



## **Supplier Quality Assurance Requirements (SQAR)**

### **Supplier Quality Assurance Manual**

Applies to RAM's External Providers

REV 3/1/2019



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL**  
Applies to RAM's External Providers

**Contents**

Q010 GENERAL REQUIREMENTS CLAUSES.....4

1.0 PURPOSE.....4

2.0 APPLICATION.....4

3.0 SUPPLIER RESPONSIBILITIES.....4

3.1 Supplier Code of Conduct (Ethics and Safety).....4

3.1.1 Code of Conduct and Policy Enforcement.....4

3.1.2 Confidentiality.....4

3.2 Government Rated Contracts.....4

3.3 Anti-Terrorism Policy.....5

3.4 Prohibited Practices.....5

3.4.1 Verbal Instructions.....5

3.4.2 Unauthorized Changes to Facility, Process, Method, etc.....5

3.4.3 Unauthorized Product Repairs & Salvage.....5

3.4.4 Unauthorized Product Changes or Substitutions.....6

3.4.5 Unauthorized Use of Non-Conventional Manufacturing Methods.....6

3.4.6 Unauthorized Use of Glass Beads.....6

3.4.7 Unauthorized Altering of Data on Documents.....6

3.5 Required Practices.....6

3.5.1 Responsibility for Product Conformance.....6

3.5.2 Raw Material Source.....6

3.5.2.1 Counterfeit Raw Material and Electronic Parts: Avoidance, Detection, Mitigation and Disposition.....7

3.5.2.2 Conflict Materials.....7

3.5.2.3 Additional Material Requirements.....7

3.5.2.4 Obsolescence Requirements.....7

3.6 Access to Facilities.....8

3.7 Basic Quality System Requirements.....8

3.8 Inspection and Acceptance.....8

3.9 Flight Safety Critical and Critical to Quality Inspection Requirements.....8

3.10 Supplier Workmanship Guidelines.....9

3.11 Sub-tier Source Selection.....9

3.12 Certification Requirements.....9

3.13 Nonconforming Products & Material Review Authority.....9

3.13.1 Supplier Material Review Authority.....9

3.13.2 Notification, Segregation and Control of Nonconforming Products.....9

3.13.3 Notification of Nonconforming Product Delivered to RAM.....10

3.13.4 Re-submittal of Products Previously Rejected by RAM.....10



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL**  
Applies to RAM's External Providers

3.14 Document Sources .....	10
3.14.1 RAM and/or Customer Drawings .....	10
3.14.2 Industry/MIL/Other Specification Document Revision Status .....	11
3.15 Contract Changes & Their Effectivity.....	11
3.15.1 RAM Initiated Changes .....	11
3.15.2 Supplier Initiated Changes .....	11
3.15.3 Drawing Change Classes .....	11
4.0 ADDITIONAL QUALITY REQUIREMENTS .....	12
4.1 Record Retention.....	12
4.2 Supplier Calibration System.....	12
4.3 Material Handling.....	12
4.4 Foreign Object Debris (FOD).....	13
4.5 Rust Prevention.....	13
4.6 Delivery Window.....	13
4.7 Flight Safety Hardware.....	13
4.8 Special Quality Requirements.....	13
5.0 UNIQUE Q-CODES.....	14
Q020 Adopted Additional Requirements.....	14
Q030 Lot Acceptance.....	14
Q040 Source Inspection.....	14
Q050 Certificate of Conformance (C of C).....	14
Q060 Supplier Furnished Raw Material.....	14
Q070 Raw Stock Specimen Material.....	15
Q080 Ram Furnished Material .....	15
Q090 Special Process Certifications.....	15
Q100 Test Data.....	15
Q110 Raw Material Analysis .....	16
Q120 Supplier Analysis.....	16
(Q130 Calibration – Moved. Applied to all orders Q010 Section 4.2).....	16
Q140 First Article Inspection Report (FAIR).....	16
Q150 Final Inspection Report (FIR).....	16
Q160 Silver-Coated Copper Wire Red Plague Avoidance.....	17
Q200 Domestic Melt Source Required.....	17
APPENDIX A – RAM INSPECTION SAMPLING PLAN.....	18



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL**  
Applies to RAM's External Providers

---

## **Q010 GENERAL REQUIREMENTS CLAUSES**

### **1.0 PURPOSE.**

This document establishes general and special product assurance requirements clauses for use on the Purchase Order and is part of the terms and conditions when referenced on the Purchase Order. The purpose of this document is to clearly define, for each purchase of products or services, the necessary and applicable technical and quality requirements with which the Supplier must comply to meet the requirements of RAM Company, its customers and/or regulatory authorities. For the balance of this document RAM Company shall be referred to as "RAM", the Customer which has entered into a Purchase Order agreement with the External Provider, also known as Suppliers and Sub-tier Suppliers (as applicable).

**Failure to comply with any of the requirements flowed down in the Purchase Order, drawing or the applicable clauses of this document may result in investigations, monetary forfeitures, payment withholds and/or contract termination. All questions about requirements must be understood and resolved before accepting the Purchase Order.**

### **2.0 APPLICATION.**

Unless expressly excluded by the Purchase Order, Q010 which includes sections 1, 2, 3 and 4 herein **applies to all Purchase Orders**. The "Q" codes listed in section 5 apply only when the specific Q-code number is included in the Quality Assurance Requirements section of the Purchase Order.

**The Supplier is responsible to flow down all applicable requirements to any approved Sub-tier source they intend to use in the performance of this Purchase Order.**

### **3.0 SUPPLIER RESPONSIBILITIES.**

#### **3.1 Supplier Code of Conduct (Ethics and Safety)**

Suppliers shall ensure operations are being performed in a manner that is appropriate, as it applies to their ethical, legal, environmental, safety and social responsibilities. This shall include, but is not limited to:

- Compliance with Local Laws and Regulations
- Compliance with Environmental, Health and Safety Laws
- Compliance to Product Safety
- Compliance to Non-Discrimination Laws/Regulations
- Compliance to Labor Laws
- Compliance to Ethical Behavior Standards and Supplier Ethics
- Any other requirements for the fulfillment of this purchase order

##### **3.1.1 Code of Conduct and Policy Enforcement**

This Code of Conduct applies to Suppliers and Sub-tier sources. The Supplier shall flow down these requirements to Sub-tier sources and shall be responsible to monitor and verify compliance.

##### **3.1.2 Confidentiality**

The Supplier shall ensure the confidentiality of RAM and RAM customers products, designs and intellectual property that may be shared as a result of working with RAM. Refer to RAM Non-Disclosure Agreements (NDA) for additional information.

#### **3.2 Government Rated Contracts.**



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL  
Applies to RAM's External Providers**

---

Rated orders are identified in the Purchase Order by a priority rating such as DX, DO, etc. This requirement also applies if the drawing or Purchase Order notes identify it as a government contract. When a rated program applies, **United States International Traffic in Arms Regulations (ITAR)** also apply. When the technical data provided by RAM is flagged with an "ITAR Requirements Apply" identifier, the Supplier agrees that all technical data provided to Supplier by RAM will be used in strict compliance with the ITAR requirements and solely for the performance of the work per the Purchase Order. The Supplier agrees to implement procedures for restricting access to the technical data to **U.S. Nationals only**. If during the performance of the work, the Supplier is required to provide such technical data or part to a Sub-tier source, the Supplier may do so provided that such Sub-tier source is also located in the United States and further provided that the Supplier has imposed upon the Sub-tier source the same ITAR obligation/restrictions as contained herein. Upon completion of the work hereunder, including any warranty period, the Supplier and all Sub-tier source(s) involved shall return all technical data to RAM.

### **3.3 Anti-Terrorism Policy.**

The Supplier agrees to comply with the executive order 13224 – blocking property and prohibiting transactions with persons who commit, or support terrorism notice of September 24, 2001 – and further agrees to include this statement in each lower-tier contract or purchase order issued hereunder.

### **3.4 Prohibited Practices.**

The following acts and practices are prohibited, unless approved by RAM in writing. Any violation by the Supplier may result in the return of product and/or disapproval of the Supplier for future business with RAM. In addition, the Supplier shall flow-down the requirements of section 1 thru 4 to all the Supplier's approved Sub-tier sources performing work for the Supplier that is scheduled for delivery to RAM on the Purchase Order.

#### **3.4.1 Verbal Instructions.**

The Supplier's quality management system shall be structured such that it does not allow verbal agreements or instructions as authorization or approval to proceed (e.g. on items that affect quality, fit, form or function). Any changes to purchase order agreements or drawing requirements must be requested in writing and approval communicated back in writing in the form of a modified PO change(s) in writing, or a signed drawing change before acceptance.

#### **3.4.2 Unauthorized Changes to Facility, Process, Method, etc.**

The use of Supplier Sub-tier sources must be approved by RAM before their use and the Sub-tier source selected shall be Nadcap certified.

Once the first article is produced by the Supplier, the Supplier shall notify RAM in writing at least 90 days in advance of any of the following changes:

- 1) The sale, relocation, or transfer of any manufacturing operations. This includes movement of equipment and/or changes in manufacturing methods.
- 2) Any condition deviating from the original approved manufacturing methods used to produce the original first article part, including any change which could have an effect on the product at the next assembly or effect function at the end item user.
- 3) Any proposed change of original third tier Suppliers used to manufacture the first article product.

Since RAM may be required to notify and obtain approval from our customer for these types of changes, the Supplier is not authorized to proceed with the implementation of the change until written approval is obtained from RAM.

#### **3.4.3 Unauthorized Product Repairs & Salvage.**

The Supplier may not perform any repairs such as welding, brazing, soldering, plugging, peening, bushing, use of paints, adhesives or plating, or use any standard or other repair practice or method on products damaged or found to be discrepant. This restriction also applies during fabrication or processing or on defects in casting or forgings, unless such repairs are specifically permitted by the applicable drawing or specification or are specifically authorized by RAM in writing for each occurrence. Unless specifically



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL  
Applies to RAM's External Providers**

---

authorized by RAM, this prohibition also applies to reworking products by removing plating (stripping) and re-plating. In the case where RAM-authorized product repair, salvage or stripping has been accomplished, the Supplier shall include on the packing list/shipper and on the Certificate of Conformance (C of C) that the product being delivered was subject to such RAM-approved repair, salvage or stripping and the method used.

The Supplier shall confirm that the drawing on file matches the revision level indicated on the PO. The Supplier shall not proceed with the performance of the PO if the revision level of the drawing or any other documentation noted on the PO, for example, does not match the revision specified on the PO. The Supplier shall contact RAM for resolution of any revision issues before processing.

#### **3.4.4 Unauthorized Product Changes or Substitutions.**

The Supplier shall not make any changes or substitutions to any product(s) or services required by the applicable drawing, specification or Purchase Order (PO) without prior written authorization by RAM. Authorization may be contingent on RAM or RAM's representative's review of proposed changes at the Supplier's facility.

#### **3.4.5 Unauthorized Use of Non-Conventional Manufacturing Methods.**

Unless specified on the drawing, specification or Purchase Order, the Supplier shall not use any non-conventional manufacturing or processing methods, such as electrical discharge machining (EDM), electro chemical machining (ECM), laser or abrasive water-jet cutting or drilling, flame spray coatings, etc., on product(s) scheduled for delivery to RAM without prior written authorization of RAM.

#### **3.4.6 Unauthorized Use of Glass Beads.**

The use of glass beads is prohibited during the manufacture of any products to be delivered to RAM.

#### **3.4.7 Unauthorized Altering of 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 Purchase Order is strictly prohibited. Any necessary correction shall be made by a single line through the incorrect data and the correct data entered as close as possible to the original entry. The change shall then be initialed or stamped and dated by the person making the change.

### **3.5 Required Practices.**

#### **3.5.1 Responsibility for Product Conformance.**

Neither audit, surveillance, inspection and/or tests made by RAM or RAM's representative at either the Supplier's or RAM's facility, nor Supplier's compliance with applicable quality assurance requirements clauses herein, shall relieve Supplier of the responsibility to furnish product(s) that conform to all requirements of the Purchase Order.

#### **3.5.2 Raw Material Source.**

All raw materials provided on this Purchase Order and/or used to produce product manufactured per this contract **must be from a DFARS approved country and may also require Domestic Melt Material. Domestic Melt Material is required when ANY of the following apply: the purchase order or item number/description indicates "DM", "Domestic Melt", "Domestic Required" or similar, or when Q200 is required.** When required, material must be Domestic Melt Source as indicated on the raw material certification. Unless prior approval is obtained from RAM to use non-DFARS or non-Domestic Melt source material (when required), any parts delivered from unapproved sources will be returned to the Supplier for replacement at the Supplier's expense. A list of DFARS approved countries can be found by visiting the Defense Pricing and Contracting (DPC) system <https://www.acq.osd.mil/DPAP>, DFARS Procedures Subpart 225.0. The origin of mill source must be identified on the supplied certifications. Refer to paragraph 3.12 and Q050 for more detail regarding certification requirements.



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL  
Applies to RAM's External Providers**

---

**Certifications must be legible and reproducible for two generations. Material will be rejected if the certification is not legible. Refer to paragraph 4.1 for more details regarding records and record retention.**

### **3.5.2.1 Counterfeit Raw Material and Electronic Parts: Avoidance, Detection, Mitigation and Disposition.**

Any Supplier providing raw materials or electronic components to RAM shall have a system in place compliant to AS5553 and/or AS6174 to detect and preclude delivery of any counterfeit components or materials to RAM. The Supplier shall ensure that only new and authentic materials are used in products delivered to RAM. The Supplier may only purchase raw materials directly from original melt sources, or authorized distributors who can provide evidence of certification from the original melt source. Electrical components shall only be procured from the original component manufacturers, (OCMs), OCM franchised distributors, or authorized aftermarket manufacturers. **No product delivered to RAM is to be procured from brokers.** Use of product that was not provided from authorized sources is not allowed without prior approved in writing from RAM. The Supplier must present compelling support documentation (e.g. certification with the product from the melt source in the case of raw materials or from the OCM in the case of electronic components that authenticates traceability of the product to the original source) as proof that the product is authentic and conforming to these requirements.

### **3.5.2.2 Conflict Materials.**

As defined in the Dodd-Frank Act, conflict minerals include gold, tin, tantalum, and tungsten. The Act addresses concerns that conflict minerals are traded to finance groups that engage in violations of human rights. Therefore, conflict materials listed above originating in the Democratic Republic of the Congo (DRC) or an adjoining country (Angola, Burundi, Central African Republic, the Republic of the Congo, Rwanda, South Sudan, Tanzania, Uganda, and Zambia) are not authorized to be supplied to RAM. The Supplier must be able to certify product containing any of the materials noted above as originating from a smelter that is validated as compliant in accordance with the Conflict-Free Smelter (CFS) Program and listed on the Compliant List. The Conflict-Free Smelter Program is a list of certified compliant smelters in accordance with EICC criteria. The full list and additional information are available at <http://www.responsiblemineralsinitiative.org>.

### **3.5.2.3 Additional Material Requirements.**

**Hardware, Bulk-item and Age Control Material Certifications** – Common Off the Shelf (COTS) items and large quantity hardware items including nuts, bolts, washers, shims, springs, etc. that are high volume and light weight shall be accompanied by a C of C, citing that the materials meet the specification called for on the Purchase Order. The Supplier will be responsible for crediting RAM for any shortage of parts exceeding 3% of the order's line item(s). Overages will not be accepted for payment. The count of parts may be accomplished by weight. The scale used must be able to accurately weigh parts repetitively and be calibrated per the requirements of paragraph 4.2.

**Bulk-Items** – Bulk items such as paint, potting, sealants, etc. furnished hereunder shall be accompanied by a certificate of conformance stating that the materials meet the specification called for on the Purchase Order. The certification shall meet all the requirements of Q050. Copies of certifications, as applicable, from actual material manufacturers shall be included with each shipment.

**Age Sensitive Material** – The material expiration, as applicable, shall be noted on the certification. **A minimum 80% shelf life shall remain** upon shipment unless waived by RAM in writing.

**REACH Compliance** – Suppliers must be aware of the December 18, 2006 European Union (EU) regulation titled "Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) compliant materials. Prohibited substances as defined by REACH must be disclosed to RAM Company.

### **3.5.2.4 Obsolescence Requirements.**

The Supplier shall perform an obsolescence analysis of the product Bill of Material (BOM) for any product being delivered to RAM where they control the design. The purpose is to categorize every item in the product BOM as to 1) known obsolescence; 2) potential obsolescence; and 3) small or no obsolescence concern. Should this analysis apply to the product being offered to RAM, the Supplier shall notify RAM of the part/material that is affected, and the recommended replacement, allowing RAM to get the necessary approvals from the customer.



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL**  
Applies to RAM's External Providers

**3.6 Access to Facilities.**

It is agreed, that in the execution of this Purchase Order RAM and/or its prime contractor, including FAA or Government representatives, will be permitted on site to review Suppliers facilities and procedures, as deemed necessary.

**3.7 Basic Quality System Requirements.**

The Supplier shall maintain a Quality System. The preference is a system compliant to ISO 9000, AS9100 or AS9120. However, RAM realizes that for some Suppliers it would not be economically feasible to comply with the level of these quality systems. Therefore, RAM holds the option to require compliance to systems like MIL-I-45208, MIL-Q-9858 or equivalent, providing the quality of the product meets the flowed-down requirements from RAM and RAM's Customers. Compliance to these requirements shall be verified through Supplier surveys and/or onsite visits, as well as results from RAM's Receiving Inspection process.

**3.8 Inspection and Acceptance.**

All personnel performing inspection activities shall have annual eye tests by certified optometrist or medically qualified personnel. These records shall be made available to RAM upon request. See table below for reference.

Vision Parameter	Requirement
Far Vision	Snellen Chart 20/50 or better
Near Vision	Snellen 14/18 or better (20/25 or better, Jaeger Type 1, Ortho-rated 8 or equivalent).
Color Vision	Average or normal (4 to 6 responses on Titmus, B+L, or American Optical testing machine, or a satisfactory response when tested with an Ishihara or Pseudoischromatic plate). Ability to distinguish red, green, blue and yellow colors as prescribed in Dvorine Charts, Ishihara plates or equivalent. A practical test using color-coded wires and/or color-coded electrical parts shall be acceptable.

Table 1 – Visual Acuity Requirements for Inspection and Calibration Personnel

The product(s) pertaining to this Purchase Order are subject to inspection, testing and approval at all reasonable times and places by RAM, RAM's Customer or Government representative before, during and after performance and delivery. RAM may require the Supplier to rework, replace or reimburse the purchase price of rejected material or RAM may accept any materials and upon discovery of nonconformance, may reject or keep and rework any such non-conforming materials. Cost of repair, rework, replacement, inspection, transportation, repackaging, and/or re-inspection by RAM shall be at Supplier's expense.

RAM's failure to inspect does not relieve Supplier of any responsibility to perform according to the terms of the Purchase Order. If sampling is used by the Supplier to accept parts, the sampling plan must meet the minimum quantity requirements of Q030. Note that sampling does not alleviate the additional inspection requirements for Key Characteristics/Flight Safety Features per section 3.9.

**3.9 Flight Safety Critical and Critical to Quality Inspection Requirements.**

**Key Characteristics of a Critical Item (Flight Safety Critical, Critical to Quality/CTQ) have the greatest impact to customer safety and/or performance and will be identified with Flight/Mission Safety Critical Characteristics: ★ (Black Star), KPC1, KPC2, Box '0' or Box '2'. Any feature identified as a Critical Characteristic requires special inspection criteria.**

Special inspection criteria for features identified on the drawing by one of the following symbols:

- ★ – (Black Star) – Flight/Mission Safety Characteristics (FSC) requires 100% inspection.
- KPC1 - These characteristics require 100% inspection.
- KPC2 - These characteristics may be sample inspected per ASQ Z1.4, general inspection level II, .65% AQL or per Appendix A – RAM Sampling Plan AOQL .79. C=0 acceptance requirement applies.
- □ – ('0' inside a box) - requires 100% inspection of this characteristic.





**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL**  
Applies to RAM's External Providers

---

- **[2]** – ('2' inside a box) - These characteristics indicate sampling per ASQ Z1.4 general inspection level II, .65% AQL or per Appendix A – RAM Sampling Plan AOQL .79. C=0 acceptance requirement applies.

C=0 means if any nonconforming characteristic(s) are found the full lot shall be screened 100% for that nonconforming feature/characteristics and the nonconforming parts shall be removed from the lot before shipping to RAM.

**For those features requiring additional/increased inspection, the Supplier must document on the C of C that these dimensions were inspected as required per the characteristic designation. Indicate on the C of C the Key Characteristic type (FSC, KPC1, etc.), required dimension/feature, number of parts inspected and range of results.**

### **3.10 Supplier Workmanship Guidelines.**

To support Supplier quality, RAM has developed RCS-2021 "Supplier Workmanship Guidelines". The purpose of this document is to provide details regarding RAM's quality expectations. RCS-2021 provides general guidelines and may not include all possible quality related issues. Meeting the guidelines of RSC-2021 does not relieve Supplier of any responsibility to perform according to RAM quality standards, industry standards and/or the terms of the Purchase Order. The Supplier Workmanship Guidelines are available on the RAM website <https://ramcompany.com/services/quality-assurance/>

### **3.11 Sub-tier Source Selection.**

The Supplier shall not use Sub-tier sources for the manufacture or processing of any materials or processes on product(s) scheduled for delivery to RAM unless they are RAM approved, and a Customer approved source when that requirement is specified on the Purchase Order. When not specified, a Nadcap certified source shall be used. If a Supplier proposes to use a Sub-tier source not meeting either of these requirements, the Supplier must get prior written authorization from RAM before use. The Supplier shall submit to RAM within five (5) calendar days following receipt of this Purchase Order, the Sub-tier company name(s) and address(s) of all the sources planned for use in accomplishment of work hereunder. Failure to use Sub-tier sources approved by RAM may result in rejection of delivered items.

### **3.12 Certification Requirements.**

The Supplier shall provide a Certificate of Conformance (C of C) on company letterhead or other identifying document with a written statement that all product and/or services being provided to RAM were (manufactured, honed, heat treated, tested, plated, etc.) and comply with all requirements of the Purchase Order, drawing or other specifications. As a minimum, all certifications shall contain (as applicable): the material description, part number, revision, reference to all applicable specifications applicable to the material or process, acceptance criteria specifications, Key Characteristics and Critical to Quality inspection requirements, quantity delivered and RAM's Purchase Order number and line/release. **Certifications must be legible and reproducible for two generations. Material may be rejected if the certification is not legible. Refer to paragraph 4.1 for more details.**

**If you intend to deliver a few extra pieces over what is called for on the PO, the actual quantity being shipped must be noted on the C of C for traceability purposes. Excess quantities of 10 or more parts must be approved by RAM prior to acceptance. If approval is not received in advance these extra pieces may not be accepted by RAM.**

### **3.13 Nonconforming Products & Material Review Authority.**

#### **3.13.1 Supplier Material Review Authority.**

The only Material Review Authority granted to the Supplier is **Rework** to bring the product to full compliance with all requirements or **Scrap**. No other material disposition authority is currently granted to the Supplier.

#### **3.13.2 Notification, Segregation and Control of Nonconforming Products**



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL  
Applies to RAM's External Providers**

---

Unless otherwise specified in the Purchase Order, all nonconforming material shall be submitted to RAM Engineering for disposition. The Supplier may use their current format to notify RAM of the nonconformance, including the requirement and the dimensional or other characteristic deviation(s) from the requirement. A section shall be included which identifies the cause and corrective action to avoid a recurrence of a future deviation. A non-conformance report (NCR) may be generated to track the request. Should RAM approve the deviation, a copy of the approval signed by a RAM representative(s) shall be returned to the Supplier. The Supplier shall segregate and clearly identify all nonconforming product. The identification shall include a reference to the deviation approval. When delivering nonconforming material, a copy of the signed approved deviation document will be included with the shipment containing any nonconforming product. A use-as-is or repair disposition by RAM does not relieve the Supplier of the legal responsibility and liability for such products.

### **3.13.3 Notification of Nonconforming Product Delivered to RAM.**

When the Supplier has determined that nonconforming product has been delivered to RAM, the Supplier shall notify RAM's buyer in writing within twenty-four (24) hours of the initial discovery. The Supplier shall use "receipt acknowledged" e-mail or other positive notification method. The initial notification shall be followed by a formal "Disclosure Letter" delivered to the RAM buyer within five (5) days of the initial notification. The Supplier shall again use "receipt acknowledged" e-mail or other positive notification method for disclosure. For initial notification and formal disclosure, a Supplier representative can contact RAM Quality Assurance for a recommended format to use. If the Supplier has a form that contains all the necessary information, that form may be used. At a minimum, the initial notification shall include the following:

**Supplier Name**  
**Purchase Order Line and Release Number**  
**Part Number and Description**  
**Affected Quantities**  
**Dates Shipped**  
**Brief Description of the Nonconforming Condition**

The formal Disclosure Letter shall be delivered within five (5) working days of the initial notification and shall consist of a complete description of the nonconforming condition(s), immediate action(s) by the Supplier to contain the nonconforming product(s), root cause analysis of the nonconforming condition(s), root cause corrective action(s) plan, schedule of implementation and the plan and schedule for verifying the effectiveness of the corrective action(s).

RAM reserves the right to participate in the nonconforming product investigation at the facilities of the Supplier or its Sub-tier sources.

### **3.13.4 Re-submittal of Products Previously Rejected by RAM**

Products returned to the Supplier by RAM and re-worked or replaced by the Supplier and re-submitted to RAM shall be clearly identified as re-submitted products. **The Supplier's packing list/shipper shall include a statement that the products delivered are replacement or reworked to meet all applicable requirements and include a reference to a Non-Conformance Report (NCR) or approved deviation document as applicable.** All re-submitted product shall be re-inspected by the Supplier before submittal.

## **3.14 Document Sources**

### **3.14.1 RAM and/or Customer Drawings**

Copies of RAM or RAM Customer proprietary documents (i.e. drawing, specification, etc.) required by the Supplier to comply with the Purchase Order requirements, will be furnished to the Supplier by RAM with the Purchase Order.

These proprietary documents shall be controlled such that they are not shared or utilized by personnel or other entities not associated with the performance of the Purchase Order. Once the purchase order has been completed these proprietary documents shall be returned to RAM with the final shipment. It is the Supplier's responsibility to maintain current revision copies of industry, national, international or US government documents and standards that are required to comply with the drawing and purchase order requirements. Any problems experienced by the Supplier in obtaining the required documents shall be brought to the attention of RAM's buyer.



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL  
Applies to RAM's External Providers**

---

### 3.14.2 Industry/MIL/Other Specification Document Revision Status

The Supplier shall use the most current revision or superseding specification required on the drawing and purchase order. The only exception would be special instructions on the purchase order to use a specific specification or revision per RAM's customer requirements. Contact RAM's buyer for clarification prior to accepting the order.

## 3.15 Contract Changes & Their Effectivity

### 3.15.1 RAM Initiated Changes

The Supplier shall incorporate, at the specified and agreed upon effectivity points, all changes initiated by RAM or their customer and communicated to the Supplier through a formal Purchase Order 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 Purchase Order.

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 RAM at the Supplier's facilities or the facilities of the Supplier's Sub-tier sources.

### 3.15.2 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, without specific approval by RAM in writing prior to incorporating or 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. The Supplier shall furnish a copy of the Class II change to RAM prior to the initial delivery of the (changed) product, so that RAM can verify that the change does not violate the product specification requirements.

### 3.15.3 Drawing Change Classes

RAM defines Class I and Class II changes as:

**Class I Changes** – Class I changes are considered mandatory and shall have firm effectivity change points established and verified for traceability. Under no circumstances are Class I changes made which affect RAM or RAM's Customer requirements unless specific authorization by RAM (and/or RAM's Customer) has been granted. This type of change affects form, fit or function of the final assembled part. Proposed Class I changes shall be submitted for approval to RAM, prior to implementation. Only when such approval is granted in writing from RAM will affected drawings, travelers, ATPs or other affected documentation be revised. Class I change is defined as a change to an existing product that has been qualified. Engineering will not make any changes in materials, process, design details or acceptance test procedure which may affect the part or the component part thereof with regard to: (a) part number identification, (b) physical or functional interchangeability, and (c) performance. Examples of Class I changes could include:

- Changes that reduce or impact the specified performance requirements of the design.
- Changes that affect the reliability, maintainability or survivability of the design.
- Changes to the interface characteristics.
- Changes that affect compliance to other technical requirements in the specification.

**Class II Changes** – Class II changes are considered improvements to be accomplished as determined by manufacturing coordination. The cut-in or effectivity point of this type of change is at the option of engineering / manufacturing. This type of change does not affect form, fit, or function of the final assembled part. The old and new part must be fully interchangeable. Build-to-print designs can only be changed with approval from RAM and/or RAM's Customer. RAM Engineering can create an equivalent RAM manufacturing sketch incorporating a Class II change, if the change clarifies the information or tightens the existing customer tolerance. The RAM design must continue to meet all the original customer drawing requirements after the change. Examples of Class II changes could include:



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL  
Applies to RAM's External Providers**

---

- Correction of a deficiency discovered during item functional checks that is necessary to ensure compliance with RAM or Customer requirements.
- Any change to a piece part print that does not affect form, fit or function of the final assembled part.
- Chemical or physical properties of a material used to manufacture the product.
- Any change in the manufacturing process that changes or alters the configuration, composition, or physical properties of the item produced.

RAM reserves the right to make the final determination if a requested change will qualify as a Class I or Class II change.

## **4.0 ADDITIONAL QUALITY REQUIREMENTS**

### **4.1 Record Retention**

Unless otherwise specified on the Purchase Order, the Supplier shall retain all quality records as objective evidence of conformance to Purchase Order requirements, including Supplier's and their Sub-tier source's records and certifications of the inspections and tests performed during procurement. Examples of quality records may include inspection records, special process records/certifications, manufacturing documentation, training records, internal audits, eye examinations, work instructions and/or any other quality records pertinent to the manufacture of the product supplied. These records shall be retained for **a minimum of fifteen (15) years after completion of the order**. Such records shall be maintained to insure their legibility for **two (2) reproductions (copies)** and must be retrievable within 24 hours should RAM request copies be provided. In lieu of hard copy, the records may be kept electronically providing the electronic copy is fully legible. **Prior to physical destruction or disposal** of these records, the Supplier shall offer the records to RAM for retention at no additional cost to RAM and/or RAM's customers. This requirement shall be flowed down to any Sub-tier Supplier used in the manufacture of the product supplied.

### **4.2 Supplier Calibration System**

Suppliers shall properly maintain all Measuring & Test Equipment (M&TE) used to measure and/or test product for final acceptance. Supplier's M&TE equipment must be calibrated by either an outside lab or internally, as long as the calibration is performed per ANSI/NCSL Z540 3. **Calibration laboratories shall be certified to ISO 17025**. Other Calibration services may be used with RAM approval. The Supplier shall notify RAM of any product accepted with equipment found with out-of-tolerance conditions. An out-of-tolerance condition is one where the uncertainty of the measurement equipment itself or the master standard(s) used to calibrate the equipment is found to exceed the limit called out in the specification cited above. The Supplier and/or Sub-tier source calibration certification(s) shall include a statement indicating the traceability number to the National Institute of Standards and Technology (NIST) used to calibrate the equipment. **The Supplier shall insure that any internal or outside personnel performing calibration services have current annual eye exams on file** and those files are made available to RAM upon request.

**For Suppliers performing Calibration services, calibration shall be performed in compliance to ANSI/NCSL Z540 3 and the Supplier shall be certified to ISO 17025.** The Supplier performing the calibration shall notify RAM immediately of out-of-tolerance conditions. An out-of-tolerance condition is one where the uncertainty of the measurement equipment itself or the master standard(s) used to calibrate the equipment is found to exceed the limit called out in the specification cited above. Certifications shall be provided per paragraph 3.12, except instead of part number and revision, the certification shall reference the equipment identifier (ID #). The certification shall include a statement indicating the traceability number to the NIST standard used. Calibration test results compliant to Q100 shall be included with the equipment.

**Any personnel performing calibration of equipment shall have on file an annual eye examination performed by a certified optometrist or medically qualified individual. See the table in section 3.8 for visual acuity requirements for inspection and calibration personnel.** A copy shall be available for review upon request.

### **4.3 Material Handling.**

Damage due to handling is one of the most frequent causes for rejection of product at RAM. The Supplier shall control product(s) during manufacturing, special processing, testing and shipment, and visually inspect for and avoid dents, scratches, discoloration, contamination, etc. which violate the surface requirements of the product(s) drawing and specifications. For example, damage due to



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL**  
Applies to RAM's External Providers

---

part-to-part contact or handling is not allowed. Surfaces identified as sealing or critical surfaces shall be processed and handled with extra care; scratches or damage are not allowed. The Supplier must verify surface finishes meet requirements called out on purchase order instructions and/or applicable drawings. **Nonconforming or damaged parts will be returned to the Supplier for rework or replacement at the Supplier's expense.** Refer to the Supplier Workmanship Guidelines, found by accessing RAM's website at <https://ramcompany.com/services/quality-assurance/> for additional examples.

Unless otherwise specified in the Purchase Order, product(s) should be packaged to protect and shipped using best commercial practices for safe arrival at RAM's facility. This can include segregation of individual piece parts to prevent part-to-part contact during shipment and damage to parts with critical surfaces. Contact RAM's buyer for recommended trays and packaging.

#### **4.4 Foreign Object Debris (FOD).**

Foreign Object Debris (FOD) or damage caused by FOD is not allowed. Parts shall be cleaned, oiled and packaged prior to delivery. Parts shall also be handled during manufacture and shipping in a manner that will protect them from exposure to contamination by foreign objects or materials. Protection may include clean trays and packaging materials which will not contaminate the surfaces, the use of protective caps, clean covered plastic trays rather than fiber egg crates, etc. Refer to purchase order notes for additional tray and FOD requirements.

#### **4.5 Rust Prevention.**

To protect parts from rust and/or corrosion between the time they are manufactured and during storage, the Supplier shall coat the parts with rust preventative oil within 8 hours of manufacture. This requirement applies to materials such as C1026, C1117, C1215, Greek Ascoloy, C416, C440C, mag iron or any other material containing iron that is prone to rust when exposed to moisture or high humidity during storage periods.

#### **4.6 Delivery Window.**

The Supplier shall make deliveries to RAM based on the following receiving window. All receipt of products outside this window will be scored as LATE and will affect the Supplier's score card. RAM reserves the right to refuse early shipments and may elect to return them at Supplier's expense.

**On-Time** is considered received on the due date or up to 7 days early

**Unacceptable** delivery performance is considered more than 7 days early or more than 1 day late

#### **4.7 Flight Safety Hardware.**

All products or features being purchased, manufactured or processed that are identified as Flight Safety Critical (FSC) on the drawing or purchase order shall have locked/frozen work instructions. Once the initial lot is approved and accepted at RAM, the manufacturing and/or process instructions must be locked/frozen and must not change without written approval from RAM prior to any proposed changes being implemented. See section 3.9 for more information regarding Flight Safety Critical Features.

#### **4.8 Special Quality Requirements.**

The special product quality assurance requirements defined by the various Q-codes in section 5.0 apply when the Q-code number is specified in the Quality Assurance Requirements section of the Purchase Order and/or referenced within sections 1 thru 4 above.



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL  
Applies to RAM's External Providers**

---

## **5.0 UNIQUE Q-CODES.**

Refer to section 4.8 and the Quality Assurance Requirements section of the Purchase Order

### **Q020 Adopted Additional Requirements.**

Due to the complexity of some of the quality requirements flowed down to RAM by our customers, RAM may adopt their requirements in addition to our internal requirements to form our total purchase order quality requirements. In these cases, copies of these documents will be provided with our Purchase Order. Examples of these documents could include MQIs, P9112, manufacturing process instructions, etc. When RAM elects to do this, it shall be understood that these requirements are to be treated as additional requirements of RAM and not the company whose documents are being provided. RAM takes full responsibility and liability associated with the flow down of these requirements.

### **Q030 Lot Acceptance.**

For manufactured product(s), unless otherwise specified on the Purchase Order, the Supplier shall inspect each lot prior to delivery to RAM by using sampling per ANSI/ASQ Z1.4. Lot acceptance may also meet RAM Sampling requirements, see section 3.8 and Appendix A – RAM INSPECTION SAMPLING PLAN, for required minimum AQL/AOQL for RAM and RAM's customers. Should any characteristic be found to be noncompliant, the lot shall be screened 100% for that characteristic(s) and all nonconforming parts shall be removed from the lot before shipment (c=0 rule). This applies to all characteristics other than Key Characteristics/Flight Safety Characteristics/Critical to Quality characteristics. For Key Characteristics, see Q010 section 3.9.

### **Q040 Source Inspection.**

Items on this Purchase Order are subject to inspection and/or test at Supplier's facility by a RAM quality representative prior to shipment. The representative may be accompanied by, or the representative may be, a RAM customer, FAA or government source representative. The Supplier shall furnish, at no cost, acceptable facilities, equipment, personnel and assistance as necessary for such inspectors or tests.

Evidence of source inspection shall accompany Supplier's shipment, but source inspection shall not constitute final acceptance of the material. Final acceptance shall be at RAM's facility only. The Supplier shall notify RAM at least 48 hours in advance of material readiness to schedule source inspection.

### **Q050 Certificate of Conformance (C of C).**

In addition to providing a C of C meeting the requirements of paragraph 3.12., the Supplier shall furnish all certifications (material, process, etc.), issued by Supplier or Supplier's Sub-tier sources. All certifications shall be legible and remain legible for two (2) reproductions (copies). A copy of all certifications must be included in the shipment. The Supplier is responsible for verifying certifications furnished by Supplier's Sub-tier sources for their adequacy and compliance to the Purchase Order and the requirements herein. To assure the adequacy and authenticity of all certifications furnished by Supplier, the certifications shall include the name of the issuing organization and shall be signed by an official of the issuing organization. Only actual signatures rendered in black (preferred) or dark blue ink by the signing official or a machine or computer graphics generated facsimile signature are acceptable to RAM. The Supplier or Sub-tier source official may use a quality or inspection stamp in lieu of a signature, providing that such stamp(s) identify the Supplier and the Supplier's authorized individual to whom the stamp is assigned, and that the issue, use and control of such stamp(s) are governed by Supplier's and/or Sub-tier source's documented procedures.

### **Q060 Supplier Furnished Raw Material.**

With each delivery of products, the Supplier shall provide material certifications and test reports covering the material used to fill this order. All certifications shall meet the requirements of paragraph 3.12. A copy of the certifications shall be included with the shipment.

In addition, for metallic materials, each lot or heat of material supplied on this purchase order shall include, as applicable, the material name or designation, alloy, type, class, grade or condition, producer's (mill) name, the lot or heat number, the material specification



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL  
Applies to RAM's External Providers**

---

and revision and the chemical / physical test report(s) to which the material complies. The certifications shall also clearly state the country of origin of melt for all raw materials being provided or used to manufacture the product being provided. In addition, the seller shall insure compliance to the counterfeit parts requirements per paragraph 3.5.2.1.

**When a manufactured part is furnished using raw materials provided by the Supplier, and subsequent NDT (i.e. hardness testing after heat treat) is ordered by RAM per the drawing and purchase order requirements, Q070 also applies.** If multiple heat lots are utilized, the parts shall be segregated by heat lot used and multiple segregated samples from each lot of material shall be provided and clearly marked with the lot they came from.

### **Q070 Raw Stock Specimen Material.**

For Supplier Furnished Raw Material, bar stock samples are required. In addition to actual manufactured product(s), the Supplier shall furnish at least three 1" long samples of raw stock from the same material used to produce the parts delivered to RAM. These samples are for use by RAM for heat treat verification or other NDT testing. These material samples shall be bagged and tagged with the material name or designation, the heat number, the Supplier's raw material order number, and the RAM Purchase Order number.

**The bar stock samples shall be included with each line release delivery of parts when Q070 is required.**

### **Q080 Ram Furnished Material**

Raw material will be furnished by RAM. When delivering the product, a Certificate of Conformance meeting the requirements of paragraph 3.12 shall be submitted with the shipment to RAM. In addition to the required information per paragraph 3.12 the C of C shall contain a statement similar to: "Parts manufactured from material furnished by RAM." The disposition of any excess material will be RAM's responsibility. It is the responsibility of the Supplier to maintain control of RAM furnished material to avoid losing traceability or use on any other product while in their possession. Traceability at a minimum shall include the material identification (RAM P/N) and original material purchase order number. This is the same information provided with the material and shall accompany any excess material when returned to RAM.

**Bar stock samples of RAM supplied material shall be cut from the raw material and included with each delivery of completed parts when heat treat is required after machining, as indicated on drawing or purchase order notes.**

### **Q090 Special Process Certifications.**

Each special process to be performed on a product hereunder (i.e. welding, plating, heat treatment, chemical film application, x-ray, dye penetrant, magnetic particle inspection, brazing, etc.) shall be certified by the Supplier or Sub-tier source performing the process as having been performed to the applicable specifications called for on the Purchase Order. **All special processes must be performed by Suppliers approved by RAM and be Nadcap certified. When required on the purchase order, the Supplier must use special process Suppliers approved by RAM's Customer as indicated on the purchase order.** Approved process Suppliers for RAM and RAM's various customers can be provided by RAM Quality Assurance when requested. **All certifications shall meet the requirements of paragraph 3.12.** In addition to the process certification, when certified operators are a requirement as called out in the process specification, the certification shall include a statement similar to: "We hereby certify that [operator's name or other identifying information i.e. controlled stamp, etc.] performed the [name of process] required by RAM specification, drawing number, etc., in accordance with [applicable specification]. Operator has been trained to perform stated process and objective evidence of their current qualification status is on file and available for review".

### **Q100 Test Data.**

For special processes (heat treat, plating, NDT, etc.), actual test results showing compliance with acceptance requirements of the applicable specification and revision is required. Such data shall be identified to each item tested and show both criteria and results obtained. **The certification shall meet the requirements of paragraph 3.12.**

**RAM PROVIDED SAMPLES:** Per Q070, bar stock samples will be provided for testing in lieu of testing the actual part(s). Destructive test results such as hardness indentations are detrimental and unacceptable to the end use of the part. **No actual part**



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL  
Applies to RAM's External Providers**

---

**testing which causes deformation or damage to the part surface shall be performed without prior approval by RAM.** These samples shall be processed with the lot in order to represent the same processing as the part(s). For heat treated or annealed materials, at least one of these 1" long samples used during the process shall be returned to RAM with the shipment for use by RAM to verify the reported hardness results. This sample shall be identified with the part number, Sub-tier outside process purchase order number and RAM purchase order number.

**SUPPLIER PROVIDED SAMPLES:** When the Supplier is providing raw material for manufactured parts, and subsequent processing such as heat treat is required, the Supplier shall provide a minimum of three 1" long samples to their approved Sub-tier source for testing in lieu of actual part testing. **The Supplier shall flow down to the Sub-tier source(s) the requirement that no actual part testing which causes deformation or damage to the part surface shall be performed without prior approval by RAM.** The Supplier shall require the Sub-tier source to return at least one of these 1" long samples to them for verification of hardness or other required test verifications. This sample shall be retained by the Supplier per the requirements of paragraph 4.1. The Supplier may also forward this sample to RAM, with the delivery, for retention at RAM. This sample must be bagged and clearly marked with RAM's Purchase Order number and line, part number, revision, Supplier purchase order number, Sub-tier source, material type and specification.

### **Q110 Raw Material Analysis**

Prior to manufacturing, the Supplier shall, at no charge, furnish a sample of material intended to be used to complete this Purchase Order. This sample shall be submitted to RAM for chemical and physical analysis. **When Q110 is required, any decision by the Supplier to fabricate parts prior to analysis and material approval shall be at Supplier's risk.**

### **Q120 Supplier Analysis.**

When required by RAM's customer flow down or when requested by RAM, the Supplier shall send a sample of material they intend for use on this Purchase Order to an independent testing laboratory for chemical and physical analysis at the Supplier's expense. **The independent laboratory shall be certified to ISO 17025. Any decision to fabricate parts with this material prior to analysis results and approval shall be at Supplier's risk.** The material analysis results must comply with the material composition and properties listed in the applicable material specification. This additional verification shall be performed at least once during a twelve (12) month period. The results of this analysis shall be reported to RAM. The Supplier will notify RAM of any material found to be non-conforming during verification, along with containment action plan within 24 hours (See Q010 – 3.13.3 Notification of Non-Conforming Product Delivered to RAM).

### **(Q130 Calibration – Moved. Applied to all orders Q010 Section 4.2)**

### **Q140 First Article Inspection Report (FAIR).**

The Supplier shall prepare a First Article Inspection Report package per AS9102 and furnish a copy of the completed First Article Inspection results (including all material, process and other certifications required by the Purchase Order and/or drawing notes) with the initial delivery of products on the Purchase Order. The First Article shall be repeated and submitted any time any of the events specified in AS9102 occur (i.e.: there is a change to the revision of the drawing, significant changes in the manufacturing method, lapse in production of 2 years, etc.) or if the Purchase Order specifies a First Article is required with each delivery. If specified on the Purchase Order the First Article part shall be submitted to RAM for review and acceptance prior to delivery of the lot. The First Article part shall be separately bagged and clearly identified.

### **Q150 Final Inspection Report (FIR).**

Prior to each delivery of products to RAM, the Supplier shall perform final inspection on all products and document the results on a Final Inspection Report (FIR). The FIR shall represent the manufacturing lot to be shipped. The FIR format is optional but shall show each requirement and the actual inspection results (range) obtained for each of the drawing or specification requirements. The FIR shall be submitted with the shipment to RAM.





**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL  
Applies to RAM's External Providers**

---

**Q160 Silver-Coated Copper Wire Red Plague Avoidance.**

Silver-coated copper conductor is susceptible to galvanic corrosion in the presence of water or humidity and oxygen. The phenomenon is also referred to as 'Red Plague'. This corrosion can lead to electrical or mechanical failure of the affected wire. Once corrosion is initiated, corrosion of the copper conductor can continue indefinitely in the presence of oxygen. The Supplier shall take all steps necessary to prevent and detect the formation of corrosion (Red Plague) on wires per SAE ARP6400. The certifications provided with the wire shall state that the product has been verified to be free of any Red Plague corrosion per this specification.

**Q200 Domestic Melt Source Required.**

All raw materials and materials used to manufacture parts per this contract **must be Domestic Melt Material. Additionally, Domestic Melt Material is required when ANY of the following apply: the purchase order or item number/description indicates "DM", "Domestic Melt", "Domestic Required" or similar.** Unless prior approval is obtained from RAM to use non-Domestic Melt source material, any parts delivered from unapproved sources will be returned to the Supplier for replacement at the Supplier's expense. The origin of mill source must be identified on the supplied certifications. Refer to paragraph 3.12 and Q050 for more detail regarding certification requirements.

**Certifications must be legible and reproducible for two generations. Material will be rejected if the certification is not legible. Refer to paragraph 4.1 for more details regarding records and record retention.**



**SUPPLIER QUALITY  
ASSURANCE REQUIREMENTS (SQAR)  
SUPPLIER QUALITY MANUAL**  
Applies to RAM's External Providers

**APPENDIX A – RAM INSPECTION SAMPLING PLAN**

Lot Size	AOQL .79	AOQL 1.9	AOQL 3.0	AOQL 4.94	Index 1.0	Index 2.5	AQL 1.0	Lot Size	AOQL .79	AOQL 1.9	AOQL 3.0	AOQL 4.94	Index 1.0	Index 2.5	AQL 1.0
1 - 1	1	1	1	1	1	1	1	54 - 58	26	15	11	7	13	11	13
2 - 2	2	2	2	2	2	2	2	59 - 63	27	15	11	7	13	11	13
3 - 3	3	3	3	3	3	3	3	64 - 64	28	15	11	7	13	11	13
4 - 4	4	4	4	3	4	4	4	65 - 69	28	16	11	7	13	11	13
5 - 5	5	5	4	4	5	5	5	70 - 76	29	16	11	7	13	11	13
6 - 6	6	5	5	4	6	5	6	77 - 83	30	16	11	7	13	11	13
7 - 7	7	6	5	4	7	5	7	84 - 88	31	16	11	7	13	11	13
8 - 8	7	6	5	4	8	5	8	89 - 89	31	17	11	7	13	11	13
9 - 9	8	7	6	5	13	6	9	90 - 91	31	17	11	8	13	11	13
10 - 10	9	7	6	5	13	6	10	92 - 96	32	17	11	8	13	11	13
11 - 11	9	8	6	5	13	6	11	97 - 101	32	17	12	8	13	11	13
12 - 12	10	8	7	5	13	6	12	102 - 112	33	17	12	8	13	11	13
13 - 13	11	8	7	5	13	6	13	113 - 124	34	17	12	8	13	11	13
14 - 14	11	9	7	5	13	6	13	125 - 131	35	17	12	8	13	11	13
15 - 15	12	9	7	6	13	6	13	132 - 139	35	18	12	8	13	11	13
16 - 16	12	9	8	6	13	6	13	140 - 150	36	18	12	8	13	11	13
17 - 17	13	10	8	6	13	6	13	151 - 156	36	18	12	8	29	13	50
18 - 19	14	10	8	6	13	6	13	157 - 177	37	18	12	8	29	13	50
20 - 20	15	10	8	6	13	6	13	178 - 203	38	18	12	8	29	13	50
21 - 22	15	11	8	6	13	6	13	204 - 232	39	18	12	8	29	13	50
23 - 24	16	11	9	6	13	6	13	233 - 235	39	19	12	8	29	13	50
25 - 25	17	11	9	6	13	6	13	236 - 278	40	19	12	8	29	13	50
26 - 26	17	12	9	6	13	7	13	279 - 280	41	19	12	8	29	13	50
27 - 28	18	12	9	6	13	7	13	281 - 334	41	19	12	8	29	16	50
29 - 29	18	12	9	7	13	7	13	335 - 369	42	19	12	8	29	16	50
30 - 30	19	12	9	7	13	7	13	370 - 416	42	19	13	8	29	16	50
31 - 31	19	13	9	7	13	7	13	417 - 500	43	19	13	8	29	16	50
32 - 32	20	13	9	7	13	7	13	501 - 541	43	19	13	8	34	19	80
33 - 34	20	13	10	7	13	7	13	542 - 741	44	19	13	8	34	19	80
35 - 38	21	13	10	7	13	7	13	742 - 758	44	20	13	8	34	19	80
39 - 41	22	14	10	7	13	7	13	759 - 1200	45	20	13	8	34	19	80
42 - 45	23	14	10	7	13	7	13	1201 - 1232	45	20	13	8	42	23	125
46 - 49	24	14	10	7	13	7	13	1233 - 3059	46	20	13	8	42	23	125
50 - 50	25	15	10	7	13	7	13	3060 - 3200	47	20	13	8	42	23	125
51 - 51	25	15	10	7	13	11	13	3201 - 10000	47	20	13	8	50	29	200
52 - 53	25	15	11	7	13	11	13								

c = 0 applies to all plans

Plan	Application
AOQL .79	KPC2, Box 2
AOQL 1.9	RAM Company Aerospace, Default
AOQL 3.0	Parker, Honeywell
AOQL 4.94	RAM Company commercial (Requires RAM approval)
Index 1.0	Aerofluid Products
Index 2.5	B/E, Collins, HS, P&WC, UTAS, UTC
AQL 1.0	Moog
100%	Black Star, FSC, KPC1, Box 0, SpaceX Threads