BY ORDER OF THE COMMANDER
AIR FORCE MATERIEL COMMAND

AFMC INSTRUCTION 23-107

7 AUGUST 1997

Operational Requirements

MANUFACTURING MATERIAL - REQUIREMENTS COMPUTATION

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction gives policy and procedures for determining requirements for manufacturing material. It implements AFPD 23-1. This instruction applies only to the Air Logistics Centers. It does not apply to the US Air Force Reserves or Air National Guard units and members.

SUMMARY OF REVISIONS

This revision supersedes AFMCR 57-20, 28 Sep 92.

1. General. Manufacturing material is semi-finished material bought to maintain effective supply support with lower inventory investment costs. A portion of the items falling within the buy computation are bought as semi-finished or manufacturing material assets.

1.1. A large percentage of the total finished item lead-time can be supported by converting manufacturing material, when required, with an inventory investment cost that is less than that of finished items.

1.2. When the finishing lead-time approaches total finished item acquisition lead-time, and manufacturing material cost approaches finished item cost, the value of using this technique is reduced.

1.3. Manufacturing material item management will be applied to sole source items with long production lead-times and characteristics that support the acquisition of semi-finished material.

1.4. Items selected for this program will require management's attention.

1.4.1. The Air Force and contractors must cooperate to identify items that should be considered for this program.

1.4.2. The contractor obtains or manufactures the manufacturing material inventories and stocks them for the government.

1.5. Contract coverage must ensure the contractor applies government owned manufacturing material inventories to the manufacture of finished items in support of the Air Force requirement, unless the inventory management specialist (IMS) grants a waiver.

2. Responsibilities. HQ AFMC/LGI will provide the policies and procedures needed to carry out and manage the manufacturing material program.

2.1. Air Logistics Centers (ALC), Directorate of Financial Management (D/FM) will accomplish the following:

2.1.1. Develop local procedures to carry out the manufacturing material program.

2.1.1.1. Furnish the applicable end article item managers (EAIM) and IMS with detailed instructions on managing the manufacturing material program.

2.1.1.2. Provide a point of contact to monitor the program.

3. Terms Explained.

3.1. Manufacturing Materials.

3.1.1. Semi-finished parts.

3.1.1.1. Casting. A part that has been cast in a mold. The part usually requires further processing such as milling, machining, polishing, assembling, etc. Before it is ready for use.

3.1.1.2. Forging/Extrusion. A part wrought into desired shape by a hammer or die. The part usually requires further processing similar to that required for a casting.

3.1.2. Finished Parts. National stock-numbered parts that are required for use with other types of manufacturing material to produce a finished item.

3.1.3. Finished Item. A spare or repair part in final form, purchased by the Air Force, cataloged, stocked and issued.

3.1.4. Conversion Lead-time. The length of time required to convert manufacturing material into a finished item.

4. Policy.

4.1. Guidelines for selecting an item for this program are as follows:

4.1.1. Items designated critical, items subject to shelf life deterioration and conventional munitions items (D023B) are excluded from this program.

4.1.2. The manufacturing material item cost may represent up to 65 percent of the finished item cost.

4.1.3. The finished lead-time may represent up to 65 percent of the finished item total procurement lead-time.

4.1.4. Items selected must be high buy items having recurring procurement requirements. An annual computation buy requirement of $250,000 or more for recoverable items and $50,000 or more for economic order quantity (EOQ) items is required.

4.1.5. Administrative effort should not exceed 10 percent per year of the deferred inventory investment. As an example, the minimum possible inventory investment deferment on an item with an annual computation buy requirement of $50,000 to support procurement lead-time is $11,375. Administrative costs for the manufacturing material technique may not, in this case, exceed $1,137.50.

4.1.6. When an item fails to meet these selection criteria, yet applying the manufacturing material technique would result in significant benefits to the Air Force, the item may be so managed. Justify such cases in the remarks block of the AFMC Form 523, **Manufacturing Material Requirements Computation Worksheet**.

4.2. Deletion Criteria. Manage items under the above procedures until:

4.2.1. Either the cost or lead-time percentages fail to meet the criteria in **paragraph 4.1.1.**

4.2.2. Supply support would be enhanced by applying normal requirement computations

4.2.3. Finished item usage is reduced to the point that the normal computation buy requirement is less than the minimum specified in **paragraph 4.1.1.5**.

4.3. Deleted Items. An item that is to be deleted from this program will continue to be managed under these procedures until all manufacturing material assets have been used, disposed of as excess or condemned.

4.4. Requirements Time Periods and Rates.

4.4.1. Finished item requirements are the sum of the following:

4.4.1.1. Update period requirement, if applicable.

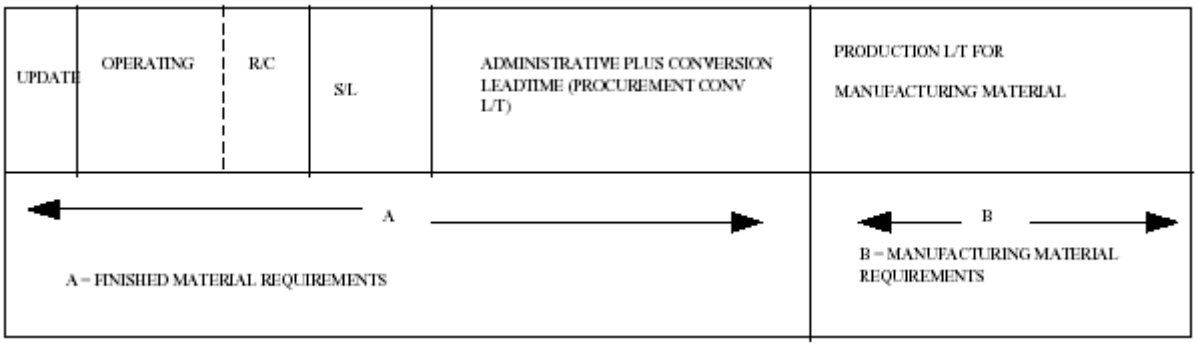
4.4.1.2. Operating Period Requirements. The period of time through September of the operating year.

4.4.1.3. Authorized stock level, safety level, repair cycle and additive requirements.

4.4.1.4. Procurement Conversion Lead-Time Requirements. The period of time subsequent to the operating period, equal to the procurement conversion lead-time.

4.4.2. Manufacturing material requirements will be the total requirement for the segment of time following the procurement conversion lead-time period. It is equal to the production lead-time for manufacturing material. For example:

Figure 1. Example of Production Lead Time



4.4.3. The termination level for the items will be the finished item buy/operating requirement plus the manufacturing material buy/operating requirement plus a 12 month requirement computed at the applicable rate.

4.4.4. The retention level will be the normal gross retention computed for the finished item.

4.4.5. Finished item and manufacturing material quantities will be adjusted within the total requirement quantity to ensure the lowest cost to the government. For example, a quantity discount on the finished item might overshadow any benefit to be derived from applying the manufacturing material technique.

4.5. Termination. When the total of finished assets and manufacturing material assets exceed the termination level, take action to terminate excessive on-order quantities IAW AFMC requirements guidance.

4.6. Inventory. The IMS will keep manual manufacturing inventory records. Do not enter manufacturing material data into the Acquisition and Due-In (J041) system. Place all manual inventory records into the item folder.

4.7. Status Reporting. The ALC/FM organization will review the status of the manufacturing material program and will keep records of the number of line items and the dollar value of the manufacturing material inventory. Reports on the status of the manufacturing material program may be requested by higher headquarters. At that time, a format will be provided with the request for information.

5. Special Instructions.

5.1. Computations.

5.1.1. The current mechanized D041 computation worksheet, the D062 EOQ computation notice or a manual computation worksheet, such as the AFMC Form 614, **Recoverable Item Initial Requirements Computation Worksheet** or the AFMC Form 997, **EOQ Item Initial Requirements Worksheet** will be required.

5.1.2. Review manufacturing material requirements quarterly with the computations made as needed.

5.1.3. When a single form of manufacturing material can be converted into two or more finished items, compute each finished item. Merge the manufacturing material buy requirements and make a single acquisition action. Each computation will be the supporting documentation for the item

requirement and asset records will show the finished item application. Include a copy of the reverse side of AFMC Form 523 in each applicable item folder. This worksheet records those cases where manufacturing material acquired for one item is applied to another item's requirements.

5.2. National Stock Number (NSN) Items Furnished to Contractors.

5.2.1. When the stocklisted items are required in the final assembly processing, furnish them to the contractor, according to the government furnished material (GFM) policies and procedures in the USAF Supply Manual and other applicable regulations/instructions.

5.2.2. Determine the requirements for these items with manufacturing material requirements and input them to the appropriate requirements system as additives.

5.2.3. Furnish stocklisted assets to the contractor as follows:

5.2.3.1. Furnish assets available from stock, that can be released without jeopardizing support, to the contractors by the need date or place them in a holding account (Material Utilization Control Office or MUCO) until required or requested by the contractor.

5.2.3.2. When assets are not available, or cannot be released, acquire and furnish the required quantity to the contractor by the need date or place them in a holding account until required or requested by the contractor.

5.2.3.3. Consider NSN items that have been identified as sole source to the prime contractor for contractor furnished material (CFM) if the action would require a buy for this purpose.

5.3. Nonstocklisted Items. Review contractor excess lists to find out if manufacturing material is available.

5.4. Forms Preparation**.** **Table A1.1.** and **Table A2.1.** show how to complete AFMC Form 523.

6. Forms Prescribed. AFMC Form 523, **Manufacturing Material Requirements Computation Worksheet**.

Charles H. Perez, Brigadier General, USAF
Director, Logistics

Attachment 1

INSTRUCTIONS

Table A1.1. How to Complete AFMC Form 523

A	B	C
To Complete		
Section and Title	Block	Enter
I, Item Data	1A	The NSN, non cataloged number or manufacturer's part number for the finished item. Where interchangeable, secondary or substitute items are involved, enter the preferred or master NSN.
	1B	The NSN or manufacturer's part number for the manufacturing material item
	2A	The name of the finished item
	2B	The name and a brief description of the manufacturing item
	3A	The unit price of the item
	3B	The unit price of the manufacturing material
	3C	The unit price (cost) for converting manufacturing material to finished item.
II, Asset Data	4	The asset cutoff date applicable to the completion
	5	The finished item, asset position. Get this position from the applicable requirements computation
	5A	The total on hand finished item quantity
	5B	The finished assets that are on order and due-in from contractors (including conversion actions)
	5C	The finished assets that are on purchase requests, etc., but not on contract (including conversion actions)
	5D	The sum of the entries in blocks 5A through 5C
	6	The manufacturing material item asset position. The inventory management specialist (IMS) maintains this position for manufacturing material
	6A	The manufacturing material assets on hand available for conversion to finished items
	6B	The manufacturing material assets that are on order
	6C	The manufacturing material assets that are on purchase requests, etc., but not on contract
	6D	The sum of the entries in blocks 6A through 6C
	7A, 7B, and 7C	The total finished item/manufacturing material item quantity due in schedule by quarter

	8A	The finished item administrative lead-time, production lead-time and procurement lead-time the appropriate blocks (expressed in months)
	8B	The manufacturing material administrative lead-time, production lead-time, conversion production lead-time and the total of the three segments in the appropriate blocks (expressed in months)
III, Finished Item and Manufacturing Material Buy Determination	9A	The finished item total gross requirements. Extract this quantity from the computation at the end of contracting conversion lead-time
	9B	The normal computation finished item gross requirement. Extract this quantity from the computation at the normal buy point (ROL plus balance current fiscal year requirements for expense items)
	10A	There is a finished asset average when the quantity entered in block 5D exceeds the quantity entered in block 9A. Subtract the quantity in block 9A from the quantity entered in block 5D and enter the result
	11A	There is a finished asset shortage when the quantity entered in block 5D is less than the quantity entered in block 9A. Subtract the quantity entered in block 5D from the quantity entered in block 9A and enter the result
	12B	The manufacturing material total gross requirement. Subtract block 9A from block 9B
Table 1. Continued		
	13B	There is a manufacturing material asset overage when the quantity entered in block 6D exceeds the quantity entered in block 12B. Subtract the quantity entered in block 12B from the quantity in 6D and enter the result
	14C	The manufacturing material conversion requirement. This quantity will be the quantity in block 11A or block 6D whichever is the lesser
	15C	The finished item buy requirement. Obtain this quantity by subtracting the sum of the quantity in blocks 5D and 14C from the quantity in block 9A
	16C	The manufacturing material buy requirement. Obtain this quantity by adding the quantities in blocks 12B and 14C and subtracting the quantities in blocks 6D and 10A
IV, Cost Data	17A	The normal computation finished item net requirement quantity. Get this from the applicable requirements computation worksheet
	17B	The normal computation finished item requirement cost. Multiply the net requirement quantity, block 17A, times the unit price, block 3A

	18	The entries in these blocks provide segmented and total cost associated with the manufacturing material program for this item
	18A	The finished item cost. Multiply the finished item buy requirement quantity, block 15C, times the finished item unit price, block 3A
	18B	The conversion cost. Multiply the conversion requirement quantity, block 14C, times the conversion cost, block 3C
	18C	The manufacturing material cost. Multiply the manufacturing material buy requirement quantity, block 16C, times the manufacturing material unit price in block 3B
	18D	The sum of blocks 18A through 18C
	Remarks	self-explanatory
	Prepared and Approved By	Self-Explanatory. Approval authority IAW local guidelines

Attachment 2

INSTRUCTIONS

Table A2.1. How To Complete Reverse Side Of AFMC Form 523

A	B	C
To Complete		
I, Manufacturing Material/Finished Item Data	1	The preparing activity budget program (BPAC) and date in appropriate blocks. The manufacturing material federal supply classification (FSC) and national item identification number (NIIN) or the noncataloged (NC) number
	2	The manufacturer's part number for the manufacturing material
	3	The name or a brief description of manufacturing material
	4A	The item number of each NSN
	4B	The finished item national stock number (NSN) or manufacturer's part number of all items which the manufacturing material described in blocks 1, 2, and 3 apply and number these entries consecutively in column 4A
	4C	For each finished item the applicable manufacturing material overage quantity obtained from block 13B of the AFMC Form 523 for that finished item
	4D	The normal computation net requirements cost from block 17B of each applicable AFMC Form 523
	5E	The finished item buy requirement from block 15C of each applicable AFMC Form 523
	5F	The conversion requirement from block 14C of each applicable AFMC Form 523
	5G	The manufacturing material buy requirement from block 16C for each applicable AFMC Form 523
	5H	The manufacturing material program net requirement total cost, from block 18D from each applicable AFMC Form 523
	6	The sum of the entries in 4C
II, Reapplication of Manufacturing Material Overages	A	The item number of each finished NSN. See Note 1
	B	The finished NSN of all items with a quantity in block 4C
	C	The quantities of manufacturing material reapplied. See Note 2
	D	The item number of the gaining finished item
	E	The NSN of the gaining finished item

	7	The residual overage, if total overage is a quantity greater than required to offset all buy requirements
Remarks		Self-Explanatory
Prepared By		Self-Explanatory
Approved By		Self Explanatory. Approval Authority IAW local guidelines

NOTES:

1. Apply all manufacturing material overages to reduce the finished item buy requirements in block 5E and/or the manufacturing material buy requirements in block 5G in that order.
2. Ensure complete documentation of each reapplication; e.g., an overage from one item number might be applied to buy requirements for several other numbers.
3. Represents adjusted requirements and cost summary to reflect the reapplication of manufacturing material assets.