



Purchasing Management

Specifications & Guide to Use

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Purchase Management Overview

Key to the Purchasing Management Module is the concept of PO Types. The PO Type Code alters program functions to allow different functions to be handled within a common logical data structure and flow. Since the Module includes an electronic Purchase Request capability, the PO Type is selected and built into the Purchase Request at the outset.

All types of PR/PO data are handled by the same basic set of screens and logic. Depending on the PO Type Code, screen functions will alter, as will related functions in other modules, such as Receiving. However, all are designed to interface with the Accounts Payable function in the same manner. For example, If the PO is a foreign currency PO, fields related to that function will be accessible, whereas if it is a domestic PO, the user will not be able to enter Foreign Currency ID and other related items. Functions that are specific to PO Type are as follows:

- Domestic Production PO — requires:
 - Valid part number on the Part Master File coded as a purchased part;
 - No access to Foreign Currency ID, Foreign Currency Unit Price, Line Item Scheduled Ship Date, Line Item Scheduled Customs Date, GL Charge To Acct. No., and Line Item Foreign Currency Extended Price remains blank;
 - The Purchase to Stock Unit of Measure conversion is functional on this type of PO.
 - This PO Type requires the full receiving dock, receiving inspection and move to inventory cycle.
- Foreign Production PO — requires:
 - Valid part number on the Part Master File coded as a purchased part;
 - Purchase to Stock U/M conversion is functional on this type of PO.

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- The PO Header data prompts for mandatory entry of a Foreign Currency ID and a Conversion Rate.
- When entering line item unit prices, the screen prompts for mandatory entry of the Line Item Unit Price in the Foreign Currency, calculating and displaying the Extended US \$ Price, and the Line Item Foreign Currency Extended Price.
- Access to the Line Item US\$ Unit Price field is not allowed.
- Delivery schedule data for this PO Type will prompt for entry of the Line Item Scheduled Ship Date and the Line Item Scheduled Customs Date.
- This PO Type requires the full receiving dock, receiving inspection and move to inventory cycle.
- Domestic Expense PO — requires:
 - Part Number may be a valid part number, but may also be blank. If the part number field is blank, a description may be entered in the Line Item Description field.
 - A GL Charge To Account No. is required.
 - Project ID is optional.
 - Delivery To is a mandatory entry.
 - This PO Type may be delivered to any receiving dock, but does not go through the receiving dock, inspection and move to stock cycle.
- Foreign Expense PO — requires:
 - The PO Header data prompts for mandatory entry of a Foreign Currency ID and a Conversion Rate.
 - When entering line item unit prices, the screen prompts for mandatory entry of the Line Item Unit Price in the Foreign Currency, calculating and displaying the Extended US \$ Price, and the Line Item Foreign Currency Extended Price.

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- Access to the Line Item US\$ Unit Price field is not allowed.
- Delivery schedule data for this PO Type will prompt for entry of the Line Item Scheduled Ship Date and the Line Item Scheduled Customs Date.
- A GL Charge To Account No. is required.
- Project ID is optional.
- Delivery To is a mandatory entry.
- This PO Type may be delivered to any receiving dock, but does not go through the receiving dock, inspection and move to stock cycle.
- Domestic Outside Manufacturing PO — requires:
 - Valid part number on the Part Master File coded as a manufactured part. This PO Type purchases outside manufacturing services as a step on the routing of a work order. It is fundamentally different from purchasing material in that it is for the added value portion only, the material having been furnished to the vendor earlier in the routing for the part.
 - No access to Foreign Currency ID, Foreign Currency Unit Price, Line Item Scheduled Ship Date, Line Item Scheduled Customs Date, GL Charge To Acct. No., and Line Item Foreign Currency Extended Price remains blank;
 - Work Order/Kit ID is a required entry, but may be a non-valid Work Order Number, since many items are ordered far in advance of creating released open work orders. However, this data must be corrected to be for a valid Work Order Number during the receiving cycle, which must be a work order with a Parent Part Number that is the same as the Line Item Part Number.
 - This PO Type requires a Receiving cycle, but in place of the inspection and move to stock there is a work order operation move transaction performed integrally to the Receiving transaction.

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- Foreign Outside Manufacturing PO — requires:
 - The PO Header data prompts for mandatory entry of a Foreign Currency ID and a Conversion Rate.
 - When entering line item unit prices, the screen prompts for mandatory entry of the Line Item Unit Price in the Foreign Currency, calculating and displaying the Extended US \$ Price, and the Line Item Foreign Currency Extended Price.
 - Access to the Line Item US\$ Unit Price field is not allowed.
 - Delivery schedule data for this PO Type will prompt for entry of the Line Item Scheduled Ship Date and the Line Item Scheduled Customs Date.
 - Valid part number on the Part Master File coded as a manufactured part. This PO Type purchases outside manufacturing services as a step on the routing of a work order. It is fundamentally different from purchasing material in that it is for the added value portion only, the material having been furnished to the vendor earlier in the routing for the part.
 - Work Order/Kit ID is a required entry, but may be a non-valid Work Order Number, since many items are ordered far in advance of creating released open work orders. However, this data must be corrected to be for a valid Work Order Number during the receiving cycle, which must be a work order with a Parent Part Number that is the same as the Line Item Part Number.
 - This PO Type requires a Receiving cycle, but in place of the inspection and move to stock there is a work order operation move transaction performed integrally to the Receiving transaction.
- Domestic Outside Manufacturing Rework PO — requires:
 - Valid part number on the Part Master File coded as either a purchased or manufactured part. This PO Type purchases outside manufacturing services as a step on the routing of a rework work order. It is fundamentally different from purchasing material in that it is for the added value portion only, the material

having been furnished to the vendor earlier in the routing for the part.

- No access to Foreign Currency ID, Foreign Currency Unit Price, Line Item Scheduled Ship Date, Line Item Scheduled Customs Date, GL Charge To Acct. No., and Line Item Foreign Currency Extended Price remains blank;
- Work Order Number is a required entry, and must be a Open Work Order table record with a status of RNP or OP, and a Work Order Type code of R (rework work order). Also, the L/I Part Number must match the parent part number of the work order.
- This PO Type requires a Receiving cycle, but in place of the inspection and move to stock there is a work order operation move transaction performed integrally to the Receiving transaction, which returns the material to the DMR it was originally issued on.

PR/PO Screen Functions & Logic

The PR/PO is divided into several logical sections. Each of these includes a summary portion, retained on the full screen and a detailed portion that is accessed and entered via a pop-up window containing the more detailed data only. When the popup is completed, it is closed, with summary data from it being retained on the primary screen to show what was done. The processing sequence is as follows:

1. Prompt for PR or PO number first. User may enter a number for an existing PR or PO, which the program then retrieves and displays for review and/or changing, if changes are allowed. If the user wants a new PR or PO number to be assigned, for creation of a new one, pressing Enter causes the program to assign the next sequential PR or PO number.
2. If it is a new PO, allow the user to select an approved PR from a pop-up window which is to be copied into a new PO and converted, with any modifications the buyer chooses to make. The pop-up window should include:
 - Purchase Request Number
 - Requester Name
 - Approver Name
 - Request Date
 - Total US \$ Amount of PR

Allow exit from a selected PR without converting it to a PO and return to the selection screen to select another PR.

3. If it is a new PR or PO being created without a pre-existing PR, Prompt for PO Type, allow selection from pop-up window containing valid PO Types, otherwise continue and display the existing data.
4. Display the PO Header data portion on the screen, including the PO Type Code selected. Header data includes:
 - Purchase Request Number
 - Purchase Order Number (if a PO screen)
 - Bought From Vendor ID
 - Bill to Vendor ID
 - Ship to Co. ID
 - Pay to Vendor ID

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- Work Order/Kit ID Number
 - Project ID
 - Delivery To
 - Credit Terms (from Credit Terms Table in Table/Code Master File)
 - FOB (From FOB table in Table/Code Master File)
 - Shipping Method (from Shipping Method Table in Table/Code Master File)
 - GL Charge to Acct. No. (expense PO types)
 - Requester (purchase request)
 - Approver Name
 - Buyer
 - Request Date (purchase request)
 - Foreign Currency ID (foreign PO Types)
 - Foreign Currency Exchange Rate (foreign PO Types)
 - PO Text/Comments - user may use F3 function to enter extended comments
5. Once the header portion is completed, the user presses F9 to save this portion of the data. The PR or PO record is written to the file, but with only header data. From this point, the processing is essentially the same as a PR or PO change, adding additional data to this record as each step in the processing is completed. No actual processing of the PR/PO other than completing the rest of the data is allowed in the rest of the system unless the PR/PO record is complete, including at least one line item and at least one delivery schedule. Retained on the screen is a summary of the PO Header Data, including:
- PO Type Code
 - PR or PO Number
 - Bought from Vendor ID
 - Bought from Vendor Name
6. Each Line Item's data is entered in a separate pop-up containing the following data fields:
- Line Item Number
 - Line Item Text/Comments (the F3 window allows extended comments)
 - Line Item Part Number (must be a valid part master record unless PR/PO is an expense PO Type).
 - Line Item Vendor Part Number (optional)
 - Line Item Description (retrieve Part Master record description unless an expense PO Type, which allows override or entry).
 - Line Item US\$ Unit Price (unless Foreign PO Type)

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- Line Item Foreign Currency Unit Price (unless domestic PO Type)
 - Line Item Quantity Ordered
 - Line Item Purchase Unit of Measure (default to U/M from Part Master record; allow override for expense PO types; mandatory Part Master value for Outside Manufacturing PO Types)
 - Line Item Foreign Currency Extended Price (display only; foreign PO types only)
 - Line Item US \$ Extended Price (display only; domestic PO types only)
7. Once the line item data has been entered, the user saves it with F9 and it is added to the previously saved header data. Access is allowed to the full line item detail at any time by positioning the cursor on the appropriate line item and pressing the pop-up keys for the Line Item data. The following data are added to the PO header summary data already displayed on the base PR/PO screen:
- Line Item Number
 - Line Item Part Number
 - Line Item Text/Comments (in abbreviated form, just enough to allow access to the full text via the F3 function).
 - Line Item Order Quantity
 - Line Item Total US\$ Extended Price
 - Line Item Delivery Schedule (to access the schedule via pop-up window)
8. Allow access to the delivery schedule detail via pop-up window. Delivery data in this window includes:
- Line Item Number (display only, for reference)
 - Line Item Part Number (display only, for reference)
 - Line item Delivery Date (to the receiving dock)
 - Line Item Delivery Quantity (for this delivery increment; sum of all delivery quantities may not exceed the Line Item Order Quantity)
 - Line Item Scheduled Ship Date (foreign PO Types only)
 - Line Item Scheduled Customs Date (foreign PO Types only)

Purchase Request Subsystem Summary

Overview

The Purchase Request subsystem provides several significant capabilities:

- Ability to identify already existing open Purchase Orders that can be rescheduled or have their quantities changed to meet revised demands, prior to creating new automatically generated purchase requests (in effect, planned purchase orders).
- Ability to have a program automatically generate data for a Purchase Request file, where pending requests for purchase orders can be temporarily stored until placed as a purchase order. Expense Purchase Orders, when the capability is added, will be handled only via manual entry. Included in the initial subsystem will be generation of production material and outside manufacturing types of Purchase Request data.
- Ability to generate special purpose reports to support foreign purchasing activities, and to track when needed additional data has been furnished, and subsequently, to drive efficient creation of purchase orders.
- For Expense PO's, a later, planned capability includes an on-line approval process. For production material and outside manufacturing, the buyer constitutes the approval authority when he/she places the PO from directly from purchase request data, with no explicit approval process involved. The on-line approval capability for expense purchase orders is planned for future development and is not part of the initial purchase request subsystem.
- A process by which a buyer can, from within a purchase order, retrieve approved line items from the purchase request file and with function keys, cause their data to be copied into the purchase order data fields, and when the purchase order is saved, the related purchase request records are updated with the assigned PO number.

Automatic Purchase Request Generation - Overview

The main processes that can programatically generate Purchase Request and PO Change Request records are identified below. They are essentially the same for both foreign and domestic purchasing actions. All demand sources in AIMS/ERP are linked to work centers, and have additional purchasing source information in the form of Foreign? flags in the production configuration and part master tables. All automatic purchase request generation programs include checking for duplicates, so an unfilled Purchase Request still in the table is not duplicated, doubling its requirements.

Outside Manufacturing - Options include:

- O/Mfg Work Centers flagged as Foreign only.
- Certain, specifically identified O/Mfg work centers only.

The program analyzes the table used to generate Outside Manufacturing PO Planning Report for conditions requiring procurement action, then retrieves standard/default purchasing data from Work Center record for the operation needing to be "covered" with a PO. In this process, there is either a PO matched to the work order's operation or there isn't. The Scheduler program performs all other calculations for dates, quantities, etc. This program simply identifies operations that need a purchase order to have them performed.

In the O/Mfg PO Planning table, lines that have both work order and matching purchase order on the same line are considered "covered," so the program skips WO/Operation lines that have an associated O/Mfg PO with a matching work order. If there are work order operation lines that do not, these are used to create Purchase Request records. The program does not create PO Change Request records at this time.

Production Material - this program, which includes both In-bound and Drop Ship demand and supply data analysis has several options:

- Work Order material flagged as Foreign? = Y only
- Work Order material flagged as Domestic only
- Part Numbers flagged as Foreign Source = Y only
- Configuration (BOM) required P/N's with standard purchasing data only
- Part Numbers flagged for automatic purchase request generation, and that have standard purchasing data setup for them

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The production material purchase request generation process uses the same general process as the scheduler does in matching demand from next higher assembly sources to the mix of already open work orders plus planned work orders. The results of this process are then matched up with existing purchase orders, which will result in PO Change records being generated (similar to rescheduling open work orders in Scheduler), or Purchase Request records to initiate new purchase orders (similar to creating planned work orders). The same analysis is performed on both the PDS (In-Bound) and the DSDS (Drop Shipped) demand and supply tables. The overall process includes these steps:

1. Retrieves current demand and supply data and current order rule data, then generates a new supply schedule that supports existing demand information.
2. This new supply schedule is compared to existing supply data.
3. If there is one or more PO's already present in the PDS or DSDS record, the program creates one or more PO Change records to request that these PO's be changed to reflect the needed supply quantities and delivery schedule.
4. If there is no PO present, In-bound requirements are filled with PR records having the Ship To Vendor ID = the Receiving Vendor ID value in the Global Parameter. Drop Shipped requirements are filled with PR records having the Ship To Vendor ID that is identified in the DSDS table.
5. Generates a new purchase request record using the Bought From and Ship To Vendor ID data, for the required quantity and on-dock date. Other data such as work order numbers, demand source data, and dates required are carried forward from the generation process into the purchase request records to facilitate efficient inquiry, secondary updating
6. The resulting Purchase Request data can then be retrieved, reported, and additional data added via a secondary update screen to support offshore procurement processes.
7. The completed purchase request records are then copied into purchase order records, saved, with PO numbers assigned, and are ready for printing and FAXing or mailing.
8. The completed PO Change data is also copieable into purchase order record, saved, and is ready for printing, FAXing or mailing.

Generate O/Mfg Purch Req./PO Changes - subprogram

Screen Data:

Selection of Options:

O/Mfg Work Centers to generate PR's for:

- ALL
- Foreign Only
- Domestic Only
- Entered List (multiple W/C's)

Press F9 to begin execution (Job Server)

Functional Logic

This program reads the Outside Manufacturing PO (OM_PO_PLNG) Planning table, selecting those work center's for analysis depending on the options selected in the option screen. Each work center corresponds to a Buy From Vendor ID that will ultimately appear on a PO.

In comparing work order scheduling dates to PO delivery dates, the program retrieves and uses the P/MRP record's Days Late Filter value.

For each work center's record, the program analyzes the data lines by performing the following steps:

Reads each line, which will have one of three conditions:

1. Work Order data, with matching PO data.
2. Work Order data, no matching PO data
3. No work order data, PO data present

The actions taken by the program vary with each of these conditions:

If Condition 1 exists in the line, the program also compares the Work Order's Scheduled Operation Completion Date with the PO Delivery Date(s), via the following procedure to determine if a PO Change record should be generated to bring the PO Delivery & Quantity schedule into consistency with the Work Order's Operation Completion Date schedule:

Read the first PO Delivery Date.

If the PO Delivery date +/- the Days Late Filter value is earlier than or equal to the Operation Completion Date, then also test the Quantities.

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If it is not, then generate a PO Change record. (No PO delivery dates are early enough to support the work order's schedule).

If the PO Delivery quantity is less than the Operation Quantity Remaining, then continue and read the next PO Delivery date.

If the next PO Delivery date +/- the Days Late Filter value is earlier than or equal to the Operation Completion Date, then add the new line's PO Delivery Quantity to the preceding line's Delivery Quantity.

If the summed quantity is greater than or equal to the Operation Quantity Remaining, then the analysis is complete and no action is required. (the program then continues to read the next line in the table).

If it is not, then repeat the next PO Delivery Date read and test process, continuing until one of these conditions occurs:

1. There are no more PO Delivery Dates that are earlier than or equal to the Operation Completion Date.

If this occurs, then a PO Change is generated for the difference between the cumulative PO Delivery Quantity at this point and the Operation Remaining Quantity, using the Operation Completion Date as the requested PO Delivery Date for the PO Change record. Existing PO Delivery Dates and Quantities are also output to the PO Change record, along with the new Date & Quantity.

2. The cumulative Delivery Quantity has exceeded the Operation Quantity Remaining. If this occurs, the analysis is complete and no action is required.

If Condition 2 exists, then a Purchase Request record is generated, using the table below as reference to develop the data fields.

If Condition 3 exists, then a PO Change record is created to indicate that the PO should be closed.

The program checks the Purchase Request and/or the PO Change table before writing to it to ensure that duplicate records are not created, or if a PO has been placed for an already existing PR line that matches an un"covered" line in the source table. Duplicate data, for checking purposes, is a match on these data, i.e., a PR record would otherwise be written if there is no preexisting record for these data:

- Work Order No.
- Operation No.
- Work Center ID

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Source data, where available, is taken from the Outside Manufacturing PO Planning table record for each work center, and by using these data to retrieve additional data from the Work Center Master record for this Work Center ID, the Part Master table for the Work Order Parent Part Number, Global Default table, and the Open Work Order record for NHA demand data.

Each Purchase Request line contains the following data fields that are updated as indicated in the table below.

The program is run after the Outside Manufacturing PO Planning table generation program has successfully completed its processing.

Purchase Request record	S/M	Data Source	Comments
Field Name			
FORCURUNITPRI CE	M	Work Center	Uses Work Center ID in O/Mfg Planning record; use Vendor ID field; use Std For Cur U/Price field
FOB	S	Work Center	Uses Work Center ID in O/Mfg Planning record; use Vendor ID field; use Std FOB field
FORCURID	S	Work Center	Uses Work Center ID in O/Mfg Planning record; use Vendor ID field; use Std Foreign Currency ID field
FOREIGN?	S	Work Center	Uses Work Center ID in O/Mfg PO Planning record; use Foreign? field.
PAYVENDOR	S	Work Center	Uses Work Center ID in O/Mfg Planning record; use Vendor ID field; use Std Ship Pay ID field
SHIPVENDOR	S	Work Center	Uses Work Center ID in O/Mfg Planning record; use Vendor ID field; use Std Ship Vendor ID field
SHIPVIA	S	Work Center	Uses Work Center ID in O/Mfg Planning record; use Vendor ID field; use Std Ship Via field

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TERMS	S	Work Center	Uses Work Center ID in O/Mfg Planning record; use Vendor ID field; use Std Terms field
FORCUREXTPRICE	M	Program	QTYREQ X FORCURUNITPRICE
PRLINO	M	Program	always "1"
USEXTPRICE	M	Program	QTY REQ X USUNITPRICE
USUNITPRICE	M	Program	Calculated from Std For Cur U/Price X For Cur Rate
POTYPE	S	Program	If Work Center Foreign? flag = Y, then is FO; otherwise is DO; Use Outside Mfg PO PIng record Work Center ID
PURCHREQNO	S	Program	Next incremental number
REQDATE	S	Program	System Date
REQUUSERID	S	Program	"System generated"
PRODUCT	M	Part Master	Uses Parent Part No.
PURUM	M	Part Master	Stock U/M
BUYER	S	Part Master	Part Number's Buyer Code value in Part Master
DELDATE	M	Outside Mfg PO PIng	Opn Sched Compl Date
DESCRIPTION	M	Outside Mfg PO PIng	PPN Description
LIPARTNO	M	Outside Mfg PO PIng	Parent Part No
QTYREQ	M	Outside Mfg PO PIng	PPN Quantity Remaining
BUYVENDOR	S	Outside Mfg PO PIng	Vendor ID
OPNNO	S	Outside Mfg PO PIng	Operation No.
WONO	S	Outside Mfg PO PIng	Work Order No.
WOSTS	S	Outside Mfg PO PIng	Status
NHAPPN	M	Open Work Order	NHA WOPPN using WO No in Outside Mfg PO PIng
NHAWONO.	M	Open Work Order	NHA Demand; using WO No in Outside Mfg PO PIng
GLNO	M	not updated	left blank
PRLICMMNTS	M	Not updated	left blank
VENDPN	M	Not updated	left blank
DELIVERTO	S	Not updated	left blank
INCOMMENT	S	Not updated	left blank
OKBY	S	Not updated	left blank
OKDATETIME	S	Not updated	left blank
PODATE	S	Not updated	Blank
PROJID	S	Not updated	left blank
VENDCOMMENT	S	Not updated	left blank

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PONO	S	Not Updated	Blank
BILLVENDOR	S	Global Default company Vendor ID record	
FORCURREATE	S	Foreign Currency Look Table	Use Foreign Currency ID from Work Center to retrieve appropriate conversion rate

PO Change Data Field Reference:

Field Name	S/ M	Data Source	Comments
PONO	S	Outside Mfg PO PIng	PO No.
LINO	M	Outside Mfg PO PIng	L/I for this WO on O/Mfg PO
LIPN	M	Outside Mfg PO PIng	Par. P/N for this WO.
CURDELDATE	M	Outside Mfg PO PIng	Current Delivery Date
CURDELQTY	M	Outside Mfg PO PIng	Current Delivery Quantity
NEWDELDATE	M	Outside Mfg PO PIng	Opn Scheduled Compl Date
NEWDELQTY	M	Outside Mfg PO PIng	Quantity Remaining
CHANGEDATE	S	Program	System Date
NHAWONO.	M	blank	blank
NHAPPN	M	blank	blank
PRODUCT	M	Open Work Order	If available
FOREIGN?	M	Outside Mfg PO PIng	If Foreign O/Mfg W/Center
WOSTS	M	Outside Mfg PO PIng	WO Status

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Generate Production Material Purch. Req./Changes - subprogram

Screen Data:

Selection Options:

1. Part Numbers to be analyzed:

Select by Exception Code values? (Y/N) - optional

Enter Exception Code(s) to be used in selection x,x,x,x

2. Generate PO Changes and Request for (ALL) or:

Foreign PO Types only

Domestic PO Types only

3. Generate PO Changes and Request for Independent

Demand Part Numbers (ALL) or:

x-----x

x-----x

4. Generate PO Changes and Request through:

Order Window Date

All Demand Dates

Press the F9 key to accept these options and begin processing.

Functional Logic

This program reads the PDS and DSDS tables, selecting those part numbers for analysis depending on the Exception Code option selected. In actuality, it is two separate programs, each using common selection options and creating records in the Purchase Request table, but employing slightly different processing logic due to the different record structures. DSDS table data is processed as Vendor ID specific subsets, and does not use any Available Inventory data in its calculations. Otherwise it is the same as that for PDS table processes. Each of these processes is defined separately below.

Upon selection from the menu, the program displays the Selection options window and accepts the following as options:

- Selection of part numbers to be analyzed
- Foreign/Domestic PO Changes/Request selection
- PO Changes/Requests associated only with selected specific independent demand items only.
- Generate PO Change/Request data through the normal purchase ordering window, defined by the Order Window Date in the record, or beyond this date to cover all demand data in the PDS or DSDS tables.

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These options are retained and used for selection criteria in both the PDS and DSDS processing portions of the program. The general form of the processing logic is:

1. If the part numbers is included in the selection list, all activity lines through the order window date are analyzed.
2. A calculated Supply Plan is generated, consisting of a set of "ideal" PO delivery dates and quantities that is calculated from current values for safety stock, the order rule in effect for this part number and current available inventory that meets demand dates and quantities without generating excess inventory (beyond order rule remaining quantities). The Supply Plan is calculated to "cover" demand through activity line dates that are equal or earlier than the Order Window Date.
3. This Supply Plan is compared to existing PO data, then PO Changes and Requests are generated, that, if added to existing PO data will balance demand & supply within the inventory control variables provided (safety stock level and order rule). The Supply Plan is written to the PDS or DSDS record as a separate set of data fields. The Supply Plan's fields are:
 - Supply Date
 - Supply Quantity
 - Calculated Inventory Level
4. If the PO Change/Request data lines do not meet the selection criteria entered, then these lines are not added to the PO Change or Purchase Request table.
5. Continue to the next PDS record in the selection until all have been processed.

PDS Table Processing - this program reads the PDS table data for each Part Number, and analyzes its activity lines using the order rule, safety stock and projected inventory data. Projected inventory data is adjusted for during the process so that it is always equal or greater than the safety stock quantity.

Order Rule Process Summary

The program retrieves the Default Order Rule record from the Global Parameters table. This record contains the Order Rule number that the program is to use in the event it encounters a part number with no defined order rule. The table below defines, in general terms, how order rules are to be used in generating Purchase Request records and associated data. More explicit processing details follow in the Order Rule Processing section below.

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Order Rule

No.	Explanation	Program Action	Comments
1	Order Exact Requirements	Generates one PR line for each demand line; one for one association	
2	Order Fixed Quantity	Generates "n" number of PR lines; "n" is the number of PR lines needed to meet demand quantity with PR qty = Fixed Order quantity	Total PR Qty will usually be greater than demand qty due to "rounding up"
3	Order Monthly Quantity	Adds all demand quantities for demand lines with same month in date; generates one PR record for total required for all demand lines	Assumes monthly deliveries or production
4	Order Weekly Quantity	Adds all demand quantities for demand lines with same week in date; generates one PR record for total required for all demand lines	Assumes weekly deliveries or production
5	Order Exact Requirements between Minimum & Maximum	Generates one PR line for each demand line, but will increase PR quantity if demand quantity is greater than minimum order quantity, or generate more than one PR line if demand quantity is greater than maximum order quantity	Most complex; demand lines to PR lines ratio may vary significantly; may or may not inflate PR quantity over demand quantity.
6	Order Exact Requirements with minimum quantity	Generates one PR line for each demand line, but the PR line may be greater than the demand quantity if the minimum order quantity is larger	Minimum order quantity may inflate PR quantity over demand quantity.
7	Order Exact Requirements with Maximum Qty	Generates one PR line for each demand line, but if the demand quantity is greater than the maximum order quantity, may generate more than one PR line per demand line	Total PR quantity will not exceed total Demand quantity; however, number of PR lines may be greater (more orders)

PDS Table Processing Logic

The processing of the PDS table data uses the following general steps:

1. At the outset of the process, retrieve these values from the P/MRP Parameter table:
 - Days Late Filter Days
 - Delivery Date Offset Days
 - Quantity Variation Filter
2. Select PDS or DSDS records using the Exception Codes selected on the entry screen.
3. Read each PDS (or for a DSDS record, each Vendor ID's subset of data) record's demand data into the Supply Planning Array in memory. The Supply Planning Array's fields include:

Demand Lines:

- Demand Date = Demand Line's Demand Date
- Demand Quantity = Demand Line's Demand Quantity
- Demand Source = Demand Line's Work Order No.
- Independent Demand Part No. = from Demand Line
- Independent Demand Date = from Demand line0
- Foreign? = Demand Line's Foreign? flag value (Y/N)

These fields in the Demand Array remain blank at this point in the process:

- Over/Under Planned Quantity

Supply Plan Lines:

- Calculated Inventory
- Supply Date
- Supply Quantity

Current PO Lines:

- Current Delivery Date
- Current Delivery Qty
- Current PO No.

4. Get Scheduling variables for the part number - retrieving the following data from the Part Master record via the PDS or DSDS table record) for the Part Number:
 - Safety Stock Quantity
 - Order Rule

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- Minimum Order Quantity
 - Maximum Order Quantity
 - Fixed Order Quantity
 - Purchased Lead Time
5. Calculate the Supply Plan multi-value stack for the PDS or DSDS record via the following process:
- Obtain the Calculated Inventory value for each new demand line in the array:
 - Beginning Calculated Inventory figure is the Available Inventory quantity from the PDS record. If a DSDS record is being processed, the Available Inventory value is initialized to zero.
 - Calculate the first calculated Inventory value by subtracting the Demand Quantity for that line from the Available Inventory value.
 - Calculate subsequent lines by subtracting the Demand Quantity for that line from the preceding line's Calculated Inventory Value.
 - Triggering Supply Date/Quantity Calculation Process - For each line, if the resulting Calculated Inventory figure is less than the Safety Stock Quantity, or if Safety Stock Quantity is blank or zero, less than zero, initiate Supply Date and Quantity Calculation process.
 - Safety Stock Only Process - If the following conditions exist perform the process that follows:
 - Safety Stock Quantity is greater than zero,
 - There is no Demand Date and Quantity data,
 - Available Inventory is less than Safety Stock Quantity
 - Calculate Safety Stock Demand Quantity from Safety Stock Quantity minus Available Inventory.
 - Set Demand Date to the current system date.
 - Initiate Supply Date and Quantity Calculation using these two values as the Demand Date and Quantity values.
 - Supply Date/Quantity Calculation Process - For each Supply Plan line calculation that triggers this process, perform the following to calculate and update the Supply Planning Array with the appropriate Supply Date and Quantity values:

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- Perform the Order Rule process associated with the Order Rule and any associated data for that order rule to obtain the Supply Quantity for the Demand Quantity in this line. This process will return multiple Supply Quantities if the Order Rule results in a Supply Quantity that is less than the Demand Quantity. In this case, all will have the same Supply Date.
- Obtain the Supply Date associated with this Supply Quantity by subtracting the Delivery Date Offset Days filter value from the Demand Date from the line that triggered this process.
- The new Supply Date and Quantity is added to the Supply Planning Array and the Calculated Inventory value is recalculated with the new Supply Date/Quantity values inserted earlier or equal to the Demand Date. This value now becomes the value passed to the next Demand Line's Calculated Inventory figure process.

NOTE: This process will result in a Supply Date that is earlier than or equal to the Demand Date that triggered the supply date/quantity calculation, i.e., a calculated PO action. Due to Order Rule logic, this may result in a remaining quantity that is used to satisfy subsequent demand dates/quantities. In any case, the resulting Calculated Inventory values for the entire Supply Planning Array should reflect the minimum calculated inventory value consistent with the Order Rule in effect that will cover all demand date/quantities if the Supply Plan were reflected by actual PO delivery data. The Delivery Date Offset value will cause the Supply dates to be at least one day earlier than the demand date, to allow for receipt to dock and issue to work orders. If prior demand line's dates are the same as this demand line, the effect of the new supply planned date/quantity is confined to the current demand line only.

- The process is repeated for all demand line's in the PDS or Vendor ID Subset of the DSDS data until a complete Supply Plan is calculated.
 - The Current Delivery Date, Current Delivery Quantity, and Current PO Number fields remain blank at this point.
6. Order Rule Processes - Select the appropriate Order Rule Process using the Order Rule value for the part number. If the Order Rule field is blank, use Order Rule 1, Exact quantity as the default. Each Order Rule's process is defined below. When the process is completed, it will have obtained the Supply Quantity (and Demand Date where there is a date effect due to the

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Order Rule) and the program returns to the next step in the Supply Date/Quantity Calculation Process.

Order Rule 1 - Order Exact Requirements - In this algorithm, demand dates and quantities are grouped into supply lines, representing planned purchase order data, with supply dates and quantities exactly matching demand dates and quantities on a one for one, or order-per-order basis. Turned into PO's unchanged, each PO date and quantity would be for a single work order demand. The Supply Quantity = Demand Quantity.

Order Rule 2 - Order Fixed Order Quantity - In this algorithm, demand data is processed to produce planned quantities that are equal to the Fixed Order Quantity shown for the part number in its Part Master record. Any "extra" demand quantity is "rounded up" in effect by creating an additional Supply line with the Fixed Order quantity as the Supply Quantity. This method will usually leave some extra quantity over and above demand quantities, i.e., extra inventory. The steps include:

Retrieve the Fixed Order Quantity value from the Part Master table record for the part number.

Process the Demand line data against the Fixed Order Quantity value as follows:

Demand Quantity
minus Fixed Order Quantity
= Over/Under Planned Quantity for this demand line

If the Over/Under Planned value is zero (demand quantity equals fixed order quantity), then a Supply line is generated matches the Demand line data exactly:

Supply Date = Demand Date
Supply Quantity = Demand Quantity
Over/Under Planned Quantity = zero

If the Over/Under Planned Quantity is a negative value (demand quantity is less than the fixed order quantity), the Demand Quantity for this demand line is added to the next Demand line and the Over/Under Planned Quantity is calculated again. The process may be repeated with subsequent demand lines until the cumulative Demand Quantity is equal or greater than the Fixed Order Quantity. These demand lines are satisfied by a single Planning Line where:

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Supply Date = Demand Date (first line in the cumulation process)
Supply Quantity = Cumulative Demand Quantity (from multiple demand lines)
Over/Under Planned Quantity = zero

The effect of this process is that a Supply line is created that satisfies multiple Demand Dates and their associated quantities, but with a single Supply line having a Supply Date early enough to satisfy the first demand quantity in this summed group.

If the Over/Under Scheduled Quantity is greater than zero, and positive, then then a Planning Line is generated where:

Supply Date = Demand Date
Supply Quantity = Demand Quantity
Over/Under Planned Quantity = Calculated value

And the Over/Under Planned Quantity is added to the next Demand line's Demand Quantity before continuing processing. Generate an additional Supply Line for each iteration of this process, repeating it for successive demand lines until the resulting Over/Under Planned Quantity becomes zero or negative. The Demand Date from the initial demand line that generated the Over/Under Planned Quantity is the Supply Date value for each successive Planning Line.

This process compensates for the fact that the Demand Quantity was greater than the Fixed Order quantity, so multiple orders due at the same time are planned to satisfy this total demand, each Supply Line representing a separate Purchase Order that will be updated or created.

Order Rule 3 - Order Monthly Order Quantity - In this algorithm, Demand data is processed to produce Supply Quantities and associated dates that are equal to the total demand falling between the first and last calendar days within a calendar month. The steps include:

Read the Demand lines, identifying the first Demand Date's calendar month.

For each successive Demand Date having the same calendar month as the line used to start the accumulation process, add each successive Demand line's Demand Quantity to the previously accumulated value until a Demand Date is reached that is the next Calendar month. At this point, a Planning line is generated where:

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Supply Date = Demand date (from the first line in the cumulation process)
Supply Quantity = Cumulative Demand Quantity (from multiple lines)
Over/Under Planned Quantity = zero

Order Rule 4 - Order Weekly Order Quantity - In this algorithm, Demand data is processed to produce Supply Quantities and associated dates that are equal to the total demand falling between the first and last calendar days within a calendar week. The steps include:

Read the Demand lines, identifying the first Demand Date's calendar month.

For each successive Demand Date having the same calendar month as the line used to start the accumulation process, add each successive Demand line's Demand Quantity to the previously accumulated value until a Demand Date is reached that is the next Calendar week. At this point, a Supply line is generated where:

Supply Date = Demand date (from the first line in the cumulation process)
Supply Quantity = Cumulative Demand Quantity (from multiple lines)
Over/Under Planned Quantity = zero

Order Rule 5 - Order Exact between Minimum & Maximum Quantities - In this algorithm, Demand data is processed to produce Supply Quantities that are equal or greater than the Minimum Order Quantity and equal or less than the Maximum Order Quantity shown for the part number in its Part Master record. The steps include:

Retrieve the Minimum and Maximum Order Quantity values from the demand table record for the part number.

Process the Demand line data against the Minimum and Maximum Order Quantity values as follows:

If the demand line's Demand Quantity is equal or greater than the Minimum Order Quantity and equal or less than the Maximum Order Quantity, then the Supply line data matches the demand line dates and quantities exactly:

Supply Date = Demand Date
Supply Quantity = Demand Quantity
Over/Under Planned Quantity = zero

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If the Demand line's Demand Quantity is less than the Minimum Order Quantity, then the Demand Quantity for this demand line is added to subsequent demand lines until the cumulative sum is equal or greater than the Minimum Order Quantity. These demand lines are satisfied by a single Planning Line where the Supply Date is equal to the first Demand Date that was less than the Minimum Order Quantity value. The corresponding Supply Quantity therefore is the sum of multiple smaller demands.

If the demand line's Demand Quantity is greater than the Maximum Order Quantity, then calculate the Over/Under Scheduled Quantity for this Demand Line as follows:

Demand Quantity
minus Maximum Order Quantity
= Over/Under Planned Quantity

A Supply line is generated where:

Supply Date = Demand Date
Supply Quantity = Demand Quantity
Over/Under Planned Quantity = calculated value

The Over/Under Planned Quantity is added to the next Demand line's Demand Quantity before continuing processing. Generate an additional Supply Line for each iteration of this process, repeating it for successive demand lines until the resulting Over/Under Planned Quantity becomes zero or negative. The Demand Date from the initial demand line that generated the Over/Under Planned Quantity is the Supply Date value for each successive Supply Line.

Order Rule 6 - Order Exact with Minimum Quantity - In this algorithm, demand dates and quantities are grouped to produce Supply Dates and Quantities that are equal or greater than the Minimum Order Quantity shown for the part number in its Part Master record. Its steps include:

Retrieves the Minimum Order Quantity from the Part Master record for this Part Number. Process the Demand Line data in the Array with the following:

Demand Quantity
minus Minimum Order Quantity
= Over/Under Planned Quantity for this demand line

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If the Over/Under Planned Quantity value is zero or a positive value, then a Supply Line is written where:

Supply Date = Demand Date
Supply Quantity = Demand Quantity
Over/Under Planned Quantity = zero

If the Over/Under Planned quantity is negative, the Demand Quantity for this demand line is added to the next Demand line's Demand Quantity and the Over/Under Planned Quantity is calculated again. The process may be repeated with subsequent demand line until the cumulative Demand Quantity becomes equal to or greater than the Minimum Order Quantity. Each of these Demand Lines will have a Supply line where:

Supply Quantity = Cumulative Demand Quantity (from multiple demand lines)
Supply Date = Demand Date (for that Demand line)

The effect of this process is that a supply line is created that satisfies multiple demand dates and associated quantities, but with a single planning data line having a completion date early enough to satisfy the first demand quantity in this summed group.

Order Rule 7 - Order Exact with Maximum Quantity - In this algorithm, demand data is processed to produce Supply Dates and Quantities that are equal or greater than the Maximum Order Quantity shown for the part number in its Part Master record. The steps include:

Retrieves the Maximum Order Quantity from the Part Master record for this Part Number. Process the Demand Line data in the Array with the following:

Demand Quantity
minus Maximum Order Quantity
= Over/Under Planned Quantity

If the Over/Under Scheduled Quantity value is zero or a negative value, then a Supply Line is generated where:

Supply Date = Demand Date
Supply Quantity = Demand Quantity
Over/Under Planned Quantity = zero

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If it is greater than zero, and positive, then a Supply Line is generated where:

Supply Date = Demand Date

Supply Quantity = Demand Quantity

Over/Under Planned quantity = calculated value

And the Over/Under Planned Quantity is added to the next Demand line's Demand Quantity before continuing processing. Generate an additional Supply Line for each iteration of this process, repeating it for successive demand lines until the resulting Over/Under Planned Quantity becomes zero or negative. The Demand Date from the initial demand line that generated the Over/Under Scheduled Quantity is the Demand Date value for each successive Planning Line.

This process compensates for the fact that the Demand Quantity was greater than the Maximum Order Quantity, so multiple Supply lines (planned purchase orders) due at the same time are planned to satisfy this total demand, each Supply Line representing a separate purchase order that will be updated or created.

7. Load existing supply data into Supply Planning Array - This portion of the program selects PO data from the PDS table record and copies it into the Supply Planning Array. This enables a comparison to be made between the "ideal" or calculated Supply Dates and Quantities, as generated above, and the existing purchase order delivery scheduled dates and quantities. These steps include:

Retrieve PO Supply lines from the PDS (or Vendor ID subset of the DSDS table) table and copy into the Supply Planning Array fields, in Delivery Date sequence, using these fields:

Current Delivery Date = PO Delivery Date

Current Delivery Quantity = PO Remaining Delivery Quantity

Current PO No. = PO No.

8. Analyze Supply Planning Array data to identify Purchase Actions - This portion of the program scans the completed Supply Planning Array, compares the Current Delivery & Quantity with Supply Dates and Quantities and determines one of the following actions to be required to bring demand and supply into balance:
 - No change to current PO Data.

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- Generate one or more PO Changes
- Generate one or more Purchase Requests

General rules - for this analysis/process are:

Generate PO Changes for move in or out

Rules for Move In:

demand earlier than delivery date
and/or

demand qty greater than del'y qty

Rules for Move Out

demand later than delivery date
and/or

demand qty less than del'y qty

To adjust existing date/qty lines only

No additional dates/qty lines to be added

No additional L/I's to existing PO.

Generate PR's for no PO's present - rules

New date/qty line needed due to order rule logic

New L/I needed; no PO present.

To eliminate trivial PO changes or requests from being generated, this portion of the program uses several filters during the comparison process to accept small differences in dates or quantities as being equivalent to a match. These filters are stored and maintained in the P/MRP Parameters Window:

- Days Late Filter - if the difference between a Supply Date and Current PO Date is within this range, it is taken as a match and no PO Change or Purchase Request record will be generated.
- Quantity Variation Percentage Filter - (New field in P/MRP window) - If the difference between a Supply Quantity and a Current PO Delivery Quantity is within this percentage range, it is taken as a match and no PO Change or Purchase Request record will be generated.

Specific steps - these include:

Read the Supply Planning Array in Supply Date sequence.

For each Supply Date, attempt to locate a Current Delivery Date line that is within the Days Late Filter range that matches it.

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If it does match, skip to the Supply Quantity vs Current PO Quantity comparison step.

If it does not match, scan the Current PO Dates for a Current PO Line, and:

If there is none found, skip to the Create Purchase Request step.

If there is one, skip to the Create PO Change Request step.

Compare the Supply Quantity to the Current PO Quantity, using the Quantity Variation Percentage Filter to determine if there is a match within this range:

If it does match, there is an adequate match between the supply plan calculated date and quantity and that which actually exists at this point in the Array; skip any further processing and read the next Supply Date line in the sequence. If there are no more Supply Date lines, the Array has been completely processed and no further action is needed for this Part Number.

If it does not match, skip to the Create PO Change step.

Create PO Change - This step is performed when the Supply vs Current scan has located a Current PO that is open, but has either a date or quantity mismatch between the Supply plan calculated and Current PO data. The key element in this step is to insure that all related demand lines that are associated with the Supply Line information are written to the PO Change record to provide full demand traceability. The PO Change table data reference shown below for the PDS table generation process contains the rules and data sources for generating each data field in the record.

If there is an already existing PO Change Record for this Purchase Order Number and Part Number, the program will update this record with new delivery dates and quantity data. As long as there is a mismatch between calculated supply dates and quantities and actual values, the program will generate or update a PO Change Record for that PO until the change is actually incorporated into the PO.

CHANGE: delete DP, FP types at first of run to eliminate PO Change records for POs that have closed and would otherwise not be found. PO Changes are re-written each run.

PO Change Data Field Reference:

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Field Name	S/ M	Data Source	Comments
PONO	S	Demand Array	Current PO No.
LINO	M	PDS	L/I for this P/N
LIPN	M	Program	P/N being processed
CURDELDATE	M	Demand Array	Current Delivery Date
CURDELQTY	M	Demand Array	Current Delivery Quantity
NEWDELDATE	M	Demand Array	Supply Date
NEWDELQTY	M	Demand Array	Supply Quantity
CHANGEDATE	S	Program	System Date
NHAWONO.	M	Demand Array	Demand WO No.'s associated with this Supply Line
NHAPPN	M	PDS	Uses Demand WO to retrieve the Parent P/N for this WO no.
INDDMDPN	M	PDS	Independent Demand P/N value carried into PDS from WO Detail
INDDMDDATE	M	PDS	Independent Demand Date value carried into PDS from WO Detail
FOREIGN?	M	Demand Array	Demand Foreign? Flag value
WOSTS	M	PDS	Uses Demand WO to retrieve WO status for this WO No.

Create Purchase Request - This step is performed when the Supply vs Current scan has not located a Current PO that is open. This will occur either because there are no open PO's for this Part Number at all in the PDS table, or because all open PO's have already been matched with Supply line data, with or without a PO Change record being generated. The Purchase Request record is intended to signal the need for a new Purchase Order. The Buyer may choose to add this to an existing purchase order, or to create a new PO.

The Purchase Request reference table below describes how the program generates each data field in the record.

Prior to creating a new PR record, the program will attempt to locate an already existing Purchase Request record previously created to satisfy the same demand. The same demand is defined as a match on Part Number, Work Order Number and Operation Number. If there is a match, this record is

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updated instead of creating a new one. Each time the same PR record is updated, the LASTUPD field's multi-value stack is pushed down and the current date added. This will enable a history of changes to be made.

A separate set of audit name, date, time fields keeps track of when PO Request record fields are changed via manual update screens.

Purchase Request Data Field Reference:

Field Name	S/ M	Data Source	Comments
PURCHREQNO	S	Program	Next incremental number
POTYPE	S	Program	If the first demand line (in a multiple demand list) is Foreign Flag = Y, then is FP, otherwise is DP.
REQDATE	S	Program	System Date
PONO	S	Not updated	left blank
PODATE	S	Not updated	left blank
BUYVENDOR	S	Not updated	left blank
BILLVENDOR	S	Global Default company Vendor ID record	
SHIPVENDOR	S	Product Configuration	Product Configuration Retrieval & Search Logic: Uses WO Parent P/N & Operation in demand line to retrieve matching Prod. Config record; then PDS part number to find appropriate Req'd P/N line's standard purchasing data
PAYVENDOR	S	Product Configuration	Product Configuration Retrieval & Search Logic
REQUUSERID	S	Program	"System Generated"
OKBY	S	Not Updated	left blank
OKDATETIME	S	Not updated	left blank
BUYER	S	PDS	Buyer Code value
WONO	S	PDS	Work Order No.
PROJID	S	Not updated	left blank
DELIVERTO	S	Not updated	left blank
TERMS	S	Product Configuration	Product Configuration Retrieval & Search Logic

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FOB	S	Product Configuration	Product Configuration Retrieval & Search Logic
SHIPVIA	S	Product Configuration	Product Configuration Retrieval & Search Logic
FORCURID	S	Product Configuration	Product Configuration Retrieval & Search Logic
FORCURRATE	S	Product Configuration	Product Configuration Retrieval & Search Logic
INCOMMENT	S	Not updated	left blank
VENDCOMMENT	S	Not updated	left blank
PRLINO	M	Program	always "1"
PRLICMMNTS	M	Not updated	left blank
LIPARTNO	M	PDS	PDS Part Number
VENDPN	M	Not updated	left blank
DESCRIPTION	M	PDS	PDS Description
USUNITPRICE	M	Program	Calculated from Std For Cur U/Price X For Cur Rate
FORCURUNITPRI CE	M	Product Configuration	Product Configuration Retrieval & Search Logic
QTYREQ	M	Program	Depends on Order Rule process results
PURUM	M	PDS	Stock U/M
GLNO	M	Not updated	left blank
USEXTPRICE	M	Program	QTYREQ X USUNITPRICE
FORCUREXTPRIC E	M	Program	QTYREQ X FORCURUNITPRICE
DELDATE	M	Demand Array	Supply Date
NHAWONO.	M	Demand Array	All Demand WO No.'s associated with this Supply Date; "key" to multi-value stack listing all WO's that this requested PO would fulfill.
NHAPPN	M	PDS	Uses Demand WO to retrieve the Parent P/N for this WO no.
INDDMDPN	M	PDS	Independent Demand P/N value carried into PDS from WO Detail
INDDMDDATE	M	PDS	Independent Demand Date value carried into PDS from WO Detail

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FOREIGN?	M	Demand Array	Demand Foreign? Flag value
WOSTS	M	PDS	Uses Demand WO to retrieve WO status for this WO No.

9. When all PO Change and Purchase Request records have been generated, using the selection options entered on the entry screen to not write those that do not meet these criteria have been screened out, the program writes the Supply Plan data to the corresponding fields in the PDS and DSDS table records just processed. The DSDS table's Supply Plan fields are associated with the Vendor ID used to generate them. The program then reads the next PDS record, or next Vendor ID's subset in the DSDS table processing and the process starts at the beginning.

DSDS Table Processing

The processing of the DSDS table records follows the same general steps as the PDS table with the following alterations:

- DSDS data is processed as subsets from the Part Number level, in which all activity lines with the same Vendor ID are processed as a set, with the Supply Planning Array cleared before processing the next Vendor ID set.
- There is no Available Inventory value used in processing DSDS activity lines, since there perpetual inventory items cannot be used to satisfy demand for an off-site work center.
- The PO Change and Purchase Request records generated have somewhat different source data, but are otherwise generated using the exact same logic as in processing the PDS table data.

PO Change Data Field Reference:

Field Name	S/ M	Data Source	Comments
PONO	S	Supply Plan Array	Current PO No.
LINO	M	PDS	L/I for this P/N
LIPN	M	Program	P/N being processed
CURDELDATE	M	Supply Plan Array	Current Delivery Date
CURDELQTY	M	Supply Plan Array	Current Delivery Quantity

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NEWDELDATE	M	Supply Plan Array	Supply Date
NEWDELQTY	M	Supply Plan Array	Supply Quantity
CHANGEDATE	S	Program	System Date
NHAWONO.	M	Supply Plan Array	Demand WO No.'s associated with this Supply Line
NHAPPN	M	DSDS	Uses Demand WO to retrieve the Parent P/N for this WO no.
INDDMDPN	M	DSDS	Independent Demand P/N value carried into PDS from WO Detail
INDDMDDATE	M	DSDS	Independent Demand Date value carried into PDS from WO Detail
FOREIGN?	M	Demand Array	Demand Foreign? Flag value
WOSTS	M	DSDS	Uses Demand WO to retrieve WO status for this WO No.

Purchase Request Data Field Reference:

Field Name	S/ M	Data Source	Comments
PURCHREQNO	S	Program	Next incremental number
POTYPE	S	Program	If the Supply Plan line Foreign Flag = Y, then is FP, otherwise is DP.
REQDATE	S	Program	System Date
PONO	S	Not updated	left blank
PODATE	S	Not updated	left blank
BUYVENDOR	S	Not updated	left blank
BILLVENDOR	S	Global Default company Vendor ID record	
SHIPVENDOR	S	Product Configuration	Product Configuration Retrieval & Search Logic: Uses WO Parent P/N & Operation in demand line to retrieve matching Prod. Config record; then PDS part number to find appropriate Req'd P/N line's standard purchasing data
PAYVENDOR	S	Product Configuration	Product Configuration Retrieval & Search Logic

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REUSERID	S	Program	"System Generated"
OKBY	S	Not Updated	left blank
OKDATETIME	S	Not updated	left blank
BUYER	S	DSDS	Buyer Code value
WONO	S	DSDS	Work Order No.
PROJID	S	Not updated	left blank
DELIVERTO	S	Not updated	left blank
TERMS	S	Product Configuration	Product Configuration
			Retrieval & Search Logic
FOB	S	Product Configuration	Product Configuration
			Retrieval & Search Logic
SHIPVIA	S	Product Configuration	Product Configuration
			Retrieval & Search Logic
FORCURID	S	Product Configuration	Product Configuration
			Retrieval & Search Logic
FORCURREATE	S	Product Configuration	Product Configuration
			Retrieval & Search Logic
INCOMMENT	S	Not updated	left blank
VENDCOMMENT	S	Not updated	left blank
PRLINO	M	Program	always "1"
PRLICMMNTS	M	Not updated	left blank
LIPARTNO	M	DSDS	Part Number
VENDPN	M	Not updated	left blank
DESCRIPTION	M	DSDS	Description
USUNITPRICE	M	Program	Calculated from Std For Cur U/Price X For Cur Rate
FORCURUNITPRI CE	M	Product Configuration	Product Configuration
			Retrieval & Search Logic
QTYREQ	M	Supply Plan Array	Depends on Order Rule process results
PURUM	M	DSDS	Stock U/M
GLNO	M	Not updated	left blank
USEXTPRICE	M	Program	QTYREQ X USUNITPRICE
FORCUREXTPRIC E	M	Program	QTYREQ X FORCURUNITPRICE
DELDATE	M	Supply Plan Array	Depends on Order Rule Process results; typically equals Demand Date - Del. Date Offset days
NHAWONO.	S	Open Work Order	NHA Demand using DSDS WO No. to retrieve.
NHAPPN	S	Open Work Order	NHA WOPPN using DSDS WO No. to retrieve.

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INDDMDPN	M	DSDS	Independent Demand P/N value carried into DSDS from WO Detail
INDDMDDATE	M	DSDS	Independent Demand Date value carried into DSDS from WO Detail
FOREIGN?	S	Supply Plan Array	Foreign Flag value from demand data
WOSTS	S	DSDS	WO Status from demand data

Foreign Open Purchase Request Report

Screen Data:

Selections:

Independent Demand Month xx/xx

Products

x-----x

x-----x

x-----x

F9 to Print Report

Report Format:

See "LJRPT.DOC" table for format specification.

Functional Logic

This report is generated from the Purchase Request table records. These records are generated by three distinct processes:

- Outside Manufacturing PO Purchase Request & PO Change Generation
- Generate Purchase Request & PO Changes - In-bound Demand & Supply
- Generate Purchase Request & PO Changes - Drop Ship Demand & Supply

The Scheduling process provides an essential data selection set of fields, carried in the Purchase Request records and used to select all records for inclusion on this report:

- Independent Demand Part Number (Product Part Number)
- Independent Demand Date

The report is generated via the following process from the Purchase Request table:

1. Using the Selection criteria entered on the entry screen, select all purchase request records meeting these criteria. The result should be all purchase request records for Foreign PO Types, i.e., FO and FP types.
2. Sort these records by Independent Demand Part Number (Product Part Number), PO Type, then Ship To Vendor ID, to group the records so all purchase request records for the same product and time period, i.e., August's build of CL's, will appear on the same page of the report together, and the

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Outside Manufacturing Purchase Requests will appear first, then all request for each Ship To Vendor are grouped together.

3. The FO lines are generated first. In place of the Part Description data field for the FO Purchase Request lines, substitute the words "Assembly Charge".
4. After all FO lines are generated, the FP purchase request lines follow.
5. Data fields on the report are obtained from the Purchase Request Table record as follows:

Report Field	PR Record Field or Source	Comment
Part Description	DESCRIPTION	
Part No.	LIPARTNO	
Buy From Vendor	BUYVENDOR	
Ship To Vendor	SHIPVENDOR	
PO Qty Req'd	QTYREQ	
Lead Time	From Part Master for this P/N (FP types only)	
Sched Ship Date	blank lines for filling in	underscore
Sched US Customs Date	blank lines for filling in - except for FO type, where the DELDATE minus the P/MRP value Customs to Dock Days to obtain the Scheduled US Customs arrival date	underscore, except for FO type lines
NT\$ Unit Price	FORCURUNITPRICE	Basis for price calculations
US \$ Unit Price	Calculated from Foreign Currency Unit Price & Exchange Rate for this For Currency	
Ext. US\$ Total	US \$ Unit Price X PO Quantity Req'd	
Pay To Vendor	PAYVENDOR	
Ship Method	SHIPVIA	
Ship Terms	FOB	

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Foreign Purchase Request Maintenance

Screen Data:

Purchase Request Number x-----x
Month xx/xx (display only)
Product x-----x (display only)
Part Number x-----x (display only)
Description x-----x (display only)
Commit Qty x-----x
Sched Ship Date xx/xx/xx
Sched US Customs Date xx/xx/xx
Comments x-----x

Screen prompts:

New Month & Product = Shift + F1 New Part Number = Shift + F2
Save Part Number Data = F9

Functional Logic

This screen allows limited changes to Purchase Request records. The intention is it will be used primarily by off-site trading partners to provide and directly enter partial information to complete purchase request actions. When these data are entered, and any additional information in the Comments, such as a request for a price change or exchange rate problems, the buyer can note these and incorporate them into the PO when it is created.

Enters the PRU # to select the Pur Request record to update.
In this record, enters the committed ship quantity associated ship, estimated customs date.

Upon saving, the program updates the Audit name, Date, Time fields

Upon selection from the menu, the program displays the screen, with the cursor at the Month field. The desired month, which is obtained from the Month information shown on the report the user is working from, is entered. When the Enter key is pressed, the only validation at this point is that the month/year combination must not be in the past.

Next the Product (Product Part Number) is entered. When the Enter key is pressed with this field, the program then selects Purchase Request records meeting these two selection criteria (Independent Demand Month and Independent Demand Part Number) and pre-images the F2 popup, consisting of only those Purchase Request records for this Independent Demand month and

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Product Part Number. Pressing the F2 key should display those required Part Number lines that have appeared on the corresponding Foreign Purchase Request Report. The popup's data fields include Part Number, Description and Required Quantity. The pre-image data also includes, Sched Ship Date and Sched US Customs Date, if present.

The Part Number can then either be entered or selected from the pre-imaged popup. It must be in the pre-imaged popup data. When the entry is accepted and the Enter key is pressed, the Description is retrieved from the pre-imaged popup data and displayed.

The program then allows entry of Sched Ship and US Customs Dates. These must be not in the past, and not more than a calendar year in advance of the current system date. As these fields are accessed, if data is present already, it is displayed. Change is allowed. If one date is entered, both become required entries.

The Shift + F2 key returns the user to the Part Number field, clearing any previously present values, ready for the next selection of Part Number, retaining the Month and Product values, along with the pre-imaged popup. This allows for quick entry of multiple part number data for the same month and product. Pressing the Shift + F1 keys clears the screen for entry of a new month and product.

Pressing the F9 key saves the data to the Purchase Request record for this month, product part number and required part number.

Pressing the Escape key brings the standard escape process, as does the F8 key, which requires the user to confirm the choice to exit the program.

PO Changes Generated Report

Screen Data:

Selections:

Buyer Code (enter or ALL)

Bought From Vendor ID (enter or ALL)

Sort Sequences:

Buyer Code

Vendor ID

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Purchase Order Entry & Changes

Screen Data:

Initial Screen:

User ID
 Password

Second Screen:

Purchase Order Number

Third Screen:

Select a PR Number to be converted to a PO (pop-up window)

Purchase Request No.	Requester Name	US\$ Total Value	Request Date
x-----x	x-----x	x-----x	x-----x
x-----x	x-----x	x-----x	x-----x
x-----x	x-----x	x-----x	x-----x

Select One for Review and/or approval: x-----x

or

Select a PO Type Code (pop-up window)

Purchase Order Number	PO Type Code
Purchase Request No.	Line Item No.
Requester Name	Line Item Text/Comments
Request Date	Line Item Part No.
Approver Name	Line Item Vendor Part Number
Date Approved	Line Item Description (display only unless expense PO)
Buy From Vendor ID	Line Item Quantity Ordered
Bill to Vendor ID	Line Item Purchase U/M
Ship to Co. ID	Line Item Stocking U/M
Pay to Vendor ID	Line Item Extended Foreign Currency
	Extended Price
Charge to GL Account No.	Line Item Extended US \$ Price
Project ID	L/I Delivery Date (s)
Delivery To	L/I Delivery Date Quantity (s)
Foreign Currency ID	L/I Scheduled Ship Date (s)
Foreign Currency Exchange Rate	L/I Scheduled Customs Date (s)
PO Text/Comments	
Credit Terms	
FOB	

Shipping Method

Functional Logic

- The first screen assures positive identification of the user to insure as valid an audit trail as possible. To be a valid buyer in the system, one must have a valid system user-ID and password, and be shown in the Buyer/Planner table as a valid Buyer under the same user-ID. The PO approval logic matches these data before entering it in the PO data.
- The next screen allows the user to enter the Number of an existing open PO, or select one from a popup window. If a valid PO number is selected, the PO Type selection window is skipped and the PO data is displayed. PO's with the PO Closed? flag equal to Y are not available to this selection screen, nor may they be changed. If reopening is desired, the PO Review and Forced Closure Screen must be used to change the flag's setting.
- If the user desires a new PO, pressing Enter will cause the program to assign the next sequential PO number.
- At this point, the user has two choices:
 - Select a PO Type Code, then create a new PO from scratch, entering all data manually, or
 - Select an approved Purchase Request that has already been set up with all PO data from the popup window (sequenced by ascending Request Date. The program copies the Purchase Request data into the PO work space, where the buyer/user can modify it as needed before approving it as a Purchase Order.
- The subsequent screens handling the header, line item, and delivery schedule data all follow the same logic as described in the first section of this document.
- If the buyer has retrieved an approved Purchase Request as the basis for this PO, he may exit from anywhere in the screen sequence back to the PR selection screen to select another without creating a PO.
- During creation of the PO, data saved to the Purchase Order File is considered temporary until the buyer is ready to indicate that he is finished

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creating this PO and is ready to electronically “sign it.” A pop-up window allows the buyer to enter his approval, and to select optional immediate printing of the PO.

- Upon approval, the program adds the following data to the PO record previously saved:
 - Buyer Name (valid buyer in the table and the same as the User-ID)
 - PO Closed? Flag is set to N (no)
 - PO Placement Date (system date/time)
 - If the approval is a change to an existing PO (the record retrieved already had a Buyer Name and PO Placement Date, then instead of the PO Placement Date, the program updates the PO Change Date field.

PO Entry Change - Add Purchased Opn for O/M PO's

Overview

These changes are to add the capability and requirement for outside manufacturing PO types (DO and FO) so that the PO definitely identifies the exact routing, operation on that routing, and work center that the operation is performed at which is being purchased. The Work Center must be identified as an Outside Manufacturing Work Center, by having a Vendor ID in its field, and in the PO, this Vendor ID must match the Bought From Vendor ID.

Related are changes in the validation of and access to the Project ID and Work Order data fields. The Project ID is used only on Expense PO types (FE and DE). The PO Header Work Order Number data fields is used only on the Production Material PO Types (DP and FP). The Work Order field on the Line Item entry screen is for Outside Manufacturing PO Types (FO and DO).

Also related to the Purchased Operation capability is a revision to the Receipt to Dock program to capture this data as the source of the O/M Standard Cost data in place of current logic.

Change Details:

PO Data Record - add fields for:

Purchased Routing Name - name of the routing on which the purchased operation and associated outside manufacturing work center is located. All Line Item Part Numbers on this O/M PO must be manufactured on this Route Name.

Purchased Operation No. - Operation Number on the Purchased Routing that is being purchased with this Outside Manufacturing PO. Applies to all Line Item Part Numbers to be entered on this PO.

Purchased Work Center ID - Work Center called out in the Purchased Operation No. where the work is to be performed that is being purchased on this PO. Within this Work Center ID record, the Vendor ID field must match the Bought From Vendor ID on the PO Header Data window.

PO Entry - PO Header Data Window Processing

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Add the above three data fields to the PO Header Data window. Functional logic is that the fields are accessed after Bought From and other Vendor ID's have been entered. Logic for each field includes:

Purchased Routing Name - can be entered or selected from a Popup containing Route Names. Field is skipped for PO types FE, DE, DP, and FP, and may not be accessed within the processing of these PO Types. Entry is mandatory for FO and DO purchase order types.

Purchased Operation No. - can be entered or selected from a Popup containing only the primary Operation Numbers (those with zeros in the decimal portion), the associated Work Center ID and Work Center Description for each operation in the Route Name. Field is skipped for PO types FE, DE, DP, and FP, and may not be accessed within the processing of these PO Types. Entry is mandatory for FO and DO purchase order types.

Purchased Work Center ID - display only field, entered by the program from the selected operation number entered in the previous field. Using the Work Center ID, the program looks up the Work Center Master record and attempts to match the Work Center record's Vendor ID with the Bought From Vendor ID in the already entered field in the PO Header record. The Operation Number entry is accepted if this match is successful.

If the match is not successful, the program displays a message informing the user that this work center's vendor ID does not match the bought from vendor ID, which it must. The cursor is repositioned at the Purchased Operation Number field for reentry. The FO or DO type Purchase Order cannot be completed without this information.

This data is saved with the PO record when other PO data has been successfully entered.

Other changes required to the PO processing program include:

Project ID data field - access to this field is allowed only for PO Types FE and DE. Its only purpose is to attach expense purchase order cost data to an R&D project. The cursor must skip this field for PO Types FO, DO, FP, and DP, and not allow access to it.

PO Header Work Order data field - access to this field is allowed only for PO Types FP and FP. Its purpose is to link all line items on this PO to a specific work order for items that are normally stocked by a vendor, and are picked, kitted and staged directly to each work order without extra handling in the

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warehouse and material management cycle. The Work Order Material Allocation program will use this data to assist in determining whether each work order that is otherwise ready to pick also has its vendor stocked items ready to be delivered in time for picking the work order. Access to this field is not allowed for PO Types FE, DE, FO, and DO.

Line Item Work order data field - access to this field is allowed only for PO Types FO and DO. Its purpose is to link each line item to a specific Work Order, so the Receipt to Dock program can update the correct work order at the same time the Receiving process is performed. Access to this field is not allowed for PO Types FE, DE, FP and DP.

Outside Manufacturing Rework PO Type

This PO type is a seventh PO type. It is essentially a slightly modified Domestic Outside Manufacturing PO. The modifications include:

L/I Part Number may be either a purchased or manufactured part number in the part master record.

The Work Order Number entered must have a work order type code of R, indicating a rework work order, must be in the Open Work Orders table, and must have a status of RNP or OP. The L/I Part Number must match the Parent Part Number of the work order number entered.

The same purchased operation rules apply to this PO type.

Receipt to Dock modifications

The Receipt to Dock program is modified to recognize and accommodate this PO Type. Most functions are the same, except for the following:

The Work Order Number contained in the PO Line Item must be used. The ability to enter a different work order number is not allowed. The Transaction Quantity must be less than or equal to the Operation Quantity for the last operation in the routing on the work order, which is the largest numeric value, and may be either a primary or alternate operation.

The Move to Stock? flag in the Receiving Lot record is set to No.

The program retrieves the DMR record, using the DMR Number from the Open Work Order record and adds the Received Quantity to the DMR Quantity Returned from Rework value already present.

The program retrieves the Inventory record for the L/I Part Number, and adds the Received Quantity to the DMR Quantity for the DMR number. If a line is not already present for this DMR number, one is added. The DMR W/H and Location data are set to REC and DOCK. The DMR Location move transaction is used to re-locate the items to the MRB area.

A Receiving Transaction History record is created, with a Transaction ID of REC, showing the receipt.

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The DMR Number and Rework Work Order Number is printed on the Receiving Report printed, along with the notation that the items are not in Receiving Inspection and are not to be moved to stock.

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Outside Manufacturing PO Planning Report

Screen Data:

Runs from Report Manager

Selection: Enter (ALL) or O/Mfg W/C to be printed

Sort Sequence Options:

- Work Center, WO Planned Start Date, Parent Part Number
- Work Center, WO Planned Completion Date, Parent Part Number
- Work Center, Opn Start Date, then Parent Part Number
- Work Center, Opn Compl Date, then Parent Part Number

Option: Submit to Job Server

Report Format:

Co Name

Date/Time printed

Page #

Outside Manufacturing PO Planning Report
By O/Mfg W/C
By (sort sequence selected)

W/C ID	W/C	PP/N	Desc.	W/O No.	Opn No.	Start	Compl	Stat	Qty	PO No.	Del Dte
X---X	X----X	X-----X	X-----X	X---X	XX .XX	XX/XX/XX	XX/XX/XX	X--X	X--X	X---X	XX/XX/XX
X---X	X----X	X-----X	X-----X	X---X	XX .XX	XX/XX/XX	XX/XX/XX	X--X	X--X	X---X	XX/XX/XX
X---X	X----X	X-----X	X-----X	X---X	XX .XX	XX/XX/XX	XX/XX/XX	X--X	X--X	X---X	XX/XX/XX
										X---X	XX/XX/XX
X---X	X----X	X-----X	X-----X	X---X	XX .XX	XX/XX/XX	XX/XX/XX	X--X	X--X	X---X	XX/XX/XX
X---X	X----X	X-----X	X-----X	X---X	XX .XX	XX/XX/XX	XX/XX/XX	X--X	X--X	X---X	XX/XX/XX
X---X	X----X	X-----X	X-----X	X---X	XX .XX	XX/XX/XX	XX/XX/XX	X--X	X--X		
X---X	X----X	X-----X	X-----X	X---X	XX .XX	XX/XX/XX	XX/XX/XX	X--X	X--X	X---X	XX/XX/XX

Functional Logic

This program initially displays the selection screen options. The report manager may display them in a difference sequence than described above, but the end result is the same.

The section options include all outside manufacturing work centers, or only those that are entered. An outside manufacturing work center is a Work Center

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record that contains a value in the Vendor ID field. "All" means only those Work Center records that meet this test. For each entered Work Center ID, the program reads the Work Center Master table and performs this validation test, rejecting any entries that do not have a Vendor ID value in its record.

The program then reads the Open Work Order table, selecting records that have a status not equal to "C" (closed), and have an Operation line containing one of the selected work center ID's.

Only the operation lines containing the selected work center ID's are selected and passed to a work file. Other operation lines from the selected work order records are skipped, with the selection passing to a work file.

The Purchase Order table is read, retrieving all PO's for where the Vendor ID in the Work Center master record matches the Bought From Vendor ID in the PO record, and for PO Types DO, and FO.

These lines are sorted by the sort selection option taken, either by Work Order Planned Start Date, Work Order Planned Completion Date, Operation Start Date or Operation Completion Date, then Parent Part Number into a work file, for matching with PO data. The options to use Work Order Planned Start and Completion Dates, which can be manually updated, will allow the report to be useful before the Production Scheduling program is available to create and update Operation Start and Completion Dates, which are more accurate and dynamic.

As each report line is generated, the program attempts to retrieve an outside manufacturing PO Line Item with the same work order number. It also looks for Outside Manufacturing Purchase Orders.

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Outside Manufacturing PO Planning Inquiry

Screen Data:

Outside Manufacturing PO Planning Inquiry

Work Center ID x-----x WC Description x-----x
 O/Mfg Vendor ID x-----x Foreign? x

PP/N	Desc.	W/O No.	Opn No.	Start	Compl	Stat	Qty	PO No.	Del Dte
x-----x	x-----x	x----x	xx .xx	xx/xx/xx	xx/xx/xx	x--x	x--x		
x-----x	x-----x	x----x	xx .xx	xx/xx/xx	xx/xx/xx	x--x	x--x	x---x	xx/xx/xx
x-----x	x-----x	x----x	xx .xx	xx/xx/xx	xx/xx/xx	x--x	x--x		
x-----x	x-----x	x----x	xx .xx	xx/xx/xx	xx/xx/xx	x--x	x--x	x---x	xx/xx/xx
x-----x	x-----x	x----x	xx .xx	xx/xx/xx	xx/xx/xx	x--x	x--x	x---x	xx/xx/xx
									xx/xx/xx
x-----x	x-----x	x----x	xx .xx	xx/xx/xx	xx/xx/xx	x--x	x--x	x---x	xx/xx/xx
	PO with No Work order							x---x	xx/xx/xx

Functional Logic

This inquiry displays data from the Outside Manufacturing PO Planning table. Upon selection from the menu, the program displays the screen with the cursor at the Work Center ID field. A work center ID is entered, which must be an outside manufacturing work center in the O/Mfg PO Planning table. If it is not, an error message is displayed. If it is, the O/Mfg PO Planning record for this work center ID is retrieved and displayed.

Pressing the F8 key clears the screen for entry of another work center, and the Escape key exits the screen and returns to the menu.

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Open PO Inquiry

Screen Data:

Purchase Order Number	PO Type Code
Purchase Request No.	Line Item No.
Requester Name	Line Item Text/Comments
Request Date	Line Item Part No.
Approver Name	Line Item Vendor Part Number
Date Approved	Line Item Description (display only unless expense PO)
Buy From Vendor ID	Line Item Quantity Ordered
Bill to Vendor ID	Line Item Purchase U/M
Ship to Co. ID	Line Item Stocking U/M
Pay to Vendor ID	Line Item Extended Foreign Currency
	Extended Price
Charge to GL Account No.	Line Item Extended US \$ Price
Project ID	L/I Delivery Date (s)
Delivery To	L/I Delivery Date Quantity (s)
Foreign Currency ID	L/I Scheduled Ship Date (s)
Foreign Currency Exchange Rate	L/I Scheduled Customs Date (s)
PO Text/Comments	
Credit Terms	
FOB	
Shipping Method	

Functional Logic

This inquiry is part of the global access popup inquiry menu subsystem. It uses the same screens and structure as the PO Entry screen, displaying the PO header information on a base screen, then allowing access to two levels of popup windows for line item data, and then to each line item's delivery schedule data. Also, the exact format and data displayed will depend on PO Type, as is the case with the PO Entry screen logic.

Upon selection from the menu, the program displays the screen, and allows entry of a PO number directly in the PO Number field, or one can be selected from a popup window displaying only open PO's, with PO Number, Vendor ID and Vendor Name. Alternatively, a popup window can be accessed displaying PO and Line Item data sorted in Line Item Part Number sequence. This popup contains PO Number, L/I Part Number, and L/I Balance Remaining (L/I Quantity Ordered minus L/I Quantity Received).

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Once selected, the PO data is retrieved and the header data displayed on the base screen. The user can then access via popup window the line item and delivery schedule data.

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Purchase Order Print

Screen Data:

Enter PO numbers to be printed:

Number of copies for each PO _____

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Printed Purchase Order Format:

Alesis Logo

Page xxxx

Purchase Order xxxxxxx
Date xx/xx/xx

Bought From:

Ship To:

Pay:

Bill:

Terms	Ship Via	Buyer	Confirmed by	Proj ID	Work Order No.	Requestor
xxxxx	xxxxxx	xxxxxx	xxxxxxxxx	xxxxx	xxxxxx	xxxxxx

Item	Quantity	Internal Part No. Vendor P/N	Description GL No.	P U/M	Unit Price	Ext. Price
xx	xxxxx	xxxxxxx xxxxxxx	xxxxxxxxxxxxxxxxxxxxxx xxxxxxx	xx	xxxxx	xxxxxx
xxxxxx - line item comments - xxx (expand vertically to fill available page space)						

Subtotal	\$ xxxxxxxxxxxx
8.25% Sales Tax	\$ xxxxxxxxxxxx
Total	\$ xxxxxxxxxxxx

Schedule Dates
Delivery Schedules

Vendor Instructions

Item	Delivery Date	Shipment Date	Quantity
xx	xx/xx/xx	xx/xx/xx	xxxxxx

xxxxxx (po header comments/text) xxx
 xxx
 xxx
 xxx
 xxx
 xxx

Date _____ Buyer _____

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Time-Phased PO \$ Commitment Report

Screen Data:

Selection Options:

Sort by:

- Bought from Vendor ID, Delivery Date (all PO Types)
- PO Type, then Vendor ID, Delivery Date
- Buyer Code, Vendor ID, Delivery Date (all PO Types)
- Pay to Vendor ID, Delivery Date (all PO Types)
- Buyer Code, PO Type, Vendor ID, Delivery Date
- Bought From Vendor ID, Payment Due Date (all PO Types)
- PO Type, Vendor ID, Payment Due Date

Report Format:

Alesis Corporation
xx/xx/xx xx:xx
xx

Time-Phase PO \$ Commitments

Page

Sorted by Vendor ID, Delivery Date

Vendor	PO No.	Date (Due or Pmt)	Qty	Feb	March	April	May	June	July +	Total \$ Comm,
x-----x	x----x	xx/xx/xx	x----x	\$xxxx.xx						
x-----x	x----x	xx/xx/xx	x----x	\$xxxx.xx						
x-----x	x----x	xx/xx/xx	x----x	\$xxxx.xx						
x-----x	x----x	xx/xx/xx	x----x		\$xxxx.xx					
x-----x	x----x	xx/xx/xx	x----x		\$xxxx.xx					
x-----x	x----x	xx/xx/xx	x----x		\$xxxx.xx					
x-----x	x----x	xx/xx/xx	x----x			\$xxxx.xx				
x-----x	x----x	xx/xx/xx	x----x			\$xxxx.xx				
x-----x	x----x	xx/xx/xx	x----x				\$xxxx.xx			
x-----x	x----x	xx/xx/xx	x----x				\$xxxx.xx			
x-----x	x----x	xx/xx/xx	x----x					\$xxxx.xx		
x-----x	x----x	xx/xx/xx	x----x					\$xxxx.xx		
x-----x	x----x	xx/xx/xx	x----x						\$xxxx.xx	
x-----x	x----x	xx/xx/xx	x----x						\$xxxx.xx	
x-----x	x----x	xx/xx/xx	x----x						\$xxxx.xx	
x-----x	x----x	xx/xx/xx	x----x						\$xxxx.xx	
		Vendor	Totals	\$xxxx.xx	\$xxxx.xx	\$xxxx.xx	\$xxxx.xx	\$xxxx.xx	\$xxxx.xx	\$xxxx
		Grand	Totals	\$xxxx.xx	\$xxxx.xx	\$xxxx.xx	\$xxxx.xx	\$xxxx.xx	\$xxxx.xx	\$xxxx

Functional Logic

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This report family is generated from the PO Detail file, which is generated when needed to translate PO Data into a Delivery Date organized format, including applied delivery information, as explained by the following notes:

NOTE: The relationship between line item balance remaining and delivery quantities is handled by posting all quantities received at the line item level, then applying these quantities to the oldest delivery date first. This screen and all determination of quantities due elsewhere in the system calculates the quantity remaining due for any delivery increment by simply subtracting the quantity received for the line item from each successive delivery date's quantity until a delivery increment is reached where the Delivery Quantity minus the remaining unapplied quantity received is greater than zero. This allows the delivery schedule to be modified after some quantities are received. Since the delivery schedule status is a calculated table, not hard data fields, the quantities already received are simply re-applied to the new delivery schedule.

The following example illustrates this process:

Line Item Quantity Ordered = 100 units
Line Item Quantity Received to Date = 45 Units

Delivery Schedule Status:

<u>Delivery Date</u>	<u>Quantity Scheduled</u>	<u>Quantity Applied</u>	<u>Quantity Due</u>
1/15/99	25	25	0
2/15/99	25	20	5
3/15/99	25	0	25
4/15/99	25	0	25

This technique allows for a very dynamic file structure to accommodate revisions in delivery schedules or order quantities without extensive PO change processing. Delivery increments that have been calculated as fulfilled via this logic will not be added to the PO detail file.

The PO Detail file creation program also calculates the Payment Due Date for the delivery quantity remaining by using retrieving the Credit Terms for the PO from the PO Header data, then retrieving the corresponding Payment Offset Days value associated with that Credit Terms line in the Credit Terms Lookuptable.

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The reports are generated as shown in the format via RList statements from Report Manager, including the sort options identified. Depending on the selected option, either Delivery Date is used, or Payment Due Date is used as the Date value.

P/MRP Parameter Window

CHANGED 6/21/94

CHANGED 6/27/94

Screen Data

Ordering Lead Time Days x----x

Expedite Window Days x-----x

Lateness Days Filter x-----x

Added field: Customs To Dock Days x-----x

Added field: Delivery Date Offset Days x-----x

Added field: Quantity Variation Percentage Filter 00.xx

All days are calendar days.

Press F9 to save these data.

Functional Logic

The fields have these validation rules:

- Ordering Lead Time Days must be positive, between 1 and 50
- Expedite Window Days must be positive, between 1 and 100.
- Early/Late Days Filter must be positive, and between 1 and 15 days.
- Customs to Dock Days must be positive, and between 1 and 20 days.
- Delivery Date Offset Days must be positive, and between 1 and 15 days.
- Quantity Variation Percentage Filter must have leading zeros, and trailing decimals between .01 (one percent variation allowed), and .25 (25% variation allowed)

P/MRP Exception Codes Maintenance

Screen Data

Exception Code	Description/Text
x---x	x-----x

Functional Logic

This window allows purchasing management to alter the description of P/MRP Exception condition codes. The codes must be present for the descriptions to appear. Their definition, however, is built into the program that generates the Purchased Demand & Supply table. As a result, if a code is deleted from this table, its description will not appear on reports calling for it, and if a code is added, it must have functional logic added to the program.

Generate Purch Demand/Supply Table

CHANGED 3/1/94 to screen out drop shipped demand & supply data

Screen Data

This program is initiated from Report Manager and executed by the Job Server.

Functional Logic

CHANGE:

This change has two parts:

1. Changes in the way the Work Order Detail table is generated to:

Retrieve and store work center data in the WODETAIL record, including these new fields:

Work Center ID - associated with that Material Operation Number. This links the demand for the required part number to the work center associated with that operation number in the routing for the work order.

Outside Manufacturing Vendor ID - indicates that that work center is (or is not, if blank) an outside manufacturing vendor. PO data supplying this demand must have this Vendor ID in its Ship To field for there to be a match.

Foreign? - this flag value can be Yes only if there is a Vendor ID in the Work Center record, indicating that it is an outside manufacturing vendor that is off-shore, or foreign.

The process for this includes:

- For each WO Material record, retrieve the corresponding Operation line from the Open Work Order record, for that Operation Number.
- For that operation number line, retrieve the Work Center record for the Work Center ID in the operation line, storing it in the WODETAIL record.
- Check if the Vendor ID field is non-blank. If not blank, store the Vendor ID in the WO Detail record, and the value of the Foreign? flag in that Work Center record.

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- The result should be that all WO Detail records generated from that particular WO Material record will carry the new data fields.
2. The P/DS table generation program is modified to screen out demand associated with drop shipments and PO (supply) data for shipments that are not directed at an inventory location available for P/MRP netting, which is what the P/MRP reporting logic requires. These are excluded according to the following criteria:

WO Detail Records - excludes those records which have a value in the Vendor ID field.

A Company Ship To Vendor ID Global Default table record is added containing the Vendor ID (s) of the inventory location (production material receiving dock location(s)) to be used to screen out PO records.

PO Detail - includes only those records which have a value in the Ship To Vendor ID equal to the values carried in the Company Ship To Vendor ID Global Default record.

The result of this process is that the P/DS table records will include only demand for work orders that are to be picked from the Production Material inventory, and Purchase Order delivery data from PO's that are scheduled to be delivered to the Production Material inventory warehouse(s).

END OF CHANGE

This program reads the Work Order Detail (WODETAIL) table, the Purchase Order Detail table, Inventory table, and the P/MRP Exception Parameter record and generates a new Demand & Supply table for purchased parts. This table in turn provides pre-imaged data for inquiry and for RList report generation for all data concerning the purchase part demand & supply relationships.

The WO Detail table is generated from Work Order and Work Order Material table information, organized to facilitate shortage and purchased material demand data.

The PO Detail table is generated from Purchase Order and provides a date oriented view of incoming purchase order delivery data.

PurchDemandSupply Table Dictionary

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Field	S/ Mul Val	Desc/Source	Comment
Part Number	S	Rec. ID	
Description	S	Part Desc.; from Part Mstr	
P/M Code	S	Purch/Mfg Code	
Part Group	S	From Part Mstr	
Part Class	S	From Part Mstr	
Stk U/M	S	From Part Mstr	
Buyer Code	S	From Part Mstr	
Planner Code	S	From Part Mstr	
Mtl Hand. Code	S	From Part Mstr	
Pur LT	S	From Part Mstr	
Safety Stk Qty	S	From Part Mstr	
Order Rule	S	From Part Mstr	
Total On Hand	S	From Inventory rec.	Sum of all "good" WH& Loc Qty's
R/I Qty	S	From Inventory rec.	
Tx Qty	S	From Inventory rec.	
MRB Qty	S	From Inventory rec.	
Total Avail Qty	S/S	Symbolic; total of Total Qty on Hand + R/I Qty + Tx Qty	
Exception Code	S	Exception Condition identified during record creation	Identifies various types of demand supply imbalances
Expedite Window Date	S	Calculated by program from Expedite Window Days in P/MRP Parameter record	Identifies basis for windows to select exception codes
Purch LT Window Date	S	Calculated by program from Purchasing Lead Time value	Identifies basis for windows to select exception codes
Total LT Window Date	S	Calculated by program from Purchasing LT value + Ordering LT in P/MRP Parameter record	Identifies basis for windows to select exception codes

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Activity Date	M	Key to M/V stack lines; from either the WO Opn Start Date for Opn (demand line) or PO Del Date (supply line)	Serves to organize the Demand & Supply data into a common line format.
WO No.	M	From WO Detail, identifies NHA demand pegging	Demand data portion of Activity Line
Opn No.	M	From WO Detail identifies NHA demand Opn No. pegging	Demand data portion of Activity Line
Foreign? Flag	M	From WO Detail; carried from Prod. Config; identifies Foreign procurement source	Demand data portion of Activity Line
Parent P/N	M	Parent P/N of NHA assy WO.	Demand data portion of Activity Line
Parent P/N Desc.	M	Parent P/N desc.	Demand data portion of Activity Line
WO Status	M	Work Order Status	Demand data portion of activity line
Planned Start Date	M	WO Planned Start Date	Demand data portion of Activity Line; From the Open Work Order record header data
Req'd Qty	M	Net Qty req'd, = WO Mtl Qty Req'd - Qty Issued + Qty Scrapped	Demand data portion of Activity Line; WO Detail table may contain already adjusted data
PO No.	M	PO Number from PO Detail; DP, FP PO types only	Supply data portion of Activity Line
PO L/I No.	M	PO Line Item from PO Detail	Supply data portion of activity line; provides link to PO data
Bought From Vendor ID	M	From PO Detail	Supply Data portion of activity line;
PO/WO No.	M	WO No. from PO Header data	Supply Data portion of activity line
Delivery Date	M	PO Delivery date from PO Detail	Supply data portion of activity line

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Rem.Del .Qty	M	Delivery quantity, after adjustment for qty's rec'd to date for L/I & applied to Del. Schedule; already done in PO Detail table	Supply Data portion of activity line; From PO Detail record
Activity Line Excp Flag	M	Flag to indicate Activity Line triggering the exception code	Ties exception code to specific action date.
Proj. Inventory	M	Calculated projected inventory quantity; starts with Total Avail. Qty	Calculated by table creation program

WO Detail Fields Used:

Work Order No.
 Operation No.
 Assy No. (Parent Part No.)
 Parent P/N Description
 WO Status
 Foreign? Flag (add to WO Detail record)
 Net Qty Req'd - Total Qty Req'd - Qty Issued + Comp. Qty Scrapped
 Scheduled Date (Planned Start Date from WO Header data)
 Operation Start Date (for the Material Operation Number.) (add to WO Detail record)

PO Detail Fields Used:

PO No.
 L/I No.
 Delivery Date
 PO Type
 Bought From Vendor ID
 Qty Remaining (net of L/I Rec'd Qty applied to delivery qty's)
 PO/WO No.

The program creates a single Purch Demand/Supply record for each purchased component part number, adds demand, supply and inventory data then processes the resulting array to calculate projected inventory quantities and identify execution conditions before writing it, continuing the process until completed.

A record is created as a result of any of the following conditions:

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- An Inventory record with at least one quantity field not equal to zero exists for the part number.
- A demand for the part number is shown in at least one Work Order Material record where the Work Order Status is not "C" (closed); all types of work orders are included; demand meaning the Required Quantity is greater than zero.
- An open Purchase Order, type DP or FP (Domestic or Foreign Production Material type), with the part number in a Line Item, and where a Remaining Quantity for at least one delivery date exists.

Part Numbers in the Part Master table, identified as purchased, are not included in this table unless one of the above three conditions exists.

The program's process steps include:

1. Reads the Part Master table in Record ID (Part Number sequence), obtaining fields with this source for the part number as indicated in the data dictionary description above. Part Numbers with a P/M code of M (manufactured) are skipped). If one of the above three conditions is not satisfied, however, no P/Demand & Supply record is generated. The Part Master is read to insure an efficient process that insures that all part numbers that meet these criteria are written to the new table.
2. Reads the Inventory table in Record ID sequence (Part Number sequence). If all of the quantity fields are equal to zero (zero on hand is acceptable), the part number is flagged for potential skipping due to no inventory data.
3. Reads the WO Detail table to obtain all demand records for this Part Number, building the demand portion of the record, as indicated in the data dictionary description above. If there are no WO Detail records for the part number, the part number is flagged for potential skipping due to no demand data.
4. Reads the PO Detail table to obtain all PO data for this Part Number, building the PO supply portion of the record, as indicated in the data dictionary description above. If there are no PO Detail records for the part number, the part number is flagged for potential skipping due to no PO data.
5. If all three flags for the part number have been set to no, meaning none of the three required conditions have been met, no P/Demand Supply record is written, and the next part master record is read and the process restarted.

- Sorts the resulting Activity lines into Ascending activity date sequence.
- Calculated Projected Inventory quantity according to the following formula:

Previous line's projected quantity
minus Required Quantity (blanks/null equal zero)
plus Remaining Delivery Quantity
= This line's Projected Quantity

Exception Condition Identification

The exception analysis section of the program is designed to identify the exception conditions and assign a code value (the number of the paragraph below), indicating their relative importance and the order in which they should be worked by a buyer. The codes form a hierarchy of importance. A part number identified with a code of 3, for example, may also have an exception condition elsewhere in its demand & supply data, but the condition identified by the 3 is the most serious, so further analysis and identification is not done. It is assumed that the buyer will review the entire demand & supply condition while acting on the condition identified by the 3. There, each part number's record will have only one Exception Code associated with it. The Exception Code structure is as defined below:

<u>Code</u>	<u>Description</u>
-------------	--------------------

Negative Projected Inventory condition occurs:

- Within the Expedite Window limit, and there is no PO to be rescheduled (expedited) in, therefore one must be placed.
- Within the Expedite Window limit, and there is at least one PO that can (potentially) be rescheduled/expedited to an earlier date.
- Within the Purchase Lead Time for the Part Number, and there is no PO to be rescheduled in, therefore one must be placed.
- Within the Purchase Lead Time for the Part Number, and there is at least one PO that can (potentially) be rescheduled to an earlier date.
- Within the Total Lead Time for the part number, and there is no PO to be rescheduled in, therefore one must be placed.

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6. Within the Total Lead Time for the part number, and there is at least one PO that can (potentially) be rescheduled to an earlier date.

Excess Projected Inventory conditions occur:

7. Within the Total Lead Time for the part number, and there are at least one Activity line with a negative projected inventory quantity beyond the Total Lead Time, so the PO causing the excess can be rescheduled out.
8. At any point in time, and all subsequent Activity Lines continue to indicate excess projected inventory, so PO delivery quantities must be cancelled.

Filtering of temporary negative or positive projected inventory conditions is supported via the Late Days filter. This is a value that is added to the activity date where the negative or positive value occurs, to determine if there is a scheduled PO delivery with a sufficient quantity to fill the negative condition, or the excess condition is consumed within the time period represented by the Early/Late Days filter interval period.

9. If all Activity Lines for the part number have either a zero condition (neither negative or positive), or fall within the Late Days filter range, it is assigned an exception code of 9, which means no exception condition exists for the part number.
10. If inventory in any category (including MRB status/quantity) is present, but no demand or PO supply data is present.

The steps the program uses to develop these codes is as follows:

1. Retrieves the P/MRP Parameter record and calculates the following dates, storing them in the new P/D&S record for the part number:

Expedite Window Date
= Current System Date + Expedite Window Days

Purchasing Lead Time Date
= Current System Date + Purchasing Lead Time Days for Part Number

Ordering Lead Time Date
= Purchasing Lead Time Date + Ordering Lead Time Days

2. Scans the Activity Lines in the D&S array, testing for Negative or Positive Conditions:

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If a line is Negative, read subsequent lines to determine if the period of negative value is within the Early/Late Days filter interval. If it is, continue scanning the D&S array.

If it is not, then set the Activity Line Exception Flag to Y, (indicating that it is this Activity Date which triggered the Exception condition) and determine which period the negative value occurs within by performing the Activity Date comparison.

If all lines in the array with Activity Dates within Total Lead Time are scanned without encountering a Negative condition, then one of the following is determined to select the appropriate Exception Code for the Part Number:

If there is a Negative condition in an Activity Line with a date greater than the Total Lead Time date, then the Exception code is set to 7.

If there is no negative condition in an Activity Line beyond the Total Lead Time Date, then the Exception Code is set to 8.

If all Projected Inventory values for all Activity Lines in the array are either zero, or have negative or positive variations that occur within the Early/Late Days filter, then the part number is considered to have no exception conditions. This is identified with an Exception Code of 9.

NOTE: A Negative Condition is calculated by subtracting either the Safety Stock Quantity for the part number, or if absent, zero, from the Projected Inventory Quantity. If the result is a negative number, -1 or a greater negative value, then a Negative Condition exists for that line. An Excess Condition is calculated by the same process, but the result is a positive number, of +1 or greater positive value.

3. Determine the Exception Window - Perform Activity Date comparison for the Activity Line where the negative condition occurred is as follows:

If Activity Date is less than or equal to the Expedite Window Date, then the Preliminary Exception Codes are 1 or 2.

If Activity Date is less than or equal to the Purchase Lead Time Date, then the Preliminary Exception Codes are 3 or 4.

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If Activity Date is less than or equal to the Ordering Lead Time Date, then the Preliminary Exception Codes are 5 or 6.

4. PO Available to Reschedule? - Refine the Preliminary Exception Code selection for Negative conditions by reading subsequent Activity Lines to determine whether there is a PO available to be rescheduled . This is done by reading Activity lines that have later Activity dates than the one where the exception occurred, and determining one of the following conditions:

If all remaining Activity Lines do not have any PO data, then the Exception Code will be 1, 3, or 5.

If, during this scan process, a PO is encountered, then the Exception Code will be 2, 4 or 6.

5. The results of the Determine Exception Window process and the PO Available to Reschedule? process are combined to identify the final Exception Code selection, which is written to the record with the other data, and which will meet the Exception Condition code list defined above.

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InBound P/MRP Exception Reports

Screen Data

Selection
Parameters:

Exception Codes x-----x
 x-----x
Buyer Codes x-----x
 x-----x

Sort Sequence:

Buyer, Exception Code, Part Group, Part Number
Buyer, Exception Code, Activity Date, Part Number
Buyer, Part Group, Part Number
Exception Code, Buyer Code, Part Group, Part Number

Report Format:

Co. Name								
Date/Time Printed								Page xx
In Bound Purchased Part Demand & Supply Exceptions								
By (sort sequence selected)								
Buyer Code	Excep. Code	Activity Date	Part Number	Desc	U/M	Expedite Window Date	Total LT Window Date	
x---x	x	xx/xx/xx	x-----x	x-----x	xx	xx/xx/xx	xx/xx/xx	
x---x	x	xx/xx/xx	x-----x	x-----x	xx	xx/xx/xx	xx/xx/xx	
x---x	x	xx/xx/xx	x-----x	x-----x	xx	xx/xx/xx	xx/xx/xx	

Functional Logic:

This program reads the Purchased Part Demand & Supply (PDS) table, which contains the P/MRP data for requirements to be filled by issuing from inventory, and to be supplied by PO receipts into that inventory. It reads the PDS table and selects those records according to the Exception Code data entered during the selection process. Demand & Supply details associated with each Part Number in this table can be then either selected for printing on a report, or viewed with the In Bound Purchased Part Demand & Supply Inquiry Screen.

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Drop Ship P/MRP Exception Reports

Screen Data

Selection
Parameters:

Exception Codes x-----x
 x-----x
Buyer Codes x-----x
 x-----x

Sort Sequence:

Buyer, Exception Code, Part Group, Part Number
Buyer, Exception Code, Activity Date, Part Number
Buyer, Part Group, Part Number
Exception Code, Buyer Code, Part Group, Part Number

Report Format:

Co. Name
Date/Time Printed

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Drop Ship Purchased Part Demand & Supply Exceptions
By (sort sequence selected)

Buyer Code	Excep. Code	Activity Date	Part Number	Desc	U/M	Expedite Date	Total LT Window Date
x---x	x	xx/xx/xx	x-----x	x-----x	xx	xx/xx/xx	xx/xx/xx
x---x	x	xx/xx/xx	x-----x	x-----x	xx	xx/xx/xx	xx/xx/xx
x---x	x	xx/xx/xx	x-----x	x-----x	xx	xx/xx/xx	xx/xx/xx

Functional Logic:

This program reads the Drop Ship Purchased Part Demand & Supply (DS/DS) table, which contains the P/MRP data for requirements to be filled by purchasing the items from a vendor and instructing him to ship them directly to the outside manufacturing vendor for assembly. There is no perpetual inventory information involved in this cycle. It reads the DS/DS table and selects those records according to the Exception Code data entered during the selection process. Demand & Supply details associated with each Part Number in this table can be then either selected for printing on a report, or viewed with the Drop Ship Purchased Part Demand & Supply Inquiry Screen.

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Drop Ship Purchased Part Demand & Supply Inquiry

P/N xxxxxxxxxx Description xxxxxxxxxxxxxxxxxxxx U/M xx Buyer Code xxxxx
 Planner Code x----x
 Exception Code x----x Code Desc x-----x Order Rule xxx Part Group xxx
 Part Class xxxx Pur LT xxxx
 Expedite Window Date xx/xx/xx Pur LT Date xx/xx/xx Order LT Date xx/xx/xx

Screen Data

ShpTo Vend	W/O No.	Opn No.	WO Sts	Parent P/N	Req'd Qty	Demand Date	Proj Avail	PO No.	Rem Del Qty	Del Date
xxx	xxxx	xx	xxxx	xxxxx	xxxx	xx/x/xx	xxxx			
	xxxx	xx	xxxx	xxxxx	xxxx	xx/x/xx	xxxx			
	xxxx	xx	xxxx	xxxxx	xxxx	xx/x/xx	xxxx			
							xxxx	xxxx	xxx	xxxx
							xxxx	xxxx	xxx	xxxx
							xxxx	xxxx	xxx	xxxx
xxx	xxxx	xx	xxxx	xxxxx	xxxx	xx/x/xx	xxxx			
	xxxx	xx	xxxx	xxxxx	xxxx	xx/x/xx	xxxx			
							xxxx	xxxx	xxx	xxxx
							xxxx	xxxx	xxx	xxxx

Functional Logic

Upon selection from the menu, this window displays the screen, with the cursor at the Part Number field. Pressing F2 brings a popup window showing all the Drop Ship Purchased Part Demand & Supply table part numbers. Entering or selecting one from the popup causes the program to retrieve the In Bound Purchased Part Demand & Supply data for that part number. These demands indicate that a part is to be supplied directly to the outside manufacturing vendor via purchased order placed by the company, with shipment instructions of directly to the outside manufacturing vendor. No movement through intra-company inventory is presumed. Consequently, there is no perpetual inventory information used in these calculations or displayed on the window.

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In Bound Purchased Part Demand & Supply Inquiry

P/N xxxxxxxxxx Description xxxxxxxxxxxxxxxxxxxx U/M xx Buyer Code xxxxx
 Planner Code x----x
 Exception Code x----x Code Desc x-----x Order Rule xxx Part Group xxx
 Part Class xxx Pur LT xxx
 Expedite Window Date xx/xx/xx Pur LT Date xx/xx/xx Order LT Date xx/xx/xx
 Inventory: O/H Qty x-----x Tx Qty x-----x R/I Qty x---x MRB Qty x-----x
 Total Avail (sum of O/H + TX + R/I Qty) x-----x

Screen Data

W/O No.	Opn No.	WO Sts	Parent P/N	Req'd Qty	Demand Date	Proj Avail	PO No.	Rem Del Qty	Del Date
xxxx	xx	xxxx	xxxxx	xxxx	xx/x/xx	xxxx			
xxxx	xx	xxxx	xxxxx	xxxx	xx/x/xx	xxxx			
xxxx	xx	xxxx	xxxxx	xxxx	xx/x/xx	xxxx			
						xxxx	xxxx	xxx	xxxx
						xxxx	xxxx	xxx	xxxx
						xxxx	xxxx	xxx	xxxx
xxxx	xx	xxxx	xxxxx	xxxx	xx/x/xx	xxxx			
xxxx	xx	xxxx	xxxxx	xxxx	xx/x/xx	xxxx			
						xxxx	xxxx	xxx	xxxx
						xxxx	xxxx	xxx	xxxx

Functional Logic

Upon selection from the menu, this window displays the screen, with the cursor at the Part Number field. Pressing F2 brings a popup window showing all the Purchased Part Demand & Supply table part numbers. Entering or selecting one from the popup causes the program to retrieve the In Bound Purchased Part Demand & Supply data for that part number. These demands (requirements) are to be satisfied by issuing from inventory within the company, and to be resupplied by PO's to be received into inventory at the company.

Open PO Status Reports

PO Line Items by Delivery Date

Report Data:

PO No.
PO Type Code
Bought From Vendor ID
Bought From Vendor Name
Buyer

Each Delivery Date/Quantity:

L/I Part Number
L/I Description
L/I Purch U/M
Delivery Date
Delivery Quantity Due (calculated)

Functional Logic

This report shows incoming material organized by delivery date.

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Purchased Material Demand & Supply Reports

Screen Data

Report & Format Options:

In Bound (I) or Drop Ship (D) Demand & Supply data? x (enter one)
Turnaround Document Format (adds underscores for lines to be filled in)

Data Selection Options:

Part Number xxxxxxxxxxxxxxxx (or ALL)
Buyer Code x-----x
Planner Code x-----x
P/MRP Exception Code x----x
Part Group xxxxx (or ALL)
Only Foreign Source? xx

Sort Options (select one):

By Buyer Code, then Exception Code, then Part Number (page break on Buyer Code)
By Planner Code, then Part Number (page break on Planner Code),
By Part Number
By Part Group, then Part Number
By P/MRP Exception Code, then Buyer Code, then Part Number

Press F9 to save these selections and generate the report.

Report Format Options illustrated in D&SRPT.DOC details

Functional Logic Notes:

This report assists planners and buyers in ordering purchased materials to support production schedules as shown by work order data in the system. It is selected and printed from either the Purchased Demand & Supply or Drop Ship Demand & Supply Tables, depending on report options selected. These tables are generated by separate programs that also perform exception reporting analysis of the demand & supply data. Included in this report are demand and supply data. If the In Bound material option is selected, Projected Available Inventory will include warehouse inventory, whereas Drop Ship option does not (no perpetual inventory is presumed at the vendor's)

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The program generates one of four variations on the same basic format, including:

In Bound Purchased Material Demand & Supply

- Buyer Working Format
- Turnaround Document Format

Drop Ship Purchased Material Demand & Supply

- Buyer Working Format
- Turnaround Document Format

The In Bound report shows data from the Purchased Demand & Supply table, which is generated by selecting work order demand that is to be satisfied by issuing from Production Material inventory and PO supply data with Ship To data that matches the Vendor ID (company identifiers) in the In Bound Vendors Global Default record. The sequencing of demand and supply data is not identified to a specific work center because it is all to be satisfied from warehouse inventory. Projected Available Inventory calculations start with on-hand balance information so as to plan the consumption of available inventory before more is delivered.

The Drop Ship report shows data from the Drop Ship Demand & Supply table, which is generated by selecting work order demand that cannot be satisfied by issuing directly from Production Material inventory in company warehouse(s). All demand for material or production resources in AIMS/ERP is associated with a work center. Work Centers, in turn, are identified as being either in-plant or belonging to an outside vendor (an entry is in the Vendor ID field of the Work Center record if it is an outside manufacturing vendor work center). From this identification process non-inplant demand is identified and included in the Drop Ship Demand & Supply table.

Similarly, PO data selected for the Drop Ship Demand & Supply table is the opposite of the In Bound report. Ship To Vendor ID's other than those in the In Bound Vendor ID Global Default table are selected. The resulting demand and supply data are matched according to their activity dates (demand date for work order requirements and PO Delivery dates). A projected available inventory calculation is performed, but includes no inventory information, since there is no perpetual system for the Vendor's inventory other than excess carried forward from previous shipments to that Vendor. Demand and supply data is organized for each Work Center (its Vendor ID) because demand at one cannot be satisfied from a shipment to a different vendor. The projected available inventory calculations are performed primarily to enable the Exception Code identification process to work. Without this method, an exact matching process would have to be used which is much more error prone and cumbersome. On

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this report, the exception process will identify the most urgent priority first, regardless of which work center/vendor ID it occurs in.

For each of the two basic report formats, an option is available to print the same report in a turnaround format. When this option is selected, the print program scans the Projected Available Inventory data, and when a negative condition is detected, prints one line containing underscores to provide a place to write in planned purchase order information, which will then be entered into AIMS/ERP Purchase Orders. Once entered, of course, the PO will then be included in the report's data.

Several selections and sort options are available. They can be combined to produce a wide variety of reports. The printing process itself runs quickly because the assembling and process of all the data has been already performed. Also, inquiry screens are available to view individual records from either table.

One example is the producing a foreign source Purchased Material D&S report with turnaround format. Selecting the Foreign Source only option, and the Turnaround report format option, plus an appropriate sort option, will produce a report that can be sent directly to the foreign trading company for placing of PO's and organizing of PO delivery/ship commitment and pricing, which can be written on and then FAX'd back to use for entering new PO's rapidly.

Report Calculations

It is important to understand that some part numbers may have demand and supply information on both reports. Bringing these together on one report would be of little use for the normal planning process. In any case, all data on both reports is drawn directly from the Open Work Order and Work Order Material records updated by transactions, the scheduling program, and other programs.

Conceptually, unissued Work Order demand is obtained by reading each Work Order's Material record, and creating a separate record for each required raw material part number where there is an unfilled requirement. This calculated for each required part number from:

Quantity Required + Planned Attrition Quantity + Quantity Scrapped
minus Quantity Issued
= Net Required Quantity

Work Orders with a Status = C (closed) are excluded from this report. The date required for the item is the Operation Start Date for the Work Order. The

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demand activity lines are sorted by that date to create the time-phased demand schedule. This date is updated daily by the Production Scheduling program. If the production scheduling program is not in use, the Planned Start Date for the work order is used instead.

The purchase order deliveries are obtained from the PO Detail file, which itself is created by sorting PO data by delivery date, with each delivery date's balance remaining. These quantities are calculated using the following process to calculate the Delivery Balance Remaining:

NOTE: The relationship between line item balance remaining and delivery quantities is handled by posting all quantities received at the line item level, then applying these quantities to the oldest delivery date first. Determination of quantities due in the system is obtained by calculating the quantity remaining due for any delivery increment by simply subtracting the quantity received for the line item from each successive delivery date's quantity until a delivery increment is reached where the Delivery Quantity minus the remaining unapplied quantity received is greater than zero. This allows the delivery schedule to be modified after some quantities are received. Since the delivery schedule status is a calculated table, not hard data fields, the quantities already received are simply re-applied to the new delivery schedule.

The following example illustrates this process:

Line Item Quantity Ordered = 100 units
Line Item Quantity Received to Date = 45 Units

Delivery Schedule Status:

<u>Delivery Date</u>	<u>Quantity Scheduled</u>	<u>Quantity Applied</u>	<u>Quantity Due</u>
1/15/99	25	25	0
2/15/99	25	20	5
3/15/99	25	0	25
4/15/99	25	0	25

Projected Available Inventory -the projected available inventory is calculated as follows (negative quantities show when there is a mis-match, i.e., incoming material will be scheduled too late or not at all, to support production requirements):

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Demand Activity lines = subtract the Demand Quantity from the previous line's projected available inventory (showing consumption of the inventory by scheduled work orders), to obtain the Projected Available Inventory for this line.

Supply Activity lines = add the Remaining Delivery Quantity (balance remaining for this PO L/I Delivery line) to the previous line's Projected Available Inventory to obtain the projected available inventory for this line.

This algorithm projects the effects on inventory of expected issues of parts to fill work orders scheduled for production, and upon the receipt and addition to stock of incoming purchased material.

Drop Shipped Demand & Supply Table Generation

Screen Data

Run from Report Manager
Required running from Job Server

Functional Logic

The purpose of this program is to create the Drop Shipped Demand & Supply Table. The table's purpose is to provide demand & supply management tools to identify the need to place, or change a PO for production material that are ordered and drop shipped directly to an assembly vendor.

Demand, in this context, is the identified requirement from a Work Order Material record data, re-organized into the Work Order Detail table, for a specified quantity of a particular part number, to be delivered at the identified outside manufacturing work center (indicated by the Vendor ID in the Work Center record), prior to the Start Date for the Operation related to that Work Center.

Supply, in this context, is very specific. Since there is no inventory balance, or safety stock to "net against", the program always starts with zero available, essentially comparing demand quantities against supply quantities simply to allow over/underages from one line to be matched with its opposite. While the data is provided to permit an exact match of demand with supply data, the program uses similar logic to the domestic P/MRP demand & supply report. PO Delivery Remaining Quantities are sequenced by Activity date.

A different purchase order (an outside manufacturing PO) pays the vendor to do the manufacturing work. The Outside Manufacturing PO Planning Report is designed to support this process.

This program reads the Work Order Detail and PO Detail tables, selecting records according to data fields indicating that the selected demand and supply data lines are for items that are not to be received into Production Inventory. These items are therefore not part of the normal purchased material cycle that involved PO receipt to inventory and a subsequent pick/issue to a work order.

The program selects records that the Generate Purchased Demand/Supply Table program skips. The selection criteria for this program are:

Work Order Detail data - demand line must be:

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Part Number coded as purchased part
 Vendor ID field is not null/blank

PO Detail data - PO supply line must be:

All PO Detail records where the Vendor ID is not equal to the values carried in the InBound Vendor ID's Global Default record.

The result of this selection process is to identify for matching in both directions demand data identified as associated with planned drop shipments to outside manufacturing vendors of production material. This table provides pre-imaged data for inquiry and for RList report generation for all data concerning drop shipment demand and supply management.

Drop Shipped Demand & Supply Table Fields

Field	S/ Mul Val.	Desc/Source	Comment
Part Number	S	Rec. ID	
Description	S	Part Desc.; from Part Mstr	
P/M Code	S	Purch/Mfg Code	
Part Group	S	From Part Mstr	
Part Class	S	From Part Mstr	
Stk U/M	S	From Part Mstr	
Buyer Code	S	From Part Mstr	
Planner Code	S	From Part Mstr	
Pur LT	S	From Part Mstr	
Order Rule	S	From Part Mstr	
Exception Code	S	Exception Condition identified during record creation	Identifies various types of demand supply imbalances
Expedite Window Date	S	Calculated by program from Expedite Window Days in P/MRP Parameter record	Identifies basis for windows to select exception codes
Purch LT Window Date	S	Calculated by program from Purchasing Lead Time value	Identifies basis for windows to select exception codes

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Total LT Window Date	S	Calculated by program from Purchasing LT value + Ordering LT in P/MRP Parameter record	Identifies basis for windows to select exception codes
Drop Ship Vendor ID	M	From WO Detail - Vendor to which items must be drop shipped if a demand line, or from PO Detail if a supply line	Activity Line key, along with Activity Date
Activity Date	M	Demand lines, date is Opn Start Date, or if blank, WO Planned Start Date; Supply Lines = Del'l Date	Activity line "sub-key" after work center: activity dates are sequenced within the Drop Ship Vendor ID to separate different Vendor req'ts.
Work Center ID	M	From WO Detail	Demand data portion of Activity Line
Work Center Desc.	M	From WO Detail	Demand data portion of Activity Line
Foreign?	M	From WO Detail -	Demand data portion of Activity Line
Work Order No.	M	From WO Detail	Demand data portion of Activity Line
WO Status	M	From WO Detail	Demand data portion of Activity Line
Parent Part Number	M	From WO Detail	Demand data portion of Activity Line
PPN Description	M	From WO Detail	Demand data portion of Activity Line
Plnd Start Date	M	From WO Detail	Demand data portion of Activity Line
Opn No.	M	From WO Detail	Demand data portion of Activity Line
Opn Start Date	M	From WO Detail	Demand data portion of Activity Line
Demand Qty	M	From WO Detail = total qty req'd + Plan Attrition - Qty Issued + Qty Scrapped	Demand data portion of Activity Line
PO No.	M	From PO Detail	Supply Data portion of activity line

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PO Type	M	From PO Detail	Supply Data portion of activity line
Del Date	M	From PO Detail	Supply Data portion of activity line
Ship Date	M	From PO Detail	Supply Data portion of activity line
Bought From Vendor ID	M	From PO Detail	Supply Data portion of activity line
Pay To Vendor ID	M	From PO Detail	Supply Data portion of activity line
Payment Terms	M	From PO	Supply Data portion of activity line
L/I \$ Unit Price	M	From PO	Supply Data portion of activity line
Foreign Currency ID	M	From PO	Supply Data portion of activity line
L/I Foreign Unit Price	M	From PO	Supply Data portion of activity line
Delivery Qty Remaining	M	From PO Detail - Qty remaining this Delivery Date	Supply Data portion of activity line
PO Work Order No.	M	From PO Detail	Supply Data portion of activity line
Projected Avail.	M	Calculated by program	Shows match/mismatch

A record is created in the DS/DS table as a result of either of the following:

A demand for the part number associated with a Work Center identified as an Outside Manufacturing Work Center (Vendor ID is not blank) in the WO Detail table.

An open Purchase Order, type DP, or FP (Domestic or Foreign Production Material type), with a Ship To Vendor ID not equal to those listed in the InBound Vendor ID Global Parameter record.

The program builds the table via the following steps:

1. Selects WO Detail records that meet the selection criteria.
2. Creates one Drop Ship Demand & Supply (DS/DS table) for each part number in the resulting selection list.

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3. To each DS/DS record, copies in WO Detail data for each demand line as described in the data dictionary for the DS/DS record, creating a separate multi-value demand data line for each corresponding WO Detail record.
4. Selects PO Detail records that meet the selection criteria.
5. Adds PO detail record supply data to the DS/DS record for each part number, adding them to the end of the multi-value list for each record.

NOTE: The result of the process at this point is that all demand and supply data is on separately lines in the multi-value stack. In effect, there are separate demand and separate supply lines, since the opposite quantities are in different fields.

6. Sort the Activity Lines by Drop Ship Vendor ID then Activity Date in ascending sequence.

NOTE: At this point the activity lines are grouped so that for a given Vendor ID, demand and expected shipment lines are grouped together.

7. Calculate the projected available for the activity lines within each Vendor ID via the following steps:

First line = either the demand or remaining PO delivery quantity value of that line.

Subsequent lines for that Vendor ID are:

Previous line's Projected Available Quantity
minus Demand Quantity (blanks/null equal zero)
plus Remaining Delivery Quantity (blanks/null equal zero)
= This line's Projected Available Quantity

Exception Condition Identification

The exception condition identification process for this program is virtually identical to that used in the P/MRP Table Generation program. The concept of expedite, lead time, and ordering windows is implemented. The projection calculations are essentially the same except that there is no starting or safety stock inventory, other than supply excesses between deliveries. The differences are that in generating the projected available inventory quantities, they are separate calculations for possibly multiple Vendors. However, the exception

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analysis in either case is tied to the expedite, lead time and ordering windows. Since the process runs in the order of relative urgency from the buyer's viewpoint ("what do I work on first?"), the program identifies the most urgent exception condition and stops there. Therefore, differences between "exception conditions" in one Vendor's group of demand & supply data become unimportant. The objective of the Exception Code is to prioritize which Part Number's demand/supply condition the buyer looks at. The Buyer cannot usually take correction action based on the Exception data alone.

The exception analysis section of the program is designed to identify the exception conditions and assign a code value (the number of the paragraph below), indicating their relative importance and the order in which they should be worked by a buyer. The codes form a hierarchy of importance. A part number identified with a code of 3, for example, may also have an exception condition elsewhere in its demand & supply data, but the condition identified by the 3 is the most serious, so further analysis and identification is not done. It is assumed that the buyer will review the entire demand & supply condition while acting on the condition identified by the 3. There, each part number's record will have only one Exception Code associated with it. The Exception Code structure is as defined below:

<u>Code</u>	<u>Description</u>
-------------	--------------------

Negative Projected Available occurs:

1. Within the Expedite Window limit, and there is no PO to be rescheduled (expedited) in, therefore one must be placed.
2. Within the Expedite Window limit, and there is at least one PO that can (potentially) be rescheduled/expedited to an earlier date.
3. Within the Purchase Lead Time for the Part Number, and there is no PO to be rescheduled in, therefore one must be placed.
4. Within the Purchase Lead Time for the Part Number, and there is at least one PO that can (potentially) be rescheduled to an earlier date.
5. Within the Total Lead Time for the part number, and there is no PO to be rescheduled in, therefore one must be placed.
6. Within the Total Lead Time for the part number, and there is at least one PO that can (potentially) be rescheduled to an earlier date.

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Excess Projected Inventory conditions occur:

7. Within the Total Lead Time for the part number, and there are at least one Activity line with a negative projected inventory quantity beyond the Total Lead Time, so the PO causing the excess can be rescheduled out.
8. At any point in time, and all subsequent Activity Lines continue to indicate excess projected inventory, so PO delivery quantities must be cancelled.

Filtering of temporary negative or positive projected inventory conditions is supported via the Late Days filter. This is a value that is added to the activity date where the negative or positive value occurs, to determine if there is a scheduled PO delivery with a sufficient quantity to fill the negative condition, or the excess condition is consumed within the time period represented by the Early/Late Days filter interval period.

9. If all Activity Lines for the part number have either a zero condition (neither negative or positive), or fall within the Late Days filter range, it is assigned an exception code of 9, which means no exception condition exists for the part number.

10. If inventory in any category (including MRB status/quantity) is present, but no demand or PO supply data is present.

The steps the program uses to develop these codes is as follows:

1. Retrieves the P/MRP Parameter record and calculates the following dates, storing them in the new P/D&S record for the part number:

Expedite Window Date
= Current System Date + Expedite Window Days

Purchasing Lead Time Date
= Current System Date + Purchasing Lead Time Days for Part Number

Ordering Lead Time Date
= Purchasing Lead Time Date + Ordering Lead Time Days

2. Scans the Activity Lines in the D & S array within each Vendor ID grouping, testing for Negative or Positive Conditions:

NOTE: All testing, including Early/Late Days filter logic and checking for subsequent PO availability for rescheduling is within the Vendor ID

grouping. Thus, if there are multiple Drop Ship Vendor ID's for the same part number, the Exception code is associated with the first vendor ID's D&S data to have the most urgent exception condition. For example, if the first vendor ID data scanned has a condition characterized as code 1, no further scanning of other vendor's conditions need be done, because the Buyer must review the D&S data for the whole part number anyway. Similarly, if the first vendor ID's D&S data does not have an urgent condition, the program will continue to scan for the most urgent exception conditions first, and will find one in a subsequent Vendor's D&S data.

If a line is Negative, read subsequent lines to determine if the period of negative value is within the Early/Late Days filter interval. If it is, continue scanning the D&S array.

If it is not, then set the Activity Line Exception Flag to Y, (indicating that it is this Activity Date which triggered the Exception condition) and determine which period the negative value occurs within by performing the Activity Date comparison.

If all lines in the array with Activity Dates within Total Lead Time are scanned without encountering a Negative condition, then one of the following is determined to select the appropriate Exception Code for the Part Number:

If there is a Negative condition in an Activity Line with a date greater than the Total Lead Time date, then the Exception code is set to 7.

If there is no negative condition in an Activity Line beyond the Total Lead Time Date, then the Exception Code is set to 8.

If all Projected Inventory values for all Activity Lines in the array are either zero, or have negative or positive variations that occur within the Early/Late Days filter, then the part number is considered to have no exception conditions. This is identified with an Exception Code of 9.

NOTE: A Negative Condition is calculated by subtracting either the Safety Stock Quantity for the part number, or if absent, zero, from the Projected Inventory Quantity. If the result is a negative number, -1 or a greater negative value, then a Negative Condition exists for that line. An Excess Condition is calculated by the same process, but the result is a positive number, of +1 or greater positive value.

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3. Determine the Exception Window - Perform Activity Date comparison for the Activity Line where the negative condition occurred is as follows:

If Activity Date is less than or equal to the Expedite Window Date, then the Preliminary Exception Codes are 1 or 2.

If Activity Date is less than or equal to the Purchase Lead Time Date, then the Preliminary Exception Codes are 3 or 4.

If Activity Date is less than or equal to the Ordering Lead Time Date, then the Preliminary Exception Codes are 5 or 6.

4. PO Available to Reschedule? - Refine the Preliminary Exception Code selection for Negative conditions by reading subsequent Activity Lines to determine whether there is a PO available to be rescheduled . This is done by reading Activity lines that have later Activity dates than the one where the exception occurred, and determining one of the following conditions:

If all remaining Activity Lines do not have any PO data, then the Exception Code will be 1, 3, or 5.

If, during this scan process, a PO is encountered, then the Exception Code will be 2, 4 or 6.

5. The results of the Determine Exception Window process and the PO Available to Reschedule? process are combined to identify the final Exception Code selection, which is written to the record with the other data, and which will meet the Exception Condition code list defined above.

Drop Shipped Demand & Supply Report

Screen Data

Selections:

Part Number xxxxxxxxxxxxxxxx (or ALL)

Buyer Code x-----x

Planner Code x-----x

P/MRP Exception Code x----x

Part Group xxxxx (or ALL)

Turnaround Document Format (adds underscores for lines to be filled in)

Sort Options:

By Buyer Code, then Exception Code, then Part Number (page break on Buyer Code)

By Planner Code, then Part Number (page break on Planner Code),

By Part Number

By Part Group, then Part Number

By P/MRP Exception Code, then Buyer Code, then Part Number

Press F9 to save these selections and generate the report.

Report Format:

Refer to separate document - D&SRPT.DOC for layout details

Functional Logic

This report is generated from the DS/DS table and has several options. One option is to include extra lines where a negative available occurs, in order to provide for a turnaround document format that can be sent or FAXed to offsite locations for coordination of ordering and scheduling of shipments. It is similar to the P/MRP Demand & Supply Report

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Purchased Material Requirements Planning Summary Report

Screen Data:

Selection Options:

- Individual Purchased Part Number(s) or ALL
- Select by Buyer Code (enter one)
- By Exception Code

Source Options:

- InBound D&S Data Only
- InBound & Drop Ship Data Together

Sort Option:

- By Buyer Code, then Exception Code, then Part Number
- By Buyer Code, then Part Number
- By Exception Code, then Part Number

Note: This program may be executed by the Job Server as a Deferred Job.

Press F9 to generate the report

Report Format:

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Summary Purchased Material Requirements Planning
(report options selected printed here)

Part Number: x-----x Desc. x-----x U/M xx Preferred Vendor IDs:
Excp Code xx Buyer Code x--x Part Group xxxx Purch LT xxxx x-----x
Safety Stock Qty xxxxxx Ordering Rule No. x x-----x
Minimum Order Qty xxxxx Maximum Order Qty xxxxx x-----x
Fixed Order Qty xxxxxx Order Multiple xx Total Avail Qty x--x R/I Qty x--s MRB Qty xxx

Periods Fr- Fr- Fr- Fr- Fr- Fr- Fr- Fr- Fr- Fr- Fr- Fr- Fr-
To To To To To To To To To To To To To To

InBnd WO Reqts
P.O. Del'ys
Proj O/H
D/S WO Req'ts
DS PO Del's

Functional Logic Notes:

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This report works similarly to the Purchased Material Demand & Supply Review reports (both In-Bound and Drop Ship) except the data is summarized onto the several lines of the report, regardless of the amount of actual detail within each date interval. This gives an overview of the demand & supply situation for this part number.

It is generated from the two files that generate exception code analyzed demand & supply data. The reports that print these files are the In-Bound Purchased Material Demand & Supply report and the Drop Ship Demand & Supply report. It brings all demand and supply data from both sources. The Exception Code that appears on this report is the lowest from either of these two files, depending on the option selected. If no Drop Ship demand or supply data is present, these lines are not printed.

The program functions as follows:

Displays the option selection screen, accepting only one of choice for each category. The program's execution is initiated with the F9 key. The program is then submitted to the Job Server for deferred execution. The user's work station is then returned to the menu.

Upon initiation, the program then reads the PDS (Purchased Demand & Supply) table first, then, if selected as an option, the DSDS (Drop Ship Demand & Supply) table. Data retrieved from each is grouped into the time periods and appears on the appropriate lines on the summary report.

Since these data is taken from work files already constructed, reference should be made to the descriptions of how these data are organized if more detailed is required. In general, the following apply:

- Work Order Material record data for work orders with status codes of RNP, OP, or PLND are included. Work Orders with a status of "C" (closed) are excluded.;
- Unissued Work Order demand is obtained for each required part number where there is an unfilled requirement, calculated from:

Quantity Required + Planned Attrition Quantity + Quantity Scrapped
minus Quantity Issued
= Net Required Quantity

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- Purchase order delivery data are obtained by sorting PO data by delivery date, using the calculated Delivery Balance Remaining to apply line item quantities received to the current delivery schedule shown.
- Inventory data is retrieved and calculated forward in time using the work order material demand data and the purchase order supply data to obtain a Projected On Hand inventory.
- The report's periods are defined using the PMRP record in the Planning Period table.

Report lines are generated as follows:

- InBound Work Order Requirements - quantities required for the part number on work order material records where the Work Order material is identified as being required by a non-outside manufacturing work center and that fall between the From-To dates that define each period.
- Purchase Order Deliveries - delivery quantities remaining for PO's that where the PO Closed? flag = Y, and are on PO's with a Ship To Vendor ID that is a company location. Delivery quantities are calculated using the applied delivery quantity calculation method to allocate quantities received to delivery dates and are totaled for delivery dates falling between the From-To dates that define each period.

- Projected On Hand - Calculated with the following:

On Hand Qty (current total on hand at the start of calculation, then the balance forward from the previous period),
 minus WO requirements,
 plus P.O. deliveries
equals this period's projected on hand

- Drop Ship Work Order Requirements - obtained from Work Order Material information that is identified as being required at an Outside Manufacturing Work Center, i.e., for a product that is to be assembled at that Vendor's facility. This demand cannot be fulfilled from items in inventory, or from PO deliveries scheduled to be delivered at the company.
- Drop Ship PO Deliveries - obtained from PO's with Ship To Vendor ID's other than an in-company location. Should be matched with Drop Ship Work Order Requirements.

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Product Purchasing Data Maintenance

Screen Data:

Parent Part Number (entered)
 Operation No. (entered)

Req'd P/N*	Desc.*	Req'd Qty*	P /M *	Frqn ?	V F ?	Buy Vndr	Pay Vndr	Ship To V.	Terms	For Cur ID	FC U/P
x-----x	x---x	x----x	x	x	x	x---x	x---x	x---x	x----x	x--x	xx
x-----x	x---x	x----x	x	x	x	x---x	x---x	x---x	x----x	x--x	xx
x-----x	x---x	x----x	x	x	x	x---x	x---x	x---x	x----x	x--x	xx

*Display Only fields

Functional Logic

NOTE: This program adds several fields to the existing Product Configuration record's Required Part Number multi-value lines. These are:

- Buy Vendor
- Pay Vendor
- Ship To Vendor
- Terms
- Foreign Currency ID
- Foreign Currency Unit Price

This screen allows maintenance of standardized, or default purchasing information that is associated with a specific required part number in a configuration record. It allows retrieval and display or printing of this data on procurement reports to set a standard practice, regardless of any recent procurement actions which may have deviated from this standard for good cause.

The program allows only changing of this data, and does not allow changes to Required Part Number, Require Quantity, or P/M Code data.

When selected from the menu, the program displays the window, cursor at the Parent Part Number. The Parent Part Number and Operation Number must match the Record ID of an existing Product Configuration record. If it does not, the program displays a message informing the user. If it does, the record's data is retrieved and displayed on the screen.

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Changes are allowed to the Foreign?, Vendor Furnished, Buy Vendor, Pay Vendor, Ship to Vendor, Terms, Foreign Currency ID, and FC (Foreign Currency Unit Price) fields. Validation rules are:

- The Vendor field entries must be in the Vendor Master Table.
- Foreign Currency ID must be in the Foreign Currency table.
- Foreign Currency Unit Price must be not negative, and displays 3 decimal positions.
- Terms must be in the Terms lookup table.

When the entries are completed, the screen is saved with the F9 key.

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Outside Mfg Work Center Purchasing Data

Screen Data:

Work Center ID x-----x (entered)
Work Center Description x-----x (display only)
Vendor ID x-----x (display only)
Location x-----x (display only)
Foreign? x (display only)
Std Ship Vendor ID x-----x*
Std Pay Vendor ID x-----x*
Std Terms x-----x*
Std FOB x-----x*
Std Ship Via x-----x*
Mfg Part Number Std (Foreign) Currency ID Std For Cur U/Price
x-----x x-----x x-----x
x-----x x-----x x-----x
x-----x x-----x x-----x
x-----x x-----x x-----x

*New fields to add to Work Center Data Dictionary

Functional Logic

This screen allows maintenance of standardized, or default purchasing information that is associated with a specific outside manufacturing work center, typically one flagged as a foreign O/Mfg work center. It allows retrieval and display or printing of this data on procurement reports to set a standard practice, regardless of any recent procurement actions which may have deviated from this standard for good cause. Some data is part number specific for manufactured parts made at this O/Mfg work center.

When selected from the menu, the program displays the window, cursor at the Work Center ID. The value entered must match the Record ID of an existing Work Center Master record. If it does not, the program displays a message informing the user. If it does, the record's data is retrieved and displayed on the screen.

The existing Vendor ID is also the Bought From Vendor ID. Other standard work center fields are not changeable from this window, but are display only here.

Changes are allowed to the these fields, which may be left blank, with corresponding validation rules:

- Standard Ship to Vendor ID - must be in the Vendor Master Table.

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- Standard Pay to Vendor ID - must be in the Vendor Master Table.
- Standard Terms - must be in the Terms lookup table.
- Standard FOB - must be in the FOB lookup table
- Standard Ship Via - must be in the Ship Via Lookup table.
- Mfg Part Number - must be in Part Master table, with P/M code = M
- Standard (Foreign) Currency ID - must be in the Foreign Currency table.
US\$ may be entered for items purchased in US\$. The conversion rate should be 1:1 in the Conversion Looktable.
- Standard (Foreign) Currency Unit Price - must be not negative, and displays 3 decimal positions.

When the entries are completed, the screen is saved with the F9 key.

Country Lookup Table Maintenance -

Screen Data:

Country Code x-----x
Country Text x-----x
Phone Code x-----x

Functional Logic

This window provides a standard table format for countries and their associated full names. The only use of this table is to validate for Origin Country codes entered in the Part Origin Maintenance screen. The Record ID is the Country Code.

When selected from the menu, the program displays the blank window. Pressing the F2 key generates a popup showing current table values, including Country Code and Country Text.

Standard A/Rev keys are used to delete entries from the table. A new Country Code can be entered, with required entry of the associated Country Text.

The screen is saved with the F9 key.

Product Country of Origin Data Maintenance

Screen Data:

Parent Part Number (entered)
 Operation No. (entered)

Req'd P/N*	Desc.*	Req'd Qty*	P /M *	Frgn ?	V F ?	Buy Vndr	Origin Country
x-----x	x---x	x----x	x	x	x	x---x	x---x
x-----x	x---x	x----x	x	x	x	x---x	x---x
x-----x	x---x	x----x	x	x	x	x---x	x---x

*Display Only fields

Functional Logic

NOTE: This program adds one new field to the existing Product Configuration record's Required Part Number multi-value lines. This is Country of Origin.

This screen allows entering and changing of Country of Origin and Buy Vendor data associated with a product's component/required part numbers. This data is used in special versions of the costed bill of material which calculate the content of a product, with subtotals by country of origin.

The program allows only changing of this data, and does not allow changes to Required Part Number, Require Quantity, or P/M Code data.

When selected from the menu, the program displays the window, cursor at the Parent Part Number. The Parent Part Number and Operation Number must match the Record ID of an existing Product Configuration record. If it does not, the program displays a message informing the user. If it does, the record's data is retrieved and displayed on the screen.

Changes are allowed to the Foreign?, Buy Vendor, and Origin Country. Validation rules are:

- The Vendor field entries must be in the Vendor Master Table.
- Origin Country must be in the Country Code lookup table.

When the entries are completed, the screen is saved with the F9 key.