



Assembly Management

Scenario: Assume an Assembly Order relating to item FWABW001 for 450 quantities is to be created at location INVENTORY. It could be assumed that the order is to be processed during 01/25/2018 to 01/31/2018.

Defining the Job and Job Steps

The Jobs and the Job Steps would be defined in Vertex Client Payroll Manager (CPM). For guidance in creating Jobs and Job Steps in Vertex CPM please refer the Help. Listed below are a few screenshots of the Job and the Steps created in relation to the above scenario.

Job Definition

Job no.	Name	Branch code	Branch	Transfer to Navision	Payroll Only	Service
99143	Conestoga - PacK 12 Screw Kit Assembly	1	Vertex Industries	N	Yes	
99145	Alpha Co Widgets	1	Vertex Industries	Y	No	
99146	Assemble Totes	1	Vertex Industries	Y	No	
99150	Wooden Alphabet Blocks Wagon	1	Vertex Industries	Y	No	

Job no. 99150 Order No... Status: Start date 01/01/2018 Close date

Name: Wooden Alphabet Blocks Wagon

Payroll branch: 1 Vertex Industries

Category: Department: Customer: Service delivery code: Transfer to Navision

Clean assembly station with cleaning liquid before starting work on the job. Ensure there are no harmful object that could transfer on to the finished goods.



Job Step Definition

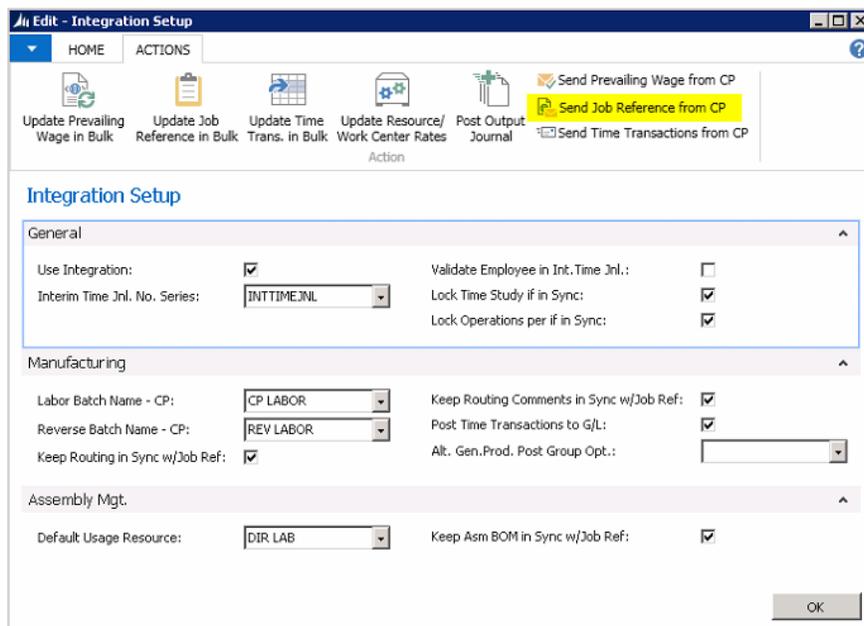
The screenshot shows the 'Client Payroll Manager - [Job/Activity Setup]' window. At the top, there is a menu bar with 'File', 'Edit', 'Navigation', 'Tools', and 'Help'. Below the menu bar is a toolbar with various icons. A search box contains '99150' and a filter dropdown is set to '[All]'. The main area displays a table of job steps for job '99150':

Step no.	Name	Wage basis	Piece rate	Sequence no.	Work type
01	Attach Four Wagon Wheels	\$9.00	\$0.03750	1	
02	Attach Pull String To Wagon	\$9.00	\$0.15000	2	
03	Arrange Blocks In In Wagon Alphabetically	\$9.00	\$0.02885	3	
04	Pack The Wagon Into The Box	\$9.00	\$0.75000	4	

Below the table, the 'Job step no.' is '01' and 'Sequence no.' is '1'. The 'Name' field contains 'Attach Four Wagon Wheels'. The 'Pay code' is 'PR' and the 'Pay Rate' is 'Piece Rate - Unclassified'. The 'Start date' is '01/01/2018'. Under 'Pay options', 'Paid using' is selected. The 'Prevailing / guaranteed wage' type is 'Wage Rate 9.00' with a 'Current basis' of '\$9.00'. The 'Piece rate' section shows 'Standard pieces' as 240, 'Rate' as '\$0.03750', 'Ops per FG' as 4, 'Labor \$ per FG' as '\$0.15000', and 'Effective date' as '01/01/2018'. The 'Options' section has 'Pieces required' checked. The 'Labor distribution accounts' section includes 'Regular', 'Overtime', 'Holiday', and 'Shift diff'. At the bottom, a text box contains the instruction: 'Check the wheels for defects. Make sure the paint is not scratched.'

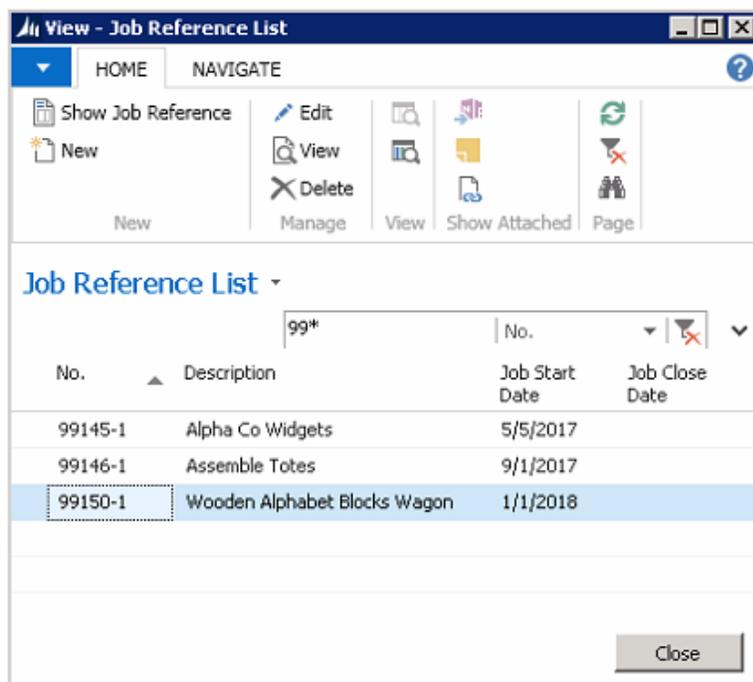
Synchronizing the Jobs to MS Dynamics NAV

Prior to creating Assembly Orders in MS Dynamics NAV for any newly created or modified Jobs in Vertex CPM the Jobs need to be synchronized on to MS Dynamics NAV. The synchronization is set to take place at defined interval however if the user requires to carry out a force synchronization navigate to the **Integration Setup** button located in the ribbon of the home screen. Subsequently go on to the **Navigate** tab and click on **Send Job Reference from CP**.



Job References

Once the Job and Steps synchronize to MS Dynamics NAV they would be listed under **Job Reference**. The user could navigate to this list by either clicking on the link on the home screen menu or by navigating as Departments → Warehouse → Assembly → Setup.





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Use the *Show Job Reference* button to view the Step details.

Step No.	Resource No.	Description	Start Date	Close Date	Prevailing Wage ID	Alternate	Operations per	Time Study Rate
01		Attach Four Wagon Wheels	1/1/2018		1058	<input type="checkbox"/>	4	240
02		Attach Pull String To Wagon	1/1/2018		1058	<input type="checkbox"/>	1	60
03		Arrange Blocks In In Wagon Alphab...	1/1/2018		1058	<input type="checkbox"/>	26	312
04		Pack The Wagon Into The Box	1/1/2018		1058	<input type="checkbox"/>	1	12

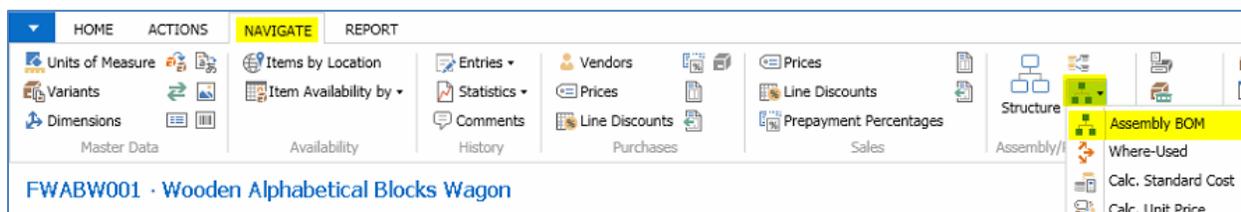
The user requires to fill in the *Resource No.* The user has the option of assigning individual resources to each step or assigning a single generic resource number to all steps. The resource assigned should have the *Default Res. Usage Type as "Estimate"*.

Step No.	Resource No.	Description	Start Date	Close Date	Prevailing Wage ID	Alte...	Operations per	Time Study Rate
01	ASMBLY	Attach Four Wagon Wheels	1/1/2018		1058	<input type="checkbox"/>	4	240
02	ASMBLY	Attach Pull String To Wagon	1/1/2018		1058	<input type="checkbox"/>	1	60
03	ASMBLY	Arrange Blocks In In Wagon Alphab...	1/1/2018		1058	<input type="checkbox"/>	26	312
04	ASMBLY	Pack The Wagon Into The Box	1/1/2018		1058	<input type="checkbox"/>	1	12

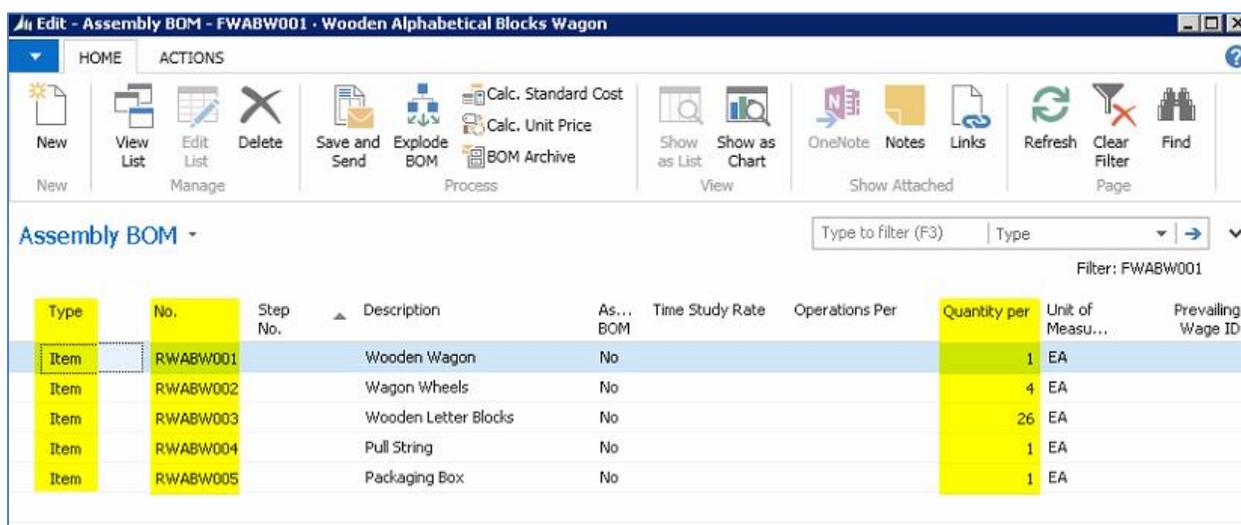


Defining the Assembly Bill of Material

The Assembly Bill of Material is accessed through the *Item Card*. On the *Item Card* select the *Navigate* tab and click on the *Assembly* button and select *Assembly BOM* as shown below.



This would open the Assembly BOM. When entering components select the *Type* as *Item*, select the *No.* and enter the *Quantity per*.



Note: The resources / steps required to assemble the item need not be entered manually on the Assembly BOM. They would be automatically inserted on to the Assembly BOM when the Job Reference is attached to the finished good item using the Item Card.

Attaching the Job Reference to the item on the Item Card

Navigate on to the *Replenishment* tab of the finished good *Item Card*. Insert the relevant job reference in the *Job Reference No.* field and place a check mark on *Keep Asm BOM in Sync w/Job Ref*. This would automatically add the resources / steps from the job reference on to the assembly bill of material and keep the resources in sync with the job reference.



Vertex Systems Assembly Management

FWABW001 - Wooden Alphabetical Blocks Wagon

General FWABW001 | EA | 0

Invoicing Standard | 1.44952 | 2-FIN GDS

Replenishment

Replenishment System: Assembly

Lead Time Calculation:

Purchase

Vendor No.:

Vendor Item No.:

Purch. Unit of Measure: EA

Production

Manufacturing Policy: Make-to-Stock

Routing No.:

Production BOM No.:

Rounding Precision: 1

Flushing Method: Manual

Scrap %: 0

Lot Size:

Assembly

Assembly Policy: Assemble-to-Stock

Job Reference No.: 99150-1

Keep Asm BOM in Sync w/Job Ref:

Edit - Assembly BOM - FWABW001 - Wooden Alphabetical Blocks Wagon

HOME ACTIONS

New View List Edit List Delete Save and Send Explode BOM Calc. Standard Cost Calc. Unit Price BOM Archive Show as List Show as Chart OneNote Notes Links Refresh Clear Filter Find

Assembly BOM Filter: FWABW001

Type	No.	Step No.	Description	As... BOM	Time Study Rate	Operations Per	Quantity per	Unit of Measu...	Prevailing Wage ID
Resource	ASMBLY	01	Attach Four Wagon Wheels	No	240	4	0.01667	HR	1058
Resource	ASMBLY	02	Attach Pull String To Wagon	No	60	1	0.01667	HR	1058
Resource	ASMBLY	03	Arrange Blocks In In Wagon ...	No	312	26	0.08333	HR	1058
Resource	ASMBLY	04	Pack The Wagon Into The Box	No	12	1	0.08333	HR	1058
Item	RWABW001		Wooden Wagon	No			1	EA	
Item	RWABW002		Wagon Wheels	No			4	EA	
Item	RWABW003		Wooden Letter Blocks	No			26	EA	
Item	RWABW004		Pull String	No			1	EA	
Item	RWABW005		Packaging Box	No			1	EA	



Retaining the Bid Cost

There may be a requirement to retain the Bid Cost to compare the assembly job against the initial bid. To perform this action navigate from the assembly bill of material as shown below.

The screenshot shows the 'Edit - Assembly BOM' window for 'Wooden Alphabetical Blocks Wagon'. The 'BOM Archive' button is highlighted in the ribbon. Below the ribbon is a table with the following data:

Type	No.	Step No.	Description	As... BOM	Time Study Rate	Operations Per	Quantity per	Unit of Measu...	Prevailing Wage ID
Resource	ASMBLY	01	Attach Four Wagon Wheels	No	240	4	0.01667	HR	1058
Resource	ASMBLY	02	Attach Pull String To Wagon	No	60	1	0.01667	HR	1058
Resource	ASMBLY	03	Arrange Blocks In In Wagon ...	No	312	26	0.08333	HR	1058
Resource	ASMBLY	04	Pack The Wagon Into The Box	No	12	1	0.08333	HR	1058
Item	RWABW001		Wooden Wagon	No			1	EA	
Item	RWABW002		Wagon Wheels	No			4	EA	
Item	RWABW003		Wooden Letter Blocks	No			26	EA	
Item	RWABW004		Pull String	No			1	EA	
Item	RWABW005		Packaging Box	No			1	EA	

On the subsequent window enter the *Archive Date* and the *Description*. This would retain a copy of the assembly bill of material as the Bid Cost

The screenshot shows the 'Edit - BOM Archives' window. The 'BOM Archive' button from the previous window is highlighted. Below the ribbon is a table with the following data:

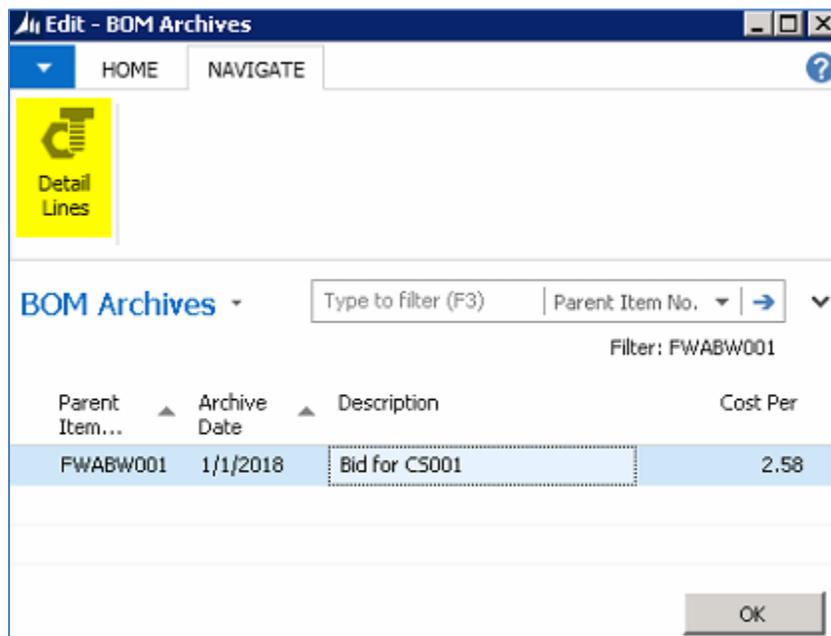
Parent Item...	Archive Date	Description	Cost Per
FWABW001	1/1/2018	Bid for CS001	2.58

An 'OK' button is visible at the bottom right of the window.

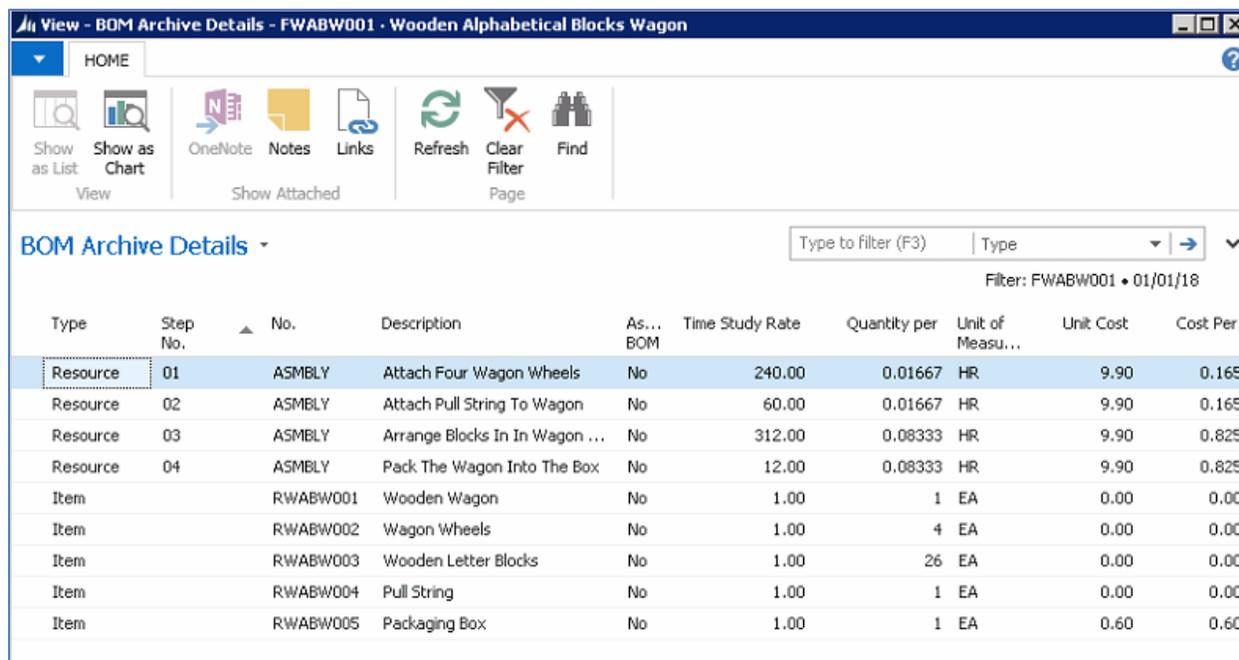


Vertex Systems Assembly Management

To view detailed lines of the archived assembly bill of material navigate as shown below.



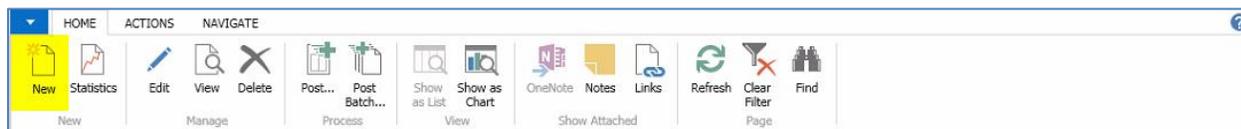
This would display the lines of the archived assembly bill of material with the costs as of the archived date.



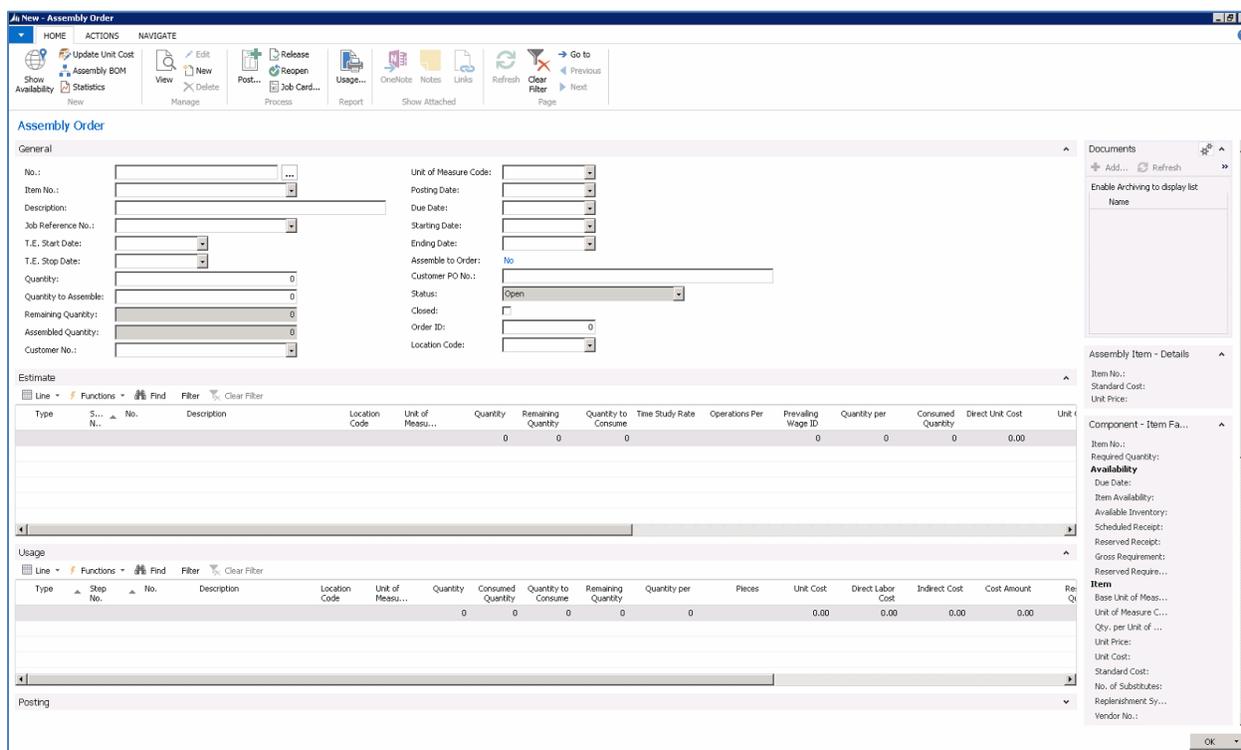


Assembly Order Processing

To create a new Assembly Order go to the list of assembly orders by navigating as Departments→Warehouse→Planning & Execution→Assembly Orders and then click the *New* button listed on the ribbon.



The above action would open a new *Assembly Order*.





Fill in the information on the header.

No. - *Automatically populated based on a number series.*

Item No. – *The item number of the finished good to be assembled.*

Description – *Automatically populated with the “Description” defined in the item card.*

Job Reference No. – *Automatically populated if attached to the item on the item card. If the Job Reference No. is not attached in the item card the user would have to select the relevant job reference.*

T.E. Start Date – *The earliest date on which time entry could begin via Client Payroll Manager.*

T.E Close Date – *The final date on which time entry could be recorded via Client Payroll Manager*

Quantity – *The total order quantity that is to be assembled.*

Quantity to Assemble – *The quantity to be assembled at a single production run. The field is used to record the assembled quantity to be posted to the system.*

Customer No. – *Automatically populated if the item has been tagged with a customer in the item card. If the item has not been linked to a customer the user has the option of selecting a customer for the order.*

Unit of Measure Code – *Automatically populated based on the item card.*

Posting Date – *The system would use the posting date when transactions are posted through the assembly order.*

Due Date – *The date by which the order has to be completed*

Starting Date – *This field could be used by the user to indicate a starting date for the assembly order. This is not a mandatory field.*

Ending Date – *This field could be used by the user to indicate an ending date for the assembly order. This is not a mandatory field.*

Customer PO No. – *This field could be used to record the Customer PO no. if the order is being assembled to a specific customer PO.*

Closed – *When assembly orders are completed they could be marked as closed using this field.*

Order ID – *When an assembly order is synchronized with Client Payroll Manager an Order ID would be assigned by Client Payroll Manager and that ID would be displayed in this field.*

Location Code – *The location in which assembly would be performed.*

Once the information on the header is complete it is important to note that no information is required to be entered in the ***Lines*** section. The ***Lines*** section is automatically created by the system.



The assembly order contains two sections of lines.

The *Estimate* section shows the estimated resource and component usage for the total order quantity based on the pre-defined assembly bill of material. The estimated cost for the assembly order would be derived from this section.

The *Usage* section is used to record the actual usage of components and labor on the assembly order. Note that the *Usage* section does not display any resources at the inception. This is because the labor usage is directly posted from *Client Payroll Manager* on to the assembly order. Furthermore the user does not have to enter consumption quantities on to the individual lines. When the user enters the *Quantity to Assemble* on the assembly order header the system automatically calculates the consumption quantities for the lines based on bill of material.

50071 · Wooden Alphabetical Blocks Wagon

General FWABW001 | 450 | 0 | 1/16/2018 | 1/16/2018

Estimate

Line Functions Find Filter Clear Filter

Type	S... N..	No.	Description	Location Code	Unit of Measu...	Quantity	Remaining Quantity	Quantity to Consume
Resource	01	ASMBLY	Attach Four Wagon Wheels		HR	7.5	7.5	0
Resource	02	ASMBLY	Attach Pull String To Wagon		HR	7.5	7.5	0
Resource	03	ASMBLY	Arrange Blocks In In Wagon Alphabetically		HR	37.5	37.5	0
Resource	04	ASMBLY	Pack The Wagon Into The Box		HR	37.5	37.5	0
Item		RWABW001	Wooden Wagon	INVENTORY	EA	450	450	0
Item		RWABW002	Wagon Wheels	INVENTORY	EA	1,800	1,800	0
Item		RWABW003	Wooden Letter Blocks	INVENTORY	EA	11,700	11,700	0
Item		RWABW004	Pull String	INVENTORY	EA	450	450	0
Item		RWABW005	Packaging Box	INVENTORY	EA	450	450	0

Usage

Line Functions Find Filter Clear Filter

Type	Step No.	No.	Description	Location Code	Unit of Measu...	Quantity	Consumed Quantity	Quantity to Consume	Remaining Quantity
Item		RWABW001	Wooden Wagon	INVENTORY	EA	450	0	0	450
Item		RWABW002	Wagon Wheels	INVENTORY	EA	1,800	0	0	1,800
Item		RWABW003	Wooden Letter Blocks	INVENTORY	EA	11,700	0	0	11,700
Item		RWABW004	Pull String	INVENTORY	EA	450	0	0	450
Item		RWABW005	Packaging Box	INVENTORY	EA	450	0	0	450

Posting

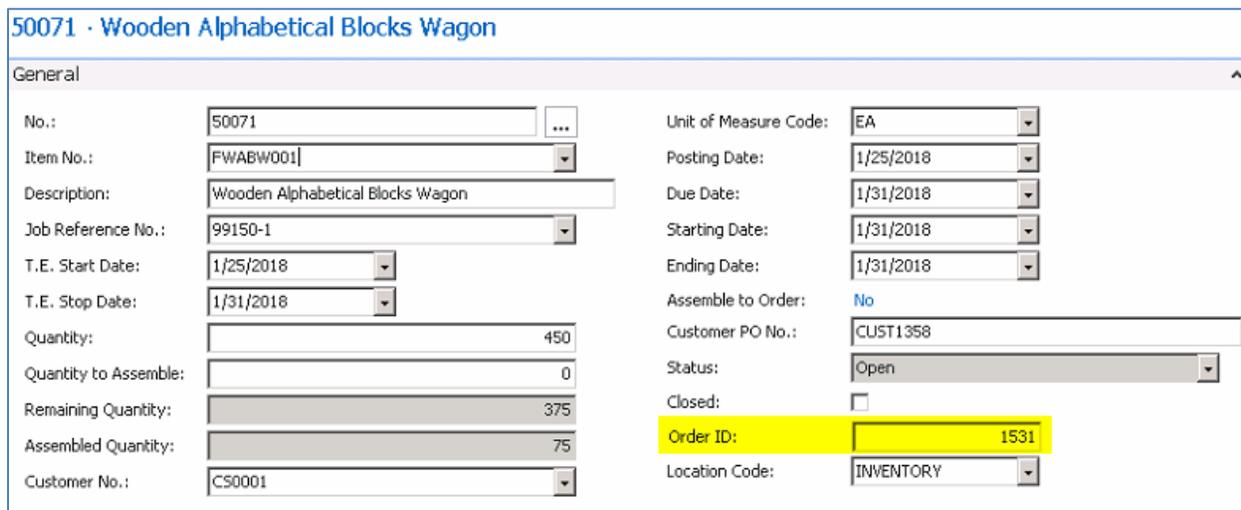


Synchronizing the Assembly Order with Client Payroll Manager

The Assembly Order after having been created in NAV requires to be synchronized with *Client Payroll Manager* before any posting takes place on the order. To synchronize the Assembly Order with *Client Payroll Manager* navigate as shown below.



This action would generate an *Order ID*

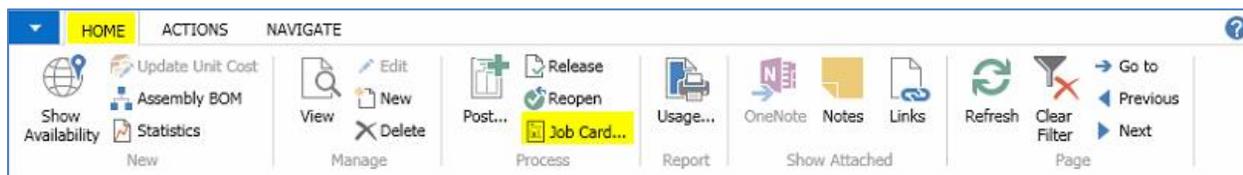


Note: If the order is not synchronized as shown above the order would not show up on the *Job* or the *Job Steps* in *Client Payroll Manager*. This would mean that the order would not show up for client time entry in *Client Payroll Manager*.



Generating the Job Traveler for the Assembly Order

Navigate as below to run the *Job Traveler*. The *Job Traveler* would contain all information relating to the assembly order.



1/26/2018
Vertex Industries
Page 1 of 3

Job Traveler

Order No : 50071

Job Name	99150-Wooden Alphabet Blocks Wagon	T.E. Start Date	1/25/2018
Customer	Bridgestone Group	T.E. End Date	1/31/2018
Customer No.	CS0001	Due Date	1/31/2018
Customer PO No.	CUST1358	Unit Rate	1.98
Location Code	INVENTORY	Estimated Hour	0.200

Outputs

Item ID	Description	Qty	UM	Revision
FWABW001	Wooden Alphabetical Blocks Wagon	450	EA	

Job Notes

Components

Sequence	Component ID	Description	Qty Per	UM	Total Qty	Actual Qty
10	RWABW001	Wooden Wagon	1.00	EA	450.00	
20	RWABW002	Wagon Wheels	4.00	EA	1800.00	
30	RWABW003	Wooden Letter Blocks	26.00	EA	11700.00	
40	RWABW004	Pull String	1.00	EA	450.00	
50	RWABW005	Packaging Box	1.00	EA	450.00	

Operations

Sequence 60 Attach Four Wagon Wheels WC/Machine : ASMBLY

Operation No. 01 Prevailing Wage Type : Wage Rate 9.00

Cycle Time	Current Wage Basis	Labor Rate	Operation Per	Time Study Rate	Labor Hrs	Est. Labor Hour	Act. Labor Hr.
	9.00	0.00063	4.00	240.00	0.01667	7.50	

Quality Signoffs

Worker	Date	QA	Date	First PC	Completions	Finished

Notes Check the wheels for defects. Make sure the paint is not scratched.



Assembly Order Posting

Assume a quantity of 75 is assembled for the said order. This would be entered as the *Quantity to Assemble* on the assembly order header. The system would automatically calculate the *Quantity to Consume*.

50071 · Wooden Alphabetical Blocks Wagon

General

No.:	50071	Unit of Measure Code:	EA
Item No.:	FWABW001	Posting Date:	1/25/2018
Description:	Wooden Alphabetical Blocks Wagon	Due Date:	1/31/2018
Job Reference No.:	99150-1	Starting Date:	1/25/2018
T.E. Start Date:	1/25/2018	Ending Date:	1/31/2018
T.E. Stop Date:	1/31/2018	Assemble to Order:	No
Quantity:	450	Customer PO No.:	CUST1358
Quantity to Assemble:	75	Status:	Open
Remaining Quantity:	450	Closed:	<input type="checkbox"/>
Assembled Quantity:	0	Order ID:	1531
Customer No.:	CS0001	Location Code:	INVENTORY

Estimate

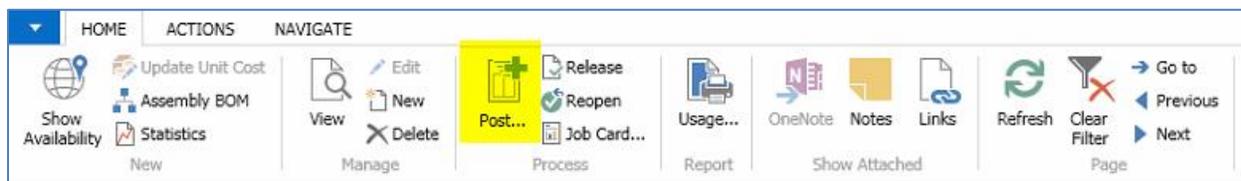
Type	S... N..	No.	Description	Location Code	Unit of Measu...	Quantity	Remaining Quantity	Quantity to Consume
Resource	01	ASMBLY	Attach Four Wagon Wheels		HR	7.5	7.5	1.25
Resource	02	ASMBLY	Attach Pull String To Wagon		HR	7.5	7.5	1.25
Resource	03	ASMBLY	Arrange Blocks In In Wagon Alphabetically		HR	37.5	37.5	6.25
Resource	04	ASMBLY	Pack The Wagon Into The Box		HR	37.5	37.5	6.25
Item		RWABW001	Wooden Wagon	INVENTORY	EA	450	450	75
Item		RWABW002	Wagon Wheels	INVENTORY	EA	1,800	1,800	300
Item		RWABW003	Wooden Letter Blocks	INVENTORY	EA	11,700	11,700	1,950
Item		RWABW004	Pull String	INVENTORY	EA	450	450	75
Item		RWABW005	Packaging Box	INVENTORY	EA	450	450	75

Usage

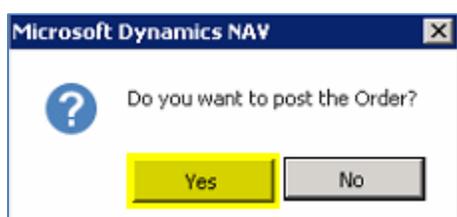
Type	Step No.	No.	Description	Location Code	Unit of Measu...	Quantity	Consumed Quantity	Quantity to Consume	Remaining Quantity
Item		RWABW001	Wooden Wagon	INVEN...	EA	450	0	75	450
Item		RWABW002	Wagon Wheels	INVENTORY	EA	1,800	0	300	1,800
Item		RWABW003	Wooden Letter Blocks	INVENTORY	EA	11,700	0	1,950	11,700
Item		RWABW004	Pull String	INVENTORY	EA	450	0	75	450
Item		RWABW005	Packaging Box	INVENTORY	EA	450	0	75	450



Subsequently the assembly order requires to be posted. For this click on the **Post** button by navigating as below.



The system would request to confirm the action. When the action is confirmed the posting would take place.



Likewise multiple partial postings could be carried out against an assembly order based on the production runs.

Note: The posting would consume components and produce assembled finished goods. No labor would get posted at this point. Labor would be posted only when the time transactions from *Client Payroll Manager* are synchronized to NAV.

The *Usage* lines would now indicate the posting carried out.

Type	Step No.	No.	Description	Location Code	Unit of Measu...	Quantity	Consumed Quantity	Quantity to Consume	Remaining Quantity
Item		RWABW001	Wooden Wagon	INVENTORY	EA	450	75	0	375
Item		RWABW002	Wagon Wheels	INVENTORY	EA	1,800	300	0	1,500
Item		RWABW003	Wooden Letter Blocks	INVENTORY	EA	11,700	1,950	0	9,750
Item		RWABW004	Pull String	INVENTORY	EA	450	75	0	375
Item		RWABW005	Packaging Box	INVENTORY	EA	450	75	0	375

Since this is an initial posting through NAV it only shows the component usage. Once time is entered in Client Payroll Manager and synchronized to NAV the resource usage would also appear in the *Usage* section.



Vertex Systems Assembly Management

Usage

Line Functions Find Filter Clear Filter

Type	Step No.	No.	Description	Location Code	Unit of Measu...	Quantity	Consumed Quantity	Quantity to Consume	Remaining Quantity	Pieces	Direct Labor Cost
Item		RWABW001	Wooden Wagon	INVENTORY	EA	450	75	0	375		0.00
Item		RWABW002	Wagon Wheels	INVENTORY	EA	1,800	300	0	1,500		0.00
Item		RWABW003	Wooden Letter Blocks	INVENTORY	EA	11,700	1,950	0	9,750		0.00
Item		RWABW004	Pull String	INVENTORY	EA	450	75	0	375		0.00
Item		RWABW005	Packaging Box	INVENTORY	EA	450	75	0	375		0.00
Resource	01	DIR LAB	Direct Labor		HR	0.5	0	0.5	0.5	75.00	2.82
Resource	02	DIR LAB	Direct Labor		HR	1.5	0	1.5	1.5	75.00	11.25
Resource	03	DIR LAB	Direct Labor		HR	0.5	0	0.5	0.5	75.00	2.17
Resource	04	DIR LAB	Direct Labor		HR	6.5	0	6.5	6.5	75.00	56.25

Click the **Post** button and the resource usage would get committed to NAV and the relevant cost would get updated on to the assembly order.

The order status in terms of costing could be analyzed by clicking on the **Statistics** button.

HOME ACTIONS NAVIGATE

Show Availability Update Unit Cost Assembly BOM Statistics View Edit New Delete Post... Release Reopen Job Card... Usage... OneNote Notes Links Refresh Clear Filter Go to Previous Next

Edit - Assembly Order Statistics - 50071 · Wooden Alphabetical Blocks Wagon

HOME View Edit Refresh Clear Filter Go to Previous Next

50071 · Wooden Alphabetical Blocks Wagon

	Bid Cost	Standard Cost	Estimated Cost	Actual Cost	Dev. %	Variance
Material Cost:	45.00	45.00	45.00	45.00	0	0.00
Resource Cost:	135.00	135.00	135.00	72.49	-46	-62.51
Resource Overhead:	13.50	13.50	13.50	36.25	169	22.75
Assembly Overhead:	0.00	0.00	0.00	0.00	0	0.00
Total Cost:	193.50	193.50	193.50	153.74	-21	-39.76

OK



Closing the Assembly Order

Once the assembly order is completed it requires to be closed so that it does not appear as an open assembly order. To close an assembly order place a check mark as shown below.

50071 · Wooden Alphabetical Blocks Wagon

General	
No.:	50071
Item No.:	FWABW001
Description:	Wooden Alphabetical Blocks Wagon
Job Reference No.:	99150-1
T.E. Start Date:	1/25/2018
T.E. Stop Date:	1/31/2018
Quantity:	450
Quantity to Assemble:	0
Remaining Quantity:	375
Assembled Quantity:	75
Customer No.:	CS0001
Unit of Measure Code:	EA
Posting Date:	1/25/2018
Due Date:	1/31/2018
Starting Date:	1/31/2018
Ending Date:	1/31/2018
Assemble to Order:	No
Customer PO No.:	CUST1358
Status:	Open
Closed:	<input checked="" type="checkbox"/>
Order ID:	1531
Location Code:	INVENTORY

Navigating history

History in relation to an assembly order could be viewed by navigating as below. The posted orders and entries could be viewed.

HOME ACTIONS NAVIGATE

Event Period Variant Location BOM Level Item Availability by Assembly BOM Item Tracking Lines Comments General Statistics Pick Lines/Movement Lines Registered Pick Lines Registered Invt. Movement Lines Warehouse Asm.-to-Order Whse. Shpt. Line

50071 · Wooden Alphabetical Blocks Wagon

General	
No.:	50071
Item No.:	FWABW001
Unit of Measure Code:	EA
Posting Date:	1/25/2018

Entries
Posted Assembly Orders
Item Ledger Entries
Capacity Ledger Entries
Resource Ledger Entries
Value Entries
Warehouse Entries
Reservation Entries

For further information contact Vertex Support at (800) 536-3427 or support@vertexsystems.com.