

Work Order Plus Setup Manual

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Introduction

This manual contains instructions needed to configure the required fields for Work Order Plus. However, this manual only focuses on WO+ and some existing BOMP tables, like Feature Option and Job Code, will be skipped. The BOMP Global Setup and BOMP Setup will be skipped as well. You can refer to the released BM Manual for more information.

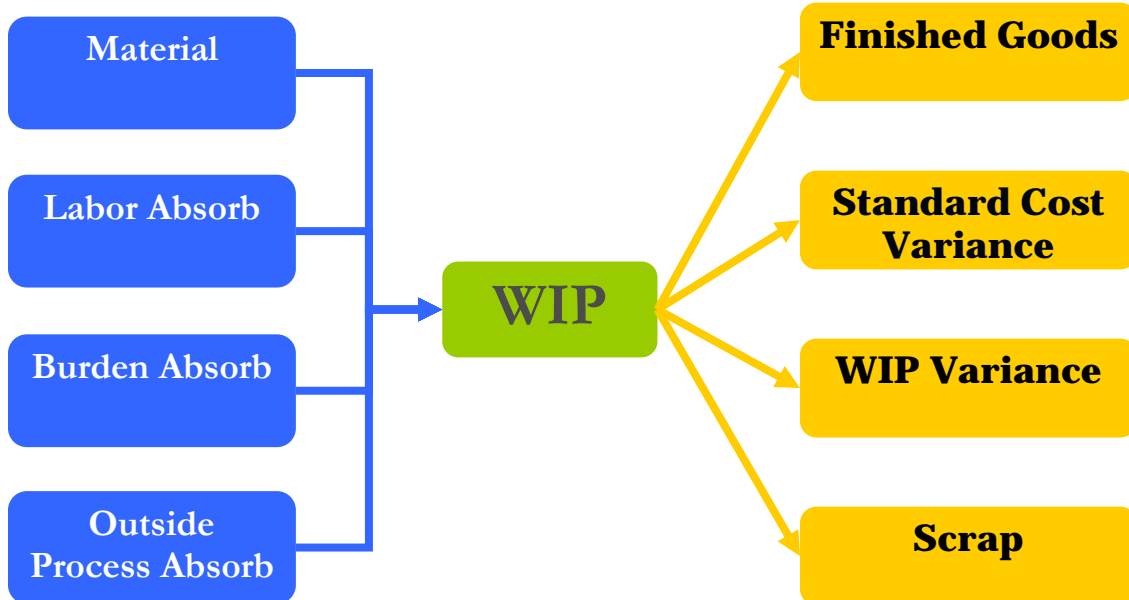
There are three essential elements that are required by WO+; new G/L Accounts for configuration throughout WO+, the Labor Grade file and the Work Center file. We highly recommend making an entry in all the tables in WO+, but it is not necessary to configure everything. For example, a company can use a Base Order to maintain routings instead of Production Routing. Read through this manual and evaluate the need of your company or consult with Netcellent for more information.

Chapter 1: Chart of Accounts

Some accounts for WO+ are required and some are optional. We suggest adding all of these accounts before using WO+. The accounts are:

- **Inventory Asset Account (required)**
- **Labor Absorb (required)**
 - To absorb labor cost during the production. Each work center has its own labor absorb account, therefore it is possible to have multiple labor absorb accounts.
- **Burden Absorb (required)**
 - To absorb burden cost during the production. Each work center has its own burden absorb account as well.
- **Work In Process (required)**
 - Before the parent item is complete the production cost will be distributed to a temporary account, the Work-In-Process (WIP) Account.
- **Work In Process Variance (required)**
 - Exceptions that cannot be resolved to another variance account will be distributed to the WIP Variance Account. These exceptions include:
 - The labor cost, burden cost and cost difference between parent item and components for a disassembly order.
 - Any amount remaining in the WIP account when closing an order by reporting a complete quantity of zero in the last step will be distributed to the WIP Variance Amount.
- **Standard Cost Variance (optional)**
 - The difference between standard unit cost of a parent item and actual cost once the production is complete will go to the Standard Cost Variance Account. Make sure this account exists if your Inventory Cost Method is Standard Cost.
- **Outside Process Absorb (optional)**
 - To absorb cost of outside processes. If routings have an outside process, make sure this absorb account exists. Currently Elliott contains only one Outside Process Absorb Account, located in BOMP global setup.
- **Scrap (optional)**
 - WO+ can separate the cost amount in scrapped pieces during the production from the Finished Goods account into a scrap account. This amount is calculated based on several assumptions when the order is closed. If this feature is enabled, make sure this account exists.

The following figure shows the relationship between each account.



(Figure 1) Relationship between different accounts

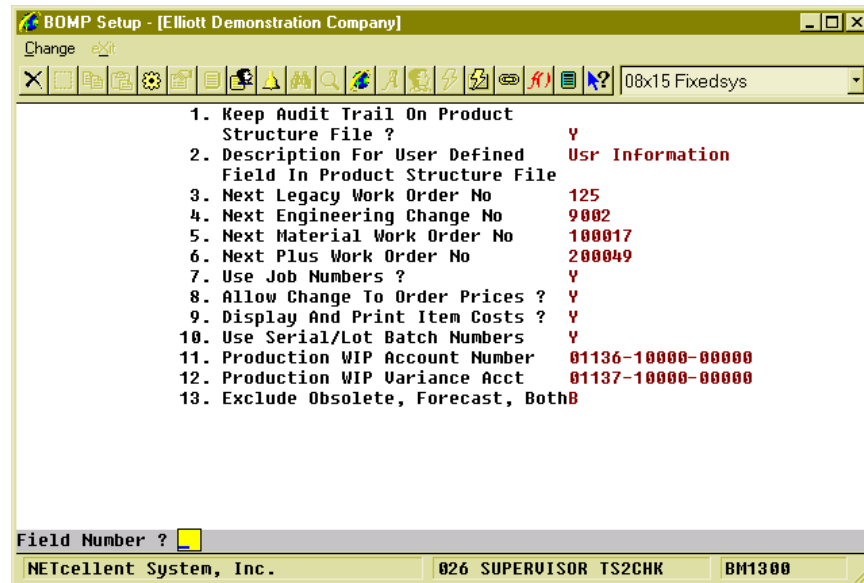
Before parent items are finished each production transaction will create distributions which credit the components' inventory account, the labor absorb account, the burden absorbed account and the outside process absorb account, as well as distributions which debit the Work-In-Process account. When the parent items are finished the production transactions will create distributions which credit the Work-In-Process account as well as distributions which debit the parent item's inventory account. Distributions to the variance accounts may occur as well.

Chapter 2: BOMP Setup

How to Access:

Main Menu → Util-Setup → Global Setup → Dist → BOMP Setup

Main Menu → Distribution → Bill of Material Processor → Util-Setup → BOMP Setup



(Figure 2) BOMP Setup

2. Description For User Defined Field In Product Structure File

- This will be the literal of the user defined field in Product Structure Maintenance. The user defined field will not be available if this field is blank.

6. Next Plus Work Order No

- This is a sequence number for the next plus work order. Although Legacy, Material and Plus Work Order can use the same work order number, this allows you to define a different range for each type which can help differentiate one from another if more than one type of work order is in use.

9. Display And Print Item Cost ?

- Set this flag to "N" to hide all cost information, including item cost and labor rate, from all reports and screens.

11. Production WIP Account Number

- Work In Process Account used for Legacy and Plus work orders.

12. Production WIP Variance Acct

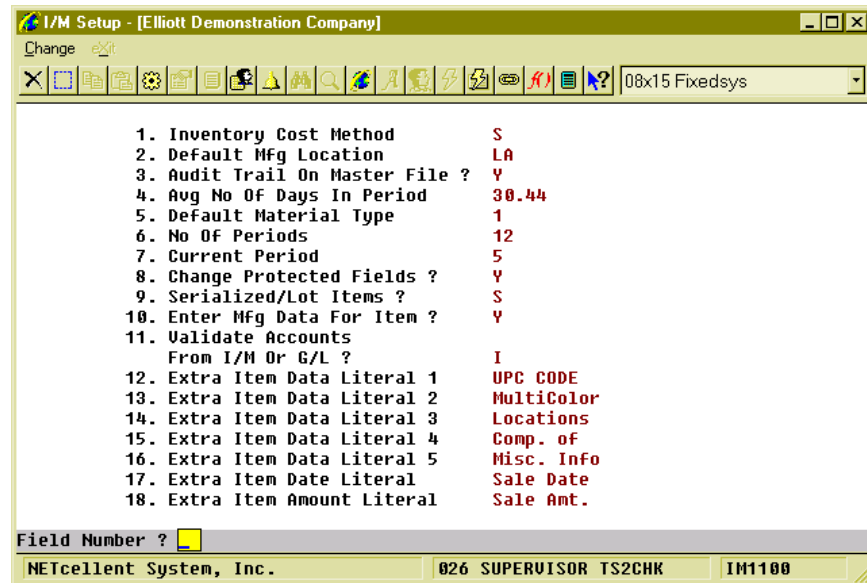
- Work In Process Variance Account used for Legacy and Plus work orders.

Chapter 3: IM Setup

How to Access:

Main Menu → Util-Setup → Global Setup → Dist → I/M Setup

Main Menu → Distribution → Inventory Management → Util-Setup → I/M Setup



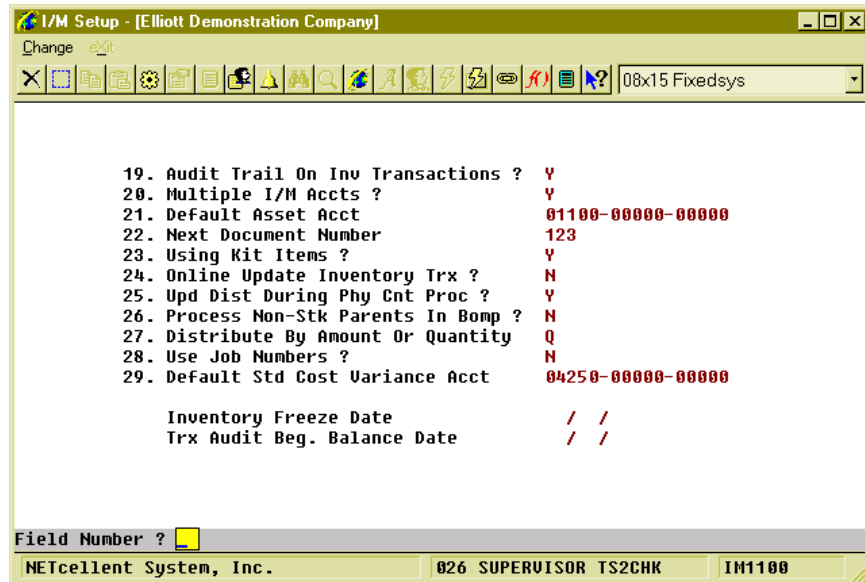
(Figure 3) I/M Setup page 1

1. Inventory Cost Method

- The default cost method used by Elliott. If this is set to S as Standard Cost, the system will use the standard cost logic in BOMP.

11. Validate Accounts From I/M Or G/L ?

- The system will use the I/M Account file or G/L Account file based on this setting in BOMP. Make sure all accounts are added to the correct file.



(Figure 4) I/M Setup page 2

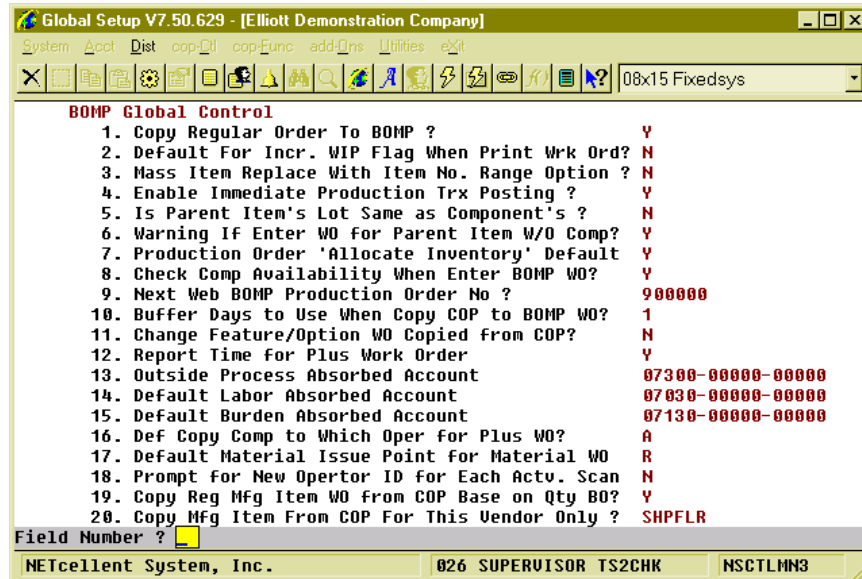
29. Default Std Cost Variance Acct

- This was added during the development of WO+. Normally it is set in Material Cost Type/Location File Maintenance, but it provides a default value if none of the Material Cost Type/Location records are set.

Chapter 4: BOMP Global Setup

How to Access:

Main Menu → Util-Setup → Global Setup → Dist → BOMP Global Control



(Figure 5) BOMP Global Setup page 1

12. Report Time for Plus Work Order

- Options
 - “Y” (Default) – The system will track operator time and production time. Labor Cost and Burden Cost will be calculated based on time information for each production.
 - “N” – The system will not track any time information and assumes no Labor and Burden Cost for the production. A simplified interface will be provided for scanning work. The system can still provide the current status in the shop. (Note: this flag cannot set to “N” at this moment.)

13. Outside Process Absorbed Account

- This account needs to be entered if the production routings include an outside process.

14. Default Labor Absorbed Account

- Newly created Department and Work Center entries will default to this value for the labor absorb account. It can be overridden in at Department Level and Work Center Level.

15. Default Burden Absorbed Account

- This account can be overridden at the Department Level and Work Center Level.

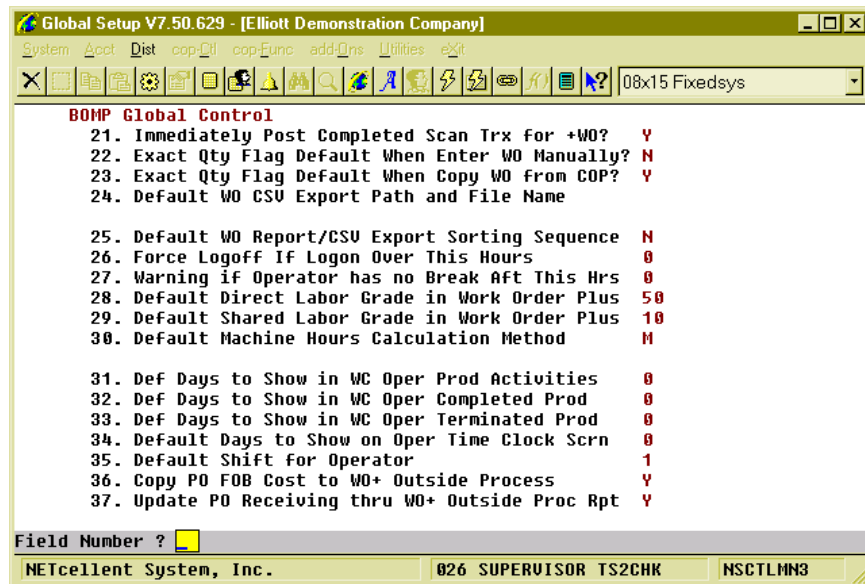
16. Def Copy Comp to Which Oper for Plus WO?

- Plus Work Order introduces routings which contain one or more steps to complete parent items. If the material issue point is not specified, the system will pick a step as the default material issue point based on this setting.
- Options

- A (Default) – Attached Operation. If the Attached Operation Number (5. Attaching Operation) is specified in the Product Structure, the system will use a corresponding operation if Operation Number exists in the routing. If Operation does not exist or the Attached Operation Number is blank, the system will use the first operation.
- C – Currently Highlighted Operation. The highlighted operation will be used during data entry, like selecting a routing through Production Routing Maintenance. If there is no user interface, which is the case when a COP order is copied to BOMP, the first operation is used.
- F – Always use the first operation.
- L – Always use the last operation.

18. Prompt for New Operator ID for Each Actv. Scan

- When operators select the Work Order Production function to report their jobs for a production, they will be prompted for an Operator ID and password. If this computer is shared by other operators, the system should prompt for the ID and password each time. Otherwise, the ID and password are only required the first time. This is the default setting for the whole Elliott system, but you can override this.
- Options
 - “Y” (Default) – The system always prompts for Operator ID and password.
 - “N” – The system only prompts for the Operator ID and password the first time selected.



(Figure 6) BOMP Global Setup page 2

21. Immediately Post For Completed Scan Trx?

- Allows an operator to immediately post the transaction that was reported through Work Order Production. Transactions reported in Production Transaction Processing use another flag to control immediate posting.
- Options
 - “Y” (Default) – Allows you to post the transaction immediately.

- “N” – Not allow.

22. Default for Work Order Exact Qty Flag?

- WO+ introduces a new flag for each work order, Exact Qty Flag, where selecting “Y” indicates the quantity completed must match the quantity ordered. This global setup field is the default value for Exact Qty Flag, which appears when a work order is created through Work Order Entry.
- Options
 - “N” (Default) – The default value is “N”.
 - “Y” – The default value is “Y”.

23. Default for WO Copy from COP Exact Qty Flag?

- This is the default value of Exact Qty Flag when an order is copied from a COP Order.
- “N” (Default) – The default value is “N”.
- “Y” – The default value is “Y”.

26. Force Logoff If Logon Over This Hours

- Operators may forget to log off of the system and this can cause problems with production reporting. This field indicates the number of hours before the system considers it an exception. When this is exceeded the system will log the operator off and create an exception log. End Of Day and Meal Break are both considered a logoff function.
- Options
 - 0 (Default) – 12 Hours

27. Warning if Operator has no Break Aft This Hrs

- A warning is given when the number of hours logged in exceeds this value without a break, normal or meal break.
- Options
 - 0 (Default) – 6 Hours

28. Default Direct Labor Grade in Work Order Plus

- Default value for the Direct Labor Grade field in Departments and Work Centers. This labor grade is used for evaluations.

29. Default Shared Labor Grade in Work Order Plus

- Default value for the Shared Labor Grade field in Departments and Work Centers. This labor grade is used for evaluations.

30. Default Machine Hours Calculation Method

- Default value for the Machine Hours Calculation Method in Departments and Work Centers. This flag describes how the machine is operated in the work center and how the machine hours can be calculated.
- Options
 - “M” (Default) – Man-Hours. Use this option when all the crew members are operating the same machine at one time. A Machine Hour is equal to the hours the crew spends on it. (Machine Hours = Labor Hours).
 - “C” – Crew-Hours. Use this option when each crew member is operating their own machine. A Machine Hour is the sum of the hours that each crew member spends on it. (Machine Hours = Labor Hours times Number Of Crew Members).

- “S” – This means Machine Hours is not always related to Labor Hours. This is for situations where the machine can run independently without an operator involved, like a Computer Numerical Controlled (CNC) Machine. If “S” is selected, the following question will appear:

Default Machine Ends by Default If Labor Ends

- Since a machine can run without an operator, this flag indicates the default behavior of a work center machine when an operator leaves. You can always override this behavior.
- Options
 - “Y” – The machine usually stops after the operator leaves.
 - “N” – The machine keeps working after the operator leaves.

31. Def Days to Show in WC Oper Prod Activities

- An option in the Work Center Operation/Inquiry screen shows all the production history of a work center. This value defines how many days will be displayed in this option. Qualified users can override this during the inquiry.
- Options
 - 0 (Default) – All records

32. Def Days to Show in WC Oper Completed Prod

- An option in the Work Center Operation/Inquiry screen shows the completed production history of a work center. This value defines how many days will be displayed in this option. Qualified users can override this during the inquiry.
- Options
 - 0 (Default) – All records

33. Def Days to Show in WC Oper Terminated Prod

- An option in the Work Center Operation/Inquiry screen shows the cancelled production history of a work center. This value defines how many days will be displayed in this option. Qualified users can override this during the inquiry.
- Options
 - 0 (Default) – All records

34. Default Days to Show on Oper Time Clock Scrn”

- This value defines how many days will be displayed in the Operator Time Clock Maintenance/Inquiry. Qualified users can override this during the inquiry.
- Options
 - 0 (Default) – All records

35. Default Shift for Operator

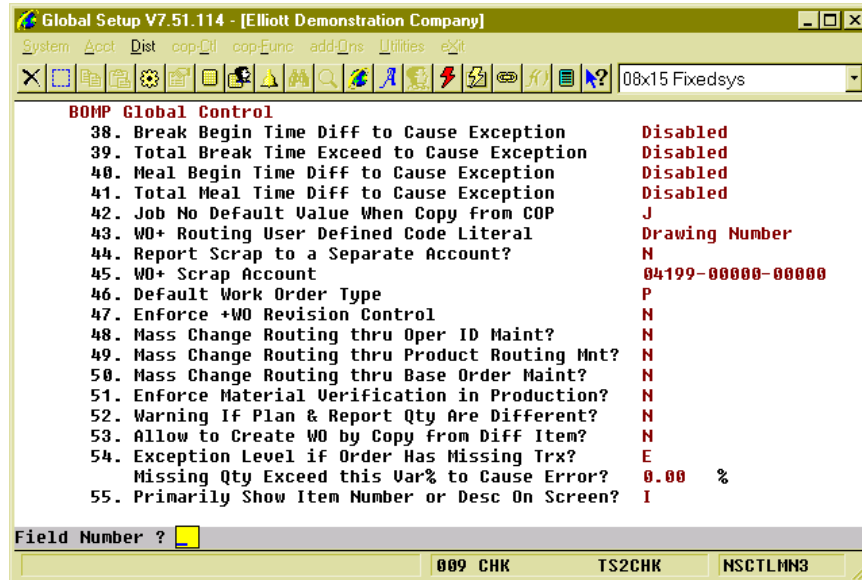
- Default value for Operator file.

36. Copy PO FOB Cost to WO+ Outside Process

- When products return from an outside process and the operator enters the Purchase Order Number of the outside process on the Production Transaction, this flag indicates if the system should use the most current FOB Cost in Purchase Order or the cost in Order Routing to calculate the outside process cost.
- Options
 - “Y” (Default) – If a valid purchase order number is entered when reporting an Outside Process the system will use the FOB Cost from the PO Line Item instead of the one defined in Order Routing.
 - “N” – Always use the pre-defined value in Order Routing.

37. Update PO Receiving thru WO+ Outside Proc Rpt

- When an operator reports the Purchase Order Number for an Outside Process, this flag indicates if the system should create a PO Receiving Record when the production transaction is posted.
- Options
 - “Y” (Default) – If a valid PO number is entered for outside processing, the system will create a PO Receiving Transaction once the transaction is posted.
 - “N” – Never do PO Receiving though WO+.



(Figure 7) BOMP Global Setup page 3

38. Break Begin Time Diff to Cause Exception

- If an operator clocks out for a break earlier or later than the time defined in the Operator File and the difference in minutes is greater than this value, the system will consider this an exception and will notify the manager through an Elliott Event. The system will determine if it is 1st Break or 2nd Break based on the time it takes place. The manager can also specify a different value for each operator in the Operator File.
- If the difference is negative, the operator took a break too early. If it is positive, the operator took a break too late.
- Options
 - 0 (Default) – Disable checking.

39. Total Break Time Exceed to Cause Exception

- If an operator records a break time longer or shorter than the defined time in the Operator File and the difference in minutes is greater than this value, the system will consider this an exception and will notify the manager through an Elliott Event. The system will determine if it is 1st Break or 2nd Break based on the time it takes place. The manager can also specify a different value for each operator in the Operator File.

- It is only considered an exception when the operator's break is too long.
- Options
 - 0 (Default) – Disable checking.

40. Meal Begin Time Diff to Cause Exception

- If an operator records a meal break earlier or later than the time defined in the Operator File and the difference in minutes is greater than this value, the system will consider this an exception and notify the manager through an Elliott Event. The manager can also specify a different value for each operator in the Operator File.
- Options
 - 0 (Default) – Disable checking.

41. Total Meal Time Diff to Cause Exception

- If an operator records a meal break longer or shorter than the time defined in the Operator File and the difference in minutes is greater than this value, the system will consider this an exception and notify the manager through an Elliott Event. The manager can also specify a different value for each operator in the Operator File.
- It is only considered an exception when the operator's meal break is too long.
- Options
 - 0 (Default) – Disable checking.

42. Job No Default Value When Copy from COP

- This flag will indicate which value will be used as the Job Number by default when a work order is copied from a COP sales order.
- Options
 - "J" (Default) – Sales Order's Job Number
 - "O" – Sales Order Number
 - "C" – Customer Number
- A Job Number will be automatically created if the Sales Order does not have a job number and Job Numbers are in use.

43. WO+ Routing User Defined Field Literal

- This setting defines the literal for the 15 character user-defined field for each operation. The default value of "User Defined Field" will be used if the value is left blank.

44. Report Scrap to a Separate Account?

- By default, the cost of scrap is absorbed into the Finished Goods account, or the Standard Variance account if the cost method is Standard Cost, and this increases the production cost or variance. Set this flag to "Y" if you want to separate this amount into another account. The system will use an algorithm to estimate this cost and distribute it to the scrap account.
- Options
 - "N" (Default) – Not use another account for cost of scrap. The total production cost will increase due to scrap.
 - "Y" – Use another account to absorb cost of scrap.

45. WO+ Scrap Account

- Scrap Account Number. Enter this account number if you plan to absorb the cost of scrap with a scrap account.

46. Default Work Order Type

- This flag was moved from the Available to Promise Global Setup to BOMP. Since we now have three 3 types of work orders, this flag indicates which is the major type in use. This will affect several areas, such as creating a work order through ATP processing. The default work order type will depend on this flag.
- Options
 - “P”(Default) – Plus Work Order
 - “M” – Material Work Order
 - “O” – Legacy Work Order

47. Enforce +WO Revision Control

- After a Work Order is released to the shop floor, any change in order routing may cause confusion for the operators. Revision Control can prevent problems by requiring the operator to reprint the Traveler, which contains the order routing information, whenever the order routing is modified. Reporting for this work order will be suspended until the Traveler is reprinted.
- The Revision Number of a Work Order is visible on many screen and reports. The original version of the order has a revision of zero.
- Options:
 - “N” (Default) – Revision Control not enforced.
 - “Y” – Enforce Revision Control.

48. Mass Change Routing thru Oper ID Maint?

- This global flag controls whether all the operations will be updated if a value is changed in the Operation ID file. These operations can be in Product Routing, Order Routing or Base Order.
- Options:
 - “N” (Default) – Never update.
 - “Y” – Update if any value in the Operation ID is changed.
 - “A” – Always ask to update, regardless if any value is changed.

49. Mass Change Routing thru Product Routing Mnt?

- This global flag controls whether all the work orders will be updated if a value is changed in the Product Routing file. These work orders can be Plus Work Orders or Base Work Orders.
- Options:
 - “N” (Default) – Never update.
 - “Y” – Update if any value in the Product Routing is changed.
 - “A” – Always asks for update, no matter any value is changed or not.

50. Mass Change Routing thru Base Order Maint?

- When user changes the value in Base Work Order, all the work orders which is copied from this base order can be updated or synchronized at once. These work orders can be Plus Work Order. This global setup indicates if user wants to use this feature.
- Options:
 - “N” (Default) – Never Update.
 - “Y” – Update if any value in the Base Work Order is changed.
 - “A” – Always asks for update, no matter any value is changed or not.

51. Enforce Material Verification in Production?

- Material Verification requires the operator to enter the item number or scan the UPC of each item used when reporting a production for the material. This feature can be activated with this global setup flag.
- Option
 - “N” (Default) – Do not verify.
 - “Y” – Use Material Verification.
- If Material Verification is activated, another set of parameters will appear.
 - **“Use ItemUserAmt/OrdMultiple as Package Qty”** – This yes/no flag asks if you want to use the amount field in Extra Item Data or Order Multiple in the Item File as the package quantity. I/M Global Setup field 21, Use Which Item Field For Quantity/Box, defines which field to use.
 - **“Enter Qty Before Or After”** – By selecting “Before” operators only need to enter the item number or scan the UPC to accumulate the quantity. The quantity can be entered in this same field. The following flag determines if a numeric entered is the quantity or an item number. When “After” is selected the system will always prompt for a quantity after the item number is entered.
 - **“Max Digits For Pre-Scan Quantity”** – This sets the threshold for the quantity size if the previous flag is set to “Before”. Since the “Before” setting will provide only one field, any number with this many digits or smaller will be considered a quantity and anything larger will be considered an item number.
 - **“Consider Item# Entry As Scan Or Manual”** – This flag determines whether a manually entered item number, instead of the UPC or GTIN, should be considered as a scan or a manual entry. Material Verification will keep track of scans versus manual entries. Entering a UPC or GTIN is always considered a scan.
 - **“Consider Manual Confirm as an Exception?”** – Manual entries can be considered an exception.
 - **“Consider Over Verify as an Exception”** – Reporting a quantity more than expected can be considered an exception.
 - **“Consider Under Verify as an Exception”** – Reporting a quantity less than expected can be considered an exception.
 - **“Consider Substitution as an Exception”** – Reporting a substitution component can be considered an exception.
 - **“Verification Exception Override Password”** – When one of the exceptions described above takes place, a password can be entered to override the exception. Operators who are not given this password should ask a supervisor to override it.
 - **“Wave File For Confirm”** – This is the wave file to play when a component is confirmed.
 - **“Wave File For Wrong Item”** – This is the wave file to play when a wrong item is entered.
 - **“Wave File For Alert”** – This is the wave file to play when an exception occurs.

- **“Wave File For Over Or Under Verify”** – This is the wave file to play when the quantity verified for a component is over or under.

52. Warning If Plan & Report Qty Are Different?

- A warning can be displayed if an operator reports a quantity which is different from the planned quantity when the production started.
- Options:
 - “N” (default) – Do not warn.
 - “Y” – Warn every time this happens.

53. Allow to Copy from Another WO With Diff Item?

- This flag determines if an operator is allowed to copy a routing and bill of material from another base plus work order to a plus work order and the item numbers on the two orders are different. The flag will not affect copying other orders to a base work order.
- Options:
 - “N” (default) – Not allow.
 - “Y” – Allow, but warning when this happens.

54. Exception Level if Order Has Missing Trx?

- The system will check for any missing transactions in the previous operations when posting a transaction for the last operation. For example, 98 pieces are reported for the first operation and now the operator wants to post 100 pieces to the last operation. The system would consider the first operation to be missing a transaction of 2 pieces. This flag determines if the missing transaction is an error, warning or not an exception.
- Options:
 - “E” (default) – Consider it an error. The system will prevent an operator from posting this transaction.
 - “W” – Consider it a warning. The system will display a warning and ask the operator to confirm it.
 - “N” – Not an exception. The system will not display any warning. This means the operator should take responsibility if the wrong quantity is reported.
- Another prompt will appear if this flag is “E” or “W”: **“Missing Qty Exceed this Var% to Cause Error/Warning?”**
 - When the prior flag is set to “E” and a transaction is missing where the quantity of the transaction exceeds the variance percentage of the operation quantity, an error condition is raised. If the variance percentage is less than this value, then it is considered a warning. For example, the last operation reports 100 pieces and an operation is missing a transaction of 2 pieces. A warning occurs when the field is set to 5%. It will produce an error if it is set to 1%. Set it to zero if you always consider a missing transaction an error.
 - When the prior flag is set to “W” and the missing quantity exceeds the variance percentage, a warning is given.

55. Primarily Show Item Number or Desc On Screen?

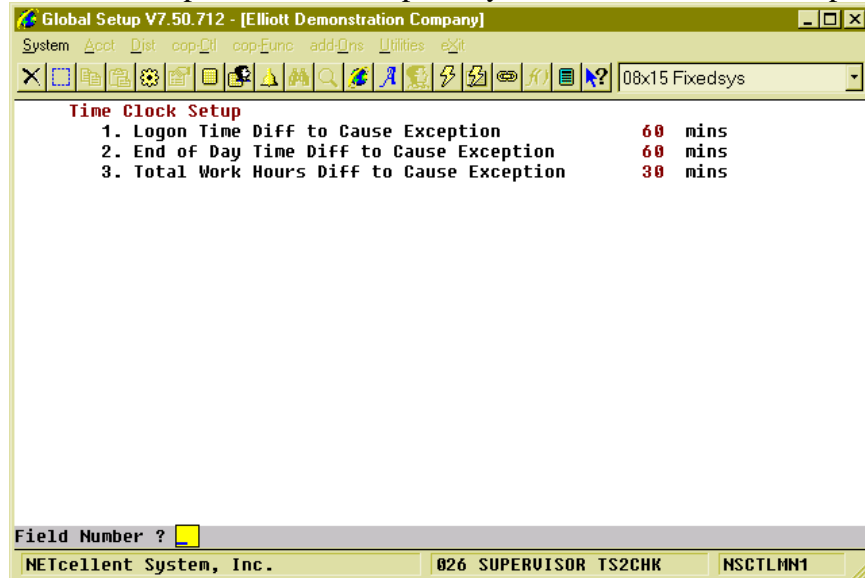
- You can select the item number or item description to be the primary display on the inquiry screens, depending on which one is more meaningful.

- Options:
 - I (default) – Display Item Number.
 - D – Display Item Description 1.

Chapter 5: Time Clock Global Setup

How to Access:

Main Menu → Util-Setup → Global Setup → System → Time Clock Setup



(Figure 8) Time Clock Global Setup

1. Logon Time Diff to Cause Exception

- If an operator logs onto the system earlier or later than the time defined in the Operator File and the difference in minutes is greater than this value, the system will consider this an exception and notify the manager through an Elliott Event. The manager can specify a different value for each operator in the Operator File.
- Options
 - 0 (Default) – Disable checking.

2. End of Day Time Diff to Cause Exception

- If an operator logs off of the system earlier or later than the time defined in the Operator File and the difference in minutes is greater than this value, the system will consider this an exception and notify the manager through an Elliott Event. The manager can specify a different value for each operator in the Operator File.
- Options
 - 0 (Default) – Disable checking.

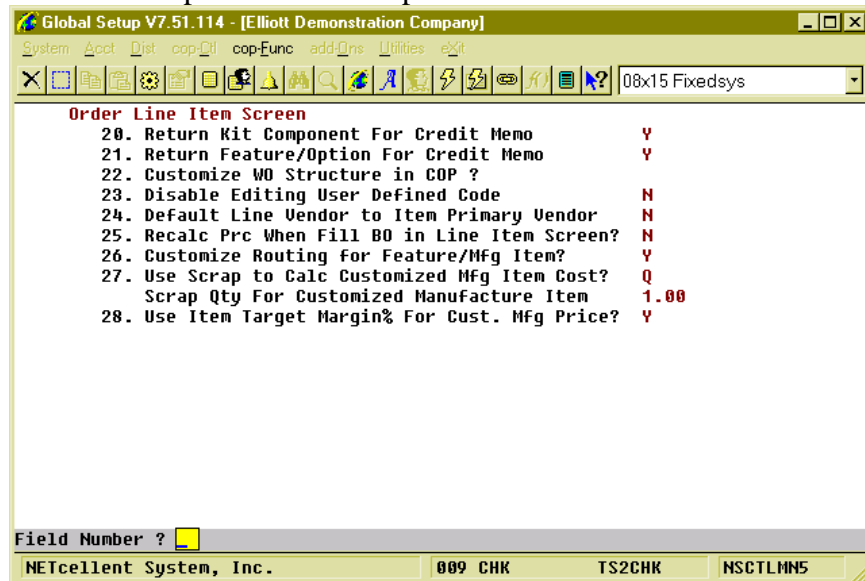
3. Total Work Hours Diff to Cause Exception

- If an operator's working hours are more or less than the hours defined in the Operator File and the difference in minutes is greater than this value, the system will consider this an exception and notify the manager through an Elliott Event. The manager can specify a different value for each operator in the Operator File.
- Options
 - 0 (Default) – Disable checking.

Chapter 6: COP Order Line Global Setup

How to Access:

Main Menu → Util-Setup → Global Setup → COP-Func → Order Line Item Screen



(Figure 9) COP Order Line Global Setup

26. Customize Routing for Feature/Mfg Item?

- This flag enables a feature to choose and customize routing for feature or manufactured items in the order line item screen.
- Options
 - N (Default) – Disable this feature.
 - Y – Allow a routing to be selected and customized in the order line item screen. System will always prompt “Do you want to choose a routing?”
 - A – Always enter a routing for feature items or while customizing a manufactured item.

27. Use Scrap to Calc Customized Mfg Item Cost?

- This flag indicates how the scrap cost of a customized manufactured item increases the unit cost.
- Options
 - N – No scrap
 - Q – Scrap by Quantity
 - P – Scrap by Percentage
- If you select “Q” or “P”, Elliott will prompt for “Scrap Qty/Pct For Customized Manufactured Item”. This indicates what amount or percentage will be scrapped for customization.

28. Use Item Target Margin% For Cust. Mfg Price?

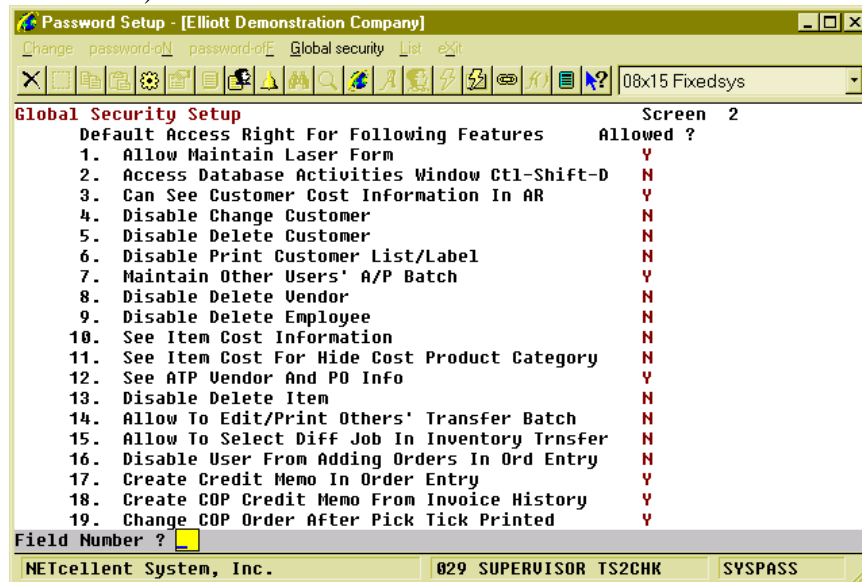
- This flag indicates that if the unit price should be calculated based on unit cost and target margin. If set to “Y”, the system will use the new calculated price.

Chapter 7: Security Setup

How to Access:

Main Menu → Util_Setup → Password Setup → Global Security → Global Default Security (for all users)

Main Menu → Util_Setup → Password Setup → Global Security → User Global Security (for one user)

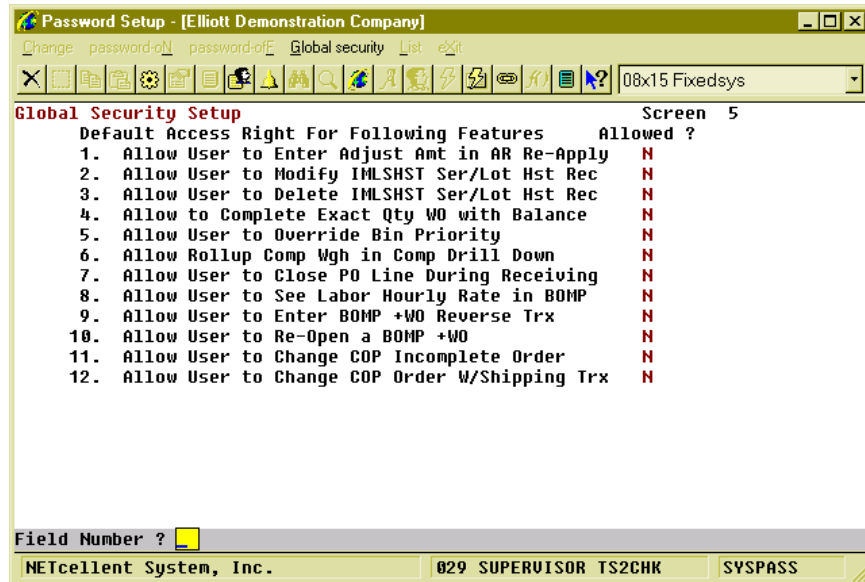


(Figure 10) Global Security Setup Screen 2

This is the Security Setup for Elliott. You can set a default value for these security flags through Global Default Security and configure the flags for each Elliott user. The position of each flag on the screen may vary between Global Default Security and User Global Security.

Screen 2, “10. See Item Cost Information”

- Options
 - “N” – Do not allow the user to view any item related cost, ex. Item Unit Cost and the material part of the production cost. This applies to both reports and screens in WO+. The Outside Process Cost counts as material cost.



(Figure 11) Global Security Setup Screen 2

Screen 5, "4. Allow to Complete Exact Qty WO with Balance"

- Options
 - "N" – The system will not allow an operator to close a production work order until the quantity reported is enough complete all the parent items.
- The location of this flag may be different in User Global Security.

Screen 5, "8. Allow User to See Labor Hourly Rate in BOMP"

- Options
 - "N" – Do not allow the user to view labor rate related cost, including labor cost and burden cost. This applies to the reports and screens in WO+.

Screen 5, "9. Allow User to Enter BOMP WO+ Reverse Trx"

- If an operator reported incorrect information in a production transaction and posted it, which can cause a dramatic change in production cost, an operator can create reverse transactions to offset all statistics of that posted transaction, including quantity, hours and costs. This flag indicates if the user has the right to create reverse transactions.

Screen 5, "10. Allow User to Re-Open a BOMP +WO"

- If an operator needs to modify a transaction of a closed Work Order, the Work Order must be reopened first. This flag determines if the user has the right to reopen orders.

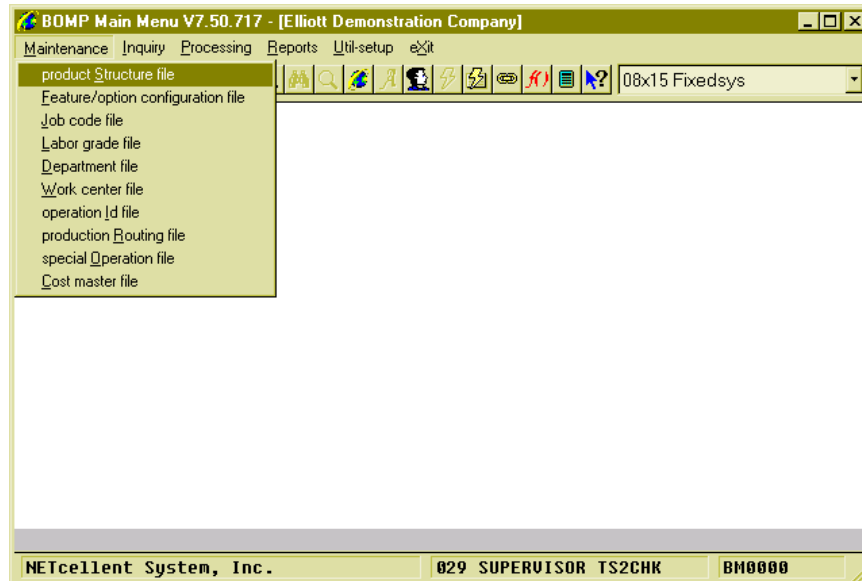
Screen 5, "13. Allow User to Use BOMP Work Order Import"

- Allows the user to import Work Orders through CSV files.

Screen 5, "14. Allow User to Use BOMP Plus Work Order"

- Allows the user to all the Plus Work Order features. If the user is not allowed to use WO+, the system will hide or disable all features related to WO+.

Chapter 8: Shop Setup



(Figure 12) Most of the maintenance options can be found under “Maintenance”

Work Order Plus introduced several new tables to the Elliott system. Most of these can be maintained under *[BOMP Main Menu → Maintenance]*. While not all are required to make WO+ work, some are essential. **Labor Grade** defines the estimated hourly rate for a labor level. **Work Center** represents one machine, multiple similar machines or a work place and contains most of the burden information for this work center. **Department** can group multiple work centers or operators for analysis or management. **Operation ID** can maintain similar operations for different item routings or order routings. **Product Structure** defines the basic bill of material of a parent item and **Production Routing** defines the routing to manufacture it. **Special Operation** defines all indirect labor codes not related to production, like machine maintenance or meetings. **Operator** and **Shift** provide detail information of an operator. An operator can use an ID to clock in and clock out, as well as report for production.

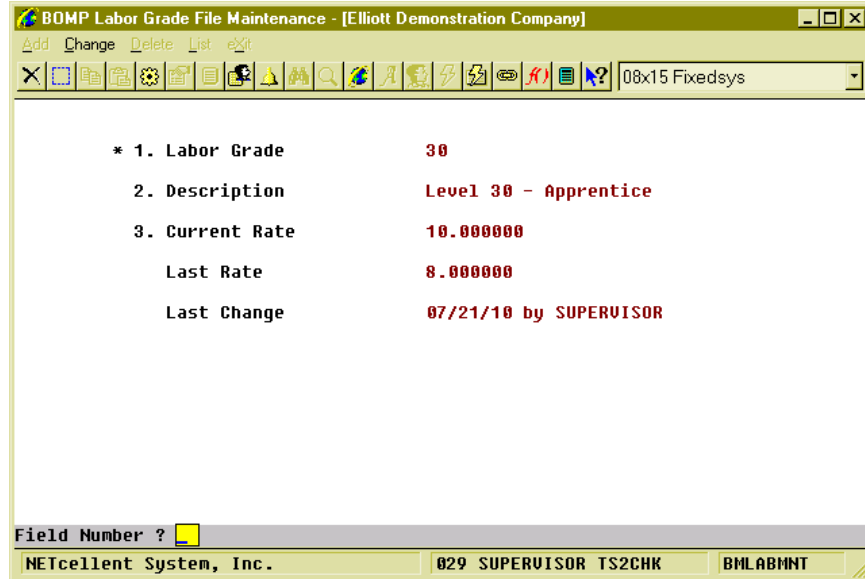
Only **Labor Grade** and **Work Center** are required by WO+. Most of the optional tables can assist you in many ways, therefore you should evaluate your needs and set them up accordingly.

To avoid conflicts and backtracking, we recommend setting up these tables in the following sequence: Labor Grade → Department → Work Center → Operation ID → Production Routing → Product Structure → Shift ID → Operator ID → Special Operation.

8.1 Labor Grade

How to Access:

Main Menu → Distribution → Bill of Material Processor → Maintenance → Labor Grade File



(Figure 13) Labor Grade Maintenance Screen

Labor Grade is used to estimate the hourly rate of a level of labor. The system will use this rate to calculate labor cost for each work order.

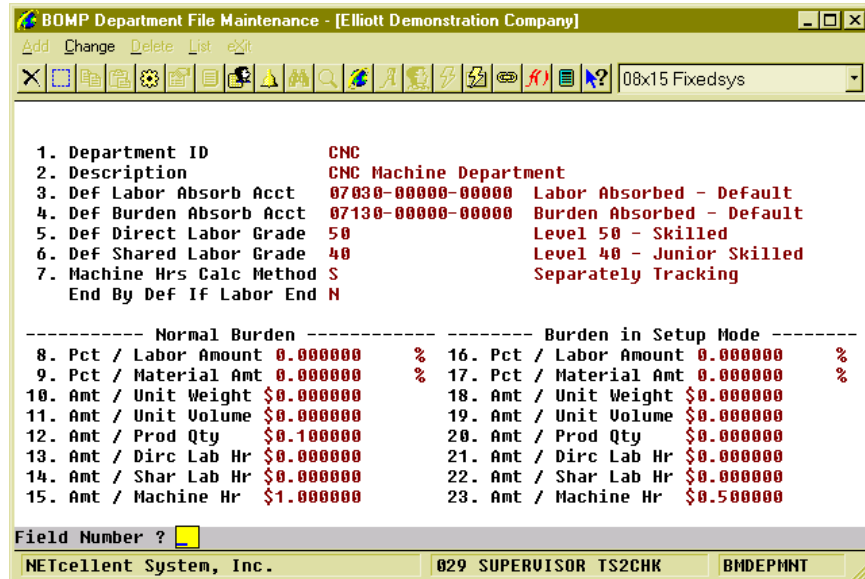
| Name | Type and Description |
|-----------------|--|
| 1. Labor Grade | 2 alpha-numeric characters. Labor Grade for a labor level. |
| 2. Description | 30 alpha-numeric characters. Description of the Labor Grade. |
| 3. Current Rate | 13 numeric digits with 6 decimal places and an optional minus sign. Current labor rate of the labor grade. This rate should be a little higher than the average salary of this level if labor insurance, benefits, etc. are part of the labor cost. The basic rule of thumb is to use 10% more than the average salary. |
| Last Rate | 13 numeric digits with 6 decimal places and an optional minus sign. Display only. This is the rate prior to the current rate. |
| Last Change | A standard date format and an Elliott User ID. Display only. This is the date this labor grade was changed and the Elliott User who changed it. |

There are 2 BOMP Global Setup fields requiring a Labor Grade for a default value. Remember to set them after creating new labor grades.

8.2 Department

How to Access:

Main Menu → Distribution → Bill of Material Processor → Maintenance → Department File



(Figure 14) Department Maintenance Screen

A Department can be a building or floor in the company, a group of work centers, or a group of operators or workers. The Department ID field can be found in both the **Work Center** file and the **Operator** file, which acts as a group ID. So, you can have “Department of the Work Center” and “Department of Operator”. They can share the same ID or have different ones.

Departments can be used for the following:

- A Department can be an analysis, evaluation and management unit for a group of work centers or a group of operators.
- Managers can monitor the status of work centers in a department.
- An operator can report labor for a department with multiple work centers. The labor of this operator will be automatically distributed to all the work centers.
- Department managers can have special rights to handle exceptions happening in the department.
- The Department provides default values when adding a new work center.

All the fields in this table are similar to those in the Work Center file, except for Department ID (4 alpha-numeric characters) and Description (30 alpha-numeric characters), so the detail of each field will be described in the Work Center section. This means the Department can provide default values when adding a Work Center.

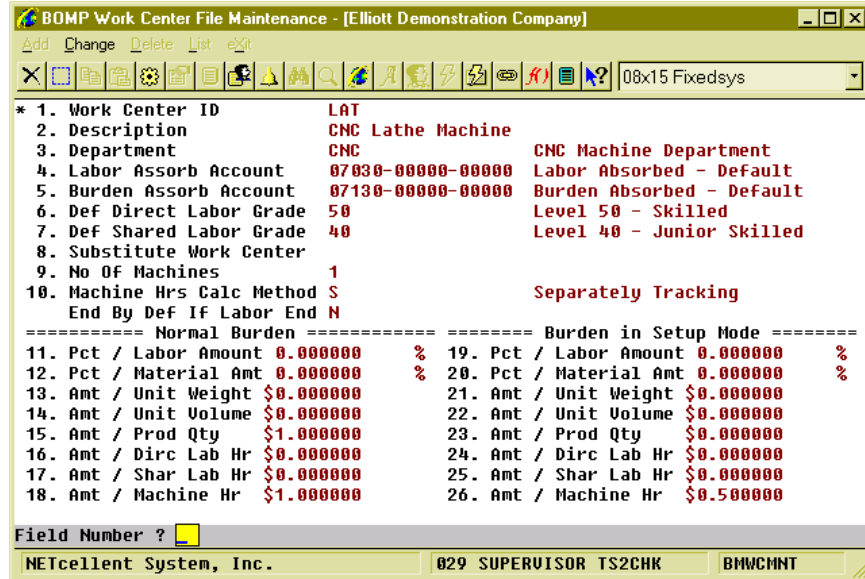
Departments can be based on your company’s physical departments, but you are not required to do so. You may already have departments in the Shop Floor Module and can

use the entries there to create departments in BOMP. The department tables for these two modules are separate and serve only their respective module.

8.3 Work Center

How to Access:

Main Menu → Distribution → Bill of Material Processor → Maintenance → Work Center File



(Figure 15) Work Center Maintenance Screen

Work Center can be regarded as a single machine, multiple machines that are similar or a work place, like a workbench, shipping area, a CNC machine or assembly line. Each work center carries its own burden setup, so the system will calculate burden cost based on these values for production at this work center. Also, the way to operate the machine is defined through the Machine Hour Calculation Method.

| Name | Type and Description |
|-------------------------|---|
| 1. Work Center ID | 6 alpha-numeric characters. Work Center ID. |
| 2. Description | 30 alpha-numeric characters. Description of this work center. |
| 3. Department | 4 alpha-numeric characters. Can be blank. Multiple work centers can belong to one department. By assigning a department ID, it is possible to evaluate the performance of work centers and summarize the evaluation for the department. If department ID is given, most of the following fields default to values in the department file. |
| 4. Labor Absorb Account | Default Account format. Labor Absorb Account for this work center. Different labor absorb accounts can be |

| Name | Type and Description |
|-------------------------------------|---|
| | <p>defined for different work centers.</p> <p>Defaults to BOMP Global Setup or Department file.</p> |
| 5. Burden Absorb Account | <p>Default Account format.</p> <p>Burden Absorb Account for this work center. Different burden absorb accounts can be defined for different work centers.</p> <p>Defaults to BOMP Global Setup or Department file.</p> |
| 6. Def Direct Labor Grade | <p>2 alpha-numeric characters.</p> <p>Default labor grade for direct labor at this work center. Any operation in this work center will default to this labor grade in the operation file.</p> <p>Defaults to BOMP Global Setup or Department file.</p> |
| 7. Def Shared Labor Grade | <p>2 alpha-numeric characters.</p> <p>Default labor grade for shared labor at this work center. Any operation in this work center will default to this labor grade in the operation file.</p> <p>Defaults to BOMP Global Setup or Department file.</p> |
| 8. Substitute Work Center | <p>6 alpha-numeric characters.</p> <p>The substitute for this work center. If there is more than one similar work center function and it is possible to change the production routing from one to another, this field defines the substitute for this work center. The operator can change the production to this work center in certain situations.</p> |
| 9. No of Machines | <p>2 numeric digits.</p> <p>Number of machines in the work center. One work center can represent more than one machine. This field indicates how many machines are in this work center and the system will give a warning if an operator tries to report work on more machines than the capacity.</p> <p>0 - This work center has no machines or the capacity should be bypassed.</p> <p>The default is 0.</p> |
| 10. Machine Hour Calculation Method | <p>1 alpha-numeric character. "M", "C" or "S"</p> <p>This field indicates how the machine is operated and so defines how the machine hours will be collected for production at this work center.</p> <p>Options</p> <p>M - All crew members are operating the same machine at one time. A Machine Hour is equal to the hours the crew spends on it. (Machine Hours = Labor Hours)</p> <p>C - Each crew member is operating their own machine. A Machine Hour is the sum of the hours that each member spends on it. (Machine Hours = Labor Hours times Number Of Crew Members)</p> <p>S - There is no direct relationship between Labor Hours and Machine Hours. This may be a situation where the machine can run independently without an</p> |

| Name | Type and Description |
|-------------------------|--|
| | operator involved, like a Computer Numerical Controlled (CNC) Machine. Defaults to BOMP Global Setup or Department file. |
| End By Def If Labor End | "Y" or "N" This determines the default of whether a machine will continue or be suspended when an operator leaves it if the Machine Calculation Method is "S". The operator can override this during production. Defaults to BOMP Global Setup or Department file. |
| 11. Pct / Labor Amount | 10 numeric digits with 6 decimal places and an optional minus sign. Normal Burden from percentage of Labor Amount. |
| 12. Pct / Material Amt | 10 numeric digits with 6 decimal places and an optional minus sign. Normal Burden from percentage of Material Amount. |
| 13. Amt / Unit Weight | 12 numeric digits with 6 decimal places and an optional minus sign. Normal Burden from per unit of parent item weight. |
| 14. Amt / Unit Volume | 12 numeric digits with 6 decimal places and an optional minus sign. Normal Burden from per unit of parent item volume. |
| 15. Amt / Prod Qty | 12 numeric digits with 6 decimal places and an optional minus sign. Normal Burden from per piece processed in production. |
| 16. Amt / Dirc Lab Hr | 12 numeric digits with 6 decimal places and an optional minus sign. Normal Burden from per hour of Direct Labor. |
| 17. Amt / Shar Lab Hr | 12 numeric digits with 6 decimal places and an optional minus sign. Normal Burden from per hour of Shared Labor. |
| 18. Amt / Machine Hr | 12 numeric digits with 6 decimal places and an optional minus sign. Normal Burden from per Machine Hour. |
| 19. Pct / Labor Amount | 10 numeric digits with 6 decimal places and an optional minus sign. Burden in Setup Mode from percentage of Labor Amount. |
| 20. Pct / Material Amt | 10 numeric digits with 6 decimal places and an optional minus sign. Burden in Setup Mode from percentage of Material Amount. |
| 21. Amt / Unit Weight | 12 numeric digits with 6 decimal places and an optional minus sign. Burden in Setup Mode from per unit of parent item weight. |
| 22. Amt / Unit Volume | 12 numeric digits with 6 decimal places and an optional minus sign. |

| Name | Type and Description |
|-----------------------|---|
| | Burden in Setup Mode from per unit of parent item volume. |
| 23. Amt / Prod Qty | 12 numeric digits with 6 decimal places and an optional minus sign. Burden in Setup Mode from per piece processed in production. |
| 24. Amt / Dirc Lab Hr | 12 numeric digits with 6 decimal places and an optional minus sign. Burden in Setup Mode from per hour of Direct Labor. |
| 25. Amt / Shar Lab Hr | 12 numeric digits with 6 decimal places and an optional minus sign. Burden in Setup Mode from per hour of Shared Labor. |
| 26. Amt / Machine Hr | 12 numeric digits with 6 decimal places and an optional minus sign. Burden in Setup Mode from per Machine Hour. |

These parameters allow the operator to configure burden driven by different reasons, either when a machine is operating normally or when a machine is in setup mode. There are two sets of burden parameters for each work center, one for the machine in setup mode and another for normal mode.

Setting these parameters to accurate values requires experience. However, a quick suggestion is to compare the overhead amount each month with information accessible at the time, like the labor dollar amount of that month, labor hours or machine hours. They initially can be reasonable estimates and tuned over time to provide a better estimate for production burden cost.

Based on figure 14, in normal mode, each processed parent item would cost \$1 and each machine hour used to produce it will cost \$1. So if 10 pieces were produced and the process time at this work center was 2 hours, the burden cost would be \$12 ($\$1 \times 10 + \1×2).

8.4 Operation ID

How to Access:

Main Menu → Distribution → Bill of Material Processor → Maintenance → Operation File

| Field Number | Value |
|-----------------------------|---------------------------|
| * 1. Operation ID | LAT |
| 2. Operation Type | P |
| 3. Description | Trimming and Shaving |
| 4. Work Center | LAT |
| 5. Direct Labor Grade | 50 |
| 6. Shared Labor Grade | 40 |
| 7. Qty per Batch | 0 |
| 8. Estimate/Standard | E |
| 9. Est Direct Labor | 0.250000 |
| 10. Est Shared Labor | 80.000 |
| 11. Est Machine Time | 80.000 |
| 12. Machine No | CNC Lathe Machine |
| 13. Machine Operation | R |
| 14. Drawing Number | Level 50 - Skilled |
| 15. Substitute Operation ID | Level 40 - Junior Skilled |
| 16. Prompt Pre Comment | N |
| 17. Prompt Post Comment | N |

(Figure 16) Operation ID Maintenance Screen

Production Routings for manufactured items usually vary from one to another and it is possible to have thousands of routings for a company. However, similar operations could be given the same **Operation ID**, grouped together in a category. This would make maintaining the operations easier. There are several ways to maintain the operations through the Operation ID:

- All operations using the same ID can be updated when any value is changed in the Operation ID file. To enable this feature, set field 48, **Mass Change Routing thru Oper ID Maint**, to “Y” or “A” in BOMP Global Setup.
- Export production routings to a spreadsheet and sort it by Operation ID.

In addition to the maintenance benefit, the Operation ID can speed up the process to create a new routing. The Operation ID record contains every field in the Operation file and these fields serve as default values. These values will be loaded when an operator creates a new operation or changes an operation ID for one operation.

Plus, the Operation ID can be useful when the routing needs to be changed during the production. For example, products may be configured to have an outside process where they are sent to a local store for painting, but the production is changed and the operator needs to paint it in the shop. Rather than modifying the routing through the order entry interface, the operator can change the current operation from one Operation ID to another and all the values will be replaced with the current operation.

Operation ID can be used as an evaluation and analysis unit. The 12 Month Report can be used to analyze the scrap percentage and the cost of pieces processed over past year for each operation ID.

Operation ID was only a text field in Macola's Standard Product Routing Module. Work Order Plus makes this field more powerful by creating a table for the ID, which makes it more useful and meaningful as a management and analysis tool. Although the Operation ID is optional, we recommend utilizing this table.

Field Descriptions:

- Most of the fields are the same as those in Product Routing and will be discussed in that section.
- **Substitute Operation ID** (field 15) – When production plans change, the operator can change the operation ID of the current operation to its substitute. The substitute Operation ID may or may not be similar.

8.5 Production Routing

How to Access:

Main Menu → Distribution → Bill of Material Processor → Maintenance → Production Routing File

| Op# | T | ID | WC | Description | Cost |
|-----|---|------|------|------------------------------|---------------|
| 10 | M | PRE | M | Material Preparation | 405.76 91.36% |
| 20 | P | ASM2 | ASM2 | Assembly in ASM2 | 7.75 1.75% |
| 30 | P | WLD1 | WLD1 | Welding in WELD1 | 3.33 0.75% |
| 40 | P | BAL | BAL | Balacing | 5.25 1.18% |
| 50 | O | OUT | SHP | Outside Process for Painting | 14.51 3.27% |
| 60 | P | PKGL | SHP | Package for Local Shipping | 7.53 1.70% |

| | | | | |
|------------------|--------------|-------------|--------|---------------|
| Standard Cost | 403.5413 | Total | 444.12 | -10.06% |
| Est Direct Labor | 1.0000 Hours | -Operation- | | |
| Est Shared Labor | | Mtrl | 405.00 | 405.00 91.19% |
| Est Machine Time | 1.0000 Hours | Labor | 0.75 | 17.50 3.94% |
| Qty-Per-Batch | Mach-No | Burden | 0.01 | 12.62 2.84% |
| Drawing Number | | Other | 9.00 | 2.03% |

Ins, Del, Enter=Change, F1=BoM, F3=Advanced Options, F4=Chg Op#

NETcellent System, Inc. 009 CHK TS2CHK BMRTGMNU

(Figure 17) Routing Maintenance

Production Routing describes how each parent item is manufactured, step by step. Each manufactured item can have multiple routings and one can be the default routing. Each routing has one or more operations (or steps) and each operation can represent one step in the manufacturing process. In the figure above, production of DRIVE-SHAFT takes 6 steps: Material Preparation, Assembly, Welding, Balancing, Outside Processing for painting, and Packaging. Each step defines one operation in the routing file.

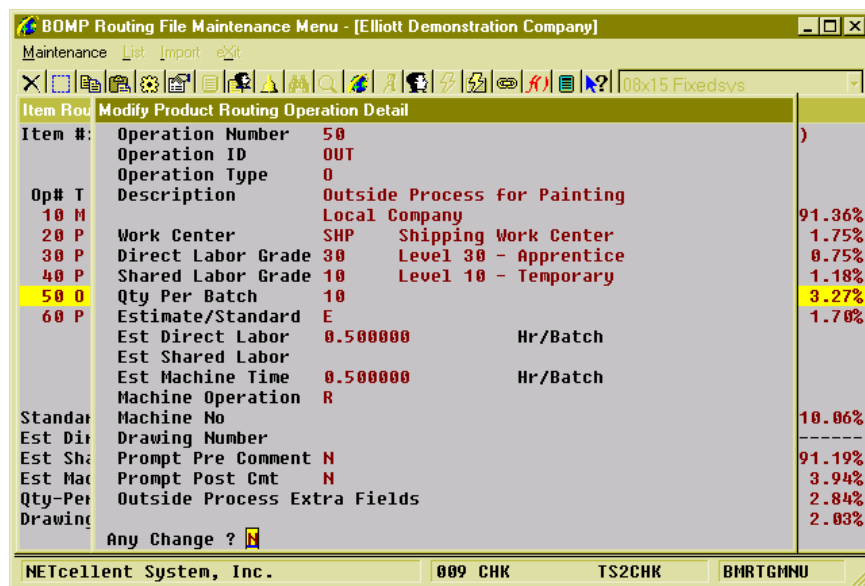
Under the Production Routing Maintenance menu, three functions can be found, Maintenance, List and Import. The Maintenance function will bring up the maintenance screen shown above. The List function will print out selected routings and can be used to export routings to a CSV file. The Import function imports operations from a CSV file.

Enter an Item Number and Routing Number in the Maintenance screen and the system will list all the operations for this routing. The cost information will appear to the right of each operation and below that displays a summary of cost information. Display of the cost information is subject to several security flags. They may need to be turned on for managers and turned off for others.

Several functions can be found on this screen:

- **To create a routing**, simply enter a new routing number.

- A routing can be copied from another manufactured item if it shares the same routing structure. The system will provide this option through the **F5 key** if the current routing is empty.
- Press the **F3 Key** to remove the routing.
- Use the **F2 Key** to change Routing Header Description.
- The **Insert Key** can be used to add an operation. The **Delete Key** can be used to remove an operation. Press the **Enter Key** to change the operation detail.
- Use the **F4 Key** to change the operation number.
- Press the **F1 Key** to view material in each operation. This is based on the BOMP Global Setup.
- If this routing is not the default routing of the item, the user can set it through the **F5 Key**.



(Figure 18) Operation Detail

Figure 18 shows the detail information of an operation when an operator is adding or changing it. Most of the fields are the same as those in Operation ID.

Field Description

| Name | Type and Description |
|------------------|--|
| Operation Number | 4 numeric digits 1 through 8999. Operation Number of one production step. This should be a number from 1 to 8999. Workers in the production department should work on routing operations in sequence by the operation number. |
| Operation ID | 4 alpha-numeric characters. This should be a valid Operation ID or blank. If the Operation ID is given in add mode, the rest of the fields default to values in that Operation ID. In change mode, the system will ask the operator if the new Operation ID should override the rest of |

| Name | Type and Description |
|--------------------|---|
| | the fields with values from that ID. |
| Operation Type | <p>1 alpha-numeric character.</p> <p>Type of this operation.</p> <p><u>Options</u></p> <p>S - Setup or Miscellaneous Operation. For machine setup or to gather miscellaneous labor. This type of operation can be skipped if it is not a material issue point.</p> <p>I - Inspection Operation.</p> <p>P - Production Operation.</p> <p>M - Moving Operation.</p> <p>O - Outside Process. This type of operation has outside process information like vendor number and FOB cost.</p> <p>Defaults to "P" or the value in the Operation ID file.</p> |
| Description | <p>Two fields of 30 alpha-numeric characters.</p> <p>Each operation can have 2 description lines.</p> |
| Work Center | <p>6 alpha-numeric characters.</p> <p>The work center is where this operation takes place. Production burden cost will be calculated based on the burden parameters in this work center.</p> |
| Direct Labor Grade | <p>2 alpha-numeric characters.</p> <p>Default direct labor grade of this operation. This will be used as a standard for evaluation variance. Also, if an operator creates a production transaction through Production Transaction Processing, this will be used to calculate labor cost by default.</p> <p>Defaults to the value in the work center file.</p> |
| Shared Labor Grade | <p>2 alpha-numeric characters.</p> <p>Default shared labor grade of this operation. This will be used as a standard for evaluation variance. Also, if an operator creates a production transaction through Production Transaction Processing, this will be used to calculate labor cost by default.</p> <p>Defaults to the value in the work center file.</p> |
| Qty Per Batch | <p>6 numeric digits.</p> <p>Number of pieces which will be processed in one batch. For example, if this is 10 (qty per batch), then it will place 15 pieces into 2 batches. If each batch takes 2 hours, the system would estimate it needs 4 hours to process 15 pieces.</p> <p>0 - no batch or 1 piece per batch.</p> |
| Estimate/Standard | "S" or "E" |

| Name | Type and Description |
|-------------------|---|
| | <p>Whether all values for this operation are estimated or standard value. If they are standard values, a variance between standard value and actual value may exist and will be presented on various screens and reports. Otherwise, the variance is not applicable by default.</p> <p>Default to "E"</p> |
| Direct Labor | <p>In "Hr/Qty" or "Hr/Batch" measurement, 10 numeric digits with 4 decimal places and an optional minus sign. In "Qty/Hr" or "Batch/Hr" measurement, 10 numeric digits with 3 decimal places and an optional minus sign. In "Fixed Hrs" measurement, 12 numeric digits with 6 decimal places and an optional minus sign.</p> <p>The number of direct labor hours to process each piece or batch. The measurement can be Hours per Qty/Batch, Qty/Batch per Hours or a fixed hour. This value will be used for performance evaluation.</p> <p>F1 - toggle to Hours per Qty/Batch. F2 - toggle to Qty/Batch per Hour. F3 - toggle to Fixed Hours.</p> |
| Shared Labor | <p>In "Hr/Qty" or "Hr/Batch" measurement, 10 numeric digits with 4 decimal places and an optional minus sign. In "Qty/Hr" or "Batch/Hr" measurement, 10 numeric digits with 3 decimal places and an optional minus sign. In "Fixed Hrs" measurement, 12 numeric digits with 6 decimal places and an optional minus sign.</p> <p>The number of shared labor hours to process each piece or batch. The measurement can be Hours per Qty/Batch, Qty/Batch per Hours or a fixed hour. This value will be used for performance evaluation.</p> <p>F1 - toggle to Hours per Qty/Batch. F2 - toggle to Qty/Batch per Hour. F3 - toggle to Fixed Hours.</p> |
| Machine Time | <p>In "Hr/Qty" or "Hr/Batch" measurement, 10 numeric digits with 4 decimal places and an optional minus sign. In "Qty/Hr" or "Batch/Hr" measurement, 10 numeric digits with 3 decimal places and an optional minus sign. In "Fixed Hrs" measurement, 12 numeric digits with 6 decimal places and an optional minus sign.</p> <p>The number of machine hours to process each piece or batch. The measurement can be Hours per Qty/Batch, Qty/Batch per Hours or a fixed hour. This value will be used for performance evaluation.</p> <p>F1 - toggle to Hours per Qty/Batch. F2 - toggle to Qty/Batch per Hour. F3 - toggle to Fixed Hours.</p> |
| Machine Operation | <p>"R" or "S"</p> <p>The mode in which the machine is running for this operation.</p> <p>"R" - Run Mode. If the machine is in run mode, the system will use Normal Burden in the work center to calculate burden. "S" - Setup Mode. The system will use Burden in Setup Mode in the work center to calculate burden.</p> |
| Machine No | 4 alpha-numeric characters. |

| Name | Type and Description |
|------------------------------|---|
| | Machine number used for this operation. There is no limitation on the text. |
| User Defined Code | 15 alpha-numeric characters. User Defined Code for this operation. The literal for this field is defined in BOMP Global Setup. In figure 17, it is set to "Drawing Number". |
| Prompt Pre Comment | "Y" or "N" Whether the operator needs to enter a comment when starting the operation. |
| Prompt Post Comment | "Y" or "N" Whether the operator needs to enter a comment when ending the operation |
| Outside Process Extra Fields | If operation type is "O" for outside process, the operator needs to enter extra outside process related fields including Purchase Order Number, Purchase Order Line, Vendor Number and cost information. |
| PO No | If the Purchase Order package is on, the standard PO format will be used. If the PO package is off, 10 alpha-numeric characters. The Purchase Order number of the outside process. This can be blank. If the PO package is on, this should be an existing PO. It can be a Blanket PO. |
| PO Line No | 3 numeric digits. Purchase Order Line Item number of this outside process. This field is available if the PO number is given. If the PO package is on, the item number for this line item should not exist in the Item file. |
| Vendor Number | 6 alpha-numeric characters. The Vendor number of this outside process. This field is available to change if the PO number is not given or the PO package is off. Otherwise, it should be the same as that in the purchase order. |
| FOB Cost | 10 numeric digits with 4 decimal places and an optional minus sign. Free On Board or Freight On Board cost per piece for the outside process. This is a standard value for the operation. If the operator entered an existing PO, the system may override this value with that in the PO Line Item with the appropriate BOMP Global Setup. |
| Extra Cost | 10 numeric digits with 4 decimal places and an optional minus sign. Extra cost per piece for outside process, like tax or extra burden. The system always uses the value defined in the operation to calculate the outside process cost. |
| Fixed Cost | 9 numeric digits with 2 decimal places and an optional minus sign. Fixed cost per transaction for an outside process. The cost is the same no matter how many pieces are sent for an outside process. |

Work Order Plus provides a feature to update all uncompleted work orders when a value in a Production Routing is changed. This can be turned on by changing field 49, Mass

Change Routing thru Product Routing Mnt, in BOMP Global Setup to “Y” or “A”. When values are changed in an operation the system will ask if the operator wants to update all orders.

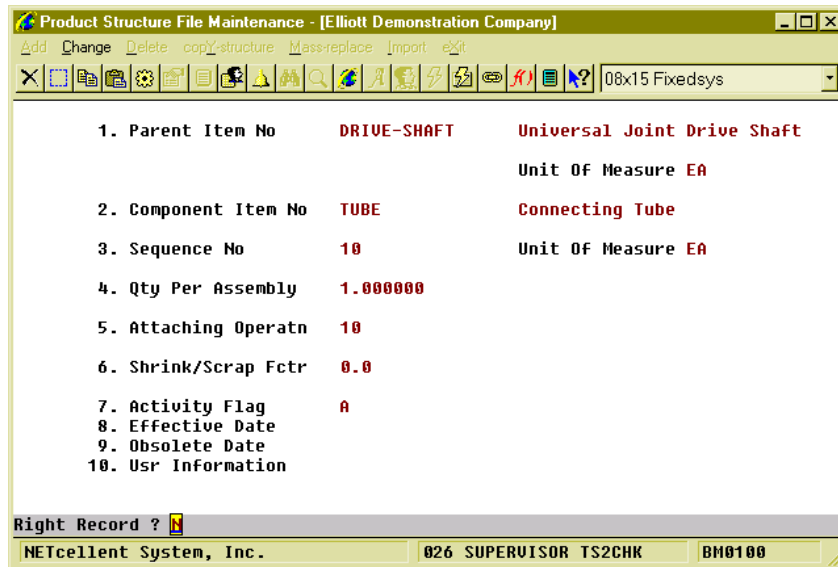
In addition to maintaining production routings one by one, operators can export all routings to a CSV file, edit the export file and import them back into the system.

If you have routings in the Standard Product Routing module, Elliott provides a tool to export all routings to a WO+ compatible CSV file (Main Menu → Manufacturing → Standard Product Routing → Processing → Routing Entry → Export). You can import them through Routing Import in BOMP. Standard Product Routing allowed a pointer to be created in an operation that pointed to a general routing. Since BOMP does not support pointers, the export process will create an operation entry for each operation in the general routing when a pointer is encountered. Also, the system will not export any Tool or Note entries.

8.6 Product Structure

How to Access:

Main Menu → Distribution → Bill of Material Processor → Maintenance → Product Structure File



(Figure 19) Product Structure

Bill of Materials is a list of all the components needed to produce a parent item and the quantity required. The system will deduct the quantity of components in the production based on the bill of material. The Product Structure file defines the basic Bill of Materials for a manufactured item. Operators can modify the structure for plus work orders and report different components during the production.

For more detail of each field, refer to the Bill Of Materials Manual. One field has been added for WO+.

- **Attach To Operatn** – Indicates in which step of the routing this component is consumed. If the component is usually issued in a fixed operation number, entering that number can be beneficial. This field is related to BOMP Global Setup field 16, **Def Copy Comp to Which Oper for Plus WO**. If this flag is set to "A", for Attach To Operation, the system will assume the component will be consumed in the operation indicated. If this field is left blank, the system will assume this component will be consumed in the first operation of the routing.

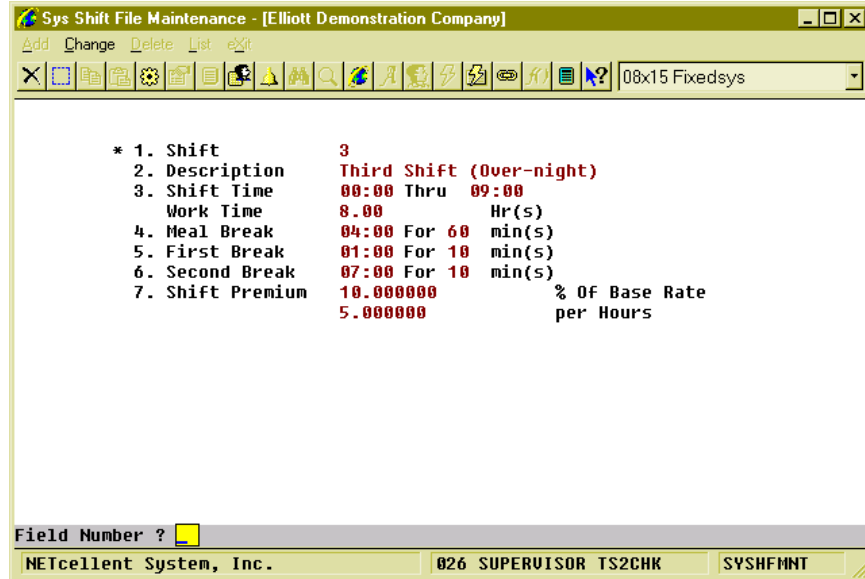
There can be only one set of bill of materials for each parent item in this file. If the parent item has multiple combinations of components, there are several solutions.

- Change the components for each work order.
- Make it a Feature Item.
- Create Base Orders (you can find more information in the Base Order section).

8.7 Shift ID

How to Access:

Main Menu → Util-Setup → System File Main → Maintenance → Shift File



(Figure 20) Shift Maintenance

If the company has more than one shift, ex. overnight shift, and labor in this shift has a different rate, you will need to create Shift records. You can define a normal starting and ending shift time, break time and a meal break time. Also, you can define a premium rate for this shift.

Field Description

| Name | Type and Description |
|----------------|--|
| 1. Shift | 2 alpha-numeric characters. Enter Shift ID. |
| 2. Description | 30 alpha-numeric characters. Enter a description for this shift. |
| 3. Shift Time | 2 numeric digits of hour and 2 numeric digits of minute for both starting and ending time. Enter the starting and ending times for this shift. |
| Work Time | 9 numeric digits with 2 decimal places and an optional minus sign. The total work time for this shift. This is display-only and automatically calculated based on shift time and meal break time. |
| 4. Meal Break | 2 numeric digits for the hour and 2 numeric digits for the minute of the starting time. 3 numeric digits for the number of minutes. |

| Name | Type and Description |
|--|--|
| | Enter starting time of the meal break and the length in minutes. The hour must be a number from 0 to 23. Meal break is non-paid. |
| 5. First Break | 2 numeric digits for the hour and 2 numeric digits for the minute of the starting time. 3 numeric digits for the number of minutes. Enter starting time of the first payable break and the length in minutes. The hour must be a number from 0 to 23. |
| 6. Second Break | 2 numeric digits for the hour and 2 numeric digits for the minute of the starting time. 3 numeric digits for the number of minutes. Enter starting time of the second payable break and the length in minutes. The hour must be a number from 0 to 23. |
| 7. Shift Premium based on % of base rate | 10 numeric digits with 6 decimal places and an optional minus sign. Percentage to change the base labor rate to obtain the premium rate. |
| Shift Premium per hour | 12 numeric digits with 6 decimal places and an optional minus sign. Amount per hour to change the base labor rate to obtain the premium rate. This is in addition to the rate obtained by the percentage above. |

The labor rate, based on these settings, would be calculated for an operator in this shift by:

$$\text{Actual Rate} = (\text{Base Rate} * (100 + \text{Premium Percentage}) / 100) + \text{Premium Rate per Hour}$$

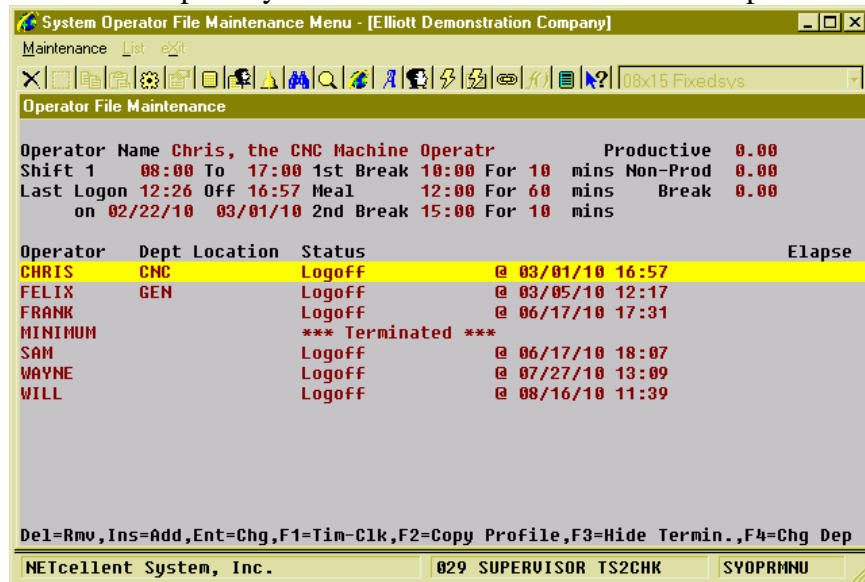
Based on the example in Figure 19, an operator with a base labor rate of \$10 per hour would calculate the premium rate by $(10 * (100 + 10)/100) + 5$ to give you \$16.

The Shift ID field can be found in the Operator file. If an operator changes shift from one to another, you can simply change the Shift ID in the Operator file and the system will load all the related information.

8.8 Operator ID

How to Access:

Main Menu → Util-Setup → System File Main → Maintenance → Operator File

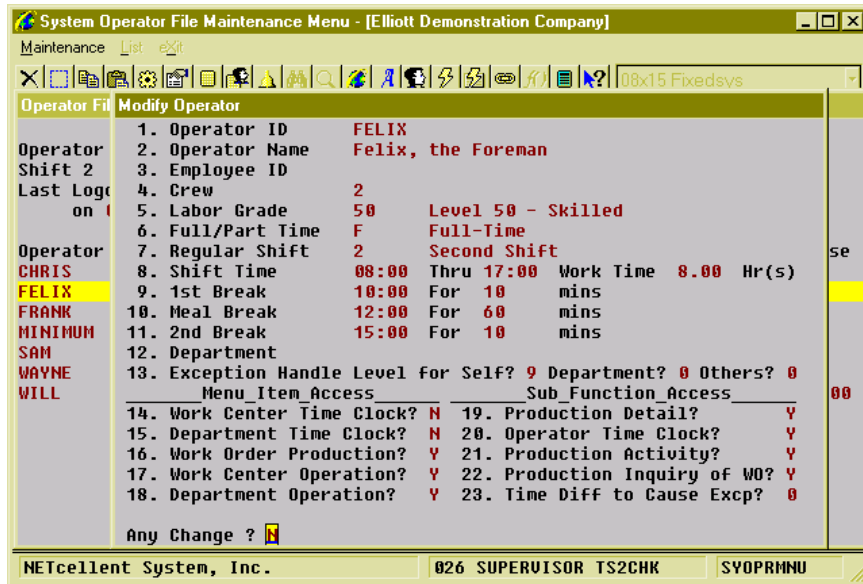


(Figure 21) Operator Maintenance

An Operator ID in Elliott can represent an individual operator or a crew. When it is used for a crew, it should have a fixed number of members. The Operator ID is also identification to log in and out for the Elliott Time Clock system and a unit to evaluate labor performance. The Operator ID can be used as a security unit in Elliott to control what information the operator can see or what action the operator can take.

Operator Maintenance will list all operators. The right side of each line shows the operator's current status, so you can easily monitor your operators. The top of the screen displays basic information of the highlighted operator. The top right of the screen displays the highlighted operator's performance for **today**. Several functions are available in this screen:

- **Insert Key** – To create a new operator.
- **Delete Key** – To remove an existing operator.
- **Enter Key** – To change detail for an operator.
- **F1 Function Key** – To drill down to the highlighted operator's time clock detail. This feature will be covered in the Management Manual.
- **F2 Function Key** – To copy the highlighted operator's profile to another. If you are copying to an existing operator, only security-related information will be copied. If you are copying to a new operator, the system will create a new operator based on the highlighted data.
- **F3 Function Key** – To hide or show terminated operators.
- **F4 Function Key** – To show operators in a certain department.



(Figure 22) Operator Detail

The above screen will display while adding or changing an operator's detail record. Fields 1 through 7 are basic information of an operator, fields 8 through 11 are shift information of the operator, fields 12 through 23 are for management and security control. Security control will be discussed in the next section.

Field Description (Excluding security control)

| Name | Type and Description |
|------------------|---|
| 1. Operator ID | 10 alpha-numeric characters. Enter the ID for an operator. This ID will be used for the time clock system as well as security. |
| Password | 30 alpha-numeric characters. Hidden field. Upper-case only. Enter password for this operator. This password will be used for the time clock system, as well as security check. |
| 2. Operator Name | 30 alpha-numeric characters. Enter the name of this operator. You may view or change the password from this field. <u>Function</u> F1 - Change Password. F2 - View Password. This option is available if the Elliott User has equivalent permissions as SUPERVISOR. |
| 3. Employee ID | 4 numeric digits. Enter the Employee ID from the Payroll module. If an operator is linked to an Employee ID, it is possible to link the payroll system to the time clock system, but this feature is not implemented yet. This field can be blank. |

| Name | Type and Description |
|-------------------|--|
| | <p>Function</p> <p>F7 - Search Employee ID by number. F8 - Search Employee ID by name.</p> |
| 4. Crew | <p>3 numeric digits.</p> <p>Enter the number of people in this crew.</p> <p>An operator ID can represent an individual or a crew. If this field is more than 1, the operator ID is a crew ID. Labor hours will be calculated by multiplying the time by the number people in this crew. The example from Figure 21 shows the Operator ID "FELEX" represents 2 people. If one hour of work was reported for this operator ID, the actual labor hour would be doubled to 2 hours (man-hours).</p> <p>If the number of people in a crew is dynamic, meaning it can vary one day to another, this may not be the best solution since a manager would need to change this value each day. In this case, "shared labor" would be a better solution. This will be described in the Operator Manual.</p> |
| 5. Labor Grade | <p>2 alpha-numeric characters.</p> <p>Enter the base labor grade for this operator. The system will use the hourly rate from this labor grade. If this operator is in a shift with a premium rate, the labor rate can be different from the base rate.</p> <p>Function</p> <p>F7 - Search for Labor Grade.</p> |
| 6. Full/Part Time | <p>"F", "T" or "P"</p> <p>Enter the working status of this operator.</p> <p>Option</p> <p>"F" - Full-Time "P" - Part-Time "T" - Terminated. This operator cannot log into any interfaces.</p> |
| 7. Regular Shift | <p>2 alpha-numeric characters.</p> <p>Enter the shift ID for this operator. This field can be blank.</p> <p>If the shift ID is given, all the shift time and break time will default to that shift record. The system will use the premium rate in the shift record to modify labor rate of this operator.</p> <p>Function</p> <p>F7 - Search for Shift ID.</p> <p>Defaults to BOMP Global Setup.</p> |
| 8. Shift Time | <p>2 numeric digits for the hour and 2 numeric digits for the minute for both starting and ending times.</p> |

| Name | Type and Description |
|----------------|--|
| | Enter the starting and ending time for this operator. The system will check if the operator logged in or logged off earlier or later than the value here. |
| Work Time | <p>9 numeric digits with 2 decimal places and an optional minus sign.</p> <p>The total work time for this operator. This is display-only and automatically calculated based on the shift time and meal break time. The system will check if the operator works over or under the time at the end of the day.</p> |
| 9. 1st Break | <p>2 numeric digits for the hour and 2 numeric digits for the minute for the starting time. 3 numeric digits for the number of minutes.</p> <p>Enter the starting time of the first payable break and the length in minutes. The system will check if the operator takes a break earlier or later as well as if the break is longer or shorter.</p> |
| 10. Meal Break | <p>2 numeric digits for the hour and 2 numeric digits for the minute of the starting time. 3 numeric digits for the number of minutes.</p> <p>Enter the starting time of the meal break and the length in minutes. Meal break is non-payable. The system will check if the operator takes a break earlier or later as well as if the break is longer or shorter.</p> |
| 11. 2nd Break | <p>2 numeric digits for the hour and 2 numeric digits for the minute of the starting time. 3 numeric digits for the number of minutes.</p> <p>Enter the starting time of the second payable break and the length in minutes. The system will check if the operator takes a break earlier or later as well as if the break is longer or shorter.</p> |
| 12. Department | <p>4 alpha-numeric characters.</p> <p>Enter the department for this operator. This field can be blank.</p> <p>If this field is blank, it means the operator does not belong to any department and has no authority over any department.</p> |

8.8.1 Operator Security Control

Motivation

The security controls for operators can restrict functions in Elliott from the operator and define what level of exceptions can be handled. Security control can be complicated if it needs to be flexible enough for different situations. The controls facilitate several functions:

- There are several interfaces for time tracking, like for a foreman to report production or operators who monitor a whole department. Operators need to enter their ID and password, which can be through scanning a badge, to start tracking time or to end tracking. These interfaces are similar to time card systems in most companies, but some are specialized for the manufacturing process. To avoid confusion, the system needs to control which operator can use which time tracking interface.
- The time clock inquiry for an operator and the interface to monitor the progress of a work order provides plenty of information on the screen. Some of the information may be sensitive and it may cause problem if anyone had access to it, like the time clock history or performance data of another operator. Therefore, there are controls to prevent this type of situation.
- Controls are specific to each operator. For example, a foreman can change the production from one work center to another based on the shop condition while a low-level operator should not have the authority to do so.
- When an exception occurs, WO+ provides many solutions to resolve it. If an operator forgets to logoff, the time record needs to be manually changed. Or if a work order is cancelled, someone needs to report the cancellation. Depending on the severity, some situations can be handled by a foreman and some should require a manager's assistance.

Solution

Since security control is a complicated issue, here is our solution:

- Each time track interface is controlled by one or more flags.
- Each interface with sensitive data is controlled by one or more flags.
- Each action related to an interface is controlled by one or more flags. These actions include common actions, like changing a work center or exception handling.
- Each exception has a Severity Level, which is a 1 digit numeric field defining how severe it is. Severity Level can be from 0 to 9. Level 0 is for the least severe exceptions, like changing a work center. Level 9 is for the most severe exceptions, like those which may cause data inconsistency. In order to handle an exception, the operator should have equal or greater authority than the severity level. This authority is called Exception Handle Level. Severity levels are based on 4 criteria: 1) if it is information only, 2) if it will cause a data integrity issue, 3) if it will impact many transactions, and 4) if it happens frequently. The following chart shows the relationship of the criteria and the severity level:

| Criteria Level | Information Only? | Causes a Data Integrity Issue? | Impacts Many Transactions? | Happens Frequently? |
|----------------|-------------------|--------------------------------|----------------------------|---------------------|
| 0 | Yes | No | No | Yes |
| 1 | Yes | No | No | No |
| 2 | No | No | No | Yes |
| 3 | No | No | No | No |
| 4 | No | No | Yes | Yes |
| 5 | No | No | Yes | No |
| 6 | No | Yes | No | Yes |
| 7 | No | Yes | No | No |
| 8 | No | Yes | Yes | Yes |
| 9 | No | Yes | Yes | No |

Security Fields in the Operator File

All of the security related fields are 13 through 23. The descriptions are:

| Name | Type and Description |
|--|--|
| 13. Severity Handle Level For Self/Department/Others | <p>1 numeric digit.</p> <p>Enter the highest exception severity level this operator is authorized to handle. The severity level can be from 0 to 9. These three fields indicate the levels the operator can handle for exceptions caused by the operator, by an operator in the operator's department, and by others. For example, a foreman may have the authority to handle a work order but cannot modify time clock entries for others. The Severity Handle Level would be "5" for Self, "0" for Department and "0" for Others. Or a department manager can override any exception within the department, the Severity Level would be "9" for Self, "9" for Department, and "0" for Other. Please reference the chart above for the proper level.</p> <p>Department here has two meanings. It can be the "Department of the Operator" or "Department of the Work Center". For example, a department manager can handle production exceptions within the department as well as time clock exceptions of an operator belonging to the department. In latter case, it could be the operator does not work in that department.</p> |
| 14. Work Center Time Clock | <p>"Y" or "N".</p> <p>Determines whether this operator can access the Work Center Time Clock interface. The interface is used to track time and is specialized for operators not reporting for a work order and who stay in one work center, like assembly like workers</p> |
| 15. Department Time Clock | <p>"Y" or "N".</p> <p>Determines whether this operator can access the Department Time Clock interface. The interface is used to track time and is specialized for operators not reporting for a work order and who stay in one department, like an operator that monitors machines in a department or a department manager.</p> |
| 16. Work Order Production | <p>"Y" or "N".</p> <p>Determines whether this operator can access the Work Order Production interface. The interface is used to track time and production reporting. It is specialized for operators who report for work orders, like a foreman.</p> |
| 17. Work Center Operation | <p>"Y", "N", "I" or "C".</p> |

| Name | Type and Description |
|--------------------------|--|
| | <p>Determines whether this operator can access the Work Center Operation/Inquiry and related functions. This interface is used to monitor work center status and provides some functionality to maintain production and labor records in this work center.</p> <p>Options Y - Allows the operator to view all fields and fully operate this interface. N - Access to this interface is not allowed. I - Allows the operator to inquire data through this interface. C - Customized detail options. More information will be given later.</p> |
| 18. Department Operation | <p>"Y", "N", "I" or "C".</p> <p>Determines whether this operator can access the Department Operation/Inquiry and related functions. This interface is used to monitor department status and provide some functionality to maintain records in this department. The whole shop status can also be monitored.</p> <p>Options Y - Allows the operator to view all fields and fully operate this interface. N - Access to this interface is not allowed. I - Allows the operator to inquire data through this interface. C - Customized detail options. More information will be given later.</p> |
| 19. Production Detail | <p>"Y", "N", "I" or "C".</p> <p>Determines whether this operator can drill down to the production detail screen which contains information like the work order number, reported quantity and lot number.</p> <p>Options Y - Allows the operator to view all fields and fully operate this interface. N - Access to this interface is not allowed. I - Allows the operator to inquire data through this interface. C - Customized detail options. More information will be given later.</p> |
| 20. Operator Time Clock? | <p>"Y", "N", "I" or "C".</p> <p>Determines whether this operator can drill down to the Operator Time Clock interface and use related functions. This interface displays all the activity history of an operator and categorizes these activities into "Direct Labor", "Shared Labor" and "Special Operation".</p> <p>Options Y - Allows the operator to view all fields and fully operate this interface. N - Access to this interface is not allowed. I - Allows the operator to inquire data through this interface. C - Customized detail options. More information will be given later.</p> |
| 21. Production Activity? | <p>"Y", "N", "I" or "C".</p> <p>Determines whether this operator can drill down to the Production Activity interface</p> |

| Name | Type and Description |
|-------------------------------|--|
| | <p>and user related functions. This interface displays all activity history for a production.</p> <p><u>Options</u> Y - Allows the operator to view all fields and fully operate this interface. N - Access to this interface is not allowed. I - Allows the operator to inquire data through this interface. C - Customized detail options. More information will be given later.</p> |
| 22. Production Inquiry of WO? | <p>"Y", "N", or "C".</p> <p>Determines whether this operator can drill down to the Production Inquiry of a Work Order or Operation. These two interfaces show current production status of one work order or operation. The labor hours are updated dynamically and the operators working are displayed, while "Work Order Inquiry" only displays the data from the posted transactions.</p> <p><u>Options</u> Y - Allows the operator to view all fields and fully operate this interface. N - Access to this interface is not allowed. C - Customized detail options. More information will be given later.</p> |
| 23. Time Diff to Cause Excp? | <p>"0" or "C".</p> <p>The BOMP Global Setup and the Time Clock Global Setup contain flags that control whether a difference in the time reported and the time configured will cause an exception. This flag indicates if this operator uses the same setting in Global Setup or has a customized setting. For example, it is possible to not check for a time difference in Global Setup but check it for a specific operator.</p> |

Customized options for "Work Center Operation"

| Name | Type and Description |
|-------------------------------|---|
| Access Current Labor List | <p>"Y" or "N".</p> <p>Allow to toggle view to "Current Labor List" which shows all operators working in this work center.</p> |
| Access Suspended Productions | <p>"Y" or "N".</p> <p>Allow to toggle view to "Suspended Production List" which shows all suspended productions.</p> |
| Access Complete Productions | <p>"Y" or "N".</p> <p>Allow to toggle view to "Complete Production List" which shows all completed productions.</p> |
| Access Terminated Productions | <p>"Y" or "N".</p> <p>Allow to toggle view to "Terminated Production List" which shows all cancelled productions.</p> |

| Name | Type and Description |
|-----------------------------|--|
| Access Work Center Activity | "Y" or "N". Allow to toggle view to "Work Center Activity" which shows all activity history for this work center. |
| Allow to Change Show Days | "Y" or "N". Allow to change the day parameter to determine the records to display in all lists. |

Customized options for "Department Operation"

| Name | Type and Description |
|--------------------------------|---|
| Access Current Labor List | "Y" or "N". Allow to toggle view to "Current Labor List" which shows all operators working at this work center. |
| Access Active Work Center List | "Y" or "N". Allow to toggle view to "Active Work Center List" which shows all active work centers in this department. |
| Access All Work Center List | "Y" or "N". Allow to toggle view to "All Work Center List" which shows all work centers in this department, active or not. |

Customized options for "Production Detail"

Most of the customized options for Production Detail are not only used in this interface, but for other interfaces like Work Order Production. All production detail maintenance related security flags are placed here.

| Name | Type and Description |
|-----------------------------------|---|
| Allow to Modify Production Detail | "Y" or "N". If production has started, allow changing the order number, operation number or planning order before it is finished. |
| Allow to Modify Transaction Data | "Y" or "N". If production has been reported, allow changing the transaction data, like complete quantity, material issued or serial numbers. |
| Allow to Cancel Production | "Y" or "N". Allow to cancel the production. |
| Allow to Substitute Work Center | "Y" or "N". Allow substituting a work center for an order operation during the production. The |

| Name | Type and Description |
|----------------------------------|--|
| | substitution of a work center is defined in the work center file as Substitution Work Center. This function is available in Work Order Production. |
| Allow to Change Work Center | "Y" or "N". Allow changing the Work Center to any other for an order operation during the production. This function is available in Work Order Production. |
| Allow to Substitute Operation ID | "Y" or "N". Allow substituting the Operation ID for an order operation during the production. The substitution is defined in the Operation ID file as Substitution Operation ID. Once the operation ID has been changed, the system will load the values from that Operation ID record to the order operation. This function is available in Work Order Production. |
| Allow to Change Operation ID | "Y" or "N". Allow changing the Operation ID to any other for an order operation during the production. Once the operation ID has been changed, the system will load the values from that Operation ID record to the order operation. This function is available in Work Order Production. |
| Allow to Modify Operation Detail | "Y" or "N". Allow changing any value in the order operation during the production. This function is available in Work Order Production. |
| Allow to Override Post Exception | "Y" or "N". If an exception occurs posting a transaction, this operator is allowed to override the exception and post the transaction. |

Customized options for "Operator Time Clock"

| Name | Type and Description |
|-------------------------------|---|
| Access Direct Labor List | "Y" or "N". Allow toggling to Direct Labor List. |
| Access Shared Labor List | "Y" or "N". Allow toggling to Shared Labor List. |
| Access Special Operation List | "Y" or "N". Allow toggling to Operation List. |
| Allow to Change Display Days | "Y" or "N". Allow changing days to show records. |
| Allow to Add Time Clock | "Y" or "N". Allow to add a time clock record. |
| Allow to Edit (Split/Merge) | "Y" or "N". |

| Name | Type and Description |
|------------------------------|--|
| | Allow changing a time clock record by splitting one or merging two. |
| Allow to Remove Time Clock | "Y" or "N". Allow removing a time clock record. |
| Allow to Reassign Time Clock | "Y" or "N". Allow reassigning a time clock detail from one activity to another. |

Customized options for "Production Activity"

| Name | Type and Description |
|-----------------------------|---|
| Access Production Activity | "Y" or "N". Allow toggling to Production Activity list which displays each activity with the start time, end time and hour information. |
| Access Activity Detail | "Y" or "N". Allows drilling down to activity detail containing a list of operators working in this activity. This is available only if the previous flag is "Y". |
| Access Labor List | "Y" or "N". Allow toggling to Labor List which has summary labor information, one line per operator. |
| Allow to Add Activity | "Y" or "N". Allow adding a production activity. This flag affects the Work Center Operation interface. |
| Allow to Edit (Split/Merge) | "Y" or "N". Allow editing production activity through splitting one or merging two. This flag affects the Work Center Operation interface. |
| Allow to Cancel Activity | "Y" or "N". Allow canceling a production activity. |
| Allow to Reassign Activity | "Y" or "N". Allow reassigning production activity to another work order. |
| Allow to Suspend Production | "Y" or "N". Allow suspending a production. |
| Allow to Resume Production | "Y" or "N". Allow to resume a suspended production. |

Customized options for “Production Inquiry for WO”

| Name | Type and Description |
|------------------------|--|
| Access Operation List | <p>“Y” or “N”.</p> <p>Allow toggling to Operation List which shows the production status of each operation.</p> |
| Access Labor List | <p>“Y” or “N”.</p> <p>Allow toggling to Labor List which shows all labor summaries for one order or operation by operator.</p> |
| Access Production List | <p>“Y” or “N”.</p> <p>Allow toggling to Production List which shows all productions of one order or operation.</p> |

Customized options for “Time Diff to Cause Excp”

| Name | Type and Description |
|-----------------------------|--|
| Logon Time Difference | <p>3 numeric digits.</p> <p>The difference between Shift Start Time in the operator record and the actual log on time in minutes.</p> |
| End of Day Time Difference | <p>3 numeric digits.</p> <p>The difference between Shift End Time in the operator record and the actual log off time in minutes.</p> |
| Total Work Time Difference | <p>3 numeric digits.</p> <p>The difference between Work Time in the operator record and the actual work time in minutes.</p> |
| Break Begin Time Difference | <p>3 numeric digits.</p> <p>The difference between Break Start Time in the operator record and the actual break start time in minutes. The system will determine if it is the first or second break automatically.</p> |
| Total Break Time Exceed | <p>3 numeric digits.</p> <p>The number of minutes the actual break time exceeds that in the operator record.</p> |
| Meal Begin Time Difference | <p>3 numeric digits.</p> <p>The difference between Meal Break in the operator record and the actual meal break start time in minutes.</p> |
| Total Meal Time Difference | <p>3 numeric digits.</p> <p>The number of minutes the actual meal break time exceeds that in the operator</p> |

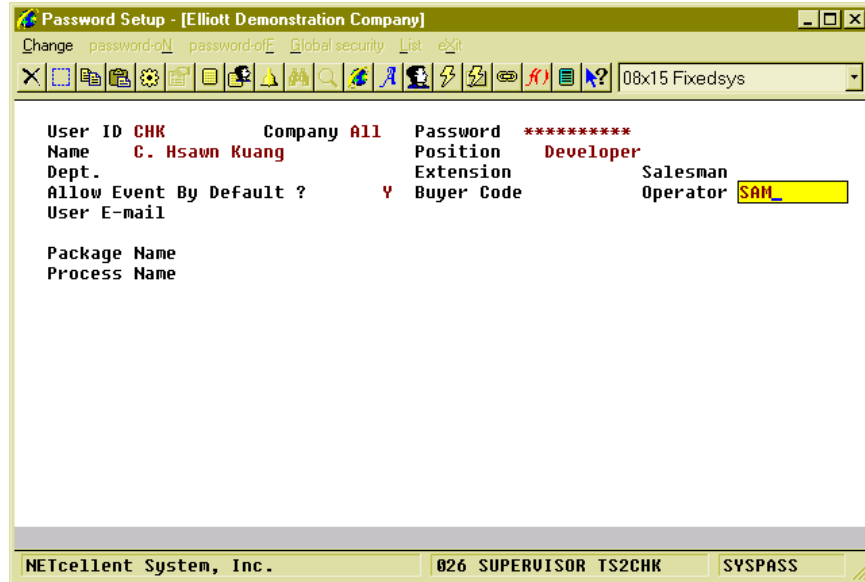
| Name | Type and Description |
|------|----------------------|
| | record. |

You can press the F2 key to copy a security profile from one operator to another.

Here are some examples to configure security controls:

- For a Supervisor, who has maximum authority:
 - Set all three values for field 13 to “9”.
 - Set fields 14 through 22 to “Y”.
- For a Foreman, who has authority over assigned productions to and is allowed to see all shop status and history:
 - Set field 13 to “5, 0, 0”.
 - Set fields 14 through 16 to “Y”.
 - Set fields 17 through 21 to “I”.
 - Set field 22 to “Y”.
- For an assembly line worker who works in the same work center each day:
 - Set all three values for field 13 to “0”.
 - Set fields 14 and 15 to “N”.
 - Set field 16 to “Y”.
 - Set fields 17 through 22 to “N”.

8.8.2 Operator ID for Elliott user



(Figure 23) Password Setup

As shown in the previous section, there are plenty of controls over an operator. Some of the controls are for drilled-down screens and the system can use the operator's security to control where they can drill down. But if an operator is attempting to drill down to the work order from the COP sales order, the drill down does not have information about the operator making the request. An Operator ID has been added to the Elliott User Maintenance so the security settings can be referenced from the ID instead of prompting for the Operator ID and password each time they attempt to access these drill down screens. The concept is similar to the relationship of the Salesman ID and Elliott User ID.

How to Access:

Main Menu → Util_Setup → Password Setup → Change

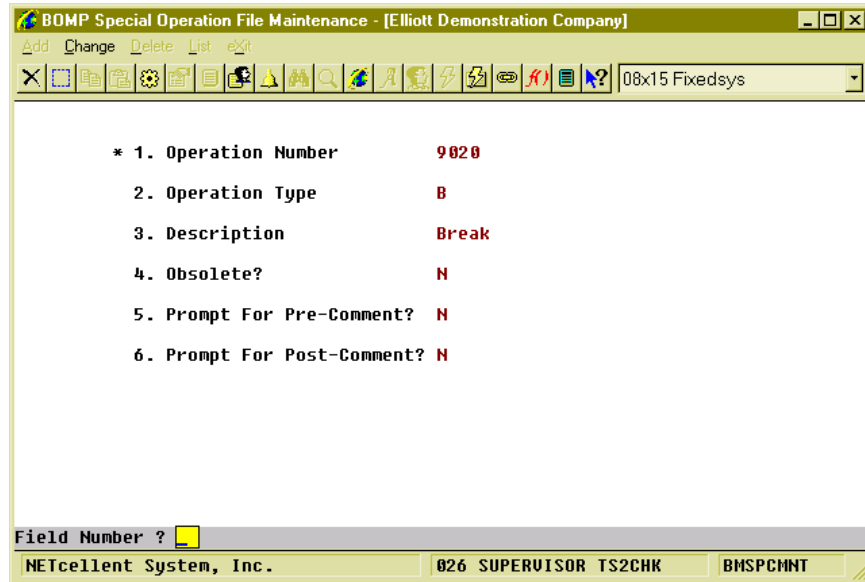
Use Password Setup to associate an Operator ID with an Elliott User ID. You need to have equivalent rights as SUPERVISOR to do this. After Buyer Code is an additional field, Operator.

In the example above, Elliott User ID "CHK" is related to Operator ID "SAM". When CHK logs into Elliott, the system will apply all the rules defined in Operator ID SAM to this user **by default**. Some interfaces that require an ID and password, like Work Center Operation, the entered Operator ID overrides this ID. Supervisors can use this ID to inquiry private information without changing to another Elliott User. If this field is blank for an Elliott user, the system will allow this user to inquiry everything but not change a record.

8.9 Special Operation

How to Access:

Main Menu → Distribution → Bill of Material Processor → Maintenance → Special Operation File



(Figure 24) Special Operation

In Work Order Plus, every action is defined as a 4-digit number so operators can use this number to report their time. This number is a routing operation number for all actions directly related to production. For actions not directly related to production, it is a **Special Operation**. In the Labor Performance module, this kind of code is called an Indirect Code. So, the operator will enter an ID and password and a special operation number to report a break, but the time reported would never be absorbed into any production.

Field Description

| Name | Type and Description |
|---------------------|---|
| 1. Operation Number | 4 numeric digits. Enter a number for this Special Operation. The Special Operation number should be 9000 or greater since 0 through 8999 are reserved for routing operations. Numbers 9000 through 9499 are reserved for system-defined special operations that are built into the system and cover all the basics, like break (9020), meal break (9040), and end of day log off (9030). You can create new special operations by using numbers 9500 through 9999. |
| 2. Operation Type | 1 alpha-numeric character. Enter a type for the operation. User-defined operations (from 9500 to 9999) can only use "P" and "N" types. |

| Name | Type and Description |
|-----------------------------|--|
| | <p><u>Options</u></p> <p>P - Productive type. Time an operator contributes to this type of activity will be regarded as productive, ex. machine maintenance.</p> <p>N - Non-Productive type. Time an operator contributes to this type of activity will be regarded as non-productive.</p> <p>L - Logon type. This type of operation logs the operator onto the system.</p> <p>B - Break type. This type of operation represents a payable break.</p> <p>M - Meal Break type. This type of break represents a non-payable break. An operator taking a meal break is regarded as logged off the system, but not left for the day.</p> <p>E - End of Day type. This type of special operation is used when operators are leaving the facilities for the day. The operator will be logged off the system.</p> <p>D - Monitor Department type. This type of special operation allows the operator to change the time reported into shared labor for a specified department.</p> <p>W - Monitor Work Center type. This type of special operation allows the operator to change the time reported into shared labor for a specified work center.</p> |
| 3. Description | <p>30 alpha-numeric characters.</p> <p>Enter a description for this special operation.</p> |
| 4. Obsolete? | <p>"Y" or "N".</p> <p>Enter the obsolete status of this operation. An obsolete operation will not be an option for the operator to choose. Some of the system-defined special operations can be obsolete.</p> |
| 5. Prompt for Pre-Comment? | <p>"Y" or "N".</p> <p>Enter whether to prompt for a comment when the operation is started. For "L" type special operations the system will prompt for a comment when the operator logs on. For "W" and "D" types the system will prompt for a comment when the operator clocks in to a work center or a department.</p> |
| 6. Prompt for Post-Comment? | <p>"Y" or "N".</p> <p>Enter whether to prompt for a comment when the operation has ended. For "E" type special operations the system will prompt for a comment when the operator logs off. For "W" and "D" types the system will prompt for a comment when the operator clocks out from a work center or department.</p> |

Addition information about system-defined operations:

- The Operator can never select "Logon" (9010). This operation only serves to determine if the operator needs to enter a logon comment. The system can automatically logon the operator when first clocking into the system.
- Only "B"(Break), "P"(Productive) and "N"(Non-Productive) operation types are available in the Operator Time Clock. "L"(Logon), "M"(Meal Break), "E"(End of Day), "W"(Monitor Work Center) and "D"(Department) operation types are used for special functions and not recording time.
- Only 9050(Non-Productive) and 9060(Productive) of the system-defined operations can be obsolete.

Note: The Edit List can print a barcode of the operation number for all selected operations.

8.10 Base Work Order

How to Access:

Main Menu→Distribution→Bill of Material Processor→Process→Production Work Order Entry→Process→Base Work Order

The screenshot shows a window titled "Base Work Order Entry - [Elliott Demonstration Company]". The window has a menu bar with "Add", "Change", "Delete", "List", and "Exit". Below the menu bar is a toolbar with various icons. A dropdown menu is open, showing "08x15 Fixedsys". The main area contains a form with the following fields:

| | | |
|---------------------|-------------------------|-------------------|
| * 1. Order No | 1 | Customized Str |
| * 2. Item No | FLANGE | Flange w/ 6 holes |
| 3. Location | (Default) | |
| 4. Qty Multiple | (Default) | |
| 5. Unit Cost/Detail | 122.2100 | Ext. Cost = 0.00 |
| Unit Price | 90.0000 | Ext. Price = 0.00 |
| 6. Job Number | (Default) | |
| 7. Base Order Desc | Default Base Work Order | |
| 8. Alloc. Inventory | (Default) | |
| 9. Exact QTY | (Default) | |

Field Number ?

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(Figure 25) Base Work Order Entry

Each product can have multiple routings in the Production Routing File, but one bill of material in the Product Structure File. When an order is placed, a routing will need to be selected and all materials assigned to one or more of the operations. Components can be added or removed from the order. Some parent items have more than one set of bill of material because the components can be frequently substituted. Since there is only one set of bill of material in the Product Structure File, the bill of material would need to be frequently changed for each work order. In this case, the **Base Work Order** can be a solution.

The Base Work Order is a pre-defined work order template that can be used to create a new production work order. Most of the fields in the base work order serve as a default value which can alleviate some of the order entry burden. Each base work order can have its own routing and bill of material, so this could be a solution for parent items with more than one bill of material. Field 7, **Base Order Desc**, is the description for this base order, which will be displayed in the search screen, and not the default value for another work order.

| Base Work Order Entry - [Elliott Demonstration Company] | | | | | | |
|--|---|-----|-----|--|-------------------|--------------------|
| Add Change Delete List Exit | | | | | | |
| Assembly Work Order 000001 Routing Maintenance | | | | | | |
| Item #: FLANGE Flange w/ 6 holes | | | | Routing #: DEF (Default:DEF) Default Routing Test | | |
| Op# | T | ID | WC | Description | Cost | |
| 10 | M | PRE | M | Material Preparation | 60.21 | 49.27% |
| 20 | P | LAT | M | Trimming and Shaving | 51.20 | 41.90% |
| 30 | P | MIL | MIL | Milling | 10.80 | 8.84% |
| | | | | -Operation- | -----Routing----- | |
| Est Direct Labor | | | | 1.0000 Hours | Mtrl | 40.00 85.00 69.55% |
| Est Shared Labor | | | | | Labor | 20.00 34.69 28.38% |
| Est Machine Time | | | | 1.0000 Hours | Burden | 0.21 2.52 2.06% |
| Qty-Per-Batch | | | | Mach-No | Other | |
| Drawing Number | | | | | Total | 122.21 |
| Ins,Del,Ent=Chg,F1=BoM,F2=Copy-BoM,F3=Rmv-BOM,F4=Chg Op# | | | | | | |
| NETcellent System, Inc. | | | | 026 SUPERVISOR TS2CHK | | BM1700 |

(Figure 26) Base Work Order Routing

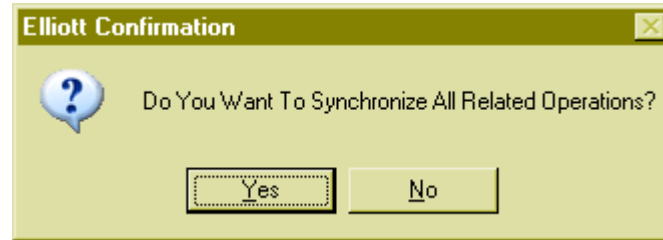
By choosing field 5, the base work order routing will be brought up. You may customize this template in routing or bill of material. In the example above, this routing will issue materials in the first and second steps as designated by the “M” after the operation ID.

Base Work Order is not required, but it can be a solution if the production routing and bill of material of the products are so complicated that Production Routing and Product Structure are insufficient. If the products in the company have only one set of bill of material and/or use only one routing, then base work order is not needed.

All production work orders which use this template can be updated when a value in the base work order routing is changed, similar to the mass update feature in Operation ID and Production Routing. To turn on this feature, change BOMP Global Setup field 50, **Mass Change Routing thru Base Order Maint**, to “Y” or “A”.

Chapter 9: Advanced Feature

9.1 Mass Update Operations



(Figure 27) Prompt for synchronizing all related operations.

The Mass Update Operation feature allows the operator to update and maintain all related operation records at once. When values are changed for an operation ID, Item Routing Operation or Base Order Operation, the system may prompt, “Do You Want To Synchronize All Related Operations?” This can be an efficient way to maintain multiple routings at once. There are 3 ways to mass update operations:

- Through Operation ID
 - Enable this feature through field 48 of BOMP Global Setup, Mass Change Routing thru Oper ID Maint. A setting of “A” will always prompt the question, no matter if the record is changed. A setting of “Y” will only prompt the question when the record is changed.
 - You can update Operations in Item Routing, Base Order, and Plus Work Orders.
- Through Item Routing
 - Enable this feature through field 49 of BOMP Global Setup, Mass Change Routing thru Product Routing Mnt. A setting of “A” will always prompt the question, no matter if the record is changed. A setting of “Y” will only prompt the question when the record is changed.
 - You can update Operations in Base Order and Plus Work Orders. The routings for these orders will be copied from this item routing.
- Through Base Order
 - Enable this feature through field 50 of BOMP Global Setup, Mass Change Routing thru Base Order Maint. A setting of “A” will always prompt the question, no matter if the record is changed. A setting of “Y” will only prompt the question when the record is changed.
 - You can update Operations in Plus Work Orders. The orders will be copied from this base order.

If you confirm to mass update related operations, the system will bring up the mass update interface. Through this interface, you can:

- Select operations and update all selected records.
- Select one operation and directly maintain the values of this operation.

Synchronize Operation From Operation ID PKGL

Operation ID PKGL

| Source | Item-No | Op# | T | WC | Description | Status |
|---|-----------------|----------|-----------------------|-------------------------|----------------------------|---------|
| ALT | DRIVE-SHAFT | 0090 | P | SHP | Package for Local Shipping | |
| DEF | DRIVE-SHAFT | 0060 | P | SHP | Package for Local Shipping | |
| TEST | DRIVE-SHAFT | 0060 | P | SHP | Package for Local Shipping | |
| TEST1 | DRIVE-SHAFT | 0060 | P | SHP | Package for Local Shipping | |
| TEST5 | DRIVE-SHAFT | 0090 | P | SHP | Package for Local Shipping | |
| DEF | DRIVE-SHAFT LTD | 0090 | P | SHP | Package for Local Shipping | |
| IMP | DRIVE-SHAFT | 0060 | P | SHP | Package for Local Shipping | |
| IMP2 | DRIVE-SHAFT | 0060 | P | SHP | Package for Local Shipping | |
| B000003 | DRIVE-SHAFT | 0060 | P | SHP | Package for Local Shipping | |
| B000005 | DRIVE-SHAFT LTD | 0090 | P | SHP | Package for Local Shipping | |
| P200000 | DRIVE-SHAFT | 0060 | P | SHP | Package for Local Shipping | Started |
| P200002 | DRIVE-SHAFT | 0060 | P | SHP | Package for Local Shipping | Started |
| Qty-Per-Batch | | Desc2 | | | | |
| Est Direct Labor | | 0.2500 | Hr/Qty | Grade 30 Drawing Number | | |
| Est Shared Labor | | Grade 10 | | | | |
| Est Machine Time | | 0.2500 | Hr/Qty | Mode R Mach-No | | |
| Ent=Slct/De-slct,F1=Slct All,F2=De-Slct All,F3=Basis Dt1,F4=Adv Opt,F5=Update | | | | | | |
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(Figure 28) Mass Update Screen

By default, the system will list all operations related to the base record on the screen. The base record is the record from which the operator brought up this interface. For example, bring up this interface from Operation ID “PKGL” and the system will list all operations which use “PKGL” as an Operation ID. The system will not list operations from plus work orders by default unless the base record is a Base Order Operation since there can be many operations from a plus work order.

On the top of the screen the system will display the basic information of the base record and all related operations in the middle of the screen. Highlighted records will have the detail information of the operation displayed on the bottom of the screen. For each operation, the system will display where this operation from (on the left), brief information about this operation (in the middle) and the order status (on the right) if the operation is from a plus work order.

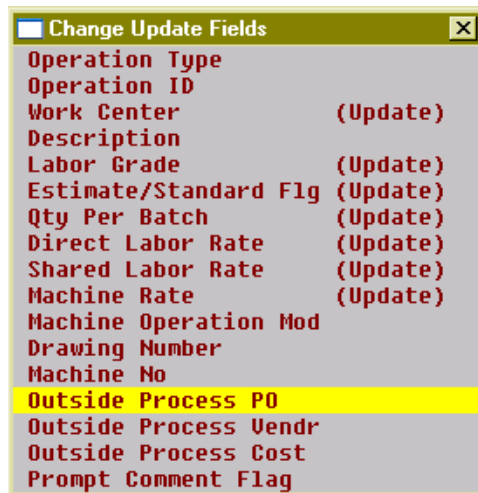
To mass update the operations, you can use **Up Key**, **Down Key**, **Page Up Key** and **Page Down Key** to navigate the highlight bar. Press the **Enter Key** to select one operation. The selected record will have an asterisk on the left. You can use the **F1 Key** to select all records in the list or the **F2 Key** to deselect all records. Press the **F5 Key** to update all selected records.

This interface also provides some features to help select records.

- Use the **F3 Key** to inquiry the base record detail.
- Bring up a list of advanced operations through the **F4 Key**. You can narrow down the records to update with these features:
 - **Maintain Operation Detail** – You can directly change the operation record.
 - **Choose Operation Source** – Choose the sources of the operations to include in the list. They can be from Item Routing, Base Order or Plus Work Order. If the base record is not a base order operation, the source of

Plus Work Order is excluded by default. Press the **Enter Key** to select or deselect one source.

- **Choose Update Fields** – Choose which fields should be updated. By default, the system only includes the fields which were changed by the operator in the base record.
- **Include All Operations / Include Different Operation Only** – Choose whether to include operations which are no different from the base record. Press the **Enter Key** to select or deselect one field. By default, the system will include all operations. Selecting to include different operations only will only include those operations where the fields are different from the ones selected to update. These fields can be selected through the “Choose Update Fields” feature.
- **Legend** – Description of the features and fields in this interface.



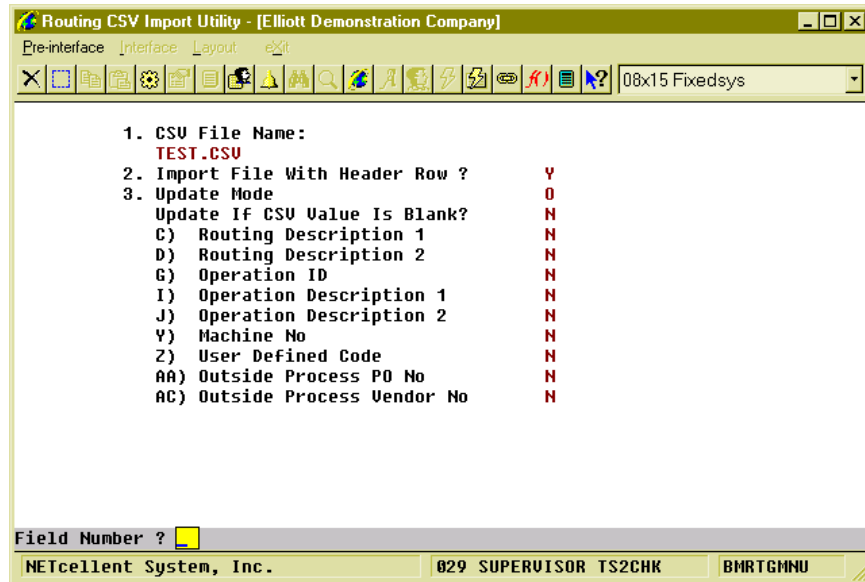
(Figure 29) Select fields to update

9.2 Routing Import

Work Order Plus provides a utility to import item routings. The import will add new routings and update values for existing operations. This makes it easy to edit routings in a spreadsheet and import from a CSV format.

How to Access:

Main Menu → Distribution → Bill of Material Processor → Maintenance → Production Routing File → Import



(Figure 30) Routing Import

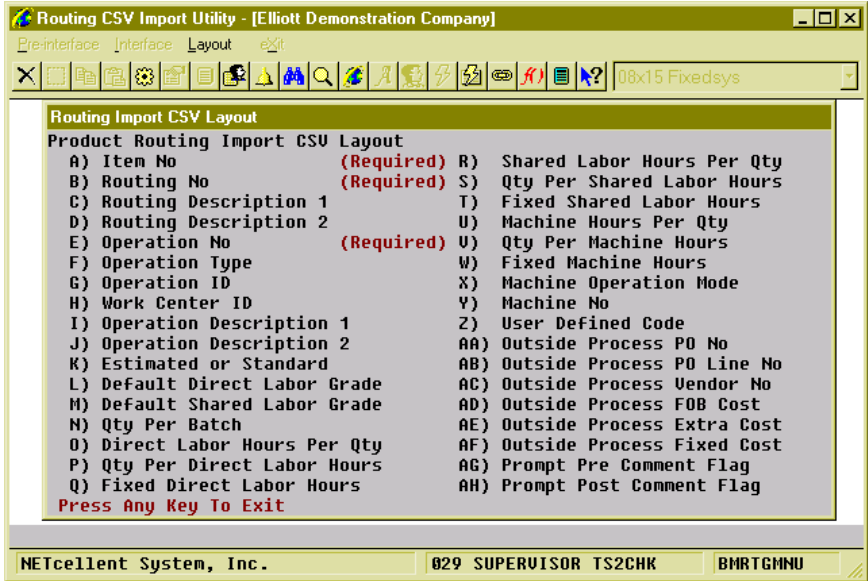
There are three menu options for this utility: Pre-Interface, Interface and Layout. **Pre-Interface** is an edit list for the import. The system will not import any operations, but print each operation in the CSV file. Any warnings and errors will be printed, as well. **Interface** will import the values into the database, except those that contain an error. Therefore, we recommended you carefully review the Pre-Interface before running the Interface. **Layout** will display all the fields needed in the CSV file.

Field Description

| Name | Type and Description |
|--------------------------------|--|
| 1. CSV File Name | 50 alpha-numeric characters. Path and file name of the import CSV file. |
| 2. Import File with Header Row | "Y" or "N". Indicate whether the CSV file includes a header row. A "Y" value will begin the import from the second row. |

| Name | Type and Description |
|-------------------------------|---|
| 3. Update Mode | <p>"N", "U" or "O".</p> <p>Enter the mode for import.</p> <p>Options</p> <p>N - New Import Mode, to add operations. All operations in the CSV file should not exist in Elliott.</p> <p>U - Update Mode, to change existing operations. All operations in the CSV file should be present in Elliott.</p> <p>O - Override Mode. The import will update existing operations in Elliott and add the ones that do not exist.</p> <p>Defaults to "N".</p> |
| Update If CSV Value Is Blank? | <p>"Y", "N" or "C".</p> <p>Indicate whether the system should erase the value in Elliott if the value in the CSV file is blank. This option is available if the Update Mode is 'U' or 'O'.</p> <p>Options</p> <p>Y - Yes to all.</p> <p>N - No to all.</p> <p>C - Customized options.</p> <p>Defaults to "N".</p> |
| C) Routing Description 1 | <p>"Y" or "N".</p> <p>Enter "Y" to erase Routing Description 1 if column C is blank.</p> |
| D) Routing Description 2 | <p>"Y" or "N".</p> <p>Enter "Y" to erase Routing Description 2 if column D is blank.</p> |
| G) Operation ID | <p>"Y" or "N".</p> <p>Enter "Y" to erase Operation ID if column G is blank.</p> |
| I) Operation Description 1 | <p>"Y" or "N".</p> <p>Enter "Y" to erase Operation Description 1 if column I is blank.</p> |
| J) Operation Description 2 | <p>"Y" or "N".</p> <p>Enter "Y" to erase Operation Description 2 if column J is blank.</p> |
| Y) Machine No | <p>"Y" or "N".</p> <p>Enter "Y" to erase Machine No if column Y is blank.</p> |
| Z) User Defined Code | <p>"Y" or "N".</p> <p>Enter "Y" to erase User Defined Code if column Z is blank.</p> |

| Name | Type and Description |
|-------------------------------|--|
| AA) Outside Process PO No | "Y" or "N". Enter "Y" to erase Outside Process PO No if column AA is blank. |
| AC) Outside Process Vendor No | "Y" or "N". Enter "Y" to erase Outside Process Vendor Number if column AC is blank. |



(Figure 31) All fields needed in CSV file

9.3 Routing Export

You can export the Item Routing file to a CSV file. This allows the routings to be edited in Microsoft Excel (or compatible software) and imported back into Elliott through Routing Import. This feature has been integrated into the Routing Edit List. You can find this option under Production Routing Maintenance.

How to Access:

Main Menu→Distribution→Bill of Material Processor→Maintenance→Production Routing File→List

| Routing File Edit List | |
|--|-----|
| Starting Product Cat | ALL |
| Ending Product Cat | |
| Starting Item No | ALL |
| Ending Item No | |
| Starting Routing No | ALL |
| Ending Routing No | |
| Print Cost? | N |
| Create CSU File? | Y |
| CSU File Name | |
| TEST.CSU | |
| Any Change ?  | |

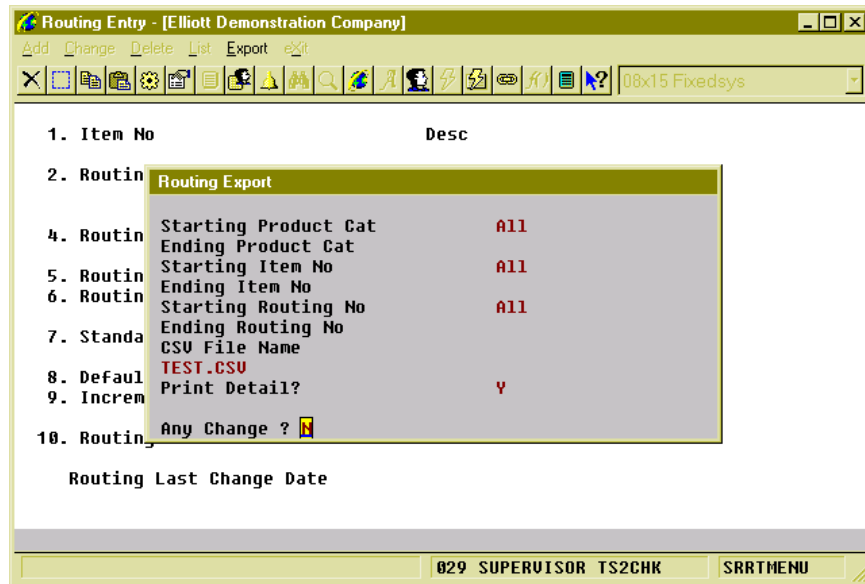
(Figure 32) Routing Edit List w/ Export

9.4 Routing Export from SPR

If you are migrating from Macola's manufacturing modules to the new BOMP Work Order Plus, you may want to transfer the routing data from SPR to BOMP. The provided solution is an export program for the SPR routings to a CSV file in a format compatible with the BOMP Routing Import program.

How to Access:

Main Menu → Manufacturing → Standard Product Routing → Processing → Routing Entry → Export



(Figure 33) SPR Routing Export

Field Description

| Name | Type and Description |
|-----------------------------|---|
| Starting/Ending Product Cat | 3 alpha-numeric characters. Enter the Product Category range of the items to export. |
| Starting/Ending Item Number | 15 alpha-numeric characters. Enter the Item Number range to export. |
| Starting/Ending Routing No | 5 alpha-numeric characters. Enter a range of Routing Number to export. |
| CSV File Name | 50 alpha-numeric characters. Enter the path and file name for the CSV export file. |

| Name | Type and Description |
|---------------|---|
| Print Detail? | "Y" or "N". Enter whether to print the detail of each operation on the report. |

The export program has some limitations:

- Standard Product Routing has a general routing concept where a pointer can be defined to point to an item routing, or general routing. Since this "pointer" is not supported in WO+, every operation in the general routing for a pointer will be exported.
- This program will not export Note and Tool operations in the Standard Product Routing.

FAQ

1. Btrieve Error

Btrieve Errors can happen after upgrading to Elliott 7.5 due to legacy databases. To rectify these errors, remove the following files from the Elliott data folder:

- SYOPRFIL.BTR
- BMLABGRD.BTR
- BMWCFIL.BTR
- BMRTGFIL.BTR

If you receive a Btrieve Error for any databases other than those listed above, call your reseller or Netcellent for assistance.