MODULE 6: PRODUCTION ORDER PROCESSING

Module Overview

You typically process a released production order through manufacturing until it is finished. This consists of the following tasks:

- Start the production order
- Pick components from the warehouse
- Consume raw material
- Record production output
- Register consumption and output together in the production journal (optional)
- Put away finished goods in the warehouse
- Finish the production order

"Production Order Processing" describes these tasks in detail.

Before starting the lessons in this module, set your work date to January 23, 2014. Please perform all lessons, demonstrations, and labs in sequence.

Objectives

The objectives are:

- Review the flow of events as production orders move from release until they are finished.
- Describe the options and procedures that are related to material consumption and production output.
- Show how to pick components and put away finished goods in the warehouse.
- Explain the uses of the consumption journal, output journal, and production journal.

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Production Order Execution

During the execution of a production order, the main values that you record are as follows:

- Materials picked or consumed
- Time that you spend working on the order
- Quantity of the manufactured item produced

You can record this information automatically or manually. The act of recording information is known as *flushing*.

Automatic flushing that occurs at the start of a production order or routing operation is known as *forward flushing.* Automatic flushing that occurs when a production order or routing operation is finished is known as backward flushing. You can also flush materials consumed, time spent, and production output manually. This is known as *manual flushing*.

The main advantages of automatic flushing are as follows:

- It reduces data entry.
- If you use the backward flushing method, it bases its calculations on the quantity of manufactured items that are actually produced. This increases flexibility because, in certain types of production, the final output quantity is unknown until you finish the production order.

The main disadvantages of automatic flushing are as follows:

- If you generate added usage, such as component scrap or additional time spent on manufacturing processes, or you want to record finished goods scrap by operation, there may not be procedures to record this information.
- Back flushing creates a temporary inventory mismatch because it overstates warehouse inventory and understates work-in-progress (WIP) inventory.

📄 **Note:** *You can overcome some disadvantages of automatic flushing by combining automatic flushing and manual flushing. For example, you can automatically flush expected quantities of components and production output, and then manually record exceptions such as component scrap, finished goods scrap, and added time spent on manufacturing processes.*

You can flush production output only at the start or finish of a production order.

You can flush components both by production order and by operation. To flush by operation, use routing link codes.

Material Consumption

Microsoft Dynamics® NAV offers many options to record material consumption. These include the following:

- Forward flush the whole production order
- Backward flush the whole production order
- Forward flush by routing operation
- Backward flush by routing operation
- Manual flushing

You can define the flushing method for each item in the **Flushing Method** field on the **Replenishment** FastTab of the item card. When you refresh a production order, the flushing method for each item copies from the item card to the corresponding component line on the production order bill of materials (BOM). After that, the value in the **Flushing Method** field of the production order component line controls the flushing behavior for that component. Therefore, you can change the flushing method for specific components directly on the production order BOM.

Forward Flushing a Whole Production Order

Forward flushing a whole production order means that the program automatically consumes all the order's component items when you release the order, or when you first refresh a released order.

The program bases this type of flushing on the expected output quantity of manufactured items for the order, multiplied by the required quantity of each component that is specified on the production order BOM.

To forward flush a whole order, you must select Forward as the flushing method for all items in the top level of the production order BOM. You also must remove all routing link codes on the production order BOM.

Forward flushing a whole order is appropriate for a production environment that has a low number of defects, a low number of operations, and high component consumption in early operations.

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Demonstration: Forward Flush a Whole Order

Scenario: Eduardo, the production planner at CRONUS, creates a new production order for two units of item 1000, Bicycle, due on February 01, 2014. For this production order, he decides to forward flush all components as soon as the order is released.

Demonstration Steps

1. Create a firm planned production order for two units of item 1000, Bicycle.

   a. In the **Search** box, type "firm planned prod. orders", and then select the related link.

   b. On the **Home** tab of the **Firm Planned Prod. Orders** list page, click **New**, and then press **Enter**.

   c. On the **General** FastTab of the production order card, in the **Description** field, type "Bicycle".

   d. In the **Source No.** field, select item 1000, Bicycle.

   e. In **Quantity** field, type "2".

   f. Set the **Due Date** field to February 01, 2014.

   g. On the **Home** tab, click **Refresh Production Order**.

   h. On the **Refresh Production Order** request page, accept all defaults, and then click **OK** to start the batch job.

2. Set all components in the production order BOM to use forward flushing.

   a. On the **Lines** FastTab of the production order card, select the newly generated order line.

   b. Click **Line**, and then click **Components**.

   c. On the **Prod. Order Components** page, set the **Flushing Method** field for all components to Forward.

3. Remove all routing link codes from the production order BOM.

   a. Use the **Choose Columns** function to add the **Routing Link Code** field to the page. Position it after the **Remaining Quantity** field. Close and reopen the page to see the new field.

   b. For all component lines, delete the value, if any, from the **Routing Link Code** field.

FIGURE 6.1:PROD. ORDER COMPONENTS SET UP FOR FORWARD FLUSHING A WHOLE ORDER

> c. Click **OK** to close the **Prod. Order Components** page and return to the production order card.

4. Release the order.

> a. On the **Home** tab, click **Change Status**.
>
> b. On the request message, set the **New Status** field to Released, and then click **Yes**. A message that has a status bar appears and references automatic consumption. This is followed by a confirmation message that the order was changed to an order with a status of Released.
>
> c. Click **OK** to close the confirmation message.

This consumes all components for the production order. You can view the resulting ledger entries for this order in the "Ledger Entries from Consumption Posting" topic.

📝 **Note:** *In this demonstration, you changed the flushing method in the production BOM, and then released a firm planned production order to trigger forward flushing. Another option is to set the **Flushing Method** field on the **Replenishment** FastTab of the item cards for items that you want to forward flush. If you then refresh a production order to create the production BOM component lines, the flushing method that is set on the item card automatically copies to any component lines that use that item. This removes the need to directly modify the production BOM.*

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Also, if you set your flushing methods on item cards, and you create a released production order that uses items that are set up for forward flushing, then forward flushing for those items occurs when you first refresh the released production order. With respect to forward flushing, refreshing a released order for the first time has the same effect as changing the status of an order to Released after you refresh it.

📓 **Note:** *You do not have to forward flush all the components on a production order. You can set up only some components to use forward flushing. Use manual or backward flushing for the other components. For an example, refer to the "Combine Automatic and Manual Flushing" lab.*

Backward Flushing a Whole Order

Backward flushing a whole production order means that the program automatically consumes all the order's component items when you change the status of a production order to Finished.

The program bases this type of flushing on the actual output quantity of manufactured items that are recorded for the order, multiplied by the required quantity of each component that is specified on the production order BOM.

To backward flush a whole order, you must select Backward as the flushing method for all items in the top level of the production order BOM. You must also remove all routing link codes on the production order BOM.

You use the same setup and procedures to backward flush a whole order as you use to forward flush it. The main differences are as follows:

- You change the flushing method for all the production BOM lines to Backward instead of Forward.
- Consumption does not post until you change the status of the production order to Finished.

📓 **Note:** *You do not have to backward flush all the components on a production order. You can set up only some components to use backward flushing, and use manual or forward flushing for the other components. For an example of combining flushing methods, refer to the "Combine Automatic and Manual Flushing" lab.*

Manual Flushing

Manual flushing of components is desirable if there are frequent component substitutions or greater-than-expected scrap. You record manual flushing in the consumption journal.

If you manually record both component consumption and production output, the sequence of events can affect the recorded values, as follows:

- If you record consumption first, you must record component consumption based on the expected output of manufactured items.
- If you record production output first, you can record component consumption based on the actual output of manufactured items.

As shown in the "Manually Flush a Whole Order" demonstration, you make this choice when you run the **Calc. Consumption** batch job from inside the consumption journal.

Demonstration: Manually Flush a Whole Order

Scenario: Eduardo, the production planner at CRONUS, creates a new released production order for two units of item 1001, Tourist Bicycle, due on February 05, 2014. For this production order, he decides to manually flush the production order components.

Demonstration Steps

1. Create a released production order for two units of item 1001, Touring Bicycle.
   a. In the **Search** box, type "released prod. orders", and then select the related link.
   b. On the **Home** tab of the **Released Prod. Orders** list page, click **New**, and then press **Enter**.
   c. On the **General** FastTab of the production order card, in the **Description** field, type "Touring Bicycle".
   d. In the **Source No.** field, select 1001, Touring Bicycle.
   e. In **Quantity** field, type "2".
   f. Set the **Due Date** field to February 05, 2014.
   g. On the **Home** tab, click **Refresh Production Order**.
   h. On the **Refresh Production Order** request page, accept all defaults, and then click **OK** to start the batch job.

2. Review the production BOM.

   a. On the **Lines** FastTab of the production order card, select the newly generated order line.

   b. Click **Line**, and then click **Components**. On the **Prod. Order Components** page, notice that the **Flushing Method** field is set to Manual for all components.

   c. Click **OK** to close the **Prod. Order Components** page and return to the production order card.

   d. Click **OK** to close the production order card.

3. Manually post consumption in the consumption journal.

   a. In the **Search** box, type "consumption journals", and then select the related link.

   b. On the **Consumption Journal** page, on the **Home** tab, click **Calc. Consumption**.

   c. On the **Options** FastTab of the **Calc. Consumption** request page, in the **Calculation Based on** field, select Expected Output. If you have recorded production output for the order that you intend to post, you can select Actual Output here instead.

   d. On the **Production Order** FastTab, click the drop-down arrow in the filter box opposite the **Order No.** field, and then click **Advanced**.

   e. On the **Production Order List** page, select the order for two units of the Touring Bicycle, and then click **OK**.

   f. On the **Calc. Consumption** request page, click **OK** to start the batch job. After the batch job request page closes, notice that the **Consumption Journal** page populates with the component lines for the production order. Notice that the value that is populated in the **Quantity** field equals the required quantity of each component for one manufactured item multiplied by the expected quantity of manufactured items. As with any journal, you can change these entries before posting. In this case, no changes are required.

FIGURE 6.2:CONSUMPTION JOURNAL PAGE POPULATED WITH MANUAL CONSUMPTION ENTRIES

g. On the **Home** tab, click **Post**.

h. On the request message, click **Yes** to continue with posting.

i. Click **OK** to close the confirmation message. Notice that this deletes the journal lines.

j. Click **OK** to close the journal.

📝 **Note:** *If you use bin functionality, you can also use the consumption journal to create a precise physical pick list that indicates the bin code of each component. For an example, refer to the "Pick Components with the Consumption Journal" demonstration.*
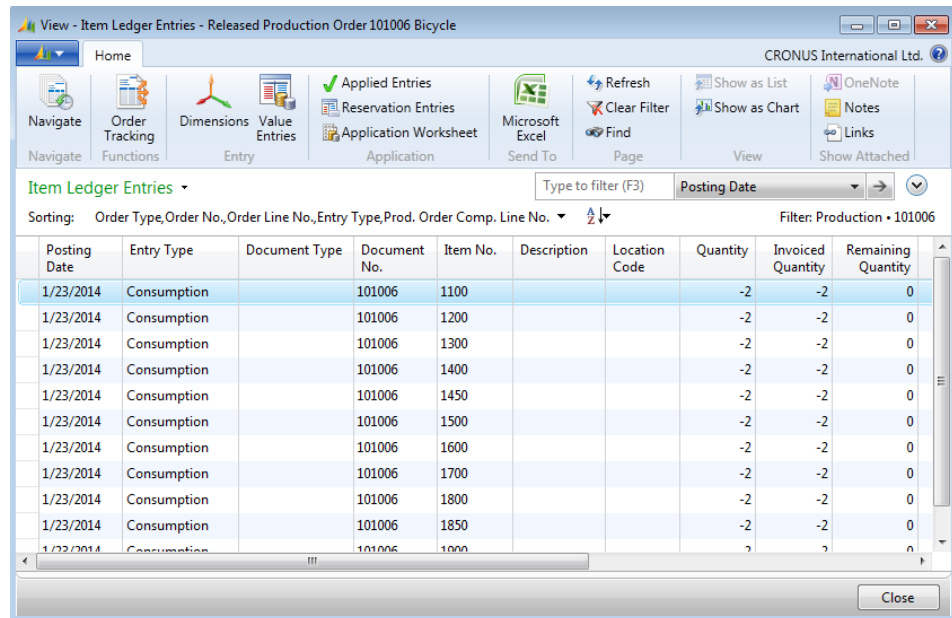

Ledger Entries from Consumption Posting

This is a continuation of the "Forward Flush a Whole Order" and "Manually Flush a Whole Order" demonstrations.

Posting consumption results in item ledger entries. To view these entries, follow these steps.

1. In the **Search** box, type "released prod. orders", and then select the related link.

2. On the **Released Prod. Orders** list page, double-click the line for the production order for two units of item 1000, Bicycle, that you created in the "Forward Flush a Whole Order" demonstration.

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3. On the **Navigate** tab of the production order card, click **Entries**, and then click **Item Ledger Entries**.

FIGURE 6.3:ITEM LEDGER ENTRIES FOR FLUSHED PRODUCTION ORDER COMPONENTS

4. Press **Esc** two times to close the **Item Ledger Entries** page and the production order card.

5. Repeat steps 2 and 3 for the production order for two units of item 1001, Touring Bicycle, that you created in the "Manually Flush a Whole Order" demonstration. Notice that there is no difference in the nature of the item ledger entries whether you created them by automatic or manual flushing.

6. Press **Esc** two times to close the **Item Ledger Entries** page and the production order card.

Forward Flushing by Operation

Forward flushing of material by operation consumes components at the start of a specific routing operation for a production order. Routing link codes control the timing of the consumption. The program automatically flushes a component that has a routing link code assigned to it, and a flushing method of Forward, when work starts on an operation with the same routing link code. *Work starts* means that some output activity is recorded for the operation, such as setup time or run time.

The component quantity that is consumed is the quantity that is required for the component to make one manufactured item, multiplied by the expected output quantity of manufactured items.

Use this flushing method when there are many operations and certain components are not required until late in the manufacturing process. A JIT setup might not even have the items on hand when work starts on a released production order.

Demonstration: Forward Flush by Operation

Scenario: Eduardo, the production planner at CRONUS, must create a new production order for five units of item 1000, Bicycle, due on February 17, 2014. To experiment with JIT functionality, he decides to forward flush item 1300, Chain assy, by operation.

Demonstration Steps

1. Confirm that a link exists between the component line for item 1300, Chain assy, in production BOM 1000, and operation number 20 in Routing 1000.
   a. In the **Search** box, type "routings", and then select the related link.
   b. On the **Routings** list page, double-click the line for routing 1000, Bicycle.
   c. On the **Lines** FastTab of the routing card, on the line for operation number 20, confirm that the **Routing Link Code** field has a value of 100.
   d. Click **OK** to close the routing card.
   e. In the **Search** box, type "production bom", and then select the related link.
   f. On the **Production BOM** list page, double-click the line for production BOM 1000, Bicycle.
   g. On the **Lines** FastTab of the production BOM card, on the line for item 1300, Chain Assy, confirm that the **Routing Link Code** field has a value of 100.
   h. Click **OK** to close the production BOM card.

2. Create a production order for five units of item 1000, due on February 17, 2014.
   a. In the **Search** box, type "firm planned prod. orders", and then select the related link.
   b. On the **Home** tab of the **Firm Planned Prod. Orders** list page, click **New**, and then press **Enter**.
   c. On the **General** FastTab of the production order card, in the **Description** field, type "Bicycle".
   d. In the **Source No.** field, type "1000".
   e. In **Quantity** field, type "5".

    f.   Set the **Due Date** field to February 17, 2014.

    g.   On the **Home** tab, click **Refresh Production Order**.

    h.   On the **Refresh Production Order** request page, accept all defaults, and then click **OK** to start the batch job.

3.   In the production BOM, set the component line for item 1300 to use forward flushing. Then release the order.

    a.   On the **Lines** FastTab of the production order card, select the line for item 1000.

    b.   Click **Line**, and then click **Components**.

    c.   On the **Prod. Order Components** page, on the line for item 1300, set the **Flushing Method** field to Forward. Notice that the routing link code 100 was copied to the line from the production BOM.

FIGURE 6.4:PROD. ORDER COMPONENTS PAGE SET UP FOR FORWARD FLUSH BY OPERATION

    d.   Click **OK** to close the **Prod. Order Components** page.

    e.   On the **Home** tab of the production order card, click **Change Status**.

    f.   On the request message, set the **New Status** field to Released, and then click **Yes**.

    g.   Click **OK** to close the confirmation message.

4. Record setup time for operation number 10 for the new production order.

   a. In the **Search** box, type "output journals", and then select the related link.

   b. On the **Output Journal** page, click the drop-down arrow in the **Order No.** field, and then click **Advanced**.

   c. On the **Production Order List** page, select the production order for the five units of item 1000 that you created in step 2, and then click **OK**.

   d. On the **Output Journal** page, in the **Item No.** field, type "1000".

   e. In the **Operation No.** field, type "10".

   f. Use the **Choose Columns** function to add the **Setup Time** field to the page. Position it after the **Description** field.

   g. In the **Setup Time** field for the operation number 10, type "15". This represents 15 minutes.

   h. On the **Home** tab, click **Post**.

   i. On the request message, click **Yes** to continue with the posting.

   j. Click **OK** to close the confirmation message. Notice that this deletes the journal line.

   k. Click **OK** to close the **Output Journal** page.
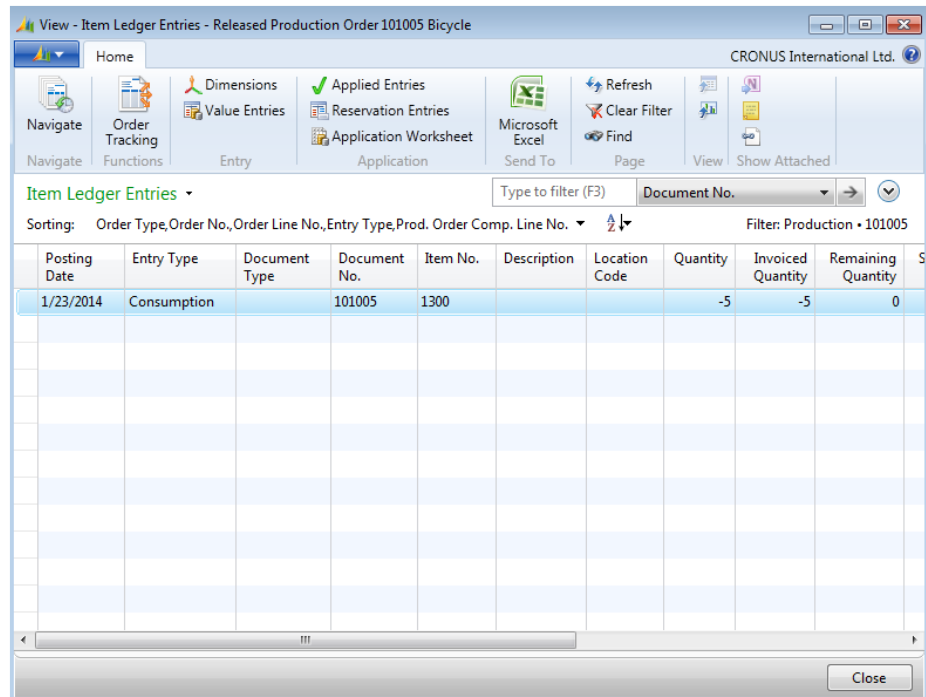
📋   *Note: This example demonstrates only a limited use of the output journal. For a complete description of the journal, refer to the "Production Output" lesson.*

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5. Review ledger entries for the order.

   a. In the **Search** box, type "released prod. orders", and then select the related link.

   b. On the **Released Prod. Orders** list page, select the production order for five units of item 1000, Bicycle, that you created in step 2.

   c. On the **Home** tab, click **Entries**, and then click **Item Ledger Entries**. Notice that no consumption entries exist for any components for the production order. This includes item 1300, Chain assy. While you have started work on the order, you have not yet started work on operation number 20, which is the operation that you linked to component item 1300.

   d. Click **Close** to close the **Item Ledger Entries** page.

6. Record output for operation number 20 for the order.

   a. Repeat step 4. However, instead of recording time for operation number 10, record 25 minutes of setup time for operation number 20.

---

7. Review item ledger entries for the order.

    a. Repeat step 5, and notice that a consumption entry now exists for item 1300, Chain assy, in the item ledger. Notice that you did not record any output quantities for the manufactured item to trigger this component consumption. You just started a routing operation that shares the same routing link code as a component in the production BOM. That component has Forward specified as its flushing method. This is an example of forward flushing by operation.

FIGURE 6.5:ITEM LEDGER ENTRY PAGE WITH CONSUMPTION ENTRY FROM FORWARD FLUSH

Backward Flushing by Operation

Backward flushing of material by operation records component consumption when output quantities post for a specific routing operation. Routing link codes control the timing of the consumption. When a component has a flushing method of Backward and a routing link code, and output is posted for an operation that has the same routing link code, the program automatically flushes the component. The component quantity that is consumed is the quantity that is required to make one manufactured item, multiplied by the output quantity of manufactured items that are posted for the operation. The advantage of this approach is that you base your component consumption on actual output quantities of manufactured items instead of expected quantities.

Demonstration: Backward Flush by Operation

Scenario: Eduardo, the production planner at CRONUS, must create a new production order for six units of item 1000, Bicycle, due on February 27, 2014. To continue his experiments with JIT functionality, he decides to backward flush item 1300, Chain assy, by operation.

Demonstration Steps

1. Create a production order for six units of item 1000, due on February 27, 2014.

    a. In the **Search** box, type "firm planned prod. orders", and then select the related link.

    b. On the **Home** tab of the **Firm Planned Prod. Orders** list page, click **New**, and then press **Enter**.

    c. On the **General** FastTab of the production order card, in the **Description** field, type "Bicycle".

    d. In the **Source No.** field, type "1000".

    e. In **Quantity** field, type "6".

    f. Set the **Due Date** field to February 27, 2014.

    g. On the **Home** tab, click **Refresh Production Order**.

    h. On the **Refresh Production Order** request page, accept all defaults, and then click **OK** to start the batch job.

2. In the production BOM, set the component line for item 1300 to use backward flushing. Then release the order.

    a. On the **Lines** FastTab of the production order card, select the line for item 1000.

    b. Click **Line**, and then click **Components**.

    c. On the **Prod. Order Components** page, on the line for item 1300, set the **Flushing Method** field to Backward.

    d. Click **OK** to close the **Prod. Order Components** page.

    e. On the **Home** tab of the production order card, click **Change Status**.

    f. On the request message, set the **New Status** field to Released, and then click **Yes**.

    g. Click **OK** to close the confirmation message.

3. Record a setup time and run time for operation number 20 for the new production order.

   a. In the **Search** box, type "output journals", and then select the related link.

   b. On the **Output Journal** page, click the drop-down arrow in the **Order No.** field, and then click **Advanced**.

   c. On the **Production Order List** page, select the production order for the six units of item 1000 that you created in step 1, and then click **OK**.

   d. On the **Output Journal** page, in the **Item No.** field, type "1000".

   e. In the **Operation No.** field, type "20".

   f. In the **Setup Time** field for each operation, type "15".

   g. In the **Run Time** field, type "92".

   h. On the **Home** tab, click **Post**.

   i. On the request message, click **Yes** to continue with the posting.

   j. Click **OK** to close the confirmation message.

   k. Click **OK** to close the **Output Journal** page.

4. Review ledger entries for the order.

   a. In the **Search** box, type "released prod. orders", and then select the related link.

   b. On the **Released Prod. Orders** list page, select the production order for six units of item 1000, Bicycle, that you created in step 1.

   c. On the **Home** tab, click **Entries**, and then click **Item Ledger Entries**. Notice that no consumption entries exist for component item 1300, Chain assy. This is because you only started the work on operation number 20. To record consumption in backward flushing, you must record an output quantity for the operation.

   d. Click **Close** to close the **Item Ledger Entries** page.

5. Record an output quantity for operation number 20 for the new production order.

   a. In the **Search** box, type "output journals", and then select the related link.

   b. On the **Output Journal** page, click the drop-down arrow in the **Order No.** field, and then click **Advanced**.

   c. On the **Production Order List** page, select the production order for the six units of item 1000 that you created in step 1, and then click **OK**.

d. On the **Output Journal** page, in the **Item No.** field, type "1000".

e. In the **Operation No.** field, type "20".

f. In the **Output Quantity** field, type "6".

FIGURE 6.6:OUTPUT JOURNAL PAGE WITH OUTPUT QUANTITY SPECIFIED

g. On the **Home** tab, click **Post**.

h. On the request message, click **Yes** to continue with the posting.

i. Click **OK** to close the confirmation message.

j. Click **OK** to close the **Output Journal** page.

6. Review item ledger entries for the order.

a. Repeat step 4. This time, notice that a consumption entry now exists for item 1300, Chain assy, in the item ledger. Unlike forward flushing by operation, backward flushing by operation requires you to record an output quantity.

Reversal of Consumption Posting

It is sometimes necessary to reverse consumption journal entries. For example, if you forward flush a production order, and then the customer cancels the order before the physical production starts.

Demonstration: Reverse a Consumption Journal Entry

This is a continuation of the "Forward Flush a Whole Order" demonstration.

Scenario: After forward flushing the components for the production order of two units of item 1000, Bicycle, Eduardo, the production planner at CRONUS, learns that the order is canceled. He must therefore use the consumption journal to reverse the earlier posting.

Demonstration Steps

1. Manually enter the reversing entry in the consumption journal.

   a. In the **Search** box, type "consumption journals", and then select the related link.

   b. On the **Consumption Journal** page, in the **Posting Date** field, enter the date that you want to use for the reversing entry. In this case, leave the default value of January 23, 2014.

   c. In the **Order No.** field, click the down-arrow, and then click **Advanced**.

   d. On the **Production Order List** page, select the production order for the two units of item 1000 that you created in the "Forward Flush a Whole Order" demonstration, and then click **OK**.

   e. On the **Consumption Journal** page, in the **Item No.** field, select item 1100.

   f. In the **Quantity** field, type "-2" to reverse the positive quantity that was posted in the automatic flushing process.

   g. On the **Home** tab, click **Post**.

   h. On the request message, click **Yes** to continue with posting.

   i. Click **OK** to close the confirmation message.

   j. Click **OK** to close the **Consumption Journal** page.

📋   *Note: This demonstration shows how to reverse the consumption line for one component line only. To reverse the posting for a whole production order, you must enter one reversing line for each component line that was originally posted.*

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2. Review the reversing entry.

   a. Repeat steps 1 to 4 in the "Ledger Entries from Consumption Posting" topic to review the reversing consumption entries in the item ledger. Notice that the original automatic flushing entry for item 1100 is now offset by a reversing entry.

Lab: Combine Automatic and Manual Flushing

Scenario

You are the production planner at CRONUS. You must create a new production order for five units of item 1001, Touring Bicycle, due on February 25, 2014. You decide to forward flush all components except for component item 1600, Bell, because this item has many defects.

Set up the production order to make sure that all component lines are forward flushed except the component line for item 1600, Bell. Then manually flush this component by using the consumption journal. However, flush two additional pieces to account for defects.

High Level Steps

1. Create a firm planned production order for five units of item 1001, Touring Bicycle.
2. Change the flushing method to Forward for all production BOM component lines except the line for item 1600. Also, remove all routing link codes.
3. Release the production order.
4. Review the item ledger entries for the production order.
5. Manually flush component item 1600 by using the consumption journal.
6. Review the item ledger entries for the production order again.

Detailed Steps

1. Create a firm planned production order for five units of item 1001, Touring Bicycle.
   a. In the **Search** box, type "firm planned prod. orders", and then select the related link.
   b. On the **Home** tab of the **Firm Planned Prod. Orders** list page, click **New**, and then press **Enter**.
   c. On the **General** FastTab of the production order card, in the **Description** field, type "Touring Bicycle".
   d. In the **Source No.** field, type "1001".
   e. In the **Quantity** field, type "5".
   f. Set the **Due Date** field to February 25, 2014.
   g. On the **Home** tab, click **Refresh Production Order**.
   h. On the **Refresh Production Order** request page, accept all defaults, and then click **OK** to start the batch job.

2. Change the flushing method to Forward for all production BOM component lines except the line for item 1600. Also, remove all routing link codes.

   a. On the **Lines** FastTab of the production order card, select the newly generated order line.

   b. Click **Line**, and then click **Components**.

   c. On the **Prod. Order Components** page, set the **Flushing Method** to Forward for all component lines except the line for item 1600.

   d. On the line for item 1300, delete the value in the **Routing Link Code** field.

   e. Click **OK** to close the **Prod. Order Components** page.

3. Release the production order.

   a. On the **Home** tab of the production order card, click **Change Status**.

   b. On the request message, set the **New Status** field to Released, and then click **Yes**. A message that has a status bar appears and references automatic consumption. This is followed by a confirmation message that the order is changed to an order with a status of Released.

   c. Click **OK** to close the confirmation message.

4. Review the item ledger entries for the production order.

   a. In the **Search** box, type "released prod. orders", and then select the related link.

   b. On the **Released Prod. Orders** list page, double-click the line for the production order for five units of item 1001, Touring Bicycle, that you created in step 1.

   c. On the **Navigate** tab of the production order card, click **Entries**, and then click **Item Ledger Entries**. On the **Item Ledger Entries** page, notice that consumption is recorded for all components except item 1600, Bell.

   d. Click **Close** to close the **Item Ledger Entries** page.

   e. Click **OK** to close the production order card.

5. Manually flush component item 1600 by using the consumption journal.

   a. In the **Search** box, type "consumption journals", and then select the related link.

   b. On the **Consumption Journal** page, on the **Home** tab, click **Calc. Consumption**.

c. On the **Production Order** FastTab of the **Calc. Consumption** request page, click the drop-down arrow in the filter box opposite the **Order No.** field, and then click **Advanced**.

d. On the **Production Order List** page, select the order for five units of the Touring Bicycle, and then click **OK**.

e. On the **Calc. Consumption** request page, click **OK** to start the batch job. After the batch job request page closes, notice that the **Consumption Journal** page populates with the component line only for item 1600.

f. On the component line for item 1600, change the **Quantity** field from 5 to 7.

g. On the **Home** tab, click **Post**.

h. On the request message, click **Yes** to continue with posting.

i. Click **OK** to close the confirmation message.

j. Click **OK** to close the consumption journal.

6. Review the item ledger entries for the production order again.

a. Repeat step 4 to review the updated item ledger entries for the production order. Notice that there are now two ledger entries for item 1600, Bell. One is for the expected quantity of five, and the other is for the additional quantity of two.

Component Picking

When you are not using warehousing functionality, the physical picking of components is usually based on one of the following reports:

- Prod. Order - Mat. Requisition
- Prod. Order - Job Card

If you use routing link codes, the **Prod. Order - Job Card** report indicates the components to pick according to the operation to which they are linked.

Picking components from the warehouse differs, depending on the availability of the following warehouse functionality:

- Bin functionality
- Pick and Put-Away
- Warehouse Management Systems (WMS)

Bin Functionality

Bins offer a simple warehouse tool that enables you to seek and then specify the required components from a specific bin. By using bin functionality as the only additional warehouse feature, you can specify the exact position of each component with the **Bin Code** field in the consumption journal.

When you use the consumption journal with special print options, it can function as a precise pick list for the warehouse staff that are collecting the components.

Pick and Put-Away

This functionality works in close integration with released production orders. It includes creating specialized documents for warehouse staff that serve the shop floor, either independently or supervised by a production manager.

Warehouse requests signal that an order requires warehouse handling. A warehouse request is issued to the location set up for warehouse handling when the following conditions are true:

- A production order status changes to Released.
- A released production order is refreshed.

Warehouse Management Systems(WMS)

The functionality in this application area resembles that of the pick and put-away functionality. However, it also offers the advanced tools that are required to manage many transactions across different warehouse activities. These tools include designated pick and put-away bins for different processes and the ability to define individual bin policies. Warehouse Management Systems (WMS) is designed as a role-based system mainly for large distribution customers and is not described in this training material.

Demonstration: Pick Components with the Consumption Journal

Scenario: Eduardo, the production planner at CRONUS, creates a new production order for four units of item 1000, Bicycle, due on February 07, 2014. For this production order, he decides to use the consumption journal to generate a component pick list.

Demonstration Steps

1. Create a released production order for four units of item 1000, Bicycle.

   a. In the **Search** box, type "released prod. orders", and then select the related link.

   b. On the **Home** tab of the **Released Prod. Orders** list page, click **New**, and then press **Enter**.

   c. On the **General** FastTab of the production order card, in the **Description** field, type "Bicycle".

   d. In the **Source No.** field, type "1000".

   e. In **Quantity** field, type "4".

   f. Set the **Due Date** field to February 07, 2014.

2. Add a location code to the order, and then refresh the order.

   a. Expand the **Posting** FastTab.

   b. In the **Location Code** field, select WHITE. Because the WHITE warehouse uses a default bin for production components, you do not have to specify a value in the **Bin Code** field.

   c. On the **Home** tab, click **Refresh Production Order**.

   d. On the **Refresh Production Order** request page, accept all defaults, and then click **OK** to start the batch job.

3. Review the production order BOM.

   a. On the **Lines** FastTab of the production order card, select the newly generated order line.

   b. Click **Line**, and then click **Components**. In the **Prod. Order Components** page, notice that a bin code is specified for each component line. This is the default bin that is used for production components at the WHITE location.

   c. Click **OK** to close the **Prod. Order Components** page.

   d. Click **OK** to close the production order card.

4. Generate the consumption journal lines.

   a. In the **Search** box, type "consumption journals", and then select the related link.

   b. On the **Consumption Journal** page, on the **Home** tab, click **Calc. Consumption**.

   c. On the **Production Order** FastTab of the **Calc. Consumption** request page, click the drop-down arrow in the filter box opposite the **Order No.** field, and then click **Advanced**.

   d. On the **Production Order List** page, select the order for four units of item 1000, Bicycle, and then click **OK**.

e. On the **Calc. Consumption** request page, click **OK** to start the batch job.

f. After the batch job request page closes and the **Consumption Journal** page populates with the component lines for the production order, use the **Choose Columns** function to add the **Bin Code** field to the journal page. Position it after the **Unit of Measure Code** field. Notice that the **Bin Code** field automatically populates with the default bin for production components for the WHITE location.

FIGURE 6.7:CONSUMPTION JOURNAL PAGE WITH THE BIN CODE FIELD POPULATED

📓 *Note: Ignore that the **Quantity** field shows zero instead of four units. This is because the sample data is not set up correctly to demonstrate bin functionality in this scenario.*

5. Print the pick list.

a. On the **Home** tab of the **Consumption Journal** page, click **Print**.

b. On the **Options** FastTab of the **Inventory Movement** request page, in the **Activity Type** field, select Pick.

c. Click **Preview** to view the pick list. Notice the value in the **Bin Code** field.

FIGURE 6.8:PREVIEW OF THE INVENTORY MOVEMENT REPORT USED AS A PICK LIST
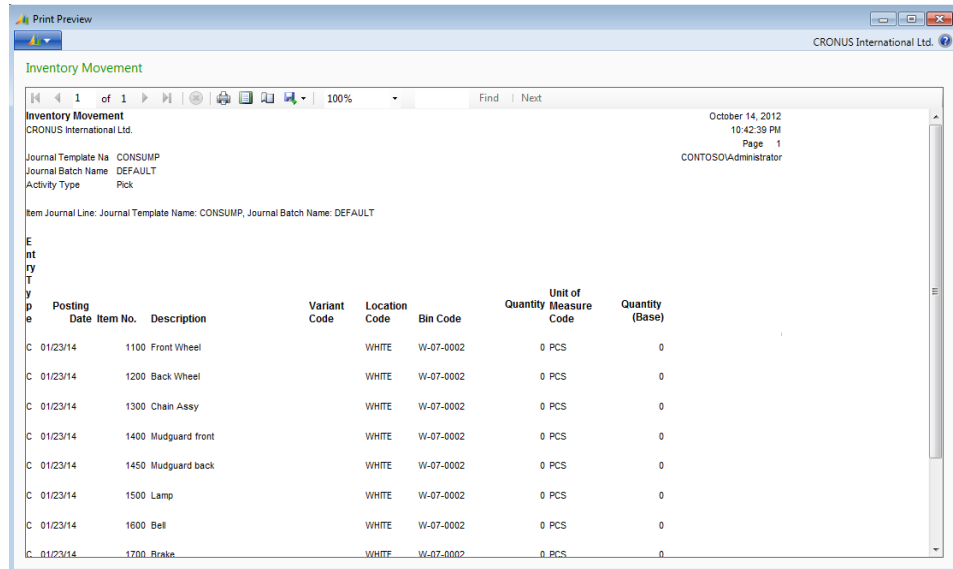

📋 **Note:** *Ignore that the **Quantity** column shows zero instead of four units. This is because the sample data is not set up correctly to demonstrate bin functionality in this scenario.*

---

      d.   Press **Esc** to close the report preview.

      e.   On the **Consumption Journal** page, select all the lines by clicking the cell in the upper-left corner of the table section on the page.

      f.   On the **Home** tab, click **Delete**.

      g.   On the request message, click **Yes**.

      h.   Click **OK** to close the page.

Production Output

Microsoft Dynamics NAV enables you to record the quantity of manufactured items that are produced for a production order and the time spent working on the order. These two values are collectively known as *production output*. Recording production output can help a company more accurately determine the costs of production. Manufacturers that use the standard costing system can use this information to improve costing standards.

When you process a production order on the shop floor, you can record quantities that are produced and the time spent on the order in reports such as the **Prod. Order - Job Card** or the **Prod. Order - Routing List**. You then can use the output journal to enter this information into the program. To reduce data entry, you can use a third-party shop floor data collection system that interfaces with Microsoft Dynamics NAV.

Similar to material consumption, you can record or flush production output automatically or manually by using one of the following three methods:

- **Forward** – Automatically records expected output and time at the release of a production order.
- **Backward –** Automatically records expected output and time when the production order is finished.
- **Manual** – Uses the output journal to manually record output and time.

You cannot automatically flush production output by operation. Therefore routing link codes do not affect production output.

You can combine automatic and manual flushing. For example, you can use automatic flushing to record expected output, and then use the output journal to record scrap for the manufactured item or additional time spent on the order.

You can define the flushing method for each machine center or work center in the **Flushing Method** field on the **Posting** FastTab of the machine or work center card. When a production order is refreshed, the flushing method for each machine center or work center copies to the **Flushing Method** field of any production order routing lines that use that machine or work center. After that, the value in the **Flushing Method** field of the production order routing line controls the flushing behavior for that operation. Therefore, you can change the flushing method for specific operations directly on the production order routing.

Output Journal

You use the output journal to manually enter production output into the program. Posting from the output journal affects the following production order fields:

- **Quantity** – The quantity of the line to be produced.
- **Finished Quantity** – The quantity of the item put into inventory.
- **Remaining Quantity** – The quantity not yet put in the inventory. The program determines the remaining quantity by subtracting the value in the **Finished Quantity** field from value in the **Quantity** field.

📋 **Note:** *You also record and post scrap in the output journal. Only the output quantity that is finished increases the inventory quantity. Scrap quantity does not increase inventory. In addition, you can record a scrap code for machine center operations in which scrap quantity is recorded. Scrap codes enable you to classify defects for later analysis.*

Demonstration: Manually Flush Production Output

Scenario: Eduardo, the production planner at CRONUS, creates a new production order for three units of item 1000, Bicycle, due on February 10, 2014. For this production order, he decides to manually flush production output.

Demonstration Steps

1. Create a released production order for three units of item 1000, Bicycle.
   a. In the **Search** box, type "released prod. orders", and then select the related link.
   b. On the **Home** tab of the **Released Prod. Orders** list page, click **New**, and then press **Enter**.
   c. On the **General** FastTab of the production order card, in the **Description** field, type "Bicycle".
   d. In the **Source No.** field, type "1000".
   e. In **Quantity** field, type "3".
   f. Set the **Due Date** field to February 10, 2014.
   g. On the **Home** tab, click **Refresh Production Order**.
   h. On the **Refresh Production Order** request page, accept all defaults, and then click **OK** to start the batch job.

2. Review the production routing.
   a. On the **Lines** FastTab of the production order card, select the newly generated order line.
   b. Click **Line**, and then click **Routing**.
   c. On the **Prod. Order Routing** page, use the **Choose Columns** function to add the **Flushing Method** field. You have to reopen the page for this change to take effect. Notice that the **Flushing Method** field is set to Manual for all routing operations.
   d. Click **OK** to close the page and return to the production order card.
   e. Click **OK** to close the production order card.

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3. Manually post production output in the output journal.

    a. In the **Search** box, type "output journals", and then select the related link.

    b. On the **Output Journal** page, click the drop-down arrow in the **Order No.** field, and then click **Advanced**.

    c. On the **Production Order List** page, select the production order for the three units of item 1000 that you created in step 1, and then click **OK**.

    d. On the **Home** tab of the **Output Journal** page, click **Explode Routing**.

    e. In the **Setup Time** field for operation number 30, type "14". Enter a time between 10 and 15 minutes for all other operations.

    f. In the **Run Time** field for operation number 30, type "60". Enter a time between 30 and 70 minutes for all operations. Do *not* select the **Finished** check box.

FIGURE 6.9:CONSUMPTION JOURNAL PAGE POPULATED WITH MANUAL PRODUCTION OUTPUT ENTRIES

    g. On the **Home** tab, click **Post**.

    h. On the request message, click **Yes** to continue with the posting.

    i. Click **OK** to close the confirmation message.

    j. Click **OK** to close the **Output Journal** page.

📝   *Note: Checking the **Finished** field on the output journal triggers the following actions when you post:*

- The production order routing status changes to Finished.

- The operation is removed from the **Allocated Quantity** field in the **Work Center Load** or **Machine Center Load** page.

Production Output Entries Review

This is a continuation of the "Manually Flush Production Output" demonstration.

Posting the output of manufactured items results in item ledger entries. To view these entries, follow these steps.
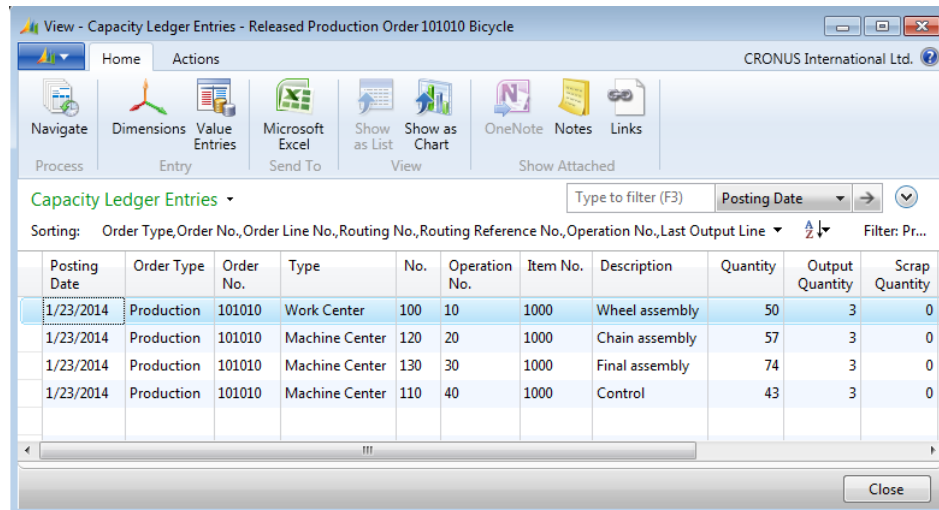
1. In the **Search** box, type "released prod. orders", and then select the related link.
2. On the **Released Prod. Orders** list page, select the released production order for three units of item 1000, Bicycle, that you created in the "Manually Flush Production Output" demonstration.
3. On the **Home** tab, click **Entries**, and then click **Item Ledger Entries**.

FIGURE 6.10:ITEM LEDGER ENTRIES FOR FLUSHED PRODUCTION OUTPUT

4. On the **Item Ledger Entries** page, notice that there is only an item ledger entry for the output of the manufactured item, item 1000. When you post an output quantity for the final operation on the routing, the program posts a positive item ledger entry for the manufactured item. This entry increases the on-hand inventory for the manufactured item equal to the output quantity that is reported. In addition, some entries are posted to the general ledger. Also notice that there are no entries for component consumption because you have not yet posted component consumption.
5. Click **Close** to close the page.

6. On the **Home** tab of the **Released Prod. Orders** list page, click **Entries**, and then click **Capacity Ledger Entries**.

FIGURE 6.11:CAPACITY LEDGER ENTRIES FOR FLUSHED PRODUCTION OUTPUT

7. On the Capacity Ledger Entries page, notice that the time in the **Quantity** field is the total of the time that is posted for the **Setup Time** and **Run Time** fields in the output journal.

8. Click **Close** to close the page.

Reversal of Production Output Posting

It is sometimes necessary to reverse output journal entries, such as when you post an incorrect amount of output to a production order.

Demonstration: Reverse an Output Journal Entry

This is a continuation of the "Manually Flush Production Output" demonstration.

Scenario: After recording output for the production order of three units of item 1000, Bicycle, Eduardo, the production planner at CRONUS, learns that he entered an incorrect run time for operation 30. Therefore, he must use the output journal to reverse the incorrect entry.

Demonstration Steps

1. Manually reverse the entry in the output journal.
   a. In the **Search** box, type "output journals", and then select the related link.
   b. On the **Output Journal** page, click the drop-down arrow in the **Order No.** field, and then click **Advanced**.

c. On the **Production Order List** page, select the production order for the three units of item 1000 that you created in the "Manually Flush Production Output" demonstration, and then click **OK**.

d. On the **Output Journal** page, in the **Item No.** field, type "1000".

e. In the **Operation No.** field, type "30".

f. In the **Setup Time** field, type "-14".

g. In the **Run Time** field, type "-60".

h. In the **Output Quantity** field, type "-3".

i. In the **Applies-to Entry** field, click the drop-down arrow.

j. On the **Item Ledger Entries** page, select the single item entry, and then click **OK**. This returns you to the output journal and populates the item ledger entry number into the **Applies-to Entry** field.

k. On the **Home** tab of the output journal, click **Post**.

l. On the request message, click **Yes** to complete the posting.

m. Click **OK** to close the confirmation message.

n. Click **OK** to close the **Output Journal** page.

Typically, you also would use the output journal to replace the reversed entry with the correct entry. Instead of reversing and replacing the production output, you can enter an adjusting entry.

Posting Output on a Daily Basis

It is easy to use the output journal's **Explode Routing** function to enter actual time that is worked on a production order if all of the information is recorded on a production order job card or other production document. However, in many manufacturing companies, employees use individual time cards to record the time spent on production orders. Although this information might be primarily for payroll purposes, you can also use it to record manufacturing progress.

If your company uses individual time cards to record time spent on production orders, you might want to rearrange the output journal fields to match. However, you cannot use the **Explode Routing** function. This means that you must manually enter each journal line.
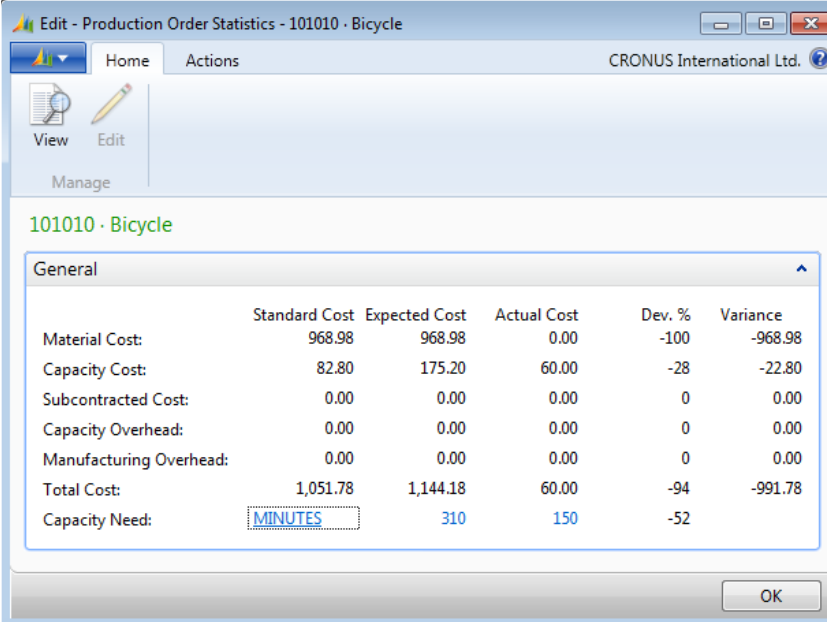
Production Order Progress

This is a continuation of the "Manually Flush Production Output" demonstration.

One way to check the status of a production order is to determine if a particular work center or machine center has worked on the order. To verify this, view the capacity ledger entries, as shown in the "Production Output Entries" topic.

You can also verify how much work on a production order is finished by viewing the order's statistics. To view progress in this manner, follow these steps.

1. In the **Search** box, type "released prod. orders", and then select the related link.

2. On the **Released Prod. Orders** list page, select the production order for three units of item 1000 that you created in the "Manually Flush Production Output" demonstration.

3. On the **Home** tab, click **Statistics**.

FIGURE 6.12:PRODUCTION ORDER STATISTICS PAGE

The **Actual Cost** field provides a general indication of the progress of a production order when it is compared to the **Expected Cost** field, in both material and capacity costs.

Automatic Production Posting

As mentioned in the lesson overview, you can automatically post production output in a manner similar to automatically posting material consumption.

You can set up automatic flushing on machine center and work center cards. The appropriate flushing method copies to the **Flushing Method** field on the production order routing when you refresh the order. You also can set the flushing method directly in the production order routing. In either case, flushing the method set for the production order routing operation determines the flushing behavior for that operation.

Setting up production output for forward flushing means that time spent and output quantity automatically post at the release of a production order.

When you use the backward flushing method, operation time and output quantity automatically post when the status of a production order is changed to finished.

Routing link codes do not affect the automatic flushing of output.

Demonstration: Forward Flush Production Output for a Whole Order

Scenario: Eduardo, the production planner at CRONUS, must create a new production order for six units of item 1001, Touring Bicycle, due on February 23, 2014. Because he believes that there will be no changes to output quantities, time spent, or scrap, he decides for forward flush production output for the whole order.

Demonstration Steps

1. Create a firm planned production order for six units of item 1001, Touring Bicycle.
   a. Close all open pages.
   b. In the **Search** box, type "firm planned prod. orders", and then select the related link.
   c. On the **Home** tab of the **Firm Planned Prod. Orders** list page, click **New**, and then press **Enter**.
   d. On the **General** FastTab of the production order card, in the **Description** field, type "Touring Bicycle".
   e. In the **Source No.** field, type "1001".
   f. In **Quantity** field, type "6".
   g. Set the **Due Date** field to February 23, 2014.
   h. On the **Home** tab, click **Refresh Production Order**.
   i. On the **Refresh Production Order** request page, accept all defaults, and then click **OK** to start the batch job.

2. Set all operations in the production order routing to use forward flushing.
   a. On the **Lines** FastTab of the production order card, select the line for item 1001.
   b. Click **Line**, and then click **Routing**.
   c. On the **Prod. Order Routing** page, set the **Flushing Method** field for all operations to Forward.
   d. Click **OK** to close the page and return to the production order card.

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3. Release the order.

   a. On the **Home** tab of the production order card, click **Change Status**.

   b. On the request message, set the **New Status** field to Released, and then click **Yes**.

   c. Click **OK** to close the confirmation message.

4. Review the ledger entries for the new order.

   a. In the **Search** box, type "released prod. orders", and then select the related link.

   b. On the **Released Prod. Orders** list page, select the released production order for six units of item 1001, Touring Bicycle, that you created in step 1.

   c. On the **Home** tab, click **Entries**, and then click **Item Ledger Entries**.

   d. On the **Item Ledger Entries** page, notice that a quantity of six is recorded in the item ledger for the order.

   e. Click **Close** to close the **Item Ledger Entries** page.

   f. On the **Home** tab of **Released Prod. Orders** list page, click **Entries**, and then click **Capacity Ledger Entries**

   g. On the **Capacity Ledger Entries** page, notice that all time that is required for each routing operation is recorded for the order, as well as the output quantity. The forward flush process created all these entries.

   h. Click Close to close the **Capacity Ledger Entries** page.

> 📓 ***Note:*** *In this demonstration, you changed the flushing method in the production routing and released a firm planned production order to trigger forward flushing. Another option is to set the **Flushing Method** field on the **Posting** FastTab of the cards for the machine centers and work centers that you want to forward flush. When you set the flushing method at this level, and you refresh a production order to create the production routing lines, the flushing method that is set on the machine or work center cards automatically copies to any routing lines that use those capacities. This removes the requirement for you to directly modify the production routing.*
>
> *Also, if you set forward flushing methods on the machine and work center cards, and you create a released production order that uses those machine or work centers in its production routing, then forward flushing for those routing operations automatically occurs when you first refresh the released production order.*
>
> *With respect to forward flushing, refreshing a released order for the first time has the same effect as changing the status of an order to Released after it is refreshed.*

Put-Away of Manufactured Items in the Warehouse

You can put away manufactured items in the warehouse, depending on the warehouse functionality that is available in the installation.

Accordingly, you can start and control the put-away process with different levels of warehouse involvement. This includes the following:

- Putting away with the output journal (bin functionality)
- Putting away from the production order (put-away functionality)

📋 **Note:** *Features for putting away a manufactured item are organized similar to the features for picking a component from a warehouse.*

Put-Away with the Output Journal

As shown for picking, bin functionality enables you to specify a put-away bin on the output journal.

If the location on the output journal line uses bins but does not require put-away processing, enter a value in the **Bin Code** field on the journal line to indicate where the item should be put away in the warehouse. Use **Print** to print a report to help users in putting away the items.

Put-Away from the Production Order

With the picking feature, an outbound warehouse request is created automatically when you release a production order or refresh a released production order. This is not the case with inbound flow from production. To use the put-away features, you must first create an inbound warehouse request for a released order.

You can create the inbound requests by using one of the following two methods:

- By selecting the **Create Inbound Request** field on the **Options** FastTab of the **Refresh Production Order** request page when you refresh a production order.
- By running the **Create Inbound Whse. Request** function on the **Actions** FastTab of a released production order that is ready for put-away.

As soon as you create the request, you can enter the released order number as a source document number in the **General** FastTab of the **Inventory Put-Away** page.

Production Journal

The production journal combines the functions of the consumption journal and output journals into one journal. This journal provides a single interface to register consumption and output from a production order.

The production journal enables you to do the following:

- Easily record output and consumption for a production order.
- Relate component consumption to operations.
- Relate actual operation data with the standard estimates on the production order routing line and production order BOM.
- Post and print an overview of registered operation data for the production journal.

The production journal performs many of the same functions as the consumption and output journals. It handles dimensions, item tracking, and bin contents exactly the same way as the consumption and output journals. However, the production journal differs from the consumption and output journals in the following ways:

- It is called directly from a released production order.
- It is predefined with the relevant component data from the production order BOM, and the routing data from the production order routing.
- It displays operations and components together in a logical structure that provides an overview of the production process.
- It displays quantities and times that are already posted for the order at the bottom of the journal as actual entries.
- It enables you to define the types of component and routing lines to view based on a flushing method filter at the top of the journal.
- You can set up the way output quantities are predefined in the journal. For example, you can specify that the last operation must have zero as its output quantity.
- Fields where data entry is irrelevant are noneditable.
- If you try to exit the journal without posting the changes that you entered, it displays a request message that lets you remain in the journal.

Consumption quantities post as negative item ledger entries. Output quantities post as positive ledger entries. Times spent posts as capacity ledger entries.

📝 **Note:** *Because the production journal presents consumption data together with output data, it offers an opportunity to display linked components and operations in a logical process structure where components are indented under their associated operation. This requires you to use routing link codes. The journal displays components that do not have routing link codes first.*

Production Journal Page

You open the **Production Journal** page by clicking **Production Journal** on the **Home** tab of a released production order.

When the production journal opens, it is predefined with the quantities to post for the production order. If nothing is posted, all quantity fields contain the production order's expected quantities. If partial postings exist, the quantity fields on the lines show the remaining quantities.

FIGURE 6.13:PRODUCTION JOURNAL PAGE

Production Journal Header

You can set the posting date in the **Posting Date** field in the header. This field provides a quick method to align posting dates on all lines. It initially uses the work date. However, you can change it as required.

You can set the **Flushing Method Filter** field to view consumption and output that is recorded by specific flushing methods. You can also specify All Methods to see all consumption and output lines regardless of their flushing method.

Production Journal Lines

The default fields on the production journal lines are described in the following table.

Field	Description
Entry Type	Either Consumption or Output. Consumed items can be at an overall production order level or they can be linked to an operation. If items are at an overall production order level, they must be available before the first operation starts. Output registration can be for both output quantity of items and labor or machine time used.
Item No.	Item number for the journal line. For output, this uses the manufactured item number. For consumption, it is the component item number.
Operation No.	Operation number for the journal line.
Type	Journal line type. This is either Work Center or Machine Center for an output line. The selected type determines the available options in the **No.** field.
No.	Number of the work center or machine center for the journal line. This depends on the selection in the **Type** field.
Description	Description of the item on the journal line that is copied from the item card when the **No.** field is populated.
Consumption Quantity	Quantity of the component item to post as consumed. The default value of this field is the expected quantity on the corresponding component line of the released production order.

Field	Description
Setup Time	Setup time that you want to record for the operation that is specified on the journal line.
Run Time	Run time that you want to record for the operation that is specified on the journal line.
Output Quantity	Quantity of the manufactured item to post as output for the output line. When you post the journal, only the output quantity that is specified on the last journal line of entry type Output adjusts the inventory level.
Scrap Quantity	The number of units of the manufactured item that was produced incorrectly and therefore cannot be used. Even if the item number is changed later, this value remains on the line.
Finished	If it is selected, specifies that the operation that is represented by the journal line is finished. This changes the status in the **Routing Status** field to Finished on the production routing.

Actual Field Group

The fields that are shown in the Actual field group at the bottom of the **Production Journal** page change depending on the entry type of the selected journal line. The fields are described in the following table.

Field	Description
Consump. Qty.	Posted consumption quantity of the item that is specified on the selected journal line.
Setup Time	Posted setup time for the operation that is specified on the selected journal line.
Run Time	Posted run time for the operation that is specified on the selected journal line.

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Field	Description
Output Qty.	Posted output quantity for the manufactured item that is specified on the selected journal line.
Scrap Qty.	Posted scrap quantity for the manufactured item that is specified on the selected journal line.

Demonstration: Register Consumption and Output in the Production Journal

Scenario: Eduardo, the production planner at CRONUS, creates a new production order for three units of item 1001, Touring Bicycle, due on February 15, 2014. For this production order, he decides to record consumption and production output together in the production journal.

Demonstration Steps

1. Create a released production order for three units of item 1001, Touring Bicycle.
   a. Close all open pages.
   b. In the **Search** box, type "released prod. orders", and then select the related link.
   c. On the **Home** tab of the **Released Prod. Orders** list page, click **New**, and then press **Enter**.
   d. On the **General** FastTab of the production order card, in the **Description** field, type "Touring Bicycle".
   e. In the **Source No.** field, type "1001".
   f. In the **Quantity** field, type "3".
   g. Set the **Due Date** field to February 15, 2014.
   h. On the **Home** tab, click **Refresh Production Order**.
   i. On the **Refresh Production Order** request page, accept all defaults, and then click **OK** to start the batch job.

2. Record consumption and output in the production journal.

   a. On the **Home** tab of the production order card, click **Production Journal**.

   b. On the **Production Journal** page, on all journal lines with an entry type of Output, enter times of between 10 and 15 minutes in the **Setup Time** field, and between 40 and 60 minutes in the **Run Time** field. Also, select the **Finished** check box for these lines. Leave the default value of three in the **Consumption Quantity** field for all the journal lines with an entry type of Consumption.

FIGURE 6.14:PRODUCTION JOURNAL WITH ENTRIES FOR FINISHED PRODUCTION ORDER

📝 **Note:** *Only the output quantity on the last journal line of entry type Output adjusts the inventory level when you post the journal. Be careful not to post the journal with the expected output quantity predefined on the last output line until all end items are actually produced.*

---

3. Post the journal entries.

   a. On the **Home** tab of the production journal, click **Post**.

   b. On the request page, click **Yes** to continue with the posting.

   c. Click **OK** on the confirmation message that states that the journal lines were successfully posted.

   d. Click **OK** to close the production journal.

   e. Click **OK** to close the production order card.

> 📓 **Note:** *If a component item is blocked, the journal does not post consumption quantities for that item. If a machine center or work center is blocked, the journal does not post output quantities or process times for any output line that uses that machine center or work center.*

> 📓 **Note:** *If you close the journal without posting, the changes are lost. Therefore, the system displays a request message that lets you stay in the journal if you try to close it by mistake.*

> 📓 **Note:** *If after posting, unposted values remain for a production order, the journal contains these remaining values the next time that it is opened. The posted values are shown in the fields in the Actual field group at the bottom of the journal page.*

Production Order Completion

A released production order finishes when you change its status to Finished, either directly from the production order, or as part of a batch by using the **Change Production Order Status** batch job.

By finishing an order, you can adjust and reconcile costing. This finishes the costing cycle for a manufactured item.

You can also view the detailed history of finished production orders. This includes the routings and components that are used to make them. This is a valuable feature if you operate in an MTO environment where manufacturing personnel change the routings and components as they work. When customers reorder, it is easy to view their previous orders and check how they were made. By using the **Copy Prod. Order Document** function, you can also use a finished production order as a template to create new production orders.

As soon as the status of a production order changes to Finished, you cannot change it, post to it, or delete it.

Demonstration: Use a Finished Order as a Template

Scenario: Eduardo, the production planner at CRONUS International Ltd., creates a production order for five units of item 1000, Bicycle, due on February 15, 2014. Because this order resembles a recent production order that is finished, Eduardo uses the finished production order as a template for the new order. Because he wants to release the new order for immediate production, he creates it as a released production order.

Demonstration Steps

1. Create a new released production order.

   a. In the **Search** box, type "released prod. orders", and then select the related link.

   b. On the **Home** tab of the **Released Prod. Orders** list page, click **New**, and then press **Enter**.

2. Copy the header information from the finished production order to the new order.

   a. On the **Actions** tab of the production order card, click **Copy Prod. Order Document**.

   b. On the **Options** FastTab of the **Copy Production Order Document** request page, in the **Status** field, select Finished.

   c. Click the drop-down arrow in the **Document No.** field.

   d. On the **Production Order List** page, select the line for order 1011001, and then click **OK**.

   e. Select the **Include Header** check box to copy the old header information to the new production order.

   f. Click **OK** to complete the copy.

---

*Note: The **Copy Production Order Document** batch job does not copy component and routing information.*

---

3. Change the production order due date and refresh the order.

   a. On the **General** FastTab of the production order card, set the **Due Date** field to February 15, 2014.

   b. On the **Home** tab, click **Refresh Production Order**.

   c. On the **Refresh Production Order** request page, accept all defaults, and then click **OK** to start the batch job.

   d. Leave the production order open.

Demonstration: Finish a Production Order

This is a continuation of the "Use a Finished Order as a Template" demonstration.

Scenario: The order that Eduardo created for five units of item 1000, Bicycle, has finished production. Therefore, Eduardo must change its status to Finished.

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Demonstration Steps

1. Change the status of the production order for five units of item 1000, Bicycle, to Finished.

   a. Make sure that the production order for five units of item 1000, bicycle, is still open.

   b. On the **Home** tab of the production order card, click **Change Status**.

   c. On the request message, in the **New Status** field, select Finished, and then click **Yes**.

   d. Click **Yes** on the request message that some output is missing.

   e. On the confirmation message, notice the reference to the finished production order. Click **OK** to close the message.

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Module Review

Recording material consumption, production time, production output, and scrap are all important tasks in production order processing. Because the business processes for these tasks can vary greatly between manufacturers, it is important for manufacturing software to accommodate many approaches.

Fortunately, Microsoft Dynamics NAV provides significant flexibility for all these tasks. You can set the tasks up to complete automatically, perform them manually, or combine both approaches, as required. You can manually enter data through the consumption journal, the output journal, or the production journal. And you can use many documents and reports to help manage related processes.

Test Your Knowledge

Test your knowledge with the following questions.

1. What are the three main sets of values that you record in production order execution?

2. When does forward flushing occur?

3. When does backward flushing occur?

4. Which journal do you use to manually flush components?

( ) Output journal

( ) Production journal

( ) Component journal

( ) Consumption journal

5. Which journal do you use to manually flush time spent and quantity produced?

( ) Output journal

( ) Production journal

( ) Time Spent journal

( ) Consumption journal

6. Which journal do you use to flush component consumption and production output together?

( ) Output journal

( ) Production journal

( ) Combination journal

( ) Consumption journal

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Test Your Knowledge Solutions

Test Your Knowledge

1. What are the three main sets of values that you record in production order execution?

   MODEL ANSWER:

   - Materials picked and/or consumed
   - Time spent working on the order
   - Quantity of the manufactured item produced

2. When does forward flushing occur?

   MODEL ANSWER:

   Forward flushing assumes that all materials for the order are automatically consumed when you release a production order, unless the order uses routing link codes. When an order uses routing link codes, the program consumes components when the start of the linked operation is recorded in the output journal.

3. When does backward flushing occur?

   MODEL ANSWER:

   Backward flushing assumes that all materials for the order are automatically consumed when the status of a production order is changed to Finished, unless the order uses routing link codes. When the order uses routing link codes, the program consumes components when a quantity of the manufactured item is recorded for the linked operation in the output journal.

4. Which journal do you use to manually flush components?

   ( ) Output journal

   ( ) Production journal

   ( ) Component journal

   (√) Consumption journal

5. Which journal do you use to manually flush time spent and quantity produced?

      (√) Output journal

      ( ) Production journal

      ( ) Time Spent journal

      ( ) Consumption journal

6. Which journal do you use to flush component consumption and production output together?

      ( ) Output journal

      (√) Production journal

      ( ) Combination journal

      ( ) Consumption journal