

PRODUCT ASSURANCE PROVISIONS

1. INSPECTION OF SUPPLIES

The Supplier and their Sub-Tier Suppliers shall have, or establish and maintain an adequate inspection system appropriate to the size and nature of its operation, but of sufficient scope to assure that supplies delivered under this order will comply with all the applicable drawings, specifications, and other purchase order requirements. Supplier shall respond to all Corrective Action Requests.

2. QUALITY PROGRAM

The Quality System shall be capable of compliance with ISO 9001 Quality Program Requirements

3. QUALITY SYSTEM

The Quality System shall be capable of compliance with AS 9100 Quality Program Requirements.

4. CALIBRATION SYSTEM

The supplier and their sub-tier suppliers shall be responsible for providing and ascertaining the correctness of tools, gages, and test equipment. The calibration system shall comply with ANSI/NC SLZ540-1-1994 or ISO 10012. Records of calibration shall be available for review upon request.

5. MEC or MLS SOURCE INSPECTION

Source inspection by MEC or MLS Quality Assurance Representative is required prior to shipment of items from your plant. Supplier shall notify MEC or MLS Quality Assurance at least (10) days prior to availability of supplies for inspection. Supplier shall provide necessary equipment and/or to perform inspection and test. Performance of Source Inspection does not relieve Supplier from responsibility should discrepant conditions be discovered at MEC or MLS incoming inspection or at final destination. MEC or MLS reserves the right to waive Source Inspection for specific shipments at any time based upon the satisfactory receipt of previous supplies. Such waiver shall be in the form of written authorization signed by a member of MEC or MLS Quality Management

6. RIGHT OF ACCESS

During the performance of this order, your Quality Control or Inspection and Manufacturing processes are subject to review, verification, and analysis by an authorized MEC or MLS, Government and/or customer representative(s).

7.1. GOVERNMENT SOURCE INSPECTION (GSI) AT SUPPLIER FACILITY

Government Source Inspection and/or test at all times and places is required prior to shipment from your plant. Upon receipt of this order, promptly furnish a copy to the government representative who normally services your plant so that appropriate planning can be accomplished, or if none, to the nearest Army, Navy, Air Force or defense supply agency office. In the event the representative or office cannot be located, the cognizant MEC or MLS buyer should be notified immediately.

7.2 GOVERNMENT SOURCE INSPECTION (GSI) AT MEC or MLS FACILITY

The items covered by this purchase order will be subject to Government Source Inspection at MEC or MLS facility. Enclose all required certification and test data, as required by the purchase order, drawing, SQAP, QAR, QAP, and other applicable specifications.

7.3 SELECTIVE EVALUATION/GOV'T SOURCE INSPECTION

The items covered by this purchase order are subject to Selective Evaluation/Government Source Inspection prior to shipment from your plant. The government representative reserves the right to waive Source Inspection when analysis of his/her Selective Evaluation meets the necessary requirements. This does not in any way relieve you of the responsibility to ensure that delivered products comply with all specification requirements.

8. SQAP/QAR/QAP/CSL APPLICABLE

The drawings and/or specifications list the mandatory requirements for minimum inspection and test of item(s) being purchased on this order.

9. MATERIAL IDENTIFICATION REQUIREMENTS

Identify all parts/assemblies per drawing, using part number, revision letter and serial number, as applicable. The serial number shall be made referenced on all test and inspection data. In addition, when drawing requires the material to be identified in accordance with MIL-STD-130, the MEC or MLS CAGE Number, shall be used as the MFR for applicable order.

- A- **MFR-32067** shall be used for **MEC** purchase order.
- B- **MFR-064H2** shall be used for **MLS** purchase order.

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10. ASSEMBLY MARKING

All assembly or parts must be identified with the date of manufacture by rubber stamp, impression, attached tag or other suitable means.

11. LOT CONTROL AND IDENTIFICATION

Lot control and identification are required per drawing. The lot number of coating on glass material must be identified.

12. RADIOGRAPHIC EXAMINATION (ASTM E 1742)

Radiographic examinations per ASTM E 1742, latest revision is required. All radiographic plates must become the property of MEC or MLS and must be submitted with the production parts.

13. LIQUID PENETRANT INSPECTION (ASTM E1417)

All parts must be penetrant inspected per ASTM E 1417, latest revision.

14. MAGNETIC PARTICLE INSPECTION (ASTM E 1444)

All parts must be magnetic particle inspected per ASTM E 1444, latest revision.

15. CERTIFIED PROCESSES

Suppliers and their sub-tier suppliers performing processes and/or testing shall provide certifications with each shipment. Certifications shall include: 1) supplier name, 2) P.O. No., 3) Part No., applicable Dash No. and revision, 4) Quantity, 5) indication of the process or test being performed and revision. In addition, NDI certifications shall include: 1) Number of items insp/acc/rej, 2) list of acceptance criteria, 3) identification by name or stamp the individual performing the accept/reject process and level of proficiency.

16. CERTIFICATION (COC)

Certificate of Conformance or Certificate of Compliance, as applicable, must accompany each shipment of materials. Certificates must include the 1) Supplier name, 2) MEC or MLS Purchase Order, 3) Part Number, 4) Revision, 5) Quantity. Certifications must contain the signature and title of the authorized Supplier representative responsible for certifications. The certifications must contain a statement that the Supplier has on file and available for examination, evidence of conformance to the applicable specifications. MEC or MLS Quality Assurance reserves the right to request test data supporting the Certifications. When requested, Supplier shall forward test data to MEC or MLS within five (5) working days.

17. AGE CONTROL – CERTIFICATION

Supplier and their sub-tier suppliers of material shall mark the products and exterior container in accordance with the specification, as required, including the identification of manufacturer, cure date and expiration dates.

Supplier and their sub-tier suppliers shall provide certification to actual specification, and revision; including batch identification, manufacture date, cure date, and expiration date, as required. The certificate shall bear the signature and title of supplier's authorized representative, and state that evidence of compliance is on file and available upon request. In addition, the certificate shall include information whether the shelf life is to be controlled at room temperature or at refrigerated condition, as well as information if shelf life can be extended by refrigeration. Material with less than 70% of useful life shall not be shipped on this order.

17.1 SHELF-LIFE MATERIAL

For material with a shelf life less than 70% as stated in clause 17, supplier or sub-tier supplier shall have written authority from MEC Quality Assurance in order to ship to MEC.

18. TEST REPORTS

Supplier and their sub-tier suppliers shall furnish performance test data for tests conducted on, and identifiable to the article(s) submitted (by serial number), when applicable. Performance test reports must contain the signature and title of the person (or traceable inspector stamp) responsible for the tests. Particular emphasis shall be given to characteristics that cannot be verified at MEC or MLS facility. Traceability to MEC or MLS purchase order is required.

19.1. CHEMICAL/PHYSICAL TEST REPORTS (STEEL)

Supplier and their sub-tier suppliers shall furnish chemical analysis and physical test reports with each shipment. Reports must include heat or lot number, actual results of test, and bear the company name, signature and title of an authorized representative of the company. Traceability to MEC or MLS purchase order is required.

19.2 RAW MATERIAL CERTIFICATION (ALUMINUM)

Supplier and their sub-tier suppliers shall include with the Certificate of Conformance a raw material certification stating type, grade, and applicable specification of the raw material(s) used to manufacture the purchased item. Traceability to MEC or MLS purchase order is required.

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20. COUPONS/SPECIMENS

Supplier and their sub-tier suppliers shall submit coupon/specimen by separate cover, to the attention of MEC or MLS QA, of sufficient material representative of the process, to perform the required inspection/test. Coupons/specimens shall be shipped prior to or with products and identified by part number, purchase order and applicable heat, melt, lot numbers and other applicable processes.

21. NONCONFORMING MATERIAL (NCM)

Material not in compliance to drawing(s) or specification(s) requirements shall not be shipped without prior MEC or MLS approval. Supplier may request it by notifying MEC or MLS Quality Assurance in writing of actual discrepancy, reason for discrepancy, and action taken to prevent recurrence. If authorization is given to ship, nonconforming items must be identified and segregated from conforming supplies. Acceptance will depend upon verification of discrepancy and final approval at MEC or MLS.

22. DOCUMENTATION CHANGE CONTROL

Supplier and their sub-tier suppliers shall maintain adequate control to assure drawing revision that are incorporated through purchase order changes are implemented in a timely manner. Items that are affected shall be identified, segregated, and packed separately at established points. Further, the supplier shall notify and obtain approval from MEC or MLS for proposed changes in the design or processes of the products.

23. APPROVED SOURCE

Supplier and their sub-tier suppliers shall be responsible to ensure that procurement source is the "Approved Source" named in the drawing.

Supplier and their sub-tier suppliers of assemblies who install components or sub-assemblies using drawings defined as "Approved Source" products as outlined above, must substantiate compliance by forwarding the "Approved Source" certification, or other means of identification, with each shipment of supplies to MEC or MLS.

24. FIRST ARTICLE REQUIRED

A 100% dimensional inspection shall be performed on the first piece of the production run. The first production part must be identified with part number, purchase order number and appropriate First Piece Tag identifying the First Article Piece. The Supplier or Sub-tier Supplier shall include a copy of its own completed first article inspection report with the part. Supplier may request waiver of this requirement based upon:

- a. Objective evidence of previously approval First Article Report and IAW b, c and d.
- b. No change in method of manufacturing
- c. Facility location has not changed
- d. There has not been an interruption in production of more than 24 months since approval.

Request of waiver must be submitted in writing to MEC or MLS Quality Assurance and include objective evidence of prior First Article acceptance.

24.1 FIRST ARTICLE INSPECTION/TEST

First Article Inspection/Test is required, including Performance Testing and Evaluation to the extent required by the Government Quality Assurance Representative. The supplier is responsible for scheduling Inspection/Test to obtain government QAR concurrence and provide ten (10) days notice to allow MEC or MLS the option of witnessing the same. Request for waiver of this requirement may be made in accordance with the criteria listed in PAP 24.

24.2 FIRST ARTICLE INSPECTION – AS9102

A first article inspection report is required to be furnished under this purchase order. The report may be in the supplier's format and shall meet AS9102 requirements. The first article part shall be identified and returned with the first shipment to MEC/MLS for verification.

25. NONDESTRUCTIVE TESTING (NDT)

Suppliers and their sub-tier suppliers performing Nondestructive Testing processes shall provide certifications, and/or test reports stating the applicable specification and revision, and bear the signature and title of an authorized representative of the organization performing the test(s). In the case of radiographic examination, films must be submitted to MEC or MLS upon request. Traceability to MEC or MLS purchase order is required.

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26. PC BOARD SPECIMEN

Supplier to micro-section a minimum of one (1) board per fifty (50) quantity lots selected at random. Thickness measurements shall be recorded and must meet drawing specification. Record of measurement shall be available for review and be submitted upon request.

27. HARDNESS TEST CERTIFICATION

Supplier and their sub-tier suppliers shall submit results of hardness test performed on material furnished. Hardness data must be kept in appropriate scale, provide case depth data if required, and bear the signature and title of an authorized representative of the organization performing the test. Traceability to MEC or MLS purchase order is required.

27.1 CONDUCTIVITY TEST CERTIFICATION

Supplier and their sub-tier suppliers shall submit results of Conductivity Test results when required by specification for aluminum alloys.

28. CONTINUITY TEST (MIL- PRF -55110)

Supplier and their sub-tier suppliers shall performing continuity test on all multi-layer boards in accordance with the latest revision of MIL- PRF -55110.

29. DIRECT SHIPMENT

Direct shipment is authorized from your facility. Prior to this shipment, all necessary MEC/MLS and/or customer source, as required by the purchase order and attachments have been completed and verified for compliance.

30. QUALIFIED PRODUCTS LIST (QPL)

Suppliers and their sub-tier suppliers of products such as electronic components, primers, enamels, oil, welding rod, switches, regulators, etc, direct to MEC or MLS are responsible to furnish these products as listed on the applicable Qualified Products List (QPL) or evidence that they have been approved for inclusion on such list. They must substantiate the qualification by listing the product, the name of manufacturer, the QPL number, revision and date of applicable QPL on the certification for components or sub-assemblies. If there is a shelf life for the product, the expiration date must be noted on the certification and/or the product.

Supplier and their sub-tier suppliers accomplishing final surface finish operations such as painting or installation of components or sub-assemblies using QPL products as outlined above, must substantiate the qualification as described above.

31. PPP&M REQUIREMENTS

Supplier and their sub-tier suppliers shall deliver purchased items meeting the requirements of best commercial practices. In addition, all parts shall be provided with adequate protection from damage including corrosion and/or contamination, as applicable. Bare metal-to-metal contact is not allowed under any circumstances.

32. ELECTRO STATIC DISCHARGE (ESD) CONTROL

The Supplier and their sub-tier suppliers shall maintain an Electro Static Discharge (ESD) Control in accordance with MIL-STD-1686 and MIL-HDBK-263 for all Electronic Circuit Card Assemblies and components that might be susceptible to damage for ESD voltage. Sensitivity classifications are as follows;

Class I - 0 to 1,999 Volts
Class II - 2,000 to 3,999 Volts
Class III - 4,000 to 15,999 Volts

33. STATISTICAL PROCESS CONTROL (SPC)

Supplier and their sub-tier suppliers shall have a Statistical Process Control program in effect in their facility with applicable procedures in the Quality Manual/Procedures Handbook. Statistical data shall be submitted as evidence that the Supplier's parts/processes are within the Statistical Process Control limits and within allowable specification tolerances. SPC techniques as defined in ASQC B1, B2, AND B3 using X bar and R chart shall be implemented.

34.1. BALLISTIC CERTIFICATION (ARMOR)

Supplier and their sub-tier suppliers of armor material must be qualified in accordance with the applicable specification. In addition to chemical and physical test reports required by the specification, supplier shall furnish evidence of ballistic qualification in the form of actual test data from the authorized government testing agency.

34.2 BALLISTIC TESTING FOR U.S GOVERNMENT CONTRACTS

The armor material delivered on this order requires ballistic testing at the U.S. Army Aberdeen Proving Ground (APG). Our contract requires that we notify the U.S. Army, sixty (60) days prior to the shipment of the samples to the APG. Along with the shipment of the test samples, the armor manufacturer must include information pertaining; specification, revision, heat/lot number, dimension, weight, manufacturer's name, combined number of samples, total weight, vehicle application and government contract number. Contact MEC or MLS QA for vehicle application and address of the testing agency.

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35.1. WELDING CERTIFICATION

Supplier and their sub-tier suppliers shall furnish a Certification of Compliance for welding/joining processes used in the fabrication of purchase order. Certificate shall state the specification and revision, bear the signature and title of an authorized representative of the manufacturer performing the process, and include a statement that evidence of compliance is on file and available to MEC or MLS upon request. Traceability to MEC or MLS purchase order is required.

35.2. WELDING PROCEDURE

Supplier and their sub-tier suppliers shall prepare and submit to MEC or MLS Quality Assurance, a procedure in accordance with the applicable welding/joining specification. When required by the specification, a workmanship specimen shall be prepared for approval through Supplier's government QA Representative. If the Supplier facility is not normally serviced by government, the specimen may be submitted to MEC or MLS for submittal.

36. WORKMANSHIP SPECIMEN

Supplier and their sub-tier suppliers shall submit by separate cover, to the attention of MEC or MLS Quality Assurance, a workmanship specimen representative of the procedure (PAP clause 35.2) to perform the required inspection and test.

Workmanship specimens shall be shipped prior to or with the products and identified with part and purchase order number. Shipment of products shall not be held awaiting approval of workmanship specimen.

37. WELDING EQUIPMENT APPROVAL

Supplier and their sub-tier suppliers shall provide certification of equipment used in the performance of spot, seam, or resistance welding processes, as required by the applicable specification(s).

38. SURFACE PREPARATION PROCEDURE

When the drawing specifies a finish note such as "Treat per Type I of TT-C-490" or "Phosphate Coat per MIL-DTL-16232", the supplier and their sub-tier suppliers of the detail parts or assembly shall submit to MEC or MLS a copy of the plating source government approval letter for each process. When a plating source approval letter is not available, the plating source shall prepare and submit through the Supplier for approval by MEC or MLS, two (2) copies of their written procedure prepared in accordance with the military specification prior to start of production. Furthermore, approval of the procedure will not require resubmission for any other drawing showing these surface preparations unless procedure is revised.

39. TT-C-490, TYPE III

When the Finish requirement of the part drawing provides an option of pretreatment for organic coatings to either Type I or Type III per TT-C-490, the Type I shall not be used. Pretreat the item(s) to TT-C-490, Type III.

40. CERTIFICATION FOR GRADE 5 & HIGHER FASTENERS

Objective evidence for compliance to technical requirements for all threaded steel fasteners designated as Grade 5, 5.1, 5.2, 7, & 8, as defined by SAE-J429 document shall consist of chemical, core hardness plating, and tensile test data provided by the manufacturer or as a supplier of a fastener lot which is directly traceable to that lot. Chemical tests shall include, as a minimum, percent by weight of the following elements; Carbon, Manganese, Phosphorous and Sulfur. Test report certification must accompany each lot of product shipped against this item. The manufacturer symbol (logo) shall be as listed in MIL-HDBK-57, current revision.

41. ADDITIONAL REQUIREMENTS NECESSARY

42. NO PAP REQUIRED

43. CURRENT REVISION

Unless otherwise stated, the item supplied shall be certified to the current revision at the time or newer.

44. COMPLETE PER SPECIFICATION

Supplier and their sub-tier suppliers is required to supply product complete per specification.

45. FOREIGN OBJECT DEBRIS

General workmanship practices and standard term for the prevention of FOD to products apply.

a. Foreign Object Debris (FOD): A substance, debris or article alien to the part/item(s), which would potentially cause damage

b. Foreign Object Damage (FOD): Any damage attributed to a foreign object that can be expressed in physical or economic terms that may or may not degrade the product's required safety and/or performance characteristics

46. SPECIAL PROCESSES

Special processes include but shall not be limited to not be limited to welding, heat-treating, cleaning, electroplating, anodizing, chemical film, casting, forgings and nondestructive testing.

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47. SUPPLIERS AND THEIR SUB-TIER SUPPLIERS

Suppliers must flow-down MEC/MLS Product Assurance Provisions (PAP Clauses) to their Sub-Tier Suppliers the applicable requirements listed in this purchase order including key characteristics and special processes when applicable.

47.1 SPECIAL PROCESSES – CUSTOMER-SPECIFIED APPROVED SOURCES ONLY

Special process requirements of the drawing or specification (NDT, Welding, Heat Treatments, X-Ray, Cleaning, Electroplating, Chemical Film, Anodizing, Castings, Forgings, and all applied finishes, etc.) are to be performed by MEC/MLS customer-specified approved sources only. This includes any sub-tier processors used by you, the supplier, to perform a special process. The supplier shall list on the packing list or certificate of conformance accompanying each shipment the names and address of the sub-tier processors who perform the processes and a copy of the sub-tier packing sheet and/or certificate of conformance for the processes performed.

48. WRITTEN SPECIAL PROCESSES

The suppliers and their sub-tier suppliers approved special process procedure must be followed to perform special processes.

49. OZONE DEPLETING CHEMICALS

Class I ozone depleting chemicals are not to be used nor incorporated in any items to be delivered under this order. This prohibition supersedes all specification requirements but does not alleviate any production requirements. Substitute chemicals must be submitted for approval unless they are authorized by the specification requirements.

50. GRAIN DIRECTION

Grain Direction identification is required on this order. All pieces of raw stock shall be identified with an arrow or other means denoting the grain direction. Failure to identify grain direction shall be cause for rejection.

51. IDENTIFICATION AND SHELF-LIFE INFORMATION

Each container, package, or material shall be identified as to storage environment and manufacturer's batch, lot, and shelf-life expiration information. MEC/MLS may refuse to accept material with more than 75 percent of the shelf-life expired at the time of receipt.

The manufacturer shall:

- a. Identify date of manufacture
- b. Include Material Safety Data Sheet (MSDS), required with each shipment
- c. Identify each container
- d. Specify storage environment
- e. Provide limited shelf-life information

52. RECORD RETENTION

Marvin Engineering Suppliers and their Sub-tier Suppliers shall retain and maintain Quality Records associated with MEC product from deterioration for a minimum of seven (7) years unless otherwise specified by purchase order or customer. No Quality Record associated with MEC may be stored, either temporarily or permanently, in an area where the potential for damage, deterioration, or loss exists. Quality Records associated with MEC maintained for this period may be disposed of only after obtaining authorization from MEC Quality Assurance in writing. Prior to disposal, records shall be defaced to illegibility.

53. DOMESTIC SPECIALTY METALS

Material identified on this purchase order shall be melted in the United States or a qualifying country. Specialty metals are defined in the Defense Federal acquisition regulation Supplement Clause 252.225-7014, Preference for Domestic Specialty Metals, Alternate I applies. Qualifying countries are listed in 225.872-1 (a).

http://www.acq.osd.mil/dpap/dars/dfars/html/r20060512/2522_25.htm

Exceptions must have written approval by MEC or MLS as applicable, and their customer.

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54. INSPECTION SAMPLING PLAN:

Inspection sampling is acceptable for this purchase order as follows with exceptions listed:

- In accordance with ANSI/ASQC Z1.4 *Sampling Procedures and Tables for Inspection by Attributes*, normal Level II, single sampling.
- In accordance with MIL-STD-105, level 2.5 AQL standard sampling plan for all attributes

Critical Dim. = Less than 0.025mm or (.001 in) 100% Inspection

Major Dim. = 0.025mm to less than 0.1mm (.001 to .004 in) 1%

Minor Dim. = 0.1mm to less than 0.25mm (.004 to .010 in) 2.5%

0.25mm or more, (.010in) or more 4%

Surface finishes having a 16 value or less 100%

Threads specified to class 3 or greater 100%

Note: Lots acceptance shall be at 0, Rejection shall be at 1

55. SOFTWARE CONTROL

Suppliers and their Sub-tier Suppliers shall have established controls for software quality assurance. Software quality assurance control applies to deliverable and non-deliverable software used for the creation of, acceptance of, or incorporated into product(s) produced by suppliers for Marvin Engineering/Marvin Land Systems. The Supplier software quality assurance program is subject to audits, verification and approval/disapproval by Marvin Engineering/Marvin Land Systems representatives.