**Process Architecture**  |  04.04.01 Identify, Select Suppliers and Establish Agreements  

**Document Owner**  |  Djahed, Shalizeh [US] (AS)  

**Applies To**  |  * Strike Program
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DOCUMENT OVERVIEW

* This document contains pertinent information necessary for the control, maintenance, and manufacturing of Special Tooling. The online version is the official version, and any copy must be verified with the online version before use. This document applies to only the AS Sector Strike program, as noted on the cover sheet.

The process owner listed on the cover sheet controls the information contained in this document. This process owner is responsible for the integrity and maintenance of the material contained herein.

Questions regarding this document should be directed to Supplier Manufacturing Engineering (SME).
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SECTION 1 – GENERAL INFORMATION

1.1 PURPOSE

* This manual establishes and defines the requirements of AS Strike suppliers and their sub-tiers for the fabrication, rework, design, inspection, maintenance, accountability, control and disposition of Special Tooling (ST) and Special Test Equipment (STE) (hereafter referred to as tooling) which will be utilized at their facilities. This tooling is associated with the development and fabrication of the production or services as defined in the Purchase Order (PO).

Tooling not governed by the provisions of this manual includes, but is not limited to: tools fabricated for use at AS sites, consumable property, buildings, non-severable structures (except foundations and similar improvements necessary for the installation of special tooling), general or special machine tools, Numerical Control (NC) programming/digital data, and expendable tools. Examples are catalogue items readily available on the open market, which because of their size and/or nature, are considered expendable. Drills, reamers, taps, snap gages, and all types of cutting tools are considered expendable tools, even though they are altered for production purposes and may be special in nature.

1.2 POLICY

The supplier must comply with all provisions of this manual unless stated otherwise in the PO. Exceptions shall be documented on the PO as agreed upon by the AS Buyer/Subcontract Administrator (SCA) and the supplier.

In the event of a conflict between this manual and other referenced documents contained herein, contact the AS Buyer/SCA or Supplier Manufacturing Engineering (SME) or Field Operations (FO) Representative.

1.3 TOOL SYMBOLS

* The only tool symbols that are authorized for use on tooling and AS Strike POs are those contained in and described in Section 9 of this manual.

Address any questions regarding tool symbol usage to the AS Supplier Quality – Quality Field Engineer (SQ-QFE) or FO Representative.

1.4 RESPONSIBILITIES

* Suppliers are responsible for quality, care and accountability of tooling in their possession per the specifications in Section 10 of this manual and the AS Strike PO. Suppliers are also responsible for ensuring that any sub-tier suppliers selected to fabricate, rework, design or utilize tooling or portions thereof adhere to these same requirements.

The AS Buyer/SCA is the central source of communication and control with regards to tooling. AS and its customer retain the right of access to the supplier’s and/or sub-tier’s facilities as necessary for in-plant surveillance of tooling and related control records and procedures.
SECTION 1 – GENERAL INFORMATION (Continued)

1.5 SUPPLIER LIABILITIES AND COMPLIANCE

The supplier is responsible, at all times, for the care, maintenance, adaptation, safekeeping, and proper use of tooling in their possession or at any sub-tier suppliers. Supplier responsibilities include the prompt reporting of any loss, damage or destruction of tooling. Subject to the terms of the PO, the supplier may be liable when tooling deficiencies are disclosed.

* AS tooling furnished for the Strike program is sometimes used by suppliers on equipment or in support of processes and manufacturing methods differing from their initial intent and may need to be adapted to perform properly. Tooling adaptation is not allowed to affect identification, form, fit and function. It is also not permissible to modify any Interchangeable & Replaceable (I&R) tools. Costs for changes to AS furnished tooling for adaptation to unique equipment and processes shall be the supplier’s responsibility unless otherwise agreed to by the AS Buyer/SCA. Suppliers are responsible for the accuracy of all tooling and shall perform first part verification as a tool validation prior to production use.

Prior approval from AS must be obtained before using program specific tooling to produce parts for any other program or customer. The supplier is responsible for compliance to all applicable elements of this manual. Contact the AS Buyer/SCA to resolve any conflicts between the instructions in this manual and those contained in the PO.

SECTION 2 – DIGITAL DATA

Supplemental engineering and/or developed data for the fabrication, control and/or inspection of tools will be requested on a Request for Change/Information (RC/I) (Form P0-F030) and submitted to the SME Representative as directed by the AS On-line Automated Supplier Information System (OASIS). The data, if available, will be transmitted to the supplier electronically. All requests for data should identify its intended use and include necessary data formats to ensure compatibility with the supplier’s systems and statement of work. The supplier is responsible for utilizing, interpreting and applying any information provided consistent with its intended purpose and ensure that the tooling, or product derived thereof, meets all requirements of the PO and this manual. Please submit all requests for additional information or clarification regarding the use, interpretation or application of provided data via the RC/I (Form P0-F030).
SECTION 3 – TOOL DESIGN

3.1 SUPPLIER TOOL DESIGNS

Designed tools may require approval by SME for function, stability and reference system if mandated by the PO. SME may request additional tool designs as specified in the PO.

3.2 TOOL DESIGN FORMAT/FORMS

A supplier developed tool design will use general tool design practices and must include the following information:

a. Title Block Preferably located in the lower right hand corner of the design.
b. Tolerance Block Identify all dimensional and angular tolerances used on the face of the drawing unless noted in the field of drawing.
c. Tool Function A statement identifying the tool’s function.
d. Tool Coordination Identify all reference data, electronic models, or master tooling used in the fabrication of the tool.
e. Bill of Material All material used shall be identified in the field of drawing or in an itemized Bill of Material attachment.
f. Change Record A documented history of changes and modifications to the tool design, including date and authorizing change document.
g. Sheet Number The first and all subsequent pages will identify sheet number and total number (i.e., Sheet 1 of 2).
h. Tool Number/Symbol Unless specifically identified on the PO, the tool design will carry the program specific engineering part or assembly number. The tool number/symbol will be as identified by the PO and should be consistent with Section 9 of this manual.
i. Standard Specification Include the use of the applicable specification(s) as listed in Section 10.1 of this manual.
j. Tool Usage Instructions Specific instructions for tool use.
SECTION 3 – TOOL DESIGN (Continued)

3.3 TOOL DESIGN APPROVAL

If design approval is specified by the PO, supplier tool designs will be submitted to the SME Representative for preliminary approval during concept development, or before 25%, at 50%, and at 90% completion. Preliminary partial approval must be obtained prior to release of the rough structure fabrication. Final approval will be required on the completed original design and on all revisions to the design thereafter. During fabrication of the tool, the supplier may revise a tool drawing to correct minor errors in design, calculations, clearances, etc., not affecting basic tool function without obtaining SME approval. A dimensional check of the tool design will not be performed by SME. It is the supplier’s sole responsibility to ensure that the tool design and tools will ultimately produce acceptable parts or assemblies.

The supplier must initiate an RC/I (Form P0-F030), requesting approval of the design. Provide two copies or an electronic model of the tool design with the RC/I (Form P0-F030) and submit them to SME or AS Buyer/SCA. The RC/I (Form P0-F030) will be returned to the supplier with approval noted or necessary changes indicated in the disposition.

3.4 TOOL DESIGN MAINTENANCE

Tool design originals, active deviations and the latest change notices will be maintained by the supplier unless otherwise specified by the PO. Approved tool designs must be maintained by the supplier to the current configuration of the tools and within the requirements of the applicable program design specifications. Maintenance surveillance may be performed by AS at any time. Revisions to tool design drawings must be authorized and approved by SME. At contract completion / termination, suppliers will receive written tooling and tool design disposition instructions. Original tool designs are considered the property of AS and suppliers must provide copies of tool designs upon request.

Suppliers will notify the AS Buyer/SCA when AS provided tool design corrections or clarifications are required using the RC/I (Form P0-F030). SME will evaluate and determine the appropriate corrective action. Suppliers may not revise AS provided tool designs without written authorization from the AS Buyer/SCA.
SECTION 4 – SPECIAL TOOLING (ST)

4.1 TOOL FABRICATION

Suppliers will notify the AS Buyer/SCA of requirements for new tooling during the proposal phase or by using the RC/I (Form P0-F030). The AS PO will authorize the supplier to perform tool fabrication per the appropriate fabrication standards contained in Section 10 of this manual.

4.2 TOOL REWORK

Tool rework is defined as alterations to tools to incorporate engineering changes, to facilitate manufacturing changes, and correction of tool discrepancies not considered tool maintenance or tool adaptation.

Suppliers will notify the AS Buyer/SCA of all tool rework requirements using the RC/I (Form P0-F030). The request must include the tool identification, a complete description, estimated cost, hours required, the reason for rework, tool rework schedule, and any potential impact on the part delivery schedule. SME will evaluate and determine the appropriate corrective action.

Suppliers may not rework AS tooling without written authorization from the AS Buyer/SCA. If approved, a PO will authorize the supplier to perform tool rework per the appropriate fabrication standards contained in Section 10 of this manual. Requirements for interfaces, I&R, Spares, and tool coordination must always be considered.

If an engineering change necessitates tool rework, the supplier will review the tool to determine feasibility of potential actions to be taken and submit proposals to the AS Buyer/SCA. Whenever possible, the tool should be reworked to produce the new part and, with minor conversion, the superseded part as well. SME will make the final determination on the method of tool rework, as proposed.

4.3 TOOL MAINTENANCE

Tool maintenance is defined as tooling repairs to correct normal wear, misuse, production damage, handling damage, inaccurate tool rework, etc. so as to produce acceptable parts.

Maintenance is the sole responsibility of the supplier and shall be performed at the supplier’s expense. The repairs may include but are not limited to the following examples: Elongated tooling holes and bent tooling pins in form blocks, imperfections to form block surfaces due to production use, gouges in router jigs, worn drill bushings, dull blank and pierced dies, rusted details, etc.

Suppliers will ensure that all tools in their control are adequately maintained and utilized only as authorized by the PO. Records of tool inspections and maintenance activities must be maintained. The removal of tooling from production to storage does not relieve the supplier of these responsibilities. All tools will be maintained in a manner that will ensure their continued function to produce acceptable hardware in accordance with all POs. Tool modifications that affect form, fit, or function of the deliverable item are not considered maintenance and require written authorization from the AS Buyer/SCA.
SECTION 4 – SPECIAL TOOLING (ST) (Continued)

4.4 TOOL ADAPTATION

AS furnished tooling is often used by suppliers on equipment or in support of processes and manufacturing methods different from their initial intent and may need to be adapted to perform properly. Tooling adaptation must not affect identification, form, fit or function. Costs associated with adaptation of AS furnished tooling for use on the supplier’s equipment and processes shall be the responsibility of the supplier unless otherwise agreed to by the AS Buyer/SCA. Suppliers are responsible for the accuracy of all tooling and shall perform an AS9102 first article verification for a tool check prior to production use. However, adaptation may not be performed on I&R or design controlled tools without prior SME approval.

SECTION 5 – MASTER TOOLS

5.1 RESPONSIBILITIES FOR MASTER TOOLS

Master tools are precision instruments which must be maintained to ensure that engineering tolerances can be controlled in production parts/assemblies. The creation, duplication, accountability, controls, and maintenance of master tools are the responsibility of AS. However, the responsibility for certain master tools may be delegated to a supplier. The degree of delegation will be specified in the PO.

Master tool(s) assigned to a supplier becomes the supplier’s responsibility. However, the supplier may not transfer a master tool to a sub-tier supplier without written approval from AS. In the event a master tool is authorized for release to a sub-tier supplier, the principal supplier retains responsibility for the tool.

5.2 MASTER TOOL DESIGNS

A tool design is required for all master tools. The “actual” dimensions of the fabricated master tool will be recorded as required on the master tool design or as described per specific AS program procedures.

Upon final acceptance by AS of a supplier fabricated master tool, the original design, with all tool design changes incorporated will be forwarded to SME with an RC/I (Form P0-F030). Refer to Section 3 of this manual for additional information on tool designs.
SECTION 5 – MASTER TOOLS (Continued)

5.3 MASTER TOOL MAINTENANCE

The supplier will maintain assigned master tools throughout the program life and spares obligation.

Master tools will not be duplicated, reworked, repaired, added to, or have any part deleted without specific written approval of SME. Authorized reworks and repairs shall be performed in accordance with the applicable specifications in Section 10 of this manual.

The supplier will maintain appropriate records of assigned master tooling activity (design, fabrication, change incorporation, periodic inspection, rejections, repair, sub-tier supplier’s use of duplicate masters, etc.). Master tools will be inspected for damage to locating surfaces after each use. Inspection records for all master tools will be retained for the duration of the program and made available to AS upon request.

Master tools must not be used for direct manufacture or inspection of parts/assemblies.

5.4 STORAGE AND HANDLING OF MASTER TOOLS

Storage and handling of masters must be in accordance with this manual and the applicable customer specification requirements.

Proper handling of master tooling is the supplier’s responsibility and is subject to surveillance by AS. Large master tools will not be lifted from points other than the lifting lugs, eyebolts, hoist rings, lift holes, or other designed lift points per the applicable tool design.

Damage to master tools must be reported promptly to the AS Buyer/SCA in writing by using the RC/I (Form P0-F030). The tool identification, a description and cause of the damage must be included.

Special care must be taken to provide warehousing and storage that will adequately prevent distortion and corrosion of master tools. When not in use, master tools will be stored in buildings that will prevent atmospheric or other physical damage to tools and containers. Under no circumstances, will outside storage of master tools be permitted.

When boxed, master tools must be stored securely so that there will be no movement of the tool regardless of the position in which the box may be placed. Loose parts must be secured to prevent free movement and possible damage. All bolts, washers, wing nuts, and other attaching devices must be firmly secured to prevent loosening.

5.5 OPENING AND CLOSING MASTER TOOL BOXES

All master tools must be opened and closed for shipping in the presence of an SQ-QFE or FO Representative or authorized AS delegate. The SQ-QFE or FO Representative will conduct a visual inspection for general condition of the tool and detail inventory. All master tools will be inspected for shoring, preserving, inventory and stowing of loose details prior to closure for shipment to AS.
SECTION 6 – SPECIAL TEST EQUIPMENT (STE)

6.1 STE REQUESTS

The supplier or the AS Buyer/SCA will prepare a “Notice of Intent to Acquire” or equivalent, for the acquisition of production STE. The supplier will certify that the requested STE or components thereof are not available in the supplier’s inventory.

6.2 STE ACCOUNTABILITY, MAINTENANCE AND DISPOSITION

Accountability, maintenance, inventory and disposition requirements for STE will be the same as the requirements for Special Tooling (ST) contained in Section 8 of this manual. However, STE data will be reported separately from ST data since ST and STE are distinct items of property.

STE accountability records will identify the type of system on which the test equipment unit is used and all easily removable general-purpose components. Before requesting/recommending STE disposal action, suppliers reporting surplus STE which contain standard, general, or multi-purpose components will describe the units in order to permit screening of the standard components.

6.3 STE ALTERNATE METHOD OF IDENTIFICATION

If any of the preferred methods of identification (steel stamping, identification plates, electro-etching, etc.) cannot be affixed to STE due to size and/or functionality, permission may be granted to utilize the supplier’s barcode tag/part number established process to document identification and accountability. If deemed acceptable by AS Property Management, a record will be created within the AS property management system to identify the supplier’s barcode/part number as the property record number. Submit an RC/I (Form P0-F030) to the SME Representative for permission to use this method of identification. The RC/I (Form P0-F030) will be coordinated with AS Property Management for concurrence/approval.

SECTION 7 – QUALITY REQUIREMENTS

7.1 GENERAL INFORMATION

* Suppliers fabricating parts or tools are required to have an approved property control and quality system per the applicable terms and conditions of the PO. These requirements are applicable for all tooling fabricated in support of AS Strike procured hardware. Suppliers will flow down the requirements identified in this manual to any sub-tier suppliers that fabricate or design tooling on their behalf.
SECTION 7 – QUALITY REQUIREMENTS (Continued)

7.2 ACCEPTANCE OF TOOLS

Suppliers are required to inspect all tools manufactured or acquired by the supplier and/or the supplier’s sub-tiers, to all applicable requirements in the PO, this Tooling Manual, the AS Supplier Quality Assurance Requirements (SQAR), any applicable contractual documents, and the supplier’s quality system. The supplier shall also apply the required tool identification as required in Section 9 of this manual prior to release to production. After confirming the tooling meets these requirements, the supplier shall document they have accepted the tooling and retain records of this acceptance per the AS SQAR.

After identifying and accepting the tool, the supplier shall inform the SQ-QFE that the tool is ready for source inspection. If contact cannot be made, please contact the AS Buyer/SCA. The SQAR, applicable to SQAR Code Q, shall apply to this inspection.

The supplier may use the tool prior to SQ-QFE final acceptance, at their own risk, but shall not ship any product containing parts produced off tooling that has not been inspected and fully accepted by the SQ-QFE.

SQ-QFE acceptance of new or reworked tooling shall be successfully accomplished prior to supplier submitting invoicing to AS.

In addition, final tool acceptance by SQ-QFE will be contingent on demonstration of an acceptable AS9102 First Article Inspection and may require next higher assembly fit check. The requirement for “Production Prove/Fit Check” will be identified within the PO. Examples where AS may impose this requirement include but are not limited to:

a. When engineering configuration is changed
b. When Master Tooling is made or reworked (including I&R tools)
c. When the tool family has not been previously proven
d. Repeated failures at assembly
e. Customer direction

The supplier’s quality system will assure the inspection and recording of dimensions of all critical tool features into an inspection record per standard shop practice and this manual. The supplier will complete all inspections, documentation, and assure compliance to all requirements prior to requesting support from the SQ-QFE. The supplier will provide records (such as the Tool Order or other work instructions), facilities, equipment, and assistance as may be reasonably required by the SQ-QFE in the performance of their duties.

Tools requiring incremental inspection should be identified by the supplier and coordinated in advance with the SQ-QFE. All equipment used to verify the acceptability of tooling requires calibration and control. The supplier’s responsibility will include function, durability, and accuracy of all tools to produce parts or assemblies within the limits of specifications and tolerances of the engineering drawing and PO. The SQ-QFE will apply an acceptance stamp to the tool for each tool fabrication or rework accepted.
SECTION 7 – QUALITY REQUIREMENTS (Continued)

7.2 ACCEPTANCE OF TOOLS (Continued)

Tool acceptance by the SQ-QFE does not relieve the supplier of contractual responsibility nor does it guarantee acceptance of the tool at its destination.

7.3 PERIODIC TOOL INSPECTION (PTI)

All suppliers shall have a PTI recall system and perform periodic validation of all inspection media tools per the guidelines described within Section 7.3 through 7.5 of this manual. Inspection media is defined as any tool used in product acceptance. The PTI will be comprised of the following elements (at a minimum):

- Database containing tooling nomenclature, date of last Periodic Inspection Recall, name of person who performed the inspection and the next Inspection Recall Date.
- Written procedure specifically for conducting Recall and Periodic Inspection of tooling.
- Records documenting Periodic Inspection results.
- Tools shall be marked by stickers, labels, and/or identification plates, etc., showing when Periodic Inspection was last accomplished and the next due date. The objective for marking is to provide manufacturing with a form of visibility for tooling due for cycling in order to defer such tooling from use until the inspection has been completed by the Quality/Calibration organization.
- Unless stated otherwise in the PO or Contract Document, under continuous production, Periodic Inspections shall be performed on a 12-month cycle. Tools that exceed the 12-month cycle will receive Periodic Inspection prior to use.
- Proof Load will be accomplished as identified on the tool.

NOTE: A supplier may integrate the above noted elements into a formalized calibration system.

* Periodic Tool Inspection will be performed in accordance with this manual, and any applicable AS quality requirements as specified by the PO. The supplier shall maintain complete accountability, including periodic inspection for excessive wear, damage, and missing details of all AS Strike tooling. Tooling overdue for PTI Recall shall be rejected and withheld from use until the PTI is completed or an AS approved limited use/work around plan is established. Supplier shall provide records of Periodic Tool Inspections upon request from AS.

Additional PTI Recall of specific tools might also be managed within AS’ PTI Recall System when specified in the PO. Examples would be: tools which are controlled by program contractual requirements, complex or mastered production end item assembly tools, certain I&R tools, mastered check fixtures for complex end item details or assemblies, and any other critical tools specifically designated by AS. For these types of tools, the AS Buyer/SCA will provide instructions, advance notification to the supplier when the additional PTI is due, and monitor performance/completion of PTI by AS.
SECTION 7 – QUALITY REQUIREMENTS (Continued)

7.3 PERIODIC TOOL INSPECTION (PTI) (Continued)

These additional recalls are over and above those which are required by the supplier’s recall system as mandated herein.

See Section 7.5 for requirements when tooling is rejected.

7.4 PERIODIC TOOL INSPECTION GUIDELINES

Unless specified otherwise by the PO, PTI Recalls and inspection will be performed by the supplier prior to using any AS furnished or supplier-owned tooling as a media of inspection (product acceptance). The PTI will be performed in accordance with the following instructions:

Equipment and Materials Required (as applicable or available)

- Engineering Parts List
- Engineering Drawing
- Full Scale Mylar
- Tool Designs
- General Inspection Tools

Inspection

Perform visual inspection and/or measurements to validate the following (as applicable):

a. Tool is complete; inspection placard has (2) stamps applied (Proved); all components are included and attached, as required.

b. All lifting devices are attached and damage free. Safety wire is intact.

c. Tool does not appear damaged or warped.

d. Working surfaces are clean, corrosion free and maintain specified surface roughness requirements.

e. Tool identification, set-backs and instructions, either stamped on the tool or attached, are all comprehensible and legible.

f. Edges which control peripheral definition are perpendicular to contour and are not damaged, rounded or irregular.

g. Pins are straight and unloosened.

h. Bushings are not excessively worn or loose.

i. All clamping devices are firmly attached. Ensure force or torque devices are properly adjusted and function properly.

j. Indexing and location devices do not appear worn and torque paint is intact, as applicable.

k. Bolted and dowelled components do not appear to be damaged or moved. Torque paint appears intact.
SECTION 7 – QUALITY REQUIREMENTS (Continued)

7.4 PERIODIC TOOL INSPECTION GUIDELINES (Continued)

   l. All ancillary tooling devices work properly and (if applicable) are within calibration cycle dates.
   m. Laminated surfaces are free of cracks or detrimental surface blemishes.
   n. Verify measurable dimensions shown on the tool design or engineering drawing which affect accuracy of production parts.

7.5 REJECTED TOOLING

Any tooling that fails to meet:

- Acceptance criteria (i.e., PO, tool design drawings, engineering drawings, first article acceptance or applicable tool specifications)
- Issues that affect form, fit, or function of the part
- Maintenance or PTI requirements

must be withheld from production by the supplier’s Quality System. If possible, tools rejected for these reasons should be repaired by the supplier. Document tooling deficiencies on an RC/I (Form P0-F030), including the estimated hours required for the repair, and present it to the FO Representative for disposition. Utilize the Supplier Tooling Limited Use/Hold Tag (Form P0-F306) (shown below) to identify the tooling deficiency or limited use authorization. Obtain the form from OASIS. Use card stock and attach to tool with wire, or use adhesive backed label material as applicable. Limited use and/or repair of rejected tools must be authorized in writing by the dispositioned RC/I (Form P0-F030) and may require PO authorization if applicable in accordance with Sections 4.2 and 4.3.
SECTION 7 – QUALITY REQUIREMENTS (Continued)

7.5 REJECTED TOOLING (Continued)

All other tool rejection documents initiated by an AS representative can only be removed by the SQ-QFE or FO Representative.

7.6 MAJOR ASSEMBLY TOOLING MAINTENANCE

Suppliers are responsible to ensure that all major assembly tooling utilized, either provided for use by AS or built by the supplier, is continually maintained to design requirements. Major assembly tooling is considered to be designed, mastered, jigs and fixtures containing key features that must be periodically inspected and certified. Major assembly tools can be floor mounted or mobile but contain key features that locate parts, assemblies, or tooling details required for the build. All tools considered media of inspection must be periodically inspected and certified. Major assembly tools must be handled in accordance with Sections 7.3 through 7.5 of this manual. In addition to the annual periodic recall requirements, major cycle inspections (validation of key tooling features to the master control tools and/or model data) must occur on a three year basis for tools in continuous production. Tools not used in continuous production will require major cycle inspections whenever moved, or after 50 units have been produced. Whenever possible, issue an RC/I (Form P0-F030) requesting direction for major cycle inspection 12 months in advance of necessary requirement.

In addition, if a seismic event with a magnitude greater than 4.5 on the Richter scale occurs within a 50 mile radius of the assembly location, an immediate validation of all floor mounted Assembly Jigs is required, including, but is not limited to the following:
SECT  
ION 7 – QUALITY REQUIREMENTS (Continued)  
7.6 MAJOR ASSEMBLY TOOLING MAINTENANCE (Continued)  
- Immediately halt all production. Issue an RC/I (Form P0-F030) describing the seismic event and any preliminary indication of damage incurred, or risks involved with continued production.
  - Validate key tooling features in accordance with Section 7.4 of this manual
  - Perform tool level check of 20% of the tools in production, beginning with the largest/most complex tool
  - If any out of level conditions are discovered, inspect another 20% of the tools
  - Continue to inspect in 20% increments until no out-of-level conditions are found
- Re-level tool(s) found to be out-of-tolerance per TPS1000 and design requirements
  - Tools with product loaded will be leveled following completion of the in-process assembly, provided approval is granted via RC/I (Form P0-F030) request
  - Restrict further use of tool(s) until leveling can be completed
SME will determine if alternate methods of production are required, based on reported condition/damage of the tool. Direction to proceed will be provided via RC/I (Form P0-F030) or the PO.

7.7 INTERCHANGEABILITY & REPLACEABILITY (I&R)  
When the Engineering Drawing, Build to Package (BTP) or PO calls for a part to be Interchangeable (I), Replaceable (R), or Controlled (C), consult the Supplier Interchangeability & Replaceability (I&R) Requirements Manual posted in OASIS.
SECTION 8 – TOOL CONTROL AND ACCOUNTABILITY

8.1 TOOL ACCOUNTABILITY

The supplier has the responsibility for maintaining accountability of tooling in their possession per the terms and conditions of the PO (Ref. Terms T-55, Property Control). This consists of sighting, tagging or marking, describing, recording, reporting the ST/STE, and reconciling records of all property, including items in storage. Suppliers will be responsible for imposing tool inventory requirements upon any sub-tier suppliers.

Supplier will inventory and report all AS tooling in their possession via a Property Accountability Report (PAR) whenever one or more of the following criteria are met:

a. All tooling annually unless otherwise specified in the PO
b. All tooling at the termination of the contract
c. All tooling at the request of the AS Buyer/SCA
d. Tools that have not been used during the prior year

The PAR will be signed by the supplier’s Quality Control/Assurance manager, and/or an officer of the supplier, or a designee responsible for tooling accountability. These signatures will serve to validate the existence of each tool listed and that the listed tools have performed satisfactorily per the requirements of the PO.

At contract completion / termination, records of all supplier tooling (including tool planning, design, usage data, all pertinent loft and tooling data, tooling layouts, manuals, and loft records / lists) whether supplied or AS derived, will be coordinated for return with the AS Buyer/SCA.

8.2 MOVEMENT OF TOOLS

Suppliers may exercise the option to ship tools to sub-tier suppliers and will be liable for the complete scope of effort for transportation and any special packaging or premium transportation requirements per the terms and conditions of the PO.

When directed by AS to move tooling, a Form V0-F009, Property Transfer Authority (PTA) is required. A Form V0-F009 is not required to move tooling from suppliers to their sub-tiers. However, the responsibility of the tooling and accountability remains with the supplier.

Suppliers shipping tools to AS will ensure that the tools are properly identified, complete and accepted by AS unless specifically directed otherwise. Tool shipments will contain copies of pertinent manufacturing records and/or tool design drawings.

8.3 LOST OR DAMAGED TOOLS

Suppliers will notify the AS Buyer/SCA in writing within 90 days of any loss, destruction, or damage of tooling. Notification must be on the supplier’s letterhead, and will include the following data:
SECTION 8 – TOOL CONTROL AND ACCOUNTABILITY (Continued)

8.3 LOST OR DAMAGED TOOLS (Continued)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Date of incident</td>
</tr>
<tr>
<td>b.</td>
<td>Description of property, including Part Number, Identification Number, or National Stock Number</td>
</tr>
<tr>
<td>c.</td>
<td>PO/SC Number and Prime Contract Number (if applicable)</td>
</tr>
<tr>
<td>d.</td>
<td>Acquisition cost</td>
</tr>
<tr>
<td>e.</td>
<td>Full narrative of the incident, location, etc.</td>
</tr>
<tr>
<td>f.</td>
<td>Cause and corrective action taken, or to be taken, to prevent recurrence</td>
</tr>
<tr>
<td>g.</td>
<td>Estimated scrap proceeds (when applicable)</td>
</tr>
<tr>
<td>h.</td>
<td>Repair direct labor and material cost (when applicable)</td>
</tr>
<tr>
<td>i.</td>
<td>Estimated cost to replace (when applicable)</td>
</tr>
<tr>
<td>j.</td>
<td>Copies of supporting documentation (e.g., if stolen, the police report)</td>
</tr>
<tr>
<td>k.</td>
<td>Contract provision under which relief of responsibility is sought (if applicable)</td>
</tr>
<tr>
<td>l.</td>
<td>Date of report</td>
</tr>
<tr>
<td>m.</td>
<td>Effort expended to locate lost property</td>
</tr>
<tr>
<td>n.</td>
<td>Statement that no insurance cost or other means of covering lost, damaged, or destroyed United States Government (USG) property were charged to the contract (if applicable)</td>
</tr>
</tbody>
</table>

If AS elects to replace a lost or damaged tool, the supplier will apply the original tool identification (with the next sequential “Multi” number) and make serial number, as directed by the PO and the tool identification section of this manual (Section 9).

8.4 TOOL STORAGE AND PRESERVATION

The supplier will prepare and store tooling in accordance with the requirements of this manual and the terms and conditions of the PO.

Preservation, protection and storage requirements are governed by program specific requirements contained in Section 10 of this manual. All tooling surfaces or edges subject to corrosion will be treated with corrosion preventative compound. In no event should unprotected tools be subjected to conditions that will tend to induce corrosion or damage from atmospheric conditions. All tooling will be stored indoors unless prior written authorization is provided by AS.

Tooling in storage will be protected, insofar as it contributes to the preservation of the equipment. In addition, the following requirements will apply:
SECTION 8 – TOOL CONTROL AND ACCOUNTABILITY (Continued)

8.4 TOOL STORAGE AND PRESERVATION (Continued)

   a. Equipment with conventional electrical wiring, motor-starting relays, or plumbing must be stored inside weather-tight buildings.

   b. Equipment with electronic circuits, circuit-switching relays, capacitors, electromechanical devices, etc., will be stored in buildings with a temperature range between 35 degrees Fahrenheit minimum and 120 degrees Fahrenheit maximum, and a relative humidity below 80 percent.

   c. Active chemicals in STE components such as batteries will be removed or rendered as inactive as possible.

   b. All replacement, calibration, and certification requirements will be recorded for the benefit of personnel ordering reactivation of the equipment.

   c. Operating time and malfunction records required for reliability computations will be retained. Spare parts peculiar to and purchased for the equipment, drawings, and/or instructions will be packaged with the equipment.

   f. Suppliers are responsible for the proper use and storage of assigned tooling until relieved of responsibility. Tools returned to AS will be in good condition with steel working surfaces protected with a corrosion preventative lubricant.

   g. All master tools, check fixtures, and electronic test equipment to be stored indoors.

   h. Production tools will be stored indoors whenever possible. When it is necessary to store them outdoors on a temporary basis, a corrosion preventative lubricant will be applied to steel working surfaces and the entire tool covered with a plastic tarpaulin.

   i. Tools will be prepared for storage and stored, after cleaning, in accordance with instructions.

   j. Tools will be transported, handled, and stored in a manner that will offer reasonable protection against dropping and bumping.

   k. All empty tool storage boxes stored outdoors will be closed and covered with a waterproof cover.
* SECTION 9 – TOOL IDENTIFICATION REQUIREMENTS – STRIKE PROGRAM TOOLING

9.1 GENERAL TOOL IDENTIFICATION REQUIREMENTS

* All AS Strike program tooling will be clearly identified as defined by the PO and this section of this manual. Accurate identification data must be reflected on inventory records, shippers, receiving reports, and all other tooling records. (Ref. Terms T-55, Property Control).

9.2 IDENTIFICATION DATA REQUIREMENTS

* All tools utilized on the Strike program are to be identified with the following minimum information:

a. **Engineering Drawing with “T” prefix added**

   The base Engineering Drawing of the part that the tooling was originally made to produce. Use one Drawing Number (with the “T” prefix).

   Example: 1TD1131D11005 (Engineering Drawing Number)
   T1TD1131D11005 (Base of the Tool Number)

b. **Part Dash Number**

   The Dash Number of the part or assembly that the tooling was originally made to produce, substituting “A” for the first character of the dash number. Use one Dash Number only. If the tool is used to produce multiple part numbers/dash numbers, the tool will only be identified with one of them. The supplier will maintain a record of all part numbers/dash numbers each tool is used to produce, and this information will also be provided to AS with tool acceptance documentation.

   Examples: 1TD1131D11005-1001 (Engineering Part Number)
   T1TD1131D11005-A001 (Tool Number)

c. **Tool Symbol**

   The standardized abbreviation to indicate general configuration and function of a tool is specified in the PO (Ref. Section 9.9 of this manual). Tool Symbols will always immediately follow the Tool Number. A space is to be left between the Tool Number and the Tool Symbol.

   Example: T1TD1131D11005-A001 CFB
* SECTION 9 – TOOL IDENTIFICATION REQUIREMENTS – STRIKE PROGRAM TOOLING (Continued)

9.2 IDENTIFICATION DATA REQUIREMENTS (Continued)

d. **Series**

When more than one tool contains the same part number and tool symbol identity, but is used to perform different, subsequent and/or progressive operations, the tools are considered to be part of a series. These are differentiated by providing additional digits following the tool symbol in the tool identity. A space is to be left between the Tool Symbol and the Series Number. All tools are to be identified with a 4 digit Series Number. The numerical value is determined by the progressive sequence in which the tool is used. The first tool in the series will be 0001, the second 0002, the third 0003, etc.

Examples:

- T1TD1131D11005-A001 CFB 0001
- T1TD1131D11005-A001 CFB 0002
- T1TD1131D11005-A001 CFB 0003


e. **Multiple Tools**

Tools that are duplicated for rate or multiple source requirements are considered “Multiple” tools. The “Multiple” tool designator follows the “Series” in the tool identification. A space is to be left between the Series Number and the Multi Number. All tools are to be identified with a 4 digit Multi Number. The first Multi tool will be 0001, the second 0002, the third 0003, etc.

Examples:

- T1TD1131D11005-A001 CFB 0001 0001
- T1TD1131D11005-A001 CFB 0001 0002
  - (Duplicate of -A001 CFB Series 0001)
- T1TD1131D11005-A001 CFB 0002 0002
  - (Duplicate of -A001 CFB Series 0002)
- T1TD1131D11005-A001 CFB 0002 0003
  - (Second duplicate of -A001 CFB Series 0002)

f. **Model**

* The Model designation for all tools on this program is: Strike
* SECTION 9 – TOOL IDENTIFICATION REQUIREMENTS – STRIKE PROGRAM TOOLING (Continued)

9.2 IDENTIFICATION DATA REQUIREMENTS (Continued)

g. **Engineering Drawing Revision Letter**
   Use the latest engineering change (current part drawing revision level) incorporated in the tool.

h. **Serial Number**
   The Serial Number is the Tooling PO number followed by the Line Item number, with a dash between the PO number and the Line Item number.
   
   **Once established, the original make serial number will remain on the tool and will be transferred in the event the tool is remade.**

i. **Sales Order**
   Identify the original Make Sales Order (Network Number) the tool fabrication effort was accounted against, as specified in PO Clause A715.
   
   Example: KAE1151GR

j. **Ownership Designation**
   Specify ownership of tool (property) as identified in the PO and as shown below.
   
   USG = United States Government property

k. **Date of Tool Acceptance**
   Stamp the date of tool acceptance next to AS SQ-QFE Quality stamp.

l. **Date of Tool Prove Acceptance (when required)**
   Stamp the date of tool prove acceptance next to AS SQ-QFE Quality stamp (when tool prove is required).

m. **Weight (WT) (as required)**
   The weight of all tools over 25 pounds is to be recorded in the identification information (including component parts of tools in excess of 25 pounds).
   
   Example: WT – 1800 LBS
* SECTION 9 – TOOL IDENTIFICATION REQUIREMENTS – STRIKE PROGRAM TOOLING (Continued)

9.3 IDENTIFICATION LOCATION

Unless otherwise specified, identification information may be positioned anywhere on the tooling provided that it is does not interfere with the operation of the tool, will not be obliterated through normal tool usage and is readily visible when stored or in working positions.

9.4 PREFERRED METHOD OF IDENTIFICATION

Steel stamping is the preferred method of tool identification and will be used at all times unless the use of stamps would damage or impair the use of the tool or an alternate method is required by specification or approved tool design.

Whenever possible, identification should be steel stamped directly on hard tooling with 1/8” steel letter and number stamps or applied with electric/air pencil on aluminum templates as shown in the following example. This only an example. The layout may be as suitable for each tool, but must include the following:

- Tool Number, Symbol, Series, Multi
- Model / Revision
- Make Serial / Sales Order
- Ownership
- Inspection Date and Stamp
- Tool Prove Date and Stamp
- Weight (if over 25 lbs.)

9.5 IDENTIFICATION OF REMOVABLE TOOLING COMPONENTS

When tools have removable components, other than standard parts, the components shall be identified in accordance with this section of this manual to include the following:

a. Complete tool identification number (Tool Number, Symbol, Series, Multi)

b. Aggregate Detail Number, e.g., Part 1 of 6, Part 2 of 6, Part 3 of 6, etc. The only exceptions are tools such as casting patterns that have multiple components that cannot be identified due to their usage. These tools shall have the notation “Tool consists of______ total parts” included with the basic identification information.

c. Weight, if over 25 lbs.

If steel stamping the removable tooling component would otherwise damage or impair the use of the component, an identification plate with the info listed in this section may be affixed to the component.
* SECTION 9 – TOOL IDENTIFICATION REQUIREMENTS – STRIKE PROGRAM TOOLING (Continued)

9.6 IDENTIFICATION CHANGES

Whenever a tool is reworked to support a new configuration, the identification will be changed to reflect the new part dash number, but only when the tool is physically altered to support a new detail or assembly configuration. **Tool re-identifications will also maintain the original make serial number and date.** When tool identification changes become necessary, the old identification is removed. The tool number is changed directly on the tool and/or a new identification plate is attached. A Tooling Purchase Order will be issued to authorize any rework and re-identification efforts. Tool re-identification data must be provided in all supplier tool accountability reports.

9.7 ALTERNATE METHODS OF IDENTIFICATION

When steel stamping would otherwise damage or impair the use of a tool, any of the following other methods may be utilized, listed in order of preference:

a. Identification tag (as shown in Section 9.8)
b. Electro etching
c. Scribing
d. Painting (containers only)

If any of the preferred methods of identification (steel stamping, identification plates, electro-etching, etc.) cannot be affixed to a tool due to size and/or functionality, permission may be granted to utilize the supplier’s barcode tag/part number established process to document identification and accountability. If deemed acceptable by AS Property Management, a record will be created within the AS property management system to identify the supplier’s barcode/part number as the tool number. Submit an RC/I (Form P0-F030) to the SME Representative as directed by AS OASIS for permission to use this method of identification. The RC/I (Form P0-F030) will be coordinated with AS Property Management for concurrence/approval.

a. Barcode tag/part number (identified on tool and in AS and Supplier record) (AS to identify as tool number)
b. Make Serial Number (as applicable) (identified in AS and Supplier record)
c. Tool Number/Symbol/Series/Multi (identified in AS and Supplier record)
## 9.8 IDENTIFICATION PLATE AND INSTRUCTIONS

If steel stamping directly on the tool is not practical, a tool tag may be affixed to the tool. The tag is to be provided by the supplier, and may be of the supplier’s design, but must contain the information below. The layout is shown as a guide.

<table>
<thead>
<tr>
<th>TOOL NUMBER</th>
<th>SYMBOL</th>
<th>SERIES</th>
<th>MULTI</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>MODEL</td>
<td>REVISION</td>
<td>PROPERTY</td>
<td>WEIGHT</td>
</tr>
<tr>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
</tr>
<tr>
<td>ORIG. SERIAL</td>
<td>DATE</td>
<td>INSPI.</td>
<td></td>
</tr>
<tr>
<td>(9)</td>
<td>(10)</td>
<td>(11)</td>
<td></td>
</tr>
<tr>
<td>SALES ORDER</td>
<td>DATE</td>
<td>PROVE</td>
<td></td>
</tr>
<tr>
<td>(12)</td>
<td>(13)</td>
<td>(14)</td>
<td></td>
</tr>
</tbody>
</table>

Instructions:
1. Tool Number – Example: T1TD1131D11005-A001
2. Tool Symbol – Example: CFB
3. Tool Series – Example: 0001
4. Tool Multi – Example: 0001
5. * Model – Example: Strike
6. Revision (Engineering Drawing Revision Level of Part)
7. Property of (as designated on PO)
8. Weight (if over 25 lbs.)
9. Original Serial No. (Make Serial No.) (PO No. - dash - Line Item No.)
10. Date of Tool Acceptance by SQ-QFE
11. SQ-QFE Inspection Stamp
12. Sales Order (Network No. from PO)
13. Date of Tool Prove Acceptance by SQ-QFE (when required)
14. SQ-QFE Inspection Stamp (Stamp upside down if Tool Prove is not required)
* SECTION 9 – TOOL IDENTIFICATION REQUIREMENTS – STRIKE PROGRAM TOOLING (Continued)

9.9 TOOL SYMBOLS & DESCRIPTIONS

* All tools fabricated for, or provided by the AS Strike program will be identified with the appropriate Tool Symbols as defined in the table in this section of this manual.

Click on the icon below to open the table.

If a Tool Symbol is required that is not adequately represented in this table, contact SME so the proposed Tool Symbol can be considered for a future revision to this manual.

Section 9.9 Tool Symbols.xlsx
SECTION 10 – APPLICABLE DOCUMENTS/GLOSSARY

This manual will be used in conjunction with but not limited to the following applicable documents. Documents listed in Section 10.1 can be found on the AS OASIS website. Contact the FO or SME Representative if a conflict arises between the PO, content of this manual or any of the specifications and documents listed below.

10.1 DESIGNED & NON-DESIGNED TOOL SPECIFICATIONS

1) TPS XXXX Tool Process Specifications

10.2 MILITARY SPECIFICATIONS

1) MIL-PRF-81309 Corrosion Preventative Compounds, Water Displacing
2) MIL-PRF-16173 Corrosion Preventative Compounds, Solvent Cutback, Cold Application
3) MIL-STD-2073 Standard Practice for Military Packaging
4) AS9100 Quality Management Systems – Requirements for Aviation, Space and Defense Organizations
5) MIL-I-8500 Interchangeability and Replaceability of Component Parts for Aerospace Vehicles

10.3 REGULATIONS

1) FAR 52.245-17 Special Tooling
2) FAR 52.245-18 Special Test Equipment
3) FAR 45.1 Government Property
4) FAR 45.5 Management of Government Property in the Possession of Contractors
5) FAR 45.6 Reporting, Redistribution, and Disposal of Contractor Inventory
SECTION 10 – APPLICABLE DOCUMENTS/GLOSSARY (Continued)

10.4 GLOSSARY OF TERMS

ACCOUNTABLE TOOLS: The terms Tools, Tooling, Special Tooling are used synonymously and refer to Special Tooling (ST) or Special Test Equipment (STE) as defined in this manual. When the term ST is used, it excludes STE and likewise when the term STE is used, it excludes ST. These tools are subject to the accountability requirements of the affected contract and will be accounted for, or called out, on the PO. These tools must be available for return to the customer upon request or contract completion / termination.

BLOCKS: Generally singular male shaped tools whereby material is applied and a profiling or forming operation is accomplished by forces applied to the work piece primarily from a piece of equipment.

CONTROL MEDIA: Mandatory tooling used for fabrication and/or verification purposes such as check fixtures, gages, contour templates, or other tools necessary for maintaining or controlling configuration or Interchangeable and Replaceable (I&R).

DIES: Tools fixed in presses and forces are applied to the tool (die) to perform an operation on a work piece. The work piece is generally enclosed and actually molded, formed, trimmed or pierced by the die as opposed to by equipment or hand. Dies are typically matched sets of male/female tools.

DIGITAL TOOLING/DATA: Supplemental drawings, surfaces, point data, or programs created to complete or enhance the definition of an engineered detail or assembly as required to develop tooling or perform inspections.

DUPLICATE / MULTIPLE TOOL: A tool that is identical to an existing tool used for rate purposes or multi-spindle machines. Duplicate tools are used to perform the identical function as the original tool.

DURABLE TOOL: Shop tools that are used to perform or assist in cutting, holding, shaping, or measuring (as required) and have general usage on more than one model / project. Durable tools are generally low value tools with a minimum useful life of more than one year. Durable Tools do not qualify as Special Tools.

EXPENDABLE / PERISHABLE TOOL: Any commercial or non-designed, temporary tool. Generally, tools of low value that may be consumed within the manufacturing process. Examples include catalog items readily available on the open market, which because of their size and/or nature are considered expendable. Drills, reamers, taps, snap gages, and all types of cutting tools are considered expendable tools, even though they are altered for production purposes and may be special in nature. Expendable/Perishable tools do not qualify as Special Tools.

FIELD OPERATIONS (FO): Global Supply Chain Representative responsible for supplier technical issues. FO Representatives visit suppliers and provide on-site technical support.

FIXTURE: A work-holding and/or work-supporting device. A fixture is secured or fixed in a relative position to allow a machine to perform work on a detail or assembly.
SECTION 10 – APPLICABLE DOCUMENTS/GLOSSARY (Continued)

10.4 GLOSSARY OF TERMS (Continued)

GROUND SUPPORT TOOLS: Those tools that are provided for purposes of supporting, handling, servicing, maintaining, and/or protecting the end product and/or major Interchangeable or Replaceable components of the end product. Ground Support tools are accountable ST/STE.

INTERCHANGEABLE: Interchangeable items are defined by engineering and/or manufacturing operations and are fabricated with the aid of control media tools. Interchangeable items are capable of being readily installed, removed, or replaced without alteration, misalignment, or damage to items being installed or adjoining items or structure. Also see definition for Replaceable.

JIG: Tools that hold a work piece in a stationary position and provide guides for hand equipment to perform drilling, tapping, boring, reaming and assembly operations. Jigs are devoted to hand operations and are not attached to or used in conjunction with machines to perform work. Also see definition for Fixture.

MASTER TOOLS: Tools developed and retained as a means to control the accuracy of production tools. Master tools are primarily used to physically establish a dimensional standard for items that are difficult to produce in quantity within the normal dimensional limits of production. A master tool may be used to physically coordinate families of production tools for an interchangeable or replaceable item and in some cases for its mating structure.

MECHANICAL EQUIPMENT: Equipment assets that are specialized, accountable to a specific contract, and are required to facilitate fabrication and assembly operations.

MISCELLANEOUS TOOLS: Tools which cannot be categorized as Templates, Blocks, Dies, Jigs, Fixtures, Masters and/or Tooling Tools, Expendable Tooling, or Digital Tooling Data.

MULTIPLE USE TOOLS: A tool that is used to fabricate multiple dash numbers other than that contained in the tool identification.

AS Buyer/SCA: Relates to the Buyer, Subcontract Administrator, or their delegated representative; i.e., Supplier Manufacturing Engineering Representative, etc.

PROGRESSIVE/SERIES TOOLS: Similar tool types having the same tool number and tool symbol performing different operations or stages of an operation. A tool’s progressive (or series) number is determined by the sequential position in which the tool is used.

PO: Relates to Purchase Orders, Subcontracts, Tooling Purchase Orders, Contract Letters, etc., and attachments thereof.

REFERENCE/TOOLING TOOLS: Tools used in the fabrication of other tools and not used for the fabrication of production parts or assemblies. The category includes master tools, gages, jig templates, patterns, etc. Reference/Tooling tools are accountable tools.
SECTION 10 – APPLICABLE DOCUMENTS/GLOSSARY (Continued)

10.4 GLOSSARY OF TERMS (Continued)

REPLACEABLE: Replaceable items are defined by engineering and/or manufacturing and are fabricated with the aid of control media tooling. Replaceable items require minor alteration of the detail or assembly in order to apply or accomplish final attachment to a structure. Such alterations may include drilling, reaming, cutting, filing, trimming, bending, shaping, etc. Also see definition for Interchangeable.

REQUEST FOR CHANGE/INFORMATION: The Request for Change/Information (RC/I) (Form P0-F030) is used by suppliers to request information from the applicable Business Area regarding contractual or technical requirements. Replaces Supplier Information Request (SIR), Vendor Constraint Notice (VCN) and equivalent forms.

SHOP AIDS: Simple time and labor saving devices made by the manufacturing shops. Shop Aids are not charged as a direct item of cost, do not qualify as ST/STE and are not accountable.

SPECIAL TEST EQUIPMENT (STE): Consists of either single or multipurpose integrated test units engineered, designed, fabricated, or modified to accomplish special purpose testing in performing a contract. STE consists of items or assemblies of equipment including standard or general-purpose items or components that are interconnected and interdependent so as to become a new functional entity for special testing purposes. STE does not include material, special tooling, facilities (except foundations and similar improvements necessary for installing special test equipment) and plant equipment items used for general plant testing purposes.

SPECIAL TOOLING (ST): Consists of jigs, dies, fixtures, molds, patterns, taps, gages, or other equipment and manufacturing aids. This includes all components and replacement of these items that are of such a specialized nature that without substantial modification or alteration their use is limited to the development or production of particular supplies or parts thereof or to the performance of particular services. ST does not include material, special test equipment, facilities (except foundations and similar improvements necessary for installing special tooling), general or special machine tools, or similar capital items. ST also does not include NC Programming/Digital Data, which is not accountable, although it may be reportable when contractually required by program.

STANDARD TOOLS: Production tools that are used for any type of manufacturing operation and that are not directly chargeable to a specific contract. Includes standard brake dies, standard cutting, dimpling, drilling, reaming, broaching and riveting tools; standard thread, plug, snap and ring gages, etc.

SUPPLIER MANUFACTURING ENGINEERING (SME): Global Supply Chain Representative responsible for supplier technical issues. SME Representatives reside at each site and provide liaison services between the various programs and Procurement/Subcontracts/Suppliers.
SECTION 10 – APPLICABLE DOCUMENTS/GLOSSARY (Continued)

10.4 GLOSSARY OF TERMS (Continued)

SUPPLIER QUALITY - QUALITY FIELD ENGINEER (SQ-QFE): Global Mission Assurance and Excellence Representative responsible for all supplier assurance/quality related issues. SQ-QFEs visit suppliers to perform inspection buy-off and provide other quality oriented on-site support.

TEMPLATES: Developed tools which are applied to a work piece or assembly and help define contour, trim, hole location and hole sizes. Templates can be either developed flat sheet metal patterns or contoured glass lay-ups and may include provisions for hand operations (scribe, rout, drill).

TOOL PROVE: The process of demonstrating that the tool and associated manufacturing processes, if used properly, produce parts that meet engineering requirements. Inspection Media Tooling is proven strictly by dimensional validation of the actual media tool to the tool design and/or the engineering model or drawing to confirm nominal tool features. Once nominal deviation is established, qualified gages, check pins, or other devices may be incorporated as part of the tool or in conjunction with tool use instructions to ensure engineering tolerance requirements are maintained. All other tools are proven by measuring the product of the tools to ensure engineering requirements are achieved with minimal handwork. Once validated, Inspection media tools may be utilized to prove the product of production tools. However, use of media tooling does not relinquish any of the supplier’s responsibility for First Article Inspection as delineated by the PO or the Supplier Quality Assurance Requirements (SQAR).

TOOL SYMBOL/CODE: The alphabetic abbreviation of the tool name, i.e., "AJ" for Assembly Jig; "FB" for Form Block; "BPD" for Blank and Pierce Die as defined in Section 9 of this manual.

TOOLING TOOL: Aids and tooling devices strictly used to assist in the manufacture of other tooling.
SECTION 10 – APPLICABLE DOCUMENTS/GLOSSARY (Continued)

10.5 TOOL ORDER EXAMPLE (Form M0-F011KB)

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DATE DUE | DESTINATION | CHANGE TYPE | EST HRS. | WORKMAN | WORK CODE | STA T. | CL CODE A B C D | ORD. BY |
|--------|-------------|-------------|---------|----------|-----------|--------|-----------------|---------|

AS Assigned Tooling Work Order Number

Change Types and Associated Number Used in Tool Identification

N = Change Effectivity Notice (CEN)
Q = Seller Material Review Report (SMRR)
B = Corrective Action Board (CAB)
SECTION 10 – APPLICABLE DOCUMENTS/GLOSSARY (Continued)

10.6 ACRONYMS

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<tr>
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SECTION 10 – APPLICABLE DOCUMENTS/GLOSSARY (Continued)

10.7 REFERENCES

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