



**09492L00008**  
**Revision Y**

# **GENERAL ATOMICS ELECTROMAGNETIC SYSTEMS**

## **STANDARD QUALITY CLAUSES**

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**GA PROJECT 09492**

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### REVISION HISTORY

Revision	Date	Description of Change
A	2008/06/06	Initial Release
B - N	VARIOUS	Information found in Windchill
P	2016/07/29	Additions made to acronyms table and Table 1. Removed Glossary of Terms. Modified Table 3 to clarify documentation delivery timelines and modified Documentation Submittal Instructions. Added clarification “if requested” regarding submittal of quality manuals on clauses 201, 201a, 202, 202a. Added an “Important” reminder statement clarifying that a document requires preapproval at the beginning of each of the following clauses: 207, 208, 213a, 213b, 213c, 213e, 242, 250, 251, 257, 268, 273, 275, 277, 278, 280, 280a and 284. Modified the following clauses to provide clarity; 203, 213c, 214, 214a, 215, 215b, 218, 219, 221, 268, 273, 275, 277, 278, 280, 280a, 284, 286 and 296. Added the following new clauses: 210a, 216, 218a, 219a, 293, 295a, 296a
R	2017/01/05	Add clauses 248 and 249 and for consistency added “GA-” to the Title.
T	2017/12/22	Add 293a and 280b. Delete 201, 202, 254, 280a, as well as pre-approval requirement for 277. Revise document number for GA-ESI Note Codes. Clarify that various 213e deliverables must be submitted separately. Update NAVAIR contacts in 219/219a. Clarify 202a, 203, 213, 213ed, 214a, 249, 259, 273, 275, 280, 280a, 293 and 294. Modify Table 1 and Document Submittal Instructions. Modify Table 3 entries for 208, 213e(b), 213 e(d), 217, 217a, 231, 249a, 273, 275, 277, 280, 280a, 280b, 293, 293a. Converted 216 to 216a.
U	2018/05/30	Modified “Introduction.” Modified Table 3 (removed 211, edited 249a, 258, 258a, 280, and 280b). Modified 221, 258, 258a, 259, and 280.
V	2018/10/19	Added definitions for MIBOM, QCM and QCM CSI to “Acronyms” table. Added reference to product safety in the “Introduction.” Corrected “Deliverable” in Table 3, 213e(d). Added 259b to Table 3. Clarified 203, 259, 259b, and 303. Removed “Prior to delivery ...” from 255, 256, 258, 258a, 259, 259b, 262, 263, and 300; moved guidance to “Data Submittal Instructions.” Added 200, 218b, 247, and 289.
W	2019/08/14	Reformatted document structure and created appendices. Streamlined revision history and document content. Removed internal GA-EMS points of contact. Removed Table 3. Made revision-specific. Defined contractual terms and made consistent with GA-EMS Purchasing procedures and templates. Made terms consistent throughout document. Updated Non-GA-EMS Documents and Acronyms. Added new clauses: 213f, 800-805. Combined clauses 301/302/303 and consolidated under clause 200. Consolidated clauses 203, 204, 270, 297, under general clause 200. Consolidated clause 212a into 212. Clarified various clauses. Consolidated “IMPORTANT” note regarding document re-approval under new Section 3 preamble. Removed hardcoded NAVAIR GSI contact information.
Y	2021/09/02	ECN-103003: Updated Appendix A; added Appendix B; updated 201a, 202a, 214a, 215, 215b, 263, 300; superseded 214, 219; updated 230 and 231 specification reference; referenced new specification for 273, 275, 280, 280b; added new GA-EMS document EMS-0538; updated GA-EMS and non-GA-EMS document references; clarified GA.com website links; minor corrections and clarifying edits to various clauses.

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## 1 PURPOSE/SCOPE

This document establishes the procurement quality requirements, which are applicable to the extent specified in the Order.

The following definitions apply to this document:

- “Buyer” means General Atomics (GA) or General Atomics Electromagnetic Systems (GA-EMS).
- “Order” means the purchase order (PO) or subcontract issued by Buyer to Seller.
- “Seller” means the person, firm, or corporation executing the Order with the Buyer and who will furnish the supplies or services provided for in the Order. References to “Supplier” have the same meaning as “Seller”.
- “Item” means the works, supplies, articles, product, or services provided for in the Order.

Seller is responsible for compliance with all requirements specified in the Order. Any questions regarding quality requirements should be directed to Buyer’s Authorized Purchasing Representative specified in the Order. Seller is also responsible for ensuring this document is reviewed, applied during all phases of performance under the Order, and that all employees understand these quality requirements and are aware of their contribution to product or service conformity and product safety.

## 2 APPLICABLE/REFERENCE DOCUMENTS

Table 1 and Table 2 list the applicable/reference material for this document. For the latest revisions, see the General Atomics Electromagnetic Systems (GA-EMS) Windchill online library.

**Table 1. GA-EMS Documents**

<b>Doc. Number</b>	<b>Doc. Title</b>
EMS-0196	Supplier Disposition Request
EMS-0282	Material Identification Code Mark Package Summary
EMS-0312	Supplier Release to Manufacture
EMS-0538	Source Inspection Request
GA 580	Quality Assurance Work Release
03607510	General Specification for Carbon, Stainless Steel and Brass Welds and Welding Components
04707510	General Welding Specification
09492S00012	Department of Defense Procedures and Repairs Applications Welding Specification
09492S00013	Commercial Procedures and Repairs Applications Welding Specification
09492S00014	Non-Destructive Examination Requirements Specification
09492S00015	Commercial Non-Destructive Examination Requirements Specification
49200P00002	Deliverable Documentation/Data Item Submittal Instructions
49200R00003	Naval Air Systems Command Source Inspection Points of Contact

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**Table 2. Non-GA-EMS Documents**

<b>Doc. Number</b>	<b>Doc. Title</b>
ANSI/ASQ Z1.4	Sampling Procedures and Tables for Inspection by Attributes
ANSI/ESD S20.20	Development of an Electrostatic Discharge Control Program for – Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)
ANSI/NCSL Z540	Requirements for Operating a Calibration Laboratory
ANSI/NEMA WC 70/ ICEA-S-95-658	Power Cables Rated 2000 Volts Or Less For The Distribution Of Electrical Energy
SAE AS9100	Quality Management Systems – Requirements for Aviation, Space, and Defense Organizations
ASME-BPVC	American Society of Mechanical Engineers (ASME) Boiler & Pressure Vessel Code
AWS D1.1	Structural Welding Code – Steel
AWS D1.2	Structural Welding Code – Aluminum
AWS D1.3	Structural Welding Code – Sheet Steel
AWS D1.6	Structural Welding Code – Stainless Steel
AWS D9.1	Sheet Metal Welding Code
DD Form 250	Material Inspection and Receiving Report
DI-SAFT-81934	Process/Operations Sheets
IEEE 383	IEEE Standard for Qualifying Electric Cables and Splices for Nuclear Facilities
IPC/WHMA-A-620	Requirements and Acceptance for Cable and Wire Harness Assemblies
IPC-6011	Generic Performance Specification for Printed Boards
IPC-6012	Qualification and Performance Specification for Rigid Printed Boards
IPC-6013	Qualification and Performance Specification for Flexible/Rigid-Flexible Printed Boards
IPC-A-610	Acceptability of Electronic Assemblies
IPC-D-640	Design and Critical Process Requirements for Optical Fiber, Optical Cable and Hybrid Wiring Harness Assemblies
IPC J-STD-001	Requirements for Soldered Electrical and Electronic Assemblies
ISO 9001	Quality Management Systems – Requirements
ISO/IEC 17025	General Requirements for the Competence of Testing and Calibration Laboratories
ISO/IEC/IEEE 90003	Software engineering – Guidelines for the application of ISO 9001:2015 to computer software
JEDEC JESD625	Requirements for Handling Electrostatic-Discharge-Sensitive (ESDS) Devices
MIL-STD-2042	Fiber Optic Cable Topology Installation
NAS 412	Foreign Object Damage / Foreign Object Debris (FOD) Prevention
PPD 802-7094539	N/A
SAE AS5553	Counterfeit Electrical, Electronic, and Electromechanical (EEE) Parts; Avoidance, Detection, Mitigation, and Disposition
SAE AS6496	Fraudulent/Counterfeit Electronics Part: Avoidance, Detection, Mitigation, and Disposition – Authorized/Franchised Distribution

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<b>Doc. Number</b>	<b>Doc. Title</b>
SAE AS9102	Aerospace First Article Inspection Requirement
SAE JA 1000-1	Reliability Program Standard Implementation Guide

### 3 QUALITY CLAUSES

This section contains Buyer’s standard Quality Clauses.

Some Quality Clauses require one or more documents that must be approved by Buyer. All Seller documents requiring Buyer approval shall not be modified after Buyer’s approval without prior written re-approval by Buyer. See Appendix B for an overview of deliverable documentation, including that requiring Buyer approval.

References to “DFARS” mean Defense Federal Acquisition Regulation Supplement (DFARS) clauses, which can be found at <https://www.acq.osd.mil/dpap/dars/dfarspgi/current/index.html>.

#### 3.1 Quality Program

##### (200) General Quality Requirements

- 1) DOCUMENTED INFORMATION: Documented information is any relevant data Seller is required to control and maintain, as well as data Seller determines to be necessary for the effectiveness of its Quality Management System (QMS). Seller shall maintain documented information to the extent necessary to support the operation of processes. Seller shall retain documented information to the extent necessary to have confidence processes are being carried out as planned. Seller shall ensure retention periods and disposition practices are in accordance with any applicable standards, unless otherwise specified in the Order. Seller shall ensure documented information of its sub-tier suppliers is maintained and retained sufficient to ensure compliance with this Quality Clause 200(1). Seller documented information and Seller’s sub-tier supplier documented information shall be made available to Buyer and Buyer’s customer(s), including Government and regulatory agency authorized representatives, upon request by Buyer at no additional cost.
- 2) NOTIFICATION OF FACILITY CHANGE: Seller shall not relocate any production, manufacturing, and/or processing facilities that have already been approved by Buyer without prior written approval by Buyer. Seller shall request Buyer’s written approval through the Supplier Disposition Request (SDR) process outlined in Quality Clause 221, herein, at least 30 calendar days prior to the planned relocation. All such requests shall include a comprehensive relocation plan and clearly demonstrate no impact to the Order’s schedule performance.



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- 3) **SUB-TIER SUPPLIER CONTROL**: Seller shall control sub-tier supplier procurements to the extent necessary to ensure the requirements specified in the Order are satisfied. Such control includes, but is not limited to, ensuring all requirements necessary to ensure compliance are flowed to lower tier suppliers and that all deliverable items have been controlled, manufactured, tested and inspected in compliance with all requirements. Seller shall provide Buyer with copies of sub-tier procurement documents (e.g., purchase orders, subcontracts, contracts) upon request.
- 4) **SELLER'S BASIC CERTIFICATE OF CONFORMANCE (CofC)**: Acceptance of the Order indicates compliance to all requirements of the Order, including, but not limited to the following:
  - a) Items furnished per the Order have been manufactured, tested, and inspected in accordance with the requirements of all applicable specifications/drawings and the results of such tests and inspections meet the requirements thereof.
  - b) Buyer and Government-required inspections and tests have been performed utilizing calibrated equipment.
  - c) All material used in deliverable items meet the applicable specification/drawing requirements specified by the Order.
  - d) Any specification requirements identified in support of the Order shall be done to the revision at the time of Order placement, including any applicable approved Engineering Change Notice(s) (ECNs), unless otherwise negotiated.
  - e) If an SDR was submitted and dispositioned, Seller shall add the SDR number(s) to the packing slip and provide a copy of the SDR with the shipment.
- 5) **RESPONSIBILITY FOR CONFORMANCE**: Neither surveillance, inspection and/or test made by Buyer or its representatives or United States (US) Government representatives at either Seller's or Buyer's facility, nor Seller's compliance with all applicable requirements, shall relieve Seller of the responsibility to furnish an item that conforms to the requirements of the Order.

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- 6) **COUNTERFEIT PART PREVENTION**: Seller shall plan, implement, and control processes, appropriate to Seller's organization and the product, for the prevention of counterfeit or suspect counterfeit material/part use and their inclusion in the product delivered to Buyer.
- a) Seller's providing electrical/electronic/electro-mechanical (EEE) parts:
- Seller shall have a counterfeit detection process that meets the intent of SAE AS5553, Counterfeit Electrical, Electronic, and Electromechanical (EEE) Parts; Avoidance, Detection, Mitigation, and Disposition, unless DFARS 252.246-7007 is specified in the Order. If DFARS 252.246-7007 is specified in the Order, Seller shall have a counterfeit detection process that meets the intent of DFARS 252.246-7007.
- As part of a counterfeit part prevention practice, Seller shall ensure that all EEE parts being delivered to Buyer directly, or as part of a higher assembly, have been procured directly from an Original Equipment Manufacturer (OEM) or a first-tier OEM authorized distributor.
- Authorized distributor Sellers shall provide a CofC in accordance with SAE AS6496 and maintain a method of traceability that ensures tracking of the supply chain back to the OEM, including the CofC when available, and shall supply records of this traceability to Buyer upon request. OEM Sellers shall provide a CofC.
- b) If Seller cannot procure an EEE part directly from the OEM or a first-tier OEM authorized distributor or provide traceability back to the OEM, Buyer's approval is required.
- 7) **ELECTROSTATIC-DISCHARGE-SENSITIVE DEVICES**: For electrical and electronic parts susceptible to damage from electrostatic discharge (ESD), Seller is responsible to establish and implement an ESD control program in accordance with JEDEC 625, ANSI/ESD S20.20 or equivalent. Seller shall take the necessary precautions to ensure static susceptible devices are adequately protected from ESD damage during manufacturing, test, inspection, packaging, and shipping. Packaging shall be marked with an ESD cautionary note or symbol.
- 8) **GOVERNMENT CORRECTIVE ACTION REQUESTS**: Seller shall submit copies of all Corrective Action Requests (CARs) issued to Seller by the Defense Contract Management Agency (DCMA) or Buyer's Government customer to Buyer within two (2) days of receipt. All such CARs shall be submitted to GA-EMS Quality Assurance (QA) via e-mail to EMS-SDR@ga.com and the GA-EMS Authorized Purchasing Representative specified in the Order.
- 9) **DELIVERABLE DOCUMENT/DATA ITEM SUBMITTAL**: Submission of all deliverable documentation/data item(s) shall be done in accordance with 49200P00002, which can be found on Buyer's Procurement website at <http://www.ga.com/quality-assurance-requirements>.

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**(201a) Quality Management System (AS9100 or ISO 9001 Certification)**

Seller shall establish, document, implement, and maintain a QMS that is certified to the requirements of AS9100 or ISO 9001.

**(202a) Quality Management System (ISO 9001 Compliance)**

Seller shall establish and maintain a documented QMS that is compliant to ISO 9001 and acceptable to Buyer. A copy of Seller's quality manual shall be provided to Buyer upon request.

**(203) Superseded by 200(2)**

**(204) Superseded by 200(3)**

**(205) Quality Management System per ASME Boiler and Pressure Vessel Code**

Seller shall establish, document, implement, and maintain a quality control system that complies with all American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC) requirements, including material, design, fabrication, examination and inspection of vessels and vessel parts in accordance with a quality program approved by the ASME BPVC (applicable section requirements).

Seller shall submit its ASME certificate to Buyer within ten (10) business days of the issuance of the Order.

**(207) Quality Assurance Plan**

Seller shall develop a Quality Assurance Plan (QAP) specific to the Order requirements. The QAP shall perform the following tasks:

- Identify and invoke project applicable requirements of the Seller-documented Quality Assurance Manual (QAM), and other manuals, instructions, or documents used in implementing the QA program.
- Provide a method for documenting the unique QA requirements for the Order (Buyer requirements that may differ from the Seller-documented program) and for prescribing implementation of these activities. It is not necessary, or desirable, to repeat the requirements already stated in Seller's QAM.
- Identify the personnel and functions responsible for defining, approving, and implementing the QA program for the Order. This can be accomplished with an organizational chart.

The QAP shall be reviewed and approved by Buyer prior to start of work under the Order.

**(208) Software Quality Assurance Plan**

Seller shall develop a Software Quality Assurance Plan (SQAP) specific to the software requirements of the Order.

Within 30 days of Order award, Seller shall provide a copy of the appropriate documentation that describes Seller's SQAP for software (e.g., software development plan, software configuration management plan).

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Software documentation shall be sufficient to ensure the following:

- All requirements are achieved or deviation/waivers are submitted to Buyer.
- Configuration is correct and deliverables are properly identified and marked.
- Planned level of acceptance is achieved and/or approved deviation/waivers are made part of the deliverable documentation package to Buyer.
- Operating instructions accompanying the developed software are sufficient to enable loading, initialization, and operation by Seller's personnel.
- Witnessing/reviewing and Buyer approval of validation/verification software is complete.

**(209) Software Quality Management System**

Seller shall maintain a Software Quality Management System (SQMS) that meets the intent of ISO 9001 and the guidelines of ISO/IEC/IEEE 90003.

Seller shall maintain a Software Engineering Institute (SEI) Capability Maturity Model Integration (CMMI) Level 2 using a benchmark appraisal.

Seller shall maintain a SEI CMMI Level 3 (using a benchmark appraisal) or achieve CMMI Level 3 during the performance of the Order.

Seller shall propose a software quality system that must be evaluated by Buyer as acceptable prior to commencement of any of Seller's software development activities.

**(210) Control of Test Software**

Seller shall maintain a system for the control of software used in the qualification/acceptance testing of deliverable hardware, software, and firmware to be furnished under the Order.

Seller shall maintain procedures and test records for items delivered to Buyer and those records shall be made available for Buyer review.

**(210a) Control of Test Software**

Seller shall maintain a system for the control of software used in the qualification/acceptance testing of deliverable hardware, software, and firmware to be furnished under the Order. Seller shall also provide the software test tool to Buyer upon request.

Seller shall maintain procedures and test records for items delivered to Buyer. Test records shall be made available for Buyer review.

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### **3.2 Source Evaluation/Inspection**

#### **(212) Right of Access**

Seller shall allow Buyer or its delegate, Buyer customer(s), and the US Government, which includes regulatory authorities, access to Seller’s facilities and those of its sub-tier suppliers (including internet access) for the purpose of verifying compliance with the requirements of the Order. Verification may include, but is not limited to, such activities as witnessing operations in progress, reviewing QA documents and records, and performing audits. Upon request, Seller shall provide Buyer any and all quality information, documents, and records as required. Upon request, Seller shall provide a private, climate-controlled, furnished office space with telephone and internet access for Buyer and/or Government representatives for the period of performance of the Order.

#### **(212a) Superseded by 212**

#### **(213) Critical and Major Characteristics**

All attributes and characteristics identified on the design documents as Critical or Major will require 100% Seller inspection and may also require witness by Buyer. Actual inspection results of each characteristic shall be recorded and documented. All results shall be made available to Buyer upon request.

#### **(213a) Critical Safety Items – Process and Operation Sheets**

Seller and its sub-tier suppliers shall submit process and operation sheets to Buyer for approval within thirty (30) calendar days after issuance of the Order. The process and operation sheets shall identify a detailed step-by-step account of the procedures necessary, in the proper sequence, to manufacture the Critical Safety Item (CSI).

The process and operation sheets must indicate operation number, description, tolerance (specification), location, and sub-tier suppliers, etc., necessary to control manufacturing operations.

After Buyer has granted approval of the process and operation sheets, Seller shall complete the process and operation sheets and have them stamped or signed off by an in-process operator and/or inspector. Process and operation sheets may also include the inspection method sheets noted in Quality Clause 213b, and must be provided to Buyer upon completion.

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**(213b) Critical Safety Items – Inspection Method Sheets**

Seller and its sub-tier suppliers shall submit inspection method sheets for approval by Buyer within thirty (30) calendar days after issuance of the Order. The inspection method sheets shall identify the CSI characteristics (including minors) to be inspected, special instructions, item, drawing zone, acceptability limits, inspection tooling/method, and frequency. The completed inspection method sheets shall have the actual inspection results recorded with inspector’s stamp or signature and date. Inspection method sheets may be included as an integral part of the process and operation sheets noted in Quality Clause 213a, and must be provided to Buyer upon completion.

**(213c) Critical Safety Items – Material Identification Code Mark**

This Order is for the procurement of items with Critical Application Item (CAI)/CSI characteristics that require Material Identification Code (MIC) marking. Seller shall submit all CSI documentation associated with the identified CAI/CSI feature up to the Government Source Inspection (GSI) hold point associated with the MIC mark request to Buyer for review and acceptance prior to applying the MIC mark. This documentation set, referred to as the MIC mark package, may include but is not limited to the following:

- Completed and approved process and operation sheets per Quality Clause 213a and Quality Clause 213e, Step (a), as required by contract
- Completed and approved inspection method sheets per Quality Clause 213b and Quality Clause 213e, Step (b), as required by contract
- Quality conformance and lot sampling inspection results per Quality Clause 213d and Quality Clause 213e, Step (c), as required by contract
- Documentation of Government witness of GSI hold points
- Material certifications
- Supplemental documentation (e.g., SDRs, Quality Notifications [QNs])
- Table of contents/summary page outlining documentation contained in package is required. Seller may use form EMS-0282 “Material Identification Code Mark Package Summary.” If Seller chooses not to use this form, all information listed on form EMS-0282 is required on Seller’s index page. Form EMS-0282 can be obtained from Buyer’s Procurement website at <http://www.ga.com/quality-assurance-forms>.
- For CAI/CSI assemblies, the MIC mark package shall include CAI/CSI characteristic results for all GSI hold points identified on the Order line item at both top level assembly level and subcomponent/subassembly level.

**NOTE:** Buyer reserves the right to identify non-CSI characteristics as GSI hold points on the Order line item. These non-CSI characteristic results are also required to be in the MIC mark package).

Seller shall contact Buyer’s Authorized Purchasing Representative specified in the Order to determine if any additional documentation is needed per contract requirements.

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The MIC mark(s) shall be located near, and in the method of, the part marking indicated on the applicable drawing (except when ink stamp and stencil are specified that for the purposes of traceability are not considered permanent. In these cases, the MIC mark shall be a metal stamp, laser etch, vibro-etch, or chemical etch unless the use of such marking methods will cause damage to the functionality of the part). Deviation from any of these methods shall require submission of an SDR, with Buyer approval. Application of the MIC marking will be verified by the designated Government representative.

**NOTE:** The MIC marking(s) applied to the individual parts must also be identified on all associated documentation. When submitting MIC mark packages for top level assemblies, objective quality evidence is not required to be submitted for existing MIC-marked subcomponents of that current assembly; however, the part number, revision, serial number, and MIC number issued for those subcomponents must be included in the table of contents.

**(213d) Critical Safety Items – Inspection for CAIs Including CSIs**

All CAIs and CSIs shall undergo Critical/Major characteristics inspection and, as noted on design documents, nondestructive inspections to verify that CAI or CSI items are within specifications. Actual inspection result for all Critical or Major characteristics will be recorded by serialized part number, and shall be included in each document package.

Seller shall perform quality conformance and lot sampling inspections for all associated features and characteristics that are present in the drawings and specifications. The inspection results (actual readings and/or measurements) will be recorded on all of Seller’s CSI/CAI inspection and certification documentation:

- Features/attributes/requirements classified as Critical and Major on the drawing(s) or within the technical specification will be inspected 100%.
- Unless otherwise specified, attributes for plating, hardness, and non-destructive testing (NDT) shall be inspected 100%.
- Class 3 threads, dimensions, and geometric feature controls with a tolerance range of 0.010 in. or less, will be inspected and recorded using an acceptable quality limit (AQL) of 1.0 and the General Inspection Level II as defined by ANSI/ASQ Z1.4.
- Seller shall inspect and record all other Minor characteristics using an AQL of 4.0 and the General Inspection Level II as defined by ANSI/ASQ Z1.4.

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**(213e) Critical Safety Items/Critical Application Items**

All attributes/characteristics identified on the design documents as a Critical and/or Major characteristic will require 100% inspection by Buyer, with actual inspection results of each characteristic recorded, documented, and provided to Buyer.

Section a) below is only a requirement for drawings that are designated as CSI.

- a) **CSI – Process and Operation Sheets/Preapproval:** Seller and its sub-tier suppliers shall submit process and operation sheets to Buyer for approval within thirty (30) calendar days after issuance of the Order. Refer to DI-SAFT-81934 for the specific contents required in this report.

**NOTE:** Manufacturing of CSI hardware shall not commence until Buyer has provided formal authorization to proceed.

Section b) below is only a requirement for drawings that are designated as CSI.

- b) **CSI – Inspection Method Sheets/Preapproval:** Seller and its sub-tier suppliers shall submit inspection method sheets to Buyer for approval within thirty (30) calendar days after issuance of the Order. The inspection method sheets shall identify objective quality evidence necessary to demonstrate the item conforms to all requirements and specifications, from raw material to finished product.

- Seller may use its own report format, provided on an 8 ½ by 11 inch (metric A4) page size, and delivered electronically.
- The report must contain a title page containing item number, item description, revision, Order number, title of subcontract data requirements list (SDRL) if applicable, and the distribution list.
- The individual sheets must indicate the following:
  - Item number, revision and item description
  - Serial number(s)
  - Lot size
  - Sample size (and associated acceptable quality limit [AQL])
  - Characteristic inspected
  - Classification of characteristic
  - Specification (tolerance)
  - Inspection tooling/method
  - GSI agent’s name for each GSI hold point
  - Sign or initial or stamp, and date of Quality Control inspector (for all inspection hold points)

**NOTE:** Manufacturing of CSI hardware shall not commence until Buyer has provided formal authorization to proceed.



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Section c) below is a requirement for drawings that are designated either as CSIs or CAIs.

- c) **CSI/CAI:** Inspection of all CSIs and CAIs shall undergo inspections as required by design and contractual documents to verify items are within specifications. Seller and its sub-tier suppliers shall perform quality conformance and lot sampling inspection for all associated features and characteristics that are present in the drawings and specifications with results (actual readings and/or measurements) of each characteristic recorded, documented, and provided to Buyer. The lot sampling shall be performed as follows:
- Features/attributes/requirements classified as Critical and Major on the drawing(s) or within the technical specification shall be 100% inspected and results recorded..
  - Unless otherwise specified, attributes for plating, hardness, and NDT shall be 100% inspected and results recorded.
  - Class 3 threads, dimensions, and geometric feature controls with a tolerance range of 0.010-inch or less, shall be inspected and recorded using an AQL of 1.0 and the General Inspection Level II, as defined by ANSI/ASQ Z1.4.
  - Seller shall inspect and record all other Minor characteristics using an AQL of 4.0 and the General Inspection Level II as defined by ANSI/ASQ Z1.4.

Section d) below is only a requirement for drawings that are designated as CSIs.

- d) **CSI – Process Operation and Inspection Method Sheet Data/Submittal:** Upon receiving formal authorization from Buyer to commence manufacturing of CSI hardware, Seller and its sub-tier suppliers shall:
- At the conclusion of each GSI event, submit Buyer and Government stamped or signed and dated process operation and inspection method sheets with objective quality evidence to Buyer.
  - Seller shall submit the process operation and inspection method sheets, as separate documents (i.e., separate electronic files), with objective quality evidence within 72 hours of the GSI event, completed up to the level of the GSI event.
  - Actual inspection result for all Critical or Major characteristics will be recorded by serialized part number, and shall be included in each document package.

**NOTE:** For process operation and inspection method sheets that contain several GSI hold points, Buyer will require multiple submittals of partially completed process operation and inspection method sheets up to each GSI hold point.

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**(213f) Critical Safety Items - Disposition of Scrap Items**

For purposes of this Quality Clause only, Critical Safety Items (CSIs) are defined as components or assemblies identified on the engineering drawing as CSI that have been completed.

For CSI items or completed assemblies that contain CSI subcomponents, as defined above, that Seller has determined should be scrapped, Seller shall obtain disposition from Buyer through the SDR process outlined in Quality Clause 221, Control of Nonconforming/Modified Items. Seller shall not dispose of scrap completed items with CSI classification.

**(214) Superseded by 214a**

**(214a) Source Inspection/Hold Points (7-day Notice)**

**Source Inspection:** Buyer source inspection/acceptance is required on the Order. Seller shall notify Buyer a minimum of seven (7) working days by completing and submitting EMS-0538 to EMS-SourceInspection@ga.com prior to start of acceptance test or inspection of a designated hold point in order to allow for scheduling of Buyer’s Quality Representative to be in attendance. Seller will perform inspection/test of the articles specified in this PO. Seller shall have technical data (e.g., drawing, specification, certification, etc.), quality records, inspection tools and reasonable facilities available for use in support of the source inspection activity.

**Hold Points:** Hold points will be designated by Buyer on the Order. Seller will include the Buyer designated hold points in the manufacturing instructions (e.g., router, traveler, task or sign-off sheets). Source inspection hold points shall not be by-passed.

**(215) Government Source Inspection (5-day Notice)**

Government Source Inspection (GSI) is required prior to shipment of product from Seller’s facility. Upon receipt of the Order, Seller shall promptly notify the appropriate cognizant Government representative so appropriate planning for GSI can be accomplished.

Seller shall notify the cognizant Government representative of the scheduled inspection/test, a minimum of five (5) working days for non-resident, or two (2) working days if Government representative is resident, in advance. Seller shall have technical data (e.g., drawing, specification, certification, etc.), quality records, inspection tools and reasonable facilities available for use in support of the GSI activity.

**Hold Points:** Hold points will be designated by Buyer on the Order. Seller will include the Buyer designated hold points in the manufacturing instructions (e.g., router, traveler, task or sign-off sheets). Source inspection hold points shall not be by-passed.

Questions regarding the applicability of GSI should be directed to Buyer’s Authorized Purchasing Representative specified in the Order.

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**(215a) Government Source Inspection (with DD Form 250)**

At the time of each delivery of product under the Order, Seller shall notify Buyer for preparation of a Material Inspection and Receiving Report (DD Form 250) to be presented to the Government representative at the time of each delivery of product under the Order. A Quality Data Package (QDP) shall be submitted as part of the DD Form 250 Government acceptance process, as indicated on the Order.

The product shall not be released until Buyer has approved shipment.

**NOTE:** Any items shipped without proper authority may be returned to Seller at Seller's expense for inspection, or inspection may be conducted by the US Government at destination at Seller's expense.

**(215b) Government Source Inspection (7-day Notice)**

GSI is required prior to shipment of any product from Seller's facility. Upon receipt of the Order, Seller shall promptly notify the appropriate cognizant Government representative so appropriate planning for Government inspection can be accomplished.

Seller shall notify the cognizant Government representative of the scheduled inspection/test, a minimum of seven (7) working days for non-resident, or two (2) working days if Government representative is resident, in advance. Seller shall have technical data (e.g., drawing, specification, certification, etc.), quality records, inspection tools and reasonable facilities available for use in support of the GSI activity.

**Hold Points:** Hold points will be designated by Buyer on the Order. Seller will include the Buyer designated hold points in the manufacturing instructions (e.g., router, traveler, task or sign-off sheets). Source inspection hold points shall not be by-passed.

Questions regarding the applicability of GSI should be directed to Buyer's Authorized Purchasing Representative.

**(215c) Government Notification Points (7-day Notice, Non-CSI/CAI)**

When the products are ready for inspection, Seller is responsible for notifying the applicable Buyer Quality, Purchasing, and Government representatives a minimum of seven (7) business days for non-resident, or two (2) working days if Government representative is resident, so that arrangements can be made by the Government representative to witness the inspections, if they so choose. This is not a mandatory hold point. Therefore, GSI is not required prior to shipment of product from Seller's facility.

Seller's only responsibility is to inform the above parties of the upcoming inspection. If Buyer and Government representatives choose not to be present at the time of the inspection, Seller may complete the operations and ship the product to Buyer.

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**(216a) Release to Manufacture**

Seller shall not commence the manufacturing of hardware until Buyer has provided formal authorization to proceed. A Release to Manufacturing form (EMS-0312) shall be provided by Buyer to Seller upon confirmation that all pre-production deliverables have been submitted and approved by Buyer.

**(217) Work Release Prior to Shipment**

Deliverable Order items are subject to final inspection and approval by Buyer prior to shipment. Seller shall not ship any deliverable item prior to receipt of a Buyer Quality Assurance Work Release (form GA 580). A copy of the Quality Assurance Work Release (form GA 580) shall accompany each shipment. Execution of a Quality Assurance Work Release does not relieve Seller of its obligation to provide items that conform to all requirements of the Order.

**(217a) Work Release Prior to Shipment (GSI)**

Deliverable Order items require Government Source Inspection (GSI) and a Government-approved DD Form 250 prior to shipment.

Preparation and submittal of the DD Form 250 to the Government shall be performed by Buyer, with full support from Seller.

Upon Government acceptance of the DD Form 250, and as evidence of the release of the items and all related documentation, a Buyer Quality Assurance Work Release form (GA 580) shall be completed, signed, and dated by Buyer's Quality Representative and issued to Seller. A copy of the Buyer Quality Assurance Work Release form (GA 580) shall accompany each shipment in accordance with Quality Clause 215a. Execution of a Work Release does not relieve Seller of its obligation to provide items that conform to all requirements of the Order.

**(218) First Article Inspection – First Lot Produced**

First Article Inspection (FAI) requirements apply to a representative sample of the first lot produced of a part or an assembly. A new FAI report is not required with subsequent orders of the exact item, provided the Government contract number listed on the Order has not changed. However, if the Government contract number changes on subsequent Orders of the exact same item, then a new FAI report is required.

An FAI shall be performed by Seller in accordance with the requirements of SAE AS9102, Aerospace First Article Inspection Requirement, latest revision (or equivalent), and submitted to Buyer prior to shipment.

When documenting the FAI, Seller may use the forms contained within the latest version of SAE AS9102 or their equivalent, so long as the forms contain all the information required by SAE AS9102.

**NOTE:** Forms that are shaded may not be fully legible when scanned. Illegible documentation will not be accepted.

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### **(218a) First Article Inspection**

A FAI report shall be submitted by Seller in accordance with the requirements of SAE AS9102, Aerospace First Article Inspection Requirement, latest revision (or equivalent), prior to shipment of product to Buyer. When documenting the FAI, Seller may use the forms contained within the latest version of SAE AS9102 or their equivalent, so long as the forms contain all the information required by SAE AS9102.

**NOTE:** Forms that are shaded may not be fully legible when scanned. Illegible documentation will not be accepted.

FAI requirements apply to a representative sample of the first lot produced of a part or an assembly.

When reusing part or all of a previous first article, as allowed by SAE AS9102, Seller must provide the following:

- Inspection/test results for all new or modified features of the current product
- Copy of the previous full FAI report

### **(218b) First Article Inspection with Functional Testing (NAVSUP)**

A FAI report shall be submitted by Seller in accordance with the requirements of SAE AS9102, Aerospace First Article Inspection Requirement, latest revision (or equivalent). Buyer and NAVSUP witness of functional testing of first article sample is required prior to shipment of product to Buyer. A source inspection hold point and NAVSUP point of contact will be designated on the Order. When documenting the FAI, Seller may use the forms contained within the latest version of SAE AS9102 or their equivalent, so long as the forms contain all the information required by SAE AS9102.

**NOTE:** Forms that are shaded may not be fully legible when scanned. Illegible documentation will not be accepted.

FAI requirements apply to a representative sample of the first lot produced of a part or an assembly.

When reusing part or all of a previous first article, as allowed by SAE AS9102, Seller must provide the following:

- Inspection/test results for all new or modified features of the current product
- Copy of the previous full FAI report
- SAE AS9102 Form 1 or a cover sheet that references the baseline part number/revision letter, previous and current Order number, reason for the partial FAI (if applicable) and a summary of all features of the current product that were re-inspected/re-tested.

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**(219) Superseded by 219a**

**(219a) NAVAIR Source Inspection (7-day Notice)**

Items covered by the Order are subject to NAVAIR source inspection. Seller shall notify the cognizant NAVAIR contact specified in 49200R00003, which can be found on Buyer's Procurement website at <http://www.ga.com/quality-assurance-requirements>, and DCMA as applicable, when the inspection hold points required by the Order are scheduled to take place. These inspection hold points are to be identified in Seller's process and operation sheets (Quality Clause 213a) and inspection method sheets (Quality Clause 213b), or Quality Clause 213e where specified. A minimum of seven (7) working days notification is required to arrange the source inspection for the scheduled inspection. If contact cannot be made, Seller shall contact Buyer's Authorized Purchasing Representative specified in the Order.

**3.3 Control of Product Configuration**

**(221) Control of Nonconforming/Modified Items**

All deliverable Order items shall conform to the requirements of the Order. Nonconformances that cannot be reworked to print, design modification requests, and requests for information to clarify drawing or specification requirements, shall be documented and submitted for consideration using the most current version of the SDR form (EMS-0196).

Nonconforming items shall not be delivered or performed without prior written approval by Buyer, unless otherwise specified in the Order. The most current version of the SDR form may be obtained at <https://www.ga.com.quality-assurance-forms>.

Product dispositioned as scrap shall be conspicuously and permanently marked, or positively controlled, until physically rendered unusable.

Completed SDRs and CARs shall be submitted to Buyer Quality Assurance via email to [EMS-SDR@ga.com](mailto:EMS-SDR@ga.com) and Buyer's Authorized Purchasing Representative specified in the Order.

**NOTE:** The original SDR form submitted by Seller will not be returned to the Seller after Buyer disposition. Upon Buyer disposition of submitted SDRs, Seller will receive a system-generated QN form. Multiple QNs may be generated for one SDR.

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### **3.4 Control of Monitoring, Measuring, and Test Equipment**

#### **(230) Certificate of Calibration**

With each item, Seller shall include a Certificate of Calibration that is in compliance with ISO/IEC 17025 and traceable to the National Institute of Standards and Technology (NIST). The Certificate of Calibration shall include the following:

- Instrument type
- Seller part number
- Serial number
- Date of calibration
- Date next calibration is due

#### **(231) Calibration of Items**

Seller's system for control and calibration of measuring devices used for inspection, test, and product acceptance shall conform to ANSI/NCSL Z540 or ISO/IEC 17025. Standards used for calibration shall have accuracies of at least four times the accuracy of equipment being calibrated, unless limited by the state of the art, and shall be traceable to the NIST.

#### **(232) Reporting Out-of-Calibration Items**

Seller shall notify Buyer within one (1) business day of discovery if a measuring device's calibration is out of tolerance upon receipt.

### **3.5 Packaging, Storage, and Handling**

#### **(242) Packaging and Shipping Requirements**

Seller is responsible for packaging and preparation for shipping. A procedure shall be prepared for Buyer review and approval thirty (30) days prior to Order delivery due date. The procedure shall include the following, as appropriate:

- Cleanliness inspections prior to packaging
- Use of preservatives and coatings
- Descriptions of specially designed shipping containers
- Lifting, handling, and rigging procedures
- Sketches
- Final inspection
- Method of shipping

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### **3.6 Documentation**

#### **(247) Repairables – Test & Evaluation**

This Order requires the product shipped to Seller be fully inspected and tested upon receipt for compliance to original engineering drawing and quality requirements for the specific revision received. Seller must then provide Buyer with a detailed report of the product's as-received condition (i.e., "As-received Condition Report"). Once Buyer evaluates the report, the Order will be amended to specify the rework/repair to be conducted, applicable Quality Clauses and source inspection requirements (if applicable). Objective quality evidence will be required and must be submitted in accordance with 49200P00002 (referenced herein). Fulfillment of this Order requires the product meet all its originally-specified inspection and performance requirements.

#### **(248) Specialty Metals**

This procurement is subject to the provisions of Specialty Metals Restrictions as specified in Buyer's Terms & Conditions, DFARS 252.225-7009. Any Specialty Metals delivered under the Order shall be melted or produced in the US or a Qualified Country.

#### **(249) Country of Origin – Defense Contracts**

This procurement is subject to the provisions of the Buy American Act as specified in Buyer's Terms & Conditions, DFARS 252.225-7001 and -7002. The Country of Origin of each Order Line Item in the shipment must be identified and readily apparent upon receipt by Buyer. For example, by a statement provided in the CofC, Packing Slip or other packaging materials.

#### **(249a) Country of Origin – Gulftronic Contracts**

Pressure containing components, and structural members and metals used in this order shall not be milled, manufactured or fabricated in, and raw material shall not be obtained from, China, India or Eastern Europe (as defined by the United Nations [UN]).

- The UN defines Eastern Europe as comprising Belarus, Bulgaria, Czech Republic, Hungary, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia and Ukraine.
- Examples of regulated components affected by this Quality Clause include, but are not limited to, pressure vessels, process piping, valve bodies, metal sealing gaskets, flanges, frames, I-beams and fastener hardware.
- Examples of components which are exempt from this Quality Clause include, but are not limited to: electronics and soft goods such as gaskets, O-rings, seals, and valve packing.

The Country of Origin of each Order Line Item in the shipment must be identified and readily apparent upon receipt by Buyer (i.e., by a statement provided in the CofC, Packing Slip or other packaging materials).



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**(250) Stress Relief Procedures**

Seller shall submit procedures for qualifying the stress relief of High-Yield (HY) and High-Strength Low-Alloy (HSLA) steel in accordance with PPD 802-7094539 for drawings that specify stress relief of HY strength or HSLA steel. Seller shall submit the data deliverable to Buyer for review and approval within thirty (30) calendar days after issuance of the Order.

**(251) Environmental Stress Screening Procedures**

Seller shall deliver Environmental Stress Screening (ESS) test procedures to Buyer for review and approval within thirty (30) calendar days after Order issuance, for the components identified. ESS test procedures shall be developed in accordance with SAE JA 1000-1. The ESS test procedures shall include vibration and thermal testing. Seller shall perform ESS on components identified in accordance with the approved ESS test procedures, and include the following:

- Brief description of the unit under test (UUT)
- List of functions to be tested
- Performance test procedure, describing methods used to test each function
- The nature of anticipated defects
- For thermal cycling: Tmin, Tmax, thermal chamber ramp rate, dwell time at temperature range limit, number of cycles and total cycle time
- For vibration: number of axes, duration, spectral density, frequency limits, serial versus concurrent stimulation
- Detailed data for any resulting defects

Other requirements:

- Screening is required for 100% of the UUTs.
- Both thermal cycling and vibration must be employed.
- Items subjected to stress screening shall be tested thoroughly before and after the stress screen to ensure that no detectable failures at start or finish.

Recommendations (not required):

- The ideal practice is to conduct thermal cycling and vibration simultaneously.
- The UUT should be monitored with continuous functional testing. (If functional monitoring is not continuous, then functional testing shall be performed at temperature/vibration extremes.)
- The objective is 100% test coverage of all functions during screening.
- Automated test equipment is the preferred method of continuous functional testing.

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### **(255) Certificate of Conformance**

Seller shall submit a CofC with delivery of furnished items to the level specified in the Order with the following information at a minimum:

- Seller's name and address
- Order number
- Order Line Item number
- Identifying nomenclature as identified by the Order [i.e., item name(s), part number(s), revision, serial number(s) (if applicable), drawing and ECN (if applicable), etc.]
- Manufacturer's name and address (if different than Seller)
- Quantity shipped

Conformance statement: "All items furnished are of the quality specified and conform in all respects with the Order requirements, including specifications, drawings, preservation, packaging, packing, marking requirements, and physical item identification (part number), and are in the quantity shown on this or on the attached acceptance document" (or equivalent wording)

- Reference to any applicable SDR related to furnished items
- If items are Buyer furnished, so indicate
- Printed name, date, signature or stamp, and title of Seller's authorized representative signing the CofC.

Requirements of this Quality Clause also apply to Seller's sub-tier supplier certifications for "special processes" when Quality Clause 277 is specified in the Order.

### **(256) Test Reports**

Seller shall submit one (1) legible and reproducible copy of the actual test results of the lot or item acceptance tests required by the applicable specification, identifiable with test parameters and product submitted. The test report shall include the principal specifications, including revision numbers or letters that govern the production of the item.

Where quantitative limits are established by the specification, the test report shall indicate the actual values obtained during testing. Test reports shall include the control identity (e.g., lot, heat lot, batch, serial number) of the material or item tested. If Seller is not the manufacturer, then Seller shall furnish the manufacturer's test report as described above.

These test reports must contain the test/inspection stamp of the individual performing the task, or the printed/typed name, signature, title of the authorized representative of the third party performing the test and date.

Test results will be subject to review and approval by Buyer.

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**(256a) Test Reports**

Within twenty (20) days after completion of test, Seller shall submit one (1) legible and reproducible copy of the actual test results of the lot or item acceptance tests required by the applicable specification, identifiable with test parameters and product submitted. The test report shall include the principal specifications, including revision numbers or letters that govern the production of the item.

Where quantitative limits are established by the specification, the test report shall indicate the actual values obtained during testing. Test reports shall include the control identity (e.g., lot, heat lot, batch, serial number) of the material or item tested. If Seller is not the manufacturer, then Seller shall furnish the manufacturer's test report as described above.

These test reports must contain the test/inspection stamp of the individual performing the task, or the printed/typed name, signature, title of the authorized representative of the third party performing the test and date.

Test results will be subject to review and approval by Buyer.

**(257) Test Plan/Procedure**

Seller shall develop a detailed test plan/procedure that encompasses the final acceptance and verification requirements of the specifications or drawing of the Order. The test plan/procedure, and subsequent changes, shall be submitted to Buyer for coordination of the review and approval within thirty (30) calendar days after issuance of the Order.

One copy of Seller’s test plan/procedure shall be designated for each unit tested and marked “Test Copy.” Seller shall maintain the test copy of the procedure/plan with the original test log and data, and provide a copy to Buyer.

**(258) Pressure/Leak Test Results**

Seller shall include copies of reports of actual pressure or leak test results (for each unit), part number, serial number, and test specification/procedure numbers, as applicable. These reports must contain the typed or printed name, signature and date of the authorized representative performing the test and must affirm conformance to specified requirements. The specifications must be listed, including the specification revision letter or revision number.

Test results are subject to review and approval by Buyer prior to shipment to GA.

**(258a) ASME Pressure/Leak Test Results**

Seller shall provide a copy of ASME Code Reports showing conformance of the units to the requirements of the Pressure Vessel Code. When required, the hardware markings must be in accordance with the applicable drawing/specification. The pressures tested/certified to and the method used shall be indicated.

Test results are subject to review and approval by Buyer prior to Seller’s shipment to Buyer.

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**(259) Material Certifications – Chemical and Mechanical Properties**

Seller shall provide to Buyer material test reports (MTRs) and a certification by the mill or testing facility that performed the tests certifying compliance to specific ASME or American Society for Testing and Materials (ASTM) standards. This requirement applies to all components in an assembly, as specified in the Order.

The MTRs shall provide both chemical and mechanical properties that include lot/heat/melt number and actual inspection and test values. Any subsequent heat treatment processes shall require test reports and certifications from the testing facility that shall include mechanical properties for the as-delivered condition. All MTRs shall include the typed name, signature, authority or title and shall be dated.

**NOTE:** If the material specification lists the testing of mechanical properties as “non-mandatory,” the MTR may be limited to chemical properties (unless otherwise specified in the drawing).

All documentation provided by Seller shall be legible, and at a resolution capable of being reproduced and scanned for electronic storage.

Complete material traceability shall be maintained throughout the manufacturing processes with appropriate records maintained. Traceability records shall be available for review by Buyer, when requested.

Seller shall not use alternate materials or grades of materials without Buyer’s prior written approval, even if such material has similar chemical and mechanical properties. If Seller desires to use alternate materials due to availability issues, Seller shall submit a request to Buyer using the SDR form (EMS-0196).

For plastics and proprietary materials, a CofC from the material supplier attesting the material meets its specification is acceptable (i.e., a material test report citing chemical and mechanical properties is not required).

**(259b) Certification of Titanium Material**

Seller shall provide a laboratory certified test report from an accredited third party testing laboratory independent from the producing mill or other applicable material processors, stating the lot of material furnished has been tested, inspected and found to be in compliance with the applicable material specifications. The test report will list the specifications, including revision numbers or letters, to which the material has been tested and/or inspected and the material lot to which it applies. The test report shall include quantitative limits for chemical, mechanical, or mechanical properties, and contain the actual test and/or inspection values obtained. All test reports shall include the printed/typed name, signature, title of the authorized representative of the third party performing the tests and date.

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### **(261) Inspection and Test Instructions**

Seller shall prepare and maintain written instructions for inspections and tests performed in accordance with the Order. The instructions shall include identification of the item to be inspected or tested, measuring and test equipment to be used, details of inspection and test operations to be performed, and the criteria for determining conformance or nonconformance to Order requirements.

### **(262) Period of Useful Life**

Seller shall furnish a certification stating the period of useful life for any assembly containing a limited shelf life material. The certification shall be identified to the Order and the assemblies to which it applies, and shall be signed and dated by Seller's responsible representative. Items having a limited shelf life must have a minimum of 75% shelf life remaining prior to shipment to Buyer.

### **(263) Limited Shelf Life/Rubber Parts**

Seller shall identify each item of limited shelf life material with the cure or manufacture date, expiration date, and special storage and handling conditions, in addition to the normal identification requirements of name, part number, or code number, specification number, type, size, quantity, etc. This identification, including special handling conditions, shall be recorded on the CofC and shipping documents for the material. Prior to each shipment of the product, Seller shall furnish cure date, assembly date, part name and number, compound number, and manufacturer's identification (if different from part number) for rubber parts (synthetic or natural) installed in assemblies delivered under the Order. This information shall be identifiable with the assembly and, when applicable, with component parts within the assembly to which it applies. Items on this order must have a minimum of 75% shelf life remaining prior to shipment to Buyer.

### **(266) Control of Limited Shelf Life Materials**

Materials with limited shelf life (e.g., epoxy, paint, adhesives, etc.), shall indicate the date of manufacture, expiration date, lot number and applicable specification on the container.

All items delivered under the Order require submittal of date of manufacture when shelf life is based on date of manufacture (or date of shipment from the manufacturer when shelf life is based on date of shipment), based on specified method of shelf life determination.

The minimum shelf life remaining for each item shall meet the shelf life specified in the Order. If no minimum shelf life is specified, 75% of the item's shelf life shall be remaining for each item. Material Safety Data Sheets (MSDSs) shall be provided with each shipment.

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A CofC shall contain the following information in addition to the CofC information required by Quality Clause 255:

- Date of manufacture, if shelf life is based on date of manufacture
- Date of shipment from manufacturer, if shelf life is based on date of shipment
- Date of expiration

**(268) Quality Assurance Data Package Requirements**

Prior to each shipment, Seller shall prepare a QA Data Package for each unit and shall submit to Buyer for review and approval prior to shipping. Data packages shall be collated and contain a table of contents listing all documents within the package. Data package contents, as applicable to the Order, shall be as follows:

- Completed manufacturing plan, traveler, routing etc., detailing the manufacturing operation performed, the operator’s acceptance including date and inspection point with associated inspection acceptance signatures and dates (for CSI only).
- In-process and final inspection records.
- Any documentation required by the Quality Clauses identified in the Order.
- Buyer approved SDRs, as applicable to the Order (see Quality Clause 221).
- Other documentation required as a condition of the order.
- Seller shall begin submitting documentation as soon as each subassembly or component is completed, per the “documentation submittal instructions” in this document.

**(270) Superseded by 200(1)**

**3.7 Hardware**

**(272) ASME Boiler and Pressure Vessel Code Requirements**

Welding performed on items to be delivered under the Order shall comply with the requirements of the ASME BPVC. Prior to each shipment, Seller shall provide with each item to be delivered, a copy of the data report conforming to applicable BPVC requirements for ASME Code Stamp holders.

Prior to each shipment, Seller shall provide two copies of ASME Code Reports showing conformance of the units to the requirements of the Pressure Vessel Code. When required, the hardware markings must be in accordance with the applicable drawing/specification. The pressures tested/certified to and the method used shall be indicated.

Non-destructive examinations performed on items to be delivered under the Order shall comply with the applicable requirements of Section V of the ASME BPVC, and the requirements of Quality Clause 280. Acceptance criteria shall meet the requirements of the applicable ASME Code (e.g., Section I, IV, or VIII).

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**(273) Welding/Brazing Requirements for Commercial Products**

Seller shall comply with the requirements of the most current version of 09492S00013, Commercial Procedures and Repairs Applications Welding Specification, which can be found on Buyer’s Procurement website at <http://www.ga.com/quality-assurance-requirements>.

**(275) Weld/Brazing Requirements for Procedures & Repairs**

Seller shall comply with the requirements of the most current version of 09492S00012, Department of Defense Procedures and Repairs Applications Welding Specification, which can be found on Buyer’s Procurement website at <http://www.ga.com/quality-assurance-requirements>.

**(277) Special Process Certifications**

Special processes include but are not limited to plating, coating, passivation, and heat treating.

Prior to each shipment of the product, Seller shall include a process certification to GA-EMS, verifying conformance to the drawing requirements, and stating the special process performed complied with an identified industry specification.

Heat treat certifications shall be accompanied by time/temperature charts and a summary description of the heat treat time and temperature data indicating the furnace and heat treat lot number. The certification shall state the name of the processor, date of processing, and the printed or typed name and signature of the responsible representative of the processor.

At a minimum, the special process certification shall include the Order number, part description, serial number (if applicable), part/drawing number with revision letter and ECN (if applicable), name and location of the special processor, and the special process being performed (must match drawing note including the specification, class, type, and color, where applicable).

**(278) Radiographic Inspection Submittals**

Items requiring radiographic inspection shall be examined and processed in accordance with requirements specified in the Order. A method of identifying and cross-referencing the films, the items examined, and the film interpretation reports shall be provided.

Buyer’s review and acceptance of radiographic inspection results is required prior to shipment. Additionally, Seller shall make available for review and in-process Radiographic Testing (RT) film and associated reports whenever requested by Buyer’s non-destructive examination (NDE) Examiner. Buyer’s representative may provide assistance and direction for coordinating this effort. If the review and acceptance is at Seller’s facility, Seller will provide for reasonable facilities and assistance, including a suitable film review area.

Evidence of Buyer’s acceptance must be indicated on the applicable radiographic report or certificate provided by the source performing the radiographic service.

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### **(280) Non-Destructive Examination Requirements**

Seller shall comply with the requirements of the most current version of 09492S00014, Non-Destructive Examination Requirements Specification, which can be found on Buyer's Procurement website at <http://www.ga.com/quality-assurance-requirements>.

### **(280b) Non-Destructive Examination Requirements (Commercial)**

Seller shall comply with the requirements of the most current version of 09492S00015, Commercial Non-Destructive Examination Requirements Specification, which can be found on Buyer's Procurement website at <http://www.ga.com/quality-assurance-requirements>.

### **(284) Hydrostatic Testing Requirements**

Hydrostatic testing shall be performed to detailed written procedures by qualified personnel. Procedures, technique sheets, and personnel qualification records shall be submitted to GA-EMS for review and approval within thirty (30) calendar days after issuance of the Order.

Pressure/Hydrostatic Test Report – prior to each shipment, Seller shall provide a certified report of pressure/hydrostatic test results. Unless otherwise specified, the report shall conform to the requirements as specified in the Order or test specification.

### **(286) As-Built Configuration List**

An As-Built Configuration List (ABCL) shall be developed and provided to Buyer prior to each shipment of assemblies.

The ABCL shall be in electronic media format and shall contain the following information:

- Part number
- Part description
- Serial/Lot number (if applicable)
- Quantity
- As-built drawing revision letter
- Related ECN number
- Approved SDRs (record these and other pertinent data in the remarks column)



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**(287) Foreign Object Damage Debris Program**

Seller shall maintain a Foreign Object Damage Debris (FODD) prevention program in accordance with NAS 412 or other industry recognized standard as a guideline.

- 1) Seller’s FODD prevention program shall include the review of design and manufacturing processes to identify and eliminate foreign object entrapment areas and paths through which foreign objects can migrate.
- 2) Seller shall ensure that applicable FODD requirements are flowed down to Seller’s sub-tier suppliers, as necessary.
- 3) Prior to closing inaccessible or obscured areas and compartments during assembly, Seller shall inspect for foreign objects/materials and ensure no FODD barriers remain embedded (e.g., embedded protective plugs). Seller shall ensure tooling, jigs, fixtures, and test or handling equipment are maintained in a state of cleanliness and repair sufficient to prevent FODD. By delivering items to Buyer, Seller shall be deemed to have certified to Buyer that each item is free from any foreign materials that could result in FODD.
- 4) All deliverable Order items shall be protected by Seller from contamination or damage from foreign objects during processing, testing, inspection, handling, and packaging prior to delivery to Buyer.

Buyer shall have the right to perform inspections, verifications, and FODD prevention program audits at Seller’s facility to ensure program documentation and effectiveness.

**(288) Part Identification (Revision and Change Notice)**

The identification method of marking a part shall be as described in the drawing notes. In addition to the marking requirements described in the drawing notes, all parts will be identified with the revision letter, and all applicable change notice numbers as referenced in the Order.

**(289) Item Unique Identification (NAVSUP)**

The Item Unique Identification (IUID) method of marking a part shall be as described in the drawing notes. In addition to the marking requirements described in the drawing notes, all parts will be identified with machine readable identification (MRI) marking. The applicable bar code data identifier descriptions will be identified on the Order and shall be in accordance with the following requirements:

Product Marking: DFARS 252.211-7003 – Item Unique Identification and Valuation per MIL-STD-130 “Identification Marking of U.S. Military Property”

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### **3.8 Electronic Products**

#### **(293) Cable and Wire Harness Assembly Workmanship**

Workmanship for items delivered under on the Order shall comply with the requirements of IPC/WHMA-A-620 Class 3, Requirements and Acceptance for Cable and Wire Harness Assemblies, unless otherwise specified on drawing, and shall meet the requirements specified on the assembly drawing.

A report shall be submitted for testing to each of the applicable requirements in the standard.

#### **(293a) Fiber Optic Cable and Hybrid Wire Harness Assembly Workmanship**

Workmanship for items delivered under on the Order shall comply with the requirements of IPC-D-640 Class 3, Design and Critical Process Requirements for Optical Fiber, Optical Cable and Hybrid Wiring Harness Assemblies, and/or MIL-STD-2042 Fiber Optic Topology Installation, unless otherwise specified on drawing, and shall meet the requirements specified on the assembly drawing.

A report shall be submitted for testing to each of the applicable requirements in the standard.

#### **(294) Radiographic Submittal – Electronic Components**

X-ray film of each item defined in the Order, an analysis of radiographic inspection performed, and an acceptance test report, including actual test values, shall be provided to Buyer at time of shipment. Individual article traceability to film shall be maintained.

Items delivered under the Order are subject to Buyer’s inspection at destination. These items will not be accepted by Buyer if Seller fails to ship X-rays with each item.

#### **(295) Printed Circuit Boards (Rigid Printed Boards)**

Printed circuit boards (PCBs) delivered under the Order shall comply with IPC-6011 Class 3 and IPC-6012 Class 3, unless otherwise specified on the drawing. PCBs with more than two (2) layers shall be net list tested and documentation of net list shall be provided to Buyer prior to shipment of the product. Coupons and/or cross-section coupons shall be available and provided upon GA-EMS request.

#### **(295a) Printed Circuit Boards (Flexible/Rigid-Flexible Printed Boards)**

Flexible/rigid-flexible printed circuit boards (PCBs) delivered under the Order shall comply with IPC-6011 Class 3 and IPC-6013 Class 3, unless otherwise specified on the drawing. PCBs with more than two (2) layers shall be net list tested and documentation of net list shall be provided to Buyer prior to shipment of the product. Coupons and/or cross-section coupons shall be available and provided to Buyer upon request.

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**(296) Electronic Assembly and Solder Workmanship – IPC-A-610**

Workmanship for items delivered under on the Order shall comply with the requirements of IPC-A-610, Acceptability of Electronic Assemblies, and shall meet the requirements specified on the assembly drawing.

**(296a) Electronic Assembly and Solder Workmanship – IPC-A-610 Class 3**

Workmanship for items delivered under on the Order shall comply with the requirements of IPC-A-610 Class 3, Acceptability of Electronic Assemblies, unless otherwise specified on drawing, and shall meet the requirements specified on the assembly drawing.

**(297) Superseded by 200(7)**

**(298) Solder Workmanship – IPC J-STD-001; Class 2**

Workmanship of each items delivered under the Order shall comply with the requirements of IPC J-STD-001 Class 2, Requirements for Soldered Electrical and Electronic Assemblies.

**(299) Solder Workmanship – IPC J-STD-001; Class 3**

Workmanship of each items delivered under the Order shall comply with the requirements of IPC J-STD-001 Class 3, Requirements for Soldered Electrical and Electronic Assemblies.

**(300) Qualified Products List**

Seller shall obtain and submit objective quality evidence of Qualified Products Database (QPD) or Qualified Manufacturers List (QML) certification from the Department of Defense (DOD) in accordance with the Defense Standardization Program. Objective quality evidence (e.g., proof of certification) can be obtained at <https://qpldocs.dla.mil/>.

Date of manufacture of the delivered goods shall be inside certification period.

**(301) Superseded by 200(6)**

**(302) Superseded by 200(6)**

**(303) Superseded by 200(6)**

**3.9 Radiation Monitoring Systems**

**(800) Flame Resistance Certificate of Conformance**

Seller shall provide a CofC, signed by an authorized Quality Assurance representative, and certification to flame resistance to ANSI/NEMA WC 70/ICEA-S-95-658 and IEEE 383.

**(801) Aluminum Electrolytic Capacitor**

Seller shall provide new parts that are not used or refurbished. The date code on all parts must not be older than four (4) years.

**(802) ATEX Directive Requirements**

Seller shall provide declaration of conformity stating conformance to the applicable ATEX requirements and EC type examination.

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### **(803) Module with Aluminum Capacitors**

All deliverable module(s) and assembly/ies containing aluminum electrolytic capacitors shall include new capacitors with date codes no older than four (4) years at the time of shipment to Buyer. Seller shall provide a certification that explicitly states all aluminum electrolytic capacitors contained within the module or assembly are new and less than four (4) years old. If the module or assembly does not contain any aluminum electrolytic capacitors, Seller shall provide a certification that explicitly states no aluminum electrolytic capacitors are contained within the module or assembly.

### **(804) Tape and Reel**

Seller shall supply surface mount parts in the following preferred packaging, in declining order of preference:

- Tape and reel
- Cut/partial tape and reel with 18 in leader minimum
- Tray
- Tube
- Bulk or cut tape and reel

**NOTE:** Seller shall notify Buyer in writing utilizing the SDR process outlined in Quality Clause 221 prior to acceptance of order if final packaging is bulk.

### **(805) Weld – Radiation Monitoring Systems**

- 1) Seller shall weld in accordance with welding specification 04707510 as applicable in accordance with the engineering drawing.
- 2) Welding specification 03607510 is superseded by 04707510.
- 3) When undefined by the engineering drawing or Order, welding performed on items to be delivered under the Order shall comply with the requirements of one or more of the following specifications: AWS D1.1, D1.2, D1.3, D1.6, D9.1.
- 4) Seller shall provide a CofC in accordance with Quality Clause 255 with the following additional information:
  - AWS specification number
  - Welder name

**NOTE:** Seller shall maintain welder qualifications and provide them to Buyer for review upon request.

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## APPENDIX A. ACRONYMS

Acronym	Definition
ABCL	As-Built Configuration List
ANSI	American National Standards Institute
AQL	Acceptable Quality Limit
ASME	American Society of Mechanical Engineers
ASQ	American Society for Quality
ASTM	American Society for Testing and Materials
ATEX	ATmosphères EXplosibles
AWS	American Welding Society
BPVC	Boiler and Pressure Vessel Code
CAI	Critical Application Item
CAR	Corrective Action Request
CMMI	Capability Maturity Model Integration
CofC	Certificate of Conformance
CSI	Critical Safety Item
DCMA	Defense Contract Management Agency
DFARS	Defense Federal Acquisition Regulation Supplement
Doc.	Document
DOD	Department of Defense
ECN	Engineering Change Notice
EEE	Electrical/Electronic/Electro-mechanical
ESD	Electrostatic Discharge
ESDS	Electrostatic-Discharge-Sensitive
ESS	Environmental Stress Screening
FAI	First Article Inspection
FODD	Foreign Object Debris Damage
GA	General Atomics
GA-EMS	General Atomics Electromagnetic Systems
GSI	Government Source Inspection
HSLA	High-Strength Low-Alloy
HY	High-Yield
ICEA	Insulated Cable Engineers Association
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IPC	IPC Association Connecting Electronics Industries
ISO	International Organization for Standardization
IUID	Item Unique Part Identification

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<b>Acronym</b>	<b>Definition</b>
JEDEC	Joint Electron Device Engineering Council
MIC	Material Identification Code (Mark)
MRI	Machine Readable Identification
MSDS	Material Safety Data Sheet
MTR	Material Test Report
NAVAIR	Naval Air Systems Command
NAVSUP	Naval Supply Systems Command
NCSL	National Conference of Standards Laboratories International
NDE	Non-Destructive Examination
NDT	Non-Destructive Testing
NEMA	National Electrical Manufacturers Association
NIST	National Institute of Standards and Technology
OEM	Original Equipment Manufacturer
PCB	Printed Circuit Board
PO	Purchase Order
QA	Quality Assurance
QAM	Quality Assurance Manual
QAP	Quality Assurance Plan
QDP	Quality Data Package
QML	Qualified Manufacturers List
QMS	Quality Management System
QN	Quality Notification
QPD	Qualified Products Database
RT	Radiographic Testing
SAE	Society of Automotive Engineers International
SDR	Supplier Disposition Request
SDRL	Subcontract Data Requirements List
SEI	Software Engineering Institute
SQAP	Software Quality Assurance Plan
SQMS	Software Quality Management System
UN	United Nations
US	United States
UUT	Unit Under Test
WHMA	Wiring Harness Manufacturer's Association

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**APPENDIX B.  
DELIVERABLE DOCUMENTATION**

The following table lists Quality Clauses that require Seller to submit documentation to Buyer as a deliverable item or a deliverable item that requires approval. Submission timeframe varies by clause. Seller shall refer to each clause for specific information regarding submission timeframe and other requirements. If an item is highlighted in gray, this indicates that previously submitted documentation may be eligible for resubmission to achieve cost or schedule efficiency. However, in no case shall any documentation approved by Buyer be modified without prior written re-approval by Buyer. Please contact Buyer's Authorized Purchasing Representative specified in the Order with questions.

Quality Clause	Quality Clause Title	Deliverable Documentation	Submission Only/ Approval Required	Submission Required Before			
				Use <sup>1</sup>	Mfg <sup>2</sup>	Shipping	See Clause
205	Quality Management System per ASME Boiler and Pressure Vessel Code	ASME Certificate	Submission Only				X
207	Quality Assurance Plan	Quality Assurance Plan (QAP)	Approval Required	X			
208	Software Quality Assurance Plan	Software Quality Assurance Plan (SQAP)	Approval Required	X			
213a	Critical Safety Items – Process and Operation Sheets	CSI Process Operation Sheets (Initial Submittal)	Approval Required		X		
213b	Critical Safety Items – Inspection Method Sheets	CSI Inspection Method Sheets (Initial Submittal)	Approval Required		X		
213c	Critical Safety Items – Material Identification Code Mark	MIC Mark Package (Material Identification Code)	Approval Required			X	
213e(a)	Critical Safety Items/Critical Application Items	CSI/CAI – Process and Operation Sheets/Preapproval (Initial Submittal)	Approval Required		X		
213e(b)	Critical Safety Items/Critical Application Items	CSI/CAI – Inspection Method Sheets/Preapproval (Initial Submittal)	Approval Required		X		
213e(d)	Critical Safety Items/Critical Application Items	CSI – Process and Operation Sheets Data and Inspection Methods Sheets (Final Submittal)	Submission Only				X
218	First Article Inspection – First Lot Produced	First Article Inspection Report	Submission Only		X		
218a	First Article Inspection	First Article Inspection Report	Submission Only		X		
218b	First Article Inspection with Functional Testing (NAVSUP)	First Article Inspection Test Report	Submission Only		X		

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Quality Clause	Quality Clause Title	Deliverable Documentation	Submission Only/ Approval Required	Submission Required Before			
				Use <sup>1</sup>	Mfg <sup>2</sup>	Shipping	See Clause
230	Certificate of Calibration	Certificate of Calibration	Submission Only				X
242	Packaging and Shipping Requirements	Packing & Shipping Procedure	Approval Required			X	
247	Repairables – Test & Evaluation	Report of As-received Condition	Submission Only				X
248	Specialty Metals	Certificate of Compliance	Submission Only				X
249	Country of Origin – Defense Contracts	Identification of Country of Origin with shipment	Submission Only				X
249a	Country of Origin – Gulftronic Contracts	Identification of Country of Origin with shipment	Submission Only				X
250	Stress Relief Procedures	Stress Relief Procedure	Approval Required	X			
251	Environmental Stress Screening Procedures	Environmental Stress Screening Procedure	Approval Required	X			
255	Certificate of Conformance	Certificate of Conformance	Submission Only				X
256	Test Reports	Test Report	Submission Only			X	
256a	Test Reports	Test Report	Submission Only				X
257	Test Plan/Procedure	Manufacturing/Factory Acceptance Test Procedure	Approval Required	X			
258	Pressure/Leak Test Results	Pressure/Leak Test Results Report	Approval Required			X	
258a	ASME Pressure/Leak Test Results	ASME Pressure/Leak Test Results	Approval Required			X	
259	Material Certifications – Chemical and Mechanical Properties	Material Certifications – Chemical and Mechanical Properties Report	Submission Only				X
259b	Certification of Titanium Material	Material Certifications – Chemical and Mechanical Properties Report	Submission Only				X
262	Period of Useful Life	Certification – Period of Useful Life	Submission Only				X
263	Limited Shelf Life/Rubber Parts	Certification – Limited Shelf Life/Rubber Parts	Submission Only				X
266	Control of Limited Shelf Life Materials	Certification – Control of Limited Shelf Life Materials	Submission Only				X
268	Quality Assurance Data Package Requirements	Quality Assurance Data Package	Approval Required			X	
272	ASME Boiler and Pressure Vessel Code Requirements	ASME Boiler and Pressure Vessel Code Report	Submission Only			X	
273	Welding/Brazing Requirements for Commercial Products	See specification 09492S00013	Approval Required	X			



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Quality Clause	Quality Clause Title	Deliverable Documentation	Submission Only/ Approval Required	Submission Required Before			
				Use <sup>1</sup>	Mfg <sup>2</sup>	Shipping	See Clause
275	Weld/Brazing Requirements for Procedures & Repairs	See specification 09492S00012	Approval Required	X			
277	Special Process Certifications	Heat Treating Certification/Report	Submission Only			X	
278	Radiographic Inspection Submittals	Radiographic Inspection Report/Certificate	Approval Required			X	
280	Non-Destructive Examination Requirements	Non-destructive Test Procedures	Approval Required				X
"	"	Part-Specific Method/Technique Sheet	Approval Required	X			
"	"	Suppliers Written Practice/Policy	Approval Required				X
"	"	Personnel Qualifications	Approval Required				X
"	"	NDE Reports	Submission Only			X	
280b	Non-Destructive Examination Requirements (Commercial)	NDE Reports	Submission Only			X	
284	Hydrostatic Testing Requirements	Hydrostatic Test Procedure	Approval Required	X			
"	"	Technique Sheets	Approval Required	X			
"	"	Personnel Qualifications	Approval Required	X			
"	"	Pressure/Hydrostatic Test Report	Submission Only			X	
286	As-Built Configuration List	As-Built Configuration List	Submission Only				X
293	Cable and Wire Harness Assembly Workmanship	Test Report	Submission Only				X
293a	Fiber Optic Cable and Hybrid Wire Harness Assembly Workmanship	Test Report	Submission Only				X
294	Radiographic Submittal – Electronic Components	Radiographic Film Submittal	Submission Only				X
"	"	Radiographic Analysis Report	Submission Only				X
295	Printed Circuit Boards (Rigid Printed Boards)	Net List Test Report	Submission Only				X
295a	Printed Circuit Boards (Flexible/Rigid-Flexible Printed Boards)	Net List Test Report	Submission Only				X
300	Qualified Products List	Qualified Products List Traceability	Submission Only				X

<sup>1</sup>Before "Use" means before the deliverable is put to use in manufacturing, inspection, or testing.

<sup>2</sup>Before "Mfg" (i.e., Manufacturing) means before any material is cut, machined, or otherwise processed.



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