

# Product Order Quality Requirements Meggitt (Orange County), Inc.

## Reference

QP8-051, Purchase Order Quality Requirements  
QP8-055, Review/Control Supplier Documentation  
PP-401, Quality Assurance Codes  
50-2-351, Exhibit 24, Purchase Order Quality Requirements Matrix

## Quality Assurance Requirements

## Revision Record

Rev.	Date	Description	Approval
V	17 Jun 2013	Complete rewrite to combine supplier requirements for both facilities (MSS-SJC and MSS-NH)	D. Munro
W	12 May 2014	Revised 10 to incorporate additional requirement from AS9102 that defines full or partial FAI. Added 30 "Inspection Sampling Plan" requirement.	G. Gonzalez
Y	27 May 2014	Revised form header description to "Product Order Quality Requirements to match description. Revised Q01 to delete reference to ISO 9001 requirement. Revised Q28 to clarify MSDS requirement.	G. Gonzalez
AA	10 Jul 2015	Added Q32 "Material Preservation" requirement to specify storing and packaging of parts to protect product and/or material from damage and deterioration.	G. Gonzalez
AB	15 Sep 2015	Revised requirements of Q04 "Nadcap Accreditation;" Revised Section 18 "Fabricated Items" to align with customer requirements; Revised Q32 "Material Preservation" for clarification.	G. Gonzalez
AC	17 Oct 2016	Update Clause 29 to clarify Counterfeit Part Prevention Program requirements. Add Clause Q33 regarding Subtier Suppliers requirements in relationship to the GIDEP program. Added Clause Q34 related to EU Compliance.	G. Gonzalez
AD	18 Nov 2016	Revised Para. 3.3.3, Q06, Q16 to add "NOTE: Each new lot or batch number under one shipment must be itemized and the item segregated/identified according to the respective lot or batch number". Add Clause Q35 regarding Key Characteristics requirements in relationship to the requirements of AS9103 and AS13003.	G. Gonzalez

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# Quality Assurance Requirements

## GENERAL REQUIREMENTS

### 1. PURPOSE

This document describes the general and special product assurance requirements. The requirements specified herein will be used by Meggitt Sensing Systems and will be included on the Purchase Order, Contract or other formal agreement (hereafter referred to as the Contract) between a Supplier and Meggitt Sensing Systems.

The purpose of this document is to clearly define for each purchase of products or services, all of the necessary and applicable technical and quality requirements with which the Supplier must comply to meet the requirements of Meggitt Sensing Systems, its customers and/or regulatory authorities. For the purpose of this document, the term "(Meggitt Sensing Systems) **MSS OC**" means the division which has entered into a Contract with the Supplier.

### 2. APPLICATION

Unless expressly excluded by the Contract, GENERAL REQUIREMENTS, which includes Sections 1, 2 & 3 herein applies to all Contracts.

The clauses listed in Section 4. apply only when the specific clause number is included on the Contract. Contract requirements are subject to on-site verification by, representatives of, its customers and/or regulatory authorities, or, MSS OC may request the Supplier to provide objective evidence of compliance with all Contract requirements.

## 3. SUPPLIER RESPONSIBILITIES

### 3.1 Prohibited Practices

The following acts and practices are prohibited, unless approved by MSS OC in writing. Any violation by the Supplier may result in disqualification of the Supplier for future business with MSS OC. In addition, the Supplier shall invoke (flow-down) the requirements of sections 3.1.1 through 3.1.5 to all of the Supplier's sub-tier sources performing work for the Supplier that is scheduled for delivery to MSS OC on the Contract.

#### 3.1.1 Unauthorized Facility Changes

During performance on the Contract, the Supplier shall give MSS OC written notice before relocating any production, inspection or processing facilities; or, transferring work between different facilities; or, when applicable, prior to initiating any changes in the source of major components procured by the Supplier and designated for use in or for installation on products scheduled for delivery to MSS OC; or, making any other changes which may affect product quality, reliability or integrity. Such changes are subject to approval/disapproval by MSS OC. A change in ownership or a change in the individual designated as the management representative with respect to the Suppliers Quality/Inspection System shall be construed as a facility change and requires the Supplier to notify MSS OC.

#### 3.1.2 Unauthorized Product Repairs & Salvage

The Supplier may not perform any repairs such as welding, brazing, soldering, plugging, peening, bushing, or use of paints, adhesives or plating, or use any standard or other repair practice or method, on products damaged or found to be discrepant during fabrication or processing, or, on defects in castings or forgings, unless such repairs are specifically permitted by the applicable drawing or specification, or are specifically authorized by MSS OC in writing for each occurrence. Unless specifically authorized by MSS OC, this prohibition also applies to reworking products by removing plating (stripping) and re-plating. In those cases, where Meggitt Sensing Systems authorized product repair, salvage or stripping has been accomplished, the Supplier shall include on the packing list/shipper or on a separate attached document a list of the products that have been subjected to such MSS OC approved repair, salvage or stripping, and the method used.

#### 3.1.3 Unauthorized Product Changes or Substitutions

The Supplier may not make any changes or substitutions to any products or services required by the Contract, drawing, specification, standard, or other applicable document without prior written authorization by MSS OC. Authorization may be contingent on MSS OC conducting an on-site review of the proposed product or service changes at the Supplier's facilities, or the facilities of the Supplier's sub-tier sources.

#### 3.1.4 Use of Non-Conventional Manufacturing Methods

Unless required by the drawing, specification, or Contract, the Supplier may not use Electrical Discharge Machining (EDM), Electro Chemical Machining (ECM), laser or abrasive water jet cutting or drilling, flame spray coatings, or any other non-conventional manufacturing method or process on products scheduled for delivery to MSS OC without prior written authorization by MSS OC. This prohibition also applies to the use of such processes by the Supplier's sub-tier sources.

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Authorization by MSS OC may be contingent on MSS OC conducting a review and approving the method, facilities, equipment and qualified personnel at the Supplier's facilities or the facilities of the Supplier's sub-tier sources that will perform the operation or process. In addition, when authorized, such operations and processes may only be performed by MSS OC approved sources.

### 3.1.5 Altering Data on Documents

The use of any method that causes the original data on documents to be obliterated and unreadable (i.e. the use of correction fluids, correction tape, write-over, or other methods) to correct, modify or otherwise alter the data and/or entries on any certifications, test reports or other documents required by the Contract, is strictly prohibited. Corrections may be made on inspection reports such as 1<sup>st</sup> Article Inspection reports (FAI), providing it is clearly obvious that a correction was made and it is signed (initialed) or stamped by an authorized individual. Upon receipt at MSS OC, products or services represented by documents that show evidence that they have been corrected or altered in an unauthorized manner are subject to return to the Supplier at Supplier's expense.

## 3.2 Contract Changes & Their Effectivity

### 3.2.1 MSS OC Initiated Changes

The Supplier shall incorporate, at the specified and agreed upon effectivity points, all changes initiated by MSS OC and communicated to the Supplier through a formal Contract change and/or amendment. Such changes may be in the form of revised drawings, specifications, tests, inspection or fabrication methods, etc., and may apply to products as well as to the Supplier's management and administrative systems. The Supplier's business management system shall include appropriate controls and records, including controls at the Supplier's sub-tier sources, which provide objective evidence that changes were incorporated as required by the Contract. Objective evidence may be in the form of date, lot, serial number, revision letter, or other positive identification. Such records are subject to on-site verification by MSS OC at the Supplier's facilities or the facilities of the Supplier's sub-tier sources.

### 3.2.2 Supplier Initiated Changes

The Supplier may not make any changes in product design, drawings, performance specifications, materials or processes that will result in a Class I change (as defined by MIL-STD-973) without specific approval by MSS OC in writing prior to making such changes in products or data. When applicable, the Supplier shall flow-down this requirement to the Supplier's sub-tier sources. The Supplier may make changes on products under Supplier's proprietary engineering design control that result in a Class II change (as defined by MIL-STD-973). The Supplier shall furnish a copy of the Class II change to MSS OC prior to the initial delivery of the (changed) products, so that MSS OC can verify that the change does not violate the above requirements.

## 3.3 Certifications

### 3.3.1 Delivery Certification

By delivering products or services to MSS OC required by the Contract, the Supplier certifies that such products or services are in compliance with all applicable requirements of the Contract, and objective evidence of compliance is available and will be furnished to MSS OC for review upon request.

### 3.3.2 Certification Requirements

The Supplier shall furnish with the initial delivery of products and/or services on the Contract, all certifications, test reports and other documents (hereafter certifications), issued by the Supplier or by the Supplier's sub-tier sources that are required by the specific Clauses listed on the Contract. The Supplier is responsible to ensure that all certifications furnished by the Supplier, or by the Supplier's sub-tier sources, are complete, legible and reproducible, accurate and in compliance with all Contract requirements. MSS OC reserves the right to return all products to the Supplier at Supplier's expense when the certifications that support the products and/or services are not properly executed. When the Contract includes provisions for incremental deliveries by the Supplier, after the initial delivery of products/services and required certifications, the Supplier may, on subsequent deliveries, either provide additional copies of the certifications, or note on the packing list/shipper and the Certificate of Conformance (CoC), the date when the original certifications applicable to the current delivery were initially furnished to MSS OC.



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### 3.3.3 Certification Language & Content

All certifications shall be in the English language and as a minimum include the following information and data:

- a. name of the issuing organization (Supplier and/or Supplier's sub-tier source)
- b. part number and revision. Unless specified by Contract, revision status is not required for off-the-shelf electronic components, catalog items and/or standard parts
- c. quantity processed and/or delivered
- d. lot or batch number (when applicable) – **NOTE:** Each new lot or batch number under one shipment must be itemized and the item segregated/identified according to the respective lot or batch number
- e. MSS OC Contract number, and if applicable the Line Item & Release Number
- f. title and signature that meets the requirements of 3.3.4, of the authorized official of the issuing organization.
- g. certifications issued by Supplier's sub-tier sources shall include information and data required by (a), (b), (c), (d), and (f) above
- h. Suppliers that are required to furnish certification(s) to MSS OC that were issued by their Sub-tier source shall reference the certification(s) on their shipping documents, Certificates of Conformance (Q06) or (12).

### 3.3.4 Acceptable & Authorized Signatures

All certifications and test reports shall include the title and acceptable signature of the authorizing company official. The following methods are the only MSS OC approved and acceptable methods for applying signatures to Certifications:

- (a) actual signatures rendered in ink by the signing official;
- (b) facsimiles of actual signatures such as rubber stamps
- (c) The title of the authorizing company official may be in a printed or hand written format. When quality or inspection stamps are used in lieu of actual signatures, such stamps shall clearly identify the issuing organization and the authorized individual to whom the stamp is assigned. The issue, use and control of such stamps shall be governed by documented procedures in the Supplier's Quality Management System.

## 3.4 Nonconforming Products & Material Review

### 3.4.1 Identification, Segregation & Control

Any products found to be nonconforming to MSS OC drawings, specifications, Contract, or other applicable requirement either by the Supplier or the Supplier's sub-tier sources, shall be identified, segregated and reworked or replaced with conforming products prior to delivery to MSS OC. MSS OC reserves the right to reject and return any nonconforming products to the Supplier at the Supplier's expense.

### 3.4.2 Supplier Material Review Authority

All nonconforming material shall be submitted to MSS OC for disposition in accordance with 3.4.3.

### 3.4.3 Submittal to MSS OC MRB for Disposition

Unless otherwise specified in the Contract, in order for the Supplier to submit nonconforming products to MSS OC Material Review Board (MRB) for disposition, the Supplier shall document all nonconforming conditions in accordance with the requirements of AS/EN/SJAC9131 and submit a request for deviation to the MSS OC Buyer (Supplier Discrepancy Action Request (SDAR) Form No. 50-2-352. MSS OC MRB will not accept for review and disposition any products that can be reworked to meet drawing or specification requirements, or, are obviously scrap. After review and disposition by MSS OC MRB, a copy of the form describing the MRB disposition will be returned to the Supplier. One reproducible copy of the approved SDAR must accompany each shipment as applicable and noted on the shipping document and Certificate of Conformance. A 'use-as-is' or 'repair' (salvage) disposition by MRB does not relieve the Supplier of the legal responsibility and liability for such products.

### 3.4.4 Supplier Notification of Nonconforming Products Delivered to MSS OC

When the Supplier has determined that nonconforming product(s) have been delivered to MSS OC, the Supplier shall notify the MSS OC Buyer within twenty-four (24) hours of the initial discovery. The Supplier shall use receipt acknowledged e-mail or other positive notification method. The notification shall include the following information:

- a. Supplier name
- b. MSS OC Contract number
- c. part number and description
- d. affected quantity and serial numbers (if known)
- e. dates delivered (if known)
- f. brief description of the nonconforming condition

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### 3.4.5 Re-Submittal of Products Previously Rejected by MSS OC

Products returned to the Supplier by MSS OC and re-worked or replaced by the Supplier and re-submitted to MSS OC shall be clearly identified as re-submitted products. The Supplier's packing list/shipper shall include a statement that the products delivered are:

- a. replacement, or
- b. reworked to meet all applicable requirements, and
- c. includes reference to the MSS OC rejection (QN) Quality Notification document number.

### 3.5 Document Sources

Copies of MSS OC proprietary documents, or MSS OC customer proprietary documents, required by the Supplier to comply with Contract requirements will be furnished to the Supplier by MSS OC with the Contract. Copies of Industry, National, International or US Government documents and Standards are generally available on the internet or from commercial sources. The Supplier is responsible for obtaining such documents, including current revision of such documents. Any problems experienced by the Supplier in obtaining required documents should be brought to attention of the MSS OC Buyer.

## 4. QUALITY ASSURANCE PURCHASE ORDER CLAUSES

### QUALITY SYSTEM

1. **Conformance to Quality Requirements.** The supplier shall provide, document and maintain a Product Assurance Program that assures compliance to the Purchase Order Requirements. During the performance of this order the supplier's quality/inspection manufacturing, calibration systems and records are subject to review and verification.

#### Q01 **Quality System Requirements**

The supplier shall establish and maintain a quality system that conforms to the requirements of AS9100.

2. **Conformance to Quality (AS9100 or ISO9001).** The supplier must provide, document and maintain a registered quality system that complies with ISO9001 or AS9100.

- #### Q02 **Supplier's Quality Plan.**
- The supplier shall submit to MSS OC a quality plan describing the production flow, special processes, inspections and test points used in the manufacture of the items described on the PO. The supplier's plan is subject to audit by MSS OC and shall not be changed without approval of MSS OC.

3. **Distributor Inspection Requirements.** Any distributor supplying material to MSS OC shall have a system to assure that the acceptance status and inspection integrity of the manufacturer is maintained and passed on to MSS OC. Any inspection performed by the distributor shall be performed by qualified inspection personnel. The distributor's system must provide for traceability of material back to the manufacturer.

- #### Q03 **Control of inspection Equipment.**
- The supplier shall establish and maintain a calibration system that conforms to the requirements of ANSI/NCSL Z540 or ISO 10012.

4. **Calibration System Requirements (ANSI/NCSL Z-540-1, ISO 10012-1, ISO/IEC 17025).** The supplier must maintain a calibration system in accordance with ANSI/NCSL Z-540-1, ISO 10012-1, and ISO/IEC 17025. Calibration System Requirements are to be traceable to N.I.S.T.

- #### Q04 **Nadcap Accreditation.**
- Special processes shall only be performed by sources that are accredited and approved by the National Aerospace and Defense Contractors Accreditation Program (NADCAP). This requirement applies whether the process is performed by the Supplier or by the Supplier's sub-

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tier sources. Use of sources not accredited by NADCAP shall result in return of product to the Supplier at the Supplier's expense. Processes required to be performed by NADCAP Accredited sources include: Brazing, Chemical Processing, Coatings, Heat Treating, Materials Testing, Nonconventional Machining, Non-destructive Testing, Shot Peening, and Welding.

### **INSPECTION REQUIREMENTS**

5. **Source Inspection (Mechanical/Visual Inspection/Test)**. Items specified by the purchase order are subject to inspection at the supplier's facility by MSS OC Quality Assurance prior to shipment. To permit scheduling of source inspection, the supplier shall provide no less than forty-eight (48) hours advance notice to MSS OC Purchasing.
- Q05 **Workmanship**. Electronic materials and workmanship shall comply with the requirements of J-STD-001 and IPC-A-610.
6. **Source Inspection - Government**. The supplies on this purchase order are subject to Government inspection at point of manufacture. Evidence of Government inspection must be shown on all shipping documents.
- Q06 **Certificate of Compliance**. The items or services being shipped or being performed against this order must be accompanied by a Certificate of Compliance that assures full conformity with quality requirements, applicable drawings, specifications, and terms and conditions of this order. When Q13 is a requirement, a copy of the special process sub-tier supplier's certification is to be included in addition to the overall certification. **NOTE:** Each new lot or batch number under one shipment must be itemized and the item segregated/identified according to the respective lot or batch number.
7. **Request for Deviation**. Deviations from drawings, specifications and/or procurement requirements must be submitted to MSS OC (Purchasing) for deviation consideration on an MSS OC Supplier Discrepancy Action Request (SDAR) Form No. 50-2-352. Deviation must be approved by MSS OC prior to shipment, unless otherwise directed by MSS OC Purchasing. One reproducible copy of the approved SDAR must accompany each shipment.
- Q07 **Physical and Chemical Analysis**. Physical and/or Chemical Analysis Report to be supplied with each shipment
8. **Hazardous Material**. Supplier is required to submit "Material Safety Data Sheets" with each shipment.
- Q08 **Inspection Evidence**. The Supplier shall maintain evidence of final inspection of material for a period of 10 years minimum or as directed by MSS OC.
9. **Identification of Age Controlled Items**. Supplier shall identify each item, package, container or material, detail part, or assembly having limited shelf life with cure date or date of manufacture, expiration date, storage temperature, humidity and special handling conditions in addition to normal identification requirement. Material shall not be supplied having less than two-thirds of shelf life still available to MSS OC, except with written approval of the buyer.
- Q09 **Inspection/Test Data**. A copy of Inspection and/or Test Data shall be supplied with each shipment identifiable to the serial numbers and/or date code of items supplied.

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10. **First Article Report per AS9102.** First article inspection per AS9102 is required by the supplier on initial shipment of production orders to assure compliance to the applicable engineering drawings and specifications. Copies of the completed First Article Reports shall accompany the initial shipment of production orders and any subsequent product with Supplemental First Article Reports requirements. First Article Reports shall be inspected and accepted by MSS OC Quality upon receipt. MSS OC Quality may at its discretion, complete further First Article Inspection of supplied product at Receiving Inspection or, via a Source Inspection Process when noted on the Purchase Order. The Supplier shall perform a full First Article Inspection (FAI), or a partial FAI for affected characteristics, when any of the following events occurs:
- 1) A change in the design affecting fit, form or function of the part
  - 2) A change in the manufacturing source(s), process(es), inspection method(s), location of manufacture, tooling or materials, than can potentially affect fit, form or function
  - 3) A change in numerical control program or translation to another media that can potentially affect fit, form or function
  - 4) A natural or man-made event, which may adversely affect the manufacturing process
  - 5) A lapse in production for two years or as specified by the Customer
- Q10 **First Article Inspection.** The Supplier shall perform a First Article Inspection (FAI) in accordance with the requirements of the current revision of SAE AS9102. The FAIR data package shall include a ballooned drawing and completed AS9102 forms. Excess products, remaining from a previous production lot, may not be used to fulfill the FAIR requirements. The Supplier shall furnish a copy of the completed FAIR results with the FAI part identified. When authorized by the Contract, the First Article product may be included as part of the initial quantity delivered on the Contract and included as part of the total Contract order quantity. In such cases, failure of the First Article product to meet Contract specified requirements may result in rejection and return of the delivered production quantity to the Supplier at the Supplier's expense.
11. **Chemical and Physical Test Report.** Each shipment must be accompanied by one (1) legible and reproducible copy of all chemical and physical report identified with materials submitted. This report must contain the signature and title of the authorized representative of the agency performing the test and must assure conformance to specification requirements. The report must reflect the MSS OC purchase order number.
- Q11 **Non-Destructive Test Reports.** Reports of all special processes and inspection methods, such as welding, heat treating, brazing, plating, x-ray, magnetic particle inspection, fluorescent penetrant inspection, etc. demonstrating compliance with all applicable specifications and notes referenced on the drawing and/or purchase order shall be supplied with the material.
12. **Certification of Compliance.** Each shipment must be accompanied by a signed copy of a certification stating that the items were produced in accordance with specifications and drawings stated on the purchase order. The specifications must be listed, including the specification revision letter(s) or revision number(s).
- Q12 **QPL Requirement.** The MIL, AS and MS parts supplied against this order shall be manufactured by QPL sources.
13. **Final Test Reports.** When required by P.O. or drawing, each shipment must be accompanied by one (1) legible and reproducible copy of report of actual results of final testing for the products shipped. This report must contain the signature and title of the authorized representative of the agency performing the test and must assure conformance to specified requirements.

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- Q13 **Special Processing.** (a) All Special Processing and/or Non-Destructive Testing, such as Welding, Heat Treating, Brazing, Plating, Painting, Magnetic Particle Inspection, Fluorescent Penetrant Inspection, Radiographic Inspection, etc. shall be performed by MSS OC approved sources.
14. **Calibration Certification.** Included on the Certificate of Calibration shall be a description of the "As Received" out of tolerance condition of the equipment.
- Q14 **Printed Wiring Boards/Assemblies Identification.** All printed wiring boards/assemblies shall be marked with the manufacturer's trademark and date code. Printed wiring assemblies shall be serialized; method of serialization is optional.
15. **Process Certification.** Each shipment must be accompanied by a copy of a certification for processes covered by specification such as, but not limited to heat treating, welding, magnetic particle inspection, penetrant inspection, ultrasonic inspection, surface preparation or treatment, etc., stating that the processing was performed to specification requirements. The certification shall list applicable specifications, drawing number, including revision letter(s) or number(s) which the processes comply, and the name of the agency that performed them if other than the Seller, the date, and the signature of a responsible representative of the Seller; when parts are serialized, serial numbers must appear on the certification. All certifications must reflect the MSS OC purchase order number.
- Q15 **JAN Semiconductor Devices.** All JAN devices shall meet the requirements of MIL-PRF-19500. A Certificate of Traceability shall accompany each device shipment. The document shall include the information specified in MIL-PRF-19500 Para 3.7(a) or 3.7(b) as applicable.
16. **Nondestructive Test Reports.** Each shipment shall be accompanied by two (2) legible and reproducible copies of actual nondestructive test results identifiable with acceptance requirements and material submitted. These reports must contain the signature and title of the authorized representative of the agency performing the inspection and must assure conformance to specified requirements.
- Q16 **Traceability.** Items supplied on this order shall be identified and traceable to their origin; i.e., manufacturer, manufacturing date, date purchased, lot, inspection, test data or other pertinent information relating to control of processes. **NOTE:** Each new lot or batch number under one shipment must be itemized and the item segregated/identified according to the respective lot or batch number.
17. **Fabricated Items**
- Traceability to Raw Materials.** All items fabricated under this purchase order must be traceable to raw materials used.
- 1) Raw materials used must be identified by lot number, as well as material type, specification, heat number, etc., and must be traceable to records of acceptance.
  - 2) All records must be maintained on file by the supplier for a minimum of five years. Supplier shall notify MSS OC prior to the destruction of records.
- Q17 **Age Control.** Manufacturing date, shelf life and/or expiration date required. Material received, with more than 20% of its shelf life expired, shall be rejected.

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### 18. **Fabricated Items**

**Certification of Raw Materials.** All items fabricated under this purchase order must be traceable to raw materials used.

- 1) Raw materials used must be identified by lot number, as well as material type, specification, heat number, etc., and must be traceable to records of acceptance.
- 2) All records must be submitted with each shipment.
- 3) All records must reflect MSS OC purchase order number.
- 4) Raw Materials used must be periodically validated by Seller or other independent party through periodic, scheduled tests of raw material samples. Frequency of tests will be established by Seller based on historical performance of the raw material supplier.

Q18 **Static Sensitive Material.** All integrated circuits and/or electrostatic sensitive devices must be delivered enclosed in electrostatic shielded tubes, sleeves, or other suitable protective materials. External packaging shall also have caution labels or marking indicating the contents contain electrostatic sensitive devices.

19. **Radiographic Inspection.** Each shipment must be accompanied by the applicable film and one (1) legible and reproducible copy of the actual test results identifying and cross referencing each film exposure to each item. Personnel performing film interpretation must be certified in accordance with the specified specification.

Q19 **Customer Furnished Material.** The supplier prior to use must inspect MSS OC or Government furnished material. When deficient material is found, the MSS OC Buyer will be immediately notified. MSS OC will provide written instructions for disposition of the material

20. **Anti-static Packaging.** Electro-static sensitive material must be packaged in an anti-static container clearly marked "Static-Sensitive".

Q20 **Configuration Control Requirements.** To assure uniform quality and material configuration, no changes in materials, construction, source or performance shall be made for the item(s) covered by this order without prior approval from MSS OC. The supplier is expressly prohibited from supplying nonconforming material to MSS OC without advance approval. Material Review Board review and disposition of nonconforming material shall be the sole responsibility of MSS OC.

### 21. **Printed Circuit Boards Requirement.**

- 1) **PCB Shelf Life.** PCB shelf life shall be established as one (1) year from date of manufacture. Boards that are more than one (1) year old will be considered as unacceptable by MSS OC and will be returned to the supplier at supplier expense.
- 2) Test results to be submitted with each shipment.
- 3) Each shipment of PCB shall meet the requirements of MIL-P-55110, as applicable.

Q21 **Government Source Inspection.** Government source inspection is required prior to shipment. Upon receipt of this order, the supplier will promptly notify the cognizant government representatives so that appropriate planning for government source inspection can be accomplished.

## Quality Assurance Requirements

22. **Part Identification Requirements.** Supplier shall assure that all items are permanently and legibly identified. Identification requirements may include any or all of the following, as specified by MSS OC and/or supplier documents: a) Part number and revision level, b) Manufacturer's identification, c) Lot or date code, d) Serial number, and e) Quantity. Items too small to be individually marked shall be packaged in suitable containers identified with the requirements stated above (i.e., electronic components).
- Q22 **MSS OC Source Inspection.** MSS OC Source Inspection is required prior to shipment. The supplier shall provide sufficient advance notice to MSS OC to permit timely scheduling of Source Inspection.
23. **Mercury Contamination.** Material furnished under this order shall be free from contamination by presence of mercury. A Mercury Contamination Certificate of Conformance, MSS OC Form No. 50-2-456, must accompany each shipment of hardware under this order.
24. **Boeing AS9100 Advanced Quality System Requirements (AQS).** Suppliers of this purchase order must comply with the following AQS Requirements:
- 1) Identify key characteristics if not MSS OC supplied.
  - 2) Provide variable charting of key characteristics.
  - 3) Maintain minimum capability of 1.33 Cpk.
  - 4) Freeze SPC chart control limits once 1.33 or greater Cpk is achieved.
  - 5) Submit control charts with each part delivery.
  - 6) Initiate corrective action if chart points become out of control or Cpk is less than 1.33.
- Q24 **Dock to Stock.** The supplier is authorized to ship directly to MSS OC stock. MSS OC reserves the right of revocation and the right to review and evaluate the supplier's processes and procedures. Only MSS OC authorized representatives of the supplier shall release material for shipment in accordance with the approved authorized release agreement.
25. **Boeing D1-4426 Approved Special Process Suppliers Required.** Special process, such as but not limited to soldering, radiography, welding, heat treating, cleaning, electroplating, anodizing, chemical films, and nondestructive testing, must be performed by Boeing approved suppliers which are approved for the specific process being performed. Note that special processes are limited to those included in the specification index. Each shipment shall be accompanied by a process certification. The certificate shall identify the items processed, the MSS OC purchase order number, and the applicable specifications (including revision letters or numbers) to which the process conforms and the date and the name of the agency that performed the process if other than the seller. A list of D1-4426 Boeing Approved Suppliers can be obtained on their website: <http://www.boeing.com>.
- Q25 **Workmanship.** Electronic materials and workmanship shall comply with IPC-A-610, Class 2, current revision.
26. **Right of Access to MSS OC, their Customer's and/or Regulatory Authorities:** General Purchase Order Provisions - Buyer shall have the right to enter Seller's premises at all reasonable times to inspect its property and Seller's records to source product and/or audit Supplier's Quality System. Right of entry to allow MSS OC, its Customers, and its Customer's Regulatory Agencies to verify quality of product, service, process, and all applicable records at Supplier's Facility.
- Q26 **Workmanship.** Electronic materials and workmanship shall comply with IPC-A-610, Class 3, current revision.

## Quality Assurance Requirements

27. **Supplier Notification Requirements:** The seller shall notify the MSS OC Purchasing Department of any proposed changes in fabrication, materials, methods, processes or component part suppliers previously approved by MSS OC. The seller is required to obtain documented approval from MSS OC before incorporating the changes in materials, fabrication, methods processed or product operating characteristics prior to product delivery to MSS OC. The seller shall notify MSS OC Purchasing Department of changes of manufacturing facility location and, where required, obtain organization approval.
- Q27 **FAA/EASA Documentation.** An original FAA/EASA authorized release certificate approval is required to accompany each shipment.
28. **Foreign Object Debris/ Damage (FOD) Prevention:** This provision has general applicability to all direct suppliers and their subcontract suppliers that provide product to MSS OC Whenever and/or wherever FOD entrapment or foreign objects can migrate, Seller shall ensure that applicable FOD prevention programs are in place and comply with American National Standard NAS-412. By delivering items to Buyer, Seller shall be deemed to have certified to Buyer that such items are free from any foreign materials that could result in FOD.
- Q28 **MSDS Requirement:** The current MSDS for material supplied is required for each shipment of Hazardous Material as classified by the Toxic Substances Control Act (TSCA) chemical substance inventory.
29. **Counterfeit Part Prevention:** This provision has general applicability to all direct suppliers and their sub-tier-suppliers that provide product to MSS OC. Seller shall only purchase products to be delivered or incorporated as Work to MSS OC directly from the Original Component Manufacturer (OCM)/Original Equipment Manufacturer (OEM), or through an MSS OC OCM/OEM authorized distributor chain. Work shall not be acquired or subcontracted to any independent distributors or brokers unless approved in advance in writing by MSS OC. Work consists of those parts delivered under this Contract that are the lowest level of separately identifiable items (e.g., articles, components, goods, and assemblies.) SAE AS5553 provides guidance for Counterfeit Avoidance, Detection, and Mitigation. Each shipment shall be accompanied by a reproducible copy of an actual OCM/OEM material certification and acquisition supply chain traceability consisting of such supplier name and location of all supply chain intermediaries from the parts manufacturer to the direct source of the work. Supplier shall identify the name and location of all of the supply chain intermediaries from the part manufacturer to the direct source of the Work. Traceability documentation shall be submitted with each shipment.
- Q29 **Certificate of Origin:** Each shipment is to be accompanied by a document which declares the country of origin on forms acceptable to the originating country's regulations.
- 30 **Inspection Sampling Plan:** Sampling procedures employed by the supplier shall be in compliance with ANSI/ASQ Z1.9, or ANSI/ASQ Z1.4 (latest revision or as specified by contract/drawing). NOTE: Sampling is not allowed on Boeing programs or parts unless the supplier is Boeing approved to D1-8007.
- Q30 **Purchasing Requirements:** Purchasing information shall describe the product to be purchased, including where appropriate the following:
- Requirements for approval of product, procedures, processes and equipment
  - Requirements for qualification of personnel
  - Requirements for design, test, inspection, verification (including production process verification), use of statistical techniques for product acceptance, and related instructions for acceptance by the organization, and as applicable critical items including key characteristics.



## Quality Assurance Requirements

- Requirements for test specimens (e.g. Production method, number, storage conditions) for design approval, inspection/verification, investigation or auditing.
- Requirements regarding the need for the supplier to:
  - Notify the organization of nonconforming product,
  - Obtain organization approval for nonconforming product disposition.
  - Notify the organization of changes in product and/or process, and, where required, obtain organization approval and flow down to the supply chain the applicable requirements including customer requirements.

Q31 **Identification and Revision Status of Specifications:** The current revision of specification(s) called out on the drawing shall be provided by Quality.

Q32 **Material Preservation:** Suppliers and sub-tier suppliers shall store and package parts in accordance with best commercial practice to protect product and/or material from damage and deterioration. NO METAL TO METAL CONTACT IS ALLOWED. Multiple parts shall be adequately segregated or packaged to prevent “Metal To Metal” contact on finished surfaces. In some cases, the Purchase Order will specify the manner in which the parts are to be packaged in addition to this requirement. To prevent corrosion, Supplier and Sub-tier Suppliers shall store and package materials in a manner to prevent corrosion and damage.

Q33 **GIDEP Reporting Requirement:** MSS OC suppliers and sub-tier-suppliers shall as soon as practicable report any known, or suspect, counterfeit electronic part or end item, component, part, or assembly containing electronic parts to the Government Industry Data Exchange Program (GIDEP).

Q34 **EU Compliance – Recast RoHS (2011/65/EU), Recast WEEE (2012/19/EU), and REACH (EC 1907/2006):** Due to legislation by the European Union, any material supplied to MSS OC under a Contract or against a purchase order issued by MSS OC shall be compliant to the regulations listed in this clause unless agreed in writing by an authorized MSS OC Q.A. representative. Supplier shall specify on the Certification of Compliance that the products and/or services are RoHS compliant. It is Supplier's responsibility to maintain compliant with the latest requirements of RoHS, including any changes or updates related thereto. If MSS OC receives any products and/or services that are not RoHS compliant or if MSS OC receives any products and/or services that are RoHS compliant and the accompanied Certification of Compliance does not state that such products and/or services are RoHS compliant, MSS OC shall reject the products and/or services at supplier's expense.

Further information is available at the following link:

<http://ec.europa.eu/environment/waste/index.htm>

Q35 **Key Characteristics:** Key Characteristics (KC's) shall be inspected and monitored per the requirements of AS9103. The measurement system(s) used to monitor KC's shall be validated in accordance with the requirements of AS13003.

Q99 **None Required**

### REFERENCE:

QP8-051,	<b>Purchase Order Quality Requirements</b>
QP8-055,	<b>Review/Control Supplier Documentation</b>
PP-401,	<b>Quality Assurance Codes</b>
50-2-351,	<b>Exhibit 24, Purchase Order Quality Requirements Matrix</b>
Vibro-Meter Inc.	<b>Supplement To Purchase Order Quality Clauses</b>