

**ASTRO-GEO-MARINE, INCORPORATED**

**QUALITY PROCEDURES MANUAL**

**(AGM-7004-101)**

**SUPPLIER QUALITY REQUIREMENTS**

Approval

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President

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## 1.0 Objective

The purpose of this requirement is to assure that suppliers who provide products, processes and services to AGM comply with the requirements specified and/or referenced on the AGM purchase order.

## 2.0 Scope

This procedure applies to all suppliers who provide products, goods and services to AGM. Calibration suppliers must comply with the requirements of ISO/IEC 17025 and ANSI Z540.3 and/or ISO 10012-1 when specified on the AGM purchase order. Distributors must comply with paragraphs 8.3, 8.7, 8.8, 8.16, and 8.19 of this procedure as a minimum.

## 3.0 Reference Documents

The following documents make up a portion of this requirement as specified herein:

**ASQ/ANSI/ISO 9001** Quality Management System

**ANSI/ASQ Z1.4 & Z1.9**

Sampling Procedures and Tables for Inspection by Attributes

**ISO/IEC 17025** and **ANSI Z540.3**

Calibration Labs and Measuring and Test Equipment - General Requirements

**FAR PART 21**

Federal Aviation Regulations - Certification Procedures for Products and Parts

## 4.0 General Requirements

The supplier shall develop, implement and maintain a quality system that is effective and economical and will ensure a product that conforms to the requirements specified herein. Suppliers are required to flow down quality requirements to their suppliers (as needed) to ensure product compliance to AGM purchase orders.

### 4.1 Certificate of Conformance

A legible and reproducible copy of a Certificate of Conformance must

accompany each shipment. The certificate must include the following:

- a. Supplier name and address
- b. AGM PO number, item number and quantity shipped
- c. Part number and/or drawing number with revision if applicable
- d. Referenced drawing note number(s), when applicable
- e. Serial number, lot number or supplier tracking number (when applicable)
- f. Working instructions & revision (when applicable per Q12)
- g. Signature, printed name and title of authorized representative
- h. Date of certification
- i. Statement indicating that all products shipped conform to AGM PO,

drawings, specifications, in effect at time of purchase order and the supplier has records of material conformance and all related inspection and tests

#### **4.2 Mercury**

The use of mercury is prohibited in the manufacture of products or services provided to AGM.

#### **4.3 Workmanship**

All items are to be in good condition, free from nicks, dents, scratches, or other blemishes. Supplier products/services are required to reflect good workmanship standards. Substandard workmanship may be cause for rejection.

#### **5.0 Supplier Rating System**

AGM has developed a rating program that monitors the quality performance of suppliers. This program is based on compliance with purchase order requirements. Failure to comply with purchase order requirements could affect your rating and possibly your approval status.

#### **6.0 Quality Requirement Codes**

The Quality Requirement Codes listed in paragraph 9.0 of this procedure will be referenced as required on the AGM purchase order. These requirements make up a portion of the purchase order and must be complied with. Failure to comply with a quality code could result in rejection of the product or service.

#### **7.0 Facility Survey, Audits, and Source Inspection**

The supplier shall permit AGM, customer and/or Government Quality Assurance personnel access to their facilities when requested. AGM (or their customers) may need access to supplier records/facilities to conduct surveys, or audits to evaluate the supplier's quality system. The supplier shall permit

AGM and customer/Government Quality Assurance Representative (QAR) access to perform on-site product source inspection when necessary to ensure product compliance. Supplier shall make available to AGM or their customers the required specifications, documents, equipment, and personnel necessary to verify product conformance.

## **8.0 Quality System Requirements**

### **8.1 Organization**

The responsibility and authority of all quality personnel who perform, manage or verify work affecting quality shall be clearly identified within the supplier's organization. These personnel shall have sufficient well-defined authority to initiate, recommend or provide solutions to quality problems.

### **8.2 Documentation**

The supplier shall maintain written inspection and testing documentation such as work instructions, procedures, job cards, and travelers for work affecting quality. Criteria for approval and rejection must be clearly defined.

### **8.3 Records**

The supplier shall maintain verifiable objective evidence of inspections and tests performed. These records shall be made available to the buyer upon request, and shall be maintained by the supplier for 10 years.

### **8.4 Document, Drawing and Change Control**

The supplier shall assure that only the latest drawings, documents, and specifications required by the purchase order are used for fabrication, inspection, and testing of products submitted to AGM. Supplier must notify AGM of all changes to supplier parts since last procurement. This excludes catalog/standard parts.

### **8.5 Measuring and Test Equipment**

The supplier shall provide and maintain measuring and test equipment (M&TE) necessary to assure conformance to purchase order requirements. All M&TE shall be calibrated for accuracy at established intervals against standards that have a known valid relationship to the National Institute of Standards and Technology (NIST). If production tooling, jigs or fixtures are used as a media of inspection, this equipment shall also be verified for accuracy at established intervals. All M&TE shall be calibrated in accordance with the requirements specified in ANSI/NCSL Z540-1.

**8.6 Process Controls**

The supplier shall ensure that special processes are performed in accordance with documented procedures. All personnel performing special processes shall be certified and/or trained in the applicable procedures. (Special processes consist of, but are not limited to, plating, non-destructive testing, heat treating, anodizing, etc.)

**8.7 Inspection Status Identification**

The supplier is required to maintain a system for identifying the inspection status of all products. This identification shall be accomplished by the use of tags, stamps, travelers, or other acceptable methods. Inspection stamps, when used, shall not resemble government inspection stamp designs and shall be controlled as necessary to prevent use by unauthorized personnel.

**8.8 Non-Conforming Material**

The supplier shall provide and maintain a system for the identification, segregation and disposition of non-conforming material. The system shall assure that non-conforming material is properly identified to prevent use, shipment and intermingling with conforming supplies. Non-conforming material that cannot be reworked to AGM purchase order requirements and specifications may be submitted to the buyer for MRB consideration. The supplier must obtain buyer approval prior to any shipment of non-conforming material to AGM.

**8.9 Corrective Action**

The supplier shall maintain a system to ensure prompt action to detect and correct conditions that have resulted or could result in the submission of products that do not conform to AGM purchase order requirements. The supplier shall respond to AGM corrective action requests within 14 days when required. This response will describe the actions taken to prevent recurrence of these discrepancies in subsequent shipments of materials, processes, and products.

**8.10 AGM and Government Furnished Material**

The supplier shall maintain procedures for the handling of customer / government furnished material as follows:

- 1.) Examination upon receipt for transit damage.
- 2.) Inspection for completeness and proper type.
- 3.) Periodic inspections and precautions to ensure the prevention of damage, handling, and deterioration during storage.
- 4.) Functional testing, when required by contract, to ensure proper operation.

- 5.) Identification and protection from improper use or disposition.
- 6.) Verification of quantity.

### **8.11 Damaged AGM/Government Furnished Material**

The supplier is required to notify AGM of any AGM/Government-furnished material found to be damaged, malfunctioning, or unsuitable for use. If malfunctioning or damage occurs, you are required to determine the probable cause and the necessity for withholding the material from use.

### **8.12 Qualified Products**

The inclusion of a product on the Qualified Products List (QPL) does not relieve the supplier from the responsibility of furnishing products that meet all purchase order requirements.

### **8.13 Statistical Sampling Inspection**

The supplier may utilize statistical sampling when inspecting AGM products unless 100% inspection is specified on the drawing or purchase order.

Sampling plans shall be derived from ANSI/ASQ Z1.4 or ANSI/ASQ Z1.9. If the supplier chooses to use sampling plans other than those shown, they shall first be submitted to AGM Quality Assurance for review and approval.

### **8.14 Inspection and Testing**

The supplier shall maintain an inspection system that will provide the inspection and tests necessary to assure that products to be supplied to AGM conform to all purchase order requirements. The supplier shall perform the following inspections as required:

- 1.) In-process inspection during processing, fabrication, and assembly.
- 2.) Final inspection and test of completed or end item products.

### **8.15 Receiving Inspection of Purchased Supplies**

The supplier shall inspect purchased supplies upon receipt to determine conformance to purchase order requirements.

### **8.16 Raw Material Verification**

The supplier shall establish and maintain a system to assure continued traceability of raw material throughout all fabrication and assembly operations. Raw material certifications for chemical and physical properties, heat lot, batch number, type, class, etc. shall be available for review upon request.



**8.17 Age Sensitive Material**

The supplier shall establish and maintain a system to ensure that materials which have a limited shelf life are properly stored to prevent damage due to adverse environmental conditions and controlled to the extent necessary to prevent the use of expired materials.

**8.18 Stock Room Control**

The supplier shall maintain an adequate system for the control, issuance and use of materials, parts and assemblies. The first in, first out process shall be used whenever practicable. All products shall be stored in limited access areas.

**8.19 Packaging Handling and Shipping**

The supplier shall provide a system for control of preservation, packaging, and shipping processes to preclude damage or deterioration during In-Process / Final Assembly and in transit. Electrostatic sensitive components shall be handled in accordance with the latest ANSI/ESD S20.20, "Electrostatic Discharge Control Program for the protection of electrical and electronic parts, assemblies and equipment". During fabrication and processing, special carts, boxes, containers and transportation vehicles shall be used as necessary to prevent damage due to handling. When packaging of small parts the use of staples is prohibited. The supplier shall ensure that shipments to AGM contain the necessary packing list and certification as required by the purchase order.

**8.20 Foreign Object Prevention, Detection and Removal**

The supplier shall maintain a FOD (Foreign Object Damage/Debris) control program assuring work is accomplished in a manner preventing foreign objects or material from entering and remaining in deliverable items. Maintenance of the work area and control of tools, parts, and material shall preclude the risk of FOD incidents. The supplier shall document and investigate all FOD incidents assuring elimination of the root cause. AGM shall have the right to perform inspection and/or audits as a method of verification that the supplier's FOD control program is functional, documented, and effective. The supplier shall identify a FOD control person responsible for implementing FOD prevention awareness and training.

**9.0 Quality Requirement Codes**

See AGM Quality Clauses

## **AGM QUALITY CLAUSES**

### **Q-1 Special Process Certification**

Special processes require certification to specifications listed or referenced on the drawing. Certifications must include name of the supplier, process name, specification numbers with revisions, signature of an authorized representative, and lot/heat numbers or serial numbers for traceability (if applicable).

### **Q-2 Certificate of Conformance (C of C)**

Suppliers are required to provide a C of C with each shipment. The C of C requirements are specified in AGM-7004-101, paragraph 4.1.

### **Q-3 Raw Material Certifications**

**A.** Material certifications for all raw materials are required. Certifications must include material name, part number and/or specification number with revision, and lot number (if applicable).

**B.** Material certifications for shelf-life materials are required. Certifications must include part number, lot number date of manufacture and date of expiration. Unless otherwise specified on the PO, all shelf-life materials shall be delivered to AGM with a minimum of 75% shelf life remaining.

### **Q-4 Part Identification**

Products must be identified as specified in this PO. If not specified in the body of the PO, contact AGM for written direction.

### **Q-5 Traceability**

Traceability to raw material of all products, components, and processes are inclusive in this purchase order. Traceability records must be maintained for a minimum of seven years. These records must show compliance to all purchase order, drawing, and specification requirements. In accordance with AS5553 (counterfeit electronic parts; avoidance, detection, mitigation and disposition) only new and authentic materials are to be utilized. Supplier shall maintain a method of item traceability that ensures tracking of the supply chain back to the original manufacturer.

### **Q-6 Quality Program**

Suppliers quality system must be certified as compliant to ISO9001 or AS9100 by a third party registrar, or AGM.

### **Q-7 Source Inspection**

AGM source inspection is required prior to shipment for each delivery against this PO. Contact AGM to arrange for source inspection.

**Q-8 First Article Inspection**

A first article inspection report is required with the delivery against this PO. First articles containing non-conformances will not be accepted without prior MRB approval by AGM. Compliance to requirements shall be verified by performance of a first article inspection. First article inspection reports shall include S/N when applicable, all drawing dimensions, notes, and tolerance range along with actual measurement results, and where physical testing is required, the results of the tests. First Article parts shall be identified as "First Article" by tagging, separately packaging them, or other suitable means. The first article shall be in accordance with AS9102 latest revision.

**Q-9 Acceptance Test Report**

An acceptance test report is required with each delivery against this PO. Test reports containing non-conformances will not be accepted without prior MRB approval by AGM.

**Q-10 Special Requirements**

Special requirements have been identified for this order. Refer to the body of the PO for additional requirements pertaining to this PO.

**Q-11 Special Record Retention Requirements**

All records pertaining to this order are required to be maintained for the duration specified in the body of this PO. If not specified, contact AGM for written direction.

**Q-12 Approval of Work Instructions**

AGM requires the supplier to write work instructions for this order. The work instructions are to be approved by AGM before starting production and/or processing.

**Q-13 Raw Material Test Reports**

Chemical/Physical test reports for all raw materials as specified in this PO are required. Certifications must include material names, specification numbers with revisions, and lot numbers.

**Q-14 Manufacturer Certifications**

Manufacturer certifications for all components are required.

**Q-15 Process Approvals (NADCAP)**

Special processes such as plating are required to be performed by a NADCAP approved supplier.

**Q-16 Source Inspection by Government or AGM Customer**

Government or customer inspection is required prior to shipment for each delivery against this PO. Contact AGM to arrange for source inspection.

**Q-17 Electrical/Electronic Assembly & Soldering Requirements**

**A.** All electrical/electronic assembly and soldering shall conform to the criteria established in IPC-A-610, J-STD-001, current revisions, or any other criteria established in the process standard(s)/specification(s) stated on the AGM Purchase Order and/or on the engineering drawing.

**B.** Technicians performing work on and inspectors engaged in final acceptance of electrical/electronic products for purchase by AGM shall be Certified Application Specialists per IPC-A-610, J-STD-001, current revisions, or certified per any other process standard(s)/specification(s) stated on the AGM Purchase order and/or on the engineering drawing, as applicable.

**C.** Tin/Lead Solder only shall be used in assembly processes associated with product supplied to AGM. All constituent electrical/electronic components (to include printed circuit boards) assembled to product supplied to AGM shall be installed using Tin/Lead solder on the connections even if the component terminations are Lead Free.

**Q-18 Government Priority Rated Contract**

**A.** This PO is for a Government priority rated contract subject to flow-down requirements. Refer to the body of the PO for contract priority rating and flow-down requirements listed or the Government contract number referenced for reviewing contract requirements.

**B.** This PO is subject to the "Buy American Act" per Government requirements. Refer to the body of the PO for the listed FAR/FARS or the Government contract number referenced for reviewing contract requirements.