

Aerojet Quality Note**A04****Rev # Date****0****11/13/08****GENERAL QUALITY REQUIREMENTS (APPLY TO ALL PURCHASE ORDERS)****1. QUALITY MANAGEMENT SYSTEM (QMS)**

The supplier must implement and maintain a quality management system with the obligation to have zero defect objectives, to continually improve delivery, product quality, and quality management system. Supplier must have a documented continuous improvement process.

As a minimum, supplier must be registered to ISO 9001:2000, or certified to AS 9001 or TS 16949. A valid certificate from a registered third party must be present at supplier facility.

Supplier must immediately inform Aerojet of any changes to their quality management system certification status.

Aerojet Purchasing and Quality will evaluate the use of non-certified suppliers on a case-by-case basis. Evaluation will include Aerojet customer requirements, Aerojet audit results, quality performance, product type, alternatives, and the effect of the supplied product on Aerojet part quality, appearance, function, fit, and durability.

The supplier is to obligate his subcontractors to implement and maintain a comparable quality management system with the same zero defect obligations for his parts purchased and/or externally fabricated. Aerojet reserves the right to obtain documented proof from the supplier that they have verified the effectiveness of his subcontractors QMS.

2. INVENTORY MANAGEMENT

If a supplier is controlling/managing the inventory of materials, parts, components, and/or hardware, the supplier is required to maintain inventory, preferably in a MRP system or equivalent. The supplier shall maintain traceability of all materials, parts, components, and/or hardware by lot or heat number. The supplier must report any loss of traceability to Aerojet Procurement immediately.

Inventory reporting is required on a weekly basis and shall be reported to Aerojet Procurement. Potential shortages are to be reported to Aerojet in a timely manner. Supplier shall take a manual inventory of materials, parts, components, and/or hardware in inventory and in WIP on a monthly basis.

3. MATERIAL REVIEW BOARD (MRB) / NON-CONFORMANCE NOTIFICATION

Material Review Board is a panel of technically qualified individuals appointed for the purpose of reviewing, evaluating, and determining (or recommending) disposition of non-conformances to defined engineering requirements. MRB authority for "Rework", "Return to Vendor", and "Scrap" dispositions (or equivalents as approved by Aerojet) is delegated on the purchase order unless the material for the order is supplied by Aerojet. For all other MRB dispositions (such as "Use as is" and "Repair"), and for Aerojet-supplied material, the supplier shall document the nonconformance on an Aerojet Supplier Nonconformance Review (SNR) datasheet ([Form SS40916](#)). The supplier's own nonconformance report may be submitted provided that it addresses the root cause and corrective/preventive action.

The completed form shall be submitted to Aerojet Procurement for Aerojet MRB review and approval.

NONCONFORMING ITEMS SHALL NOT BE SHIPPED UNLESS SPECIFICALLY AUTHORIZED BY THE AEROJET PROCUREMENT REPRESENTATIVE VIA THE AEROJET SNR PROCESS. A copy of the approved SNR shall be included with the shipment and the SNR number shall be referenced on the supplier's Certification of Conformance.

4. NOTICE OF PREVIOUS REJECTION

The supplier's shipping paperwork for material submitted to Aerojet (Redmond) in response to a Return to Vendor (RTV) or Rework disposition on a Supplier's Nonconformance Report (NCR) or Aerojet (Redmond) Supplier Nonconformance Review (SNR) datasheet ([Form SS40916](#)) shall include items 1 and 2 and may include item 3 as required:

1. A statement identifying whether the material was replaced or reworked.

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2. The Supplier's NCR and/or Aerojet's SNR number.
3. If reworked, a description of the rework performed. If material is serialized, add the letter R after the serial number on both the paperwork and the hardware.

5. PURCHASE ORDER SUBCONTRACTING

Purchase order(s) shall not be subcontracted without the written authorization of Aerojet.

6. ADVANCED PRODUCT QUALITY PLANNING (APQP)

Suppliers shall participate in and meet APQP requirements for new parts. The major components of APQP are: a) request for quote, b) product design review, c) quality system review, d) PPAP submission and e) resource review including a production trial run (run-at-rate).

Note: Copies of the Automotive Industry Action Group (AIAG) manuals are the responsibility of the supplier and may be obtained by contacting AIAG at (248) 358-3003, or online at www.aiag.org. Suppliers are responsible for maintaining the latest edition of these documents.

7. ASSOCIATED MATERIALS

1. AIAG (Automotive Industry Action Group), Quality Requirements QS-9000.
2. International Automotive Task Force, Quality Requirements ISO/TS 16949
3. AIAG Production Part Approval Process (PPAP)
4. AIAG Measurement Systems Analysis (MSA)
5. AIAG Quality Systems Assessment (QSA)
6. AIAG Advanced Product Quality Planning and Control Plan (APQP)
7. AIAG Potential Failure Mode and Effects Analysis (FMEA)
8. AIAG Statistical Process Control (SPC)

8. CALIBRATION SYSTEM REQUIREMENTS (Not Applicable to Distributors)

The supplier shall maintain a calibration system that complies with one of the following specifications (or an equivalent): ANSI Z540.1 or ISO/IEC 17025. This provision shall be applicable to all inspection, test and measuring equipment supplied by Aerojet for use by supplier, as well as the supplier's own equipment. All test equipment and gages used for calibration must be traceable to NIST standards.

Gage R&R goal must be less than 10% variation. Gage R&R of >10% variation must be evaluated and an action plan developed to improve the R&R to <10% variation.

9. STATISTICAL PROCESS CONTROL (SPC)

Supplier shall validate the acceptability of the product being manufactured/processed (at supplier's facility or at a sub-tier supplier's facility) on this order using statistical process control (SPC) techniques which meet the intent of the Automotive Industry Action Group (AIAG). AIAG's SPC reference manual may be used as a guideline for developing, implementing, and maintaining a process control system. As a minimum, the supplier shall retain SPC data on all characteristics identified as critical by Aerojet. SPC data being collected must demonstrate that the manufacturing process is capable of maintaining a Cpk of 1.67 or greater. When SPC charts indicate the process is "Out of Control" or the calculated Cpk value is less than 1.67, 100% inspection shall be implemented until the process can demonstrate that it is in Control or the calculated Cpk value is 1.67 or greater.

10. PACKAGING REQUIREMENTS

Packaging shall first conform to all requirements specified on drawings, specifications, and the purchase order. Packaging shall conform secondly to the following:

1. All material shall be wrapped, bagged, and enclosed in cartons, boxes, or other containers to the extent necessary to provide protection from hazards of contamination and physical damage encountered in general handling, shipping and storage.
2. When material consists of several piece parts or is an assembly with external hardware, it shall be packaged together as a set in a unit package. No bulk packaging of piece parts or hardware is acceptable.

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- 3. Material of different part numbers or revision, or items that are re-submittals in response to Return To Vendor disposition on an Aerojet Non-Conformance Report, shall not be mixed in a single container unless they are segregated in properly identified intermediate containers.
- 4. The supplier must ensure identification and traceability of products supplied. Specified identification markings shall be clear and legible and applied to all outside containers as well as to all intermediate containers or wraps, and indicate, as a minimum, the part number, purchase order number, quantity and special handling, as applicable. If the shipment consists of more than one outside container, each container shall be identified relative to the total number of containers, e.g., 1 of 3, 2 of 3, 3 of 3, etc
- 5. Bare metal material having surface protective treatment such as plating, painting, anodizing, conversion coating, etc., shall be wrapped separately in chemically-neutral craft paper or equivalent.
- 6. Handling, protection, or packaging shall not be accomplished using tapes which have glass beads in the tape or on the tape as a separator. This requirement shall be placed in purchase order(s) to your subtier suppliers.

11. TRAINING

The supplier’s employees must be competent and qualified for their job function. The supplier must ensure this through appropriate internal or external training courses. A training record must be available for all employees producing a product or service for Aerojet.

Aerojet has the right to review these records upon request. A request may be made in response to a problem notification and/or reporting of non-conforming materials, parts, or hardware.

12. AEROJET / CUSTOMER SURVEILLANCE AT SUPPLIER'S FACILITY

Aerojet reserves the right to assign representatives, including Aerojet’s customer representatives, on an itinerant or resident basis at supplier's facility or those of lower-tier suppliers for the purpose of verifying all tests and/or inspections performed as a part of the terms and conditions of this purchase order(s). Supplier is required to provide Aerojet representatives with reasonable facilities and equipment and grant access to all operating sites, checkpoints, stores, adjoining areas, and related quality documents required to complete the audit. Appropriate restrictions will be accepted when identified by the supplier in advance of the audit to protect security of company secrets and/or confidentiality.

Aerojet will require the supplier to implement corrective action and/or action plans to improve product or processes based on the audit results, if applicable. Plan must include responsibility and due date for completion. Supplier will report the status of the plan per agreement with Aerojet.

13. RECORD RETENTION

Unless otherwise specified, all records related to the manufacture of delivered products shall be maintained for a *minimum* of five years after purchase order completion. Copies of these records shall be submitted to Aerojet upon request. The seller shall notify Aerojet prior to records disposal. Aerojet retains the right to have records delivered in lieu of disposal.

14. ELECTRONIC SIGNATURES

Electronic signatures and dates on supplier-submitted documentation are acceptable.

Rev	Date	Description of Change	Changed By

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