

# Introduction to MS Dynamics

NAV XXVII. (Production)

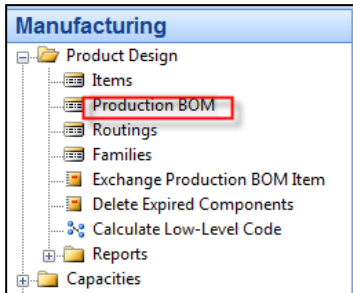
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# Production -basics

- **What to produce –BOM (Bill of Material)**
  - A BOM is a listing of all the subassemblies, intermediates, parts and raw materials that go into a parent item.
  - **Statuses** : New, Under Development, Certified and Closed (archived)
  - Production BOMs manage the material requirement of production exclusively.
  - Production BOMs may consist of several levels. You can use up to **50 levels**.

# BOM



The image shows a window titled '1000 Bicycle - Production BOM'. The window has a 'General' tab and contains the following information:

General

No. . . . . 1000      Search Name . . . . . BICYCLE

Description . . . . . Bicycle      Version Nos. . . . .

Unit of Measure Code . . . . . PCS      Active Version . . . . .

Status . . . . . Certified      Last Date Modified . . . . . 11.12.10

Type	No.	Description	Quantity per	Unit of Measure Code	Scrap %	Routing Link Code	Starting Date	Ending Date
Item	1100	Front Wheel	1	PCS	0			
Item	1200	Back Wheel	1	PCS	0			
Item	1300	Chain Assy	1	PCS	0			
Item	1400	Mudguard front	1	PCS	0			
Item	1450	Mudguard back	1	PCS	0			
Item	1500	Lamp	1	PCS	0			
Item	1600	Bell	1	PCS	0			
Item	1700	Brake	1	PCS	0			
Item	1800	Handlebars	1	PCS	0			
Item	1850	Saddle	1	PCS	0			
Item	1900	Frame	1	PCS	0			

Prod. BOM    Component    Functions    Help

# Production -basics

- **What resources will be used**

- **Machine Centers**

- Machines
    - Workers (only MC)
    - Costs
    - Load
    - Statistics
    - Absence
    - Load
    - Sent-Ahead Quantity (only MC)

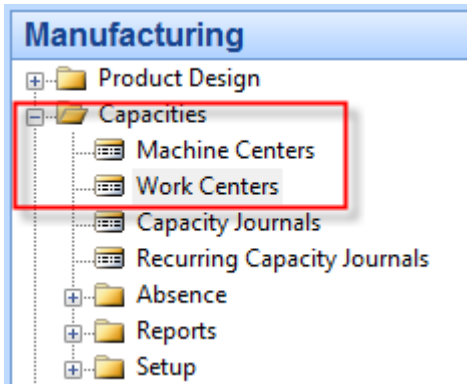
- **Capacity**

- In general, the capacity is the amount of work that can be done in a specified time period. The capacity of a machine center indicates how many machines or persons are working at the same time. For example, if the capacity is two, it means that twice as much work can be done at the same time

- **Efficiency**

- Efficiency measures the output of a machine center relative to the standard output expected. If you enter 100, it means that the machine center will have an actual output that is the same as the standard output

# Machine Centers (MC)



The image shows a 'Machine Center Card' window for '420 CNC machine'. The window has a title bar with the text '420 CNC machine - Machine Center Card' and standard window controls. It features four tabs: 'General', 'Posting', 'Scheduling', and 'Routing Setup', with 'General' selected. The form contains the following fields and values:

No. . . . .	420	Search Name . . . . .	CNC MACHINE
Name . . . . .	CNC machine	Blocked . . . . .	<input type="checkbox"/>
Work Center No. . . . .	400	Last Date Modified . . . . .	10.12.13

At the bottom of the window, there are three buttons: 'Mach. Ctr.' with a dropdown arrow, 'Planning' with a dropdown arrow, and 'Help'.

# Production -basics

- **What resources will be used**
  - **Work Centers**
    - Related machines (group of machines)
    - Capacity
    - Efficiency
    - Costs
    - Load
    - Statistics
    - Absence
    - **Shop calendar (not in MC)**
    - **Alternate Work Center (not in MC)**
    - **Unit of Measure Code (not in MC)**

# Work Centers (WC)

300 Painting department - Work Center Card

General Posting Scheduling

No. . . . . 300

Name. . . . . Painting department

Work Center Group Code . . . . . 2

Alternate Work Center . . . . .

Search Name . . . . . PAINTING DEPAR...

Blocked . . . . .

Last Date Modified . . . . . 10.12.13

200 Packing department - Work Center Card

General Posting Scheduling

Direct Unit Cost . . . . . 12,50

Indirect Cost % . . . . . 0

Overhead Rate . . . . . 0,00

Unit Cost . . . . . 12,50

Unit Cost Calculation . . . . . Time

Specific Unit Cost . . . . .

Department Code . . . . .

Project Code . . . . .

Subcontractor No. . . . .

Flushing Method. . . . . Manual

Gen. Prod. Posting Group . . . . . MANUFACT

200 Packing department - Work Center Card

General Posting Scheduling

Unit of Measure Code . . . . . MINUTES

Capacity . . . . . 1

Efficiency . . . . . 100

Consolidated Calendar . . . . .

Shop Calendar Code. . . . . 1

Queue Time. . . . . 0

Queue Time Unit of Me... . . . .

Work Ctr. Planning Help

# Production -basics

- **How the final product will be produces**
  - **Routing**
    - Statuses (similar to BOM)
    - Serial and Parallel operations mode
    - Operations
    - Setup and production times
    - Waiting and Move times
    - Send-Ahead Quantity
    - Scrap calculation
    - Standard Task Codes



# Routing

1000 Bicycle - Routing

General

No. . . . . 1000

Description . . . . . Bicycle

Type . . . . . Serial

Status . . . . . Certified

Search Description . . . BICYCLE

Version Nos. . . . .

Active Version. . . . .

Last Date Modified . . . 11.12.10

Operation No.	Type	No.	Standard Task Code	Description	Setup Time	Run Time	Wait Time	Move Time	Fixed Scrap Quantity	Scrap Facto...	Concurrent Capacities	Send-Ahead Quantity	Unit Cost per
▶ 10	Work Center		100	Wheel assembly	110	12	0	0	0	0	0	0	0,00
20	Machine Center		120	Chain assembly	15	15	0	0	0	0	1	0	0,00
30	Machine Center		130	Final assembly	10	20	0	0	0	0	1	0	0,00
40	Machine Center		110	Control	10	8	0	0	0	0	1	0	0,00

Routing    Operation    Functions    Help

- Manufacturing
  - Product Design
    - Items
    - Production BOM
    - Routings**
    - Families
    - Exchange Production BOM Item
    - Delete Expired Components
    - Calculate Low-Level Code
    - Reports

# MRP and MRP-II in NAV

Planning : firstly PO1 and then PO2

Today



DUE date



# Production Order (manually created)

## Manufacturing

- Product Design
- Capacities
- Planning
- Execution
  - Planned Prod. Orders
  - Firm Planned Prod. Orders**
  - Released Prod. Orders
  - Change Production Order Status
  - Production Schedule

F3, Enter, Item, F6->1150->Quantity=100->Function->  
->Refresh->Backward->Ticked (lines, routings and components)

101003 Front Hub - Firm Planned Prod. Order

General Schedule Posting

No. . . . . 101003 Search Description . . . FRONT HUB

Description . . . . . Front Hub Quantity . . . . . 100

Description 2 . . . . . Due Date . . . . . 11.12.13

Source Type . . . . . Item Assigned User ID . . .

Source No. . . . . 1150 Last Date Modified . . . 18.11.14

Item No.	Due Date	Description	Starting Date-Time	Ending Date-Time	Quantity
▶ 1150	11.12.13	Front Hub	04.12.13 22:00	10.12.13 23:00	

Order Line Functions Print Help

# Components from PO

101003 Front Hub - Firm Planned Prod. Order

General Schedule Posting

No. . . . . 101003 Search Description . . . FRONT HUB

Description . . . . . Front Hub Quantity . . . . . 100

Description 2 . . . . . Due Date . . . . . 11.12.13

Source Type . . . . . Item Assigned User ID . . .

Source No. . . . . 1150 Last Date Modified . . . 18.11.14

Item No.	Due Date	Description	Starting Date-Time	Ending Date-Time	Quantity
1150	11.12.13	Front Hub	04.12.13 22:00	10.12.13 23:00	

Order Line Functions Print Help

- Item Availability by
- Reservation Entries
- Dimensions Shift+Ctrl+D
- Routing
- Components**
- Item Tracking Lines Shift+Ctrl+I

101003 Front Hub 1150 - Prod. Order Components

Item No.	Due Date	Description	Quantity ...	Unit of Measu...	F...	Expected...	Remainin
1151	04.12.13	Axle Front Wheel	1	PCS	M..	105	1
1155	04.12.13	Socket Front	1	PCS	M..	105	1

# Routing from PO

101003 Front Hub - Firm Planned Prod. Order

General Schedule Posting

No. . . . . 101003 Search Description . . . FRONT HUB  
Description . . . . . Front Hub Quantity . . . . . 100  
Description 2 . . . . . Due Date . . . . . 11.12.13  
Source Type . . . . . Item Assigned User ID . . .  
Source No. . . . . 1150 Last Date Modified . . . 18.11.14

Item No.	Due Date	Description	Starting Date-Time	Ending Date-Time	Quantity
1150	11.12.13	Front Hub	04.12.13 22:00	10.12.13 23:00	

Order Line Functions Print Help

- Item Availability by
- Reservation Entries
- Dimensions Shift+Ctrl+D
- Routing**
- Components
- Item Tracking Lines Shift+Ctrl+I



# Routing

101003 Front Hub 1150 - Prod. Order Routing

Operatio...	Type	No.	Description	Starting Date-Time	Ending Date-Time	Setup Time	Run Time	Wait Time	Mov
▶	5	Machine Cer	420 CNC/Axle	04.12.13 22:00	05.12.13 21:15	120	7	0	▲
	10	Machine ...	420 CNC/Axle	05.12.13 21:15	06.12.13 20:30	120	7	0	
	20	Machine ...	420 CNC/Socket	05.12.13 22:02	06.12.13 17:07	80	5	0	
	30	Machine ...	430 Deburr Axle	06.12.13 20:30	09.12.13 11:05	20	3	0	
	40	Machine ...	410 Drilling Socket	06.12.13 17:07	09.12.13 11:05	13	5	0	
	50	Work Ce...	100 Hub assembly	09.12.13 11:05	10.12.13 14:05	30	6	0	
	60	Machine ...	420 Inspection of Hub	10.12.13 14:05	10.12.13 23:00	10	5	0	▼

Line Functions Help

# Statistics from PO

101003 Front Hub - Production Order Statistics

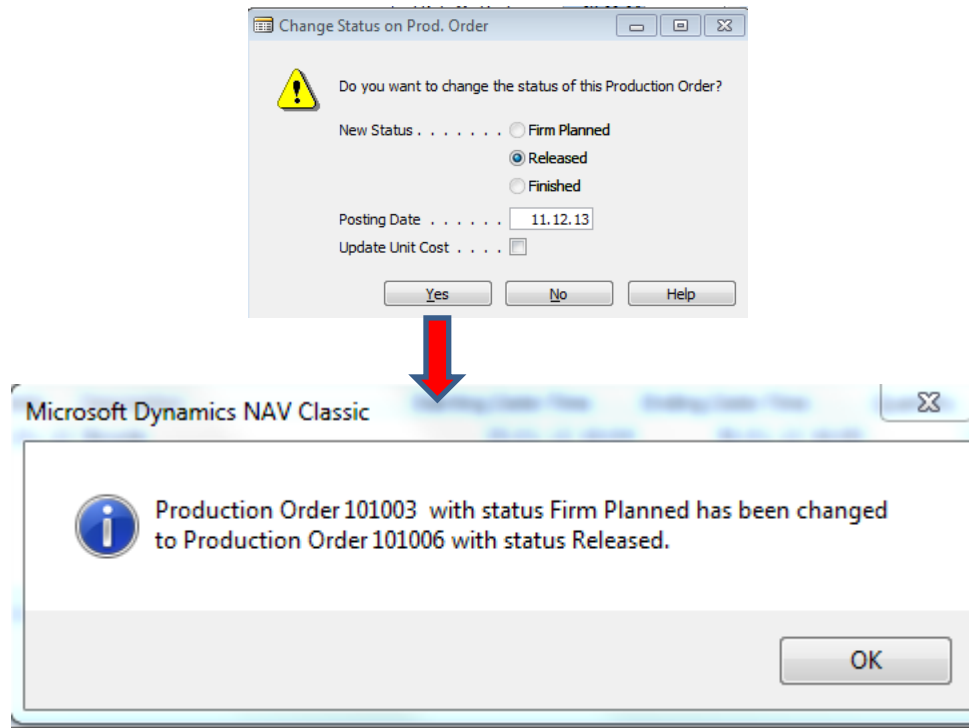
General

	Standard Cost	Expected Cost	Actual Cost	Dev. %	Variance
Material Cost . . . . .	128,10	128,10	0,00	-100	-128,10
Capacity Cost. . . . .	1 116,00	59 361,00	0,00	-100	-1 116,00
Subcontracted Cost . . .	0,00	0,00	0,00	0	0,00
Capacity Overhead . . .	0,00	0,00	0,00	0	0,00
Manufacturing Overhead	0,00	0,00	0,00	0	0,00
Total Cost . . . . .	1 244,10	59 489,10	0,00	-100	-1 244,10
Capacity Need . . . . .		4 383	0	-100	

Help

# Status change

- PO button Function ->Change unit status ->Released



New Released PO has the same structure like Firm Planned PO !!!



# Consumption from Released PO

101006 Front Hub - Released Production Order

General Schedule Posting

No. . . . . 101006 Search Description . . . FRONT HUB

Description . . . . . Front Hub Quantity . . . . . 100

Description 2 . . . . . Due Date . . . . . 11.12.13

Source Type . . . . . Item Assigned User ID . . . . .

Source No. . . . . 1150 Blocked . . . . .

Last Date Modified . . . 18.11.14

Item No.	Due Date	Description	Starting Date-Time	Ending Date-Time	Quantity	Unit of M...	Finished ...	Remainin...	Unit Cost	Cost Amount
▶ 1150	11.12.13	Front Hub	04.12.13 22:00	10.12.13 23:00	100	PCS	0	100	12,441	1 244,10

Order Line Functions Print Help

- Item Availability by
- Reservation Entries
- Dimensions Shift+Ctrl+D
- Routing
- Components
- Item Tracking Lines Shift+Ctrl+I
- Production Journal**

# Production Journal I.

Production Order 101006 Front Hub - Production Journal

General

Posting Date . . . 11.12.13 Flushing Method Filter. . Manual

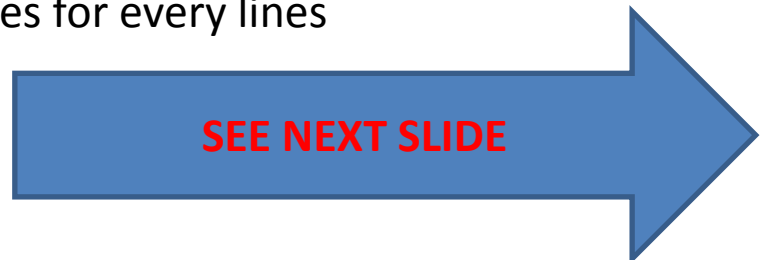
Entry Type	Item No.	Operation No.	T... No.	Description	Consumption Quantity	Location Code	Setup Time	Run Time	Output Quantity	Scrap Quantity	Finished
Consumption	1151			Axle Front Wheel	105						
Consumption	1155			Socket Front	105						
Output	1150	5 M..	420	<b>CNC/Axle</b>			0	0	100	0	
Output	1150	10 M..	420	<b>CNC/Axle</b>			0	0	100	0	
Output	1150	20 M..	420	<b>CNC/Socket</b>			0	0	100	0	
Output	1150	30 M..	430	<b>Deburr Axle</b>			0	0	100	0	
Output	1150	40 M..	410	<b>Drilling Socket</b>			0	0	100	0	
Output	1150	50 W..	100	<b>Hub assembly</b>			0	0	100	0	
Output	1150	60 M..	420	<b>Inspection of Hub</b>			0	0	100	0	

Actual

Consump. Qty. 0 Setup Time Run Time Output Qty. Scrap Qty.

Line Prod. Order Posting Print... Help

You have to enter Setup times and real Run times for every lines



# Production Journal II.

Production Order 101006 Front Hub - Production Journal If we do not have enough Items in our stock, use Item journal to get some into location BLUE

General

Posting Date . . . 11.12.13      Flushing Method Filter. . Manual

Entry Type	Item No.	Operation No.	T... No.	Description	Consumption Quantity	Location Code	Setup Time	Run Time	Output Quantity	Scrap Quantity	Finished
Consumption	1151			Axle Front Wheel	105	BLUE					
Consumption	1155			Socket Front	105	BLUE					
Output	1150	5 M..	420	<b>CNC/Axle</b>			10	2	100	0	
Output	1150	10 M..	420	<b>CNC/Axle</b>			10	3	100	0	
Output	1150	20 M..	420	<b>CNC/Socket</b>			10	2	100	0	
Output	1150	30 M..	430	<b>Deburr Axle</b>			10	1	100	0	
Output	1150	40 M..	410	<b>Drilling Socket</b>			10	3	100	0	
Output	1150	50 W..	100	<b>Hub assembly</b>			10	4	100	0	
Output	1150	60 M..	420	<b>Inspection of Hub</b>			10	3	100	0	

Actual

Consump. Qty.      Setup Time      Run Time      Output Qty.      Scrap Qty.

Line      Prod. Order      Posting      Print...      Help

F11

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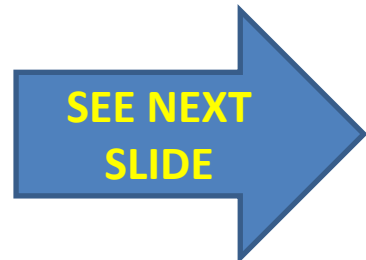
Do you want to post the journal lines?

Ano      Ne

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The journal lines were successfully posted.

OK



# PO Entries and Statistics (F9)

Released Production Order 101006 Front Hub - Item Ledger Entries

Posting Date	Entry Type	Document Type	Document No.	Item No.	Description	Location Code	Quantity	Invoiced Quantity	Remaining Quantity	Sales Amount (Actual)	Cost Amount (Actual)	Co: (Nc)
11.12.13	Consumption		101006	1151		BLUE	-105	-105	0	0,00	-47,25	
11.12.13	Consumption		101006	1155		BLUE	-105	-105	0	0,00	-80,85	
11.12.13	Output		101006	1150			100	0	100	0,00	0,00	

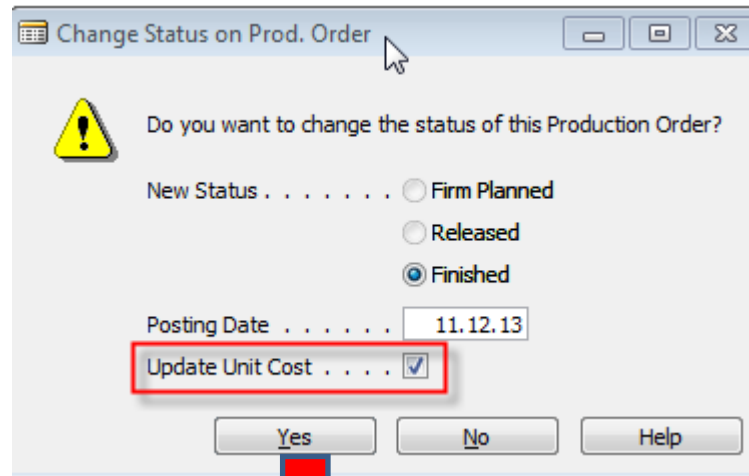
101006 Front Hub - Production Order Statistics

General

	Standard Cost	Expected Cost	Actual Cost	Dev. %	Variance
Material Cost . . . . .	128,10	128,10	128,10	0	0,00
Capacity Cost. . . . .	1 116,00	59 361,00	1 226,80	10	110,80
Subcontracted Cost . . .	0,00	0,00	0,00	0	0,00
Capacity Overhead . . .	0,00	0,00	0,00	0	0,00
Manufacturing Overhead	0,00	0,00	0,00	0	0,00
Total Cost . . . . .	1 244,10	59 489,10	1 354,90	9	110,80
Capacity Need . . . . .		4 383	88	-98	

Help

# Change status PO->Finished



Change Status on Prod. Order

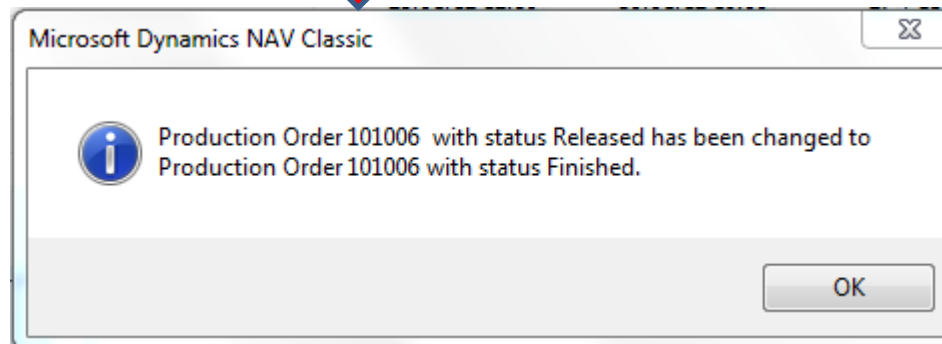
Do you want to change the status of this Production Order?

New Status . . . . .  Firm Planned  
 Released  
 Finished

Posting Date . . . . . 11.12.13

Update Unit Cost . . . . .

Yes No Help



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Production Order 101006 with status Released has been changed to Production Order 101006 with status Finished.

OK

# End of the section XXVI.

