



**APPENDIX A
PURCHASING
PRODUCT ASSURANCE
PROVISIONS**

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Marvin Engineering / Marvin Land Systems
PRODUCT ASSURANCE PROVISIONS

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PRODUCT ASSURANCE PROVISIONS**

1. INSPECTION OF SUPPLIES

The Supplier and their Sub-Tier Suppliers shall establish and maintain an inspection system acceptable to Marvin Engineering Company (MEC) and/or Marvin Land Systems (MLS). Government contracts for standard inspection require FAR 52.246-2 and when applicable PAP 2 and/or 3 is required for Higher-Level Contract Quality Requirement of inspection in accordance with FAR 52.246-11. The inspection system shall be 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 Supplier shall have a Quality System certified to ISO 9001 Quality Program Requirements.

3. QUALITY SYSTEM

The Supplier shall have a Quality System certified to AS9100 Quality Program Requirements.

- a. Upon request, suppliers shall permit MEC access to all data in OASIS databases including registration documentation, certification, audit reports, findings, corrective actions, etc. MEC reserves the right to input significant and/or frequent escape data and major audit findings regarding suppliers into the relevant OASIS data base records for those Suppliers.
- b. The supplier is responsible to provide MEC Purchasing with written notification of any changes in the certification / registration / accreditation or major audit findings within two (2) business days of receiving notification of the change or finding. Examples of changes in registration include new certification, suspension, or expiration.

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/NCSLZ540-3-2006 or ISO 10012. Records of calibration shall be available for review upon request.

5. MEC or MLS SOURCE INSPECTION

Source inspection by an authorized MEC or MLS Quality Assurance Representative is required prior to shipment of items from your Facility. Supplier shall notify the Buyer listed on the purchase order at least (48) hours prior to availability of supplies for inspection. Supplier shall provide necessary equipment and space to perform inspection, test and validation.

Supplier must complete Marvin Group Form F-876 "Source Inspection Checklist" prior to source inspection. The Supplier shall submit to the source inspector parts ready for inspection (not packaged), all required paperwork and certifications, and an inspection check sheet that covers all applicable drawing dimensions/notes, Purchase Order and/or Change Order requirements, AQL Level sampled (PAP 54) and inspection equipment used. (Use referenced MEC Form F-865 Production Lot Inspection Results Evaluation Form or equivalent for the inspection check sheet.) Refer to PAP 24 for First Article Inspections (FAI) requirements. When supplier is not ready at the time coordinated by the supplier for inspection or test, Marvin may debit the supplier the additional cost of inspection or test.

[Production Lot Inspection Results Evaluation Form](#)

Performance of Source Inspection does not relieve Supplier from responsibility should discrepant conditions be discovered at MEC or MLS or final destination. All documentation accepted and stamped by the MEC or MLS Source Inspector shall be submitted with the shipment of parts. MEC or MLS reserves the right to waive Source Inspection for specific shipments at any time. Such waiver shall be in the form of a Purchase Order change omitting the Source Inspection requirement.



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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. **Note:** Suppliers shall receive written authorization from MEC or MLS authorizing shipment prior to shipping product from supplier facility.

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 (OBSOLETE)

8. SQAP/QAR/QAP/CSL APPLICABLE (OBSOLETE)

9. MATERIAL IDENTIFICATION REQUIREMENTS

Identify all parts/assemblies per drawing, using part number, revision letter and serial number, as applicable. 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.

Note: The serial number shall be referenced on all test and inspection data.

10. ASSEMBLY MARKING (OBSOLETE)

11. LOT CONTROL AND IDENTIFICATION

Lot control and identification are required. Individual lot numbers are not to be mixed and shall be positively identified at all times.

Material and product lots shall be positively identified with:

1. Lot Number (always)
2. Heat Lot Number (as appropriate)
3. Part Number (as appropriate)
4. Material code or specification (as appropriate)

In preparation of shipment to MEC; individual lot numbers shall be segregated and identification shall be clearly visible, permanent and legible. Acceptable marking includes ink or stamp impression on a label, bag, or tag compatible with the part or material and which does not result in deterioration or degradation.

Hazardous Material Identification

All hazardous material shall be visibly identified on exterior of shipping container with HAZCOM/DOT placard/label IAW 29 CFR 1910.1200.

12. RADIOGRAPHIC EXAMINATION (OBSOLETE)

13. LIQUID PENETRANT INSPECTION (OBSOLETE)

14. MAGNETIC PARTICLE INSPECTION (OBSOLETE)

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.
- 4) Part Revision



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- 5) Quantity
- 6) Indication of the process or test being performed and revision
(if revision not provided on P.O., latest revision at time of acknowledgement is applicable)
- 7) Indication of heat and/or MEC or MLS lot no. In addition, NDI/NDT certifications shall include:
 - 7a) Number of items inspected/accepted/rejected
 - 7b) list of acceptance criteria
 - 7c) identification by name or stamp the individual performing the accept/reject process and level of proficiency.

Note: When raw material is supplied by MEC or MLS, lot data information will be forwarded to supplier via MEC memo shipper accompanying the raw material shipment or, in the case of drop shipments, by e-mail from the MEC Receiving Department representative or by the respective buyer.

16. CERTIFICATION (COC)

Certificate of Conformance or Certificate of Compliance, as applicable, must accompany each shipment of materials. Certificates must include:

- 1) Supplier name
- 2) MEC or MLS Purchase Order (PO)
- 3) Part Number annotated on PO (note: for suppliers who have a COTS item number cross-referenced with an MEC or MLS Part Number, both the COTS number and the MEC/MLS Part Number must be documented on all Certifications)
- 4) Part Revision
- 5) Quantity
- 6) Indication of heat and/or lot no. Certifications must contain the signature and title of the authorized Supplier representative responsible for certifications. The certification 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 data supporting the Certifications. When requested, Supplier shall forward this data to MEC or MLS within five (5) working days.

- 7) When the material that is being provided has a shelf life requirement, then the material cure date and date of expiration must be included on the Certificate of Conformance.

Note: When raw material is supplied by MEC or MLS, lot data information will be forwarded to supplier via MEC memo shipper accompanying the raw material shipment or, in the case of drop shipments, by e-mail from the MEC Receiving Department representative or by the respective buyer.

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 75% of useful life shall not be shipped on this order.

Note: For material with a shelf life less than 75%, supplier or sub-tier supplier shall have written authority from MEC Production Planning Department in order to ship to MEC. 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% of the shelf-life expired at the time of receipt.

The manufacturer shall:

- a. Identify date of manufacture



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- 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

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.

NOTE: Unless otherwise specified in the body of the Purchase Order, this requirement is not applicable to "Standard Catalog Hardware" (i.e., part or material that conforms to an established industry or national authority published specification, having all characteristics identified by text description, national/military standard drawing or catalog item).

19. RAW MATERIAL CERTIFICATION

Supplier and their sub-tier suppliers shall include a copy of the Raw Material Original Mill Certification bearing the company name, signature and title of an authorized representative of the company. Material must meet any contractual requirements as stated in the Purchase Order (PO), and any applicable DFARs. Traceability to MEC or MLS purchase order is required. In addition:

For Aluminum: The Raw Material Certification shall include heat or lot number, type, grade, and applicable specification of the raw material(s) used to manufacture the purchased item.

For Steel and Specialty Metals: The Raw Material Original Mill Certification shall include the chemical analysis and physical test reports and any required secondary independent test laboratory certification(s) with each shipment. Reports must include heat or lot number, the applicable specification of the raw material, and actual results of the test.

All raw materials, i.e. forgings, castings, extrusions, bar and/or plate stock, etc., must be physically identified with the heat lot number. Rubber stamping is acceptable. If a product/parts are furnished in multiple heat lots, supplier must always keep segregated, to avoid loss of traceability.

20. COUPONS/SPECIMENS (OBSOLETED)

21. NONCONFORMING MATERIAL (NCM) CONTROL

Nonconforming material must be identified and documented, segregated or bonded, pending disposition when found, to prevent its unintended release or use, and evaluated to determine the actions necessary to contain its effect on other processes or products.

Disposition Authority

Suppliers do not have Material Review Board (MRB) authority for Marvin Engineering/Marvin Land or any of its customer's designed items unless specifically authorized in writing.

The supplier MRB shall not perform any disposition on any nonconformance to MEC, MLS or customer requirements that affect form, fit, function, weight, interchangeability, maintainability, reliability, unique key characteristics or safety. These nonconformances shall be submitted to MEC or MLS on the specified nonconforming material control document. Suppliers have no authority to proceed with processing as it pertains to the nonconformance until full written and approved final disposition has been given addressing the nonconforming issue.

The supplier's disposition authority of nonconformances is limited to rework to specification, return to supplier and scrap. These terms are defined as follows:

- 1) **Rework** - Restore material to specification compliance in accordance with required process(s) and addressed by governing process specification(s). Parts subject to subsequent processing not authorized by specification shall be submitted to MEC/MLS Material Review Board



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(MRB) for disposition. Specific rework instructions shall be provided with Rework dispositions.

- 2) **Return To Supplier** - Return of subcontractor product found to be discrepant for subsequent rework or replacement.
- 3) **Scrap** - Permanent removal from production and destruction of product found to be unfit for use. Scrapped product shall be segregated or bonded, and controlled until destroyed.

Marking Requirements for Rejections

The supplier shall mark discrepant material with the nonconformance document number for tracking purposes.

Acceptance will depend upon verification of discrepancy and final approval at MEC or MLS.

When product is rejected at MEC for discrepancies and sent back to subcontractor to rework or replace. Upon return the subcontractor shall clearly state on their Packing Slip if the product was reworked or replaced:

- Rework - If parts are reworked, the subcontractor shall provide documentation that supports the rework
- Replacement - The subcontractor shall provide a new documentation that supports purchase order compliance.

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 INSPECTION

On the first initial production run/part, First Article Inspection (FAI) shall be performed in accordance with the requirements of AS9102 ("Aerospace First Article Inspection Requirement"), per the revision level established at time of purchase order issuance. First Article Inspection shall be performed prior to product acceptance and/or shipment to MEC or MLS. A new/Delta First Article Inspection shall be required if:

- A change in the design characteristics affecting fit, form, or function of the part.
- A change in manufacturing source(s), process(es), inspection method(s), location of manufacture, tooling, or materials that can potentially affect fit, form, or function.
- A change in numerical control program or translation to another media that can potentially affect fit, form, or function.
- A natural or man-made event, which may adversely affect the manufacturing process.
- An implementation of corrective action required to complete a previous FAI, as described in 4.4. of AS9102 ("Aerospace First Article Inspection Requirement")
- A lapse in production for two years shall require an update for any characteristics that may be impacted by the inactivity. This lapse is from the completion of last production operation to the actual restart of production.

Please note: Supplier shall not commence production of units beyond the first article when MEC supplies material unless written authorization is given by MEC. All hardware produced beyond the first production lot without MEC approval shall be at the sole risk of the Supplier.



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The following Items shall not require FAI, unless otherwise directed by Buyer:

- Standard hardware and standard electronic parts (AN, MS standard hardware, JSF, etc.),
- Commercial Off-the-Shelf (“COTS”) Items,
- Metallic (plate, bar, rod, etc.) and non-metallic (paints, sealants, adhesives, etc.) raw materials,
- Items that have been returned by Buyer for repair.

The supplier’s AS9102 report shall provide, as a minimum: Purchase Order (PO) number, part number, revision level, part name, Supplier’s name, drawing requirements (including tolerances) & Heat Lot Number, method used to obtain results and actual results of each measurement. Part(s) used for the inspection shall be identified when shipped to MEC or MLS as “first article inspection sample”. All required and optional fields on FAI Report Forms shall be completed. In addition, any FAI report form generated shall not contain open fields. To ensure each field of the FAI has been reviewed, the supplier shall mark all Non Applicable fields as “N/A” and shall give a brief explanation for each. First article data, in accordance with the requirements of AS9102 first article inspection report form, shall accompany the first shipment to be delivered and an additional copy sent to MEC or MLS, Attention: Quality Control Receiving Inspection Department, 261 W. Beach Avenue, Inglewood, CA 90302. If the part requires functional testing, in addition to the actual test results, the supplier shall furnish a diagram of the test set-up, the test equipment that was used, the tolerances of the test equipment, and the calibration date of the test equipment used. AS9102 forms can be found on the Society of Automotive Engineers website located at the following address:

<http://www.sae.org/aaqg/publications>

If the above link does not open, copy and paste the address to your web-browser window.

25. NONDESTRUCTIVE TESTING (OBSOLETE)

26. PRINTED CIRCUIT BOARDS

PCB’s will comply with ANSI/IPC-A_600 unless otherwise specified.

Note: The supplier will default to Class 3 requirements if the class is not otherwise specified on the Purchase Order or other buyer supplier documents.

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 perform 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 or 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.



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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 except for Commercial Off-the-Shelf (COTS) and "Bag and Tag" items.

32. ELECTRO STATIC DISCHARGE (ESD) CONTROL

The Supplier and their sub-tier suppliers shall maintain an Electro Static Discharge (ESD) Control in accordance with ANSI/ESD S20.20 and MIL-HDBK-263 for all Electronic Circuit Card Assemblies and components that might be susceptible to damage for ESD voltage.

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.

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



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spot, seam, or resistance welding processes, as required by the applicable specification(s).

38. SURFACE PREPARATION PROCEDURE (OBSOLETE)

39. TT-C-490, TYPE III (OBSOLETE)

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.

41. ADDITIONAL REQUIREMENTS NECESSARY (OBSOLETE)

42. NO PAP REQUIRED

43. CURRENT REVISION

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

The current specification revision shall be located at the following webpage:

http://www.marvingroup.com/index.php/supplier_information/.

In the event that the supplier possesses a later revision than what is specified on the webpage, the supplier shall contact the MEC Data Management representative.

44. COMPLETE PER SPECIFICATION (OBSOLETE)

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 (OBSOLETE)

47. SUPPLIERS AND THEIR SUB-TIER SUPPLIERS

Suppliers must flow-down MEC or 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 or 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.

47.2 RAYTHEON QUALITY NOTE SJ APPLIES

HEAT TREAT must be performed by a Raytheon approved or NADCAP approved supplier. Contact MEC Buyer for the applicable Q Note revision. See qnotes.raytheon.com for full note requirements.

47.3 RAYTHEON QUALITY NOTE TC APPLIES

NON-DESTRUCTIVE TESTING (NDT) must be performed by a Raytheon approved supplier. Contact MEC Buyer for the applicable Q Note revision. See qnotes.raytheon.com for full note requirements.



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47.4 RAYTHEON QUALITY NOTE JY APPLIES

PLATING AND SURFACE FINISH requirements must be performed by a Raytheon approved or NADCAP approved supplier. Contact MEC Buyer for the applicable Q Note revision. See qnotes.raytheon.com for full note requirements.

47.5 RAYTHEON QUALITY NOTE CT APPLIES

PAINT must be performed by a Raytheon approved supplier. Contact MEC Buyer for the applicable Q Note revision. See qnotes.raytheon.com for full note requirements.

47.6 RAYTHEON QUALITY NOTE HK APPLIES

WELDING AND BRAZING must be performed by a Raytheon approved supplier. Contact MEC Buyer for the applicable Q Note revision. See qnotes.raytheon.com for full note requirements.

47.7 RAYTHEON QUALITY NOTE CX APPLIES

SOLDERING must be performed in accordance with the current revision of Raytheon Q note CX. Contact MEC Buyer for the applicable Q Note revision. See qnotes.raytheon.com for full note requirements.

48. WRITTEN SPECIAL PROCESSES

The supplier's and their sub-tier supplier's approved special process procedure must be followed to perform special processes. All material used in processing, testing and inspection shall be acceptable to the special process as identified by MEC or MLS Purchase Order, and no process shall be modified and/or changed without approval by MEC or MLS or their customer (when applicable).

49. OZONE DEPLETING CHEMICALS

Class 1 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 (OBSOLETE)

52. RECORD RETENTION

MEC or MLS Suppliers and their Sub-tier Suppliers shall retain and maintain Quality Records associated with MEC or MLS product from deterioration for a minimum of ten (10) years unless otherwise specified by purchase order or customer. No Quality Record associated with MEC or MLS may be stored, either temporarily or permanently, in an area where the potential for damage, deterioration, or loss exists. Quality Records associated with MEC or MLS maintained for this period may be disposed of only after obtaining authorization from MEC or MLS 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 Clauses 252.225-7008, Preference for Domestic Specialty Metals and 252.225-7009; Restriction on Acquisition of Certain Articles Containing Specialty Metals. Qualifying countries are listed in 252.225-7002. These DFAR clauses may be found at the following webpage: <http://www.acq.osd.mil/dpap/dars/dfars/html/current/252225.htm>

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

54. INSPECTION SAMPLING PLAN:

Sample size Inspection reports shall be submitted with the certification package (Cert Package) in accordance with AS9102 latest revision requirements. Unless otherwise specified Inspection shall be conducted utilizing ANSI Z1.4 General Inspection Level II at an Acceptance Quality Level (AQL) of 1.0 in accordance with Sampling Procedure and Tables for Inspection by Attributes, normal level II. Lots acceptance shall be at zero (0), rejections shall be at one (1).



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Note: exception for Critical characteristics/Key Characteristics as defined below. These features shall be inspected 100% on all lots:

- a. Any feature identified with a total tolerance less than .001 inches
- b. Any Surface finishes having a 16 RMS value or less
- c. Any geometric feature control requirement with a total tolerance range of .002 inches or less
- d. Angular tolerances with a total range less than 1 degree
- e. Threads specified to class 3 or greater
- f. Any characteristic deemed as critical by the engineering support activity (ESA) including all CSI, CAI or KC features identified on the released engineering drawing or purchase order.

NOTE: The features defined in this clause are also applicable to PAP 67 (Data Requirements for Turnkey parts/Machining POs) for features identified in a-f.

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 MEC or MLS. The Supplier software quality assurance program is subject to audits, verification and approval/disapproval by MEC or MLS representatives.

56. DO NOT OFF-LOAD TO SUB-TIER SUPPLIERS

MEC or MLS Suppliers not certified to either ISO9001: 2008 or AS/EN9100, shall not off-load to their Sub-tier Suppliers for the purchase of Raw Material or Special Processes without written approval from MEC or MLS and their Customer (when applicable).

57. SUPPLIER NOT ACCREDITED (OBSOLETE)

58. OPEN

59. SUPPLIER PROCESS CHANGE CONTROL

Supplier manufacturing process changes shall be reported to MEC or MLS for evaluation and disposition. This requirement does not apply to commercial off-the-

shelf (COTS) items. The supplier understands that a First Article or Inspection to the extent necessitated by the change may be imposed to validate the new process even when there is no change to configuration, form, fit, or function. A manufacturing process change includes but is not limited to:

- a. moving the location of manufacture within a production facility or to a new facility
- b. changing manufacture or process sources or methodology, or
- c. changing machinery, equipment, tooling, or programming (not inclusive of replacement of same item)

A documented process shall be in place to review, identify and submit a request for change to the MEC or MLS Procurement Representative. Changes shall be submitted to MEC or MLS 30 days prior to planned implementation.

60. EXECUTIVE ORDER 13496

Notice Of Employee Rights Under Federal Labor Laws
<http://www.dol.gov/olms/regs/compliance/EO13496.htm>

60.1 EXECUTIVE ORDER 13465

Amending Executive Order 12989, as Amended
<https://www.gpo.gov/fdsys/pkg/FR-2008-06-11/pdf/08-1348.pdf>

61. SUPPLIER REQUIREMENTS FOR USE OF REDUCED DIMENSION DRAWINGS (RDD)

[MEC Standard Practice: SP-05-02](#)

62. COUNTERFEIT PARTS (DFAR 252.246-7007)

Supplier shall develop and implement a counterfeit parts control plan that documents its processes for risk mitigation, disposition and reporting of counterfeit parts. Reference guide SAE AS5553 *Counterfeit Electronic Parts, Avoidance, Detection, Mitigation and Disposition* and/or SAE AS6174 *Counterfeit Materiel, Assuring Acquisition of Authentic and Conforming Materiel*.

All electrical, electronic, electro-mechanical and electro-optical component parts delivered and/or used in the manufacture of deliverable products shall be from the Original Component Manufacturer (OCM) / Original Equipment Manufacturer (OEM) or franchised



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distributors or Authorized Aftermarket Manufacturer (AAM).

If counterfeit parts are furnished under this purchase agreement, such items shall be impounded. The Supplier or when applicable, their Sub-Tier Supplier shall promptly replace such items with genuine parts conforming to the requirements of this Contract at no increase in price, cost or fee to MEC or MLS. If the delivery of counterfeit parts is the result of Supplier's intentional or fraudulent acts, Supplier shall also be liable for the cost of impoundment and removal of counterfeit parts. MEC or MLS may turn such items over to US Governmental authorities (Office of Inspector General, Defense Criminal Investigative Service, Federal Bureau of Investigation, etc.) for investigation and reserves the right to withhold payment for the suspect items pending the results of the investigation.

63. LM AERO QUALITY APPENDIX QJ & QX PROCESS - APPENDIX QJ

Vendor code 006831.

PROCESSING - APPENDIX QJ

Processing to be accomplished in performance of this purchase order is directly related to a Lockheed Martin Aeronautics Company purchase order and must be accomplished in accordance with process specification(s) on this purchase order and the revision in effect as of the date of this PO of Lockheed Martin Aeronautics Company Appendix QJ. All requirements of such Appendix QJ paragraph 12.a.-f. shall be accomplished. Appendix QJ is located at the following link:

[LM Quality Appendix QJ](#)

MACHINING - APPENDIX QX

In accordance with Lockheed Martin Aeronautics Company purchase order, all line items are subject to LM Aero Quality Requirements Appendix QX. Appendix QX is located at the following link:

[LM Quality Appendix QX](#)

The appropriate quality requirements shall be adhered to by MEC or MLS sub-tier suppliers, include but are not limited to key characteristics, control of special process, record retention and flowdown of quality system per

Appendix QX Table 1 - Quality System Requirements by Commodity, Variability Reduction.

PROCESS CAPABILITY MEASUREMENT - CLAUSE Q30
MEC sub-tier suppliers shall comply with quality clause Q30 and AS9103. Quality clause Q30 is located at the following link:

[LM Quality Clause Q30](#)

INSPECTION DATA REQUIREMENT – KEY CHARACTERISTIC (KC) DATA COLLECTION

When KC's are flagged on the face of the drawing(s), each part shall be inspected to record each key characteristic (100% inspection). One key characteristic may refer to same feature in multiple places on single part. Refer to drawing for scope of key characteristic and document 2YZA00720.

- Record key characteristic measurements on SPC control chart.
- Monthly, submit SPC control chart in .pdf format and key characteristic raw data measurements in Excel format. Submit data via Marvin Engineering portal. HTTPS user information will be provided by request. Contact MEC data management for new HTTPS user.
- Complete J0621 form monthly. Refer to 2YZA00720 for key characteristic reporting requirements and J0621 form for instructions.
- Submit completed J0621 form and SPC control chart via MEC portal by 30th of each month. HTTPS user information will be provided by request.
- As directed by AS9103 section a.5, take action from study of process performance. If the process is not capable ($Cpk < 1.33$), submit to MEC an action plan on methods to reduce variation within 30 days of data submission.

64. PURCHASE ORDER LOT INCREASES

When raw material or parts are provided to a supplier, any excess material or parts shall be returned to MEC or MLS If the raw material yields a higher quantity than specified on the purchase order, the MEC Purchasing Agent must approve the quantity adjustment prior to work being performed. MEC or MLS will not accept quantity increases from special processing operations such as heat treat, Penetrant inspection, anodize, plating, chem film, Pyrometry, prime/paint, radiographic



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inspection, and Passivate. All MEC or MLS material or parts must be traceable to MEC's or MLS's purchase order and (or) heat lot number.

65. INTERNATIONAL TRAFFIC IN ARMS REGULATIONS (ITAR)

Technical Data (includes drawings, specifications, models, software, other documentation)

Supplier acknowledges that MEC or MLS may provide technical data subject to Export Control laws and any such Technical Data will be indicated as "ITAR-controlled." This technical data (as well as components) may not be disclosed to any foreign persons or foreign commercial entities, including employees, consultants, subcontractors, vendors or suppliers. The technical data will only be utilized for the manufacture of articles required by the purchase order. The supplier will convey the same requirements to their sub-tier suppliers. The supplier also agrees to destroy or return all such technical data upon completion of the purchase order.

66. MEC SUPPLIED TOOLING

When MEC or MLS furnishes inspection aids, gauges and tooling fixtures which fall under the Quality Assurance calibration requirements of ISO 10012, then it will be mandatory for the suppliers to maintain the condition of the loaned gauges and tooling. Suppliers will be notified if a gauge is due for calibration and request for return to MEC or MLS. Suppliers to be aware, that no product manufactured with an un-calibrated gauge and/or tool will be accepted and may be suspect. Suppliers to be aware, that they will have the sole responsibility of maintaining this loaned tooling. Suppliers will be held accountable for any scrap or damaged tooling and will be debited accordingly. It will be mandatory upon receipt of final shipment of said contract, that supplier returns loaned tooling to MEC or MLS.

67. DATA REQUIREMENTS FOR TURNKEY PARTS/ MACHINING POs

The following data shall be included with turnkey product and machining Purchase Orders (POs), at a minimum, when returned to MEC or MLS. MEC or MLS defines turnkey as a part that is built complete (including all required machining and processing) and compliant to drawing(s), drawing note(s), and applicable specification(s). For suppliers furnishing castings and

forgings, the supplier shall provide inspection records for all lower level details:

First Article Inspection Report (FAIR):

- A completed AS9102 data package. Include with FAIR, but not limited to - Production Order/Job Traveler, Material Certifications with Material Heat Lot Number (one heat lot number per job traveler/production order), Processing Certifications.
 - See PAP 24 for more information on First Article Inspection (FAI).
 - Provide inspection records for all lower level details (i.e. castings, forgings):
 - 100% recorded actuals for drawings and or models that identify Critical Dimensions/ Characteristics or Key Characteristics (where applicable) are flagged on the face of the drawings.
- **Production Run Parts:**
- Material Certifications with Material Heat Lot Number (one heat lot number per job traveler/ production order), and Processing Certifications.
 - 100% recording of actuals for Critical Dimensions/ Characteristics or Key Characteristics (where applicable).
 - Refer to PAP 54 (Inspection Sampling Plan) for additional features to be inspected 100% on all lots.
 - Recorded range from low to high.
 - Provide inspection records for all lower level details including castings and forgings.
 - Use Acceptable Quality Level (AQL) of 1.0 (unless another sampling plan is specified by MEC or MLS) to define sample size of entire lot and perform 100% dimensional inspection of the sample size quantity. Segregate non-compliant parts, contact MEC or MLS for further direction. Reference PAP 21.
 - Dimensional data shall be supplied in the same format as AS9102 Form 3.

68. STANDARD HARDWARE COMPONENTS

All standard electrical, electronic, electro-mechanical and electro-optical component parts delivered and/or used in the manufacture of deliverable products shall be from the Original Component Manufacturer (OCM)/ Original Equipment Manufacturer (OEM) or franchised



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distributors or Authorized Aftermarket Manufacturer (AAM). All non-electrical standard parts, like fasteners, nuts, washers, springs, o-rings, inserts, and pins, must have a certification from the Original Component Manufacturer (OCM)/ Original Equipment Manufacturer (OEM) or Authorized Aftermarket Manufacturer (AAM) or authorized distributor.

In the event a part is not directly available from the OCM/ OEM/ AAM or franchised distributors (electronics) or authorized distributor (non-electronics), purchase from independent distributors may be made but the evidence of supply chain traceability (chain of custody) back to the OCM/OEM/AAM shall be provided. The Certification shall clearly identify the name and location of all of the supply chain intermediaries from the original manufacturer to the final source of the product delivered to MEC or MLS. Parts shall not be used or reclaimed and misrepresented as new. Component part suppliers delivering directly to MEC or MLS shall provide the OCM/OEM/AAM certification with each lot/ shipment. The certificate shall include as a minimum: manufacturer name and address, manufacturer and/or buyer's part number and dash number, batch identification for the item(s) such as date codes, lot codes, heat lot, serializations, or other identifications, Signature or stamp with title of seller's authorized personnel signing the certificate.

Note: Distributors shall, in addition to the above, include their company's certification for each part number shipped.

69. NADCAP APPROVED SUPPLIERS

NADCAP Approved Process Sources are required for this Purchase Order. The Requirement for processing by NADCAP approved suppliers shall be flowed down to Sub-tier Supplier when special process is being outsourced.

70. USE OF PURE TIN FINISHES PROHIBITED

The use of Pure Tin finishes is strictly prohibited in the manufacture of any components supplied against this purchase order. Tin (SN) Alloy finishes shall only be acceptable with a minimum lead (Pb) content of 3% or greater. The supplier must provide a statement on the certification of compliance that no pure tin finishes have

been utilized in the delivered product. The supplier must receive written approval from MEC or MLS prior to the implementation of any tin mitigation process.

71. ACCEPTANCE TEST PLAN/PROCEDURE

Upon the issuance of MEC or MLS Purchase Order, delegated sub-contractor shall have their Acceptance Test Plan (ATP) approved by MEC or MLS prior to any testing performed. The ATP shall also clearly note the testing equipment used to perform the test, test parameters, as well as samples of test reports (outputs) which shall indicate status of the test (pass , fail, and or actual values).

72. RETURN MATERIAL AUTHORIZATION (RMA) REQUEST

If a Return Material Authorization (RMA) is required by the supplier for return of discrepant product, the supplier will have 72 hours to respond with RMA number or statement of intention to dispute the QN (Quality Notification). If the supplier does not respond in writing within 72 hours, after verbal or written request is made by an MEC or MLS representative, discrepant items will be returned to supplier without RMA.

73. STANDARD WORKMANSHIP

The supplier shall maintain written standards of workmanship directly applicable to the nature and level of work performed under the Purchase Order. A copy shall be supplied upon request. The buyer reserves the right to impose its own workmanship standard if he the seller's standards are considered unacceptable.

74. SOLDERING REQUIREMENTS (ANSI-J-STD-001)

All soldered material/parts manufactured all meet the requirements of IPC J-STD-001 and IPC-A-610.

Note: The supplier will default to Class 3 requirements if the class is not otherwise specified on the Purchase Order or other buyer supplier documents.

Modifications listed below are a requirement of the Purchase Order.

Note: The note is not intended to apply to Components Parts or Component Assemblies subject to soldering at a higher level of assembly where reflow could take place.



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It is understood that High Temperature Solders are appropriate required to prevent solder reflow at a higher level of assembly.

Solder alloys, such as Sn60Pb40, Sn60Pb36Ag2, and Sn63Pb37 shall be in accordance with ANSI-J-STD-006. Other solder alloys shall not be used for electrical and electronic assembly soldering unless otherwise specified on the drawing or Purchase Order.

75. CABLE AND WIRE HARNESS ASSEMBLIES

Cable and Wiring Harness will comply with IPC/WHMA_A_620 unless otherwise specified.

Note: The supplier will default to Class 3 requirements if the class is not otherwise specified on the Purchase Order or other buyer supplied documents.

76. FROZEN PLANNING

Prior to first receipt under this Quality Clause, a detailed listing of the documentation and its frozen revision level shall be submitted to the applicable buyer at MEC/MLS for Planning Review approval. All supplier planning documentation such as manufacturing plans, processing plans, inspection check sheets, shop travelers, routers, flow process diagrams, operations sheets, operation sketches, CNC programs, outside process procedures, and any other documents necessary to manufacture the part/process must be frozen. Any changes to frozen planning require MEC/MLS Planning Review approval through an ECN submittal and may require MEC/MLS customer approval. All sub-tier suppliers for this purchase order must also be under the same frozen planning requirements as described above.

77. SUPPLIER DISCLOSURE OF DISCREPANT MATERIAL

Supplier disclosing to MEC/MLS knowledge of a nonconformance created by the supplier shall complete the Supplier Disclosure of Discrepant Material F-826. Completing and submitting this form as directed, MEC/MLS shall make every effort to close-out the discrepancy without affecting your Supplier Scorecard. MEC/MLS Quality and Engineering departments shall review the Supplier Disclosure of Discrepant Material for the non-conformance submittal and provide disposition instructions.

Please note: The F-826 with instructions are accessible on the Marvin Group website at:
<http://www.marvingroup.com>

The supplier cannot knowingly ship any discrepant material without an F-826 disposition and signed off by MEC/MLS Quality. A copy of the signed Supplier Disclosure of Discrepant Material (F-826) shall accompany the product for each affected shipment.

78. MONITOR EXTERNAL PROVIDERS PERFORMANCE

Marvin Engineering/Marvin Land reserves the right to monitor our external provider's performance including:

- Supplier Risk of product or service
- Quality of product or service delivered performance
- On-time delivery of product or service

79. COMPETENCES, AWARENESS & COMMUNICATION

External Providers shall ensure that its personnel and sub-tier supplier's personnel have the required competency and experience appropriate with the requirements necessary for the performance of this PO:

- Their contribution to product or service conformity
- Their contribution to product safety
- The importance of ethical behavior

80. PRODUCTION PROCESS VERIFICATION

External Suppliers shall implement Production Process Verification activities to ensure the production process is able to produce products that meet requirements.

Marvin Engineering/Marvin Land reserves the right to review the evidence of the External Supplier's Production Process Verification which can include but not limited to risk assessments, capacity studies, capability studies, and control plans.

81. EQUIPMENT FOR MEASURING, MONITORING, AND CONTROLLING (INTERNAL)

Upon receipt of the product notify the calibration department and property control for registration into the appropriate data bases. These products shall be processed in accordance with the latest version of WI-501 "Calibration" and WI-502 "Tool Control".



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APPROVAL SIGNATURES

Jose Del Cid

Lisa Lopez

Jose Del Cid, Manager Quality Engineering

Lisa Lopez, Senior Procurement Manager

Anas Abdul

Lynne Kunster

Anas Abdul, Director Quality Assurance

Lynne Kunster, Vice President Quality

DOCUMENT HISTORY RECORD

Rev	Date	By	Description	Affected Pages	Training Required Y/N
AD	11/11/20	JD	Updated PAP 52 to change seven (7) to ten (10) years document storage requirement.	13	Y
AC	10/05/20	JD/CJ	Added PAP clauses 47.2 through 47.7 to better flow down Raytheon Source requirements.	12	Y
AB	3/10/20	JD	Updated PAP 15 from Heat Lot # to Lot #, 16 added Shelf Life requirements on certification, & 21 added indication of Rework or Replace on Packing Slip from supplier.	All	Y
AA	02/07/20	JD	Revised PAP 11 to include material traceability and Hazmat identification requirements	11	Y
Z	09/03/19	JD	Revised PAP54 Inspection Sampling Plan	12	N
Y	07/16/19	EP	PAP 15 and 16 added MEC or MLS Lot No. PAP 16 removed Heat from the note section	5,6	N
X	04/22/19	PF	Update PAP 3 regarding OASIS access, PAP24 FAI and PAP63 on key characteristics.	4,8,13-14	Y
W	11/16/18	JD	Add PAP 81	16	Y
V	06/20/18	JM	Update PAPs 67 & 54	12, 14	N
U	02/23/18	JM	Update PAP54	12	N
T	12/11/17	JM	Update PAP 5 and 67; Add PAPs 78 and 79 and 80.	4,14,16	Y
S	11/01/17	JM	Update PAP 24 - production shall not commence until MEC has approved the FAI for materials provided by MEC.	8	N
R	04/24/17	JM	Update PAP 67 with inspection record requirements.	14	N
Q	11/10/16	JM	Update PAP 5 & fix typo PAP 53.	4, 11	N

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P	08/10/16	JM	Include FAR reference in title for section 62.	12	N
O	07/06/16	PF	Update PAPs 60 and 60.1 to reflect correct web address; PAP 16 clarify Part Number.	5, 12	N
N	04/11/16	PF	Update PAP#43 to include webpage location for current specification revisions.	10	N
M	09/16/15	JM	Updated for commodity coding and clarified many of the clauses and added PAPs 73-77	All	Y
L	12/19/14	PF	Add PAP#71 ATP Approval and 72 RMA Request; revise PAPs 5 and 21	4, 6, 14	N
K	05/08/14	PF	Add table of contents, add PAP#70 Prohibiting Pure Tin, revised PAP#67 for TurnKey Parts.	All	N
J	03/11/14	PF	Update PAP#24, 53 and 62	4, 7-9	N
I	10/23/13	PF	Update PAP #16 and add PAP#69	2, 10	N
H	09/27/13	PF	Updated PAP#1 to reference FAR clause and PAP#19 to incorporate DCN#234. Removed Geotest from scope.	1, 3	N
G	05/31/13	PF	Updated PAP #5 and PAP #63 to incorporate DCN#228	1, 9	N
F	04/19/13	PF	Updated PAP #5, 19, 24, 54, 63 and added #67 and 68 (incorporating DCNs #216 & 220)	1, 3, 4, 7-8, 9-10	N
E	10/01/12	PF	Updated PAP #17, #19, #54 and #62.	2-5, 7-9	N
D	08/15/12	PF	Updated PAP#24, #46, #61, #63 and combined #19.1 and #19.2, and re-formatted entire document.	3, 4, 7, 9	N
C	07/11/12	LK	Update5d PAP#24 FAI and PAP #62 Counterfeit Parts.	4-10	N
B	03/23/12	PF	Updated referenced link in PAP #53; Revised PAP #15 and 16.	2, 7	N
A	11/30/11	PF	Update PAP #66 to remove ref. to WI-501	9	N
/	10/21/11	PF	New release. Establishes Appendix A of WI-600 Purchasing as the location for Product Assurance Provisions. Incorporates DCN #169, revised PAP #59, and adds PAP #66.	All	N