



# SUBCONTRACTOR TOOLING MANUAL

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## **1.0 INTRODUCTION**

1.1 This document is furnished by Aerojet-General Corporation (Aerojet) and may be recalled, revised or amended as required.

1.2 Any deviations from the provisions of this document must be formally approved by the buyer issuing the purchase order. Consequently, special terms, conditions and/or instructions in purchase orders or contracts take precedence over contents herein.

1.3 This document defines the subcontractor's responsibility for design, fabrication, handling, and recording of subcontractor tooling. It also establishes specifications for records and reports associated with the maintenance and disposition of subcontractor tools.

1.4 Additional instructions, as applicable, are provided by the purchase order.

## **2.0 SCOPE**

2.1 This document shall apply to all tooling either furnished to subcontractors or fabricated or procured by subcontractors under an Aerojet purchase order or other authorizing document, and includes tooling located at a lower tier subcontractor.

2.2 Expendable tools, Shop Equipment and Capital tools are specifically excluded from this manual, and therefore, are not to be included in any tooling quotation.

## **3.0 SUBCONTRACTOR COMPLIANCE**

3.1 Subcontractor compliance with the contents of this document is mandatory when the document number SS40908 is stipulated in the purchase order, addendum's or amendments thereto. Subcontractors shall make tools and tool control records available to Aerojet personnel responsible for compliance surveillance.

3.2 Tooling quality requirements will be properly controlled by the subcontractor's quality assurance person who is responsible to the Aerojet quality assurance representative through the Aerojet buyer.

3.3 Aerojet has the option of requesting periodic inspection of tools at the subcontractors' facility based upon indication of noncompliance with engineering requirements and/or interchangeability of mating characteristics.

3.4 All subcontractor fabricated tooling will be inspected to applicable data (engineering data, engineering drawings, master layouts, tool design, control tool, etc.) as specified in the purchase order prior to release to production.

3.5 Subcontractors will be notified if any parts or tools are CLASSIFIED and will handle them per directions of the Aerojet buyer.

## **4.0 DEFINITIONS**

The terms "tools" and "tooling" are used synonymously in this document and will also be understood to include test equipment wherever applicable.

### **4.1 ACCOUNTABLE TOOLS**

Means jigs, dies, fixtures, molds, patterns, taps, gages, templates and other equipment and manufacturing aids made for and limited to the production of particular detail parts and assemblies for Aerojet. Tools may be produced or procured by the subcontractor. Special tools produced by alteration of commercial items such as milling cutters may be included in this definition. Aerojet reserves the right to make this determination.

### **4.2 EXPENDABLE TOOLS**

These consist of catalogue items readily available on the open market, which, because of their size and nature are considered expendable. Drills, reamers, snap gauges, electrodes and all types of cutting tools are considered expendable tools, even though they are altered for production purposes and may be special in nature.

### **4.3 SHOP EQUIPMENT AND CAPITAL TOOLS**

These include supplier owned plant equipment such as: machines, motors, cranes, etc. Suppliers shall utilize any/all supplier owned shop equipment, which is not to be included in tooling quotations for support of production.

### **4.4 TEST EQUIPMENT**

Test Equipment means either single or multipurpose test units designed, developed, fabricated, modified, or procured to Aerojet specifications, or used to develop, produce, test or measure parts or for the performance of services. It may consist of single items or assemblies of items, including standard or general purpose items or components that are interconnected and inter-dependent so as to become a new functional entity.

### **4.5 SUBCONTRACTOR**

The term "subcontractor" as used herein means any person, company or corporation (or any combination of these) to whom an Aerojet purchase order is issued.

**4.6 SUBCONTRACTOR-OWNED TOOLS**

This class of tool includes forging dies, extrusion dies, and molds for permanent mold castings where it is industry practice for the seller to maintain/replace worn tooling and retain ownership. This may be subject to buyer/seller negotiations, if applicable. Except that these items will be excluded from this definition when produced or procured in support of an Aerojet government contract and the government property title clause is referenced in the purchase order.

**5.0 TOOL OWNERSHIP**

**5.1 SUBCONTRACTOR OWNED TOOLS**

If the buyer and subcontractor agree, and it is so specified in the purchase order, then tools shall remain the property of the subcontractor and shall be identified with their own identification tags, which shall contain a reference to the original build purchase order. Subcontractor agrees to maintain/replace worn tools and not to use these tools for other customer’s work or dispose of tools without prior written approval of buyer.

If the subcontractor in turn subcontracts any of the work and does not take possession of tooling produced or procured under their purchase orders, they shall insert the following provision in their purchase orders:

“Aerojet-General Corporation or its designee(s) is hereby granted the paramount right to use the special tooling fabricated and/or procured hereunder.”

Copies of such purchase orders shall be sent to the buyer.

The subcontractor agrees to give the buyer the right to future use of all tools manufactured or procured for the performance of an Aerojet purchase order. The subcontractor further agrees to notify buyer before any new tools are established and/or used for the performance of the purchase order if a cost to Aerojet is anticipated.

As additional consideration for being reimbursed for tooling, the subcontractor agrees that upon the written request of the buyer they will transfer all or part of the tooling manufactured or acquired under a Aerojet purchase order to any other place the buyer directs for unrestricted use without any additional charge to Aerojet, except for actual moving expenses. At the direction of the Aerojet buyer, seller shall furnish tooling drawings for review.

**5.2 AEROJET OWNED TOOLS**

Unless otherwise specified in the purchase order, all accountable tools, covered under an Aerojet purchase order, shall, upon acquisition or completion of manufacture by the subcontractor, become the property of the buyer. The

subcontractor shall be responsible for such tools in accordance with other provisions of this procedure and such tools shall be identified, recorded, and subject to disposition pursuant to provisions of this procedure.

**5.3 GOVERNMENT OWNED TOOLS**

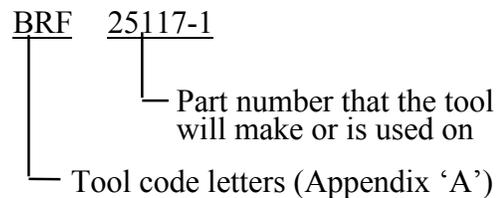
If the tooling is in support of an Aerojet government contract the buyer will so note that fact on the purchase order by referencing the government property title clause. When the purchase order is in support of a government contract any tools manufactured or procured will become the property of Aerojet/government pursuant to the provisions of Aerojet’s contract with its customers and the government under which the purchase order is issued. Seller shall be responsible for such tools in accordance with other provisions of this procedure.

**6.0 TOOL IDENTIFICATION**

**6.1 IDENTIFICATION**

- a. Aerojet subcontractor tooling shall be identified to include tool code, part number, serial number, detachable components, and ownership.
- b. If a tool requires modifications as a result of purchase order change, then the tool identification should reflect revision A, B, etc., as applicable.
- c. Tool codes required for identification are shown at Appendix A. Codes not listed will be provided by the buyer upon request.
- d. Examples of tool numbers, codes and prefixes.

Examples:



When a series of tools is needed to perform operations on the same part, the code letters shall be prefixed by consecutive numbers.

Example:            BRF 25117-1  
                          2BRF 25117-1

If a tool has detachable components, each part will show the total number of components.

Example:            BRF 25117-1 Part 1 of 2  
                          2BRF 25117-1 Part 2 of 2

In addition to the above, the tool must reflect revision level, S/N, and ownership. An example, the final tool identification will be as follows:

2BRF 25117-1 Part 1 of 2

S/N 001 Rev. A

Property of:

US GOVT

NASA

Aerojet-General Corporation

} One of the three as indicated on the purchase order

## 6.2 IDENTIFICATION METHODS

- a. Whenever practical, tools shall be identified by means of a metal tool identification tag.
- b. If tool tags are impractical, because of the design and/or material, tooling identification shall be accomplished as described below.
  1. Metal tools shall be identified by acid etching, electroengraving, vibropeening, steel stamping, laser etching or any other method that will permanently identify but not damage the tools.
  2. Wood and plastic tools shall be identified by impressing, stenciling, or stamping.
  3. Tools too small for any of the above methods shall be boxed and/or chained/affixed to a tool tag to ensure their proper identity.

## 7.0 RECORDS AND REPORTS

### 7.1 RECORDS

- a. The subcontractor is required to provide written certification that their property control procedures have been approved by a government property administrator if one has been assigned. If one has been assigned, subcontractors shall maintain adequate records in accordance with property procedures approved by the government property administrator. Aerojet reserves the right to perform their own on-site survey if no approval has been issued or to request a government administrator perform the survey on behalf of Aerojet.
- b. If no such approved procedure exists, necessary records reflecting the following information are required.
  1. Ownership and contract (purchase order number) under which the tools are fabricated
  2. Tool code, part number and serial number
  3. Nomenclature and description
  4. Location of tools
  5. Rework and/or Aerojet disposition authority for tools no longer in the subcontractor's possession
- c. Subcontractors shall maintain current tool designs, schematic drawings, sketches and photographs used in the fabrication, testing or calibration of tooling for future references and/or revisions. Tool manufacturing tolerances will be shown on the tool design.

### 7.2 REPORTS

- a. When the subcontractor becomes aware of a lost or damaged tool, a Loss Damage or Destruction Report (LDD) will be submitted to the buyer. The report will answer the following questions:
  1. Date of incident.
  2. Description of property including tool number.
  3. Contract or purchase order number.
  4. Direct and indirect cost of the tool.
  5. Full narrative of the incident, location, etc.
  6. Cause and corrective action taken or to be taken to prevent reoccurrence.
  7. Estimated scrap proceeds, when applicable.
  8. Repair costs when applicable (direct labor and material).
  9. Estimated cost to replace.
  10. Copies of supporting documentation.
  11. Date of report.
  12. Statement that no insurance costs or other means of covering loss of property was charged to the contract.
  13. Impact statement (effect on the contract).
- b. Aerojet-General Corporation subcontractors shall provide a digital picture of each tool and prepare and submit a certified tool list (CTL) upon completion or acquisition of any tooling. A CTL will be prepared and returned for any Aerojet supplied tooling. A locally reproducible copy of the CTL is at appendix B. The following information will be completed on each CTL:
  - (a) Contract number as indicated on the purchase order
  - (b) Purchase order number issued for tool fabrication
  - (c) Tool code and part number (the tool number is the combination of tool code and part number)
  - (d) Serial number
  - (e) Nomenclature or description (tool name or usage)
  - (f) Location of tools
  - (g) Unit price
  - (h) Rework status and/or Aerojet disposition authority for tools no longer in the subcontractor's possession, or other pertinent information

## 8.0 INVENTORIES

- a. Tool inventories are required whenever requested by Aerojet, but in the absence of a request from the buyer the subcontractor is required to perform one annual physical inventory of all tooling for all purchase orders

issued by Aerojet and submit the results in writing to the buyer. This report is due by 30 September 20XX. A final inventory will be submitted upon completion of the purchase order.

- b. Depending on the quantity of special tooling and special test equipment involved, Aerojet may perform an on-site inventory or may only require written results of an inventory performed by the subcontractor.

#### **9.0 TOOL STORAGE**

- a. Subcontractor agrees to store in a secured area, without charge, any or all accountable tooling manufactured, procured or furnished for a period of two years from the date of payment of final invoice. During the storage period, subcontractor will comply with the requirements of this procedure with respect to identification, inventory, accountability, storage, and reporting.
- b. All government and Aerojet owned tooling shall be stored in accordance with good commercial practices to preclude any damage or deterioration until formal disposition instructions are received from Aerojet. Tools provided by Aerojet will be kept stored in the storage container provided.
- c. The subcontractor will provide a storage container for all tools fabricated at his facility. The containers will be suitable for shipping and provide adequate protection for long term storage. The outside of the container will be marked with the Aerojet tool number and contract number.
- d. All tools must be free of rust and contamination before being shipped, stored or placed in production. Tools will be kept in their closed storage containers when not in use.

#### **10.0 CONTROL OF AEROJET TOOLS PROVIDED TO SUBCONTRACTORS**

Tools provided by Aerojet to a subcontractor shall be controlled as follows:

- a. Prior to shipment, tools will be inspected by Aerojet Quality Control and the tools listed on a CTL.
- b. Upon receipt the subcontractor will visually inspect the tool and examine it for damage and completeness. Any discrepancies will be noted in the Comments column on the attached CTL.
- c. The subcontractor shall acknowledge receipt of the tools by signature of an officer of the company on the CTL and return it to the buyer.
- d. Tools shipped to Aerojet will be handled as in a, b and c above as a means of documenting the movement of the tool and protecting all parties involved. The subcontractor will notify the buyer when a shipment has been made and provide the shipping information necessary to trace the shipment.

- e. Prior approval from the Aerojet buyer must be obtained in writing before Aerojet tools are provided to a lower tier subcontractor.
- f. In no case shall a subcontractor attempt to rework, in any manner, an Aerojet furnished or Aerojet/government owned tool without first receiving written authorization from the Aerojet buyer.

#### **11.0 TOOL DISPOSITION**

- a. Damaged or worn accountable tools owned by the subcontractor may be replaced by the subcontractor with prior approval provided there is no increase in the purchase order price. The replaced tool will be identified as the original, except that the serial number will be changed to reflect the next in a series (e.g., if the scrapped unit was S/N 001, the new unit should be identified S/N 002). A first article inspection shall be required and submitted to the buyer on the replacement tool to insure compliance to the drawing.
- b. Tools in the possession of subcontractors, upon program completion, shall be disposed of in accordance with directions received from the buyer. Under no circumstances may tooling be scrapped or otherwise disposed of without prior authorization from Aerojet.
- c. Tools will be returned clean and properly maintained in their storage containers. The design drawings used in fabrication will be returned upon direction of the Aerojet buyer.

#### **12.0 USE OF AEROJET/GOVERNMENT OWNED TOOLING**

- a. Use of Aerojet/government owned tooling or test equipment is authorized only as specified by the Aerojet purchase orders.
- b. Prior approval by the Aerojet buyer is required and must be obtained before any Aerojet/government owned tool is used for any other work by the subcontractor.
- c. The buyer will notify the subcontractor in writing if the government has title to the tooling that may be fabricated by the subcontractor under the purchase order.

#### **13.0 RISK OF LOSS PROVISION**

Unless otherwise provided in the purchase order the subcontractor assumes the risk of, and shall be responsible for any loss or destruction of, or damage to, Aerojet/government property upon its delivery to the subcontractor or upon passage of title to the government. However, the subcontractor is not responsible for reasonable wear and tear to Aerojet/government property or for government property properly consumed in performing on the purchase order/contract.

#### 14.0 TOOLING INVOICES

Invoices submitted for tools fabricated or reworked under an Aerojet purchase order must be accompanied by a Certified Tool List (last page of this procedure). Tooling invoices will not be accepted until tools are proven and first parts manufactured from the tools have been delivered to and accepted by Aerojet-General Corporation.

#### 15.0 TOOL COMPLETION

Seller will notify the buyer upon completing the acquisition and/or manufacture of accountable tooling and/or test equipment provided for in an Aerojet purchase order. Such notification shall be made by completing and forwarding a Certified Tool List (last page of this procedure) to the buyer. Notification must be received by the buyer within thirty (30) days of the date of completion of the accountable tooling or test equipment (submission of the certified tool list will satisfy this requirement).

FD	FORM DIE
GP	GENERAL PURPOSE
HF	HANDLING FIXTURE
HG	HEIGHT FIXTURE
HTF	HEAT TREAT FIXTURE
IG	INSPECTION GAGE
INS	INSERTION FIXTURE
LF	LATHE FIXTURE
MF	MILL FIXTURE
MIT	MISCELLANEOUS TOOL
MOL	MOLD
MTE	MANUFACTURING TEST EQUIPMENT
PF	POTTING FIXTURE
PRE	PROTECTIVE EQUIPMENT
RIT	RIVETING TOOL
SD	SWAGE DIE
SOL	SOLDERING FIXTURE
TE	TEST EQUIPMENT
TF	TEST FIXTURE
TH	TEST HARNESS
VF	VIBRATION TEST FIXTURE
WF	WELD FIXTURE
WFB	WIRE FORM BOARD
WM	WINDING MANDREL

#### APPENDIX A

These are the tooling prefixes to be used when numbering tools and test equipment produced for Aerojet:

AF	ASSEMBLY FIXTURE
BD	BLANKING DIE
BRF	BRAZING FIXTURE
CF	CHECKING FIXTURE
CFF	CLEAN AND FLOW FIXTURE
COF	CUT OFF FIXTURE
DF	DRILL FIXTURE
EE	EDM ELECTRODE

**CERTIFIED TOOL LIST**  
**GOVERNMENT/AEROJET – OWNED TOOLING**

PAGE \_\_\_ OF \_\_\_

DATE \_\_\_\_\_

(Appendix B)

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 (SUPPLIER NAME & ADDRESS)

CONTRACT NUMBER (a) \_\_\_\_\_

(NOTE: A Digital picture of each tool must accompany this list.)

(b)	(c)	(d)	(e)	(g)	(h)
PURCHASE ORDER NO.	TOOL CODE & PART NUMBER	SERIAL NO.	NOMENCLATURE OR DESCRIPTION	MATERIAL COST	COMMENTS

I HEREBY CERTIFY THAT THE TOOLS LISTED ABOVE ARE IN THE POSSESSION  
 OF SELLER, AND ARE IN GOOD CONDITION FOR USE ON  
 CURRENT AND FUTURE REQUIREMENTS.

\_\_\_\_\_  
 (f) (NAME OF COMPANY)

DATE \_\_\_\_\_ SIGNATURE \_\_\_\_\_

TITLE \_\_\_\_\_