



a Teamco Company

Mitrol MFG – Aerospace Defense

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AEROSPACE DEFENSE EXTENSION

OVERVIEW :

Satisfying government requirements...

The Aerospace/Defense extension brings MFGII control & planning excellence.

The Aerospace/Defense extension is a module enhancing the **MITROL MFG II** application. As such, most of the functionality of the core transactions of MFG II is retained, with added functions, via both updated and new transactions. Therefore, some subsystems such as the Bill of Material Subsystem or the Inventory Control Subsystems have been completed to meet the requirements of companies working in sensitive domains such as Aerospace and Defense.

Get a full control of inventory issues, predict the full effect of scheduling actions, and physically locate any component in systems and primary assemblies... using the Aerospace Defense Extension.

DETAILS :

Program Requirements Pegging

Program Requirements Pegging identifies the program source of component part requirements at every level within the MRP explosion. This provides the manufacturing planner with knowledge of the full effect scheduling actions will have on various in-process programs, and with the capability to generate multiple work orders or purchase orders, each assigned to a particular program. **MITROLA/D** can be directed to generate separate MRP's for individual programs. It can do this by using only the work orders, purchase orders, and inventory assigned to the program for netting. It can also combine the total requirements for two or more programs and net the results against all open work orders, purchase orders and available inventory.

In either case, if work orders or purchase orders have been generated for a particular program, this is noted in the display accompanying the MRP report. MRP will always work from the perspective of manufacturing economies. In this case, the planner may ignore the recommendation and take more appropriate action.

The MRP report matrix for each component in the explosion is expanded to show one requirements row for each program (the equivalent of showing one row for each master schedule record for a part).

Note: This capability is frequently, and incorrectly, referred to as "Full Level Pegging". Full Level Pegging technically refers to identifies the top level Part. The

MITROLA/D System identifies the top level PROGRAM, a data element stored in the Master Schedule file. Program Requirements Pegging supports aerospace manufacturing planning, whereas Full Level Pegging does not.

Product Structure Serial Effectivity

MITROLA/D maintains separate bills of material corresponding to the typical stages of product system design and manufacturing. The bill of material is established at the design stage—a bill used by engineering for detailed design work. Ownership of the bills of material falls entirely to the Engineering department.

While in the design stage, bill of material changes (e.g., components, additions or deletions, component quantity changes) are unlimited, each representing effectively a paper and pencil engineering change. At this time, all parts in the product structure are assumed to be needed and/or usable as is in the manufacturing process. In the design stage, all parts are "shared" by the engineering and manufacturing bills of material.

The bill of material is next assigned to the Manufacturing Engineering and/or Manufacturing Planning departments. Changes reflecting manufacturing limitations, manufacturing economics or material availability may be made. The resulting product structure reflects the planned version. This planned version may result in different parts being used in the "as designed" (i.e., engineering) and "as planned" (i.e., manufacturing) bill of material. Parts are defined "as exclusive" to one of the two bills of material, may be "shared" by both.

When the bill of material is considered released for production, modifications must be accompanied by an engineering change order and tracked through the assignment of revision levels. Engineering changes to a product structure may be effected by system serial number. As the system design evolves with new options and improvements or is modified to satisfy the requirements of a variety of customers, changes are incorporated in ascending order, reducing unique serialized products. Changes made to the structure are specified as effective with a starting serial number and due to be phased out following an ending serial number. A revision level is assigned to each change.

Serial effectivity is usually associated with bill of material activities (e.g., engineering changes) and is primarily an Engineering concern. Serial effectivity information must be converted into equivalent dates for manufacturing planning purposes, including MRP. The manufacturing planning group is responsible for assigning anticipated effectivity dates for each engineering change. MRP will use these effectivity dates for material availability planning. However, a new configuration will not be automatically put into effect, but rather the planner must indicate to the system that use of the new configuration is imminent.

Configuration Management

Configuration management provides the capability to document and verify "as built" system configurations. In addition to system testing, Quality Assurance is required to

verify that each uniquely built system conforms to contract specifications. **MITROLA/D** maintains all data required for complete system audit and documentation. Upon completion of manufacturing for a uniquely built system, its serial number and configuration are entered into the system. All incorporated engineering changes and revisions are identified, along with component serial numbers or lot numbers, assigned work orders and reference designators.

The "as built" configuration is compared to the "as planned" bill of material to ensure that correct components, component quantities and component revision levels were properly used in the manufacturing process. Comparison is also made to ensure the incorporation of all requisite engineering changes, and the proper use of authorized alternate components. The Bill of Materials Reference Designator attaches a topological or geographic reference to the part or bill for physical location of components in systems and primary assemblies. This designator provides an historical reference which greatly facilitates regular maintenance or special service on parts in custom-manufactured items.

Multi-Location Inventory by Program

MITROLA/D supports multiple location inventory tracking by program. Full control of all material movement, including a complete audit trail, is maintained. The material flow from manufacturing and support operations, receipts into and issues from a stockroom, and in-transit inventory are recorded with strict transaction control. Inventory discrepancies may be tracked to a part or to a stocking location.

Inventory balances for a program are maintained separately. Multiple stocking bin locations for a part are allowed. While material stored in a stockroom location is assigned to a specific program, it may be co-mingled between programs. This allows the economies of large procurement programs and production runs to be realized—when contractually permitted. Common stock for low cost items used in many programs may be in a single location, then transferred to a specific program when issued. The procedure for tracking material by program may be extended into the purchasing and production control functions, allowing, for example, scheduled receipts to be segregated by program during the planning process. Full control of inventory issues can be accomplished by assuring that material procured for a program is issued only to work orders for that specific program.

Lot Traceability

Traceability supports the aerospace requirements to track material usage, identifying component use by system. For each part, the systems, assemblies or work orders in which it was used, reference designator locations, and source work orders or purchase orders may be identified. For a system or major assembly, the serial numbers or lot numbers composing it may be identified, as well as assigned inventory location(s) for a material lot or for a serial number.