

AIMS/ERPtm

Cost Management

Specifications & Guide to Use

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Cost System Overview

This section explains how the cost development of standard costs works and is to be used in the system. The system is designed to accomplish several goals:

- Have as many calculations performed by the software as possible, reducing manual calculations and data entry where possible.
- Provide an exception oriented data base, minimizing redundant data to maintain.
- Allow costing in terms of the way the material actually flows through production, including complete, detailed visibility for manufacturing steps that are in-line with the material flow that are performed by outside vendors.
- Reduce the cost development process to a series of independent steps, performed one at a time, rather than a single large, complex, long-running program.
- Allow cost accounting review, judgment and control via data entry to manage the overall cost development/calculation process more efficiently.
- Structure and develop the standard cost data in such a way as to easily allow the collection of cost variance data.

Cost Development Process

Cost elements in this system include:

- Labor
- Material
- Outside Manufacturing
- Burden (applied to Labor hours)
- Overhead (applied to Outside Manufacturing costs)
- Outside Manufacturing Freight

All groupings of cost data are in terms of six elements.

The cost system data base is divided into two primary areas, including:

- Cost fields for storing relatively finalized standard cost data to be used for daily operations, costed inventory transactions, variance calculations, and creating journal entries to the general ledger system. These include Current, Previous, and Future year sets of cost elements.

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- Calculation fields used to develop each portion of the cost data for all part numbers in the data base. These include fields for single-level costs, termed Calculated This Level costs, and those accumulated from lower levels in the product structure, termed Calculated Lower Level costs. Manufactured subassemblies, to illustrate, when used by a next higher assembly part number, will have cost data that is "from lower levels."

Costs are developed using the Calculation fields, then when finalized, can be copied over into either the Future or Current Standard Cost fields, totaling the This Level and Lower Level Costs to obtain the total standard cost for each cost element.

Programmatic tools are provided to copy cost data from one set of fields to another to aid the cost accountant to develop accurate standard costs in a controllable, timely manner.

The steps required to fully develop complete, rolled up costs are summarized below.

1. Establish Work Center default/standard labor hourly rates for internal work centers, and default/standard outside manufacturing unit costs for work centers that represent outside manufacturing operations. Enter them in the Work Center Labor Rate Maintenance screen for each work center. If the work center is for an outside manufacturing vendor, enter the Vendor ID for each in the Vendor ID field. If the outside manufacturing vendor is foreign, enter a "Y" in the Foreign? field.
2. Calculate the values to be used for the allocation of indirect costs to direct manufacturing costs and enter the results in the Allocation Rate Table Maintenance screen. These rates are maintained in the Global Default Table.
3. Review, modify and update the Standard Labor Unit Cost Hours and Exception Labor Unit Cost Hours data fields for each operation in each routing for update as needed. Subsequent cost calculations will build on these data, so their accuracy is critical. The purpose of the Exception Cost fields is to provide the ability to override the standard cost for the operation where there is a significant deviation from the standard, not to store minute cost differences from one part to another. This allows the data base to remain much more manageable and for management to focus attention on the overall cost reduction process and major cost variances. Minor variances from standard cost are seldom useful in obtaining serious improvements in cost performance, and this system is designed to support this frame of reference.

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4. Calculate standard and exception manufacturing direct costs for the Routings by Running the Routing Cost Calculation program, which recalculates all four direct manufacturing cost fields from Work Center table data.
5. Review and modify routing standard cost data as needed with the Routing Master Cost Data Maintenance screen, which allows manual entry of standard cost data at each operation in a routing, replacing the programatically calculated costs. This provides for known deviations from the calculated values that might apply in the case of a single operation within a routing. Normally, however, these variations should be managed by establishing a different cost time standard in the hours fields.
6. Calculate manufactured part costs, including allocated cost amounts, using the updated routing cost data by running the Calculate Manufacturing Part Costs program. This program retrieves routing cost data for each part number, adding up the direct costs for all steps in the routing name for the part number, selects exception cost where they exist, calculates applied (indirect) cost amounts, then stores the resulting data in the This Level cost fields in the Part Master records.
7. Update/maintain purchased part standard cost data for each purchase part number, using the Part Master Cost Maintenance screen. Either the Current or Future Standard cost fields may be used. Generally, prior to the start of a new fiscal year, the cost maintenance should use the Future cost fields. Prior PO actual unit costs paid are stored as a list in the Part Master record to aid in efficiently performing this process.
8. Run the Copy Purchased Material Standard Costs program to update the Calculated Material Cost data for purchased part numbers from one of the three sets of Material Standard Cost data.
- 8A. Set the Engineering Effectivity Date to be used for the cost calculation programs. This date is used in the Calculate Total Material Cost and Rollup Lower Level Costs programs to select component effectivity In and Out dates in the Configuration records.
9. Calculate total material cost for each manufactured part by running the Calculate Total Material Cost program. This program uses the Engineering Effectivity Date In/Out entered/checked in the previous step.
- 9A. Ensure that the Used-In reference information is correct. If there is any doubt, run the Used-In Rebuilt program on the F&ED menu which will recreate all Used-In (where-used) references.

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10. Insure that the Low Level Codes assigned to each record in the Part Master file are correct by running the Reset Low Level Codes program. This will allow the cost rollup process to run correctly.
11. When all single level costs are calculated, the cost structure is ready to have its costs rolled up to develop full part number level costs that can become the new standard costs for each part number. This is accomplished by running the Rollup Lower Level Costs program that reads the cost information from the lowest product structure first, then adds and accumulates it at each level, using the Calculated Lower Level cost fields in each part number. This program will require entry of an Engineering Effectivity Date In/Out to be used to include or exclude part numbers in the cost rollup process. When completed, at an end item level, the lower level cost fields should include all costs for the item associated with subassemblies, manufactured component parts and purchased material at all levels other than the top (single) level of the structure. These data should be verified carefully using inquiries and printed reports prior to copying them into the standard cost fields.
12. When the calculated cost structure's data has been verified and found satisfactory, these costs can be copied from the calculated cost fields into either the Future or Current Standard Cost fields with the Copy Calculated Costs program, so they can be then used to cost inventory, work orders and other activities. Normally, these cost data will be copied into the Future Standard Cost fields so comparisons, inventory revaluations, and other adjusting entries can be calculated prior to the year end changeover to the new standards. Once these are finished, the new standards can be put into place with the Convert Standard Costs program.

Allocation Rate Table Maintenance

Screen Data

Burden Rate %
Overhead Rate %
Outside Manufacturing Freight Rate %

Changed to: Foreign Indirect Rate %

Functional Logic

CHANGE: Outside Manufacturing Freight Rate % to Foreign Indirect Rate

The screen displays and allows maintenance of these three allocation rates. They are used in the cost build up calculation process to develop the allocated costs.

Burden Rate is the number that is multiplied times the Direct Labor Hour Cost Standard in the Routing Master records for a manufactured part to obtain the Burden Standard Cost.

Overhead Rate is the number that is multiplied times the Outside Manufacturing Unit Standard Cost in the Routing Master for a manufactured part to obtain the Overhead Standard Cost.

Remove: Outside Manufacturing Freight Rate is the number that is multiplied times the Outside Manufacturing Standard Cost in the Routing Master to obtain the Freight Standard Cost element for a manufactured part.

New: Foreign Indirect Rate is the number that, if the Work Center Master record called out in a routing step has its Foreign? flag = Y, is then multiplied times the Outside Manufacturing Standard Cost in the Routing Master to obtain the Foreign Indirect element is the cost calculation for a manufactured part.

Part Master Cost Maintenance

Screen Data:

Part Number
Description (display only)
Stocking Unit of Measure
Purchase/Manufacture Code (display only)
Part Group (display only)
Product Class (display only)
Product Line
Foreign Source? (display only)
Routing Name (display only)
ABC Code
Vendor Stocked Item?
Yield % (display only)

Current Standard Material Cost
Current Standard Labor Cost
Current Standard Outside Mfg Cost
Current Standard Burden Cost
Current Standard Overhead Cost

Previous Standard Material Cost (display only)
Previous Standard Labor Cost (display only)
Previous Standard Outside Mfg Cost (display only)
Previous Standard Burden Cost (display only)
Previous Standard Overhead Cost (display only)

Future Standard Material Cost
Future Standard Labor Cost
Future standard Outside Mfg Cost
Future Standard Burden Cost
Future Standard Overhead Cost

Average Material Cost (display only)
PO Prices Received (display only)

ADD: Cost fields at all standard cost elements for O/M Freight Standard Cost (Current, Previous, Future).

ADD: Costing Order Quantity

Functional Logic:

- This screen allows updating of cost information for part numbers that have been added via the Factory and Engineering Data Module's Part Master Maintenance

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screen. It does not allow entry of new part numbers, only updating of those already there.

- All fields except Product Line and the cost fields are display only, as maintenance of these is the responsibility of the engineering department.
- Product Line is for accounting use and is where GL numbers are linked to part numbers. This allows Costing Accounting to group part numbers according to what makes sense for financial reporting without disturbing other classifications used for material management and engineering documentation purposes. The product line codes entered here must be on the Product Line table in the Table/Code Master file.
- This screen allows maintenance of both the current standard cost elements and future standard cost elements. Previous standard costs are display only since they are what was used in the past to create financial reporting transactions and should not be changed after the reporting periods are closed.
- The Costing Order Quantity is the average quantity made at the same time and is used only in cost calculations as a divisor to the Setup Cost amount, the result which is added to the unit cost data to develop a total unit cost including setup charges.

Work Center Labor Rate Maintenance

Screen Data:

Work Center ID
Work Center Description (display only)
Work Center Location
Normal working hours/day (display only)
Scheduled Efficiency Factor (display only)
Parallel operation Factor (display only)
Default/standard labor rate
Default/standard outside manufacturing rate

Add: Vendor ID (for outside manufacturing work centers)

Add: Foreign? (Y/N)

Functional Logic:

This screen allows access to Work Center records created in the Factory & Engineering data module by Manufacturing Engineering. It allows Cost Accounting to maintain cost data fields while retaining responsibility for factory data in the M/E department.

These labor and outside manufacturing rates are defaults or standards used in creating routing operations. When creating the operation in the routing, the system will retrieve these standard labor and outside manufacturing cost rates for the operation, but allow overriding with a routing specific cost rate, or a part number specific exception cost.

The screen allows entry of a work center ID, or selection of one from a pop-up window, then retrieves and displays the description, working hours/day, efficiency factor and parallel operation factor.

Cost Accounting, via this screen, may update the location, such as for an outside manufacturing vendor, and of course, the default/standard cost rates.

Vendor ID is used to indicate that a work center is for an outside manufacturing vendor. The Vendor ID must be on the Vendor Master table. Outside Manufacturing PO's use this information as follows. The O/M PO is placed to purchase a operation in the routing used to manufacture the part. The Work Center in this step in the routing must be for the vendor shown as the Bought From vendor in the PO. This connection is validated by the PO Entry program which retrieves the work center record, then attempts to match the vendor ID in the Bought From field on the PO header, with the Vendor ID in the retrieved Work Center record.

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ADD: The Foreign? field is a yes/no field that indicates that the work center is an outside manufacturing vendor located offshore, i.e., not domestic if a "Y" is present in the field. A "N" indicates that it is domestic. The entry program requires that a Vendor ID be present in that field on the screen in order to allow a Y to be entered in this field.

Saving the screen with F9 when done updates the record in the work center master file.

Routing Master Cost Data Maintenance

CHANGE 11/12/93

Screen Data:

Route Name
Operation No. (display only)
Work Center ID (display only)
Operation Description (display only)
Scheduling Setup/changeover time (display only)
Scheduling Unit Run Time (display only)
Standard Labor Cost - S/U
Standard Labor Cost - Unit Run
Standard Outside Mfg Cost - S/U
Standard Outside Mfg Cost - Unit Run
Exception Part Number(s)
Exception Setup Time (display only)
Exception Scheduling Unit Run Time (display only)
Exception Labor Cost - S/U
Exception Labor Cost - Unit Run
Exception Outside Mfg S/U Cost
Exception Outside Mfg Unit Run Cost
Standard Labor Unit Cost Hours (nnn.nnn format)
Exception Labor Unit Cost Hours (nnn.nnn format)
Standard Outside Manufacturing Unit Cost Hours
Exception Standard Outside Manufacturing Unit Cost Hours

Functional Logic

Change 11/12/93:

Add logic to prevent entry of standard cost data for alternate operations, i.e., those with decimal values. These lines must be either blank/null, or zero values. Apply, the same editing to part exception standard cost values also on the secondary screen. All standard cost data in AIMS/ERP are associated with primary operation numbers only.

End of Change

- This screen allows Cost Accounting to access routing data created by Manufacturing Engineering and to maintain manufacturing cost data in the routings. These data are independent of data used for scheduling.
- The screen allows entry of a Route Name, or selection of one from a pop-up window, then it retrieves the data from the Routing Master file, displaying the above fields on the screen. Data associated with the routing, but maintained by

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Manufacturing Engineering is displayed for reference purposes only. Cost Accounting may use these source data to develop manufacturing costing.

- Manufacturing costing data is used on all cost reports, including product cost rollups and costing of transactions for the GL interface. Scheduling data is used to calculate schedules and work center resource loading only.

Note: It is important to understand that the system is organized to allow the use of as much standardized costing and scheduling information as possible. This architecture is inherently exception oriented and allows a small amount of data maintenance to develop reasonably accurate schedules and costs for the entire operation. This makes the system productive and usable without having to spend many man-months building highly detailed master files. Analyzing actual schedule performance and cost variances provides the basis for further refining schedule and cost data on an as-needed basis.

Costs applied on this screen enable the system to calculate manufacturing costs for all parts/products using that routing, which can be a large family of items. These manufacturing costs can then be rolled up with purchased item costs to get reasonably accurate total cost, all without having to expend limited cost accounting resources developing highly detailed data in order to have any reports at all, or worse, still, by having to operate with highly inaccurate or missing data.

- The Standard Labor Costs for setup and unit run and, where applicable, for Outside Manufacturing are entered on this screen. These data will be used as default costs for all items having this Route Name as their primary manufacturing routing method, unless the item has Exception cost data, in which case these data will be used by the system.
- If an item is known to have a cost that is significantly different than the default/standard cost, its part number can be entered on this screen and exception cost data entered for it.
- A part number can have exception data for either scheduling purposes or cost purposes independently. An exception part number can be deleted on this screen only if there is no exception scheduling data associated with it. And on the Routing Master Maintenance screen, an exception part number cannot be deleted if it has cost exception data.

Routing Cost Calculation

Screen Data:

Selection: Route Name (entered) , or ALL routings

Recalculate Routing Standard Costs for this/all routings?

This will replace all previous cost data for the routings selected for update. OK ? (Y/N)

Functional Logic

Changed: to remove calculation logic for outside manufacturing unit costs.

This program recalculates the standard labor and standard outside manufacturing costs for all steps in either the single route name that is entered, or reads the entire Routing Master table, recalculating all standard costs for each operation in all routings.

This allows a rapid development of manufacturing operation standard costs for both standard and part exceptions by simply changing the values in the default/standard labor rates in the Work Center tables.

The program's functions are as follows:

The screen allows either entry or selection from a popup window containing routing names from the Routing Master table, or selection of ALL routing master records to be updated.

Once the selection is performed, and warning messages displayed and acknowledged by the user, the program proceeds to the cost calculation process.

For each routing master record, read each operation's cost data and recalculate according to the following formulas:

- Standard Labor Cost Unit Run =
$$\frac{\text{Standard Labor Unit Run Hours}}{\text{X Work Center Default/Standard Labor Rate}}$$
- Exception Labor Cost - Unit Run =
$$\frac{\text{Exception Standard Labor Unit Hours}}{\text{X Work Center Default/Standard Labor Rate}}$$

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The program repeats this process, using work center ID's for each operation to retrieve the work center rate data until all operations in the routing are recalculated.

The results of each operation's recalculation are stored in the two cost fields that pertain to unit run costs. Setup costs fields are maintained by manual data entry and are not recalculated programatically.

When all operations have been recosted and the fields updated, the record is rewritten to the Routing Master table.

Set Cost Rollup Effectivity Date

Screen Data:

Engineering Effectivity Date to be used for cost rollup calculations:

00/00/00

Functional Logic

This screen accepts and stores in a Global Parameter record the engineering effectivity date to be used when selecting manufactured part configuration data to be included in a cost rollup. Since the cost rollup is performed incrementally by several separate programs, to avoid invalid cost calculations, the same engineering effectivity date must be used for all programs.

This effectivity date will cause the cost rollup programs to skip required part number records that have an Effectivity In Date that is later than the date entered here, and to skip those that have an Effectivity Out Date that is earlier than this date.

The cost rollup system programs using this date are:

- Calculate Manufacturing Part Costs
- Calculate Total Material Cost
- Rollup Lower Level Costs

The screen is saved with the F9 key.

Calculate Manufacturing Part Costs

CHANGED 5/3/94

Screen Data:

Selection options:

1. Specific Part Numbers (enter up to 20 part numbers)
2. Update part numbers in a single classification (select one)
 - Part Type selection (enter one Part Type)
 - Product Class selection (enter one Product Class)
 - Product Line selection (enter one Product Line)

or ALL manufactured part numbers on file

Added 5/3/95:

3. Select Standard Costs to be used: x
 1. Previous Standard Costs
 2. Current Standard Costs
 3. Future Standard Costs

End Change

This program writes over previously calculated data in the This Level cost fields in the Part Master table. OK?(Y/N)

Save the screen data with F9 to initiate the program's operations.

Functional Logic

CHANGED: logic to calculate Foreign Indirect Cost to replace the previous Outside Manufacturing Freight Cost calculation.

5/3/95 Change Summary:

- Option selection window modified to add option to select Previous, Future, or Current Routing Standard Cost data for use in calculating manufactured costs.
- Program modified to read selected cost source data fields as selected in option entry window. Cost calculation process is otherwise unmodified. The resulting values are still written to the Calculated This Level Labor and Outside Manufacturing Standard Cost fields.

End Change.

This screen initiates a program that performs the following steps:

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- Accept selection options for part numbers to be costed.

NOTE: This program requires an additional data field to be added to the Part Master Table for Costing Order Quantity, which is the expected average quantities that would be manufactured at the same time. Its only purpose is to serve as the basis for apportioning Setup Costs to Unit Costs.

NOTE: To the Global System Parameter Table, add rows for Manufacturing Labor Burden Rate, O/M Freight Rate, and Outside Manufacturing Overhead Rate. These factors are used to develop Burden and Overhead cost amounts.

- Reads the Part Master file, reading either selected manufactured part numbers, or all part numbers,
- To speed its operation, following selection of part numbers to be costed, the records are sorted by Routing Name to enable the same routing data to be reused without redundantly accessing the Routing Master File.
- Reads the Routing Master record named for each part.

5/3/95 Change:

Added:

- Select Routing Standard Cost data as indicated in the option entry window, either Previous, Current or Future Standard costs for Labor and Outside Manufacturing.

End Change.

- The program first checks the Exception Part Cost lists for each step in the routing for the Part Number being calculated, and if present uses it. If there is no match for Exception part Cost data for the Part Number at an operation line, then the Standard for the Operation is used.
- Calculates manufacturing costs at each operation in the routing by using the following formulas. Burden, Overhead, and Outside Manufacturing Freight Rate Percents are obtained from the Global Parameters Table.
 - This Level Labor Unit Cost for the Operation =
$$(\text{Setup Cost/Costing Order Quantity}) + \text{Unit Run Cost}$$
 - This Level Outside Manufacturing Unit Cost for the Operation =

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Outside Manufacturing Setup Cost/Costing Order Quantity)
+ Outside Manufacturing Unit Run Cost

- This Level Burden Unit Cost for the Operation =

Standard/Exception Labor Unit Cost Hours
X Burden Rate %

- This Level Overhead Unit Cost for the Operation =

Standard/Exception Outside Manufacturing Unit Cost Hours
X Overhead Rate %

CHANGED: new logic is:

- Using the Work Center ID in the Operation data, retrieve the associated Work Center Master record. If this record has a value of "Yes" in the Foreign? flag field, then perform the following cost calculation. If blank or "No", do not perform this calculation.

This Level Foreign Indirect Cost for the Operation =

Standard/Exception Outside Manufacturing Unit Cost Hours
X Foreign Indirect Rate %

- Sum all 5 cost manufacturing element fields for each operation in the routing, obtaining a total for the part number for all operation level costs.

CHANGED: Foreign Indirect cost replaced O/M Freight Cost

- The resulting total costs are then written to the Calculated This Level Labor, Outside Manufacturing, Burden, Overhead, and Foreign Freight Cost fields in the Part Master record for the part number.

When this program has completed its running, the cost data calculated can be viewed via inquiry screens or printed out on reports.

Reset Low Level Codes

Screen Data:

Recalculate and store low level codes? Y/N

This program requires that all users be locked out of the Part Master table, and will run for some length of time. OK? (Y/N)

Functional Logic:

This program reads the where used record ID list in each part master record, then, for each list, looks up the referenced part numbers, following the resulting chain of where-used references until the "top" or end item level is reached, which is a part number having no further where-used references.

As each successive chain is searched, a counter is maintained, so that the resulting number is the maximum number of levels in any product structure where this part number is used. This number is termed the "low level code." It is used for any process where redundant processing is to be avoided. For example, in rolling up costs, costs from lower levels are accumulated progressively level by level until the end item level is reached.

ADDED: This program utilizes a working search table to reduce repeated reads or writes of the same part master record, and to ensure that each part number's where-used chain is searched only once. Starting with a given part number, the "primary search" part number, its where used chain is read from the Part Master table and stored temporarily in the working table. This table is then searched in computer memory, to calculate and store the low level code for the primary search part number and then for all secondary search part numbers in the table. These codes are then written back to their part master record, together with the current date and the table is then cleared for the next primary search part number. The where-used chain search ends if a link is found that was previously searched. Its already calculated low level code value is used instead.

ADDED: The working search table's fields include: Search Part Number, where-used part number and Search Part Number Low Level Code. A table row is created for each Search & Where-Used Part Number pair.

ADDED: Add a data field to the Part Master record for LL Code Date/Time. It is the date/time that the program starts its run, so will be the same for all records processed in the same run. It is updated each time the program calculates the Low Level Code for that Part Number record. This will enable the program to determine

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that it has already searched and updated this part number and avoid redundant processing.

The program starts by displaying two messages advising the user of the nature of the program and giving him an opportunity to return to the menu, proceeding as described below.

Upon answering Y to both questions, and pressing the F9 key, the program creates the LL Code Date by capturing the system date/time. This same value is used for the remainder of the program's run. The program then reads each part master record in succession, according to the following logic:

- Read the first or next Part Master table record, which may be termed the Primary Search Part Number.
- If the Primary Search Part Number record has no values in its Where-Used ID's field, its Low Level Code is set to zero, the Low Level Code Date is updated and the record written back to the table. The next Part Master record then becomes the next Primary Search Part Number.
- If the Primary Search Part Number record's Low Level Code Date is the same as that in use for this run, then the record was previously searched and updated. It is skipped and the next record in the table read.
- If the Primary Search Part Number record has one or more values in its Where-Used ID's field, for each value in the multi-value field's list, then build the working search table by performing the following steps:
 - Copy the Primary Search Part Number into the working search table and create a row for each pair of relationships, Primary Search Part Number and the associated Where-Used Part Number. Ignore operation number and any duplicates due to the same part being used at more than one operation in the same routing. The associated Search Part Number Low Level Code value in the Working Search Table at this point is null.
 - Continue building the Working Search Table for this Primary Search Part Number by using each Where-Used Part Number as a Secondary Search Part number to retrieve its associated Part Master record.
- For each Part Master record that is retrieved, perform the following:
 - Write a row in the Working Search Table to store the Secondary Search Part Number and its associated Where-Used Part Numbers for each pair

of relationships. For these rows, the LL Code value in the search table is null (not calculated yet).

- If the Secondary Search Part Number has previously been searched, indicated if the LL Code Date in the record is the same as the one for the current processing run, then also store the LL Code value from the Part Master record in the Working Search Table for that Search Part Number and resume searching the previous level's Where-Used Part Number list.
- The existence in the Working Search Table of a row where the Part Master record has previously been search enables the program to not search this portion of the chain any further, since this was previously done. This will occur if a part number's where used chain is searched, but the part number is referred to in another, lower level (predecessor in the chain) part number. Instead of re-doing the search process, storing the low level code value already calculated in the Working Search Table enables the previously done result to be reused.
- If the Secondary Search Part Number has no where-used references, the row in the Working Search Table for it will have null values in this field.
- Continue searching the entire where-used reference chain until all where-used part numbers have been used as Secondary Search Part Numbers, and until no more where-used references are encountered. At this point the table will include the entire set of where-used reference chains beginning with the Primary Search Part Number.
- The Working Search Table is then ready to have the low level code calculations performed on it. This process calculates the low level codes for all Search (primary & secondary) part numbers in the table. This data is then used to update the Part Master record for each search part number. By this process, any part number has its where-used chains searched only once. The search/low level code calculation process is as follows:
 - Beginning at the Primary Search Part Number, set the Low Level Code Counter at zero.
 - Using each Where-Used Part Number as a secondary search part number, read the working search table rows to calculate the number of where-used references in each chain.
 - Each row that is encountered that has an associated where-used reference that is not null, increment the Low Level code Counter by 1.

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- If a secondary search part number already has a low level code value in its row, stop the chain search there and add this low level code value to the value in the Low Level Code Counter.
- At the end of each chain, indicated by a Secondary Search Part Number row with no where-used value, temporarily store the value in the Low Level Code Counter as the Maximum Low Level Code Value if it is greater than the previous Maximum Low Level Code value.
- When all where-used chains belonging to the same search part number have been searched, store the Maximum Low Level Code Value in the search table's LL Code field for that search part number, which should be the number of levels in the longest where-used reference chain beginning at the search part number.
- Continue processing the table until all Search Part Numbers (primary and all secondaries in the primary's reference chain) have been processed and low level code values for each has been calculated and stored. These will be the number of levels "up" in each part number's longest where-used reference chain.
- Save the calculated values and clear the table by performing the following:
 - For each Search Part Number, update its associated Part Master table record with the calculated Low Level Code Value, and the current Low Level Code Date/Time value used for the processing run.
 - When all Search Part Number's associated low level code values have been written, clear the table and begin the process again by returning to reading the next Part Master record as described in the first steps.
- Continue processing the Part Master table until all records in the table have a valid low level code value and the low level code data field contains the current low level code date/time.

Copy Purchased Material Standard Costs

Screen Data:

Selection - Material Standard Cost Data Source (select one)

- Copy Current Material Standard Costs
- Copy Future Material Standard Costs
- Copy Previous Material Standard Costs

Selection - Part Numbers to be copied (select one):

- All purchased part numbers
- Part Type
- Product Class
- Product Line

Save the screen data with F9 to initiate the program's operations.

Functional Logic

This program copies standard cost data from either of the three sets of standard cost data into the Calculated This Level Material Cost field where it is used to cost purchased material in product standard cost rollups. It is a step in the overall cost development process and enables the cost accountant to conveniently maintain cost data in an easy to access area yet selectively use the data without reentering into the working cost rollup structure where cost data is maintained at a more detailed level. Its functions include the following:

- The program displays the selection options, accepting the choices entered.
- The program then reads the selected records in the Part Master table, copying the data from the selected cost fields into the Calculated This Level Material Cost fields for each part number updated.

Calculate Total Material Costs

Screen Data:

Selection options:

1. Specific Part Numbers (one part numbers)
2. Select One grouping:
 - Part Type selection (one Part Type codes)
 - Product Class selection (one Product Class Codes)
 - Product Line selection (one Product Line Codes)
3. ALL manufactured part numbers on file

Engineering Effectivity Rollup Date (display only) (from Global Parameter record)

This program replaces current cost data in the Calculated This Level Material Costs for each part numbers coded as manufactured that are selected or update.

Save the screen data with F9 to initiate the program's operations.

Functional Logic

This program accepts entry of several options of manufactured part numbers to be costed/recosted, then reads the manufactured part configuration records for each, looks up each required purchased part's cost data stored in the Calculated This Level Material Cost fields for the part number, totals them for the parent part number, then stores the result in the This Level Calculated Material Cost fields for that part number in the Part Master record. The selection of required part numbers on each Parent Part Number's configuration uses the Engineering Effectivity Date entered in the Global Parameter record for this value.

The costing process for manufactured parts that are on a configuration's required part's listing calculates these by rolling up their costs from lower product structure levels.

The program's functions are as follows:

- The screen displays and accepts selection options which include:
 1. Specific Part Number (one), which must have a Manufactured Part Configuration table record.
 2. Cost by a grouping code, including Part Type, Product Classification, Product Line options - one grouping method and its associated code can be selected, in one

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run. These codes must be valid codes in the appropriate code table. However, the program will not check to see if any manufactured part numbers with the entered codes exist until the execution phase.

3. All part numbers in the Manufactured Parts Configuration table are to be recosted.

The Engineering Effectivity Date entered in the Global Parameter record is displayed and will be used by the program during its run. The date is maintained in an external record to allow both this program and the cost rollup program to be sure of using the same effectivity date.

- After the selection phase of the program, the selections are saved with the F9 key, causing the execution phase of the program to begin, displaying a message to the user that this process will take some time to complete. These steps are as follows:
 - Read each parent part number record set in the Manufactured Parts Configuration table meeting the selection criteria (either a specific part number, with an entered code, or all part numbers). There may be more than one product configuration record bearing the same Parent Part Number due to material be attached to more than one operation in the routing. The program totals all cost data from all records bearing the same parent part number, regardless of how many routing steps have material required at them.
 - The list of Part Numbers Required may include both purchased part numbers and manufactured subassemblies and/or manufactured component parts. This program skips the manufactured part numbers because they are costed by another method.
 - Compare the Engineering Effectivity In/Out Date from the Global Parameter record with the Effectivity In and Effectivity Out dates on each require part number, excluding those that either have an Effectivity Out Date earlier than the date entered on the screen, or an Effectivity In Date later than this date.
 - **ADDED** - For a given required purchased part number, if the Vendor Furnished Flag = Yes, then do not include this part number in the cost calculation process, regardless of whether there is a standard material cost for the part number in the Part Master table.
 - For each purchased part in the required part number list, the program retrieves the Calculated This Level Material cost from the Part Master

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table for that part number, multiplies it times the quantity required, and adds it to the Calculated This Level Material cost for the Parent Part Number being costed.

- This process is repeated for each successive purchased part attached to the parent part number at all routing steps until all purchased part costs have been retrieved and accumulated in the Calculated This Level Material cost for the Parent Part Number. This total is then written to the Part Master record for the Parent Part Number.
- The process is repeated for each successive parent part number meeting the selection criteria in the Manufactured parts Configuration table until all are costed. When completed, the program returns to the menu.

Rollup Lower Level Costs

Screen Data:

This program replaces the Calculated Lower Level Cost fields for all part numbers in the Part Master file with new values, using the Engineering Effectivity In/Out Date shown below.

The program will run for some time. Do you want to run this now?(Y/N) _____

Engineering Effectivity In/Out Date (display only)

This program selects the part numbers meeting the selection criteria and posts their costs to all next higher assembly level part numbers in the where-used reference sequence, replacing the Calculated Lower Level Cost fields for each part number in the sequence.

Save the screen data with F9 to initiate the program's operations.

Functional Logic

This program accepts several selection criteria then posts the cost data for the selected manufactured part number to all higher assembly part numbers' Calculated Lower Level Cost fields. To work properly, all single level costs for manufacturing and purchasing must have already been calculated and verified as correct before performing the rollup process.

The program uses the where-used ID data in each part master table record. If there is no data in this field, then the part number is either a product for sale ("end item" or "finished good") or has no usages. Part Numbers shown as required in Manufacturing Part Configuration records have their record ID's entered into the where-used ID fields for each part number required, enabling a quick retrieval and successive lookup to find the sequence of "goes-in-to's", in effect reading the product structure data from the bottom up.

If this program encounters any data integrity problems with any part number record or other problem, it will terminate its processing, printing a report describing the condition it encountered. Otherwise, the integrity of the calculated rolled up costs could be in question.

The program's functions are as follows:

- The screen displays the run message and its option to escape (enter No), and the Effectivity Date that will be used in the run. This date will be compared to In and Out Effectively dates in the Where Used-ID data, to allow costing to include only those parts in a single configuration at one time.

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- The screen is then saved with the F9 key, causing the execution phase of the program to begin. These steps are as follows:
 - Read the entire Part Master file, entering zeros in the Calculated Lower Level Cost fields. This will remove all previous cost rollup data and insure that costs rolled up in this run are the correct.
 - Select and sort the Part Master table, selecting manufactured parts records only, into descending Low Level Code sequence, so the subsequent steps are performed on a one level at a time basis. Skip records when the Where-Used ID data field is blank.
 - Read the lowest level coded part numbers first. The posting process involves each part number being the Rolled Up Part Number, with its cost data being posted to its Next Higher Assembly (NHA) Part Numbers. Once all part numbers with the same Low Level Code value have been posted, the part numbers that were previously the NHA Part Numbers will become the Rolled Up Part Numbers if they have values in their Where-Used ID data fields. The process is repeated, level by level until all levels have been posted.
 - For each Rolled Up Part Number, read each Parent Part Number/Operation No. value in the Where-Used ID field. Post the Cost Elements to the Parent Part Number's cost fields one time for each where-used ID. This Parent Part Number is the Next Higher Assembly Part Number (NHA Part Number).
 - Compare the Engineering Effectivity In/Out Date entered on the selection screen with the Effectivity In and Effectivity Out dates on each Parent Part Number in the Where-Used ID data, excluding those that either have an Effectivity Out Date earlier than the date entered on the screen, or an Effectivity In Date later than this date.
 - For the Rolled Up Part Number, obtain the Posting Cost Elements from the following formulas:
 - Posting Labor Cost = Calculated This Level Labor Cost
+ Calculated Lower Level Labor Cost
 - Posting Material Cost = Calculated This Level Material Cost
+ Calculated Lower Level Material Cost

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- Posting Outside Manufacturing Cost = Calculated This Level Outside Manufacturing Cost + Calculated Lower Level Outside Manufacturing Cost
- Posting Burden Cost = Calculated This Level Burden Cost + Calculated Lower Level Burden Cost
- Posting Overhead Cost = Calculated This Level Overhead Cost + Calculated Lower Level Overhead Cost

CHANGE: Foreign Indirect Cost replaces O/M Freight Cost

- Posting Freight Cost = Calculated This Level Freight Cost + Calculated Lower Level Freight Cost
- Retrieve the Part Master record for the NHA Part Number, then add the Posting Costs obtained above to the corresponding Calculated Lower Level Costs in the NHA Part Master record by cost element. For example, the Posting Labor Cost is added to the NHA Part Number's Calculated Labor Cost Lower Levels field.
- Continue reading Parent Part Numbers in the Rolled Up Part Number's Where-Used ID data field until all have been read, looked up and posted.
- Continue reading and posting all Parent Part Numbers with the same Low Level Code value until all have been posted to their referenced Where-Used ID Parent Part Numbers.
- Continue at the next smaller low level code group of part numbers to be rolled up and repeat the process until this and each successive group of low level code/part numbers has been read and posted. Part Numbers with a Low Level Code of zero are, by definition, end item level part numbers. Part Numbers between the end item and the lowest level, such as subassemblies, will in turn, be both Rolled Up Part Numbers and Next Higher Assembly Part Numbers, as lower level costs are posted the lower level data fields, then in turn added to the this level cost amounts and posted to the next NHA Part Number's fields.
- When all posting is completed, the program returns to the menu.

Copy Calculated Costs

Screen Data:

Selection options - Part Numbers to have their costs copied

1. Specific Part Numbers (enter up to 20 part numbers)
2. Select one grouping:
 - Part Type selection (enter up to 10 Part Type codes)
 - Product Class selection (enter up to 10 Product Class Codes)
 - Product Line selection (enter up to 10 Product Line Codes)
3. ALL manufactured part numbers on file
4. ALL part numbers on file.

Selection - Copy Calculated Costs into (select one):

- Current Standard Costs
- Future Standard Costs

Warning: This selection will overwrite all current standard cost data. Are you sure you want to proceed? (Y/N).

Save the screen data with F9 to initiate the program's operations.

Functional Logic

This program accepts entry of a variety of options serving as selection criteria for which part numbers to be updated, then reads each record meeting these criteria, copying the cost data from the calculated cost fields, summarized, into one of the two sets of standard cost data. Its functions are as follows:

- The screen displays the options to be chosen, then accepts entry of each. Part Numbers must be in the Part Master table, and groupings must be in the associated table for that grouping code (Part Type, Product Classification, Product Line).
- The entry screen is saved with the F9 key to begin the execution portion of the program, displaying a message informing the user that this process may take some time to complete. If the option to update the Current Standard Cost fields was selected, display the Warning message shown and require a Yes answer in order to proceed, a No returning the cursor to the selection field.
- The program then reads the Part Master table, locating those records meeting the selection criteria.

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- For each part number record to be updated, it obtains the Standard Cost Elements to be posted from the following formula:
 - Standard Labor Cost = Calculated Labor Cost This Level + Calculated Labor Cost Lower Levels
 - Standard Material Cost = Calculated Material Cost This Level + Calculated Material Cost Lower Levels
 - Standard Burden Cost = Calculated Burden Cost This Level + Calculated Burden Cost Lower Levels
 - Standard Overhead Cost = Calculated Overhead Cost This Level + Calculated Overhead Cost Lower Levels

CHANGED: Foreign Indirect replaced O/M Freight Cost

- Standard Freight Cost = Calculated Freight Cost This Level + Calculated Freight Cost Lower Levels
- The Standard Costs are then posted to either the Current Standard Cost fields or the Future Standard Cost fields, depending on the option selected.
- When completed, the program returns to the menu.

Convert Standard Costs

CHANGED 5/3/95

Screen Data:

Select an option:

1. Move Current Standard Cost data into Previous Standard Cost fields and Move Future Standard Cost data into Current Standard Cost fields (normal year end conversion).
2. Move Current Standard Cost data into Future Standard Cost fields.

Warning: This selection will overwrite all current standard cost data. Are you sure you want to proceed? (Y/N).

Save the screen data with F9 to initiate the program's operations.

Functional Logic

CHANGE 11/4/94 Summary:

Sub-program is added to perform cost field conversion for the Routing Master Standard Cost fields so they will be synchronized with Part Master Cost updates.

End Of Change Summary.

This program accepts one of two options, then reads the entire Part Master table, copying cost data from one set of cost element fields into others, depending on the option selected. It applies only to the entire file, with no subsets allowed. Current Standard Cost data is used to calculate cost of sales in the general ledger system, so replacing these fields must be synchronized with the entry of appropriate inventory revaluation journal entries.

Option 2 is included in this program to quickly allow the cost accountant to create a simulation set of cost data separate from those in use to cost inventory transactions and perform other related functions.

If Option 1 is selected, display the warning message and require a Yes response, otherwise returning the cursor to the selection field.

CHANGE 5/3/95:

Sub-program reads the entire Routing Master table, copying standard cost fields from one set of cost fields into others, depending on the option selected. It applies

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only to the entire file, with no subsets allowed. Future and Previous Routing Standard cost fields are identified in the dictionary with Future and Previous prefixes in the names. The Current Routing standard cost fields are those with the same names, but with no suffix indicating Current. Both the operation level standard cost fields and the Exception Part Cost fields are updated by this process, using the same logic as the main program.

This sub-program executes according to the the same option selections as the main program, i.e., Option 1, (Current into Previous and Future into Current) or Option 2 (Current into Future only).

End of 5/3/95 Change.

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Single-Level Part Cost Report

Screen Data:

Selection options - Part Numbers to have their costs reported:

1. Specific Part Numbers (enter up to 20 part numbers)
2. Select one grouping:
 - Part Type selection (enter up to 10 Part Type codes)
 - Product Class selection (enter up to 10 Product Class Codes)
 - Product Line selection (enter up to 10 Product Line Codes)
3. ALL manufactured part numbers on file
4. ALL part numbers on file.

Standard Cost Data - Select One:

Previous Standard Costs
Current Standard Costs
Future Standard Costs

Output to Screen or Printer?

Save the screen data with F9 to initiate printing of the report.

Report Data:

Part Number
Description
Unit of Measure
Part Type
Product Class
Product Line
Standard Costs (per option selected)

- Labor
- Outside Manufacturing
- Burden
- Overhead
- Freight

Calculated Labor Costs - This Level
Calculated Outside Manufacturing Cost - This Level
Calculated Burden - This Level
Calculated Overhead - This Level
Calculated Labor Costs - Lower Levels
Calculated Outside Manufacturing Cost - Lower Levels
Calculated Burden - Lower Levels
Calculated Overhead - Lower Levels

Total Calculated Cost (all 5 cost fields summed, this + lower levels)

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CHANGE: Foreign Indirect, abbreviated "For Indir" replaces "Freight: on the report labels

Functional Logic:

This screen accepts selection options then generates a printed report for one or more part numbers showing the standard and calculated cost data for the selected part numbers.

Single-Level Part Cost Inquiry

Screen Data:

Part Number
Description
Unit of Measure
Part Type
Product Class
Product Line
Standard Costs (Previous, Current, Future standards)
 Labor
 Outside Manufacturing
 Burden
 Overhead
 Freight
Calculated Labor Costs - This Level
Calculated Outside Manufacturing Cost - This Level
Calculated Burden - This Level
Calculated Overhead - This Level
Calculated Labor Costs - Lower Levels
Calculated Outside Manufacturing Cost - Lower Levels
Calculated Burden - Lower Levels
Calculated Overhead - Lower Levels

Total Calculated Cost (all 5 cost fields summed, this + lower levels)

CHANGE: Foreign Indirect, abbreviated "For Indir" replaces "Freight: on the screen labels

Functional Logic:

This screen accepts entry of a part number to be retrieved, then displays the cost and associated data for that part number.

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Single Level Part Configuration - Direct Costs Only Report

Screen Data

Enter Part Numbers to have their costs reported:

Specific Part Numbers (enter up to 20 part numbers)

Save the screen data with F9 to initiate printing of the report.

Report Format:

Report Title: Single Level Part Configuration - Direct Costs Only

Note: Eng Effectivity Dates not Considered; Indirect Costs not included; Costs not rolled up from lower assembly levels.

Par P/N	Desc.	U/M	Op n	Req P/N	Req P/N	Qty Req'd	Scrp %	V/F ?	Ext Lab Cst	Ext Mtl Cst	Ext O/M Cst
xx	xxx	xx	xx	xxxx	xxxx	xxx	xx	x	\$xxx.xx	\$xxx.xx	\$xxx.xx
				xxxx	xxxx	xxx	xx	x	\$xxx.xx	\$xxx.xx	\$xxx.xx
				xxxx	xxxx	xxx	xx	x	\$xxx.xx	\$xxx.xx	\$xxx.xx
				xxxx	xxxx	xxx	xx	x	\$xxx.xx	\$xxx.xx	\$xxx.xx
Sub total			xx						\$xxx.xx	\$xxx.xx	\$xxx.xx
Total									\$xxx.xx	\$xxx.xx	\$xxx.xx

Functional Logic

This report provides a quick look at only the direct costs involved in a product's configuration. All data is obtained by simply reading the Current Standard Cost data for the product which may be updated via direct data entry into the cost fields. Unless these data include previously full rolled up costs, lower level subassembly and manufactured part costs may not be included.

Also, the report includes all required part numbers in the configuration list, which may include parts that have in or out effectivity dates. Accordingly, this report should be used with full understanding of the possibility for missing some part cost data. These limitations are reflected in the warning note printed in the report's header. The screen allows entry of one or more parent part numbers to have their cost data shown on this report.

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Costed Stock Status By Warehouse, Part Number Report

Done by Eric 6/24/93 - in RList

Selection Options:

- Warehouse No. (enter 1 or ALL - default)
- Part Group (enter 1 or ALL - default)
- Product Class (enter 1 or ALL - default)
- Product Line (enter 1 or ALL - default)

Cost Selection Options:

- Current Standard Costs
- Future Standard Costs

Report Data:

Part Number
 Description
 P/M Code
 Part Group
 Product Class
 Product Line
 Unit of Measure
 Total Unit Cost (total of all current unit standard costs)
 Extended Total Cost
 Warehouse No
 Total (all locations) Quantity On Hand
 Quantity In Receiving Inspection
 Subtotal by Part Number
 Subtotal by Warehouse No.
 Total all Warehouses

Report Format:

Part No.	Desc.	P/M Code	U/M	Part Grp	Prod Class	Prod Line
Lab Cst	Mtl Cst	O/M Cst	Burd Cst	Ovhd Cst	O/M Ft Cst	Tot Un Cst
Qty R/I	W/H No.	W/H Qty	Ext Tot Cst			
x-----x	x-----x	x	xx	xxx	xxx	xxx
\$x--x.xxx	\$x--x.xxx	\$x--x.xxx	\$x--x.xxx	\$x--x.xxx	\$x--x.xxx	\$x--x.xxx
x-----x						
	x----x	x-----x	\$x----x.xxx			
	x----x	x-----x	\$x----x.xxx			
		x-----x	\$x----x.xxx	Total All	\$x---x.xxx	Total W/H
				W/H's this		+ R/I this
				P/N		P/N
x-----x	x-----x	x	xx	xxx	xxx	xxx
\$x--x.xxx	\$x--x.xxx	\$x--x.xxx	\$x--x.xxx	\$x--x.xxx	\$x--x.xxx	\$x--x.xxx
x-----x						
	x----x	x-----x	\$x----x.xxx			
	x----x	x-----x	\$x----x.xxx			

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		x-----x	\$x----x.xxx	Total All W/H's this P/N	\$x---x.xxx	Total This P/N
Grand Totals:	Rec. Ins.	All W/H's	W/H's + Rec Insp			
	\$x---x.xxx	\$x---x.xxx	\$x---x.xxx			

Functional Logic

This report provides costed inventory for all items in all warehouses, using Current or Future Standard cost values in the Part Master file as the costing basis. It is intended to be used as an aid in reconciling perpetual inventory values to general ledger values. The program's functions are:

- Selection screen is presented, which allows entry of the selection options shown, and of which set of cost data to use. The report heading shows the selection options chosen, including cost data used.
- The selection screen is saved with the F9 key to start the program running.
- Using the selection criteria, all or a subset of the Inventory table's records are selected and sorted into part number sequence within each Warehouse. The cost data is obtained from the Part Master file via symbolic lookup data fields. The cost calculations shown on the format are calculated using the formulas shown below:
 - The Total Unit Cost is the sum of all six unit cost elements.
 - Extended Total Cost equals the Warehouse Quantity (for all locations within that warehouse number) times the Total Unit Cost
 - Total All Warehouses this Part Number is the sum of the warehouse quantities for all locations (line shown for each W/H), times the Total Unit Cost.
 - Total Warehouses plus Receiving Inspection is the Total All Warehouses this Part Number + [Quantity Receiving Inspection X Total Unit Cost]
 - Grand total for Receiving Inspection is the sum of each part numbers' Quantity in Receiving Inspection times the Total Unit Cost for that part number, for all Part Number on the listing.
 - Grand Total for All Warehouses is the sum of the Total All Warehouses This Part Number for all Part Numbers on the listing.

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Costed Inventory Transactions Report

Screen Data:

Selection Options:

- Part Number (enter 1 or ALL - default)
- From Warehouse No. (enter 1 or ALL - default)
- Part Group (enter 1 or ALL - default)
- Product Class (enter 1 or ALL - default)
- Product Line (enter 1 or ALL - default)
- Transaction ID (enter 1 or ALL - default)
- Date Range Selection: From ____ to _____ (default is from 1st day of current month to current system date)

Sort Sequence Options:

- by Part Number then Transaction Date/Time
- by Transaction ID, then Part Number, then Transaction Date/Time
- by Transaction Date/Time

Report Data:

Transaction Date
Transaction ID
Part Number
Description
U/M
Part Group
Product Class
Product Line
Total Unit Cost
Transaction Quantity
Transaction Extended Unit Cost
Transaction User ID
From W/H No.
To W/H No.
Order No.
Person
Dept
GL No.
Comment

Functional Logic

This report allows selection from the options shown, then using current standard cost data, then prints costed inventory transactions sorted according to the sort sequence option selected. Its purpose is to aid the cost accountant in verifying transaction processing against source documents used to enter the transaction and

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against Move Tickets reporting inventory movement. All transaction data is shown to aid in this verification process. Cost details are not shown by cost element but are summarized to make the report easier to read.

The Total Unit Cost is the sum of all six unit cost elements, while the formula for Transaction Extended Unit Cost is:

Total Unit Cost X Transaction Quantity

Transaction Quantity is shown with a minus sign if it is an issue from the warehouse, no sign if it is a receipt or location to location move.

GL Interface - Overview

The AIMS/ERP GL Interface is a family of related reports that provides costed transaction data for preparation of journal entries in the GL System. Data from AIMS/ERP is organized to support a specific reporting method for cost of sales. This method includes certain assumptions. The costing system assumptions that these reports provide support for include the following:

Three GL Inventory Accounts are supported by the reporting system:

Production Inventory - Perpetual (warehouse, location) inventory identified by Part Group codes other than "FG". Includes purchased material, manufactured/ and stocked subassemblies. These items are costed at only Material Standard Cost (including subassemblies), with no added value (labor or outside manufacturing direct cost), or indirect costs.

Work In Process Inventory- items issued to a work order, not offset by reports of completed parent part numbers for the work orders. These are costed at only Material Standard Cost (including subassemblies), with no added value (labor or outside manufacturing direct cost), or indirect costs.

Finished Goods Inventory - Perpetual (warehouse, location) inventory identified by Part Group code of "FG". These items, and associated transactions reporting movement in and out of FG inventory, are costed a full value (labor, material, outside manufacturing, domestic indirect and foreign indirect).

Other key aspects of the AIMS/ERP GL Interface reporting subsystem includes:

Outside Manufacturing - consists of operations on a routing performed by a vendor, in place of in-house labor. The two may be mixed within the same routing. An inventory movement transaction in these report is generated when there is movement between WIP and either Production Inventory or WIP and Finished Goods Inventory.

Perpetual Inventory Costing - these reports are costed using the same method as transactions feeding the appropriate category, i.e., Production or Finished Goods inventory.

Receiving Reports & Purchase Price Variances - these reports are separated by the type of journal entries that each is associated with, although the formats are similar.

The table below summarizes the relationship between type of material movements, GL Interface report, and corresponding journal entries.

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Rpt No.	Inventory Movement	GL Interface Report Name	Source Data	Journal Entry Categories	Comment
1	Mtl Vendor to Prod Inv.	Production Mat'l Receiving /PPV	Receiving Trans. Hist.	Prod. Inv (charged) A/P PPV expense	PO Types DP and FP only; material at Mtl Std cost
2	O/M Vendor to WIP Inv.	Outside Mfg Receiving /PPV	Receiving Trans. Hist.	WIP Inv. (charged) A/P PPV Expense	PO Types DO & FO only; added value only
3	Expense PO Rec't	Expense PO Receiving	Receiving Trans. Hist.	A/P Dept GL exp.	PO Types FE & DE only; no inv. effect
4	O/Mfg Subassy's WIP to Prod Inv	O/Mfg Subassy's WIP to Prod Inv & Mtl Std Cst	Receiving Trans. Hist.	WIP Inv. (relief) Prod Inv. (charged)	Material cost only, incl. subassemblies
5	O/Mfg FG WIP to FG Inv.	O/Mfg Fin Gds WIP to FG Inv & Full Std Cost	Receiving Trans. Hist.	WIP Inv. (relieved) FG Inv. (charged)	Uses all cost elements; incl. added value, indirect costs
6	Prod Inv. to WIP Inv Moves (issues)	Prod. Inv. to WIP Inv. Moves at Mtl Std Cost	Inv. Trans. Hist. - WOPS, WOPC, WOCB trans. ID's	Prod. Inv. (relieved) WIP Inv. (charged)	Material standard cost only; incl. subassemblies.
7	In-house subassy's WIP to Prod Inv. Moves	In-House Subassy's WIP to Prod Inv & Mtl Std Cost	Inv. Trans. Hist. - WCMS trans ID's; non FG P/N's	WIP Inv. (relieved) Prod Inv. (charged)	Material standard cost only; incl. subassemblies
8	In-house FG WIP to FG Inv. Moves	In-house WIP Inv to Fin Goods Inv at Full Std Cost	Inventory Trans. Hist. - WCMS transactions; FG P/Ns	WIP Inv (relieved) FG Inv. (charged)	Uses all cost elements; includ added value, indirect costs

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9	FG Sales/shipments	FG Sales/SHipments by Prod Line at Full Std Cost	Inv. Trans. Hist.-SOIS trans IDs - all P/Ns	FG Inv (relieved) COGS (charged)	Uses all cost elements; includ added value, indirect costs
10	Expense Inventory Moves	Inventory to/From Dept Exp & Full Std Cost	Inv. Trans. Hist. - MSRC, MSIS trans IDs	Prod Inv FG Inv Dept Exp.	Uses all cost elements; includ added value, indirect costs
11	Part Number Changes (sex changes)	Part Number Changes at Full Std Cost	Inv. Trans. Hist.- PNCO, PNCI trans IDs	Prod Inv FG inv. Inv Revaluation	Uses all cost elements; includ added value, indirect costs

Run Groups - These are the groupings of report that will be produced from the same menu selection within the AIMS/ERP Report Manager, in the GL Interface submenu. A single menu selection causes

First Run Group - Reports 4 through 11 in the list above.

Second Run Group - both the Production Inventory and the Finished Goods Perpetual inventory reports.

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GL Interface - Perpetual Production Inventory at Material Standard Cost

Report Data:

Co. Name Perpetual Prod. Inv at Material Standard Cost
Date/Time Printed

Page #

Part Number
Description
P/M Code
Part Group
Product Class
Product Line
Unit of Measure
Unit Material Standard Cost
Extended Material Standard Cost
Quantity In Receiving Inspection
Quantity in Transfer
Warehouse No
Total Quantity this W/H (all W/H locations)
Total Quantity this Part Number (sum of all locations, R/I & Transfer Qty's)
Total Extended Material Cost this Part Number
Total Extended Material Cost this Warehouse No.
Total Extended Material Cost all Warehouses
Total Extended Material Cost all Part Numbers

Sorted by Part Number, Warehouse

Functional Logic

This report provides a perpetual inventory costed at Current Material Standard Cost inventory for all production inventory part numbers in all warehouses. It is intended to be used as an aid in reconciling perpetual inventory values to general ledger values. The program's functions are:

Finished Goods part numbers are identified with a Part Group equal to "FG". Any other item is, by definition, not a finished goods item, and is therefore included on this report as part of Production Inventory. The program, therefore, selects all Inventory table records where part group is not equal to FG.

All items, including subassemblies, are valued using only their material content, identified by the Current Material Standard cost. This value is extended by the quantity at each location and status.

There are three status related quantities in the Inventory record:

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Receiving Inspection Quantity
Transfer Quantity
Warehouse/location inventory On Hand Quantities

These quantities are added together to obtain total quantity on hand, since all three are considered part of perpetual inventory.

A separate program values finished goods inventory which uses other cost elements.

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Cost Management

GL Interface - Perpetual FG Inventory at Full Standard Standard Cost

Report Data:

Co. Name Perpetual FG inventory at Full Standard Cost
Date/Time Printed Part Number Sequence Page #

Part Number
Description
P/M Code
Part Group
Product Class
Product Line
Unit of Measure
Quantity In Receiving Inspection
Quantity in Transfer
Warehouse No
Total Quantity On Hand (all W/H) locations)
Total by Part Number (sum of all locations, R/I & Transfer Qty's)
For Part Number - these extended totals:
 Extended Labor Standard Cost
 Extended Material Standard Cost
 Extended O/Mfg Standard Cost
 Extended Domestic Indirect Standard Cost (Burden + Overhead)
 Extended Foreign Indirect Standard Cost
For all Part Numbers - these extended totals:
 Extended Labor Standard Cost
 Extended Material Standard Cost
 Extended O/Mfg Standard Cost
 Extended Domestic Indirect Standard Cost (Burden + Overhead)
 Extended Foreign Indirect Standard Cost

Sorted by Part Number

Functional Logic

This report provides a perpetual inventory costed at Current Material Standard Cost inventory for all Finished Goods inventory part numbers in all warehouses. It is intended to be used as an aid in reconciling perpetual inventory values to general ledger values. The program's functions are:

Finished Goods part numbers are identified with a Part Group equal to "FG". Any other item is, by definition, not a finished goods item, and is therefore included on this report as part of Production Inventory. The program, therefore, selects all Inventory table records where Part Group is equal to FG.

There are three status related quantities in the Inventory record:

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Cost Management

Receiving Inspection Quantity
Transfer Quantity
Warehouse/location inventory On Hand Quantities

These quantities are added together to obtain total quantity on hand, since all three are considered part of perpetual inventory.

A separate program values production inventory which uses only material standard cost.

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Cost Management

GL Interface - Production Material Receiving/PPV Report

Revised 9/29/93

Transaction Date Range Selection: From _____ to _____

Report Data:

Co. Name Production Material Receiving/PPV Report
Date/Time Printed PO Types DP, FP only

Page #

Receiving Transaction Date
Receiving Transaction Type
Receiver No.
Vendor Name
PO No.
PO Type
PO Internal Comments
PO Vendor Comments
PO Line Item No.
L/I Part Number
L/I Part Number Description
L/I PO Unit Cost
Part Number Std Cost (Current Material Std Cost from Receiving Lot Record)
Work Order No. (from PO Header Data)
Transaction Quantity (Received, RTV'd, Scrapped)
Transaction Extended Std Cost (Trans Quantity X P/N Standard Cost)
Transaction Extended PO Cost (Trans Quantity X L/I PO Unit Cost)
PO L/I Variance Cost (Extended Standard minus Extended PO Cost)

Totals for all transactions on same PO on same report (at bottom of each PO's page):

Extended Material Standard Costs
Extended PO L/I Costs
Total Variance (Net Amount)

Report Grand Totals (all PO's on report) on separate page

Extended Material Standard Costs
Extended PO L/I Costs
Total PP Variance (Net Amount)

Revision Summary - revise selection logic to include only Production Material PO Types, i.e., DP and FP PO type codes. Others, including, FE, DE, DO, FO are excluded.

Functional Logic

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Cost Management

This report allows selection for a date range then prints Receiving Transaction History file records as selected. The sort sequence is PO Number, then Receiving Transaction Type, then PO Line Item Number.

Page break is on each new PO number. This will group multiple receipts for the same PO together to streamline invoice approval. All PO Types and all Receiving Transaction History Transaction Types are included.

RTV and Scrap receiving transactions, removing quantities from receiving inspection that are not to be moved to warehouse inventory are included to provide a clear basis for debit memos and reconciling the account with the vendor. A new receiving reversal transaction, identified with a Receiving Transaction History transaction ID of RCRB will also appear on this report. This transaction completely reverses a prior Receipt to Dock transaction, shown as an REC transaction on this report.

The totals on this report support the preparation of journal entries to production inventory, purchase price variance expense, and accounts payable, in addition to detailed support for vendor invoice approval for payment.

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Cost Management

GL Interface - Outside Manufacturing Receiving/PPV Report

New 9/29/93 - variation of previous Receiving & PPV report

Transaction Date Range Selection: From _____ to _____

Report Data:

Co. Name Outside Manufacturing Receiving/PPV report
Date/Time Printed PO Types DO, FO only Page #

Receiving Transaction Date
Receiving Transaction Type
Receiver No.
Vendor Name
PO No.
PO Type
PO Internal Comments
PO Vendor Comments
PO Line Item No.
L/I Part Number
L/I Part Number Description
L/I PO Unit Cost
O/Mfg Std Cost (from Receiving Lot Record)
L/I Work Order No. (from PO Line Item data)
Transaction Quantity (Received, RTV'd, Scrapped)
Transaction Extended O/Mfg Std Cost (Trans Quantity X O/Mfg Standard Cost)
Transaction Extended PO Cost (Trans Quantity X L/I PO Unit Cost)
PO L/I Variance Cost (Extended O/Mfg Standard minus Extended PO Cost)

Totals for all transactions on same PO on same report (at bottom of each PO's page):

Extended O/Mfg Standard Costs
Extended PO L/I Costs
Total Variance (Net Amount)

Report Grand Totals (all PO's on report)

Extended O/Mfg Standard Costs
Extended PO L/I Costs
Total Variance (Net Amount)

Functional Logic

New Function Summary - selection logic to include only Outside Manufacturing PO Types, i.e., DO and FO PO type codes. Others, including, FE, DE, DP & FP are excluded.

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Cost Management

This report allows selection for a date range then prints Receiving Transaction History file records as selected. The sort sequence is PO Number, then Receiving Transaction Type, then PO Line Item Number.

Page break is on each new PO number. This will group multiple receipts for the same PO together to streamline invoice approval. All PO Types and all Receiving Transaction History Transaction Types are included.

RTV and Scrap receiving transactions, removing quantities from receiving inspection that are not to be moved to warehouse inventory are included to provide a clear basis for debit memos and reconciling the account with the vendor. A new receiving reversal transaction, identified with a Receiving Transaction History transaction ID of RCRB will also appear on this report. This transaction completely reverses a prior Receipt to Dock transaction, shown as an REC transaction on this report.

The totals on this report support the preparation of journal entries to production inventory, purchase price variance expense, and accounts payable, in addition to detailed support for vendor invoice approval for payment.

GL Interface - Expense Purchase Order Receiving Report

New 9/29/93 - variation of previous Receiving report

Transaction Date Range Selection: From _____ to _____

Report Data:

Co Name Expense PO Receiving Report

Date/Time Printed

Page #

Receiving Transaction Date

Receiving Transaction Type

Receiver No.

Vendor Name

PO No.

PO Type

PO Internal Comments

PO Vendor Comments

PO Line Item No.

L/I Part Number

L/I Part Number Description

L/I Vendor Part Number

L/I PO Unit Cost

L/I Dept & Expense GL No.

Transaction Extended PO Cost (Trans Quantity X L/I PO Unit Cost)

Totals for all transactions on same PO on same report (at bottom of each PO's page):

Report Grand Totals (all PO's on report)

Extended PO L/I Costs

Functional Logic

New Function Summary - selection logic to include only Expense PO Types, i.e., DE and FE PO type codes. Others, including, FO, DO, DP & FP are excluded.

This report allows selection for a date range then prints Receiving Transaction History file records as selected. The sort sequence is PO Number, then Receiving Transaction Type, then PO Line Item Number.

Page break is on each new PO number. This will group multiple receipts for the same PO together to streamline invoice approval. All PO Types and all Receiving Transaction History Transaction Types are included.

RTV and Scrap receiving transactions, removing quantities from receiving inspection are included to provide a clear basis for debit memos and reconciling the account with the vendor. A new receiving reversal transaction, identified with a

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Receiving Transaction History transaction ID of RCRB will also appear on this report. This transaction completely reverses a prior Receipt to Dock transaction, shown as an REC transaction on this report.

The totals on this report support the preparation of journal entries to department expenses, and accounts payable, in addition to detailed support for vendor invoice approval for payment.

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Cost Management

GL Interface - O/Mfg'd Subassy's WIP to Production Inv. at Mtl Std Cst

Date Range Selection From _____ to _____

Report Data

Co. Name O/Mfg Subassy's WIP to Prod. Inv at Material Standard Cost
Date/Time Printed PO L/I Part Number Sequence Page #

PO L/I Part Number
Description
U/M
Receiver No.
Receiving Transaction Date
Receiving Transaction Type
PO No.
PO Type
Vendor ID
Vendor Name
PO L/I No.
PO L/I Work Order No.
Transaction Quantity
Unit Material Standard Cost
Extended Material Standard Cost
Subtotal by Part Number
Total All Part Numbers

Functional Logic

This report allows selection for a date range then prints Receiving Transaction History file records as selected. The purpose of the report is to support the preparation of journal entries for booking inventory movement into the GL system. Accordingly, the report shows subassemblies moving from WIP, at an Outside Manufacturing vendor, to production inventory via the Receipt to Dock process. Material that is returned to the vendor or scrapped at his expense is shown with appropriate Receiving Transaction type codes. The corresponding costed extension is negative, reflecting the removal from previously received and booked inventory amounts of these items.

Receiving Transaction History records are selected first according to the date range entered, then PO Types DO and FO only, then where the Part Group is not equal to "FG" in the Part Master record for each part number.

The sort sequence is by Part Number, then Receiver No., then Receiving Transaction Type. The Unit Standard Cost is the Current Material Standard Cost in the Part Master . Subassembly inventory is valued only at its Material Standard Cost. Receipt of FG items from outside manufacturing vendors is shown on another report.

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The Transaction Quantity may be either a positive or negative value. REC transactions have a positive value, reflecting incoming material, while RTV and SCRP transactions are negative, showing that the material was removed from the Receiving Lot master record for the Receiver Number.

A new receiving reversal transaction, identified with a Receiving Transaction History transaction ID of RCRB will also appear on this report. This transaction completely reverses a prior Receipt to Dock transaction, shown as an REC transaction on this report.

The totals on this report support the preparation of journal entries to WIP inventory and production inventory.

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Receiving Transaction History records are selected first according to the date range entered, then PO Types DO and FO only, then where the Part Group is equal to "FG" in the Part Master record for each part number.

The sort sequence is by Product Line, Product Class, then Part Number, then Receiver No., then Receiving Transaction Type. Finished Goods items are valued at full standard cost, with each cost element's extended total being shown on the report.

The Transaction Quantity may be either a positive or negative value. REC transactions have a positive value, reflecting incoming material, while RTV and SCRIP transactions are negative, showing that the material was removed from the Receiving Lot master record for the Receiver Number.

A new receiving reversal transaction, identified with a Receiving Transaction History transaction ID of RCRB will also appear on this report. This transaction completely reverses a prior Receipt to Dock transaction, shown as an REC transaction on this report.

The totals on this report support the preparation of journal entries to WIP inventory and production inventory.

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GL Interface - In-House Subassy's WIP to Production Inv. Mat'I Std Cost.

Revision Note: This report may resemble a report currently in use. The modification from this one is that standard cost fields other than Material Standard cost are omitted.

Screen Data:

Transaction Date Range Selection From _____ to _____

Transaction ID Selected: WCMS

All Part Groups except "FG"

Report Data:

Co. Nam In-house Subassy's WIP to Prod Inventory Moves at Material Standard Cost
Date/Time Printed Transaction ID: WCMS Page #
Sorted by: Work Order Type Code, Work Order No., Transaction Type ID, Part No.

Work Order Type Code (Rework or Regular WO)

Work Order No.

Transaction Type ID

Part Number

Description

Part Group

Part Class

Transaction Dated

Transaction User-ID

Transaction Comment

Transaction Quantity

Unit Material Standard Cost

Transaction Extended Material Standard Cost (Transaction Quantity X Unit Material Standard Cost)

Subtotal Extended Material Standard Cost for Part Number

Subtotal Extended Material Standard Cost for Work Order No.

Subtotal Extended Material Standard Cost for Work Order Type COde

Total Extended Material Standard Cost for all work orders

Functional Logic

This report selects work order completion transactions (WCMS Transaction ID), excluding those with a Part Group = "FG", costs them using the current material standard cost for each part number, then generates the report. These are Inventory Transaction History records indicating movement of items from WIP to any warehouse, but involving items that are not finished goods items.

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The subtotals on the report support identification of movement from rework work order separately from regular production work orders, and to support analysis by part number and identification of each work order related to groups of transactions.

The totals on this report support the preparation of journal entries to WIP inventory and production inventory.

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other warehouses as well, and so their movements into these warehouses from WIP must be identified.

The report is broken down by cost element to enable accounting to identify earned production costs, both direct and indirect. These journal entries are used to add indirect costs to the FG inventory, and to match with actual production costs so variances can be generated for the income statements for this financial period. The GL Number shown on the report

Issue Transactions are included on this report because finished goods product may be re-issued for rework, configuration upgrades or other purposes on a rework work order.

The totals on this report support the preparation of journal entries to WIP inventory and finished goods inventory.

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GL Interface - FG Sales/Shipments by Product Line at Full Standard Cost

Screen Data

Transaction Date From x-----x Date To x-----x

Transaction ID's Included: SOIS

Sorted by: Product Line, Part Class, Part Number

Report Data:

Co. Name FG Sales/Shipment by Prod. Line at Full Standard Cost
Date/Time Printed All Part Groups Page #
Sorted by Product Line, Product Class, Work Order Type Code, Part No.

Product Line
Product Class
Work Order Type Code (Rework or Regular WO)
Part Number
Description
U/M
Warehouse
Work Order No.
Transaction Type ID
Transaction Dated
Transaction User-ID
Transaction Comment
Transaction Quantity
Transaction Costs:
 Extended Labor Standard Cost
 Extended Outside Manufacturing Standard Cost
 Extended Material Standard Cost
 Extended Domestic Indirect Standard Cost(Sum of Burden + Overhead fields)
 Extended Foreign Indirect Standard Cost

Subtotals by Part Number by cost element
Subtotal by Work Order Type Code
Subtotal by Product Class by cost element
Subtotal by Product Line by cost element
Total All Product Lines by cost element

Grand Total for all

Functional Logic:

This report provides a detailed list of all SOIS issue transactions at standard cost from all warehouses. This transaction ID is reserved for issues for sale & shipment.

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These transactions are costed at standard and provide the basis for journal entries to relieve Inventory, and for earned cost by cost element for cost of goods sold.

In order to capture all items sold, regardless of whether they are coded as FG in the Part Group field, subtotals are generated. Non-finished goods part group totals are to be relieved from Production Inventory, with the FG coded totals to be relieved from FG Inventory.

The cross reference data in the Product Line table is used to calculate totals for all part numbers carrying the same Product Line code.

The program first presents a date selection screen, defaulting to the beginning and current date of the current month (month to date). It then reads the Inventory Transaction History records, selecting those with an SOIS transaction code, and that fall within the date range parameters.

The totals on this report support the preparation of journal entries to production inventory and cost of sales.

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Cost Management

parts issued for R&D purposes, or complete units issued to a sales department budget for sample/demo purposes.

Items that are to be "loaned" temporarily to a department, may be returned on a Miscellaneous Receipt transaction, which offsets a previous issue.

Items that "come from nowhere" represents PO errors, counting errors, and other forms of mistakes. Until an appropriate transaction for this purpose is made available, these adjustments will be charged to an Inventory Control department and GL expense account.

Warehouse scrap transactions are not yet available in AIMS/ERP. When this transaction is made available, it will be summarized on this report, as an expense to be charged to an identified department and expense GL account number. The unique transaction ID reflects its different procedural controls and screen entry logic.

The program accepts entry of a date range, defaulting to the current month beginning and current system date. It then selects Miscellaneous Issue (MSIS) transactions and Miscellaneous Receipt (MSRC) transactions from the Inventory Transaction History table, and when available, the Scrap Warehouse Inventory (SCWI) transaction.

These transactions are then sorted into department, GL account number, and warehouse sequence, costed using current total unit standard cost data from the Part Master table, then totaled by these sort groupings. The resulting totals are journalized in the GL system as shown below.

The totals on this report support the preparation of journal entries to Finished goods inventory, production inventory and various department/General Ledger accounts.

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The Part Number change transaction allows inventory control personnel to quickly re-designate items from one part number to another without losing visibility, control, audit trail or cost integration of the change. The transaction program is a single screen that generates an issue transaction (PNCO) to take the items out of perpetual inventory, and at the same time, a receipt (PNCI) transaction to put them back in perpetual inventory. Warehouse and location data is required on both parts of this process.

This report groups these change into groupings to support analysis of these changes, and costs them out at standard cost, calculating a net (algebraic) total at the end to support appropriate journal entries. The changes in value of these items must be accounted for, of course. In AIMS/ERP these are summarized, the total change in valuation of items is charged to an Inventory Revaluation GL expense account number.

The program accepts entry of a date range, defaulting to the current month beginning and current system date. It then selects Part Number Change Out issue transactions (minus to on hand inventory) and Part Number Change In (plus to on hand inventory) transactions.

The totals on this report support the preparation of journal entries to finished goods inventory and production inventory.

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Cost Management

C/C & P/I System - Costed Tags by W/H & W/C Report

Screen Data:

Selection:

- Cutoff Date/Time (default is the currently open Cutoff Date/Time; must be in the CC Capture tabled)
- Part Group (default to ALL)
- Tag Type = P ? (Y/N - default = N (
 - Select Warehouse No. (default to ALL)
- Tag type = R ? (Y/N - default = N)
- Tag Type = W? (Y/N - default = N)

Select Costing Source (select one):

- Current Standard Cost Data (default)
- Future Standard Cost Data
- Previous Standard Cost Data

Print to Screen or Printer (S/P)

Press F9 to generate the report

Report Format:

Cutoff-Date/Time xx/xx/xx - xx:xx:xx

Sorted by Tag Type Code, Warehouse No., Work Center, Part Group, Part Number

Tg Tp	Tag No.	W/H No., W/C,	Part Gp	P/N	Desc	U/M	Rec. or WO No.	Loc'n or Opn	Coun t Qty	Unit Std Cost	Ext Std Cst	Net Tag Cst
P	xxxx	xxxx	xx	xxxxx	xxxxx	xx		xxxxx	xxxxx	\$xx.xx	\$xxx.xx	
R	xxxx	xxxx	xx	xxxxx	xxxxx	xx	xxxx	xxxxx	xxxxx	\$xx.xx	\$xxx.xx	
W	xxxx	xxxx	xx	xxxxx	xxxxx	xx	xxxxx	xxxxx	xxxxx	\$xx.xx	\$xxx.xx	
				Msgng P/N	Desc			U/M	Qty/Ass y	Unit Std Cst	Exd Unit Std Cst	
				xxxxxx	xxxxxx		xx	xxx		\$xx.x x	\$xxx.xx	
				xxxxxx	xxxxxx		xx	xxx		\$xx.x x	\$xxx.xx	
				xxxxxx	xxxxxx		xx	xxx		\$xx.x x	\$xxx.xx	\$xx x.xx
Part Number Subtotal											\$xxxxxx.xx	
Part Group Subtotal											\$xxxxxx.xx	
Warehouse/ W/C Subtotal											\$xxxxxx.xx	

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Tag Type Subtotal	\$xxxxxx.xx
Grand Total	\$xxxxxx.xx

Functional Logic

This program accepts several options, including standard cost data source, then reads the Tag Master table and calculates a Net Tag Cost for each. The extended cost of the count quantity and the net tag cost is the same except for "W" tags where there are Missing Part Numbers entered. The standard cost of these is subtracted from the cost of the counted part number to develop the net tag cost. This will be the cost of partly completed subassemblies found in WIP. Partly completed subassemblies can not be costed in perpetual or receiving inspection.

All standard cost data is retrieved from the Part Master record for each part number. This enables corrections in standard cost values to, in effect, re-cost tags. It also enables the same tag data to be costed using different sets of standard cost data, to assist in the preparation of year-end journal entries to account for changes in standard costs.

The contents of several fields depends on the tag type. To provide a consistent grouping and subtotalling method, and to make the report format easier to read, the following logic is used:

If the Tag Type is P, then the WH or WC column will contain the Warehouse No, the Rec. or WO No. column is blank, and the Loc'n or Opn column will contain the warehouse location code.

If the Tag Type is W, then the WH or WC column will contain the Work Center ID, the Rec. or WO No. column contains the work order number, and the Loc'n or Opn column will contain the operation number.

If the Tag Type is R, then the WH or WC column is blank, the Rec. or WO No. column contains the Receiving Number, and the Loc'n or Opn column is blank.

The tag records are sorted by tag type, warehouse, work center, part group, receiver number, part number, then location or operation. During the sorting of the tag records, for any given tag type, some of the fields will be blank.

Subtotals are provided by tag type, warehouse/work center, part group (Finished Goods items are identified with a Part Group = "FG", and part number.

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C/C & P/I System - Costed Capture Reports

Screen Data:

Perpetual Inventory Capture Report - Costed

Selection:

- Cutoff Date/Time (default is the most recent Date Time in the CC Capture table)

Select Costing Source (select one):

- Current Standard Cost Data (default)
- Future Standard Cost Data
- Previous Standard Cost Data

Receiving Inventory Capture Report - Costed

- Cutoff Date/Time (default is the most recent Date Time in the CC Capture table)

Select Costing Source (select one):

- Current Standard Cost Data (default)
- Future Standard Cost Data
- Previous Standard Cost Data

WIP Inventory Capture Report - Costed

- Cutoff Date/Time (default is the most recent Date Time in the CC Capture table)

Sort Options:

- By Record W/H or W/C, then Part Number
- By Part Number

Select Costing Source (select one):

- Current Standard Cost Data (default)
- Future Standard Cost Data
- Previous Standard Cost Data

Press F9 to generate the report

Reports Formats:

Perpetual Inventory Capture Report

Cutoff-Date/Time xx/xx/xx - xx:xx:xx

Sorted by: Part Group then Part Number

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Part Group (from Part Master)
Part Number
Description (from Part Master)
Stk U/M (from Part Master)
Record W/H or W/C
Record Loc'n or Opn
Record Quantity
Unit Std Cost (sum of cost elements from Part Master)
Extended Std Cost - Record Quantities

Subtotals by Part Group, Part Number, Record Quantity for Part Number & Total Ext. Cost, for Part Number

Total Extended Cost for ALL

Receiving Inventory Capture Report

Cutoff-Date/Time xx/xx/xx - xx:xx:xx

Sorted by: Part Group then Part Number

Part Group (from Part Master)
Part Number
Description (from Part Master)
Stk U/M (from Part Master)
Record W/H or W/C
Record Loc'n or Opn (blank on this report)
Record Quantity
Unit Std Cost (sum of cost elements from Part Master)
Extended Std Cost - Record Quantities

Subtotals by Part Group, Part Number, Record Quantity for Part Number & Total Ext. Cost, for Part Number

Total Extended Cost for ALL

WIP Inventory Capture Report

Cutoff-Date/Time xx/xx/xx - xx:xx:xx

Sorted by: Record W/H or W/C then Part Number
or By Part Number

Part Group (from Part Master)
Part Number
Description (from Part Master)
Stk U/M (from Part Master)
Record W/H or W/C
Record Loc'n or Opn
Record Quantity
Unit Std Cost (sum of cost elements)

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Cost Management

Extended Std Cost - Record Quantities
Extended Std Cost - Count Quantities

Subtotals by W/H or W/C, Total Extended Cost for W/H or W/C

or

Subtotals by Part Group, Part Number, Record Quantity for Part Number & Total Ext. Cost, for Part Number

Total Extended Cost for ALL

Functional Logic

These reports each select a different type of capture data record to develop its data and totals. The resulting information is grouped differently, depending on the capture source. All use the Cutoff Date/Time to select Cycle Count Master table records for the report. A given report can include only data from a single Cutoff Date/Time.

The Adjustment Transaction Generation program will create adjustment transactions for perpetual record vs. count differences.

These reports show and costs at standard cost all inventory shown or calculated at perpetual, receiving, or WIP locations. Cost data is retrieved from the Part Master record for each Part Number, depending on the costing option selected, using either Previous, Current, or Future standard cost data.

Pressing the F9 key starts the report generation process for each report. The program reads the Cycle Count Master table, selecting those records with values that equal the selection values entered.

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C/C & P/I System - Costed Pro Forma Adjustment Transaction Report

Included in the Adjustment Transaction Generation Program & Report - not programmed.

Screen Data:

Selection:

- Cutoff Date/Time (default is the most recent Date Time in the CC Capture table)
- Part Group (default to ALL)
- Warehouse No. (default to ALL)

Select Costing Source (select one):

- Current Standard Cost Data (default)
- Future Standard Cost Data
- Previous Standard Cost Data

Print to Screen or Printer (S/P)

Press F9 to generate the report

Report Data:

Pro Forma Cycle Count Adjustment Transaction s

Cutoff Date/Time xx/xx/xx- xx:xx:xx

Sorted by Part Group, Part Number, Record W/H No., Record Location

Part Group
Part Number
Description
Stk U/M
0 Record Warehouse (multiple values)
Record Location (multiple values)
Record Count Quantity (multiple values)
Count Warehouse (multiple values)
Count Loc'n (multiple values)
Count Quantity (multiple values)
Acceptable Range Low Value
Acceptable Range Hi Value
Adj. Warehouse xx
Adj. Location xxxxxxxx
Adjustment Quantity xxxxxxxxx (with sign)
Unit Standard Cost (sum of all cost elements)
Extended Standard Cost

Subtotals by Warehouse No.

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Subtotals by Part Number

Subtotals by Part Group

Grand Total

Functional Logic

This report performs the same logic as the automatic adjustment transaction generation program except that the actual transactions are not generated. Instead, it generates a report that shows what adjustment transactions would be generated if the program is run with the current Record vs. Count data in the CC Master records for a given Cutoff Date/Time. In this report, the effect of these adjustment are costed at standard, using the set of standard cost data chosen in the selection screen.

The program functions by displaying an option selection screen, allowing entry of the desired Cutoff Date/Time value to be used. The default is the most recent Date/Time in the CC Capture table and in the associated Global Parameter record.

The report may be restricted to a subset of items with the same Cutoff Date/Time, including Part Group and an individual warehouse option.

Selects CC Master records that equal the entered Cutoff Date/Time. If Part Group selection is in effect, those records that do not equal the selected Part Group are skipped.

If warehouse selection is in effect, each CC master record with the matching Cutoff Date/Time and Part Group selections, and that is a "P" type CC Master record, the Record and Count data in the record is screened for those Record and Count data that are for the selected warehouse number.

For each resulting CC Master record, and its selected set of Record and Count data, generate pro forma adjustment transactions with the following procedure:

Read the first line in the Count data multi-value stack (warehouse, location, quantity).

Read the Record data multi-value stack and attempt to find a match for warehouse and location. If there is a match, subtract the Record Quantity from the Count Quantity. Retrieve the Tolerance Range for the Part Group assigned to this part number. Calculate the Acceptable Range Low and Hi Values. If the Result of the Count Quantity minus the Record Quantity is outside the Low and Hi values range,

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generate a pro forma adjustment transaction line, including plus or minus sign, for the result of this calculation. If it is between this range, do not. In either case, if there is a warehouse & location match, remove the matched Record data line from its multi-value stack.

If there is no match on warehouse and location, generate an adjustment transaction line that equals the Count Data.

Continue until each multi-value line in the Count data's multi-value stack has been processed.

Any remaining values in the Record data's multi-value stack represent information in the system that was not confirmed by the counting process. Those that were have been removed from the stack by the preceding matching process.

Generate pro forma adjustment transaction lines on the report for each of the remaining Record data lines in the multi-value stack to correct these erroneous data in the system.

The result of this process should be that the Inventory table record for this part number, and warehouse if selected, will equal the information that was counted, with non-matching Record data's effect removed.

The process is continued until all eligible CC Master records have been processed and all CCAJ transactions that will be generated by the automatic generation program are printed on the report.

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WIP Material Net Cost Reports

Screen Data:

1. Table Generation Program

Press F9 to generate the WIP Material Cost Table

2. Report Print Program Options:

Select Sort & Subtotal Option:

1. Part Class, then PPN
2. PPN only
3. 1st Ind Dmd P/N, then PPN
4. Route Name, then PPN

Select

- Detailed Format
- Summary Format

Report Format

see WIPMCST.DOC for detail report format

Co Name *
Date/Time *

Page xx
As of Date/Time*

WIP Material Net Cost - Summary By (Sort Selection Option) w/(Current/Future) Future Std Costs

Route Name	PPN	PPN Desc	WO No.	Ext Compl \$ Value	Ext Issued \$ Value	Net \$ On WO Value
x-----x	x-----x	x-----x	x-----x	\$xxxxx.xx	\$xxxx.xx	\$xxxxx.xx
x-----x	x-----x	x-----x	x-----x	\$xxxxx.xx	\$xxxx.xx	\$xxxxx.xx
x-----x	x-----x	x-----x	x-----x	\$xxxxx.xx	\$xxxx.xx	\$xxxxx.xx
Option 1 & 2 Subtotals						
		Parent P/N Part Class	(if selected)			\$xxxxx.xx \$xxxxx.xx
Option 3 Subtotals						
		Parent P/N 1st Ind Dmd P/N				\$xxxxx.xx \$xxxxx.xx

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Option 4
Subtotals

Parent P/N	\$xxxxx.xx
Route Name	\$xxxxx.xx

Grand total	\$xxxxx.xx
-------------	------------

*Notes:

- Co Name Global Parameter record is retrieved to generate the Company Name for the report.
- WIPMC Global Parameter record is retrieved to generate the As Of Date/Time data.
- Date/Time value is system date/time when printed.

Functional Logic

This report retrieves all open work order material records and summarizes them by work order number. Material shown as issued is costed at a standard cost value that includes material and outside manufacturing cost totaled. Parent Part Number quantities shown as completed are also costed at standard cost, but that includes material cost data and the calculated lower level only outside manufacturing cost data field (for either the Current or Future cost options), also totaled. If the item is a purchased part, the Outside Manufacturing data will be zero.

The overall process is in two discrete steps:

1. Generate the WIP Material Cost table.
2. Run one of the report options that will select data fields and produce sort sequences with accompanying totals. These include both detailed and summary formats.

The WIP Material Cost table is generated by reading the following tables:

- Part Master - standard cost, description, and part classification data.
- Open Work Order - parent part number, and work order data
- Work Order Material - issued part number data

The WIP Material Cost table generated by moving data from the source data files into this table and uses the fields shown below. One record is generated for each work order number. Calculations within each record are accomplished via symbolics in the dictionary.

Work Order Number
Route Name
Parent Part Number
PPN Description

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Part Class of Parent Part Number

Planned Completion Quantity

Quantity Completed

Current Cost Fields:

PPN Std Cost (Symbolic from Part Master - sum of Current Mtl Std Cost + Calculated O/Mfg Lower Level Cost)

Extended Compl. \$ Values (Symbolic - PPN Std Cost X Qty Completed)

Total WO \$ Issued (Symbolic - sum of all Ext Issued \$ Value lines)

Net \$ on WO (Symbolic - Total WO \$ Issued minus Extended Completed \$ Value)

Future Cost Fields:

PPN Std Cost (Symbolic from Part Master - sum of Future Mtl Std Cost + Calculated O/Mfg Lower Level Cost)

Extended Compl. \$ Values (Symbolic - PPN Std Cost X Qty Completed)

Total WO \$ Issued (Symbolic - sum of all Ext Issued \$ Value lines)

Net \$ on WO (Symbolic - Total WO \$ Issued minus Extended Completed \$ Value)

Multi-Value fields/stack:

Issued P/N

Issued P/N Description

Issued P/N Qty Required

Qty Issued + Scrapped

Current Issued P/N Std Cost = Current Mtl Std Cost + Calc'd O/Mfg Lower level Cost (from part master)

Current Ext. Issued \$ Value = Qty Issued+Scrapped X Current Issued P/N Std Cost

Future Cost Fields:

Future Issued P/N Std Cost = Future Mtl Std Cost + Calc'd O/Mfg Lower level Cost (from part master)

Future Ext. Issued \$ Value = Qty Issued+Scrapped X Future Issued P/N Std Cost

The process by which either of the above reports is generated uses three separate programs:

Generate WIP Material Cost Table

Print WIP Material Detailed Cost Report

Print WIP Material Summary Cost Report

Generate WIP Material Cost Table - Upon selection from the menu, the generation program presents the initiation window. Pressing the F9 key initiates the WIP Material Cost table generation process, which involves the following steps:

1. Clear the previous WIP Material Cost (WIPMC) table, write the current system Date and Time to the WIPMC Global Parameter record to identify the date and time the table was generated, then select Open Work Order records with a status of OP, creating a (WIPMC) table record for each.

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2. Copy Parent Part Number and Quantity Completed for each work order selected to the corresponding WIPMC record.
3. Using the WOMS field in the Open work Order record, retrieve all Work Order Material records for this work order number.
4. Copy each Required Part Number line's data from the WOM record into the WIPMC record. If duplicate part number's are encountered, the quantities issued and scrapped from second and subsequent occurrences are added to the Qty Issued & Scrapped from the first occurrence of the Required Part Number in that work order's WIPMC record.
5. Continue processing until all Open Work Order table records in the selection have generated a corresponding WIPMC table record with its associated material information.

Print WIP Material Detailed Cost Report - Upon selection from the Report Manager, selects either the Current or Future cost based list statement to generate the Detailed Report, as shown in the format above, from the previously generated WIP Material Cost table.

Print WIP Material Summary Cost Report - Upon selection from the Report Manager, selects either the Current or Future cost based list statement to generate the Summary report as shown in the format above, from the previously generated WIP Material Cost table.

Work Center Cost Report

Screen Data:

Print the report to screen or printer (S/P)?

Press F9 to initiate printing of the report.

Report Data:

Work Center ID
Work Center Description
Work Center Location
Vendor ID
Work Center Labor Rate
Work Center O/M Rate

Functional Logic

This report lists all work centers with the associated cost rate data that is to be used in the cost rollup process. Selection for print to screen or hard copy via printer is allowed. Pressing the F9 key saves the option and generates the report.

Costed Routing Report

Screen Data:

Print the report to screen or printer (S/P)?

Press F9 to initiate printing of the report.

Report Data:

Route Name
Operation No.
Work Center ID
Work Center Description
Operation Description
Standard Labor Cost - S/U
Standard Labor Unit Cost Hours
Standard Labor Cost - Unit Run
Standard Outside Mfg Cost - S/U
Standard Outside Mfg Cost - Unit Run
Standard O/M Unit Cost Hours
 Exception Part Number(s)
 Exception Labor Cost - S/U
 Exception Labor Cost - Unit Run
 Exception Labor Unit Hours Standard
 Exception Outside Mfg S/U Cost
 Exception Outside Mfg Unit Run Cost
 Exception Outside Mfg Unit Run Hours Standard

Functional Logic

This report prints all cost data associated with a routing, including exception part numbers and their associated part number specific cost data. These are listed under the operation number with which they are associated.

Data that is entered by the user includes standard and exception labor standard cost hours, and standard and exception outside manufacturing cost hours. Other data may be as calculated by the Calculate Routing Cost program, but may be altered following this process, as the Routing Master Cost Data Maintenance screen allows access to these fields.

The screen displays the option to print to screen or hard copy via printer. Pressing the F9 key generates the report.

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Costed Multi-Level Product Configuration Report - With W/S Subtotals

Screen Data

Selection Screen:

Effectivity Date (default to current date)

Mfg'd Part Number (enter one or more)

Product Class (enter one; default to ALL)

Part Group (enter one; default to ALL)

Product Line (enter one; default to ALL)

Select Material Standard Costs To Use:

Current Standard Costs

Future Standard Costs

Previous Standard Costs

(default to Current)

Calculate extended costs with Planned Attrition %? Y/N (default = Y)

Press F9 to generate the report

Report Format:

Costed Multi-Level Product Configuration Report

Page No. , Date Printed, etc.

Material Standard Costs from XXXXXXXXX (current, future, previous)

Effectivity Date xx/xx/xx

Parent Part Number x-----x Description x-----x U/M xx

Part Group xx Product Class xx Product Line xx

Lvl	Opn No.	Opn Desc	W/C	Route Name	Unit Lab Cost	Unit O/M Cost	Unit Indir. Cost	Ext Lab Cost	Ext O/M Cost	Ext Indir. Cost
0	xx.xx	xxxx	xxxx	xxxxxx	\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.	\$xxx.
					x	x	x	x	xx	xx
	W/S	Req'd P/N	Desc	U/M	M/P	Qty Req'd	Plnd Attr %	VF ?	Unit Std Cst	Ext Mtl Std Cost
	xxx	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx
	x									
	xxx	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx
	x									
						W/S Mtl Subtotal				\$xxx.xx

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	xxx	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	
	x										
										Opn Mtl Subtotal	
0	xx.xx	xxxx	xxxx	xxxxxx		\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.	\$xxx.
						x	x	x	x	xx	xx
0	xx.xx	xxxx	xxxx	xxxxxx		\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.	\$xxx.
						x	x	x	x	xx	xx
	W/S	Req'd P/N	Desc	U/ M	M/ P	Qty Req'd	Plnd Attr	VF ?	Unit Mtl Std Cst	Ext Mtl Std Cost	
							%				
	xxx	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	
	x										
	xxx	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	
	x										
											W/S Mtl Subtotal
											\$xxx.xx
											Opn Mtl Subtotal
1	xx.xx	xxxx	xxxx	xxxxxx	xx	\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.	\$xxx.
						x	x	x	x	xx	xx
	W/S	Req'd P/N	Desc	U/ M	M/ P	Qty Req'd	Plnd Attr	VF ?	Unit Mtl Std Cst	Ext Mtl Std Cost	
							%				
	xxxx	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	
	xxxx	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	
											W/S Mtl Subtotal
											\$xxx.xx
											Opn Mtl Subtotal
											Mtl
											Lab
											O/M
											Ind.
											Total Cost for Subassembly
											\$xxx.x
											x
											x
											x
											x
2	xxxx	xxxxx	xxxx	xxxxxx	xx	\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.	\$xxx.
	xx.xx	xxxx	xxxx	xxxxxx		x	x	x	x	xx	xx
	W/S	Req'd P/N	Desc	U/ M	M/ P	Qty Req'd	Plnd Attr	VF? %	Unit Mtl Std Cst	Ext Mtl Std Cost	
	xxxx	xxxxx	xxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	
			x								
	xxxx	xxxxx	xxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	
			x								
											W/S Mtl Subtotal
											\$xxx.xx
											Opn Mtl Subtotal
											Mtl
											Lab
											O/M
											Ind.

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Total Cost for Subassembly	\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.x
	x	x	x	x
	Mtl	Lab	O/M	Ind.
Total Cost for Top Level Parent Part	\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.x
Number	x	x	x	x

Functional Logic

This program accepts selection options and generates a costed multi-level product configuration report by reading the routing for each parent part, then associating the manufactured part configuration data to show how the entire product is configured. All retrievals start with the entered parent part number, then retrieve all routing and configuration data from that "level" down.

Since this program uses the most current data, its calculations may or may not agree with a standard cost that was rolled up and established at some time in the past for the manufactured part. Also manufactured part standard costs include all costs at all levels below and including that part number. This report shows details from current manufactured part configuration data, using the effectivity date selected, data from the current routing for the item, including part exception cost data. It also calculates indirect costs using the current allocation rates, which may also be different from when a given set of standard costs was developed. If these source data are the same as when the standard cost was developed, it result in the same cost value for the same parent part number.

The data on the report is retrieved and calculated as follows:

Parent Part Number - from the list entered, or belonging to the classification grouping entered in the selection screen. Associated description, unit of measure, part group, product class, and product line data is retrieved from the Part Master table record for the part number. Along with this is the Route Name used to manufactured this parent part number.

Routing Operations - The program uses the Route Name to retrieve the appropriate routing. Each step in the routing is printed, along with the cost data associated with that step. If the operation contains the Parent Part Number as an Exception Part Number, with cost data, that data is used in lieu of the operation's standard costs. Unit Costs include an amortized setup cost amount (Set up Cost divided by the Costing Order Quantity) that is added to the Unit Run Cost.

Indirect Costs - These costs are calculated in the same way as in the Manufactured Part Cost program in the Cost Rollup system. This method uses the three indirect

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allocation rates to calculate Burden (as a percentage of Unit Labor Cost), Overhead (as a percentage of Outside Manufacturing Unit Cost), and O/M Freight (as a percentage of Outside Manufacturing Unit Cost). For this report, these three indirect cost fields are added together as "Indirect Cost."

Operation Cost Extensions - All operation costs are extended times the quantity required for a manufactured part. Operation costs for the parent part number, by definition are for a quantity of one. Subassemblies and manufactured parts, shown in a configuration with a quantity greater than one, plus the planned attrition quantity, will have extended operation costs that reflect this quantity usage.

Level ("LVL") - is calculated starting with the entered Parent Part Number. Each level containing a manufactured part, increments this level value by one. These values are carried for each step in a routing used by the same parent part number.

Configuration Data - All Manufactured Part Configuration records for the parent part number are retrieved to integrate the purchased material and to identify linkages to lower level manufactured parts. Required Parts in a configuration are sorted by P/M Code (with Purchased Parts first), then Work Station Used on, then Part Group, then Part Number to organize the list for analysis and to target areas for cost reductions.

Purchased Material Costs - Purchased material cost data is retrieved from the related Part Master table Material Standard Cost data from either the Current, Future, or Previous fields, depending on the option selected. These are extended times the Quantity Required. The Quantity Required is inflated by the Planned Attrition % before extending if this option was entered on the selection screen.

Manufactured Required Part Numbers - these part numbers are themselves parent part numbers, either as subassemblies or manufactured components. Entering a manufactured part as a required part number in a configuration links the assembly levels together, and at the same time, their associated routing information. It is these linkages that enables AIMS/ERP to create a fully linked series of steps from the lowest to the top levels of even complex products, resulting in a network of manufacturing steps, each having their associated purchased material content. This resulting network can be scheduled efficiently in either direction according to a variety of scheduling techniques. Manufacturing costs are shown in the routing associated with each manufactured part at all levels.

Cost Subtotals & Totals - The program maintains internal subtotals as it processed the data for:

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1. Work Station Used On Subtotals - within a set of required purchased parts used within a single operation
2. Operation Material Subtotal - total for all purchased part used within a single operation
3. Subassembly Total Costs - for each manufactured part, at each level, accumulates total for all four cost categories. Since a given manufactured part may include other manufactured parts, which in turn may have even further lower level manufactured parts, this process may become rather complex.

These subtotals are accumulated for each of these in turn, as the retrieval proceeds "downward", then as the retrieval process is completed at each level and for each manufactured part, the subtotals become meaningful and are printed as each manufactured part's totals are completely calculated, on the way "back up", so to speak.

Therefore, each subassembly's total costs will include all costs in it at that point in the product structure, which are in turn included in higher assembly level costs, and so on until the top level is reached. This is the Level 0 Parent Part Number, which was one of the part numbers entered or selected. When the next Level 0 part number is started, all cost subtotals are cleared.

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Costed Multi-Level Product Configuration Report - w/Vend Furn Costs

Screen Data

Selection Screen:

Effectivity Date (default to current date)

Mfg'd Part Number (enter one or more)

Product Class (enter one; default to ALL)

Part Group (enter one; default to ALL)

Product Line (enter one; default to ALL)

Select Material Standard Costs To Use:

Current Standard Costs

Future Standard Costs

Previous Standard Costs

(default to Current)

Calculate extended costs with Planned Attrition %? Y/N (default = Y)

Press F9 to generate the report

CHANGE Summary: the following format is revised from the original multi-level product configuration report. These changes include:

- The Work Station column is removed from the material sections. Other columns are shifted to the left. This should make room for the V/Furn Ext. Cost column added on the right.
- The Subtotal Material Cost for Work Station line is removed.
- The Subtotal Material Cost for Operation line is revised to remove the total of quantity required, and the total of Unit Mtrl Std Cost, leaving only the Extended Mtrl Std Cost, and the added V/Furn Ext Cost.
- The format is revised to add spaces between sections. Of key interest is to add a line between the subtotal material cost line and a subsequent operation line.
- The V/Furn Ext Cost is extended only for those items where the V/Furn flag = Y. This total is not carried down into any other subtotal, being simply a list and total at the operation.
- At the end of the recap/summary section is added repeating the subassembly cost lines, as each appears in the body of the report.

Report Format:

Costed Multi-Level Product Configuration Report

Page No. , Date Printed, etc.

Material Standard Costs from XXXXXXXXX (current, future, previous)

Effectivity Date xx/xx/xx

Parent Part Number x-----x Description x-----x U/M xx

Part Group xx Product Class xx Product Line xx

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Lvl	Opn No.	Opn Desc	W/C	Route Name	Unit Lab Cost	Unit O/M Cost	Unit Indir. Cost	Ext Lab Cost	Ext O/M Cost	Ext Indir. Cost
0	xx.xx	xxxx	xxxx	xxxxxx	\$xxx.x x	\$xxx.x x	\$xxx.x x	\$xxx.x x	\$xxx. xx	\$xxx. xx
	Req'd P/N	Desc	U/M	M/P	Qty Req'd	Plnd Attr %	VF ?	Unit Mtl Std Cst	Ext Mtl Std Cost	V/Furn Ext Cst
	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	\$xxx.xx
	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	\$xxx.xx
	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	\$xxx.xx
					Opn Mtl Subtotal				\$xxx.xx	\$xxx.xx
0	xx.xx	xxxx	xxxx	xxxxxx	\$xxx.x x	\$xxx.x x	\$xxx.x x	\$xxx.x x	\$xxx. xx	\$xxx. xx
0	xx.xx	xxxx	xxxx	xxxxxx	\$xxx.x x	\$xxx.x x	\$xxx.x x	\$xxx.x x	\$xxx. xx	\$xxx. xx
	Req'd P/N	Desc	U/M	M/P	Qty Req'd	Plnd Attr %	VF ?	Unit Mtl Std Cst	Ext Mtl Std Cost	V/Furn Ext Cst
	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	\$xxx.xx
	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	\$xxx.xx
					Opn Mtl Subtotal				\$xxx.xx	\$xxx.xx
	*****	xxxxx	xxxxxx	xx	M	xxxxx				
1	xx.xx	xxxx	xxxx	xxxxxx	\$xxx.x x	\$xxx.x x	\$xxx.x x	\$xxx.x x	\$xxx. xx	\$xxx. xx
	Req'd P/N	Desc	U/M	M/P	Qty Req'd	Plnd Attr %	VF ?	Unit Mtl Std Cst	Ext Mtl Std Cost	V/Furn Ext Cst
	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	\$xxx.xx
	xxxxx	xxxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	\$xxx.xx
					Opn Mtl Subtotal				\$xxx.xx	\$xxx.xx
					Total Cost for Subassembly	Mtl \$xxx.x x	Lab \$xxx.x x	O/M \$xxx.x x	Ind. \$xxx.x x	
	*****	xxxxx	xxxxxx	xx	M	xxxxx				
2	xx.xx	xxxx	xxxx	xxxxxx	\$xxx.x x	\$xxx.x x	\$xxx.x x	\$xxx.x x	\$xxx. xx	\$xxx. xx

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Req'd P/N	Desc	U/M	M/P	Qty Req'd	Plnd Attr %	VF?	Unit Mtl Std Cst	Ext Mtl Std Cost	V/Furn Ext Cst
xxxxx	xxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	\$xxx.xx
	x								
xxxxx	xxxxx	xx	P	xxxxx	xx	x	\$xxx.xx	\$xxx.xx	\$xxx.xx
	x								
				Opn Mtl Subtotal				\$xxx.xx	\$xxx.xx

Total Cost for Subassembly	Mtl	Lab	O/M	Ind.
	\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.x
	x	x	x	x

Total Cost for Top Level Parent Part Number	Mtl	Lab	O/M	Ind.
	\$xxx.x	\$xxx.x	\$xxx.x	\$xxx.x
	x	x	x	x

Cos/Recap & Summary By Subassembly:

Total Cost for Subassembly xxxxxxxxx	Mtl	Lab	O/M	Ind.
	\$xxx.x	\$xxx.xx	\$xxx.xx	\$xxx.xx
	x			
Total Cost for Subassembly xxxxxxxxx	Mtl	Lab	O/M	Ind.
	\$xxx.x	\$xxx.xx	\$xxx.xx	\$xxx.xx
	x			
Total Cost for Subassembly xxxxxxxxx	Mtl	Lab	O/M	Ind.
	\$xxx.x	\$xxx.xx	\$xxx.xx	\$xxx.xx
	x			
Total Cost for Top Level Parent Part Number	Mtl	Lab	O/M	Ind.
	\$xxx.x	\$xxx.xx	\$xxx.xx	\$xxx.xx
	x			

Functional Logic

This program accepts selection options and generates a costed multi-level product configuration report by reading the routing for each parent part, then associating the manufactured part configuration data to show how the entire product is configured. All retrievals start with the entered parent part number, then retrieve all routing and configuration data from that "level" down.

Since this program uses the most current data, its calculations may or may not agree with a standard cost that was rolled up and established at some time in the past for the manufactured part. Also manufactured part standard costs include all costs at all levels below and including that part number. This report shows details from current manufactured part configuration data, using the effectivity date selected, data from the current routing for the item, including part exception cost data. It also calculates indirect costs using the current allocation rates, which may

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also be different from when a given set of standard costs was developed. If these source data are the same as when the standard cost was developed, it result in the same cost value for the same parent part number.

The data on the report is retrieved and calculated as follows:

Parent Part Number - from the list entered, or belonging to the classification grouping entered in the selection screen. Associated description, unit of measure, part group, product class, and product line data is retrieved from the Part Master table record for the part number. Along with this is the Route Name used to manufactured this parent part number.

CHANGE: As each routing operation is read, exclude those with a decimal value other than zero, i.e., exclude alternate operations from the report, printing only the primary operations.

Routing Operations - The program uses the Route Name to retrieve the appropriate routing. Each step in the routing is printed, along with the cost data associated with that step. If the operation contains the Parent Part Number as an Exception Part Number, with cost data, that data is used in lieu of the operation's standard costs. Unit Costs include an amortized setup cost amount (Set up Cost divided by the Costing Order Quantity) that is added to the Unit Run Cost.

CHANGE: Foreign Indirect replaces O/M Freight, with different calculation logic. New logic follows:

Indirect Costs - These costs are calculated in the same way as in the Manufactured Part Cost program in the Cost Rollup system. This method uses the three indirect allocation rates to calculate Burden (as a percentage of Unit Labor Cost), Overhead (as a percentage of Outside Manufacturing Unit Cost), and Foreign Indirect (as a percentage of Outside Manufacturing Unit Cost; it is calculated only if the work center associated with the operation in the routing has its Foreign? flag equal to "Yes"; otherwise the calculation is skipped. For this report, these three indirect cost fields are added together as "Indirect Cost."

Operation Cost Extensions - All operation costs are extended times the quantity required for a manufactured part. Operation costs for the parent part number, by definition are for a quantity of one. Subassemblies and manufactured parts, shown in a configuration with a quantity greater than one, plus the planned attrition quantity, will have extended operation costs that reflect this quantity usage.

Level ("LVL") - is calculated starting with the entered Parent Part Number. Each level containing a manufactured part, increments this level value by one. These values are carried for each step in a routing used by the same parent part number.

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Configuration Data - All Manufactured Part Configuration records for the parent part number are retrieved to integrate the purchased material and to identify linkages to lower level manufactured parts. Required Parts in a configuration are sorted by P/M Code (with Purchased Parts first), then Work Station Used on, then Part Group, then Part Number to organize the list for analysis and to target areas for cost reductions.

Purchased Material Costs - Purchased material cost data is retrieved from the related Part Master table Material Standard Cost data from either the Current, Future, or Previous fields, depending on the option selected. These are extended times the Quantity Required. The Quantity Required is inflated by the Planned Attrition % before extending if this option was entered on the selection screen.

Manufactured Required Part Numbers - these part numbers are themselves parent part numbers, either as subassemblies or manufactured components. Entering a manufactured part as a required part number in a configuration links the assembly levels together, and at the same time, their associated routing information. It is these linkages that enables AIMS/ERP to create a fully linked series of steps from the lowest to the top levels of even complex products, resulting in a network of manufacturing steps, each having their associated purchased material content. This resulting network can be scheduled efficiently in either direction according to a variety of scheduling techniques. Manufacturing costs are shown in the routing associated with each manufactured part at all levels.

Cost Subtotals & Totals - The program maintains internal subtotals as it processed the data for:

1. Work Station Used On Subtotals - within a set of required purchased parts used within a single operation
2. Operation Material Subtotal - total for all purchased part used within a single operation
3. Subassembly Total Costs - for each manufactured part, at each level, accumulates total for all four cost categories. Since a given manufactured part may include other manufactured parts, which in turn may have even further lower level manufactured parts, this process may become rather complex.

These subtotals are accumulated for each of these in turn, as the retrieval proceeds "downward", then as the retrieval process is completed at each level and for each manufactured part, the subtotals become meaningful and are printed as each manufactured part's totals are completely calculated, on the way "back up", so to speak.

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Therefore, each subassembly's total costs will include all costs in it at that point in the product structure, which are in turn included in higher assembly level costs, and so on until the top level is reached. This is the Level 0 Parent Part Number, which was one of the part numbers entered or selected. When the next Level 0 part number is started, all cost subtotals are cleared.

ADDED: Cost Recap & Summary section at the end of the report. This section is simply a reprint of each subassembly's total line to aid the user in quickly summarizing where the cost in the product is. It is generated as each subassembly cost is calculated, by storing it in a temporary table, as the print line is generated, then recalling this temporary work table when the parent part number's total line is generated.

Foreign Currency Table Maintenance

Screen Data:

Foreign Currency ID x-----x
Text Explanation of ID x-----x
US\$ Exchange Rate xxxx.xxxx
Last Date Updated xx/xx/xx
Last Updated by User ID xxxxx

Functional Logic

This screen is used to maintain foreign currency ID's and their related exchange rates. These rates are used on Foreign Purchase Request reports to identify the exchange rate upon which projected unit prices are based.

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Grouped Country of Origin Bill of Material Report

SCR # 637

CHANGED 9/22/94

Screen Data:

Enter Product Part Number for Report x-----x
 x-----x
 x-----x
 x-----x
 x-----x

Enter Effectivity Date xx/xx/xx

Report Format:

Co Name Page xxxx

Date/Time Printed

Country of Origin Product Bill of Material - Grouped by Level
 Effectivity Date xx/xx/xx Direct Costs Only

Product x--x Desc. x-----x Assy Vendor x-----x Last Updated: xx/xx/xx

Final Assembly

Origin Country	Part No.	Desc	Req Qty	U / M	S F	FR N	V F	Vend ID	Std Cost	Ext US\$ Cost
xx	x----x	x---x	x.XX	x	x	x	x	xxx	xxxx	xxxx
				x						
xx	x----x	x---x	x.XX	x	x	x	x	xxx	xxxx	xxxx
				x						
xx		Country Subtotal								xxxxx
xx	x----x	x---x	x.XX	x	x	x	x	xxx	xxxx	xxxx
				x						
xx	x----x	x---x	x.XX	x	x	x	x	xxx	xxxx	xxxx
				x						
xx	x----x	x---x	x.XX	x	x	x	x	xxx	xxxx	xxxx
				x						
xx		Country O/Mfg Cost							xxxx	xxxx
		In-House Labor Cost								xxxx
		Subtotal Product Cost								xxxx

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Destination Configuration: xx P/N xx-xx

Origin Country	Part No.	Desc	Req Qty	U / M	S F	FR N	V F	Vend ID	Std Cost	Ext US\$ Cost
xx	x----x	x---x	x.xx	x	x	x	x	xxx	xxxx	xxxx
				x						
xx	x----x	x---x	x.xx	x	x	x	x	xxx	xxxx	xxxx
				x						
xx		Country Subtotal							xxxxx	
xx	x----x	x---x	x.xx	x	x	x	x	xxx	xxxx	xxxx
				x						
xx	x----x	x---x	x.xx	x	x	x	x	xxx	xxxx	xxxx
				x						
xx		Country Subtotal							xxxxx	
Total xx Cost \$xxxx.xx										

Destination Configuration: xx P/N xx-xx

xx	x----x	x---x	x.xx	x	x	x	x	xxx	xxxx	xxxx
				x						
xx	x----x	x---x	x.xx	x	x	x	x	xxx	xxxx	xxxx
				x						
xx		Country Subtotal							xxxxx	
xx	x----x	x---x	x.xx	x	x	x	x	xxx	xxxx	xxxx
				x						
xx	x----x	x---x	x.xx	x	x	x	x	xxx	xxxx	xxxx
				x						
xx		Country Subtotal							xxxxx	
Total xx Cost \$xxxx.xx										

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New Page

Co Name
 Date/Time Printed

Page xxxx

Country of Origin Product Bill of Material - Grouped by Level
 Effectivity Date xx/xx/xx Direct Costs Only

Product x--x Desc. x-----x Assy Vendor x-----x Last Updated: xx/xx/xx

Sub- Assembly

P/N x-----x Desc. x-----x Assy Vendor x-----x

Origin Country	Part No.	Desc	Req Qty	U / M	S F	FR N	V F	Vend ID	Std Cost	Ext US\$ Cost
xx	x----x	x---x	x.xx	x	x	x	x	xxx	xxxx	xxxx
				x						
xx	x----x	x---x	x.xx	x	x	x	x	xxx	xxxx	xxxx
				x						
xx		Country Subtotal								xxxxx
xx	x----x	x---x	x.xx	x	x	x	x	xxx	xxxx	xxxx
				x						
xx	x----x	x---x	x.xx	x	x	x	x	xxx	xxxx	xxxx
				x						
xx	x----x	x---x	x.xx	x	x	x	x	xxx	xxxx	xxxx
				x						
xx		Country O/Mfg Cost							xxxx	xxxx
		In-House Labor Cost								xxxx
		Subtotal Product Cost								xxxx

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New Page

Co Name

Page xxxx

Date/Time Printed

Country of Origin Product Bill of Material - Grouped by Level

Effectivity Date xx/xx/xx Direct Costs Only

Product x--x Desc. x-----x Assy Vendor x-----x Last Updated: xx/xx/xx

Product Summary Totals:

Origin Country	Total Purchased Content US\$ Amt	%
xx	xxx,xxx.xx	xx.xx
xx	xxx,xxx.xx	xx.xx
xx	xxx,xxx.xx	xx.xx
xx	xxx,xxx.xx	xx.xx
xx	xxx,xxx.xx	xx.xx
Total	xxx,xxx.xx	100.00

Functional Logic

CHANGE 9/22 Summary:

In creating the BOM Work Table, the logic for obtaining the Origin Country value for each Required Part Number in the configuration record is altered. If the configuration record's Origin Country field is blank or null, the program retrieves the Origin Country value from the Part Master table for the Required Part Number and writes this value to the BOM Work Table for that Required Part Number line. This data is carried through the summary totaling process as though it had been entered in the product configuration record.

This logic allows the configuration record's Origin Country field to be used as an exception field, when the country of origin varies by product from an origin country that is the same for all uses of the component part number in all products.

No change is made to the report's format or logic otherwise.

End of Change.

This report is organized to cost a product in a grouped BOM format, with subtotals for each assembly by country of origin code, carried in the product configuration record data, with a Product Summary Totals table accumulated at the end of the report. This summary is at the Product level. Power Supply specific "destination configurations" are identified where Origin Country data is present, but not carried into the full product totals by country, in order to keep the presentation as simple as possible.

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NOTE: The general organization and structure of this report is virtually the same as the currently available report, the " Engineering Product Bill of Material - Grouped by Level". This program and its approach should be reviewed with usable logic extracted. It is a "Bill of Material" report, and as such, does not show linkages between required part numbers and their routing. A Bill of Material includes all material required to make the Parent Part Number at a given assembly level, regardless of which operation number the material is connected to. This requires retrieving all production configuration records for a given parent part number then combining the resulting lists.

The general organization is grouped by product structure level and uses three major sections:

- Product Page(s) - includes the product ("top") level bill of material information, with a subtotal for the product, then power supply specific Designation Configurations, with the final total cost for each alternative configuration. Country of origin subtotals are identified. In-House labor costs are, by definition, of US origin and are accumulated in the Summary as US costs. Outside manufacturing costs are either foreign or domestic, i.e., US. Destination configuration costs are not totaled by country of origin, since these costs are normally quite negligible, as a percent of total product cost.
- Subassemblies - includes the bill of materials for each subassembly, with the total cost for that subassembly shown as a subtotal. The same country of origin subtotals are identified as the Product Page.
- Product Summary cost Totals Page

The program's functions via the following steps:

Upon selection from the menu, the program first displays the selection entry screen, which allows entry of product part numbers that are to appear on the report.

Entry of an Effectivity Date (default is today's date) is required. Even though Effectivity Date may not be in use in the system, data is present in the data base which, without Effectivity Selection, will not be correctly retrieved and printed.

The overall processing logic starts with the identified product, iteratively retrieving each subassembly and subsequent lower level assemblies, building a temporary work file used to accumulate the report's data. Once completed, this table is then reprocessed to accumulate the cost data up the product structure to generate the final totals. This is because higher product structure level costs are not known until all subassembly levels have been retrieved and had their costs calculated. Once

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the table is generated, the report can be printed from the completely calculated work table.

The following characteristics of part number related and cost fields, together with associated calculations apply to the calculation process and the data as it appears on the report:

- Cost data is generated according to the logic described below. All costs are in terms of their direct costs only. No Burden, Overhead, or Foreign Indirect cost fields are used.
- Standard Costs are either the purchased standard cost for the item, or the total purchased and manufactured cost content for a manufactured item.
- Extended Cost is simply the Standard Cost value multiplied times the Required Quantity field for the part number on the same line.
- Country Subtotal is the sum of Extended US \$ Cost for all lines in the assembly (parent) part number record carrying that Country Code.
- Subtotal Cost is the sum of all Extended Costs for the manufactured part number, either the product total, or a subassembly, and includes the In-House Labor and Country O/Mfg Cost portion of the of the cost of the assembly.
- Required Part Numbers identified with P/Mfg Code = "P" - Current Purchased Standard Cost data from the Part Master record.
- Required Part Numbers identified with P/Mfg Code = "M" - Sum of all manufactured and purchased part costs for all part numbers at all level below this part number, i.e., all subassemblies, manufactured component parts and purchased parts. This value is calculated during work file building. All direct cost elements are included.
- Country O/Mfg Costs and In-House Labor Costs - Obtained for any given manufactured part, for this level only, by retrieving the routing shown in the Part Master record for the manufactured part number, and adding up all Labor Unit Costs and Outside Manufacturing Unit costs for all operations on the routing, checking for Exception Part Cost data, storing the results in separate fields for the parent part number's record. Work center data is checked for operation lines with O/Mfg Unit Costs not equal to zero. The value of the Foreign? flag is retrieved. If Foreign? = N, then a country code of US is placed in the country field in the work record for O/Mfg cost. If it is Y, then a code of "FOR" is used.

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- For subassemblies, their total direct cost, including Labor or Outside Manufacturing costs are included along with their purchased content in a single number for that part number when it is shown as a required part on a next higher level assembly bill of material. The Origin Country field for subassemblies remains blank, since more than one country of origin can be present in it's subassembly information.

The program generates the work table via the following steps:

1. Each product's data on the report is generated separately, calculated, then printed before the program goes on to the next product to be reported.
2. A relational index, linking Product Configuration record ID's to Part Master records is added to the system and used to speed processing. In this way, the retrieval process can begin at the Part Master record for each manufactured part number included in a product's assembly structure.
3. Beginning with the product part number being reported, the program retrieves product configuration record(s) for that assembly level and copies key data into a temporary BOM Work Table with the following dictionary. Using the relational index in the Part Master table for the Assembly Part Number, all Product Configuration records for that assembly part number are retrieved and added to a single BOM Work table record.

CHANGE - The Origin Country field for each Required Part Number in each Configuration record is checked. If a value is present, it is used in creating the BOM work table record. If it is blank, retrieve the Origin Country value from that Required Part Number's Part Master record. In writing to the BOM Work Table, should there be duplications of the same required part number, due to the same part number being used on more than one operation, the last value to be encountered is used. Otherwise, the quantity required is added to the previous quantity required value for that required part number.

End Change.

Before printing on the report, these resulting Required Part Number multi-value lists are sorted into Origin Country, then Part Number sequence. All data is taken from the Product Configuration record(s) unless otherwise specified:

Assembly Part Number (parent Part Number) (Record ID)
Last Updated (single-value) (latest value if there are multiple product configuration records)
Assembly Level (starting at level 0 for the highest) (single value) (from Part Master record for Assembly Part Number)

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Assembly Vendor (Route Name from Part Master table) (single value)
Assembly Total Extended Costs (sum of all Extended Cost values for all Required Part Number lines; becomes valid during rolling up process as each lower level assembly's total costs is posted to the corresponding Required Part Number's unit cost field) (single value)

Assembly This Level Country O/Mfg Cost (from Routing Master via program process) (single value)

Assembly This Level In-House Labor Cost (from Routing Master via program process) (single value)

Assembly Subtotal Cost (sum of:

Assembly This Level Country O/Mfg Cost
+ Assembly This Level In-House Labor Cost
+ Total Extended Cost (single value)

NHA Part Numbers (multi-value list):

Required Part Number (multi-value & "key" to multi-value stack)

Description (multi-value)(from Part Master record)

Origin Country (multi-value)

Quantity Required (multi-value)

P/Mfg Code (multi-value) (from Part Master record for Required Part No.)

Foreign? (multi-value)

Vendor Furnished (Y/N) (multi-value)

Phantom? (labeled "Included" on the report) (multi-value)

Unit Std Cost : (for "P" parts, obtained from the Current Material Standard Unit Cost from Part Master); for "M" parts, posted from lower level subassembly total cost) (multi-value)

Extended Cost (Sum of Unit Std Cost X Qty Required) (multi-value)

4. Each configuration record is created from data in other tables, then when completed, scanned for Required Part Number values that have P/Mfg codes = M (manufactured). These are also retrieved, with their assembly information added to the BOM Work Table.
5. As each lower level of subassembly information is retrieved, its NHA references are stored in that assembly's record for use later.
6. As each assembly BOM Work table record is created, Current Material standard cost information for each Purchased Required Part is obtained from the Part Master table. The result of these entries at the Assembly Part Number level is the Assembly This Level Material Cost value.
7. This Level Country Outside Manufacturing Unit Cost Cost data is obtained by retrieving the routing master record for the assembly part number, selecting for

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Exception Part Number Unit Cost data at each operation, and adding up all Unit Cost values in the Outside Manufacturing Unit Cost standard cost fields for all operations in the record. To characterize the O/Mfg cost as Foreign or Domestic, each work center record where there is a O/Mfg Unit Cost value greater than zero is checked. If any work center in the routing has a Foreign

8. This Level In-House Labor Unit Cost Cost data is obtained by retrieving the routing master record for the assembly part number, selecting for Exception Part Number Unit Cost data at each operation, and adding up all Unit Cost values in the Labor Unit Cost standard cost fields for all operations in the record.
9. At this point, each assembly, its subassemblies, and the purchased part content of each assembly should be reflected in the BOM Work Table data, and all single level purchased material costs and manufacturing cost (labor and outside manufacturing costs added together) data stored in each assembly's record. The data is now ready to have its cost data rolled up through assembly levels.
10. When all assembly levels for the entire product have been retrieved and their data assembled into the BOM Work Table records, the resulting table is then processed in reverse low level code sequence to calculate the rolled up costs.
11. Accessing the BOM Work Table in descending Low Level Code sequence (starting with the largest Low Level Code value), retrieve each assembly's Assembly Subtotal Cost and perform the following steps to post this value to the next higher assemblies's records, rolling the accumulated cost up the product structure:
 - Using the NHA references as Record ID's, retrieve each assembly's BOM Work table record.
 - Locate the Required Part Number line that matches the assembly Part Number being posted.
 - Add the value to the Unit Standard Cost field.
 - Repeat the process through all NHA references and for all assembly records at each low level code value until the "0" level is reached, which is the original product part number being reported.
 - At this point, the product's assembly record in the BOM Work Table should contain all posted lower level costs, and the data is ready to be printed on the report.

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12. A separate routine is used for the initial Product Page, in order to process and print the Multiple Products that may be associated with the product part number. If there are no multiple products defined, then there are no "Destination Configuration"s to cost and/or print.

If there are, this routine is used. Generate the print image as shown in the above format for the Product's Final Assembly (Low level Code of zero), when the Subtotal Cost line is generated, retrieve and cost the multiple product part numbers defined in the Part Master record for the product.

13. Each of the Destination configuration's is keyed to the Power Supply Code, and associated part number. The program attempts to retrieve the product configuration record for that part number. If the attempt fails, the Destination configuration required part number lines are blank, and the Total configuration cost equals the Subtotal cost for the product.

14. If the attempt succeeds, the Required Part Number data for that multiple product part number is scanned. If a Required Part Number line with a part number that equals the product part number is encountered, it is skipped, to avoid an endless loop. Any Required Part with a P/M code of "M" is also skipped. Required part number data, including Country Code values are retrieved from the product configuration record. All other Required Part Numbers are retrieved, their Purchased Standard Unit cost values retrieved from the Part Master table, Extended, and the Total Destination Configuration Cost calculated:

(Product) Subtotal Cost
+ Destination Configuration Required Part Number Extended Costs
= Destination Configuration Total Cost

15. After all Destination Configuration data has been generated and printed, the program then retrieves each subassembly's BOM Work table record and prints the data on the report, using the format shown for subassemblies, in low level code sequence groupings (i.e., all level 1 subassemblies, in part number sequence, then all level 2 subassemblies, etc.). Each new subassembly part number starts a new page. All pages have the same product oriented overall heading, showing the product being reported.

16. After the report for a product has been generated successfully, the BOM Work Table is cleared, and ready for the next product to be costed, or cleared because all products in the entered list have been retrieved, costed and printed on the report.

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Ranked Projected Purchased Inventory Report

Screen Data

Enter Projected Date xx/xx/xx

Selection: Sort by:

- Projected Dollarized Inventory
- Buyer Code then Projected Dollarized Inventory

F9 to generate report.

Report Format:

Co Name record

Date/Time printed xx/xx/x xx:xx

Page xxx

Ranked Projected Dollarized Inventory - Purchased Items
Projected Date xx/xx/xx

P/N	Desc.	B/C	U/Cst	Act Dte	Proj inv	Proj \$ Inv	PO No	Del Date	Del Qty
x--x	x---x	xx	\$xx.xx	xx/xx	x---x	\$xx.xx	x--x	xx/xx	x---x
							x--x	xx/xx	x---x
							x--x	xx/xx	x---x
x--x	x---x	xx	\$xx.xx	xx/xx	x---x	\$xx.xx	x--x	xx/xx	x---x
							x--x	xx/xx	x---x
							x--x	xx/xx	x---x

PDS Table fields:

Add symbolics to PDS table

- Unit cost from Part Master (Cur Mtl Std Unit Cost for P/N)
- Proj Inv Cost (Proj Inv X Unit Cost - multi-value)

Proj Inv. Value Work Table:

Single Value fields:

- Part Number
- Description (from Part Paster)
- Buyer Code (from Part Master)
- Mtl Std Cost (from Part Master or PDS value from its symbolic)
- Activity Date (from PDS line selected)
- Projected Inventory (from PDS line selected)
- Projected Dollarized Inventory (from PDS line selected)

Multi-value:

- PO No.
- Delivery Date
- Delivery Qty

Functional Logic

This program/report analyzes Purchased Demand & Supply data in the PDS table, identifying and ranking in order of inventory impact, part numbers that have a significant over-ordered condition. This is when there is a much greater quantity of the item ordered and scheduled for delivery than is being currently demanded by open, scheduled work orders. It can result from schedule changes (most typically), or unplanned inventory receipts, or other causes.

The report enables a buyer to quickly identify the items and PO's with greatest impact on inventory and reschedule or cancel these, and by so doing, prevent unneeded inventory from being created.

To keep the report clear and as focused as possible, several techniques are used:

- A user-selected Projected Date is used to select and reduce the reschedule candidate list to a minimum.
- For each part number, the report contains only the activity line closest to the Projected Date, and its associated projected Inventory \$ value.
- For convenience, the PO's that appear to be causing the projected overinventory are identified, along with their associated delivery dates and quantities.

The resulting report contains, in ranked order of greatest inventory impact, the items that, if no PO schedule changes are made, will result in significant unneeded inventory.

When using this report, buyers should use the PDS Inquiry screen to quickly gain a complete demand & supply picture for the entire part number, especially when rescheduling out.

This program creates the report via the following steps:

- Selects PDS records by Exception Code = 7 or 8
- Reads each record, selecting those that have projected inventory greater than zero at an activity date line less than or equal to the Projected Date
- Writes the Work Table data from the portion of the PDS data on activity lines that is earlier or equal to the Projected Date value from the entry screen. This list includes all PO's earlier than the Projected Date, including these fields and their related sources:

Field	Source	Comment
Part Number	PDS table	

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Description	PDS or Part Master for P/N
Buyer Code	PDS or Part Master for P/N
Unit Cost	Current Material Unit Std Cost from Part Master
Activity Date	Date of activity line equal to or earlier than Projected Date value
Projected Inventory	Projected inventory on activity line selected
Proj \$ Inventory	Extended Projected Inventory (Proj Inv X Unit Cost)
PO No.	Purchase Order Numbers of all activity lines earlier than or equal to activity line selected
Del Date	Delivery Date on activity lines selected
Del Qty	Delivery Qty (Qty remaining) on activity lines selected

- Prints the work table data out on the report in the sort sequence selected at entry time.

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Inventory Cost Audit Download Program

This program copies data from the Inventory table, retrieves cost and other data from the Part Master table and outputs a record in Excel format. The Excel file can then be copied to a diskette and provided to company Auditors for analysis. The output table is named INVCOST and has the dictionary defined below.

The program functions by reading the entire Inventory table and creating one INVCOST record for each Inventory record. This table is then updated by accessing the Part Master table for each INVCOST record and retrieving the associated description and cost data for that Part Number. Inventory values for Warehouse/Location/Quantity lines are summed into a single total quantity for all warehouses and locations. DMR lines, containing DMR number, W/H, Location and Quantity are summed into a single DMR quantity. To ease use of the data, totals of various cost fields are provided as well.

Auditors will use the data for various analysis purposes, including costing rankings, sampling of the correctness of cost data, and other purposes. This information is furnished to the auditors who are working at the request of Company owners.

INVCOST Data Dictionary:

Field Name	Col Label	Comment
PARTNO	A	Record ID
DESCRIPTION	B	Part Description
PMCODE	C	Purchase/Manufactured Code
CURMTLCST	D	Current Material Standard Cost
CURLBCST	E	Current Labor Standard Cost
CUROMCST	F	Current Outside Mfg Std Cost
CURBURCST	G	Current Burden Std Cost
CUROVDCST	H	Current Overhead Std Cost
CURFFTCST	I	Current Foreign Freight Std Cost
TOTCURSTDCST	J	Total Current Standard Cost = Sum of all 6 Current Standard Cost Fields (above)
PRVMTLCST	K	Previous Material Standard Cost
PRVLBCST	L	Previous Labor Standard Cost
PRVOMCST	M	Previous Outside Mfg Std Cost
PRVBURCST	N	Previous Burden Std Cost
PRVOVDCST	O	PreviousOverhead Std Cost
PRVFFTCST	P	Previous Foreign Freight Std Cost
TOTPRVSTDCST	Q	Total Previous Standard Cost = Sum of all 6 Previous Standard Cost Fields (above)

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FUTMTCST	R	Future Material Standard Cost
FUTLBCST	S	Future Labor Standard Cost
FUTOMCST	T	Future Outside Mfg Std Cost
FUTBURCST	U	Future Burden Std Cost
FUTOVDCST	V	Future Overhead Std Cost
FUTFFTCST	W	Future Foreign Freight Std Cost
TOTFUTSTDCST	X	Total Future Standard Cost = Sum of all 6 Future Standard Cost Fields (above)
TLMTCST	Y	This Level Calculated Material Cost
TLLBCST	Z	This Level Calculated Labor Cost
TLOMCST	AA	This Level Calculated Outside Mfg Cost
TLBURCST	AB	This Level Calculated Burden Cost
TLOVDCST	AC	This Level Calculated Overhead Cost
TLFFTCST	AD	This Level Calculated Foreign Freight Cost
LLMTCST	AE	Lower Level Calculated Material Cost
LLLBCST	AF	Lower Level Calculated Labor Cost
LLOMCST	AG	Lower Level Calculated Outside Mfg Cost
LLBURCST	AH	Lower Level Calculated Burden Cost
LLOVDCST	AI	Lower Level Calculated Overhead Cost
LLFFTCST	AJ	Lower Level Calculated Foreign Freight Cost
TOTCALCMTLCST	AK	Total Calculated Material Cost = This Level + Lower Level Cost
TOTCALCLABCST	AL	Total Calculated Labor Cost = This Level + Lower Level Cost
TOTCALCOMFGCS	AM	Total Calculated Outside Mfg Cost = This Level + Lower Level Cost
T		
TOTCALCBURCST	AN	Total Calculated Burden Cost = This Level + Lower Level Cost
TOTCALCOVDCST	AO	Total Calculated Overhead Cost = This Level + Lower Level Cost
TOTCALCFFTCST	AP	Total Calculated Foreign Freight Cost = This Level + Lower Level Cost
TOTPERPETUAL	AQ	Total Perpetual Inventory; obtained from sum of all Warehouse/Location/Quantity lines for the Part Number
TOTDMR	AR	Total DMR Quantity; obtained from sum of all DMR line for the Part Number.
LASTUPDATED	AS	Date Last Transaction updated this inventory record.

Physical Inventory Tag Costing Data Download Program

This program creates two separate normalized, Excel format tables from Part Master and Tag Master table data in AIMS/ERP. The part number cost table is identified with the DOS file name of PNCOST.XLS. Tag data table is identified with the DOS file name of TAGS.XLS. The purpose of these tables is to enable company auditors to test the inventory valuation logic used to cost each physical inventory tag. This data is then compared to Balance sheet inventory figures and reconciled to verify its accuracy.

External software (used by the auditor) can be then used to validate the tag costing logic by retrieving appropriate cost fields from the PNCOST table and calculating the tag's standard unit cost value.

This document serves two purposes:

- Program specification to retrieve data from AIMS/ERP tables in Advanced Revelation data dictionary terms, indicating where in the output tables each data item is to be written.
- An explanation of how the tag costing logic works.

Tags with no count data are not included in this selection. Some manufactured part numbers are assemblies that have component parts missing from them. The tag costing logic retrieves the cost of each of these component parts, extends them times the total quantity missing in the tag count quantity of the assembly, then subtracts this value from the gross tag value. These tags are flagged with a "1" in the MSNG_PRTS field. Missing component part data and associated cost data is not included in this table. The table does contain, however, the calculated extended value of these missing components and their effect on the total net tag cost. For these items, the Net Tag Value should be used. Cost calculation testing cannot be performed completely on these tags, but can be for all others.

Therefore, if the costing logic described here is repeated, the result should agree with the reported costed tag data furnished on a separate report.

Fields that show quantity and identify part number and associated tag data are selected and written to the TAGS.XLS table. Part Master data fields are selected and written to the PNCOST.XLS table. The column letters identify the corresponding spreadsheet column identifiers for each data item. If the data is related and calculated as described here, the resulting totals should equal those shown on costed inventory reports.

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The program functions by initially prompting for a data path that the resulting tables are to be written to. This path may not be the A or B diskette drives. The program must write to a hard disk directory. The resulting files are then copied onto a diskette to be furnished to the auditor. When the path is accepted, pressing the F9 key starts the program. The Tag Master table and Part Master tables are read, with the output tables written as defined in the Data Reference tables below. When both tables have been successfully completed, the program displays a message that the tables have been successfully created.

TAGS.XLS and Source Field Reference Dictionary

Column Letter	Tag Master Field Name	Description/Comments
A	TAG_NO	Tag Number
B	TAG_TYPE	P = Perpetual; W = WIP; D = Discrepant Material; R = Receiving Inspection
C	PART_NO	Part Number - must also be in Part Master table.
D	PARTGRP	Part Group from Part Master for part number.
E	MBUY	P/M Code from Part Master for part number.
F	PN_DESC	Description for Part Number from Part Master
G	PN_UM	Unit of Measure for Part Number from Part Master.
H	CNT_QTY	Quantity counted during physical inventory.
I	STDUCOST	Standard Unit Cost; depends on tag type - see separate explanation of how Standard Unit Cost is selected from Part Master Standard Cost fields, depending on Part Group and Tag Type.
J	MSNG_PRTS	Missing Parts Flag; "1" indicates that this is an assembly part number with missing components.
K	GRSTAGVAL	Gross Tag Value; = CNT_QTY X STUCOST
L	TAGMSVAL	Missing Component Extended Value - value of missing components from this assembly P/N
M	NETTAGVAL	Net Tag Value - will equal Gross Tag Value for tags with no missing components.

STDUCOST Derivation Logic

The tag costing matches the way inventory costs are booked from AIMS/ERP into the GL system. The tag costing rules are explained below, and depend on several variables to characterize each tag. These include:

- Purchase/Manufactured Code for Part Master record for part number; values are P for purchased parts and M for manufactured parts. Manufactured parts

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include finished goods that are produced, manufactured subassemblies, and manufactured component parts. Manufactured parts are received in perpetual inventory from work orders, i.e., from WIP. Those that have a final operation performed by an outside manufacturing vendor will also have a PO. Receiving the PO also performs the work order completion & move to stock function. Purchased parts are received in perpetual inventory via receipt to a purchase order.

- Part Group value for the Part Master record for part number. Relevant values are FG for finished goods products and ASY for non-FG manufactured parts.
- Tag Type; P = Perpetual (in warehouse inventory); D = on Discrepant Material Report status in perpetual type record; R = in Receiving Inspection on a Receiver Number; W = Work In Process.

Tag costing rules are as follows:

- Purchased Parts - both perpetual and in WIP; STDUCOST is always the This Level Unit Material Standard Cost, which is the same as Total Material Standard Unit Cost.
- Manufactured Parts - different rules depending on whether in a stocked subassembly in perpetual inventory, issued to WIP, or a Finished Good product in perpetual inventory. The ways to costs manufactured parts on tags are:
 1. Part number has a part group of FG. Tag type is P, R, or D - tag's STDUCOST = all cost 6 elements, both this level and lower level cost values added together.
 2. Part Number has a part group of FG or ASY, Tag type is W - tag's STDUCOST = Total Material Unit Cost & Calculated Lower Level Total Outside Mfg Unit Cost.
 3. Part number has a part group of ASY. Tag type is P, R, or D - tag's STDUCOST = Total Material Unit Cost & Total Outside Mfg Unit Cost.

This costing technique is designed to match the AIMS/ERP to GL journal entry preparation logic, which is;

- Purchased parts received to dock - valued at Current Material Unit Standard Cost.
- Purchased parts issued to work order (WIP) - valued at Current material unit standard cost.
- Non-FG manufactured part completed from work order back to perpetual - valued at Current Material Unit Standard Cost + Current Outside Manufacturined Unit Standard Costs.

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- Non-FG manufactured part issued to a work order - valued at Current Material Unit Standard Cost + Current Outside Manufacturined Unit Standard Costs.
- FG manufactured part completed from work order to perpetual - valued at Total Unit Standard Cost (labor + material + outside manufacturing + burden + overhead + foreign freight).

This technique avoids booking labor incurred into WIP, i.e., a work order costing methodology.

Outside manufacturing is booked into WIP, but not charged to work orders explicitly. Indirect cost absorption is "backflushed" from WIP when product becomes a finished good, at which time it is charged with indirect costs for all product structure levels i.e., including its subassemblies, not just those associated with that product structure level only.

PNCOST.XLS and Source Fields Data Dictionary:

Col. Ltr	Part Master Field Name	Description/Comments
A	PART_NO	Part Number
B	DESC	Description of part
C	PM_CD	Purchase/Manufacture Code; P = Purchased, M = Manufactured
D	STOCKING_UM	Stocking Unit of Measure; EA = Each, LB = Pounds, etc.
E	PART_GRP	Part Group; relevant values = FG for Finished Goods, and ASY for subassemblies
F	CUR_MTRL_CST	Current Material Unit Standard Cost (direct)
G	CUR_LABOR_CST	Current Labor Unit Standard Cost (direct)
H	CUR_OUT_MFG_CST	Current Outside Manufacturing Unit Standard Cost (direct)
I	CUR_BURDEN_CST	Current Burden Unit Standard Cost (indirect)
J	CUR_OH_CST	Current Overhead Unit Standard Cost (indirect)
K	CUR_FOR_IND_CSTZ	Current Foreign Indirect Unit Standard Cost (indirect)
L	TOTAL__STD_COST	Total Current Unit Standard Cost - sum of all current unit standard cost fields
M	CALC_MTRL_CST_TL	This Level Calculated Material Cost
N	CALC_LBR_CST_TL	This Level Calculated Labor Cost
O	CALC_OUT_MFG_CSTS_TL	This Level Calculated Outside Mfg Cost
P	CALC_BURDEN_TL	This Level Calculated Burden Cost

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Q	CALC_OH_TL	This Level Calculated Overhead Cost
R	CALC_FOR_IND_CST_TL	This Level Calculated Foreign Freight Cost
S	CALC_MTRL_CST_LL	Lower Level Calculated Material Cost
T	CALC_LBR_CST_LL	Lower Level Calculated Labor Cost
U	CALC_OUT_MFG_CST_LL	Lower Level Calculated Outside Mfg Cost
V	CALC_BURDEN_LL	Lower Level Calculated Burden Cost
W	CALC_OH_LL	Lower Level Calculated Overhead Cost
X	CALC_FOR_IND_CST_LL	Lower Level Calculated Foreign Freight Cost
Y	CALC_MTRL_CST_TOT	Total Calculated Material Cost = This Level + Lower Level Cost
Z	CALC_LBR_CST_TOT	Total Calculated Labor Cost = This Level + Lower Level Cost
AA	CALC_OUT_MFG_CST_TOT	Total Calculated Outside Mfg Cost = This Level + Lower Level Cost
AB	CALC_BURDEN_TOT	Total Calculated Burden Cost = This Level + Lower Level Cost
AC	CALC_OH_TOT	Total Calculated Overhead Cost = This Level + Lower Level Cost
AD	CALC_FOR_IND_CST_TOT	Total Calculated Foreign Freight Cost = This Level + Lower Level Cost

Calculate Average Purchase Part Unit Cost

SCR # 727

Screen Data:

Enter Part Numbers to Update (or ALL)

X-----X

X-----X

X-----X

If All, the program is run from the Job Server.

Functional Logic

This program can be used to either initialize an on-going weighted moving average unit cost calculation process, or to update it on a periodic basis for purchased parts. It calculates a value for each inventoried part number based on the PO Line Item Unit Price (US\$ value), weighted for quantities received at each price. No calculation is performed for manufactured part numbers. An option is provided to selectively update a short list of entered part numbers.

The program replaces any previous average cost value, giving cost managers the opportunity to correct cost errors in the Receiving Lot master records that are used to calculate the costs. Its approach is to divide the current on-hand balance into "layers" of individual receipts, using the most recent Receiving Lot record first, then the next most recent and so on, until the complete on-Hand balance has been accounted for by one or more Receiving Lot records. The resulting average cost value is then written to the Average Purchase Part Cost field in the Part Master record for the part number.

Only part numbers that have an inventory balance will get updated in this fashion. Those Inventory table records with a zero balance will get the last Receiving lot record purchased unit price.

The program functions upon initiation from the Job Server by performing the following steps to process the Inventory table records with have a P/M code of "P" in the part master table and develop an Average Purchase Part Cost for each:

- Select Inventory records with a P/M code of "P" in the Part Master.
- For each Inventory record, retrieve the Receiving Lot records for that Part Number.
- Build the Average Cost Matrix in memory as follows:

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- 1a. Initialize the matrix with the Inventory record's current Total On Hand, including MRB Quantities, all Perpetual warehouse/location quantities, and W/H Transfer Quantity.
- 1b. If the Total On Hand is zero or negative, retrieve the most recent Receiving Lot record for the part number, and copy its PO L/I Unit Price into the Average Purchase Part Unit Cost field in the Part Master record for the part number. Skip any further processing for the part number.
2. Retrieve the most recent Receiving Lot record, selecting those only for PO Types DP and FP, for the part number, copying the PO L/I Unit Price and Quantity Received values into a line of the matrix.
3. Subtract the Quantity Received for the receiver from the Total Quantity O/H to obtain the Quantity Remaining.
4. If the Quantity Remaining is not negative, retrieve the next most recent Receiving Lot record for the part number, copying its data into the matrix and calculating this line's Quantity Remaining as before.
5. Continue this process until a line is generated with the Quantity Remaining is negative. This indicates that the Total On Hand has been completely allocated to Receiving Lot records.
6. For each line in the matrix, calculate the Extended Value, which is:
$$\text{PO L/I Unit Price} \times \text{Receiving Qty}$$
7. When all lines have an Extended Value, sum them to obtain the Extended Total value.
8. Calculate the Average Unit Cost from:
$$\frac{\text{Extended Total Value}}{\text{Total Qty O/H}} = \text{Weighted Average Unit Cost}$$
9. Write the new Average Unit Cost to the Part Master record for this part number, clear the matrix and restart the process with the next part number. Continue until all Inventory table records with a P/M code of "P" have been updated.
10. Select Inventory records with a P/M code of "M". For these, write null to the Average Unit Cost field for any record with a value in this field. This will

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remove any "hanging" cost data that could occur if the part number is changed from Purchased to Manufactured status.

An example of the cost matrix and cost calculation process is shown below:

Inventory record Total O/H = 500

R/No.*	Unit Price	Qty	Qty Remaining	Extended Value
5421	\$2.50	100	400	250.00
4236	\$2.25	300	100	675.00
3123	\$2.30	100	0	230.00
			Extended Total	1155.00

* Receiver Number not needed in the matrix; used to illustrate data sources only.

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Imported Product Source & Cost Report

Screen Data

Enter:

Product Work Order No. x-----x
 PPN x-----x *
 Desc x-----x*
 PI Compl Date xx/xx/xx*

Report Format: (landscape)

Company (Co Name record)
 xx/xx/xx xx:xx (date/time printed)

Page xxx

Imported Product Source & Costs
 By PO Type, Vendor, Part Number

Product x----x x-----x (desc) W/Order No. x-----x No. Unit x---x

Bought From Vendor	Vend Addr	Comp P/N	Desc	Qty Purc.	U/M	Ext ForCur Price	For Curr/ Rate	Ext US\$ Price	PO No.
Assembly Charges:									
x-----x	x-----x	x--x	x---x	x---x	xx	NT\$xx	NT\$/US\$	\$xxx	x----x
x-----x	x-----x	x--x	x---x	x---x	xx	NT\$xx	NT\$/US\$	\$xxx	x----x
x-----x	x-----x	x--x	x---x	x---x	xx	NT\$xx	NT\$/US\$	\$xxx	x----x
Assembly Cost Subtotal						NT\$xxx		\$xxx.xx	
Purchased Material:									
x-----x	x-----x	x--x	x---x	x---x	xx	NT\$xx	NT\$/US\$	\$xxx	x----x
x-----x	x-----x	x--x	x---x	x---x	xx	NT\$xx	NT\$/US\$	\$xxx	x----x
Purchased Material Subtotal						NT\$xxx.xx		\$xxx.xx	
Product Total						NT\$xxx .xx		\$xxx.xx	

Functional Logic

This report relates, for a given lot of an imported product, all other purchase orders for component parts, subassemblies, and assembly services to provide documentation as to the sources and detailed costs of all items going into the product on a as-planned usage basis. This method uses Purchase Order data, references entered in the Line Item Work Order fields for both Outside Manufacturing and Production Material PO Types, and Next Higher Assembly data references in other work order records to retrieve lower subassembly level assembly charges and purchased material. Any item that is a vendor furnished item is not on this report since the assembly vendors provided these parts at no charge. Accordingly, the report cannot show full Bill of Material content/relationships

The report is not based on actual quantities issued to for consumption to a work order so that it may be run prior to these events actually occurring, to show on a pro

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forma basis what the product content, associated vendors and costs are before the product is actually built, shipped or landed.

There are two ways to get an item to appear on this report.

1. The Work Order number under which the product quantity is being manufactured must be entered in a PO Line Item Work Order Number field for the PO and Line Item on that PO that is to appear (was purchased for) this Product Work Order
2. A Work Order Number for a related subassembly must be entered in a PO Line Item Work Order Number field for the PO and Line Item on a PO that is to appear (was purchased for ultimately) on the report. A "related subassembly" is one that has its own work order, its own outside manufacturing PO for the assembly charges, and its own purchased component parts, but that is linked via the Bill of Materials, and by Scheduler to satisfy the demand for that subassembly part number in the Product Work Order or a lower level subassembly work order.

The process is keyed to a single top-level product work order. Linkages maintained by the Scheduler program in the work order records are used to find lower assembly level work orders that are included in this top level product's work order. For this report to work correctly, i.e., not include subassembly or component purchased part costs that are for multiple products, there must be a one work order to one work order rule (Order Rule 1) in use for all parts in all products. Otherwise, there is no way with this reporting methodology to segregate component parts that are purchased from a single vendor on a single purchase order, then used in multiple products.

When selected from the Report Manager, the program first displays the product entry screen. The Work Order Number for the product that is to be reported is entered, and if valid, its associated Parent Part Number, its Description and the Planned Completion Date for the work order are displayed for confirmation by the user. To be valid, the work order must be in the Open Work Orders table. The report may be optionally run from the Job Server. When initiated, the program creates the report via the following steps:

- Identify all WO numbers for lower-level subassemblies that are related to the work order number entered, which for this process is termed the Master WO.
- The list of Related Work Orders is built by scanning the Open Work Order table records via the following process:

Select Open Work Orders records where DMDDOC = Master Work Order Number. This will retrieve the next lower level subassembly work order

number(s) from the open Work Orders table. The associated record ID (WO_NO) for each record retrieved in this manner is added to the Related Work Orders list in memory.

Each Related Work Order number retrieved in this manner in turn becomes a temporary Master WO Number and used to attempt to retrieve the next lower level subassembly work order from the open Work orders table by reselecting Open Work Orders with this WO Number in the DMDDOC field.

The process is continued until Related Work Order numbers that have been retrieved have been used to attempt to retrieve lower level work orders by attempting a match between the newly retrieved WO and other work order records with the same WO No. in the DMDDOC field. The lowest level work orders will be identified by being unable to find any work orders with the Related WO number is referenced in the DNDDOC field of others, i.e., this Related WO No. has no lower level work orders.

When this process is completed, the Master Work Order number is supplemented by the Related Work Orders. The two lists are then combined and used to retrieve purchase order data for the report.

Generate Temporary PO Data table - This portion of the process uses the Master and Related Work Orders from the preceding process to select and build a temporary data table than in turn is used to print the report. The steps in this process are:

1. PO Data retrieval process - The Master and Related Work orders from the preceding process is used to select all Purchase Order table records that have a LI_WO_NO that matches a work order number in the Master/Related WO list.
2. PO Line Item selection process - for each PO record that is retrieved via the preceding process, each Line Item is scanned, matching that line item's LI_WO_NO that matches a WO No in the Master/Related WO list.
3. Those line items that match are written the temporary work table for the report. Those that do not are skipped.

When this process is complete, the result in the temporary work table is one record for each PO Line Item that contained a match on its line item work order number reference and either the Master Work Order number (the one that was entered), or one that is related to this WO Number, i.e., belongs to one of its subassemblies. Data written to this table is as shown below in the Data sources table, from which the report is printed with an RList statement.

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The Temporary Work Table records are sorted first to group FO and DO (which should not normally be present) PO Type record for the Assembly Charges grouping on the report, then FP and DP PO Type records for the Purchased Material grouping on the report, then into Bought From Vendor, then Component Part Number.

Subtotals for Assembly Costs (total of all FO & DO PO Types) lines, and for Purchased Material (total of all FP and DP PO Types) lines, then a Product Total which is the sum of these two.

The report has a header containing the Product Code, and its associated description, the Work Order Number used to retrieve and group the information, and the Parent Work order's Planned Completion Quantity.

Temporary Work Table and Report Data Sources:

PO TYPE (not printed)	PO - PO_TYP_CD - used to sort & group records.
Component Part Number	PO - LI_PART_NO
Description	from Part Master for Part No.
Bought From Vendor	PO - VENDOR_NAME (symbolic for name of Bought From Vendor)
Vendor Address	Bought from Vendor's address
Qty Purchased	PO - LI_DLVERY_QTY
U/M	Stk U/M from Part Master for Part Number
Ext For Cur Price	PO - LI_FRGN_CNCY_EXTD_PR
For Cur/Rate	PO - string together; FRGN_CNCY_ID and FRGN_CNCY_EXCHG_RT
Ext US\$ Price	PO - LI_EXTD_US_PRICE
PO No.	PUR_ORD_NO