


S840

DATE 18 June 1964		TMC SPECIFICATION NO. S-840	A
SHEET 1 OF 14			
L.G. COMPILED	J.C. CHECKED	TITLE:	
APPROVED <i>[Signature]</i>			

PURCHASING DEPARTMENT *[Signature]*  
PROVISIONING *[Signature]*

MULTI-SOURCE PURCHASED ITEMS

DATE 18 June 1964		<b>TMC SPECIFICATION NO. S-840</b>	A
SHEET 2 OF 14			
L.G. COMPILED	J.C. CHECKED	TITLE: MULTI-SOURCE PURCHASED ITEMS	
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### 1. SCOPE

1.1 This document establishes the requirements and policies pertaining to Multi-Source Purchased Items.

### 2. APPLICABLE DOCUMENTS

2.1 The following documents of the latest issue and revision form a part of this Standard:

TMC Specification No. S401 - TMC Vendor Codes  
TMC Specification No. S814 - Interchangeability Definitions

### 3. DEFINITIONS

3.1 Multi-Source - More than one vendor or manufacturer for a particular TMC part.

3.2 Black-Box Item - An item which is one piece or cannot be disassembled, such as a Fixed Resistor, Capacitor, Molded Coil, Sealed Filter, or Sealed Transformer.

3.3 Non-repairable Item - An item which the Engineering Department decides is not repairable in the field under normal circumstances without destroying the item and/or its fine adjustment and/or tuning and/or may be detrimental to its operation and/or may void any warranties on the item. An item of this type must indicate the applicable aforementioned (or some equivalent) reasons for being non-repairable on the TMC drawing for that part.

3.4 Assembly Type Items - See "Breakdown Type Items."

3.5 Breakdown Type Items - Items which can and, in many cases, should be disassembled for repair purposes (this includes items such as fans, which can be repaired by replacing the motor or impeller individually; motors, which can be repaired by replacing bearings, shafts, etc.; large high voltage relays (or contactor), which can have the contacts, coils, and micro-switches replaced; printed circuit components, which although not desirable, can be repaired in the field as far as changing the components mounted thereon; and other similar type items).

DATE 18 June 1964  
SHEET 3 OF 14

# TMC SPECIFICATION NO. S-840

A

L.G.  
COMPILED

J.C.  
CHECKED

TITLE: MULTI-SOURCE PURCHASED ITEMS

APPROVED 

3.6 For the purpose of this Standard, "Source," "Vendor," "Manufacturer," and "Supplier" shall be equivalent.

3.7 For the purpose of this Standard, "Vendor's Code," "Manufacturer's Code," "Mfrs Code" shall all mean the TMC S401 Code assigned to a particular manufacturer or supplier.

3.8 INTERCHANGEABILITY - Definitions in accordance with TMC Specification No. S814.

## 4. REQUIREMENTS


### 4.1 Major reason for Multi-Source.

4.1.1 It has been established that the TMC Purchasing Department must have the opportunity and the prerogative to investigate, invite, and accept bids for all purchased parts from multiple sources. Aside from satisfying Military auditing requirements, it is also advantageous to TMC as it may save the company large sums of money and insure second and third sources of supply in case of emergency conditions of first source negligence, internal strikes, habitual poor delivery, close down, etc. It would also generate a stronger feeling of active competition to existing sole suppliers and, in some cases, introduce more sensible prices on existing and new purchased items.

### 4.2 Control Requirements.

4.2.1 Due to problems created by multi-sources on Breakdown Type Items, which directly affect Provisioning, Spare Parts, Inspection, Stock and Engineering, a control system must be maintained on the applicable items as follows:

4.2.1.1 Black-Box Items - When a part of this type is in our system and Purchasing finds another possible source, sample(s) must be obtained and submitted to Engineering for evaluation, testing, performance, and approval. At the time of evaluation, Engineering Standards must make certain that the TMC drawing of the item in question is sufficient in specifications, requirements, dimensions, etc., (Example: if the part were a capacitor used in an RF circuit of a unit for years and functioned properly without failure, from one vendor, and the drawing has no RF rating on it, then a rating should be added to the drawing to allow the new vendor to offer the proper replacement).

DATE <u>18 June 1964</u>		<b>TMC SPECIFICATION NO. S-840</b>	A
SHEET <u>4</u> OF <u>14</u>			
L.G. COMPILED	J.C. CHECKED	TITLE: MULTI-SOURCE PURCHASED ITEMS	
APPROVED 			

#### 4.2.1.1 (continued)

If the new vendor's part meets all our requirements and is approved by Engineering Standards and the assigned Project Engineer, the TMC drawing for that part shall be changed to reflect both the original vendor's code (per TMC Spec. S401) and the new vendor's code, OR; all vendors' codes shall be removed from the drawing and the record of approved vendors and their part numbers will be maintained by the Engineering Standards Section; then this information shall be forwarded to Purchasing Department.


If necessary, certain changes and/or clarifications may be necessary on the drawing at that time to cover both vendors' parts. The new part cannot exceed the size of nor affect the interchangeability of the original part.

**NOTE:** Since the TMC drawing for a part of this type should cover size restrictions, materials, finishes, electrical and mechanical specifications design restrictions, color, etc., no record need be kept of what equipment in which a particular vendor's part was supplied. Any vendor's part should be completely interchangeable with any other vendor's part for a particular TMC part number.

**4.2.1.2 Unsealed Assembly or Breakdown Type Items.** - If a component falls in this category, it creates a problem of Provisioning, Spare Parts, and Field Support if a second or third approved vendor does not manufacture his item so that all piece parts of the assembly are interchangeable with those of the other approved vendors.

To explain the method of control that will be used for this type of item, a hypothetical case will be reviewed as follows:

- A. Purchasing finds a possible second source for an existing component in our system, such as the centrifugal fan used in the RTF-2/PA, TMC Part No. BL102.
- B. Purchasing requests, receives, and submits to Engineering Standards sample(s) of the item in question. (Purchasing should check with Engineering first to see how many samples are required for evaluation). The samples shall be plainly marked "SAMPLE" by the vendor.
- C. The sample(s) is evaluated, tested, etc. in the required manner. The Engineering facility that performs this function must check with the assigned Project Engineer for the unit concerned before the final decision.

DATE 18 June 1964		TMC SPECIFICATION NO. S-840	A
SHEET 5 OF 14			
L.G. COMPILED	J.C. CHECKED	TITLE: MULTI-SOURCE PURCHASED ITEMS	
APPROVED 			

4.2.1.2 (continued)

- D. If the item is unacceptable, Purchasing shall be notified by memo. Purchasing, in turn, will notify the vendor. Engineering will record the reasons for rejection, the date, vendor, TMC part number, etc., in their own records.
- E. If, at some future date, the rejected vendor improves his product, or feels he now meets our requirements and it becomes important to get another source, he may be re-evaluated.
- F. If, at the original evaluation or re-evaluation, the item is acceptable and interchangeable as a complete assembly with the original item; Purchasing would be notified and Engineering Standards will take the following steps to control and record the disposition of the double source item.

- (1) Request all vendors involved to supply TMC with information pertaining to the piece parts, particularly those parts considered obvious "Spares," subject to failure, wear, replacement, etc. They will also make the vendor aware that TMC must be notified of any contemplated revision by the vendor to the piece parts.

As in the case of the example item, BL102, the parts involved would be impeller, motor, motor bearings, motor winding, motor terminal board, and motor shaft. The motor housings and impeller venturi would not be necessary as they are not normally subject to wear and replacement.

- (2) After receiving the above information from both vendors, the Engineering Standards Section will create an "Engineering Replacement Parts List" for BL102 which will conform to following sample format. (See TMC FORM ERPL-1)

(a) The replacement parts shall normally be ordered and stocked by the vendors' numbers, if the occasion occurs. In some cases, if all vendors' piece parts are interchangeable and/or if TMC Engineering decides it is necessary, A TMC number may be assigned and a drawing created. If no TMC drawing or part number are assigned, special inspection procedures will be instituted by Quality Assurance.

DATE 18 June 1964  
SHEET 6 OF 14

TMC SPECIFICATION NO. S-840

A

L.G.  
COMPILED

J.C.  
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TITLE: MULTI-SOURCE PURCHASED ITEMS

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SAMPLE FORMAT FOR ERPL -1

Sheet 1 of 1

ENGINEERING REPLACEMENT PARTS LIST  
FOR TMC PART NO. \_\_\_\_\_

ERPL- BL102

DATE \_\_\_\_\_

LIST NO.

Rev..

REPLACE. PART	VENDORS S401 CODES AND PART NOS.				TMC PART NO. (IF ANY) OR REMARKS
	116	19			
Impeller	86420	97531			BF100-2
Motor	02468	13579			MO116
Motor Bear- ing, Front	12345	67891			
Motor Bear- ing, Rear	54321	19876			
Motor Term- inal board	1289	2413			TM102-4
Etc.					
Etc.					

NOTES: \_\_\_\_\_

LIST NO.

ERPL-BL102

Rev.

TMC FORM ERPL-1

DATE 18 June 1964  
SHEET 7 OF 14

# TMC SPECIFICATION NO. S -840

A

L.G. COMPILED  
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TITLE: MULTI-SOURCE PURCHASED ITEMS

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### 4.2.1.2 (continued)

(3) The original source on the TMC drawing BL102 would be coded with an S401 code and this number plus his part would be put in a chart. The TMC control number would consist of the original part number, in this case: BL102, followed by a suffix "XX" and ending with the S401 identification suffix number assigned to that vendor. Since the original vendor for BL102 is IMC, and the TMC S401 number for them is S401-116, the TMC control number would be BL102XX116. The chart containing this information will be similar to:

TMC PART NO.	TMC CONTROL NO.	MFRS CODE	MFRS PART NO.	DIMENSIONS OR OTHER TYPE INFORMATION (IF NECESSARY)
BL102	BL102XX116	S401-116	BC2210B	

(4) The new accepted vendor would be assigned an S401 code and his code and part number would be added to the chart in the same method as above. The chart shall now closely resemble the following:

TMC PART NO.	TMC CONTROL NO.	MFRS CODE	MFRS PART NO.	DIMENSIONS OR OTHER TYPE INFORMATION (IF NECESSARY)
BL102	BL102XX116	S401-116	BC2210B	
BL102	BL102XX19	S401-19	(Per Vendor)	

(5) A note shall be added to the drawing as follows:  
"For spare parts replacement of repairable parts, see TMC List ERPL-BL102."

DATE 18 June 1964

SHEET 8 OF 14

TMC SPECIFICATION NO. S- 840

A

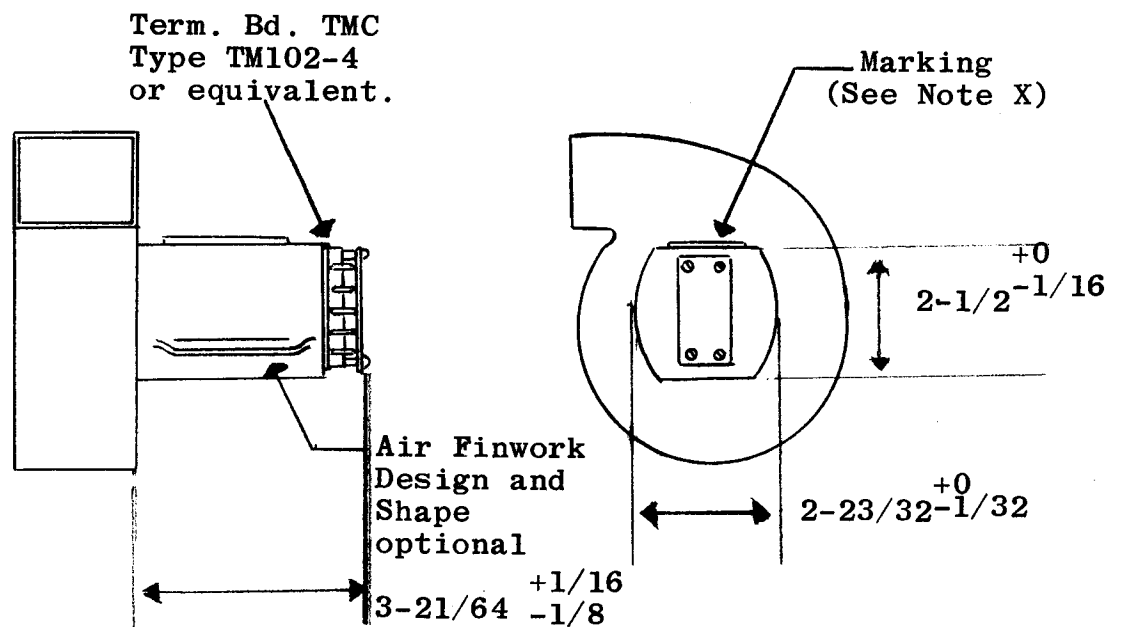
L. G.  
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CHECKED

TITLE: MULTI-SOURCE PURCHASED ITEMS

APPROVED 

## 4.2.1.2 (continued)

- (6) The drawing shall be updated (if necessary) in such a manner as to show more restrictive specifications to allow Quality Assur. to adequately inspect either vendor's part, and to loosen certain specifications that are of little consequence. In some cases this may necessitate two pictorials, or perhaps certain optional notes to show alternate conditions. In the case of this example, BL102, the motor should be redrawn similar to the following:



- (7) The TMC part number marking on the item shall be changed, or added, to reflect the following example note. (The specifications shown are not necessarily ones required and are shown for reference only).

NOTE 5: Manufacturer shall mark item with appropriate TMC Control Number containing his assigned code as shown in chart, and specifications as follows:

TMC No. BL102XX---  
115V 1PH  
50/60cy  
Etc., etc.

The drawing shall show the location, size of characters, color, method, etc., as per normal TMC marking procedures. Marking should appear in a location which can be easily read as viewing item when normally mounted in equipment.



DATE 18 June 1964

SHEET 9 OF 14

TMC SPECIFICATION NO. S- 840

A

L.G.  
COMPILED

J.C.  
CHECKED

TITLE: MULTI-SOURCE PURCHASED ITEMS

APPROVED

4.2.1.2 (continued)

- (8) Engineering will notify Purchasing that they may now procure the item from either vendor after release of changed drawing, and that the vendor must mark part per new method shown on drawing. They will also notify, by memo, the Provisioning Section of Data Control that the item is now one possessing a TMC Control Number.
- (9) The TMC Material Lists, Stage Sheets, Documentation (except Provisioning), Assembly Drawings, Production Control and Data Processing, picking up the item in question, will continue to reflect without change the original part number, BL102. (Provisioning, Documentation and their relationship in this matter to Purchasing and Quality Assurance is covered in a later section).
- (10) Each time thereafter that BL102 is ordered, Purchasing will decide who to buy from by means of delivery, current price, etc., and will purchase the item by the TMC Part Number (BL102) for the vendor chosen.
- (11) When the item is received by TMC, it will undergo normal inspection, etc., per new drawing and will be stocked by the original TMC part number, BL102.
- (12) When Production pulls parts from stock and calls for BL102, any BL102 in stock may be supplied if the only variance in the number is in the "XX" control suffix. However, certain attempts should be made to standardize as is later explained in Provisioning Section.
- (13) At the button-up stage of production, the complete BL102 control number, including the "XX" suffix, along with other similar type numbers and the unit manufacturing and serial number, shall be recorded by an appointed employee on a form prepared especially for that unit. This form (which will be prepared by Engineering) shall follow the general format of the attached sample.

This form shall be automatically issued to Production when first created. Thereafter, the form shall be micro-filmed and contained in the master microfilm files. Copies can be obtained when required.

A new revised form shall be issued for each change made on these forms.

The original form shall be maintained and revised by Engineering Standards and issued to Data Control for re-filming and distribution.

DATE 18 June 1964  
SHEET 10 OF 14

TMC SPECIFICATION NO. S - 840

A

L.G.  
COMPILED

J.C.  
CHECKED

TITLE: MULTI-SOURCE PURCHASED ITEMS

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SAMPLE FORMAT FOR RTF-2 MULTI-SOURCE

RECORD OF MULTI-SOURCE ITEMS FOR  
MODEL NO. RTF-2  
MANUFACTURING NO. \_\_\_\_\_  
SERIAL NO. \_\_\_\_\_  
CONTRACT NO. \_\_\_\_\_  
DATE \_\_\_\_\_

DESCRIPTION AND LOCATION OF COMPONENT	CIRCUIT SYMBOL(S)	SELECT APPROPRIATE PART NO. AS MARKED ON COMPONENT IN UNIT	
FAN, CENTRIFUGAL (PA SECTION)	P/O B101 (AX146)	<input type="checkbox"/>	BL102XX116
		<input type="checkbox"/>	BL102XX19
CAPACITOR, VARIABLE, VACUUM, (PA SECTION)	P/O C113 (AM108)	<input type="checkbox"/>	CB126-3XX48
		<input type="checkbox"/>	CB126-3XX601

SIGNED \_\_\_\_\_

DATE \_\_\_\_\_

FORM RTF-2

REV. \_\_\_\_\_

DATE 18 June 1964  
SHEET 11 OF 14

TMC SPECIFICATION NO. S- 840

A

L.G.  
COMPILED

J.C.  
CHECKED

TITLE: MULTI-SOURCE PURCHASED ITEMS

APPROVED

SAMPLE OF POSSIBLE TYPICAL GPT-10K TRANSMITTER CHECK-OFF SHEET

SHEET \_\_\_\_\_ OF \_\_\_\_\_

RECORD OF MULTI-SOURCE ITEMS

MODEL NO. GPT-10K( )7, Less Aux. Frame Equipment  
MANUFACTURING NO. \_\_\_\_\_  
SERIAL NO. \_\_\_\_\_  
CONTRACT NO. \_\_\_\_\_  
DATE \_\_\_\_\_


DESCRIPTION AND LOCATION OF COMPONENTS	CIRCUIT SYMBOL(S)	SELECT APPROPRIATE PART NO. AS MARKED ON COMPONENT IN UNIT
AUX FRAME HV RELAY (REAR OF UNIT, LEFT RELAY)	K3000	<input type="checkbox"/> RL130-1XX32 <input type="checkbox"/> RL130-1XX85
AUX FRAME HV RELAY (REAR OF UNIT, RIGHT RELAY)	K3001	<input type="checkbox"/> RL130-2XX32 <input type="checkbox"/> RL130-2XX85
AUX FRAME BOTTOM FAN (REAR OF UNIT, LEFT)	B3000	<input type="checkbox"/> BL103XX19 <input type="checkbox"/> BL103XX116
AUX FRAME TOP FAN (FRONT OF UNIT, RIGHT)	B3001	<input type="checkbox"/> BL103XX19 <input type="checkbox"/> BL103XX116
OUTPUT BALANCE VARIABLE VACUUM CAPACITOR (PA DECK, MAIN FRAME)	P/O C916	<input type="checkbox"/> CB147XX48 <input type="checkbox"/> CB147XX601
ETC.		

SIGNED \_\_\_\_\_

DATE \_\_\_\_\_

FORM GPT-10K/40K/200K

REV. \_\_\_\_\_

DATE 18 June 1964		TMC SPECIFICATION NO. S - 840	A
SHEET 12 OF 14			
L.G. COMPILED	J.C. CHECKED	TITLE: MULTI-SOURCE PURCHASED ITEMS	
APPROVED 			

4.2.1.2 (continued)

- (14) Each form completed by Button-up shall be forwarded to Data Control. Data Control shall send one copy to Engineering Services for their records and to any other departments requesting this information. Original and initial distribution will be maintained by Data Control. Data Control's follow-up responsibility (Provisioning) is explained later.

4.2.1.3 All parts which are new to TMC and are to be used for the first time shall be evaluated by Engineering Standards to first determine whether it is a "Black-Box" item, a "Breakdown" type item, or a "Non-repairable" type item.

If it is a Black-Box type, the rules of Paragraph 4.2.1.1 apply.


If it is a Breakdown type, Engineering Standards will prepare its new drawing to cover the inevitability of multi-source by incorporating the aforementioned TMC Control Number system. This allows future expansion of the drawing to cover multiple sources. This includes the piece part information and revisions and notifying Data Control as previously covered.

If it is a "Non-repairable" type item, which includes items that can be disassembled and broken down, but are what Engineering determines as sensitive instruments, critically adjusted or aligned assemblies and non-repairable as explained in Paragraph 3.3, no breakdown will be instituted by any department unless, as a result of provisioning, the Military agency insists upon one, at which time Engineering will supply the information.

4.2.1.4 The preceding steps of Paragraph 4.2 explain and complete the Engineering Department's responsibilities for this system.

4.2.1.5 Provisioning (Data Control) responsibilities and its relationship with Engineering, Purchasing and Quality Assurance.

4.2.1.5.1 Through "pre-Provisioning Conference" meetings with Engineering, it should be mutually determined which items should be broken down in documentation. If it is decided to break down a purchased assembly, Provisioning must prepare a breakdown of each vendor's item for a particular TMC part number. This would be the only way to satisfy the likely possibility of shipping the units with different vendors' parts and properly supporting either one.

DATE 18 June 1964		TMC SPECIFICATION NO. S- 840	A
SHEET 13 OF 14			
L.G. COMPILED	J.C. CHECKED	TITLE: MULTI-SOURCE PURCHASED ITEMS	
APPROVED 			

4.2.1.5.2 If Provisioning writes their provisioning list prior to the shipment of the subject units, they will get together with Purchasing and Production Control to try to determine, by stock availability, on order, etc., exactly what vendor's part will be in the units being shipped. They will then keep a record of this information for possible use at the Provisioning Conference. They will indicate, in the Provisioning List, that the questionable item shall be provisioned upon shipment of the unit, if a breakdown is required by the customer.


When the units are shipped for the applicable contract, a copy of the TMC Control Number/Unit Serial Number check-off sheets for each unit shipped is forwarded by Button-up to Data Control(Provisioning). These sheets will then enable that department to notify the customer as to which vendors' parts were shipped in which units, and will also enable them to forward a breakdown, or breakdowns, for each different type if necessary.

4.2.1.5.3 If the Provisioning Conference is to take place after the shipment of the units, the Provisioning List can reflect all the proper breakdowns and serial numbers concerned by utilizing the same check-off sheets.

4.2.1.5.4 Production must make an earnest attempt to standardize the vendors' items in each unit. For example: if a unit contained three BL102 fans, Production should attempt to put all BL102XX116's or all BL102XX19's in that unit and not two of one and one of the other. This will immensely aid the Provisioning Department and, more important, the customer, to properly support the equipment. However, there is no restriction on this subject, and if necessary, different source items may be in the same unit.

4.2.1.5.5 If, at a Provisioning meeting, it is decided by the customer to purchase the entire assembly, without a breakdown, then just the TMC part number BL102 would be reflected as there would be no spare parts problem. However, the check-off list would still be maintained for record purposes.

4.2.1.5.6 After notifying the customer what parts were in what serial number units, we have fulfilled our basic requirements to the customer, and will be able to support the assemblies which went out in our units. If, for any reason, the customer changes the assembly in the field to some other vendor's parts, we cannot support it properly, but will aid them however possible.

DATE 18 June 1964		TMC SPECIFICATION NO. S- 840	A
SHEET 14 OF 14			
L.G. COMPILED	J.C. CHECKED	TITLE: MULTI-SOURCE PURCHASED ITEMS	
APPROVED 			

4.2.1.6 Commercial Instruction Manuals

4.2.1.6.1 It would be advantageous to have a note in all commercial manuals, preceding the Parts List section as follows:

"Certain components in this unit are stamped with an "XX---" suffix. If there is a requirement for any piece part within these components, the customer should reference the full TMC number, including the suffix, plus a brief description of the item and the unit serial number(example: Coil for RL138XX32, GPT-10K Serial No. 142)."

5. Recommended corrections, additions, or deletions to this Standard should be referred to the Engineering Standards Section of the Engineering Department.

