Quantities in the rows in the same way as described above for the Qty field. When you create the Production Operation, the Qty in the header and the In and Out Quantities in the rows will be copied from the Production, with the In and Out Quantities depending on the Production Lines hold Actual Qty option in the Production Settings setting. If you then enter an Actual Qty that is different to the Qty and if you are using the Production Lines hold Actual Qty option, the In and Out Quantities in the rows will be changed accordingly.

If you are not using the Production Lines hold Actual Qty option, you must set this field to “1” if the Output Item or any of the components are Serial Numbered at unit level. If you need several applications of the Recipe, increase the number of rows containing the Serial Numbered Items (each should have an In or Out Qty of one), and multiply the In and Out Quantities of the non-Serial Numbered Items appropriately. If you are using the Production Lines hold Actual Qty option and at least one of the Items is Serial Numbered at unit level, you can enter any quantity in this field. The In and Out Quantities in each row will be updated. Then, list the Serial Numbered Items individually in the grid: do not do this before changing the Qty in the header because then the In and Out Quantities in the individual rows will be updated incorrectly.

Start Date	Paste Special	Choose date
	<p>The date when work on the Production Operation is to start, or did start. The default is the Start Date from the Production or, if that is blank, its End Date.</p> <p>If the Start Date is blank when you mark the Production Operation as Started and save it, the current date will be placed here automatically.</p> <p>If you have used the Time options in the Production Settings setting to choose that you will record Actual Time against Production Operations, you will record that time using Activities. It is recommended you specify Start and End Dates and Times before creating an Activity from an Operation, as they will be transferred to the Activity. This will help ensure time recording and the recording of costs associated with that time in the Nominal Ledger are both accurate.</p> <p>You can use this date together with the End Date below to calculate the running cost of the Machine used in the Production: please refer to the description of the Actual Machine field below on page 262 for details.</p>	
End Date	Paste Special	Choose date
	<p>The date when work on the Production Operation is to end, or did end. The default is the Start Date from the Production or, if that is blank, its End Date.</p>	
Comment	<p>Enter a comment describing the Production Operation. The default is the Description in the Routing row that generated the Production Operation. This Description in turn will by default be the Comment in the relevant Standard Operation.</p>	
Sequence, Sub Sequence	<p>These fields show the position of the Production Operation in the Production process. They are copied from the Routing row that generated the Production Operation. You cannot change these fields.</p> <p>If you are using the Complete Sequence Before Next One option in the Production Settings setting, you must Finish the Production Operations connected to a particular Production in the correct order, as determined by these fields.</p>	

Status	At any time a Production Operation can be in one of five states, to help with the work flow and for reporting purposes. These states are as follows—
Created	When you first create a Production Operation, it will be marked as Created. Created Production Operations are marked with a blank in the Status column in the ‘Production Operations: Browse’ window.
Cancelled	In the case where the job is cancelled before work has started, you should change the Status of each Production Operation to Cancelled to signify that no work should be carried out. Once a Production Operation has been marked as Cancelled and saved, it can no longer be modified. Cancelled Production Operations are marked with a “√” in the ‘Production Operations: Browse’ window.
Started	<p>As soon as work starts, you should change the Status of the Production Operation to Started. When you save the record, the Start Date and Time will be updated, if they are blank. The Start Time is visible on the ‘Time’ card. Started Production Operations are marked with a “-” in the ‘Production Operations: Browse’ window.</p> <p>If you are accounting for the running costs of the Actual Machine used for the Production Operation (i.e. you have a record in the Asset register in the Assets module representing the Machine in which you have entered a Running Cost per Hour, you are using the Auto Calculate Cost of Produced Items option in the Production Settings setting and you have specified a Machine Cost Item in the same setting), you should take care to mark each Production Operation as Started when you start work, to update the Start Time. This will help ensure the duration of the Production Operation and therefore the running costs of the Machine are correct.</p>
Finished	Check this box to confirm that you have completed the Production Operation. The stock levels of components and the assembled Items (if any) will be updated when you save the record.

The Start and End Times (on the 'Time' card) will be updated, if they are blank. Once you have marked a Production Operation as Finished and saved it, you will no longer be able to modify it. Finished Production Operations are marked with a "√" in the 'Production Operations: Browse' window.

You must enter an Actual Qty in the header before you can mark a Production Operation as Finished.

Switch on the Do Not Allow Over Delivery option in the Stock Settings setting if you do not want to be able to create negative stock of the components. If you are using this option, you will not be able to save a Production Operation marked as Finished if there is not enough stock of any of the components to carry out the assembly.

If you have so determined in the Sub Systems setting in the Nominal Ledger and depending on which Generate Transaction option you have chosen in the Account Usage Production setting, a Nominal Ledger Transaction will be created in the Transaction register when a Production Operation is marked as Finished and saved. The nature of this Transaction is described in the section entitled 'Nominal Ledger Transactions from Production Operations', below on page 265.

When you mark the Production Operation as Finished and save it, the Unit Cost of each Input Item will be updated with the appropriate unit stock value and the cost of any Output Item(s) will be recalculated accordingly, taking the Rel. field into account if appropriate. These figures will be used in the resulting Nominal Ledger Transaction to update the Nominal Ledger stock valuation of each Input Item. The unit stock value of each Input Item will be calculated using the Cost Model specified in the relevant Item or Item Group record. If that Cost Model is Default, the Primary Cost Model specified in the Cost Accounting setting will be used.

If you have used the Time options in the Production Settings setting to choose that you will record Actual Time against Production Operations, you will record that time using Activities. Remember to bring these Activities into the Production Operation using the 'Add Labour' function on the same menu before marking the Production Operation as Finished, to ensure the correct time is registered for the Production Operation.

If you are accounting for the running costs of the Actual Machine used for the Production Operation as described in the Started section above, be sure to check the End Date is correct before marking the Production Operation as Finished. This will ensure the correct running cost will be posted.

You must mark all Production Operations as Finished before you can Finish the parent Production itself. If you are using the Complete Sequence Before Next One option in the Production Settings setting, you must Finish the Production Operations connected to a particular Production in the correct order, as determined by the Sequence and Sub Sequence fields above.

Usually you will mark each Production Operation as Finished individually. However, you can also open the parent Production and use the 'Backflush' Operations menu function to mark all connected Production Operations as Finished at one stroke.

Finished but Discarded

Check this box to confirm that the Production Operation has been completed, and that for some reason the result of the work has been discarded. The stock levels of the components will be updated when the record is saved, but not those of the assembled Items. The End Time (below) will be updated, as will the Start Time if it is empty. Once a Production record has been marked as Finished but Discarded and saved, it can no

longer be modified. Discarded Production records are marked with a “√” in the ‘Productions: Browse’ window.

In other respects, this option is similar to Finished, described above. For details about the resulting Nominal Ledger Transaction, please refer to the section entitled ‘Nominal Ledger Transactions from Production Operations’, below on page 265.

Items Card

Items								
Time								
Comment								
Instructions								
Item	Descr.	Serial No.	In	Out	Rel.	Unit Cost	Coeff	
1	80111	40 cm Steel Box Section		10.00			0.50	A
2	80112	50 cm Steel Box Section		10.00			0.50	B
3								C
4								D
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								

The Items card lists the Input Items that will be used by the Production Operation. When you Finish the Production Operation, these Items will be removed from stock. If the result of the Production Operation is a Phantom or Stocked Item, it will be included in the list as an Output Item. However, it is not necessary for a Production Operation to contain an Output Item.

The function that creates the Production Operation will do so following the instructions in the Routing specified in the parent Production. It will use the Standard Operations listed in the Routing as templates to create Production Operations specific to the Production. From each Standard Operation listed in the Routing, the function will obtain a list of Materials. It will then look in the Production for Input and Output Items with the Materials in the list, and copy these Items to the corresponding Production Operation. If an Input Item in the Production has a Recipe (i.e. the Input Item is a sub-assembly), the function will also look in that Recipe for the relevant Materials and copy any such Items to the relevant Production Operation.

In a particular Production Operation, you are free to add or remove Items, or to change quantities.

If you have used the Time options on the 'Cost Items' card of the Production Settings setting to choose that you will record Fixed Time against Production Operations, the list will include four extra rows for each of the cost types, using the Labour Cost Item, Setup Cost Item, Move Cost Item and Queue Cost Item specified in the same setting. The In Quantities of these rows (number of hours) will be taken from the Routing specified in the parent Production or from the Standard Operation record specified in the Routing. The Unit Cost in each case will be the Work Cost per Hour (also specified in the Production Settings setting).

If, however, you have used the Time options in the Production Settings setting to choose that you will record Actual Time against Production Operations, you will record that time using Activities. You will then bring these Activities into the Production Operation using the 'Add Labour' function on the Operations menu. This function will add an extra row containing the Labour Cost Item specified in the Production Settings setting to the Production Operation. The In Qty of this row (number of hours) will be the total Cost (Time) of these Activities (providing they have been marked as Done), and the Unit Cost will be the Work Cost per Hour.

Flip A

Item	Paste Special	Item register
		When you create the Production Operation, Items in the parent Production (and in any sub-assembly Recipes) that share a Material with the template Standard Operation will be copied here.
Descr.		Item description from the corresponding Production row.
Serial No.	Paste Special	Serial Numbers of Items in stock
		In the case of an Input Item, if necessary enter the Serial Number of the Item you use in the assembly process. In the case of an Output Item, enter the Serial Number you give to the assembly.
		You must use separate rows for Items that are Serial Numbered at unit level, each with an In or Out Quantity of one. This allows you to record separate Serial Numbers and enables their correct removal from stock.
		If you have not specified a Location on the 'Comment' card, the 'Paste Special' list will show the Serial

Numbers of Items in all Locations, with an indication of the Location in which each Item is stored. However, if you have specified a Location, only those Serial Numbers stored in that Location will be shown.

By default, if an Input or Output Item uses Serial Numbers, you must specify a Serial Number here before you can Finish the Production Operation. If you do not assign Serial Numbers to Output Items immediately, you should use the No Serial No. on Goods Receipts option in the Stock Settings setting. This will allow you to Finish Production Operations without Output Item Serial Numbers. You will still have to specify Input Item Serial Numbers, but in this case there will be no 'Paste Special' list, and no check will be carried out that the Serial Number you have used is valid (i.e. one that is currently in stock).

In

Enter the quantity of each component required to make or build the finished product. Do not enter an In Qty for the assembled Item(s). This quantity must be one if the Input Item is Serial Numbered at unit level.

When you create a Production Operation from a Production, the In Qty or Out Qty as appropriate will usually be copied from the Production row to the corresponding Production Operation row. However, if you enter a Quantity in the relevant row in the template Standard Operation, this Quantity will be copied to the Production Operation row instead. If the Production row has an In Qty, the Quantity in the Standard Operation row will be copied to the In Qty field in the Production Operation row. Otherwise, it will be copied to the Out Qty field. The Quantity in the Standard Operation row will therefore take priority over the In and Out Quantities in the Production (which themselves will have been taken from the Recipe).

If you are using the Production Lines hold Actual Qty option in the Production Settings setting, this figure will at first be the quantity of the component required to complete the Production Operation (i.e. to build the Quantity specified in the header). This figure will be recalculated automatically when you enter an Actual Qty in the header, and each time you change this figure. If you are not using the Production Lines hold Actual Qty

option, this figure will be the quantity of the component required to complete one application of the Recipe. This figure will therefore remain unchanged when you enter or change the Actual Qty in the header. In both cases, you can change this figure in a particular Production Operation if necessary.

If a Nominal Ledger Transaction is generated from this Production Operation record, its credit amount will be taken from the total Unit Cost of rows with an In Qty (i.e. Input Items).

Out

If the Production Operation has an Output Item, this field should contain the quantity of Output Items that can be made from the components listed above. Usually, this will be just one, and it must be one if the Output Item is Serial Numbered at unit level.

When you create a Production Operation from a Production, the In Qty or Out Qty as appropriate will usually be copied from the Production row to the corresponding Production Operation row. However, if you enter a Quantity in the relevant row in the template Standard Operation, this Quantity will be copied to the Production Operation row instead. If the Production row has an In Qty, the Quantity in the Standard Operation row will be copied to the In Qty field in the Production Operation row. Otherwise, it will be copied to the Out Qty field. The Quantity in the Standard Operation row will therefore take priority over the In and Out Quantities in the Production (which themselves will have been taken from the Recipe).

If you are using the Production Lines hold Actual Qty option in the Production Settings setting, this figure will be the quantity of the final Item that will be built by the number of applications of the Recipe specified in the Quantity field in the header. This figure will be recalculated automatically when you enter an Actual Qty in the header, and each time you change this figure. If you are not using the Production Lines hold Actual Qty option, this figure will be the quantity of the final Item that will be built by one application of the Recipe. This figure will therefore remain unchanged when you enter or change the Actual Qty in the header. In both cases,

you can change this figure in a particular Production Operation if necessary.

If a Nominal Ledger Transaction is generated from this Production Operation, its debit amount will be taken from the total Unit Cost of rows with an Out Qty (i.e. Output Items).

Rel.

Default taken from Production row

Relativity. You must use this field if the result of the Production Operation is that more than one Item will be assembled (i.e. there is more than one row in the Production Operation with an Output Item). The Production Operation might produce different Items (with different Item Numbers) or it might produce more than one of the same Item with Serial Numbers. Enter a figure in each row representing an Output Item. When you mark the Production Operation as Finished, the total stock value of the components will be calculated using the appropriate Cost Models. The stock values of the Output Items will then be calculated from that total using the ratio that you enter here.

The Relativity figures are not percentages but ratios. For example, the total stock value of the Input Items is 103 and there are two Output Items with Relativities of 30 and 60 respectively. The stock value of the first Output Item will be $103 * 30 / (30 + 60)$, and the stock value of the second Output Item will be $103 * 60 / (30 + 60)$. If the Out Qty of the first Output Item is two, then the unit stock value of the first Output Item will be $103 * 30 / ((2 * 30) + 60)$, and the stock value of the second Output Item will be $103 * 60 / ((2 * 30) + 60)$.

Unit Cost

The cost value (per unit) of the component or assembled Item. When you first create a Production Operation, the I-cost from the relevant row in the parent Production will be placed here. However, when you change and save the Production Operation for the first time, this figure will be replaced by the Item's unit stock value (if the row contains an Input Item) or by a unit value calculated from the total value of the components (if the row contains an Output Item). This figure will be used in the Nominal Ledger Transaction generated when you mark the Production Operation as Finished or Discarded and

save it. If the Input or Output quantity is greater than one, this field will show the average unit stock value.

If the row contains an Input Item, this figure (i.e. the Item's unit stock value) will be calculated using the Cost Model specified in the relevant Item or Item Group record. If that Cost Model is Default, the Primary Cost Model specified in the Cost Accounting setting will be used.

If the row contains an Output Item, this figure will usually be the sum of the Unit Costs of the Input Items, taking quantities into account. If there is more than one Output Item, this total will be distributed according to the ratios entered in the Rel. column. This figure will become the new stock value of the Output Item(s), if that Item is a Stocked Item.

Coeff

Default taken from Production row

The Unit Coefficient of the Item is shown here, taken from the relevant Production row, which in turn takes it from the 'Stock' card of the Item. If you are maintaining stock quantities using different units of measurement, this coefficient is the ratio between those units of measurement.

Flip B

Objects

Paste Special Object register, Nominal Ledger/System module

Default taken from Production row or Item

You can assign up to 20 Objects, separated by commas, to each row. You might define separate Objects to represent different departments, cost centres or product types. This provides a flexible method of analysis that can be used in Nominal Ledger reports. Usually the Objects specified here will represent the Item.

These Objects will be taken from the originating Production row. If the originating Production row contains a Phantom Item, one of whose components is in the Production Operation row, then the Objects will be taken from the relevant Item record.

In any Nominal Ledger Transactions generated from a Production Operation, any Objects specified here will be

assigned to the credit posting for the Item (if the Item is an Input Item) or to the debit posting (if it is an Output Item).

Material**Paste Special**

Materials setting, Production module

Default taken from

Standard Operation row

The function that creates the Production Operation will do so following the instructions in the Routing specified in the parent Production. It will use the Standard Operations listed in the Routing as templates to create Production Operations specific to the Production. From each Standard Operation listed in the Routing, the function will obtain a list of Materials. It will then look in the Production for Input and Output Items with the Materials in the list, and copy these Items to the corresponding Production Operation. If an Input Item in the Production has a Recipe (i.e. the Input Item is a sub-assembly), the function will also look in that Recipe for the relevant Materials and copy any such Items to the relevant Production Operation. The Material will be shown in this field as confirmation.

*Flip D***FIFO**

This field shows the unit stock value of the Item. It is updated each time you save the Production Operation. The Item's unit stock value is also shown in the Unit Cost field on flip A: please refer to the description of that field above on page 256 for more details.

Row FIFO

This field shows the total stock value of the row, In Qty * Unit Cost (in the case of Input Items) or Out Qty * Unit Cost (in the case of Output Items).

Time Card

Items		Time		Comment		Instructions	
Setup Time	00:15:00	Queue Time	00:15:00				
Move Time		Run Time	01:00:00				
Start Time	19:23:00	End Time	19:24:14				

Setup Time, Queue Time, Move Time, Run Time

Default taken from Routing row or Standard Operation

Use these four fields to stipulate the time required for the Operation, as follows—

Setup	the time required to set up the Machine or otherwise prepare for the Operation e.g. calibration or replenishing fluids or consumables.
Queue	the time required to wait for parts to be ready from the previous Operation e.g. waiting for paint to dry or heated parts to cool. Queue time is also known as “non-instant availability”.
Move	the time required to move parts from stock or from the previous Operation.
Run Time	the time required for the Operation itself.

These are the times required for the entire Operation, not to produce one unit. They will be copied from the relevant Routing row.

If you are using the Fixed Time option in the Production Settings setting, the ‘Items’ card of each Production Operation will contain extra rows for each type of Time. The Item Numbers in these rows will be the Setup, Queue, Move and Labour Cost Items specified in the Production Settings setting, and the Unit Cost in each case will be the Work Cost per Hour in the same setting. The In Qty in each of these rows (number of hours) will be the times specified in the relevant Routing row or Standard Operation. These extra rows allow you to account for the running costs of the Operation.

The times specified in the relevant Routing row or Standard Operation will also be copied to these fields. The times shown here are for information only: if you

need to make a change that you want to be reflected in the posting to the Work Cost Account, make that change in the relevant row.

If you are using the Actual Time option in the Production Settings setting, these times will not be used to account for the running costs of the Operation, but you can use them as guides, to give an idea of how much time is required for the Operation.

Start Time

Paste Special

Current Time

Default taken from

Production

The time when the work represented by the Production Operation began. If this field is empty, the current time will be placed here automatically when you mark a Production Operation as Started and save it.

You can use this Start Time to calculate the running cost of the Actual Machine used in the Production Operation: please refer to the description of the Actual Machine field below on page 262 for details.

If you have used the Time options in the Production Settings setting to choose that you will record Actual Time against Production Operations, you will record that time using Activities. It is recommended you specify Start and End Dates and Times before creating an Activity from an Operation, as they will be transferred to the Activity. This will help ensure time recording and the recording of costs associated with that time in the Nominal Ledger are both accurate.

End Time

Paste Special

Current Time

The time when the work represented by the Production Operation finished. If this field is empty, the current time will be placed here automatically when you mark a Production Operation as Finished and save it.

You can use this End Time to calculate the running cost of the Actual Machine used in the Production Operation: please refer to the description of the Actual Machine field below on page 262 for details.

Comment Card

Items		Time		Comment		Instructions	
Location	PROD	Discarded Reason					
Language							
Machine Group	WELD	Actual Machine	WELD1				
Display Group		Actual Person					
Comment	Making Shelf Frames						

Location

Paste Special

Locations setting, Stock module

Default taken from

Production

The stock Location from where the components are taken and where assembled Items are to be stored. If you leave this field empty, stock from all Locations will be available.

If you have specified a Main Location in the Stock Settings setting, leaving this field blank means that stock from the Main Location will be used. However, if you are using the Require Location option in the same setting, you must enter a Location before you can mark the Production Operation as Finished and save it.

Discarded Reason

Paste Special

Standard Problems setting, Production/Service Orders modules

If you have marked the Production Operation as Finished but Discarded, specify here the reason for the discarding.

Language

Paste Special

Languages setting, System module

You can use the Language to determine the Form that will be used when you print the Production Operation, and the printer that will be used to print it. This can include sending the document to a fax machine, if your hardware can support this feature. Do this in the 'Define Document' window for the Production Operation Picking List document, as described in the 'Working Environment' chapter in the 'Introduction to HansaWorld Enterprise' manual.

Machine Group	Paste Special	Machine Groups setting, Production module
	Default taken from	Standard Operation
	Specify here the Machine Group that contains the Machines that you can use to carry out the work represented by the Production Operation. A default will be taken from the template Standard Operation.	
Actual Machine	Paste Special	Asset register, Assets module
	The Machine or tool that you used to carry out the work. This must belong to the Machine Group specified above.	
	If you are using the Auto Calculate Cost of Produced Items option in the Production Settings setting, you have specified a Machine Cost Item in the same setting, and you have specified a Running Cost/hr in the Asset record for the Machine ('Costs' card), then an extra row will be added to the Production Operation when you first save it. This row will use the Start and End Time of the Production Operation (on the 'Time' card) to record the running cost of the Machine. When you approve the Production Operation (mark it as Finished, or Finished but Discarded) and save it, the running cost will be added to the value of the final Item and so will be debited to the Stock Account, and will be credited to the Production W-cost Account. If you are using this feature, you should mark every Production Operation as Started at the relevant moment (to ensure the Start Time is correct) and also check the End Date is correct before approving each Production Operation, as this field will not be updated automatically.	
Display Group	Paste Special	Display Groups setting, System module
	Default taken from	Standard Operation
	Specify here the Display Group that contains the Persons that can carry out the work represented by the Production Operation. A default will be taken from the template Standard Operation.	

Actual Person	Paste Special	Person register, System module
		You can use this field to record the Person responsible for the Production Operation or the Person carrying out the work.
		If you create Activities from the Production Operation using the 'Create Activity' function on the Operations menu, the Person that you specify here will be copied to the Persons field in the Activity, while the current user if different will be copied to the Cc field.
Comment		This is a duplicate of the Comment field in the Production Operation header.

Instructions Card



Text	Default taken from	Standard Operation
		Use this field to record details about how to carry out the Standard Operation.

Inspecting and Approving Production Operations

When you have completed the assembly process, you should check and approve the instructing Production Operation. When you approve and save it, stock levels of the components will be reduced and that of the Output Item will be increased.

Before you can approve a Production Operation, you must specify an Actual Qty in its header. This should be the number of applications of the Recipe stage that you completed.

If you have used the Time options in the Production Settings setting to choose that you will record Actual Time against Production Operations, you will record that time using Activities. Before approving a Production Operation, remember to bring these Activities into the Production Operation using the 'Add Labour' function on the same menu, to ensure the correct time is registered for the Production Operation.

After carrying out these checks, approve the Production Operation by clicking the Finished check box (assuming the Production Operation was completed successfully), or the Finished but Discarded check box (if there was a failure) and saving.

On approval, if so defined in the Sub Systems setting in the Nominal Ledger and in the Number Series - Productions and Account Usage Production settings, a cost accounting Transaction will be created in the Nominal Ledger. Please refer to the section immediately below entitled 'Nominal Ledger Transactions from Production Operations' for details of the Accounts used by this Transaction.



Once you have marked a Production Operation as Finished or Finished but Discarded, you will no longer be able to change it.

You must mark all Production Operations as Finished before you can Finish the parent Production itself. If you are using the Complete Sequence Before Next One option in the Production Settings setting, you must Finish the Production Operations connected to a particular Production in the correct order, as determined by the Sequence and Sub Sequence fields in the header of each Production Operation.

Usually you will mark each Production Operation as Finished individually. However, you can also open the parent Production and use the 'Backflush' Operations menu function to mark all connected Production Operations as Finished at one stroke.

Nominal Ledger Transactions from Production Operations

When you mark a Production Operation as Finished and save it, a Nominal Ledger Transaction will be generated automatically if you have so determined in the Sub Systems setting in the Nominal Ledger and in the Number Series - Production Operations and Account Usage Productions settings.

The postings in the Transaction will depend on the position of the Production Operation in the sequence. If the Operation is not the last one in the sequence, the Transaction will credit the value of the Input Items to a Stock Account and debit that value to a Work In Progress Account, as follows—

1. The Input Costs will be credited to the Stock Account from the Location.
2. If the Location does not have a Stock Account, or you have not specified a Location, and if you are using the Use Item Groups for Cost Accounts option in the Cost Accounting setting in the Stock module, the Input Costs will be credited in the appropriate proportions to the Stock Accounts of the Item Groups to which the Input Items belong.
3. In all other circumstances (i.e. if you are not using the Use Item Groups for Cost Accounts option or an Input Item does not belong to an Item Group), the Production I-cost Account, as specified on the 'Stock' card of the Account Usage Stock setting in the Stock module, will be credited.

If you have specified Objects in any of the rows, separate credit postings will be made for each Object/Account combination.

The choice of Stock Account described in steps 1 and 2 above means that it will not be possible to distinguish the value of Items removed from stock to be used in Productions and Production Operations from the value of the same Items removed from stock for other purposes (e.g. Delivery or Stock Depreciation). If you need to make such a distinction, specify Components Usage and Production Control Accounts in the Account Usage Production setting, in the Item records for the components and/or in the Item Groups to which the components belong. If you do so (i.e. if you specify both a Components Usage Account and a Production Control Account), the Transaction will contain additional postings, debiting the value of the components to the Components Usage Account and crediting that value to the Production Control Account.

The Production Operation may contain extra rows allowing you to record the running costs of the Operation. If you have used the Time options on the 'Cost Items' card of the Production Settings setting to choose that you will record Fixed Time against Production Operations, the Production Operation

will include four extra rows for each of the cost types, using the Labour Cost Item, Setup Cost Item, Move Cost Item and Queue Cost Item specified in the same setting. If you have chosen to record Actual Time, the Production Operation will include one extra row, using the Labour Cost Item (providing you have used the 'Add Labour' Operations menu function to bring the labour cost into the Operation). If you are using the Use Item Groups for Cost Accounts option, the costs in these rows will be credited to W-cost Accounts chosen as follows —

1. The W-cost Accounts will be the Production W-cost Accounts specified in the Item Groups to which the relevant Items belong.
2. If an Item Group does not have a Production W-cost Account, the W-cost Account will be taken from the Account Usage Stock setting.
3. If there is no W-cost Account in the Account Usage Stock setting, the Stock Account in the Item Group to which the relevant Item belongs will be used as the W-cost Account.

If you are not using the Use Item Groups for Cost Accounts option, the running costs will always be posted to the W-cost Account in the Account Usage Stock setting. In this case, you will not be able to save a Finished Production Operation with running costs if you have not specified a W-cost Account in the Account Usage Stock setting.

If any components in the Production Operation are Service Items, they will be treated as Work Cost. Their value will be credited to a W-cost Account chosen as described above, using if appropriate the Production W-cost Account in the Item Groups to which the Service Items belong.

If the Production Operation contains a row for Machine Cost (i.e. you are using the Auto Calculate Cost of Produced Items option in the Production Settings setting, you have specified a Machine Cost Item in the same setting, and you have specified a Running Cost/hr in the Asset record for the Machine specified in the Production Operation), the Machine Cost will also be credited to a W-cost Account. This will be chosen as described above, using if appropriate the Production W-cost Account in the Item Group to which the Machine Cost Item belongs.

The total value of the Input Item(s) (including Items representing running costs) will be debited to a Work In Progress Account chosen as follows —

1. If you are using the Use Item Groups for Cost Accounts option, and the Input Item belongs to an Item Group in which you have specified a Work In Progress Account, that Account will be used.

2. If you are not using this option or the Item Group does not have a Work In Progress Account, the Work In Progress Account will be taken from the Account Usage Production setting.

Illustrated below is an example Nominal Ledger Transaction created from a Production Operation that is not the last one in a sequence—

Transaction: Inspect

Operations [Print] [Copy]

No. 51 Trans. Date 6/11/2009 Reference []

Text Making Shelf Frames

	Account	Objects	Description	Base 1 Debit	Base 1 Credit	V-Cd
1	740		Stock Valuation		10.00	
2	745		Work in Progress	10.00		
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						



Difference Base 1 0.00 Total 10.00 10.00


Difference Base 2 0.00 Total 15.88 15.88

If the Operation is the last one in the sequence, the Transaction will debit the value of the Output Item to a Stock Account and credit that value to a Work In Progress Account. These Accounts will be chosen as described above. The Work In Progress Account will be taken from the Item Group to which the Output Item belongs (if you are using the Use Item Groups for Cost Accounts option) or from the Account Usage Production setting.

Illustrated below is an example Nominal Ledger Transaction created from the last Production Operation in a sequence—

Transaction: Inspect

Operations   New Duplicate Cancel Save

No. 57 Trans. Date 6/11/2009 Reference 

Text: Final assembly

	Account	Objects	Description	Base 1 Debit	Base 1 Credit	V-Cd
1	740		Stock Valuation		27.80	A
2	740		Stock Valuation	46.30		B
3	745		Work in Progress		18.50	C
4						D
5						E
6						F
7						G
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Difference Base 1 0.00 Total 46.30 46.30
 Difference Base 2 0.00 Total 73.49 73.49

When you first create a Production Operation, the Input and Output Costs in each row will be taken from the parent Production. Each time you save the Production Operation, these figures will be updated with the Item's unit stock value (if the row contains an Input Item) or by a unit value calculated from the total value of the components including running costs (if the row contains an Output Item). The unit stock value of each Input Item will be calculated using the Cost Model specified in the relevant Item or Item Group record. If that Cost Model is Default, the Primary Cost Model specified in the Cost Accounting setting will be used.

If you have specified in the Account Usage Production setting that you will wait until Finishing the Production before updating the stock valuation in the Nominal Ledger, no Transactions will be created from Production Operations. Instead, a single Transaction will be created from the Production, posting every removal and addition to stock at once. In this situation, all Production Operations must be Finished before you can create the Transaction by Finishing the Production.

Once the Transaction has been generated from a Production Operation, you can look at it straight away using the 'Open NL Transaction' function on the Operations menu.

Operations Menu

Operations	
Add Labour	
Open NL Transaction	Shift+Ctrl+T
Create Activity	Shift+Ctrl+C
Quality Control	Shift+Ctrl+U

The Operations menu for the 'Production Operation: New' and 'Production Operation: Inspect' windows is shown above. There is no Operations menu for the 'Production Operations: Browse' window.

Add Labour

You will usually need to use this function if you have used the Time options in the Production Settings setting to choose that you will record Actual Time against Production Operations. In this case, you will use the 'Create Activity' function described below on page 270 to create Activities that will record the time spent working on the Production Operation. You should then use this function to bring the time represented by those Activities into the Production Operation. When you select this function, an extra row will be added to the Production Operation. This row will contain the Labour Cost Item specified in the Production Settings setting. The In Qty of this row (number of hours) will be the total Cost (Time) of the Activities, and the Unit Cost will be the Work Cost per Hour (also specified in the Production Settings setting).

When you mark the Production Operation as Finished, the value of this row (In Qty x Unit Cost) will be credited to a Work Cost Account. The choice of this Account will depend on whether you are using the Use Item Groups for Cost Accounts option in the Cost Accounting setting in the Stock module. If you are, and the Labour Cost Item belongs to an Item Group in which you have specified a Production W-cost Account, this Account will be used. If you are not using this option or the Item Group does not have a Production W-cost Account, the W-cost Account will be taken from the Account Usage Stock setting.

If you are recording Fixed Time against Production Operations, you will usually not need to use this function. But you can still use it together with the 'Create Activity' function as described if you need to add an extra cost to a particular Production Operation.

If you use the 'Add Labour' function and no extra row is added to the Production Operation, the probable causes are—

1. You have not specified a Labour Cost Item in the Production Settings setting.
2. You have not created any Activities from the Production Operation, or the Activities that you have created have not been marked as Done.
3. The Status of the Production Operation is not Created or Started.

Open NL Transaction

When you mark a Production Operation as Finished and save it, if so defined in the Sub Systems setting in the Nominal Ledger and in the Number Series - Productions and Account Usage Production settings, a Nominal Ledger Transaction will be created. This function allows you to view that Transaction.

Select this function to open the Transaction in a new window.

Create Activity

You can use this function to create records in the Activity register in the System module. You will usually need to do this if you have used the Time options in the Production Settings setting to choose that you will record Actual Time against Production Operations. In this case, you will record that time using Activities that you create using this function. The Activity Type given to Activities created by this function will be taken from the Activity Types, Sub Systems setting in the CRM module. The Task Type of the new Activities will be Calendar, the Calendar Type will be Time and the Symbol will be Other. The Start and End Dates and Times in the Activity will be copied from the Start and End Dates and Times in the Production Operation, so it is recommended that you make sure these are correct in the Production Operation before creating the Activity. The Labour Cost Item specified in the Production Settings setting will be copied to the Item field on the 'Service' card of the Activity.

When you select the function from the 'Production Operation: Inspect' window, the following screen appears, where you can create a new Activity—

A new record is opened in a window entitled 'Activity: Inspect'. This means that it has already been saved and is being opened for checking. The Person of the Activity will be taken from the Production Operation, and the initials of the current user will appear in the Cc field. The Comment from the Production Operation will be copied to the Text field in the Activity, and the Production and Production Operation Numbers will also be copied to the Activity ('Service' card). After amendment if necessary, save the record in the Activity register by clicking the [Save] button in the Button Bar and close it using the close box. Alternatively, if you no longer require the Activity, remove it using the 'Delete' function on the Record menu. In either case, you will be returned to the Production Operation window.

If you have created the Activity because you are recording Actual Time against Production Operations as mentioned in the first paragraph, mark the Activity as Done before saving. When you have recorded the entire time spent working on the Production Operation using Done Activities, choose

‘Add Labour’ from the Operations menu of the Production Operation. This will add a row to the Production Operation with the Labour Cost Item and Work Cost per Hour specified in the Production Settings setting. The quantity will be the total time for all Done Activities created from the Production Operation. Please refer to the description of the ‘Add Labour’ function above on page 269 for more details.

The Production Operation and the Activity will remain connected to each other through the Attachments facility. This allows you to open the Operation quickly and easily when reviewing the Activity, or to open the Activity from the Operation. When viewing the Activity or Operation, click the button with the paper clip image to open a list of attachments. Then double-click an item in this list to open it.

You can also use Activities to schedule personnel to work on Production Operations. In this case, you need to create the Activities in advance of working on the Operation. You can still specify Start and End Dates and Times in the Activity, mark it as Done and bring it into the Operation using the ‘Add Labour’ function as already described in this section. An illustrated example can be found above on page 78.

Please refer to the ‘CRM’ manual for full details of the ‘Activity: Inspect’ window and of the Activity Types, Subsystems setting.

Quality Control

This function will be useful in cases where the assembled Item produced by the Production Operation is one that should be subject to a quality control cycle. For example, the Item might be perishable. Place the insertion point in a row containing an assembled Item (which must be Serial Numbered at unit or batch level) and select this function. A new record will be created in the Batch Quality Control setting in the Service Orders module, shown overleaf.

Test	Comment	Unit	From	To	Result
1	PAINT	Check Paint Quality	0.00	0.00	
2	TOL	Check Tolerances	0.00	0.00	
3	WELD	Check Welding	0.00	0.00	
4					
5					
6					

The new Batch Quality Control record will be opened in a window entitled 'Batch Quality Control: New'. This means that it has not yet been saved. The Item Number, Serial Number and Comment will be taken from the Production Operation row, the Analyse Date will be the current date, and your Signature as the current user will be placed in the Tested By field. The Production Operation Number will also be copied to the Batch Quality Control record. If you have configured a Batch Quality Control Template for the Item containing a list of the Tests that should be carried out to ensure the Item meets quality standards, it will appear in the Template field and the Tests will be listed in the matrix. Save the record to bring the Item into the quality control cycle.

If the function does not create a Batch Quality Control record when expected, the probable causes are—

1. You did not place the insertion point in a Production Operation row before selecting the function.
2. The row containing the insertion point does not have an Out Qty.
3. The Item in the row containing the insertion point is not Serial Numbered at unit or batch level.

Please refer to the 'Service Orders' manual for more details about the Batch Quality Control setting.

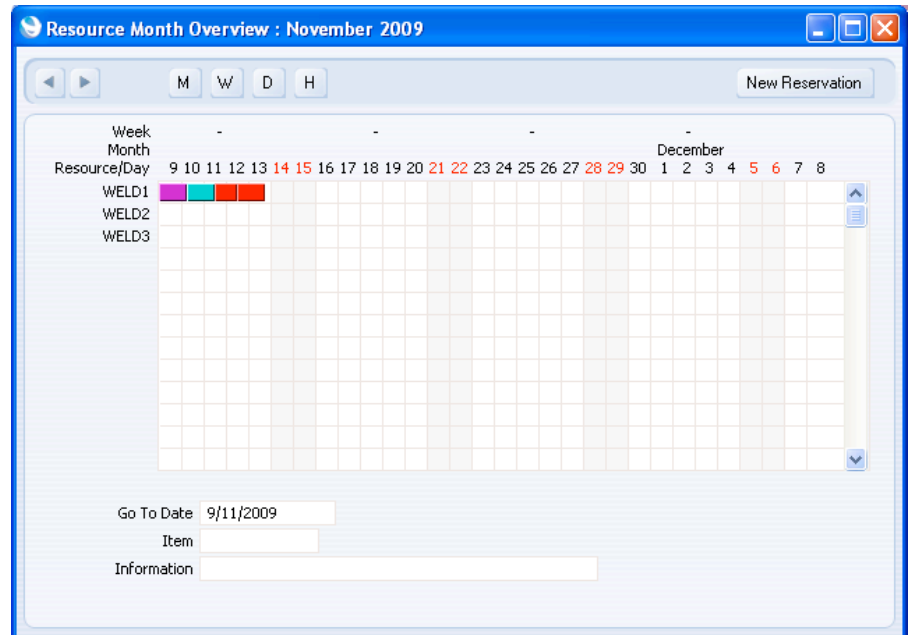
The Machine Hours Register

The Machine Hours register allows you to record the hours when your Machines operate. This information will have an impact on the calculation of the Should Start date in Production Orders, and on the scheduling of those Production Orders in the Resource Planner.

You will often create Production Orders from Sales Orders with Planned Delivery Dates. The Due Date in a Production Order created from a Sales Order will be the Planned Delivery Date in that Sales Order. The Should Start date in the Production Order is the date when work should begin, in order for it to be completed by the Due Date. The Should Start date will be calculated from the Due Date, taking into account the Fixed Assembly Days, the Days, Hours, Minutes and Seconds to Produce and the Time to Setup recorded in the Recipe, and the Buffer Days and the Round Odd Hours To One Day option in the Production Settings setting. The Days, Hours, Minutes and Seconds to Produce together are the time required to produce a single unit, while the Fixed Assembly Days and the Time to Setup are independent of the quantity being produced. For example—

Planned Delivery Date of Sales Order (qty 2)	January 25
Days to Produce for the first unit (from Recipe)	2
Days to Produce for the second unit (from Recipe)	2
Fixed Assembly Days (from Recipe)	1
Buffer Days (from Production Settings)	5
Should Start Date	January 15

A Production Order created by the 'Create Planned Records' and 'Create Planned Records from Orders' functions from such a Sales Order will therefore have a Should Start Date of January 15, in order to meet the Due Date (i.e. the Planned Delivery Date) of January 25. This Production Order will appear in the Resource Planner as shown below—



The Days to Produce and the Fixed Assembly Days in the Recipe and the Buffer Days in the Production Settings setting are assumed to be 24-hour days. The calculation of the Should Start date therefore assumes that work will be carried out constantly. If this assumption is not correct, you should use the Machine Hours register to specify the working hours of your Machines. For example, the working day might not be 24 hours as so far assumed, but eight hours.

You should enter a separate record in the Machine Hours register for each Machine Group.

Day	Start	for	hours
Monday	08:00:00	8.0	hours
Tuesday	08:00:00	8.0	hours
Wednesday	08:00:00	8.0	hours
Thursday	08:00:00	8.0	hours
Friday	08:00:00	8.0	hours
Saturday	00:00:00	0.0	hours
Sunday	00:00:00	0.0	hours

Enter a Machine Group in the Group field using 'Paste Special', and choose the colour to be used in the Resource Planner to signify Time when Machines belonging to the Group can not be used (i.e. times when the Machines are idle). This should be a different colour to that in the Recipes that you will use the Machines to produce.

In the remaining fields, specify the time each day when you can begin using the Machines belonging to the Machine Group, and how long you can use them. The hours field will accept figures with one decimal place. In the example illustrated, work will begin at 8 am and end at 4 pm (i.e. each working day is eight hours).

Enter zero in an hours field if the Machines in the Group will not be used at all on a particular day, as shown for Saturday and Sunday in the illustration. If the Machines are to be used for the entire day (i.e. for 24 hours), leave the relevant hours field blank.

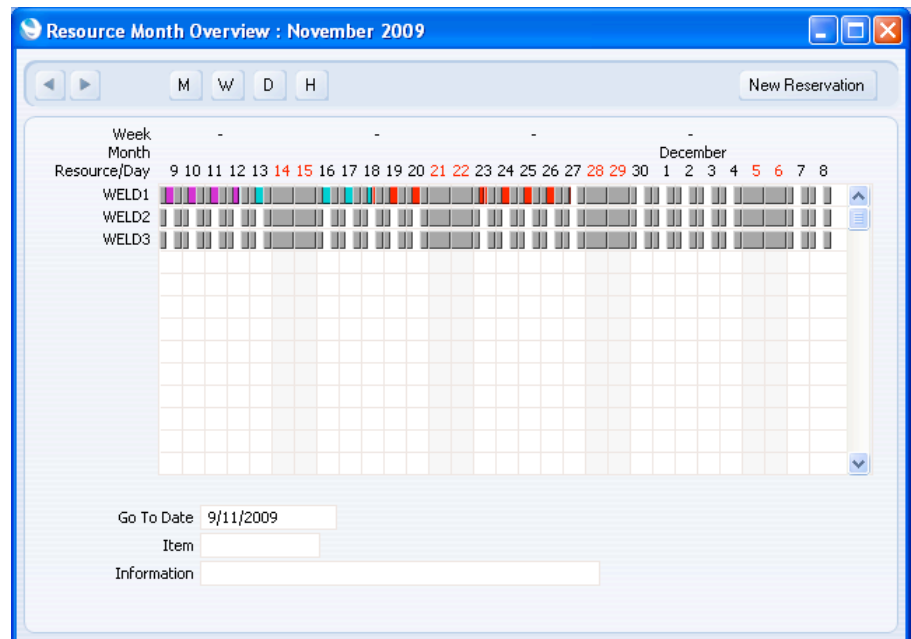
These Machine Hours will change the calculation of the Should Start date in Production Orders. The 'Create Planned Records' and 'Create Planned Records from Orders' functions will calculate this date as follows—

1. They will first check the Production Item Alternative register to find the Machine that can produce the Item in the Sales Order.
2. They will then check the Machine Hours register to find the working hours for the Machine Group to which the Machine in step 1 belongs.
3. They will calculate the date when work should start in order to meet the Planned Delivery Date, as described earlier in this section.

- The date when work should start will be adjusted, to take the Machine Hours into account.

This sequence demonstrates that if you are using the Machine Hours register, you must also use the Production Item Alternative register to specify default Machines for each Item. This register is described above on page 239.

The Machine Hours illustrated above will mean that work on the example Sales Order can no longer begin on January 15 to meet the January 25 deadline, because we have now specified that the Machine cannot be used constantly. These changes mean that work must begin on December 31. So, when we use the 'Create Planned Records' or 'Create Planned Records from Orders' function to create a Production Order to satisfy the example Sales Order, the Should Start date in that Production Order will now be December 31. This Production Order will appear in the Resource Planner as shown below—



The working hours are shown in red (as specified in the Recipe), and the time when the Machine is not working is shown in grey (as specified in the Machine Hours register).

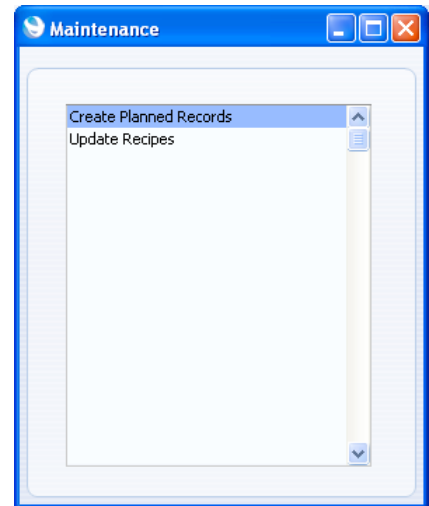
You can also create Production Orders from Production Plans using the 'Create Productions' Maintenance function in the MRP module. In these Production Orders, the Should Start and Due Dates will be copied from the Start and Needed Dates respectively in the relevant row in the Production

Plan. In this Production Plan row, the Start Date will have been calculated from the Needed Date using the formula described above (i.e. using the Fixed Assembly Days, the Days, Hours, Minutes and Seconds to Produce and the Time to Setup recorded in the Recipe, the Buffer Days and the Round Odd Hours To One Day option in the Production Settings setting, and the information in the Machine Hours register for the relevant Machine Group). So, the Should Start date in a Production Order will be calculated using the same formula, irrespective of whether that Production Order was created from a Sales Order or a Production Plan.

Maintenance

Introduction

Maintenance functions allow you to carry out certain updating tasks, usually involving batch processing and encompassing all or many of the records in the affected register. There are two such functions available in the Production module. To use them, ensure you are in the Production module and click the [Routines] button in the Master Control panel. Then click the [Maintenance] button in the subsequent window. The following window appears—



Double-click an item in the list. A specification window will then appear, where you can decide how the function is to operate. Click [Run] to operate the function.

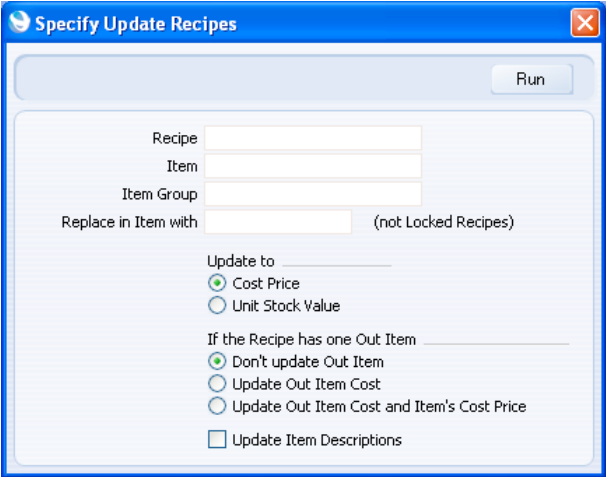
Create Planned Records

Please refer to the 'Sales Orders' manual for full details of this function.

Update Recipes

This function updates the Input Costs and other details of components in Recipes with new prices from the Item register. Before running it, produce a

Recipe Cost Comparison report if you need to see the differences between a Recipe and the details in the Item register.



The image shows a software dialog box titled "Specify Update Recipes". It contains several input fields and radio button options. The fields are: "Recipe", "Item", "Item Group", and "Replace in Item with" (with a note "(not Locked Recipes)"). Below these fields are two sections of radio button options. The first section is "Update to" with options "Cost Price" (selected) and "Unit Stock Value". The second section is "If the Recipe has one Out Item" with options "Don't update Out Item" (selected), "Update Out Item Cost", and "Update Out Item Cost and Item's Cost Price". At the bottom, there is a checkbox for "Update Item Descriptions". A "Run" button is located in the top right corner of the dialog.

Recipe	Paste Special	Recipe register, Production module
	Range Reporting	Alpha
Item	To update the costs in particular Recipes, enter a Recipe Code or a range of Recipe Codes here.	
	Paste Special	Item register
Item Group	Range Reporting	Alpha
	To update the costs of particular Items when used as components in Recipes, enter an Item Number or range of Item Numbers here.	
Replace in Item with	Paste Special	Item Group register, Sales Ledger
	To update the costs of Items belonging to a single Item Group when used as components in Recipes, enter an Item Group Code here.	
	Paste Special	Item register
	If you want to update the Recipes by changing an Input Item, specify the new Item here. This Item will replace	

the one specified in the field above in every Recipe in the range (except Locked Recipes).

If you enter a range of Items in the field above, no action will be taken. You can only replace one Input Item at a time.

Update to Determine here how the new Input Costs of the components are to be calculated.

Cost Price The new Input Costs are taken from the Cost Prices of the components as shown on the 'Costs' cards of their records in the Item register.

Unit Stock Value The new costs are calculated using the unit stock value of the component Items. This will be calculated using the Cost Model specified in the relevant Item or Item Group record. If that Cost Model is Default, the Primary Cost Model specified in the Cost Accounting setting will be used. This option will therefore use as the new cost the FIFO, LIFO, Weighted Average or other value of an Item, depending on the Cost Model.

If you use this option, any Service Items used as components in Recipes will have their Input Cost set to zero. This will also be the case for any Stocked Items of which there is no stock.

If the Recipe has one Out Item

Use these options to specify whether you would like the cost of the Output Item (as shown in the Recipe) to be updated to reflect the changes made to the costs of the Input Items. These options will only affect Recipes with a single Output row: if there are several Output Items, you should update them manually so that the costs can be apportioned correctly.

Do not update The cost of the Output Item will not be updated.

Update Out Item Cost

The cost of the Output Item will be updated.

Update Out Item Cost and Item's Cost Price

The cost of the Output Item will be updated, and the Cost Price in its record in the Item register will also be updated.

If the Output Item is a Structured Item, it is recommended that you do not use this option. Where costs are required (e.g. in gross margin calculations), they will be taken from the Item records of the components. If the Output Item is a Stocked Item, then you should use this option.

Update Item Descriptions

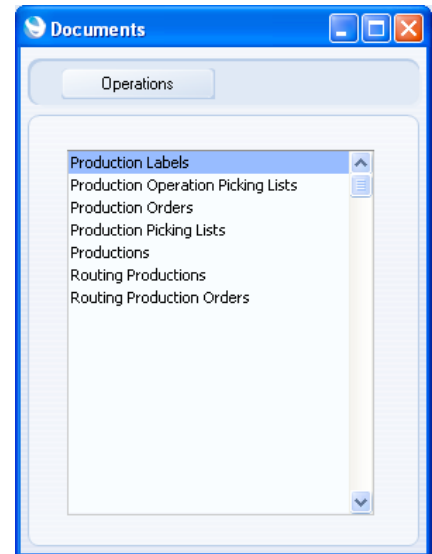
Check this box if you would like the names of the Items in the selected Recipes to be updated from the Item register.

Press the [Run] button to start the updating process.

Documents

Introduction

Use the 'Documents' function to print particular documents or Forms in batches. To begin printing documents, click the [Documents] button in the Master Control panel or use the Ctrl-D (Windows and Linux)/⌘-D (Mac OS X) key combination. The window illustrated below appears, listing the documents that you can print from the Production module. Each item in the list ("Document") will be printed using a different Form.



To print a document, follow this procedure—

1. Highlight an item in the list.
2. If you want to fax the document and your hardware can support this feature, select 'Fax' from the Operations menu.
3. Double-click the document name or press the Enter key. A specification window will then appear, where you can determine the information that you want to be printed (e.g. which Production Orders are to be printed). The specification window for each document is described in detail below.

4. Click [Run] to print the documents.
5. Close the 'Documents' window using the close box.

To determine the Form that will be used when you print a document, follow this procedure—

1. For each option, design a Form using the Form register in the System module. This process is fully described in the 'System Module' manual. A file containing samples of each Form is supplied with HansaWorld Enterprise: if you want to use these samples as templates for your own designs, import the "UKForms.txt" file as described in the 'Importing Sample Data' section in the 'Introduction to HansaWorld Enterprise' manual.
2. Change to the Production module and open the 'Documents' list window by clicking the [Documents] button in the Master Control panel or using the Ctrl-D (Windows and Linux)/⌘-D (Mac OS X) key combination.
3. Highlight each item in the list in turn and select 'Define Document' from the Operations menu. In the subsequent window, assign a Form (or more than one Form) to the document: this window is fully described in the 'Documents' section of the 'Working Environment' chapter in the 'Introduction to HansaWorld Enterprise' manual. For example, each document can use different Forms determined perhaps by the Number Series of the Production record.
4. You only need use the 'Define Document' function once. Afterwards, Form selection will be automatic.

The selection process for each document is described below. Except where specified, leave all the fields in the specification window blank if you want to print documents for every record in the relevant register. If you need to restrict the number of documents printed, use the fields as described.

Where specified below, you can often print documents for a selection range, such as a range of Production Numbers. To do this, enter the lowest and highest values of the range, separated by a colon. For example, to print Productions 001 to 010, enter "001:010" in the Production Number field. Depending on the field, the sort used might be alpha or numeric. In the case of an alpha sort, a range of 1:2 would also include 100, 10109, etc.

Standard Fields

There are a number of standard fields that you can include in the Forms that will be used by the documents in the Production module (except the Form used by the Production Label document). These fields are —

Field in Form

Prints

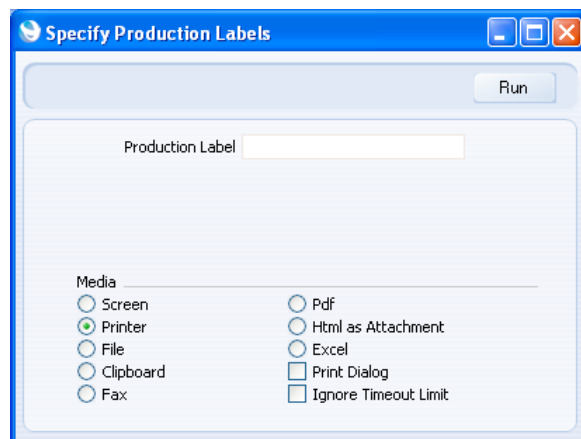
These fields print information from the Company Info setting —

Chief Accountant	Chief Accountant
Copy Type	When you design a Form, you can use the 'Copies' function on the Operations menu to specify that more than one copy will be printed, and that each copy will be marked with specified text (e.g. "Office Copy", "Customer Copy", etc). This field will print the specified text
Date	The date when the document was printed
Manager / CEO	CEO
Own Address	Company Name and Address. This information will be printed on separate lines, so you should specify a Line Height for this field
Own Address 2	Address. This information will be printed on separate lines, so you should specify a Line Height for this field
Own ANA Code	ANA Code
Own Bank 1	Bank 1
Own Bank 2	Bank 2
Own Bank Code	Bank Code. This information will only be printed if there is a record in the Banks setting in the Purchase Ledger for the Bank Code specified in the Company Info setting
Own Bank Customer ID	Bank Customer ID
Own Commercial Registration Number	Commercial Reg.No.
Own E-mail	E-mail
Own Fax Number	Fax
Own Home Community	Home Community
Own Name	Company Name
Own Registration Number	Reg. No.
Own Telephone Number	Telephone
Own VAT Reg. Number	VAT Reg. No.
Own WWW Address	WWW Address

Period	The period from the document's specification window
Short Underline Time	The time when the document was printed
These fields print information from the record in the Banks setting in the Purchase Ledger for the Bank Code specified in the Company Info setting—	
Own Bank Account (IBAN)	Account (IBAN)
Own Bank Address	Address. This information will be printed on separate lines, so you should specify a Line Height for this field
Own Bank Address 1	first line of the Address
Own Bank Address 2	second line of the Address
Own Bank Address 3	third line of the Address
Own Bank Address 4	fourth line of the Address
Own Bank Address 5	fifth line of the Address
Own Bank BIC (SWIFT)	BIC (SWIFT)
Own Bank Corr. Acc.	Corr. Account
Own Bank Clearing	Clearing
Own Bank Name	Name
Own Bank Sorting	Sort Key

Production Labels

Use this document to print labels for each Production. One label will be printed per page.



Production Label Range Reporting Numeric

Specify the Productions for which you need labels to be printed. You must specify a Production Number or range of Production Numbers: if you leave this field empty, no labels will be printed.

Illustrated below is a sample PROD_LABEL record from the Form register in the System module. Note that you should only draw each field once: the label printing function will print the fields the appropriate number of times on each page.

The screenshot shows a software window titled "Form PRODUCTION_LABEL: Inspect". It has a menu bar with "Operations", "New", "Duplicate", "Cancel", and "Save". Below the menu bar are tabs for "Text", "Line", "Frame", "Field", "Picture", and "Page Sum". The "Field" tab is currently selected. Inside the main area, there is a list of fields to be added to the form design:

Prod No.	Production Number
Prod Date	Production Date
Item No.	Item Code
Name	Out Item Name
Serial No.	Serial Number

Add the fields to the Form design in the usual way (click the [Field] button and draw a rectangle where you want the field to appear). When the Field dialogue box opens, specify the Fieldname —

If the labels on each row are not aligned properly, set the Format to 1.

If you want static text to be printed on your labels (i.e. text that identifies the information on the labels, such as "Item Name"), follow these steps —

1. Click the [Field] button and draw a rectangle where you want the static text to appear. The Field dialogue box opens.
2. Leave the Fieldname blank and enter the static text in the Field Argument field.

3. Click [OK] to save.
4. Do not use the [Text] button for this purpose: any text entered this way will be printed for the first label only.

You can use the following fields when you design the Form to be used by the Production Label document —

Field in Form	Prints (from Production record)
Header Fields (these print once per Production)	
End Time	End Time
Fixed Asset Code	Machine
Location	Location
Location Name	Name from the Location record
Production Number	No.
Production Date	End Date
Quantity	Qty (two decimal places)
Recipe Code	Recipe
Recipe Name	Name
Start Time	Start Time
Total Weight	Out Weight (two decimal places)

Row Fields (If these fields have a Format of 0, they will print once for each row, so remember to specify a Line Height. If they have a Format of 1, they will only print for the first row)

Item Code	Item
Out Item Name	Descr.
Quantity Out	Out Qty (two decimal places)
Serial Number	Serial No.

Production Operation Picking Lists

This document allows you to print a Production Operation as a picking list that warehouse staff can use to transfer the components from the warehouse to the production area. Only rows with In Quantities will be printed.

Prod. Oper. No. **Range Reporting** Numeric

Specify the Production Operations that you want to be printed. You must specify a Production Operation Number or range of Production Operation Numbers: if you leave this field empty, no documents will be printed.

You can use the following fields when you design the Form to be used by the Production Operation Picking List document—

Field in Form	Prints (from Production Operation record)
Header Fields (these print once per Production Operation)	
Actual Qty	Actual Qty (number of decimal places determined by the data e.g. “1.00” will be printed as “1”, “1.50” will be printed as “1.5”, etc)
Calculated Volume	Sum of (In Qty * Item Volume from the Item record) for each row (two decimal places)
Calculated Weight	Sum of (In Qty * Weight from the Item record) for each row (two decimal places)
Delivery Date and Time	The date and time when the document was printed
End Time	End Time
Number of Items in Text	Prints as a word the number of different Items in the Production Operation. The word is taken from the relevant record in the Values in Text setting in the System module for the Language of the Production Operation or, if that is blank, the Language in the Company Info setting
Order Number (ordnummer)	Prod. Order
Payment Number for Russia	Prints the No. of the Production Operation with the first three characters removed
Production Date	End Date
Production Number	Prod. No.
Serial Number (Number Series)	No.
Sequence	Sequence
Start Date	Start Date
Start Time	Start Time
Sub Sequence	Sub-Sequence
Total FIFO	Sum of (Row FIFO) from each row (two decimal places)
Total Quantity	Sum of (In Qty) from each row (two decimal places)
Total Quantity (totqty)	Qty (number of decimal places determined by the data e.g. “1” will be printed as “1”, “1.5” will be printed as “1.5”, etc)

Row Fields (these print once per Input row, so remember to specify a Line Height. Output rows are not printed)

Alternative Code	Alternative Code from the Item record
Barcode	Barcode from the Item record
Catalog Serialnumber (K-xxxx)	If the first character of the Item Number is “K”, prints the No. of the Production Operation with “K-” as a prefix. Otherwise, prints the No.
Commodity Code	Commodity Code from the Item record
Conversion 1	Conversion 1 from the Item record
Conversion 2	Conversion 2 from the Item record
Delivered Quantity (antallev)	In Qty (number of decimal places determined by the data e.g. “1” will be printed as “1”, “1.5” will be printed as “1.5”, etc)
Delivered Unit	Unit from the Item record
Department on Item Record	Department from the Item record
Depth	Item Depth from the Item record (two decimal places)
Description 1	Descr.
EU Code	Commodity Code from the Item record
FIFO	FIFO (number of decimal places determined by the Round Off setting in the System module)
Height	Item Height from the Item record (two decimal places)
Item Barcode BC39	Barcode from the Barcodes setting in the Stock module, or Barcode or Item Number from the Item record, printed using the Code 39 barcode format. You should give this field a Style that uses a Code 39 barcode font
Item Barcode EAN 13	Barcode from the Barcodes setting in the Stock module, or Barcode or Item Number from the Item record, printed using the EAN 13 barcode format. You should give this field a Style that uses an appropriate EAN 13 barcode font
Item Code	The full Item Number, including any portion representing Varieties. For example, if the Item Number is “10126.GRE.SM”, “10126.GRE.SM” will be printed

Item Varieties	The portion of the Item Description representing Varieties. For example, if the Item Description is “Shirt, Green, Small”, “Green, Small” will be printed. If the Item does not have Varieties, nothing will be printed
Item Without Varieties	The basic Item Number, without any portion representing Varieties. For example, if the Item Number is “10126.GRE.SM”, “10126” will be printed
Material	Material
Quantity Conversion 1, Quantity Conversion 2, Quantity Conversion 3	If the Item record has a Conversion 1 and a Conversion 2, these fields print the relevant quantities. Please refer to the description of these fields in the ‘Items and Pricing’ manual for details and an example. You should set the Format to 1 in these fields
Quantity In	In Qty (number of decimal places determined by the data e.g. “1.00” will be printed as “1”, “1.50” will be printed as “1.5”, etc)
Quantity Out	Out Qty
Row Number	Row number
Sales Depth	Sale Depth from the record in the Batch Specifications setting in the Stock module for the Item/Serial Number combination (two decimal places)
Sales Height	Sale Height from the record in the Batch Specifications setting in the Stock module for the Item/Serial Number combination (two decimal places)
Sales Width	Sale Width from the record in the Batch Specifications setting in the Stock module for the Item/Serial Number combination (two decimal places)
Serial Number bc39	Serial No., printed using the Code 39 barcode format. You should give this field a Style that uses a Code 39 barcode font
Serial Number (serienr)	Serial No.
Shelf Code	Shelf Code from the Item record

Sum, FIFO	In Qty * FIFO (number of decimal places determined by the Round Off setting in the System module)
Supplier Address 1	If the Item has a Default Purchase Item, the first line of the Invoice Address of the Supplier in that Purchase Item
Supplier Address 2	If the Item has a Default Purchase Item, the second line of the Invoice Address of the Supplier in that Purchase Item
Supplier Address 3	If the Item has a Default Purchase Item, the third line of the Invoice Address of the Supplier in that Purchase Item
Supplier Code	If the Item has a Default Purchase Item, the Contact Number of the Supplier in that Purchase Item
Supplier Item No.	If the Item has a Default Purchase Item, the Supplier's Item Number in that Purchase Item
Supplier Name	If the Item has a Default Purchase Item, the Name of the Supplier in that Purchase Item
Unit	If the Item has a Unit, the correct translation of the Unit Name from the Units setting for the Language of the Production Operation
Volume	Volume from the Item record (two decimal places)
Volume, row	In Qty * Item Volume from the Item record (two decimal places)
Weight	Weight from the Item record (two decimal places)
Weight, row	In Qty * Weight from the Item record (two decimal places)
Width	Item Width from the Item record (two decimal places)

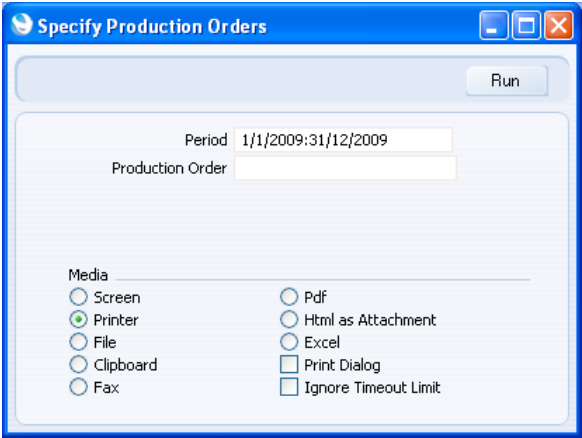
Please refer to page 285 above for details of the standard fields that you can also include in the Form.

Production Orders

Use this document when you need to print a Production Order record or a range of Production Order records, perhaps to provide instructions to the assembly department. You can also print the document by clicking on the

Printer icon when viewing a Production Order record, or print it to screen by clicking the Preview icon.

If the Status of the Production Order is Started and if you are not using the No Test Printout option in the Optional Features setting in the System module, the Production Order will be printed with the text “Test Printout” as a diagonal watermark.



Period	Paste Special	Reporting Periods setting, System module
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If there are any Production Orders in the range that you specify below with Start Dates, those whose Start Dates fall within this period will be printed. To have a Start Date, a Production Order must be Started or Finished. Production Orders in the range with blank Start Dates (i.e. those that are Created and Accepted) will also be printed.

Production Order	Range Reporting	Numeric
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Enter a Production Order Number (or range of Production Order Numbers) for which you need documents to be printed.

You must specify a Production Order Number or range of Production Order Numbers: if you leave this field empty, no documents will be printed.

You can use the following fields when you design the Form to be used by the Production Order document—

Field in Form	Prints (from Production Order record)
Header Fields (these print once per Production Order)	
Barcode	No.
Description	Comment. The three Comment lines will be printed on separate lines, so you should specify a Line Height for this field
Description 1	Instruction. The three Comment lines will be printed on separate lines, so you should specify a Line Height for this field
Description 2	Comment. The three Instruction lines will be printed on separate lines, so you should specify a Line Height for this field
Fixed Asset Code	Machine
Instructions	Instruction. The three Instruction lines will be printed on separate lines, so you should specify a Line Height for this field
Location	Location
Location Name	Name from the Location record
Payment Number for Russia	Prints the No. of the Production Order with the first three characters removed
Person	Person
Person Name	Name from the Person record
Production Date	Due Date
Recipe Code	Recipe
Recipe Name	Name
Routing	Routing
Serial Number (Number Series)	No.
Start Time	Start Time
Total Quantity (totqty)	Qty (number of decimal places determined by the data e.g. “1” will be printed as “1”, “1.5” will be printed as “1.5”, etc)
Total Quantity In	Qty (from the header) * sum of (In Qty) from each row (number of decimal places determined by the Round Off setting in the System module)
Total Quantity out	Qty (from the header) * sum of (Out Qty) from each row (number of decimal places determined by the Round Off setting in the System module)

Serial Number bc39 No., printed using the Code 39 barcode format. You should give this field a Style that uses a Code 39 barcode font

Row Fields (these print once per row, so remember to specify a Line Height)

Comment 2	Descr.
Item Code	Item
Item Code 2	Item
Material	Material
Quantity In	In Qty (number of decimal places determined by the Round Off setting in the System module)
Quantity Out	Out Qty (number of decimal places determined by the Round Off setting in the System module)
Shelf Code (lagerplats)	Shelf Code from the Item record
Unit	Unit from the Item record

Row Fields (these print once per Output row, so remember to specify a Line Height. These fields are not printed for Input rows)

Comment	Descr.
Item Barcode BC39	Barcode from the Barcodes setting in the Stock module, or Barcode or Item Number from the Item record, printed using the Code 39 barcode format. You should give this field a Style that uses a Code 39 barcode font
Item Barcode EAN 13	Barcode from the Barcodes setting in the Stock module, or Barcode or Item Number from the Item record, printed using the EAN 13 barcode format. You should give this field a Style that uses an appropriate EAN 13 barcode font
Out item	Item
Out Item Name	Descr.
Out Item Quantity	Out Qty (number of decimal places determined by the data e.g. "1.00" will be printed as "1", "1.50" will be printed as "1.5", etc)
Quantity	Out Qty (number of decimal places determined by the Round Off setting in the System module)
Quantity 2	Out Qty * Unit Coefficient from the Item record, or Out Qty / Unit Coefficient from

the Item record (depends on the Unit 2 Conversion Calculation options in the Stock Settings setting in the Stock module) (number of decimal places determined by the Round Off setting in the System module)
Item

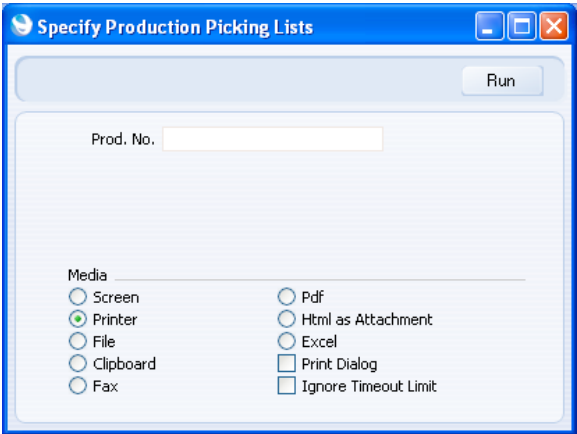
XItemCode

Please refer to page 285 above for details of the standard fields that you can also include in the Form.

Production Picking Lists

This document is unusual in that it first creates new records and then prints them. You can use it when there is insufficient stock of components in the production area for a Production and you need to create a Stock Movement to move stock there from the warehouse. After the Stock Movement has been created, it will be printed as a picking list that warehouse staff can use to transfer the components from the warehouse to the production area.

The ‘Specify Production Picking Lists’ window contains a single field—



Enter a Production Number (or range of Production Numbers) for which you need Stock Movements to be created and printed. You must specify a Production Number or range of Production Numbers: if you leave this field empty, no Stock Movements will be created and no documents will be printed.

When you click the [Run] button, a separate Stock Movement will be created for each Production in the range, as follows—

1. If the Status of a Production is Created or Started, a Stock Movement will be created that will move the components from the Main Location specified in the Stock Settings setting to the Production Location. All Input rows with Stocked Items from the Productions in the range will be transferred to the corresponding Stock Movement.

By default, the Requested Quantity in each Stock Movement row will be the exact Quantity needed to complete the Production. This will be the In Qty in each Production row, less any quantity that has been moved in a previous Stock Movement (i.e. one of any status with the same Production Number in the For Production field). If there is not enough stock in the From Location to satisfy the Requested Quantity, then it will be reduced to the quantity in stock. This because each Stock Movement will be marked as Reserved, meaning that when you deliver similar Items, HansaWorld Enterprise will maintain sufficient stock for the Stock Movement until it is Sent or Received. It is not possible to reserve stock that is not there.

2. If the Status of a Production is Finished, a Stock Movement will be created that will move the assembled Item from the Production Location. The To Location will be left empty, so you will need to choose one before you can mark the Stock Movement as Received. All Output rows with Stocked Items from the Production will be transferred to the Stock Movement. The Quantity in each Stock Movement row will be the exact Quantity built by the Production.
3. If the Status of a Production is Cancelled or Discarded, no new Stock Movement will be created.
4. If there is a previous Stock Movement (of any status) for the entire In Qty, no new Stock Movement will be created and nothing will be printed.

You can use Access Groups to control who can use this document to create Stock Movements from Productions. To do this, deny access to the 'Stock Movement from Production' Action. Access Groups are described in the 'System Module' manual.

Please refer to the 'Stock Module' manual for full details about Stock Movements.

You can use the following fields when you design the Form to be used by the Production Picking List document—

Field in Form	Prints (from Stock Movement record)
Header Fields (these print once per Stock Movement)	
From Address	Address of From Location from the Location record. This will be printed on separate lines, so you should specify a Line Height for this field
From Contact	Contact of From Location from the Location record
From Fax Number	Fax of From Location from the Location record
From Location	From Location
From Name	Name of From Location from the Location record
From Telephone	Telephone of From Location from the Location record
Payment Number for Russia	Prints the No. of the Stock Movement with the first three characters removed
Person	Name of the Person printing the document, from their Person record
Production Number	For Production
Routing	Routing from the Production
Stock Serial Number	No.
To Address	Address of To Location from the Location record. This will be printed on separate lines, so you should specify a Line Height for this field
To Contact	Contact of To Location from the Location record
To Fax	Fax of To Location from the Location record
To Location	To Location
To Name	Name of To Location from the Location record
To Phone	Telephone of To Location from the Location record

Row Fields (these print once per row, so remember to specify a Line Height)

Alternative Code	Alternative Code from the Item record
Barcode	Barcode from the Item record
Catalog Serialnumber (K-xxxx)	If the first character of the Item Number is “K”, prints the No. of the Stock Movement with “K-” as a prefix. Otherwise, prints the No.
Commodity Code	Commodity Code from the Item record
Conversion 1	Conversion 1 from the Item record
Conversion 2	Conversion 2 from the Item record
Delivered Unit	Unit from the Item record
Department on Item Record	Department from the Item record
Depth	Item Depth from the Item record (two decimal places)
Description 1	Description
EU Code	Commodity Code from the Item record
FIFO	R. Old Unit Pr. (number of decimal places determined by the Round Off setting in the System module)
Height	Item Height from the Item record (two decimal places)
Item Barcode BC39	Barcode from the Barcodes setting in the Stock module, or Barcode or Item Number from the Item record, printed using the Code 39 barcode format. You should give this field a Style that uses a Code 39 barcode font
Item Barcode EAN 13	Barcode from the Barcodes setting in the Stock module, or Barcode or Item Number from the Item record, printed using the EAN 13 barcode format. You should give this field a Style that uses an appropriate EAN 13 barcode font
Item Code	The full Item Number, including any portion representing Varieties. For example, if the Item Number is “10126.GRE.SM”, “10126.GRE.SM” will be printed
Item Varieties	The portion of the Item Description representing Varieties. For example, if the Item Description is “Shirt, Green, Small”, “Green, Small” will be printed. If the

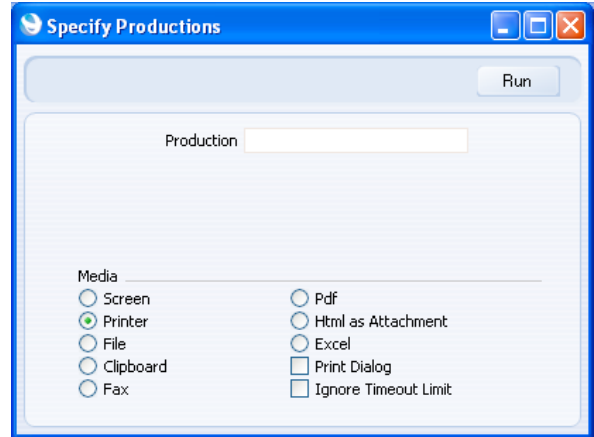
	Item does not have Varieties, nothing will be printed
Item Without Varieties	The basic Item Number, without any portion representing Varieties. For example, if the Item Number is "10126.GRE.SM", "10126" will be printed
Ordered Quantity	Req. Qty (number of decimal places determined by the data e.g. "1.00" will be printed as "1", "1.50" will be printed as "1.5", etc)
Quantity Conversion 1, Quantity Conversion 2, Quantity Conversion 3	If the Item record has a Conversion 1 and a Conversion 2, these fields print the relevant quantities. Please refer to the description of these fields in the 'Items and Pricing' manual for details and an example. You should set the Format to 1 in these fields
Row Number	Row number
Sales Depth	Sale Depth from the record in the Batch Specifications setting in the Stock module for the Item/Serial Number combination (two decimal places)
Sales Height	Sale Height from the record in the Batch Specifications setting in the Stock module for the Item/Serial Number combination (two decimal places)
Sales Width	Sale Width from the record in the Batch Specifications setting in the Stock module for the Item/Serial Number combination (two decimal places)
Serial Number bc39	Serial No., printed using the Code 39 barcode format. You should give this field a Style that uses a Code 39 barcode font
Serial Number (serienr)	Serial No.
Shelf Code	Shelf Code from the Item record
Supplier Address 1	If the Item has a Default Purchase Item, the first line of the Invoice Address of the Supplier in that Purchase Item
Supplier Address 2	If the Item has a Default Purchase Item, the second line of the Invoice Address of the Supplier in that Purchase Item

Supplier Address 3	If the Item has a Default Purchase Item, the third line of the Invoice Address of the Supplier in that Purchase Item
Supplier Code	If the Item has a Default Purchase Item, the Contact Number of the Supplier in that Purchase Item
Supplier Item No.	If the Item has a Default Purchase Item, the Supplier's Item Number in that Purchase Item
Supplier Name	If the Item has a Default Purchase Item, the Name of the Supplier in that Purchase Item
Unit	If the Item has a Unit, the correct translation of the Unit Name from the Units setting for the Language of the Production Operation
Volume	Volume from the Item record (two decimal places)
Weight	Weight from the Item record (two decimal places)
Width	Item Width from the Item record (two decimal places)

Please refer to page 285 above for details of the standard fields that you can also include in the Form. In particular, you may want to include the "Date" field (the date when the document was printed) if you want a date to be printed.

Productions

Use this document when you need to print a Production record or a range of Production records, perhaps to provide instructions to the assembly department. You can also print the document by clicking on the Printer icon when viewing a Production record, or print it to screen by clicking the Preview icon.



Production

Range Reporting

Numeric

Enter a Production Number (or range of Production Numbers) for which you need documents to be printed. If you leave the field empty, every Production will be printed.

You can use the following fields when you design the Form to be used by the Production document—

Field in Form

Prints (from Production record)

Header Fields (these print once per Production)

Actual Qty

Actual Qty

Barcode

No.

Comment 2 BC39

Second line of Comment, printed using the Code 39 barcode format. You should give this field a Style that uses a Code 39 barcode font

Description

First line of Comment

Description 1

Second line of Comment

Description 2

Third line of Comment

Discarded Reason

Discarded Reason

End Time	End Time
Fixed Asset Code	Machine
Location	Location
Location Name	Name from the Location record
Payment Number for Russia	Prints the No. of the Production with the first three characters removed
Person	Person
Person Name	Name from the Person record
Production Date	End Date
Production Number	No.
Production Order	Prod. Ord.
Recipe Code	Recipe
Recipe Name	Name
Responsible Person	Inspector
Responsible Person Name	Name of the Inspector, from their Person record
Routing	Routing
Serial Number bc39	Third line of Comment, printed using the Code 39 barcode format. You should give this field a Style that uses a Code 39 barcode font
Serial Number (Number Series)	No.
Start Date	Start Date
Start Time	Start Time
Total Quantity (totqty)	Qty (number of decimal places determined by the data e.g. "1.00" will be printed as "1", "1.50" will be printed as "1.5", etc)
Total Weight	Out Weight (number of decimal places determined by the data e.g. "1.00" will be printed as "1", "1.50" will be printed as "1.5", etc)
Row Fields (these print once per row, so remember to specify a Line Height)	
Actual Qty - Row	Actual
Comment 2	Descr.
Extra Cost	W-cost (number of decimal places determined by the Round Off setting in the System module). You should set the Format to 1 in this field
Item Code	Item
Item Code 2	Item
Material	Material

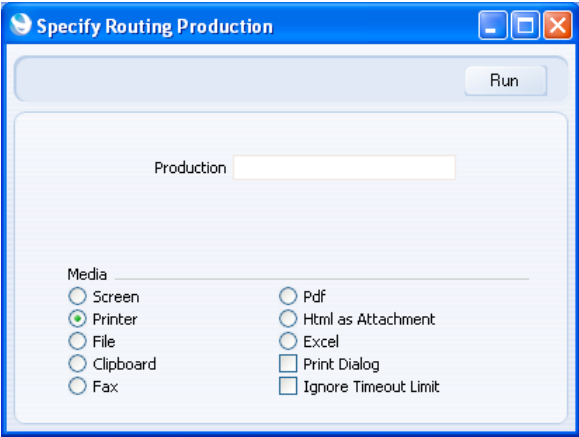
Price	I-cost (number of decimal places determined by the Round Off setting in the System module). You should set the Format to 1 in this field
Quantity In	In Qty (number of decimal places determined by the Round Off setting in the System module)
Quantity Out	Out Qty (number of decimal places determined by the Round Off setting in the System module)
Serial Number	Serial No.
Total Quantity In	In Qty (if you are using the Production Lines Hold Actual Qty option in the Production Settings setting) or In Qty * Qty from the Production header (otherwise) (number of decimal places determined by the Round Off setting in the System module). You should set the Format to 1 in this field
Total Quantity out	Out Qty (if you are using the Production Lines Hold Actual Qty option in the Production Settings setting) or Out Qty * Qty from the Production header (otherwise) (number of decimal places determined by the Round Off setting in the System module). You should set the Format to 1 in this field
Unit	Unit from the Item record
Row Fields (these print once per Output row, so remember to specify a Line Height. These fields are not printed for Input rows)	
Comment	Descr.
Item Barcode BC39	Barcode from the Barcodes setting in the Stock module, or Barcode or Item Number from the Item record, printed using the Code 39 barcode format. You should give this field a Style that uses a Code 39 barcode font
Item Barcode EAN 13	Barcode from the Barcodes setting in the Stock module, or Barcode or Item Number from the Item record, printed using the EAN 13 barcode format. You should give this field a Style that uses an appropriate EAN 13 barcode font

Out item	Item
Out Item Name	Descr.
Out Item Price	I-cost (number of decimal places determined by the Round Off setting in the System module). You should set the Format to 1 in this field
Out Item Quantity	Out Qty (number of decimal places determined by the data e.g. "1.00" will be printed as "1", "1.50" will be printed as "1.5", etc)
Out Item Serial Number	Serial No.
Quantity	Out Qty (number of decimal places determined by the data e.g. "1.00" will be printed as "1", "1.50" will be printed as "1.5", etc)
Quantity 2	Out Qty * Unit Coefficient from the Item record, or Out Qty / Unit Coefficient from the Item record (depends on the Unit 2 Conversion Calculation options in the Stock Settings setting in the Stock module) (number of decimal places determined by the Round Off setting in the System module)
Serial Number (serienr)	Serial No.
XItemCode	Item
XItemName	Descr.
XItemUnit	Unit from the Item record

Please refer to page 285 above for details of the standard fields that you can also include in the Form.

Routing Productions

Use this document when you need to print details of a Production together with a list of its connected Production Operations. The connected Production Operations are listed in Status order (Created, Started, Finished, Cancelled and finally Discarded). Production Operations with the same Status are listed in Sequence Order.



Production	Range Reporting	Numeric
Enter a Production Number (or range of Production Numbers) for which you need documents to be printed. You must specify a Production Number or range of Production Numbers: if you leave this field empty, no documents will be printed.		

You can use the following fields when you design the Form to be used by the Routing Production document—

Field in Form	Prints (from Production record)
Header Fields (these print once per Production)	
Comment	Comment from the Routing record
Description	First line of Comment
Description 1	Second line of Comment
Description 2	Third line of Comment
End Time	End Time
Fixed Asset Code	Machine
Location	Location
Person Name	Name of the Inspector, from their Person record

Production Date	End Date
Production Order	Prod. Ord.
Recipe Code	Recipe
Recipe Name	Name
Responsible Person	Inspector
Responsible Person Name	Name of the Inspector, from their Person record
Routing	Routing
Serial Number (Number Series)	No.
Start Date	Start Date
Start Time	Start Time

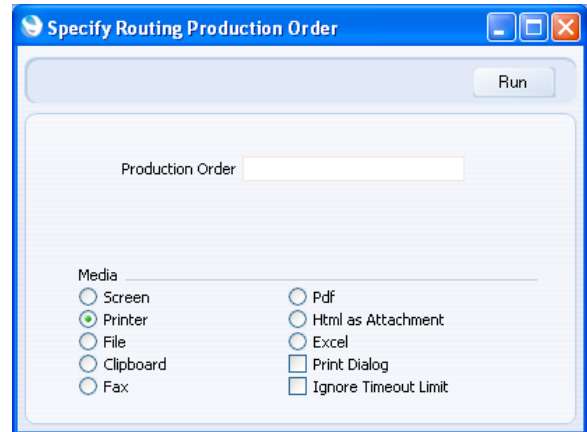
Row Fields (these print once for each Production Operation that is connected to the Production, so remember to specify a Line Height)

Comment 2	Comment
End Date 2	End Date
End Time 2	End Time
Row Number	Row number (i.e. counts the number of connected Production Operations)
Start Date 2	Start Date
Start Time2	Start Time
Status	Status

Please refer to page 285 above for details of the standard fields that you can also include in the Form.

Routing Production Orders

Use this document when you need to print details of a Production Order together with a list of its connected Production Operations. The connected Production Operations are listed in Status order (Created, Started, Finished, Cancelled and finally Discarded). Production Operations with the same Status are listed in Sequence Order.



Production Order Range Reporting Numeric

Enter a Production Order Number (or range of Production Order Numbers) for which you need documents to be printed. You must specify a Production Order Number or range of Production Order Numbers: if you leave this field empty, no documents will be printed.

You can use the following fields when you design the Form to be used by the Routing Production Order document —

Field in Form	Prints (from Production Order record)
Header Fields (these print once per Production Order)	
Comment	Comment from the Routing record
Due Date	Due Date
Fixed Asset Code	Machine
Location	Location
Planned Date	Should Start
Recipe Code	Recipe
Recipe Name	Name
Routing	Routing
Serial Number (Number Series)	No.

Row Fields (these print once for each Production Operation that is connected to the Production Order, so remember to specify a Line Height)

Comment 2	Comment
End Date 2	End Date
End Time 2	End Time
Row Number	Row number (i.e. counts the number of connected Production Operations)
Start Date 2	Start Date
Start Time2	Start Time
Status	Status

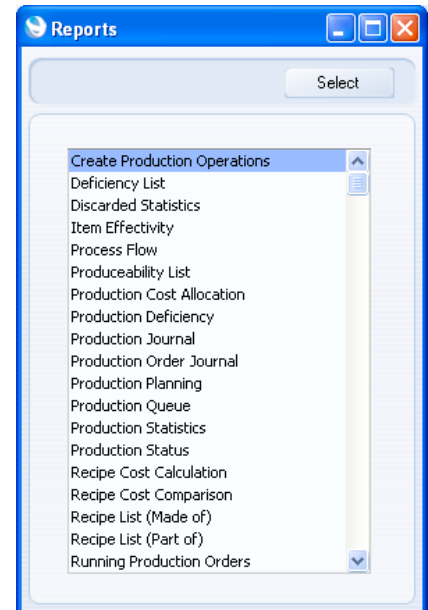
Please refer to page 285 above for details of the standard fields that you can also include in the Form.

Reports

Introduction

As with all modules, to print a report in the Production module, click the [Reports] button in the Master Control panel or use the Ctrl-R (Windows and Linux)/⌘-R (Mac OS X) key combination. Then, double-click the appropriate item in the list.

The following reports are available in the Production module—



A specification window will then appear, where you can decide what is to be included in the report. Leave all the fields in this window blank if the report is to cover all the records in the appropriate register. If you need to restrict the coverage of the report, use the fields as described individually for each report.

Where specified below, it is often possible to report on a selection range, such as a range of Production records, or a range of Recipes. To do this, enter the lowest and highest values of the range, separated by a colon. For example, to report on Productions 001 to 010, enter “001:010” in the Production Number field. Depending on the field, the sort used might be

alpha or numeric. In the case of an alpha sort, a range of 1:2 would also include 100, 10109, etc.

Use the Media options at the bottom of the specification window to determine the print destination of the report. The default is to print to screen. You can initially print to screen and subsequently send the report to a printer by clicking the Printer icon at the top of the report window.

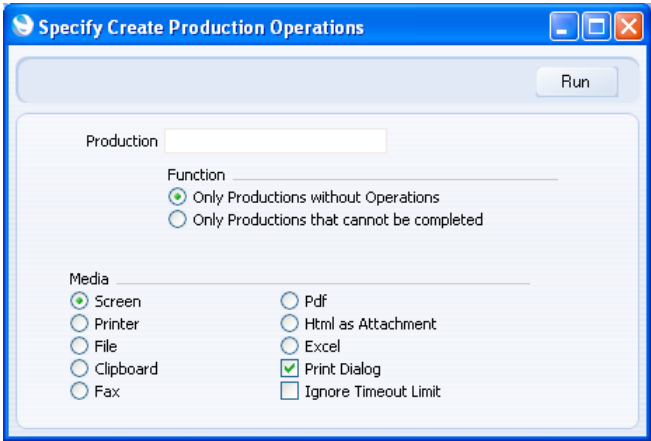
Once you have entered the reporting criteria and have chosen a print destination, click [Run].

With a report in the active window, use the 'Recalculate' command on the Operations menu to update the report after making alterations to background data. The 'Reopen Report Specification' command on the same menu allows you to produce a new report using different reporting criteria.

Create Production Operations

This report lists the Production Operations that you can create from a particular Production or range of Productions.

When printed to screen, the Create Production Operations report has the HansaWorld Enterprise Drill-down feature. Click on any Production Number to open the corresponding record. You will then be able to create the Production Operations listed in the report by choosing 'Create Production Operations' from the Operations menu.



Production

Range Reporting

Numeric

Enter a Production Number to see the Production Operations that can be created from that Production. A

Production must have Routing to be included in the report.

Function Two versions of the report are available—

Only Productions without Operations

The report will list those Productions in the specified range that currently have no connected Production Operations. For each Production, the anticipated Production Operations will be listed, showing the Sequence, Comment, Item Numbers and Names, and In and Out Quantities.

Only Productions that cannot be completed

The report will list those Productions in the specified range that currently cannot be completed.

One reason that a Production cannot be completed is because it has at least one connected Production Operation that has been marked as Cancelled or Discarded. This means that the process cannot be completed. For each such Production, the existing Production Operations will be listed, showing the Sequence, Comment, Item Numbers and Names, In and Out Quantities and Status.

A second reason that a Production cannot be completed is because it has no connected Production Operations. This means that the process cannot be started. For each such Production, no Production Operations will be listed in the report.

Deficiency List

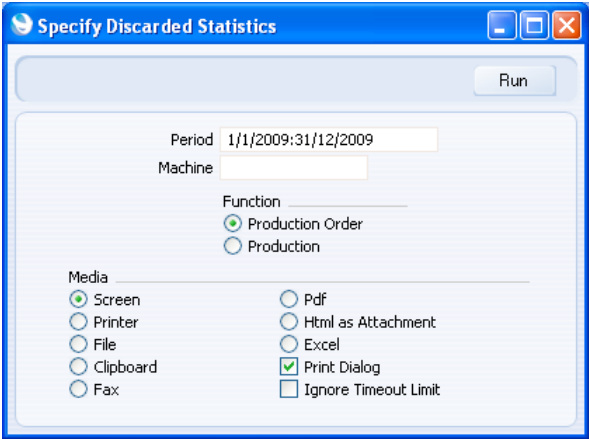
This report shows for each Item the stock balance, the quantity ordered, the quantity on Purchase Orders, and a proposed purchase quantity, based on the minimum stock level for each Item. It can therefore be used prior to entering Production records to show how many of a particular Stocked Item should be assembled. The report does not show Structured Items.

For full details of this report, please refer to the ‘Purchase Orders’ manual.

Discarded Statistics

This report can either list Discarded Productions or Production Orders with at least one connected Discarded Production.

When printed to screen, the Discarded Statistics report has the HansaWorld Enterprise Drill-down feature. Click on any Production Number or Production Order Number to open the corresponding record.



Period	Paste Special	Reporting Periods setting, System module
	Specify the period for the report. Depending on the Function option below, Production Orders or Productions whose Start Dates fall within this period where at least one Output Item has been discarded will be included in the report.	
Machine	Paste Special	Asset register, Assets module
	If you specify a Machine here, the report will list the Production Orders or Productions produced using that Machine where at least one Output Item has been discarded.	
Function	Use this option to choose whether the report is to list Production Orders or Productions.	
Production Orders		
	The report will list Production Orders that have at least one connected Discarded Production and whose Start Dates fall within the specified period.	

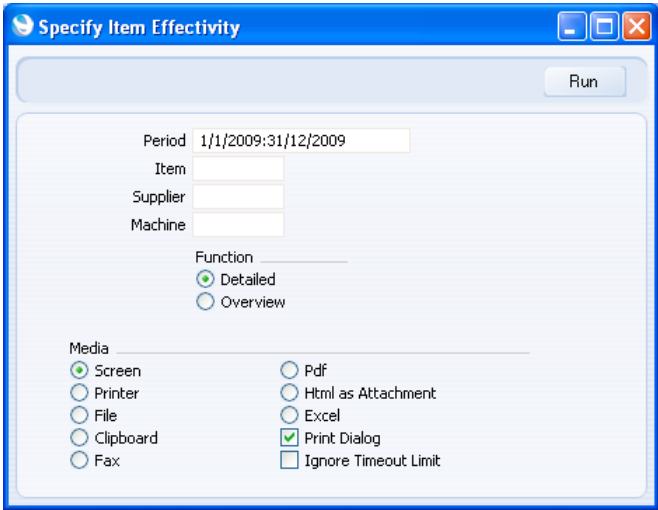
For each Production Order, the report will show the Machine, Production Order, Recipe, Name from the Production Order, Planned Quantity (i.e. the Quantity in the Production Order header), the quantity produced so far, the quantity discarded, the percentage of the Planned Quantity that has been discarded, and the cost of producing the produced and discarded quantities. The quantity produced so far does not include the discarded quantity.

Productions

The report will list the Discarded Productions whose Start Dates fall within the specified period. For each Production, the report will show the Machine, Production Number, Recipe, Name from the Production, Discarded Quantity (i.e. the Quantity in the Production header) and the cost (i.e. the cost of the components and the Work Cost).

Item Effectivity

This report is a list of the records in the Item Effectivity setting. This setting allows you to monitor the use and performance of consumable Items in the production process.



The image shows a software dialog box titled "Specify Item Effectivity". It contains several input fields and radio button options. At the top right is a "Run" button. The fields include "Period" (with the value "1/1/2009:31/12/2009"), "Item", "Supplier", and "Machine". Below these is a "Function" section with "Detailed" (selected) and "Overview" options. The "Media" section at the bottom has two columns of radio buttons: "Screen" (selected), "Printer", "File", "Clipboard", "Fax" on the left; and "Pdf", "Html as Attachment", "Excel", "Print Dialog" (checked), "Ignore Timeout Limit" on the right.

Period	Paste Special	Reporting Periods setting, System module
		Specify the report period. Item Effectivity records whose Start Dates fall within this period will be listed in the report.
Item	Paste Special	Item register
		Choose the consumable Item whose use and performance you want to analyse.
Supplier	Paste Special	Suppliers in Contact register
		Specify a Supplier if you want to analyse the performance of consumable Items purchased from that Supplier.
Machine	Paste Special	Asset register, Assets module
		Specify a Machine if you want to analyse the performance of consumable Items used on that Machine.
Function		Use these options to determine the level of detail to be included in the report.
Overview		The Overview prints accumulated figures for each Item/Supplier/Machine combination. The report shows the Item, Supplier, Machine, Used Quantity, Produced Quantity and Average (Produced Quantity divided by Used Quantity).
Detailed		The Detailed report is a list of individual records in the Item Effectivity setting. For each record, the Start Date and Time, Supplier, Item, Used Quantity, Produced Quantity, Average (Produced Quantity divided by Used Quantity) and End Date and Time will be printed.

Produceability List

This report shows the quantity of assembled Items (Stocked and Structured Items with Recipes) that you can produce from the components currently in stock. For each Item, this figure is compared with the quantity of unfulfilled Sales Orders.

For full details of this report, please refer to the 'Sales Orders' manual.

Production Cost Allocation

This report will be useful if you need to distribute the actual costs of production (e.g. components, labour, energy, machine depreciation) to various cost centres.

Every Production will contain figures for the costs of components. In the case of Productions with Routings from which you have created Production Operations, these costs will be copied from the Recipe and they will therefore to some extent be estimated. In the case of Finished Productions without Routings, these costs will be calculated using the Cost Models specified in the relevant Item or Item Group records or, if those Cost Models are Default, the Primary Cost Model specified in the Cost Accounting setting in the Stock module.

It may be that you include other costs in each Production (e.g. labour, energy, machine depreciation). If so, these costs will be fixed costs taken from the Recipe or Asset, sometimes depending on the time spent working on the Production. You may also have costs such as electricity listed in the Recipe as Service Items and again transferred to Productions as fixed costs. Alternatively, you may choose not to include these costs in each Production at all.

When you know what the actual costs are (e.g. when you receive Purchase Invoices for services such as electricity, or pay costs such as salaries), you can use this report to compare the actual costs with the calculated ones included in the Productions. It will also suggest how you should distribute any differences to Recipes, Items or Objects (i.e. to various cost centres), which will help you if you need to post those differences to variance accounts. You can also use the report when you receive a single Purchase Invoice (e.g. for electricity for the workshop or factory). In this case you can ignore the comparison aspects of the report and use it to check how to distribute the Invoice to the various cost centres.

When producing this report, first enter a figure for actual costs (e.g. the complete actual cost of your Productions, including components, labour, energy, machine depreciation and any other costs, or perhaps the value of a single Purchase Invoice) in the Cost to Compare With field in the 'Specify Production Cost Allocation' window (illustrated below). You can choose to distribute this cost to each Recipe, each assembled Item or each Object. Depending on this choice, the report will contain a single line for each Recipe used during the report period, a single line for each Item produced, or a single line for each Object used in a Production. For each Recipe (or Item or Object, depending on the distribution method), the report will then contain the figures described on the next page.

Tot. Cost	If you choose to distribute the actual cost to each Recipe, the Tot. Cost will be the total cost of the Productions with each Recipe (i.e. the total I-cost of the Output Items produced using the Recipe). If you choose to distribute the cost to each assembled Item, it will be the total I-cost of each Output Item. If you choose to distribute the cost to each Object, it will be the total cost of the Productions with each Object (i.e. the total I-cost of the Output Items produced with the Object).
Comparison	This column will show how much of the actual cost figure can be allocated to each Recipe, Item or Object. This amount is calculated on a <i>pro rata</i> basis, based either on the quantities of the output Items produced during the report period or the values of those Items. This column therefore shows the proportion of the actual cost that you can allocate to each cost centre.
Diff %, Diff	These columns will show the percentage and actual differences between the first two columns.
Key	The final column will show the proportion of the actual cost that you can allocate to each cost centre, expressed as a percentage.

When printed to screen, the Production Cost Allocation report has the HansaWorld Enterprise Drill-down feature. Click on any Recipe Number or Item Number to open the corresponding record.

Specify Production Cost Allocation

Run

Period: 1/1/2009:31/12/2009

Item Group:

Item:

Machine Group:

Machine:

Cost to Compare With:

Spread Cost Based On:
☒ Existing Cost
☐ Produced Quantity

Grouping:
☒ By Recipe
☐ By Item
☐ By Object

Display:
☒ Item Name
☐ Objects

Media:
☒ Screen
☐ Printer
☐ File
☐ Clipboard
☐ Fax
☐ Pdf
☐ Html as Attachment
☐ Excel
☒ Print Dialog
☐ Ignore Timeout Limit

Period**Paste Special**

Reporting Periods setting,
System module

The report period. Every Finished Production whose End Date falls in the period specified here will be included in the report calculations.

Item Group**Paste Special**

Item Group register, Sales
Ledger

If you specify an Item Group, the figures in the report will be calculated from Productions where the Output Item belongs to the specified Item Group.

You must specify an Item or an Item Group, otherwise the report will be empty.

Item**Paste Special**

Item register

If you specify an Item Group, the figures in the report will be calculated from Productions where the Output Item is the specified Item.

Remember that it will usually be the case that a particular Item will always be used as an Output Item with the same Objects (visible on flip B of the 'Items'

card of each Production). So, specifying an Item and choosing to group by Object using the option below will not produce a useful report because there will only be one Object, and so the entire actual cost will be allocated to that single Object.

You must specify an Item or an Item Group, otherwise the report will be empty.

Machine Group	Paste Special	Machine Groups setting, Production module
		If you specify a Machine Group, the figures in the report will be calculated from Productions that use a Machine that belongs to the specified Machine Group.
Machine	Paste Special	Asset register, Assets module
		If you specify a Machine, the figures in the report will be calculated from Productions that use the specified Machine.

Cost to Compare With

Enter an actual cost figure here. This can be a total figure for actual costs (e.g. including components, labour, energy, machine depreciation and any other costs) or perhaps the value of a single Purchase Invoice. The report will show how this figure should be allocated to the various cost centres (i.e. to the various Recipes, Items or Objects).

Spread Cost Based On

The Comparison column in the report will show how much of the actual cost figure can be allocated to each Recipe, Item or Object. This amount is calculated on a *pro rata* basis: use these options to choose whether this calculation will be based on the quantities of the output Items produced during the report period or the values of those Items. For example, if you have produced 2 x Item A and 1 x Item B and you choose the Produced Quantity option, the report will show that you can allocate 2/3 of the Cost to Compare With to Item A and 1/3 to Item B. However, if Item A cost 10.00 to produce and Item B cost 20.00 and you choose the Existing Cost option, the report will show that you can allocate 1/2 of the Cost to Compare With to Item A and 1/2 to Item B.

Grouping	Use these options to choose whether the Cost to Compare With will be distributed to the Recipes you have used during the report period, to the Items you have produced or to the Objects you have assigned to the Output Items.
Display	Use these options to choose whether the Item Name or Object Name will be printed in the report.

Production Deficiency

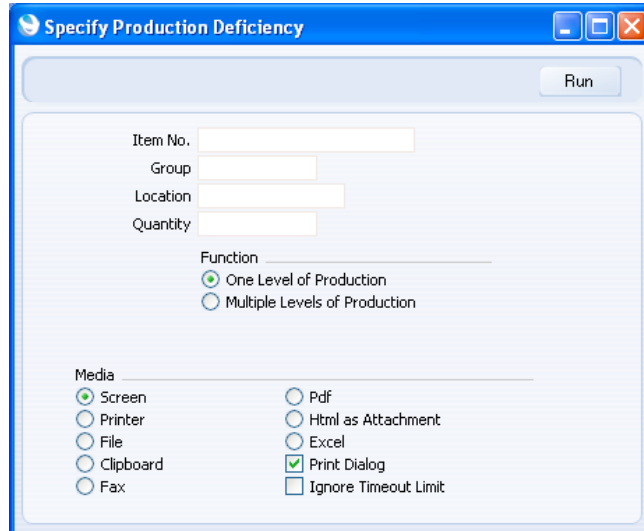
This report will list the components that you need to purchase in order to assemble a specified quantity of a Stocked Item with a Recipe. It will calculate this purchasing requirement taking into account the quantity already in stock, the quantities on unfulfilled Sales and Purchase Orders and the minimum stock level (from the 'Stock' card of the Item record) of each component.

The report will list each component in the Recipe for the Stocked Item with the following figures—

In Stock	The quantity of the component currently in stock.
On Order	The quantity of the component included in unfulfilled Sales Orders. This includes Sales Orders for the component itself and for Structured Items that require the component. It does not include Sales Orders for Stocked Items with Recipes that require the component, as it is assumed that these Items are already assembled and the component will not be needed again to satisfy the Order.
Required	The quantity of the component required to build the specified number of assembled Items.
Net	$\text{In Stock} - \text{On Order} - \text{Required}$
Pur Ord	The quantity of the component included in unfulfilled Purchase Orders.
Sugg	$-\text{Net} - \text{Pur Ord} + \text{Item Minimum Level}$. This is the quantity you need to purchase to build the specified number of assembled Items.

Following the list of components, the maximum quantity of the assembled Item that you can produce from the components currently in stock will be shown. This figure assumes that the entire stock of components will be used

in the assembly process, even if there are also unfulfilled Sales Orders for those components.



The dialog box titled "Specify Production Deficiency" contains the following fields and options:

- Item No.**: Text input field
- Group**: Text input field
- Location**: Text input field
- Quantity**: Text input field
- Function**:
 - ☒ One Level of Production
 - ☐ Multiple Levels of Production
- Media**:
 - ☒ Screen
 - ☐ Printer
 - ☐ File
 - ☐ Clipboard
 - ☐ Fax
 - ☐ Pdf
 - ☐ Html as Attachment
 - ☐ Excel
 - ☒ Print Dialog
 - ☐ Ignore Timeout Limit

A "Run" button is located in the top right corner.

Item No.	Paste Special	Item register
	Range Reporting	Alpha
	Enter the Item Number of an assembled Item to view its production requirements. If you enter a range of Item Numbers, only those Items in the range that are Stocked and have Recipes will be shown in the report.	
Group	Paste Special	Item Group register, Sales Ledger
	Enter an Item Group to report on all Stocked Items in the Group that have Recipes.	
Location	Paste Special	Locations setting, Stock module
	If you specify a Location here, the In Stock, On Order and Pur Ord figures in the report will all apply to that Location only. Otherwise, they will apply to all Locations.	
Quantity	Use this field to specify the quantity of assembled Items that you need to build.	
Function	These options apply to components that themselves are assemblies (i.e. sub-assemblies). For example, to build	

Item “TOP” you need 2 x Item “SUB”. Item “SUB” itself is built from 3 x Item “COMPONENT”.

One Level of Production

This option will show that you need 2 x “SUB” to build an Item “TOP”. For Item “SUB”, the Sugg figure in the report will be the quantity that you need to build, while for other components that are not sub-assemblies, the Sugg figure will be the quantity that you need to purchase.

Multiple Levels of Production

This option will show that you need 3 x “COMPONENT” to build an Item “TOP”. In this case, the Sugg figure in the report will always be the quantity that you need to purchase.

Production Journal

This report lists registered Production records.

When printed to screen, the Production Journal has the HansaWorld Enterprise Drill-down feature. Click on any Production Number to open the corresponding record.

Specify Production Journal

Run

Number

Period 1/1/2009:31/12/2009

Recipe

Object (from Header)

Work Shift

Function

☒ Overview

☐ Detailed

☐ Cost from Item Record

☐ Print Total by Item

☐ Include Activities

Include

☐ Created

☐ Cancelled

☐ Started

☐ Finished

☐ Discarded

Media

☒ Screen

☐ Printer

☐ File

☐ Clipboard

☐ Fax

☐ Pdf

☐ Html as Attachment

☐ Excel

☒ Print Dialog

☐ Ignore Timeout Limit

Number	Range Reporting	Numeric
	Enter the Production Number (or range of Production Numbers) of the records to be shown in the report.	
Period	Paste Special	Reporting Periods setting, System module
	Enter the start and end dates of the reporting period. Productions whose End Dates fall within this period will be shown in the report.	
Recipe	Paste Special	Recipe Register, Production module
	Enter a Recipe Number to list Production records that use a particular Recipe.	
Object (from Header)	Paste Special	Object register, Nominal Ledger/System module
	Enter an Object to list Production records with a particular Object (visible on the 'Comment' card). If you enter a number of Objects separated by commas, only those Productions featuring all the Objects listed will be shown.	
	Remember that when you specify a Machine in a Production, the Object from the Asset record for the Machine will be copied to that Production. So, if you are using that connection, specifying an Object here will list the Productions that were built or assembled using a particular Machine.	
Work Shift	Paste Special	Work Shifts setting, Production module
	Use this field if you want to list Productions that have been worked on during a particular Work Shift. A Production will be shown in the report if its Start Time and End Date comply with the specified Work Shift record. If a Production has an End Date that complies with the Work Shift record but its Start Time is blank, it will not be included in the report.	

Function	These options control the level of detail shown in the report.
Overview	On a single line per Production record, this option shows Number, End Date, Recipe, Quantity produced, Comment and whether it has been marked as Finished.
Detailed	This option shows the details of each Production record, listing the components individually with Serial Numbers and costs.
Cost from Item Record	Usually, the Detailed version of this report takes the costs of the components from the Production records. If you would like the costs to be taken from the relevant Item records, check this box.
Print Total by Item	This option adds a second section to the report, listing the Input and Output Items used in the Productions listed in the report. The list includes total Input and Output quantities, I-costs and W-costs for each Item.
Include Activities	<p>This option will add an extra column to the Overview version of the report, showing the number of hours spent working on each Production. This is calculated from Activities that have been marked as Done where the Production Number is recorded on the 'Service' card.</p> <p>In the Detailed version of the report, this option will add a summary section for each Production, showing the total number of hours spent working on the Production by each Person/Activity Type combination.</p> <p>Profile Activities will not be included in the figures.</p>
Include	Check the boxes to include Production records of different types in the report. At least one option must be checked, otherwise a blank report will result.

Production Order Journal

This report lists registered Production Orders, and also shows the Productions that have been created from each Production Order.

You can also produce the Overview version of this report by opening a Production Order and choosing ‘Production Order Status’ from the Operations menu.

When printed to screen, the Production Order Journal has the HansaWorld Enterprise Drill-down feature. Click on any Production Order or Production Number to open the corresponding record.

Specify Production Order Journal

Run

Period1/1/2009:31/12/2009

Number

Out Items

Group

Recipe

Machine

Function

Overview

Detailed

Multiply by Order Qty

Include

Created

Cancelled

Accepted

Started

Finished

Media

Screen

Printer

File

Clipboard

Fax

Pdf

Html as Attachment

Excel

Print Dialog

Ignore Timeout Limit

Period	Paste Special	Reporting Periods setting, System module
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Enter the start and end dates of the reporting period. If you choose to list Started Production Orders in the report, those whose Start Dates fall within this period will be included. For other Production Orders, those whose Due Dates fall within this period and those with blank Due Dates will be included.

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Number	Range Reporting	Numeric
	Enter the Production Order Number (or range of Production Order Numbers) of the records to be shown in the report.	
Out Items	Paste Special	Item register
	Range Reporting	Alpha
	Enter the Item Number of an assembled Item to list Production Orders with a particular Output Item.	
Group	Paste Special	Item Group register, Sales Ledger
	If you enter an Item Group here, the report will list every Production Order whose Output Item is a member of the Item Group.	
Recipe	Paste Special	Recipe Register, Production module
	Enter a Recipe Number to list Production Orders that use a particular Recipe.	
Machine	Paste Special	Asset register, Assets module
	Enter a Machine Number to list Production Orders that have been assigned to a particular Machine.	
Function	These options control the level of detail shown in the report.	
Overview	On a single line per Production Order, this option shows Number, Due Date, Queue Position, Machine, Recipe, Name and Quantity. If any Productions have been created from a Production Order, these will be listed on individual lines under the Production Order. Information shown will be the Number, Date, Person, total Weight and Quantity.	
Detailed	In addition to the details in the Overview, this option shows the Comments and Instructions from each Production Order, and lists its components individually.	

Multiply by Order Qty

The list of components in the Detailed option can include the quantities required to produce one Output Item (as entered to the Production Order), or it can include the total quantities required to complete the Production Order. Check this box if you want to use the second option.

For example, a Production Order has a total quantity of 2000. 500 have already been built (i.e. included in Finished Productions). Two examples of a particular component are required for each Output Item: this is the quantity entered in the grid in the Production Order. If you are not using this option, the report will show that a quantity of two components is required to produce one Output Item. If you are using this Item, the report will show a quantity of 3000 components is required to produce 1500 Output Items.

Include

Check the boxes to include Production Orders of different types in the report. At least one option must be checked, otherwise a blank report will result.

Production Planning

This report lists Production Orders whose Status is Created. It therefore lists the Production Orders that have not yet been placed in a queue for a Machine.

For each Production Order, the report shows the Production Order Number, the Recipe, the Machine, the Name, the Quantity (from the Production Order header) and the Planned Date (the Should Start date).

When printed to screen, the Production Planning report has the HansaWorld Enterprise Drill-down feature. Click on any Production Order Number to open the corresponding record.

Planned Period	Paste Special	Reporting Periods setting, System module
		Enter the start and end dates of the reporting period. Production Orders whose Status is Created and whose Should Start dates fall within this period will be listed in the report, as will Created Production Orders without Should Start dates.
Location	Paste Special	Locations setting, Stock module
		Enter a Location to list Started Production Orders that have been assigned to a particular Location (e.g. a particular workshop).
Recipe	Paste Special	Recipe register, Production module
		Enter a Recipe Number to list Created Production Orders that use a particular Recipe.
Item Group	Paste Special	Item Group register, Sales Ledger
		If you specify an Item Group, the report will list Started Production Orders that have Output Items belonging to that Item Group.

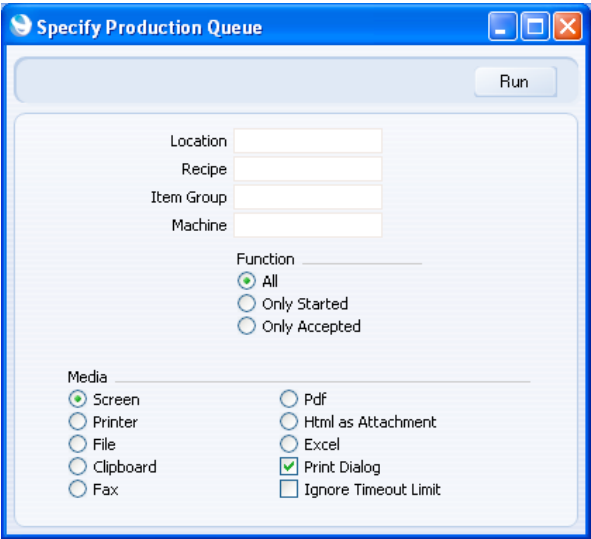
Machine	Paste Special	Asset register, Assets module
Enter a Machine Number to list Started Production Orders that have been assigned to a particular Machine.		

Production Queue

This report lists the Production Orders that are currently waiting to be produced. This means Production Orders whose Status is Started or Accepted and that have a Queue Position.

This report shows every Production Order in the queue for a Machine, while the similar Running Production Orders report only shows the Production Order currently being produced (i.e. the one with the lowest Queue Position).

When printed to screen, the Production Queue report has the HansaWorld Enterprise Drill-down feature. Click on any Production Order Number to open the corresponding record. For example, if you need to move a Production Order to a different position in the queue, you can open it by drilling down and then choose ‘Move in Queue’ from the Operations menu. If you need to begin or continue work on a Production Order, open it and choose ‘Finish Batch’ from the Operations menu.



Location	Paste Special	Locations setting, Stock module
Enter a Location to list Production Orders that have been assigned to a particular Location (e.g. a particular workshop).		

Recipe	Paste Special	Recipe register, Production module
		Enter a Recipe Number to list Production Orders that use a particular Recipe.
Item Group	Paste Special	Item Group register, Sales Ledger
		If you specify an Item Group, the report will list Production Orders that have Output Items belonging to that Item Group.
Machine	Paste Special	Asset register, Assets module
		Enter a Machine Number to list the Production Orders that are in the queue for a particular Machine.
Function		You can choose to list Accepted Production Orders, Started Production Orders or both in the report.

Production Statistics

The Production Statistics report is a list of Recipes, showing the number of applications of each Recipe during the report period. One example of its use is to compare what has been produced during various work shifts. The report shows the Recipe Number and Name, the Unit of the Output Item, the number of applications (calculated by adding the Quantities from the header of each Finished Production) and the output weight (calculated by adding the Out Weights from the footer of each Finished Production).

Specify Production Statistics

Run

Period 1/1/2009:31/12/2009

Recipe

Machine

Start Time from

Start Time until

Media

☒ Screen
 ☐ Pdf

☐ Printer
 ☐ Html as Attachment

☐ File
 ☐ Excel

☐ Clipboard
 ☒ Print Dialog

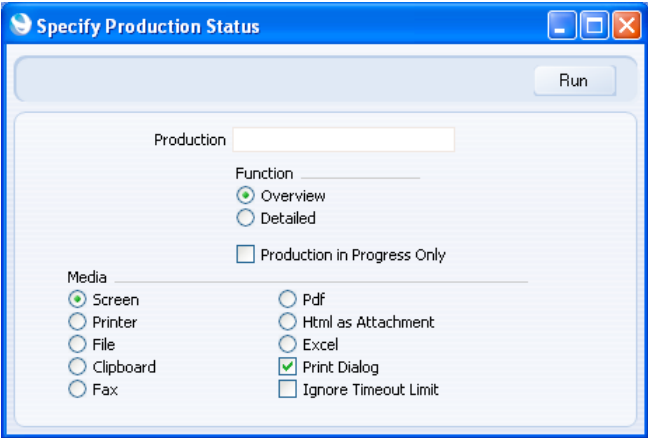
☐ Fax
 ☐ Ignore Timeout Limit

Period	Paste Special	Reporting Periods setting, System module
		Enter the start and end dates of the reporting period. Productions whose Status is Finished and whose End Dates fall within this period will be included in the report calculations.
Recipe	Paste Special	Recipe register, Production module
		Enter a Recipe to report on a single Recipe, or leave the field blank to report on all Recipes.
Machine	Paste Special	Asset register, Assets module
		Enter a Machine to report on the Recipes that it produced, or leave the field blank to report on all Machines.
Start Time from, Start Time until		
If you want to use the report to see what has been produced during a work shift, specify the start and end times of the shift here. Productions whose Start Times fall between these times will be included in the report calculations. If the report period covers more than one day, the Start Time until can be earlier than the Start Time from.		
Use the 24 hour clock in these fields.		

Production Status

This report is a list of Productions, showing any connected Production Operations and Stock Movements. You can also produce the Overview version of this report by opening a Production (which must have a Routing) and choosing 'Production Status' from the Operations menu.

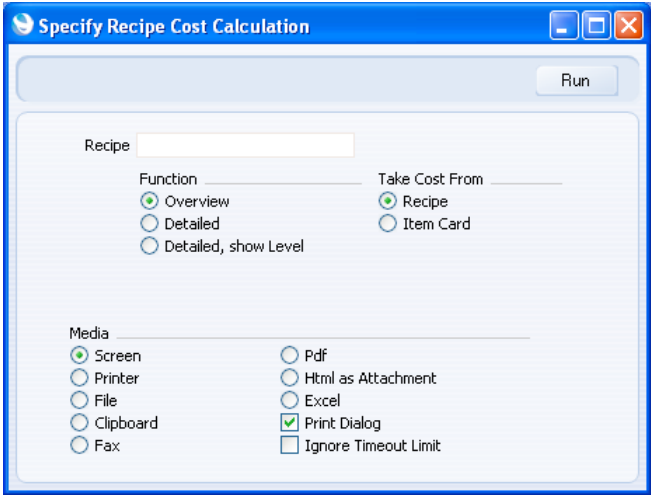
When printed to screen, the Production Status report has the HansaWorld Enterprise Drill-down feature. Click on any Production or Stock Movement Number or Production Operation Comment to open the corresponding record.



Production	Range Reporting	Numeric
	Enter the Production Number (or range of Production Numbers) of the records to be shown in the report.	
Function	Use these options to control the level of detail shown in the report.	
Overview	For each Production, this option first shows the Production Number and Status and then lists the connected Production Operations and Stock Movements. For each Production Operation, the Comment, Sequence and Sub-Sequence, Status, the Qty and Actual Qty, and the total cost are printed. For each Stock Movement, the Stock Movement Number is printed.	
Detailed	This option is similar to the Overview, with the exception that the Qty and Actual Qty, and the total cost of each Production Operation are not printed. Instead, the Items in the Operation are listed, showing the Item Number and Name and In or Out Qty.	
Production in Progress Only	Use this option if you want to exclude any Cancelled, Finished and Discarded Productions in the range from the report.	

Recipe Cost Calculation

This report is a list of Recipes that compares the total cost of assembly with the sales price of the Output Item. The cost of assembly is the I-cost plus the W-cost. The I-cost can be taken from the Recipe or from the Item records of the components ('Costs' card). The sales price of the Output Item is taken from the 'Pricing' card of the relevant Item record.



Recipe	Paste Special	Recipe register, Production module
	Range Reporting	Alpha
	Specify the Recipes to be listed by entering a Recipe Number, or range of Recipe Numbers.	
Function	Use these options to control the level of detail shown in the report.	
Overview	This option produces a simple list showing Recipe Number and Name, total cost and sales price.	
Detailed	This option lists the components of each Recipe together with individual costs and quantities. Components that are assemblies themselves are not listed, but are broken down so that the bottom-level components are shown.	

Detailed, show Level

This option is very similar to the Detailed option, with the exception that the component level is also shown. Since components that are assemblies themselves are not listed, but are broken down so that the bottom-level components are shown, this will be a useful indication of the number of levels of sub-assembly that go towards producing the final Item. The final Item is on level 0, the components of that Item are on level 1, the components of those Items are on level 2 etc.

Take Cost From Use these options to choose whether the cost prices of the components are to be taken from the Recipes or from the 'Costs' cards of the relevant Item records.

Recipe Cost Comparison

This report allows you to compare the costs in Recipes with those in Productions.

When you mark a Production as Finished and save, the I-costs of Stocked Items will be updated. In the case of components, costs will be calculated using the Cost Models specified in the relevant Item or Item Group records or, if those Cost Models are Default, the Primary Cost Model specified in the Cost Accounting setting in the Stock module. In the case of assembled Items, costs will be updated to be the sum of those of the components. As a result, the costs in a Finished Production may differ significantly to those in the Recipe.

You can also use this report to compare the costs in a Recipe with those in the Item records for the components and assembled Item(s). You can then update the Recipe using the 'Update Recipes' Maintenance function (described above on page 279).

When printed to screen, the Recipe Cost Comparison report has the HansaWorld Enterprise Drill-down feature. Click on any Recipe or Item Number to open the corresponding record.

Recipe	Paste Special	Recipe register, Production module
Production	Range Reporting	Alpha
	Specify the Recipe or range of Recipes that you want in the report.	
Compare Period	Paste Special	Production register, Production module
	Range Reporting	Numeric
If you use the Compare options (below) to specify that you want to compare a Recipe with specific Productions, use this field to specify those Productions. Only Finished and Discarded Productions in the range will be included in the report calculations.		
Compare Period	Paste Special	Reporting Periods setting, System module
	If you use the Compare options (below) to specify that you want to compare a Recipe with Productions from a certain period, use this field to specify that period. Every Finished and Discarded Production whose End Date falls in the period specified here will be included in the report calculations.	

Compare

Choose a comparison option, as follows—

None

This option is a list of Recipes. For each Recipe, the Code and Comment and Minimum and Normal Production quantities will be printed, followed by a list of Output and Input Items. This list will include the Item Number and Description, the Input or Output quantity, the I-cost and W-cost and the Total Cost ((I-cost * quantity) + W-cost). Finally, that Total Cost will be expressed as a percentage of the entire cost of the Recipe.

To Item Cost

This option compares the costs in the selected Recipes with those in the Item records for the components and assembled Item(s).

First, the report shows the Total Cost of each Item in the Recipe (I-cost * quantity), and that Total Cost will be expressed as a percentage of the entire cost of the Recipe.

The report then shows the same figures, but calculated using the Cost Prices in the Item records (i.e. Cost Price * quantity).

Finally, the difference between the two is expressed as a percentage.

Specific Production

This option compares the costs in the selected Recipes with those in the Productions you have specified in the Production field above. The calculations will only include Finished and Discarded Productions in the range. If you do not specify any Productions in the field above, all Finished and Discarded Productions will be included (i.e. not just those from the Compare Period).

The appearance of the report is similar to that described for the To Item Cost option above. The second section will show average cost figures for each Item (i.e. an average figure for Production I-cost * quantity will be calculated from the selected Productions).

Productions in Period

This option compares the costs in the selected Recipes with those in the Productions whose End Dates fall in the Compare Period. The calculations will only include Finished and Discarded Productions from that period.

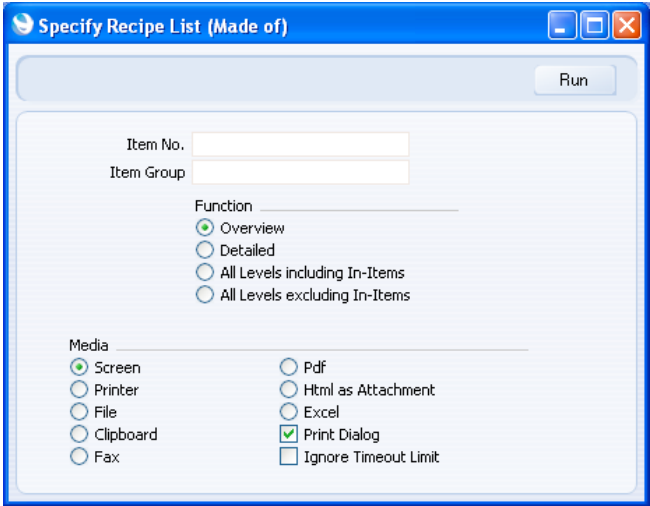
The appearance of the report is similar to that described for the Specific Production option above.

Display	By default, for each Recipe the Output Items will be printed first, sorted by Item Group, followed by the Input Items, again sorted by Item Group. Alternatively, you can print the Items in the order in which they are listed in the Recipe.
Function	Use these options to choose whether you want to compare costs or quantities. The second option will only produce a meaningful report if you choose to compare Recipes with Specific Productions or Productions in Period.

Recipe List (Made of)

This report is a list of assembled Items (i.e. Structured Items, Phantom Items and Stocked Items with Recipes), listing the components used in each case.

When printed to screen, the Recipe List (Made of) report has the HansaWorld Enterprise Drill-down feature. Click on any Item Number to open the corresponding record.



Item No.	Paste Special	Item register
	Range Reporting	Alpha
Enter the Item Number of an assembled Item to view how it is made up. If you enter a range of Item Numbers, only those Items in the range with Recipes will be included in the report.		
Item Group	Paste Special	Item Group register, Sales Ledger
	Range Reporting	Alpha
Enter an Item Group to show all Items in the Group that have Recipes.		
Function	These options control the level of detail shown in the report.	
	Overview	This option shows the Item Number of the assembled Item, the Recipe, the Item Number of

each Input and Output Item, and the In or Out Quantity as appropriate.

Detailed

In addition to the above, this option shows the Name of the Recipe, the Names of each Item and the I-cost and W-cost of each Input and Output Item.

All Levels including In-Items

For the assembled Item and the Input and Output Items, this option shows the In or Out Quantity as appropriate, the quantity in stock and the I-cost and W-cost. If a Recipe contains a sub-assembly, the Input Items in that sub-assembly will also be listed.

All Levels excluding In-Items

This is similar to the previous option, but only lists Output Items.

Recipe List (Part of)

This report is a list of Recipes, showing the components with quantities and costs.

Specify Recipe List (Part of)

Run

Recipe

Item No. (Component)

Item Group (Component)

Display

☒ Entire Recipe

☐ Only Out and Selected Item (shows one selected component)

Media

☒ Screen

☐ Printer

☐ File

☐ Clipboard

☐ Fax

☐ Pdf

☐ Html as Attachment

☐ Excel

☒ Print Dialog

☐ Ignore Timeout Limit

Recipe	Paste Special	Recipe register, Production module
	Range Reporting	Alpha
	Use this field to limit the report to a single Recipe, or range of Recipes.	
Item No. (Component)		
	Paste Special	Item register
	Range Reporting	Alpha
	Enter an Item Number to show the Recipes in which the Item is used as a component.	
Item Group (Component)		
	Paste Special	Item Group register, Sales Ledger
	Range Reporting	Alpha
	Enter an Item Group to show the Recipes in which Items from this Group are used as components.	
Display	These options control the level of detail shown in the report.	
Entire Recipe	This option produces a very detailed report. For each Recipe, the Code, Name and Minimum and Normal Production Quantities are shown. The Input and Output Items are then listed. For each one, the Item Number and Name, the In or Out Quantity, the I-cost, the W-cost and the Total ((I-cost * Quantity) + W-cost) are shown.	
Only Out and Selected Item (shows one selected component)		
	If you produce the report leaving the Item No, and Item Group fields in the specification window empty, this report will be identical to the Entire Recipe option described above.	
	If you specify an Item No., this report will be a simple list of the Recipes that contain the Item you have specified as a component. This list will show the Recipe Code, the Output Item Number and Name, the Out Quantity, the Item Number	

and Name of the specified component and the In Quantity of that component.

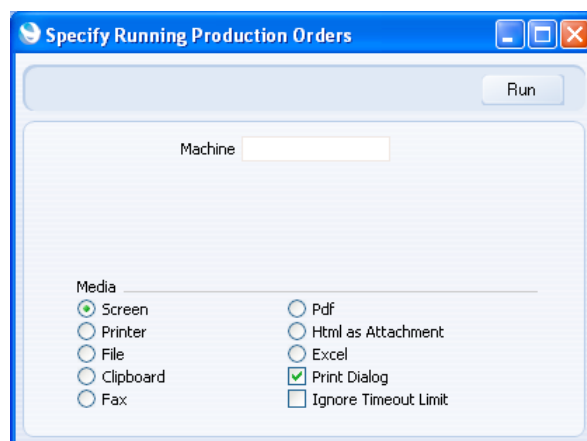
If you specify a range of Item Numbers or an Item Group, the report will be as described in the previous paragraph. If a particular Recipe contains more than one component in the range of Item Numbers or in the Item Group, only the first one will be included in the report.

Running Production Orders

This report shows the first Production Order in the queue for each Machine (i.e. the one currently being produced). This means the Production Order whose Status is Started or Accepted and with the lowest Queue Position for the Machine.

The otherwise similar Production Queue report shows every Production Order in the queue for a Machine, not just the first one in the queue.

When printed to screen, the Running Production Orders report has the HansaWorld Enterprise Drill-down feature. Click on any Production Order Number to open the corresponding record. For example, if you need to move a Production Order back in the queue, you can open it by drilling down and then choose 'Move in Queue' from the Operations menu. If you need to begin or continue work on a Production Order, open it and choose 'Finish Batch' from the Operations menu.



Machine

Paste Special

Asset register, Assets module

Enter a Machine Number to print the Production Order that is first in the queue for a particular Machine.

***HansaWorld
Enterprise
Production
Index***

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A

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