## GENERAL PROGRAM REQUIREMENTS

<table>
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<tr>
<th>REVISION</th>
<th>Date</th>
<th>DESCRIPTION</th>
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<td>AFY 05</td>
<td>7/29/2004</td>
<td><strong>Initial Release</strong></td>
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<tr>
<td>Rev A</td>
<td>8/9/2004</td>
<td>Corrected References</td>
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<td>Rev B</td>
<td>8/18/2004</td>
<td>Update ISO, add acceptance process, Config magt, record retention</td>
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The General Program Requirements for the Medium Caliber Program Management Office are defined in this document. Clarification to these requirements can be obtained from the MCA (Medium Caliber Ammunition) Program Representative.

It should be noted that Military Specification/Standard language should be interpreted from the point of view as if the submissions and approvals are obtained from the MCA program office rather than the specified government agency.

The supplier's liability and responsibility for: 1) performance to the TDP, 2) safety programs, 3) reliability programs, and 4) performance to the work order/subcontract is in no way abrogated by Alliant Techsystems' MCA Program Office or the Government's review and/or approval of or concurrence with any plan, program, or document.

1.1 SCOPE

The Quality System of any supplier with design, development, or product realization responsibility must comply with the requirements of ANSI/ASQC 9001: 2000 and the supplemental requirements stated below or an industry equivalent acceptable to Medium Caliber Program Management Office.

1.1.1 Supplemental Quality Requirements

Inspection and test records shall, as a minimum, indicate the nature of the observation made and the number and type of deficiencies found. Data included in inspection and test records shall be complete and accurate, used for trend analysis and used to assess corrective action effectiveness. SPC data must be stored in an electronic form and be transmittable via the Internet.

The calibration of measuring and testing equipment shall, as a minimum, adhere to the requirements of ANSI/NCSL Z540-1, ISO10012-1, or an industry equivalent acceptable to Medium Caliber Program Management Office.

1.2 Responsibilities

1.2.1 Authorizations

This document is the baseline for the interface between ATK TSC and MCA. Revisions specific to schedule, TDP baseline, etc. which are program specific will result in written direction in the form of a Task Release that makes reference to the relevant section of this document that is changed. All requests, beyond this document, for ATK TSC to commit resources to be funded by MCA Programs will be documented, approved Task Releases, or appropriate documents (i.e. approved MAR for sort authorizes the sort). Special builds/tests, engineering studies, line re-scheduling, qualifications, etc require pre-authorization by the Program Representative and the MCA review board (PMO PM, Quality, and Engineering).

1.2.2 Customer Satisfaction
All complaints and corrective action requests, verbal, electronic, or written, received by TSC on MCA product, components, or services are to be forwarded to the MCA Program Office forthwith. AASC will work in conjunction with TSC to provide the necessary corrective actions to resolve the complaint.

1.3

REQUIRED DOCUMENTATION

1.3.1

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<th>Reference</th>
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<td>Certified Material Test Report</td>
<td>With each lot submitted and upon written request</td>
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<tr>
<td>Corrective Action Plan</td>
<td>As stated in Alliant request for CA</td>
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<td>1.15.1</td>
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<td>Ammunition Data Card</td>
<td>As required for each lot and shipment</td>
<td>1.15.1</td>
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<tr>
<td>Critical I and Critical II (Special) Defect Control Plan</td>
<td>45 days prior to production (Roll Over)</td>
<td>1.16.1.1</td>
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<tr>
<td>Changes to Controlled PPDs</td>
<td>Prior to release for use</td>
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<td>SPC Plans</td>
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<tr>
<td>SPC Charts (for key Characteristics)</td>
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<td>SPC Report</td>
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1.3.2 Documentation Extension Requirements

The supplier is required to request approvals for the inspection plan, gages, critical defect control plan, repair/rework procedures, PPDs and SPC Plan for each subcontract award. Extensions of prior approvals may be granted provided no changes have been made since the last Medium Caliber Program Management Office approval and the content meets the new contract's requirements. Requests for extensions of approvals must be submitted to Medium Caliber Program Management Office in accordance with the time frames established in this document.

1.3.3.1 Configuration Management

The Technical Data Package List (TDPL) will be included in the subcontract flow down document. Documents will be maintained in the Team Center database. Representatives from TSC will be granted access to the Team Center database. The MCA configuration management board will approve changes to the baseline. ABL will be represented on the board and provide effectivity and other information including acceptance/rejection, of all changes effecting the components manufactured, or procured at TSC for MCA. Requests for changes to the item configuration shall be submitted to the MCA Program Office, for consideration, in accord with Mil-STD-480/481. The Program Office will submit, and interface with the Customer technical community, appropriate change requests.

1.4 INSPECTION PLAN

The supplier shall perform, as a minimum, examinations and tests in accordance with specifications, prints and all applicable provisions of the TDP. An inspection plan (an example is provided in Attachment 1) shall be prepared in accordance with the applicable data item, which includes at least the following items:

- The part number and revision
- Characteristic Description
- Defect Classification Number (CD)
- Reference to a sample plan or chart (or a sample size, accept number and reject number)
- Acceptance Inspection Equipment you will use
- Data Recording Instructions
- The manner in which you will determine lot formation for product submissions

The chronological listing of the following information is required to ascertain the completeness of the inspection plan:

- Detailed flow diagram of the material flow through the various manufacturing/processing/inspection operations. The flow chart must show the process control points for all key characteristics.
- Identification of in-process and operator inspection points.
- Identification of SPC and other Process Control points.
Characteristics will be classified into four categories: “critical I”, “critical II” (previously called special), “major” and “minor”. The plan shall address your approach to controlling unlisted characteristics (those not placed into one of the four categories) necessary to assure that product conforms to applicable drawings and specifications.

Your inspection plan and flow diagram shall be submitted to the Alliant Techsystems Program Representative specified on your purchase order for approval. Medium Caliber Program Management Office must also approve revisions to the plan before use.

1.5 SYSTEM CONTROL

1.5.1 Material Control

All supplies within an inspection lot and within a delivered lot shall be homogeneous as defined below. Violation of this requirement may require a First Article.

Homogeneous supplies are defined as material, which is produced:

A) To the same design as defined by Medium Caliber Program Management Office and supplier documentation.

B) From the same material as defined by the applicable material specification. After material has been submitted to Medium Caliber Program Management Office the supplier may not change to alternate materials without prior written approval from Medium Caliber Program Management Office.

C) By the same manufacturing process as defined by the supplier's Production Process Documentation (PPDs) and the Process Control Document (PCD). Changes in manufacturing location or production discontinuities of over 90 days violate this requirement. Changes in the PPDs may violate this requirement (reference paragraph 1.17.2).

D) Using material, products, special processes (such as metal finishing, heat treat, impacting, etc.) from the same suppliers. Changes in suppliers violate this requirement. You must obtain written approval to change your suppliers.

Traceability of material must be documented and maintained throughout the production process to the extent required herein and by the TDP. Items found to contain a critical defect (I or II) must be traceable to the place and lot location produced.

1.5.2 Certified Material Test Reports (CMTR’s)

Certified Material Test Reports are required for all ABL procured materials which have chemical and/or physical requirements specified on the individual drawings or in the ASTM/material specifications referenced on the drawings. CMTR's are also required for materials, which have a listed characteristic (e.g. "certification", "material certification", "certification of conformance", etc.) requiring one. CMTR's shall be available for review for every deliverable lot or item, and shall be submitted to Medium Caliber Program Management Office upon request. Copies of all applicable CMTR's
shall be submitted to Medium Caliber Program Management Office with every First Article.

Inspection procedures need to be established to verify conformance of the CMTR to the specification requirements. The results contained on the certified test report shall be adequate to determine compliance with all applicable material specification requirements.

Availability of the certified test reports is in addition to other subcontract requirements and does not reduce or prejudice Medium Caliber Program Management Office' or the Government's right to inspect supplies under other provisions of this contract.

Unless otherwise directed by Medium Caliber Program Management Office, certified material test reports must contain the following:

A. Name and address of supplier (of the material).
B. Purchase order number (issued to the supplier) or lot identification.
C. Identification of material by specification/QAP, revision, and dates, together with type, grade, size, etc.
D. Quantity of material.
E. Actual test results identified by reference to the applicable requirements. Blanket statements are not acceptable.
F. Quantity tested, sample size, and specimen type as applicable
G. Dated correspondence with a signature (electronic is acceptable) and title of the authorized representative of the supplier that is attesting to the accuracy of test report content.

1.5.3 Cost of Waste

A monthly report containing the information for “Cost of Quality” will be submitted by the 12th day of each calendar month. The report will cover three areas of loss; Preventable, Inherent, and Customer.

Preventable Loss: Loss caused by actions that could have been prevented. The loss is reported in dollars and includes, but is not limited to; material scrap, labor scrap, labors for sorts, labor for reworks, labor for salvage. Credit for scrap sold is not to be included.

Inherent Loss: Loss caused by the design of the process and generally accepted as a part of the process. The loss is reported in dollars and includes material scrap from chips, rod ends, set up parts, plastic from runners, or warm up shots, cost of IPT and LAT tests, cost to ship product for off site operations, etc.

Customer Loss: Cost in Dollars to investigate, rework, replace, material and or labor based on customer complaints.

The “Cost of Quality”, the sum of the three categories listed above, is expressed in total dollars and in percent. The total factory labor adds plus the total factory material adds become the base for the percentage calculation. The total factory adds (material and labor) must be included in the monthly report. The AFY 05 Goal is 3.95% or less.
A Pareto of the drivers of the cost of waste will be included along with an action register that identifies the Loss area, the root cause, the corrective action being taken with a due date, and responsible person.

1.6 SPECIAL PROCESSES, SPECIAL TESTS AND METAL FINISHING

If accomplished outside your facility, a supplier acceptable to Medium Caliber Program Management Office must perform special processes, special tests and metal finishing. Written documentation establishing the basis for your selection(s) must be furnished to Medium Caliber Program Management Office upon request. Medium Caliber Program Management Office reserves the right to disapprove the basis for vendor selection. If requested, Medium Caliber Program Management Office will assist you in qualifying a supplier or locating a qualified supplier.

1.7 AUDITS

1.7.1 Quality System Audits

Medium Caliber Program Management Office and the Government reserve the right to audit or examine the adequacy of your quality/inspection program. The basis for any audit will be your approved quality/inspection plan and procedures, company quality manual, this document, supplier requirements related to product quality, and applicable military specifications and standards. If audited, your quality system will be evaluated to the requirements of ISO9001: 2000

In the event that significant discrepancies are found, a discrepancy report will be issued. You are required to provide your corrective action plans to Medium Caliber Program Management Office and to implement appropriate corrective action.

In the event that discrepancies are found and documented by a Government QAR in the form of a Corrective Action Request (CAR), a copy of the CAR must be forwarded to the Medium Caliber Program Management Office Subcontractor Administrator immediately upon receipt.

1.7.2 Supplier Audits

Major suppliers (suppliers providing components or services, with listed characteristics, or certified/approved processes) must be audited on a 12-month cycle. The audit plan must be submitted annually to the Program Representative for approval, and updated with revisions. Audit reports indicating required corrective actions and details of the audit should be submitted to the MCA Program Management Office within 10 days of the audit completion. The MCA Program Management Office may elect to participate in select supplier audits and will indicate which audits they plan on attending. Ten-day notice of audit dates and locations must be given for selected audits.

1.8 SOURCE INSPECTION

1.8.1 Medium Caliber Program Management Office Source Inspection

Medium Caliber Program Management Office maintains the right to perform source inspection and/or source surveillance to evaluate the product or service being procured by this purchase order/subcontract. Material cannot be delivered without Medium
Caliber Program Management Office’ inspection, or review and approval. Medium Caliber Program Management Office must be provided the opportunity to inspect all listed characteristics and those unlisted ones specifically identified at the point where acceptance is determined. Medium Caliber Program Management Office may choose to waive source inspection but any such waiver will not jeopardize future opportunities for source inspection nor relieve the subcontractor of the obligation to provide only material in accordance with the applicable requirements.

Before submitting product to Medium Caliber Program Management Office, it shall have been accepted under the terms of your inspection plan. After acceptance by Medium Caliber Program Management Office, the product may be submitted to the government as required.

If material can be shipped without Medium Caliber Program Management Office’ inspection and approval, it will be reflected on the Medium Caliber Program Management Office work order.

Product and process audits may be performed on items affecting product quality such as:

- Acceptance Inspection Equipment (AIE)
- Calibration
- Special Processes
- Work Instructions
- Statistical Process Control (SPC)
- Training and Certification

Reasonable facilities and equipment shall be made available to the Medium Caliber Program Management Office quality representative while performing these tasks. Adequate facilities shall include items such as a desk, telephone, files, copier, and a telefax. Access must be provided to appropriate work areas, AIE, records, inspection/quality plans, etc.

1.8.2 Government Source Inspection

Government inspection is required prior to shipment from your plant, or final shipment from your sub contractor.

1.9 FIRST ARTICLE REQUIREMENTS

1.9.1 Requirements

When required (see 1.9.2) and unless waived by Medium Caliber Program Management Office, the FAAT requirements defined in the TDP shall be performed on parts which have been manufactured using the same production processes, source of supply, procedures, molds, and similar equipment that will be used in fabrication of deliverable items. A build readiness review will be conducted and documented by the Medium Caliber Program Management Office, prior to the initiation of the FAAT build. The supplier will submit to Medium Caliber Program Management Office the specified number of "known good" finished items as verified by 100 percent inspection using only approved inspection procedures and inspection equipment. The required number of parts or subassemblies for each intermediate step/process for which a listed CD exists
will also be submitted. Notification of Medium Caliber Program Management Office will be made 7 days prior to the inspection. After acceptance by Medium Caliber Program Management Office the sample will be submitted to the government if directed by Medium Caliber Program Management Office.

Approved first articles will not serve as manufacturing standards.

1.9.2 Conditions Necessitating First Articles

Whenever a lapse in production exceeds 90 days, or whenever a change in homogeneity occurs (Ref. Para. 1.5.1), a full or limited FAAT may be required.

1.9.3 Requirements for Performing FAATs When Responsibility Delegated by Alliant

The FAAT provisions stated in paragraph 1.9 apply to FAATs conducted by Medium Caliber Program Management Office, as well as, those conducted by you. If Medium Caliber Program Management Office has delegated responsibility to you for conducting a FAAT at one of your suppliers, you must apply the requirements of paragraph 1.9.

1.9.4 Additional FAATs Required Because of Disapproval

If the first article is disapproved, the supplier, upon Medium Caliber Program Management Office notification, shall submit an additional first article for inspection and/or test. After each request, the supplier shall make any necessary changes, modifications or repairs to the first article or select another first article for inspection.

1.10 ACCEPTANCE INSPECTION EQUIPMENT

1.10.1 Supplier Gauging

The supplier shall be responsible for the design, fabrication or procurement, maintenance and calibration of all acceptance inspection equipment. The product will be measured in the units in which it is dimensioned, requests for exception may be submitted to the program office, for approval and documentation, on a case-by-case basis.

All equipment, and associated operating and calibration procedures, used to evaluate listed Classified characteristics shall be available for review or audit by The Medium Caliber Program Management Office. For initial gage approval, as a minimum, two copies of each gage drawing shall be submitted with the Equipment List (see 1.10.2). This will include: 1) unique gauging, 2) standard measuring equipment (SME), 3) open setups described in sufficient detail that the setup can be duplicated and the inspection performed by an individual possessing a reasonable degree of experience, and 4) laboratory equipment.

Automated Acceptance Inspection Equipment (AAIE) shall use fail-safe designs in which the decision making logic and the material handling devices normally operate in a reject mode until an accept mode signal is received. For non-destructive evaluation AAIE, the calibration standards shall have their design based on critical flaw size as determined by Fracture Mechanics Analysis. These designs must have a margin of safety such that 100% of all critical flaws are rejected.
If a sub tier supplier or independent inspection agency performs inspection of listed CDs, you must submit their acceptance gauging to Medium Caliber Program Management Office for approval. Gage approval status documentation will be indicated on the Medium Caliber Program Management Office HQ-120 form or equivalent.

1.10.2 Equipment List

The supplier shall prepare, maintain and submit to Medium Caliber Program Management Office a listing of all inspection equipment used to accept listed Classified characteristics. This listing shall include:

- Part number, revision, and name
- Specification number and paragraph (if applicable) or QAP
- Classification of Characteristic number
- Characteristic description and dimension
- Gage number (and drawing revision) or identification of open setup and SME (including item model number)

1.10.3 Revisions to Gage Designs

When a revision to any approved inspection equipment or method is anticipated, it must be submitted to Medium Caliber Program Management Office for evaluation and approval a minimum of 75 days prior to intended use. Approval of an initial design does not imply approval of subsequent revisions, these revisions must be resubmitted.

1.10.4 Extension of Gage Approvals

Previously approved inspection equipment may be used on subsequent contracts, however, the supplier must resubmit to Medium Caliber Program Management Office all anticipated inspection equipment in accordance with 1.10.2 in addition to a cover letter requesting extension of the gage approval. Resubmission of gage drawing copies is not required for inspection equipment approval extension.

1.11 NONCONFORMING MATERIAL

Medium Caliber Program Management Office will maintain material review board (MRB) authority for all characteristics, listed and unlisted. Potential material review actions such as repair, rework (unless previously approved by Medium Caliber Program Management Office) and use-as-is must be submitted to Medium Caliber Program Management Office for MRB action. The supplier's MRB only has the authority to perform reprocessing, and perform rework in accordance with a rework procedure approved by Medium Caliber Program Management Office.

1.11.1 Definitions/Requirements

1.11.1.1 Repair:

Additional operations performed on a nonconforming article or material to place it in a usable, but still nonconforming condition. A written repair procedure is required. Approval of the repair procedure must be obtained from Medium Caliber Program Management Office prior to its use, and the product may not be accepted until such approval is obtained by Medium Caliber Program Management Office.
The repair procedure shall contain a provision for re-inspection, which will take cognizance of the TDP requirements and also shall provide for inspection of any variance, which may be introduced as a consequence of the restoration method.

1.11.2 Rework:

The processing of nonconforming material through a process that is different than that which is applied to virgin material to return it to a fully conforming condition. For example, if additional operations must be performed on the nonconforming material, such as disassembly or cleaning, before it can be re-run through the standard documented process, it is considered to be reworked. If the nonconforming material requires no special preparation to undo previous operations yet it is run through a different process than virgin material, it is considered to be reworked.

If the nonconforming material is re-run as-is through the original, standard documented process, it is considered to be reprocessed, not reworked. Refer to paragraph 1.11.3.

Additional written work instructions are required for rework. Medium Caliber Program Management Office must approve rework procedures prior to implementation. Rework procedures approved for a previous contract are authorized for use on this contract. The rework procedure shall contain a provision for re-inspection of the non-conformance to provide assurance that the non-conformities have been removed. In addition, the re-inspection shall provide for inspection for variation in any feature, which may be introduced as a consequence of the restoration method.

1.11.3 Reprocessing:

Material, which is found to be nonconforming and is re-run as-is through the original, standard, documented process to return it to a fully conforming condition. Reprocessed material must be re-inspected to verify the non-conformity has been eliminated. You are not required to notify or obtain Medium Caliber Program Management Office approval for the re-processing of nonconforming material.

1.11.4 Scrap:

Material deemed in-process scrap, which has not been submitted to inspection, may be scrapped at the discretion of ATK TSC. All material submitted to inspection and rejected will be subject to the MRB review process. All scrap material shall be reported in the Cost of Quality report.

1.11.5 Use As Is:

Material which has one or more listed or unlisted characteristics that do not meet the drawing/specification/QAP requirements, but evidence can be produced to support a basis that the material is still acceptable for use. Such material shall not be used unless written approval from Medium Caliber Program Management Office is provided.

1.12 RECORDS RETENTION

All Quality records shall be retained in accordance with the current ATK Corporate retention schedule.
1.13 SHIPPING INSTRUCTIONS

1.13.1 Data Sent with Shipment

Unless specifically directed otherwise, a copy of Medium Caliber Program Management Office’s source inspection results and two copies of the ammunition data card must be included with each shipment either enclosed in a shipping container which is externally marked with "Inspection Data Enclosed" or they will be inside a shipping envelope marked "Packing List enclosed-NOTICE-this envelope contains important papers-do not destroy." This envelope should be attached to the dunnage at the back of the truck.

1.13.2 Material Identification Label

All material delivered to MEDIUM CALIBER PROGRAM MANAGEMENT OFFICE or the LAP facility must have a material control label attached to the material containers. Identification will be in the form of a bar code label attached to the material or affixed to the material container.

Identification requires the following information:

a) Drawing Part Number, and Revision
b) Part Name
c) Lot Number
d) Container Quantity
e) Material Inspection Status
f) Supplier Name

Identification includes the following items for material containers:

a) If the material is packed individually, or in a number of containers and if it is handled, moved, or stored in this manner, then each of the individual boxes, cartons, or continuing devices will be separately identified.

b) If material of the same part number and revision requires a skid for movement or storage, and the skid is banded or contained, then only the skid requires the material identification label. If the skid contains more than one part number, then all containers on the skid will be identified.

c) If possible, the material identification label should be affixed to the containers side, lower left corner. On skids, attach the label to a tag and attach this tag to the side or most visible location.

d) If the material has been dimensionally accepted, yet requires ballistic tests for TDP acceptance, the material identification label will state "ACCEPTED MATERIAL."

Internal material identification labels will not be removed until the material is consumed, used as part of an assembly, or shipped to the customer. After the tags are removed, they must be disposed of in such a manner that they cannot be reused.
1.13.3 LAT/IPT Sample Marking

For LAT/IPT samples, the term "LAT(or IPT) SAMPLE A" or "LAT(or IPT) SAMPLE B" in 1 to 2 inch high letters shall be added to the container marking. This marking shall be placed in the upper right-hand corner of each of four panels: top, two sides and the end bearing the identification data. In addition, a one-inch orange band (ink, paint or tape) shall be placed along the bottom edge of the side and end panels of the LAT/IPT sample containers. (If a change in packaging is required, document your change and request approval through the Medium Caliber Program Management Office contract administrator.)

1.14 LOTTING

You are required to perform lotting in accordance with MIL-STD-1168 unless directed otherwise.

1.15 AMMUNITION DATA CARDS

1.15.1 General Instructions

Unless directed otherwise, ammunition data cards (ADCs) shall be prepared and submitted in accordance with MIL-STD-1167, DI-MISC-80043 and the supplemental instructions below for every shipment of product. Ammunition data cards may be recorded on manila cards or on hard copy printouts of electronically generated facsimiles. If directed by Medium Caliber Program Management Office, ADCs must be submitted to the Medium Caliber Program Management Office source inspector or Product Engineer for review prior to shipment of the product.

The signature of your local QAR is required on all ADCs, except those for pre-released material (see 1.15.4) and in-process test ballistic samples (see 1.15.2). You must coordinate with your local QAR to establish a mutually agreeable process for obtaining this signature in a timely manner.

It is permissible to reference the Medium Caliber Program Management Office task release number on the component level and subassembly level ADCs. Medium Caliber Program Management Office will convert the purchase order or task release number to the appropriate government prime contract number on the component/subassembly level electronic ADCs forwarded to the government. Note that the ADC for the end item cartridge will, however, show the prime contract number.

A final ADC is required for each lot and must reflect all reportable associated activity such as waivers/deviations, ECPs, reason for interfix number changes, etc. Refer to DI-MISC-80043 for a more detailed listing. The final ADC should list the total lot quantity (total quantity shipped) in the “net quantity” block, which includes the ballistic LAT/IPT samples. Information on the number of ballistic LAT/IPT samples and where shipped must also be shown in the “test samples” block. If the final ADC is for an item, which has no ballistic test requirement in the component/subassembly specification, the “disposition” block typically should state “Accepted.” If the component/subassembly specification requires a ballistic test, the final ADC should typically state “Provisionally Accepted.” Note: A ballistic test that is “advisory” in the specification is not considered a required test.
With each shipment (LAT/IPT sample, partial, pre-released quantity or complete lot), 5 copies of the corresponding ADC shall be sent to the Program Representative and 2 copies shall accompany the shipment.

1.15.2 Ballistic LAT/IPT Samples

An ADC is required for each shipment of ballistic LAT or in-process test (IPT) samples from a lot. An IPT is a ballistic test not required by the government TDP that is conducted by Medium Caliber Program Management Office for information only. For ballistic LAT/IPT samples going to a different destination than the lot, it is acceptable for the accompanying ADC to be a copy of the ADC for the parent lot (or portion thereof). In this situation, the LAT/IPT test sample must be reflected in the “test sample” block of this ADC and the packing slip accompanying the LAT/IPT sample should identify it as such. For LAT/IPT samples traveling with the parent lot (or portion thereof), no additional ADC is needed. If the timing of the shipment of a ballistic LAT/IP sample does not match that of a parent lot (or portion thereof), a stand-alone ADC must be prepared. The “disposition” block of this stand-alone ADC should state “Provisionally Accepted.”

1.15.3 Partial Shipments

If your Program Representative authorizes shipments of partial lot quantities, an ADC signed by your local government QAR is required with each partial shipment. The amount in the “net quantity” block should reflect the quantity of the shipment including any ballistic LAT/IPT samples that may be shipped concurrently. A comment in the “remarks” section should be provided stating that this is the first, second, third, etc. partial shipment. The “disposition” block on the ADC for a partial (except the final partial) will normally state “Provisionally Accepted” unless 1) all required inspections/tests for this quantity have been performed using the specification/QAP required sample size, 2) no ballistic tests are pending, and 3) there are no waivers, deviations or ECPs pending. In this case, the disposition should be “Accepted.”

The ADC for the last partial shipment of a lot may serve as the final ADC if there are no waivers, deviations or ECPs pending and all normal inspections/tests that are your responsibility have been completed. The final partial ADC should show 1) the quantity of the partial shipment including any ballistic test samples unique to that partial in the “net quantity” block; 2) the “test sample” block should reflect all ballistic LAT/IPT sample shipments (quantity, date and destination) for the entire lot; 3) the card must include a summarization of all component data for the lot; and 4) a comment must be stated in the “remarks” section to the effect that: “This is the 10th and final partial of this lot. Total quantity shipped consisted of 62,000 units.” The “disposition” block should show “Accepted” or “Provisionally Accepted” as appropriate.

1.15.4 ADCs for Pre-Released Material

An ADC is required for the shipment of pre-released product from a lot. Pre-released material is product for which the inspections/tests normally performed by the supplier have not yet been completed or product that has a waiver, deviation or ECP pending customer approval. A comment must be included in the “remarks” section of the ADC stating the reasons that final material disposition is pending. The “disposition” block will state “Provisionally Accepted.” The ADC need not be signed by your local QAR, however, they should be notified of the shipment as a courtesy. Once the conditions necessitating the pre-release have been resolved, the material shipped must be
reflected on a partial ADC or final ADC with the appropriate disposition that is signed by your local government QAR.

1.15.5 Electronic Submission of Ammo Data Cards

Should the supplier wish to utilize electronic submission of Ammo Data Cards, a written request shall be submitted to the Program Representative, no later than thirty (30) days prior to date of first lot delivery, and instructions for the electronic submittal of Ammo Data Cards will be provided. Electronic submission of Ammo Data Cards shall occur concurrently with the delivery.

1.16 CONTROL OF CRITICAL I AND CRITICAL II DEFECTS

Defects previously labeled as “special” are now renamed “critical II” defects. Defects previously labeled as “critical” must now be renamed “critical I” defects. This is an administrative change in the names of the defect categories only and not a change in the classification of the defects or level of control required.

Except when it is necessary to distinguish between critical I and critical II defects in this clause for the purpose of brevity, the term “critical defects” will be used to refer to both categories of defects when the requirements are identical for both.

The requirements for the control of critical defects (CDs) stated herein apply at your facility as well as any of your suppliers having processes that may produce critical defects. If the components or processes are fully or partially produced/perform at your supplier, all aspects of paragraph 1.16 must be flowed down to the supplier in your purchase order.

1.16.1 Critical Defect Program Requirements

Your production processes shall be designed to prevent the creation of a critical defect.

Characteristics classified as critical shall be checked a minimum of 100% using non-destructive test methods. The number of 100% checks should be based on the number needed, at the 90% confidence level, to achieve a defect rate of less than one in a million in delivered product.

You are required to prepare a Critical Defect Control Plan (see 1.16.2) addressing each CD for which you and your suppliers are responsible. This plan must be approved by Medium Caliber Program Management Office prior to producing product and may not be changed without the prior approval of Medium Caliber Program Management Office.

If a part containing a critical I defect is found anywhere in the process, immediately notify Medium Caliber Program Management Office (unless the optional CD control procedure is in effect) and follow the procedures in the approved Critical Defect Control Plan. Medium Caliber Program Management Office reserves the right to refuse acceptance of any suspect material until the root cause of the defect has been identified, corrective actions implemented, and sufficient evidence provided that the defect is not contained in the suspect population. Medium Caliber Program Management Office approval is required before resuming production.

If a part containing a critical II defect is found anywhere in the process, procedures shall be established to immediately evaluate the defect to determine if it is critical I. Until this determination is made, any material in process that may contain the same
defect shall be identified, segregated, and suspended from any further processing. If it is determined that the defect would result in a critical situation, the design characteristic will be reclassified as a critical I, and the requirements for handling a critical I defect will apply.

1.16.2 Critical Defect Control Plan

The supplier shall prepare a Critical Defect Control Plan addressing each critical II and critical I defect. The Plan must contain the following items:

- Requirement to report the occurrence of a CD.
- Requirement to stop affected operations and suspend affected product if a critical defect is found anywhere in the process unless the optional CD control procedures are in-place (see 1.16.2.1). Medium Caliber Program Management Office approval is required to resume production.
- A flowchart of the manufacturing process pertaining to CDs showing the points that process controls and inspections are applied.
- A description of the procedure for identifying, segregating and dispositioning CDs.
- Provision that parts containing CDs that cannot or will not be reworked or repaired must be rendered unusable in such a way that the ability to perform failure analysis is not impaired.
- The inspection/test procedures and acceptance criteria for CDs.
- List of acceptance inspection equipment.
- Requirements pertaining to the training and certification of operators and inspectors.
- Actions to be taken when production is stopped due to the detection of a CD.
- Provisions for determining the root cause of the defect.
- Provisions for recommending and implementing corrective actions.

1.16.3 Optional Critical Defect Control Methodology

If a process has the known potential of generating a critical defect, the control procedure in paragraph 1.16.3.1 may be used if the items listed below are included in the Critical Defect Control Plan (in addition to the standard items) and Medium Caliber Program Management Office approves the plan.

- Complete explanation of potential failure modes with supporting historical evidence.
- Identification of the action threshold (based on historical defect rate or maximum allowable defect rate). The action threshold may be a simple percent defective or based on P-chart limits.
- Method of tracking defect occurrences.
- Process for determining failure mode and monitoring action threshold.
- Defect handling procedures for each process, if different than the standard procedures, including actions to be taken to prevent the defective item from becoming mixed with acceptable product.
- A plan for generating a long-term corrective action plan to provide process improvements and controls.
- Monthly reporting of defect occurrences, rates, investigative results, and corrective actions.

1.16.3.1 Control Procedure
If the optional critical defect control methodology has been implemented and a critical defect is discovered, the supplier may authorize the continuation of production and the use of affected product provided that the failure mode exhibited by the defect has been pre-identified, the defect rate has not been exceeded and actions are in accordance with the approved plan.

For any occurrence of a critical defect wherein these conditions are not met, production of affected operations must be stopped and suspect product suspended as stated in 1.16.2.

1.16.4 Control of Critical Defects During Process Startup or Tooling Changes

Parts manufactured during tooling changes or process startup must be kept segregated. Quality will inspect all parts and record the number of critical defects. Critical defects attributable to tooling changes and machine startup are not counted toward the action threshold or process shutdown requirement.

The defective parts will be rendered unusable by a method pre-approved by Medium Caliber Program Management Office and scrapped (unless reworkable). Acceptable parts may be returned to the production flow at the same point at which they were removed. The Quality Manager/Director or his designated representative shall approve the process for production startup.

1.17 PRODUCTION PROCESS DOCUMENTATION (PPD)

Process documentation control requirements are stated in this section of the agreement

1.17.1 Requirements

The supplier shall generate and utilize written work instructions, Production Process Documentation (PPD), for all processes affecting product quality. The Production Process Documents, hereafter referred to as PPDs shall include all the applicable items listed below that are deemed significant to the type of operation under consideration:

- Operation number
- Operation description
- Part number and revision
- Process drawing (when applicable)
- Machine number/tooling numbers
- Detailed setup/work instructions
- NC or CNC software program with revisions
- Classification level (1, 2, or 3).

Processes and associated PPDs will be classified per paragraph 1.17.2. Changes to PPDs will be managed per paragraph 1.17.3.

Upon written request, copies of PPD's will be available to Medium Caliber Program Management Office or the Government.

A history file must be maintained for all PPDs and PCDs including a description of changes and a record of when they were implemented.

1.17.2 Classification Level of Processes and PPDs
There are three classification levels for processes and PPDs. The classification level for an operation is normally determined in a joint meeting between Medium Caliber Program Management Office and the supplier. The determination of classification levels is based on the following guidelines, including the judgment of the cognizant Medium Caliber Program Management Office Representatives. **The classification of processes is based on its importance, not where it is performed.**
Class 1 Process - is one where safety and/or major performance parameters may be affected by a change to the process and the product features are not easily verifiable.

A change to a Class 1 process may require a FAAT and/or an interfix change. A detailed description of the change and when it has been implemented shall be recorded in a PPD history file maintained by the supplier.

Class 2 Process - is one where any of the following items may be affected: storage life, performance, producibility, and/or assembly. Processes that are operator dependent, or have low repeatability may be considered Class 2 processes. The addition/deletion/interchange of a Class 3 process or operation is considered a Class 2 change. Other examples are changes in manufacturing location, methods, plan and or procedures. A change to a Class 2 process may require a FAAT and/or an interfix change. A detailed description of the change and when it is implemented shall be included in a PPD history file maintained by the supplier.

Class 3 Process - is one where the process is repeatable and/or the product features are easily verifiable. There are several types of changes to Class 3 processes that may result in the change being considered a Class 2 change. For this reason, you must notify Medium Caliber Program Management Office prior to implementing changes (except administrative changes) to Class 3 PPD's. A detailed description of each Class 3 PPD change shall be included in a PPD history file maintained by the supplier.

PPDs must be available for Medium Caliber Program Management Office and Government review and classification. The classification of the PPDs must be completed prior to the beginning of production. If Medium Caliber Program Management Office has previously established classifications for PPDs of components manufactured under a prior MCA contract, those classifications shall remain in effect for any subsequent award unless a PPD review is conducted.

A Process Control Document (PCD) will be prepared which will include a PPD index listing each operation and its associated classification and a process flow chart listing each manufacturing and inspection operation.

1.17.3 Change Control
PPDs may be reviewed and/or reclassified periodically during a contract. The supplier does not have the authority to unilaterally classify operations under any circumstances. Medium Caliber Program Management Office shall approve all initial classifications and subsequent classifications, subject to Government review and approval.

The classification of a process and the associated PPDs determines the approval level necessary prior to revising a PPD. **The approval requirements for Class 1 and Class 2 PPDs apply even if the process and documentation reside at your supplier.** You should flow down the appropriate process documentation change control provisions in your purchase orders. The classes and associated approval levels are provided below:

- **Class 1**
  Supplier may not change without prior formal submission and written approval by Medium Caliber Program Management Office.

- **Class 2**
  Supplier may not change without prior formal submission to Medium Caliber Program Management Office. Medium Caliber Program Management Office shall respond if disapproved by letter within 15 days from receipt of submission.

- **Class 3**
  Supplier may change without approval, but must formally notify Alliant Techsystems within fifteen (15) days, and maintain control of the effectivity of implementation.

### 1.18 STATISTICAL PROCESS CONTROL (SPC)

#### 1.18.1 General

Medium Caliber Program Management Office' Prime Contract requires that the manufacture of parts and assemblies delivered under the contract be produced under conditions regulated by Statistical Process Control methods. The supplier shall review all processes, product characteristics and process characteristics for the possible application of SPC with particular emphasis on those processes and characteristics identified as Key.

A written justification must be provided to Medium Caliber Program Management Office for each characteristic classified as critical or major that has been deemed impractical for the application of SPC.

Medium Caliber Program Management Office and the supplier will jointly determine whether any key product or process characteristics are inherent to the product being supplied. Key characteristics are product or process characteristics that significantly affect end-item performance. Characteristics that significantly affect cost or yield after LAP takes delivery of the product may also be considered key characteristics. Of these, Medium Caliber Program Management Office and the supplier will identify the key characteristics that are to be controlled by SPC.

#### 1.18.2 Scope

Whenever a supplier performs SPC, the following requirements apply. Note that additional requirements apply for key characteristics.

#### 1.18.3 SPC Requirements
1. An SPC Management Plan is required 60 days prior to producing any hardware. Ref. 1.18.4.

2. An SPC Detail Plan is required 60 days prior to producing any hardware. Ref. 1.18.5.

3. Approval of both the Management Plan and Detail Plan is required prior to the start of production.

4. The supplier shall prepare a list of proposed SPC characteristics based on manufacturing methods, tool path, etc., for review and approval by Medium Caliber Program Management Office. All the listed characteristics of the Quality Assurance Provisions(QAPs) and Medium Caliber Program Management Office Classification of Characteristics(C of C's) are to be controlled either directly or indirectly by SPC to the maximum extent possible.

5. The supplier's Detail Plan must assure that the process capability (Cpk) goal is 2.0 or greater for key characteristics and is 1.33 or greater for other SPC characteristics.

6. A monthly SPC status report is required by the fifth working day after the reporting period ends. For any process capability Cpk less than 2.0 for key characteristics and less than 1.33 for other characteristics, a cause must be identified and a corrective action plan provided to Medium Caliber Program Management Office.

7. Control chart techniques shall be in accordance with the American National Standards Institute(ANSI) Z1.1, Z1.2 and Z1.3 or a Medium Caliber Program Management Office approved alternate.

8. On a twice-monthly basis, the supplier is required to provide copies of SPC charts for key characteristics to Medium Caliber Program Management Office and to participate in a telephonic discussion of the data.

1.18.4 Management Plan

Elements of the Management Plan should include the following:

1. A title and revision page including signatures of key management personnel
2. Policy and scope
3. Management structure
4. Training program
5. Manufacturing studies and controls
6. Policy for achieving required capabilities
7. Policy for maintaining capability including corrective action
8. SPC methods
9. Supplier requirements
10. Product acceptance with SPC
11. Auditing and reviews
12. Gage error analysis and control.

1.18.5 Detail Plan

Elements of the Detail Plan should include the following:
1. Criteria for selection of characteristics and key components
2. List(s) of controlling characteristics
3. Justification for not utilizing SPC on listed characteristics (critical and major)
4. Implementation schedule
5. Requirements for lower tier suppliers of key components (key components are to be jointly defined by the supplier and Medium Caliber Program Management Office)
6. Product acceptance with SPC techniques.

The plan will identify the characteristics that are controlled key characteristics - those that may not be changed without Medium Caliber Program Management Office’ concurrence. Additional characteristics chosen by the supplier for the application of SPC may be changed without Medium Caliber Program Management Office’ concurrence.

1.18.6 Monthly SPC Report

A monthly report is required that reports the status of each SPC characteristic for that reporting period. This report will be submitted electronically in a mutually agreed upon electronic format.

Elements of the monthly report should include the following:
1. Part number
2. Classification
3. Description
4. Sample size
5. Cp and Cpk, or, UCpk or LCpk for the current reporting period
6. Chart parameters, e.g. x-bar, r-bar, p-bar, s, their limits, etc.
7. Sub-group size and the number of sub-groups for the reporting period.
8. Percentage of points outside limits
9. Comments helpful in understanding how well processes are performing

1.18.7 Flow Down

You must require your suppliers of components with key characteristics to establish an effective SPC program. As a minimum, SPC will be considered for controlling all critical, major, and key characteristics in a manner similar to that described above.

1.18.8 Product Acceptance (SPC)

Medium Caliber Program Management Office may authorize product acceptance based upon SPC for directly or indirectly controlled listed characteristics (excepting critical characteristics which may not be accepted via SPC) provided that the following conditions are demonstrated:

1. Process capability exceeds 2.0 for listed major characteristics having 100% inspection requirements.
2. Minimum process capability for all other characteristics is 1.4.
3. Process is stable, predictable and the operation is in-control.
4. Internal procedures in support of an effective SPC program are well established.
5. The supplier has prepared an SPC Acceptance Plan, which has been reviewed and approved by Medium Caliber Program Management Office. The supplier must submit their plan at least thirty (30) days prior to any delivery in which acceptance via SPC is desired.

1.18.9 Supplier Audits

Medium Caliber Program Management Office will audit and verify the supplier's approved SPC program on a continuing basis. As a minimum, the audit will determine:

1. Conformance to the approved plan
2. Presence of records that document whether or not the process was in control and appropriate actions were taken.
3. Evidence that the data was reviewed by the supplier for conformance to the requirements.

1.19 LAT SAMPLE SELECTION (WHERE BALLISTIC ACCEPTANCE IS REQUIRED)

Ballistics LAT samples shall be selected randomly from completed lots for testing per TDP requirements. Two separate LAT samples shall be selected from each lot and designated as Sample A and Sample B. The sample quantities shall be obtained from the Medium Caliber Program Management Office Program Representative listed on the purchase order. The samples shall be selected as follows and be representative of the entire lot.

Two adjacent samples shall be selected simultaneously from the lot and segregated into Sample A and Sample B. This process should continue until the entire sample quantity, as designated in the purchase order, is selected. The samples may be selected from continuous production as long as the rate of sample selection matches the rate of production so that the entire lot is represented in the sample.

After completion, the samples shall be marked in accordance with paragraph 1.13.4 and shipped in accordance with instructions provided in the purchase order.

Section 2
20mm specific requirements (see detail in purchase order)

2.1 Schedule
2.2 Technical Data Package Listing
2.3 Special Requirements

Section 3
25mm Specific Requirements (see detail in purchase order)

3.1 Schedule
3.2 Technical Data Package Listing
3.3 Special Requirements

Section 4
LW 30 Specific Requirements (see detail in purchase order)

4.1 Schedule
4.2 Technical Data Package Listing
4.3 Special Requirements

Section 5
GAU-8 Specific Requirements (see detail in purchase order)

5.1 Schedule
5.2 Technical Data Package Listing
5.3 Special Requirements

Financial Reporting Requirements

6.1 Bimonthly flash reports (mini EAC)
   - Adjusted hours actuals/ETC
   - Inspection actuals/ETC
   - Support actuals/ETC
   - Materials actuals/ETC
   - Direct expense actuals/ETC
   - Dollar Impact to EAC
   - Risks/opps
   - Action plans to mitigate risks/capture opportunities

6.2 Weekly cash estimates
   - Estimates of intercompany billings

6.3 Monthly OH reviews
   - Applies to MCA OH, Engr OH, General OH, Material OH, and TSC G&A
   - Review of costs incurred
   - Review of ETC/EAC

6.4 Monthly Ops review packages
   - Issues pages

6.5 Quarterly EAC reviews
   - See above data required for flash reports
   - Dollar impact / variance explanations
   - Man Hour Graphs
   - Issues pages
   - Risks/opps

6.6 Basis of above
   - Production schedule
- Inventory tracking
ATTACHMENT 1

**INSPECTION PROCEDURE**

<table>
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<tr>
<th>ITEM</th>
<th>ZONE</th>
<th>CHARACTERISTIC</th>
<th>C/D</th>
<th>SAMPLING</th>
<th>INSPECTION</th>
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</thead>
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Part Name:  
Part Number/Revision:  
Applicable Specification:  

Inspection Description:  
Procedure Revision:  
Approved By/Date:  

SAMPLING  
EQUIP