

Quality System Requirements Document

2-OF-01420

Revision: 28

TITLE

Supplier Quality Requirements (Niles & Drake)

Stakeholder(s):

Purchasing
Quality Assurance
Materials Engineering

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PURPOSE

This document establishes additional Quality Assurance requirements for Suppliers to Woodward Niles and Drake sites. These requirements are supplemental to the Quality System Requirements for Woodward Suppliers (WPQR-9100) and in accordance with the Woodward (US) Terms and Conditions of Purchase (4-74-4022) and US FAR and DFARS Supplemental Terms and Conditions (4-74-4502).

See site-specific requirements in appendix for clarification or exclusion of specific requirements in this procedure. Where a conflict exists between this document and WPQR-9100 and WPQR-9102 the content of this document shall supersede WPQR-9100 and WPQR-9102.

REFERENCES

Reference documents:

WPQR-9100
4-OF-03404
3-OF-05107
F27950
WPQR-9102
4-74-4022
4-74-4502
4-QCI-01428
4-06-3461
4-OF-01423
AS 9146
4-OF-04867

WISE Screens:
NONE

APPLICABLE SITES



Niles
Drake

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DEFINITIONS & ACRONYMS

The following lists the definitions used in this procedure:

- **New:** Composed of previously unused components, whether manufactured from virgin material, recovered material in the form of raw material, or materials and by-products generated from, and reused within, an original manufacturing process; *provided* that the supplies meet contract requirements, including but not limited to, performance, reliability, and life expectancy.
- **Virgin:** Previously unused raw material, including previously unused copper, aluminum, lead, zinc, iron, other metal or metal ore; or any undeveloped resource that is, or with new technology will become, a source of raw materials.
- **DFARS 252.225-7009 Preference for Domestic Specialty Metals:** Defense Federal Acquisition Regulation Supplement requiring that specific materials are melted in the United States or specific authorized countries. See <http://www.acq.osd.mil/dpap/dars/dfars/html/current/252225.htm#252.225-7009>
- **PPAP:** Production Part Approval Process. A process for the qualification and approval of production parts. See WPQR-9102 on Woodward eBusiness website.
- **COTS Item:** Commercial Off the Shelf. Also known as a “Catalog Item”. Item commercially available to Woodward and other firms. Can include Woodward drawings that are an exact copy of the supplier’s commercially available design data.
- **Industry Standard Item:** Parts made to a recognized national or industry standard.
- **Source Controlled Item:** Parts designed solely by the supplier or in conjunction with Woodward to meet Woodward design criteria. Supplier retains design control and typically keeps proprietary design information and drawings at their location.
- **Woodward Designed Item:** Parts that are fully designed by Woodward with minimal or no proprietary information held by the supplier. Woodward retains design control for these items.
- **NFPA 704:** Standard system for the identification of hazardous materials, which includes a diamond emblem with health, flammability, reactivity, and special ratings.
- **Altered Item:** An Industry Standard or COTS Item that has been modified to meet a Woodward drawing.

- Shelf Life Limited Item: An item that either is a material, or contains a material that degrades chemically over time, which negatively impacts its properties or characteristics.
- Repair: Action on a non-conforming product to make it acceptable for the intended use, but not to meet requirements. Use of action beyond the original manufacturing process is considered repair.
- Rework: Action on a non-conforming product to make it conform to the requirements using the original manufacturing process.
- PQA Code: A PQA Code is an additional quality requirement beyond the requirements found in WPQR-9100, this supplement, or elsewhere. PQA codes provide additional quality requirements unique to the part being procured, as required by the customer, the commodity, or specific regulations applicable to a part.
- Drake: Woodward Drake facility, Fort Collins, Colorado
- EDM: Electrical Discharge Machining
- FAA: Federal Aviation Administration
- FAI: First Article Inspection
- FAIR: First Article Inspection Report (per AS9102)
- FAR: Federal Acquisition Regulation
- MRB: Material Review Board
- MS: Military Standard
- NAS: National Aerospace Standard
- NADCAP: National Aerospace and Defense Contractors Accreditation Program
- NDT: Non-Destructive Testing
- PO: Purchase Order
- SCD: Source Control Drawing
- SNCR: Supplier Non-Conformance Request/Record
- SPC: Statistical Process Control
- QR: Quality Requirement clause
- Added Subsection: Intended as an additional section added to the WPQR-9100 for suppliers to adhere to

- Amplification: Intended as an enhancement to section that is already part of the WPQR-9100 for suppliers to adhere to

Scope & Applicability

This procedure applies to the procurement of items for use in Woodward products that are intended for conformed production units (excludes mock-up and Engineering units, and indirect material). The scope includes manufacturing, procurement, and/or delivery of product to Woodward.

Responsibility

Woodward procurement shall ensure that the information contained herein is transmitted to the supplier for each order of production materials. The Supplier shall ensure that the supplied material conforms to all specified purchase requirements.

Woodward Supplier Quality and Procurement shall jointly ensure that suppliers have the correct information and requirements to meet customer flow-down requirements. When a Woodward Customer flows down specific requirements that are in addition to the requirements herein, they shall be so stated on the Woodward design record transmitted to the supplier or they shall be clearly stated on the Woodward Purchase Order. Woodward Buyers shall be responsible for reviewing flow-down requirements and assuring that the proper specifications and information to complete the work is transmitted to the supplier.

Reference Documents

Reference Items

(latest revisions are assumed unless otherwise specified on the Woodward PO or design record)

- Woodward WPQR-9100 – Quality System Requirements for Woodward Suppliers
- Woodward WPQR-9102 – Production Part Approval Process (PPAP) specification
- Woodward Niles 3-OF-02334 – PCBA Quality and Manufacturing Requirements
- Woodward 3-OF-02761 – Counterfeit Prevention Plan
- Woodward 3-OF-05107-Supplier Non-Conformance Record Process
- Woodward F27950-SNCR Notification Form
- Woodward 3-06-2977 – Supplier Process Change Notification (PCN)
- Woodward 4-06-3461 – PPAP template
- Woodward 4-74-3414 – AS/ATS Supplier Process Change Notification (PCN) Form

- Woodward 4-74-4022 – (US) Terms and Conditions of Purchase
- Woodward 4-74-4502 – US FAR and DFARS Supplemental Terms and Conditions
- Woodward 4-OF-01423 – Shipping Document Cross Reference
- Woodward 4-OF-04867 – Procurement Quality Assurance Codes - Woodward
- Woodward 4-QCI-01428 – Certificate of Compliance Form
- Woodward 4-OF-04188 – Terms and Conditions of Blanket Orders
- Woodward DP82400008 – Control of Key Characteristics
- Woodward DP82410001 – Inspection methods
- Woodward EI 9995902973 – Engineering Process Approval Requirements (EPAR)
- Woodward EI 9995902975 – Interpretation of Engineering Drawing Requirements
- Woodward MI75100001 – Workmanship
- SAE International Standard AS9102 – First Article Inspection
- SAE International Standard AS9131 – Nonconformance Reporting
- DFAR 252.225-7009 – Defense Federal Acquisition Regulation requiring specific materials be melted in the United States or specific authorized countries
- MIL-STD-1686 – Electrostatic Discharge Control Program For Protection Of Electrical And Electronic Parts
- NAS 412 – Foreign Object Debris / Foreign Object Damage Prevention
- AS 9146 – FOREIGN OBJECT DAMAGE (FOD) PREVENTION PROGRAM - REQUIREMENTS FOR AVIATION, SPACE, AND DEFENSE ORGANIZATIONS
- ISO 10012-1 or ANSI/NCSL Z540-1
- ANSI/ESD S20.20 – Protection of Electrical and Electronic Parts, Assemblies and Equipment
- ANSI Y14.5 – Drawing Interpretation and Geometric Tolerancing
- J-STD-033 – Handling, Packaging, Shipping and Use of Moisture/Reflow Sensitive Surface Mount Devices.
- IPC-1601 – Printed Board Handling and Storage Guidelines

Process Requirements

General Quality Requirements

This document establishes additional Quality Assurance requirements for Suppliers to the Woodward Niles and Drake sites.

The supplier shall obtain formal approval to ship a non-conformance by requesting an SNCR (Supplier Non-Conformance Record) utilizing the Woodward e-Business supplier portal. After receiving the appropriate approval to ship, the supplier shall complete and submit SNCR notification form F27950 (SNCR Notification) and a copy of the approved SNCR with any shipment of Woodward approved nonconforming material. Refer to the Woodward e-Business supplier portal at www.woodward.com for form F27950 and an SNCR submittal tutorial.

Related to current Quality System Certificates of Registration / Accreditation. Suppliers shall maintain their original QMS certification level that was in place during the initial approval into the Woodward ASL, and shall report any status change (or change in approved / permitted exclusions) to Woodward Supplier Quality Engineering within 48 hours of such change. QMS certs may be uploaded into EFMS, or SAP by Woodward, or into Supplier Gateway by the supplier. An actual copy of the current QMS certification may also be requested at any time by Woodward and shall be submitted to the requisitioner within 24 hours of the request. Failure to do so, may result in blocking the supplier from receiving any new quotes or orders, up to possible removal from the ASL.

Documentation Requirements –

Requirements by Part Type

- Source Controlled item – C of C and certifications for all materials and/or processes listed on the Woodward drawing.
- Industry Standard and COTS Items – C of C indicating the Woodward part number and supplier or industry part number.
 - Distributors must provide original manufacturer's C of C
 - Franchised or authorized Distributors of Electronic components and chemicals may provide their own C of C
 - COTS exemption to DFARS and AS9102 should be clearly stated on the C of C
- Woodward designed items – C of C and certifications for all materials and/or processes listed on the Woodward drawing.
- Altered Item – original Manufacturer's C of C for the base item and a general C of C for the alteration method including any processing or material certifications required for the alteration.
- Any Item Indicating Critical, Flight Critical, Safety of Flight or Key Characteristics – C of C and all certifications for all materials or processes listed on the drawing

and any data collection and/or analysis or validation statements required by the drawing or governing procedures. A separate note is required on the supplier's C of C stating compliance to any special inspection or control provisions associated with these types of characteristics.

Requirements by Document Type

With every shipment, for all items, the Supplier must include the following information in such a manner as to preclude it from getting lost or destroyed:

- A Certificate of Conformance (C of C). The Certificate of Conformance must contain, at a minimum, the following information:
 - An affirmative statement of fact that the supplied product fully meets all requirements of the relevant drawing or contract.
 - Signature by an authorized member of the supplier's Quality organization.
 - Ambiguous or blanket statements are not acceptable such as "To the best of my knowledge" or "Material meets all specifications" etc.
 - The supplier's name, address, and Woodward supplier number.
 - The supplier's batch/lot identification number(s), when applicable.
 - The Purchase Order number and line item.
 - The date shipped.
 - The quantity and unit of measure of parts in the shipment.
 - The Woodward Part Number(s) and revision
 - A note stating if the raw material used to create the items was supplied by Woodward.
 - Woodward batch number (when material is provided by Woodward to the supplier).
 - C of C provided for items that have shelf-life limitations must have the date of manufacture and shelf-life expiration date clearly stated on the C of C. Woodward requires shelf life material to have at least 75% of life remaining on the day it is received at Woodward. See Appendix A for standard shelf-life requirements.
- Material Certification
 - When an industry or governmental material specification is called out on the Woodward drawing, that specification must be included on the

certification from the raw material source. This is required for every specification called out on the drawing. It is strongly suggested that the

- Supplier highlight, circle or otherwise draw attention to the specification from the Woodward drawing on the certification paperwork.
- Part numbers maintained by Industry Standards, or a manufacturer (COTS) are non-Woodward part numbers.
- Whenever a specification appears on the drawing or is listed as a requirement on the purchase order, the organization must use the latest revision of that document or, follow the direction given in that document for replacement / supersession to the active applicable version of that specification, unless otherwise specified.
- For general material requirements without specification call-out the material can be included on the C of C from the part manufacturer.
- Certifications provided for raw materials, purchased components, or purchased assemblies shall show full traceability of the material from the Supplier back to its point of creation or to the last point of full chemical and physical certification; this includes any movements through brokers, distributors, or suppliers.
- Raw materials such as bar and sheet stock shall have a material verification by inspection of the certificate of conformance and hardness inspection. Verification shall be performed on each lot of material 100%. The verification shall consist of matching the material type and the temper or heat treat specification to the engineering requirements and a comparison of the chemical composition and mechanical properties to be within the specification tolerances indicated in the standard or engineering specification.
- Additionally, Supplier shall periodically validate test reports for raw material accepted on the basis of test reports. That validation shall be accomplished by supplier or other independent party through periodic, scheduled tests of raw material samples. Schedules for frequency of tests will be established by supplier based on historical performance of the raw material supplier.
- Process Certification
 - When an industry or governmental processing specification is called out on the Woodward drawing, that specification must be included on the certification from the processing source. This is required for every specification called out on the drawing. It is strongly suggested that the Supplier highlight, circle or otherwise draw attention to the specification from the Woodward drawing on the certification paperwork.

- Whenever a specification appears on the drawing or is listed as a requirement on the purchase order, the organization must use the latest revision of that document or, follow the direction given in that document for replacement / supersession to the active applicable version of that specification, unless otherwise specified.
- Unless a specific revision of a processing specification is called out on the purchase order, drawing or other Woodward flow down, the latest revision is to be used.
- Component Part Certification
 - For assembled items with lower-level machined parts listed on the drawing, a manufacturer's C of C and a SAE AS9102 compliant FAIR is required for the listed parts.
- Functional Test results
 - When specific testing is required by the drawing or PO, the test results must be included with the product shipment.

Other Requirements

- Drop Shipments (Supplier directed) – Material sent directly to Woodward on a supplier's behalf must have the following information on the shipper's C of C: original Woodward Purchase order number and a note stating who the original Woodward contracted supplier is along with the appropriate C of C and certs from the original contracted Woodward supplier.
- Drop Shipments (Customer directed) – Material sent directly to Woodward from a supplier on a customer's behalf must have the following information on the suppliers C of C or packing list: original Woodward purchase order number (sent to the customer), part number and a note stating who the Woodward Customer is.
- Customer supplied material – Material supplied to Woodward directly by a Woodward customer requires either a C of C or a packing list indicating the Woodward PO and part number for each component supplied by the Customer.

Certification of Compliance form 4-QCI-01428 should be used as a mistake proofing aid for C of C requirements.

Document Checklist form 4-OF-01423 should be used as a mistake proofing aid and to verify the correctness and presence of all documents required for each shipment to Woodward.

Procurement Quality Assurance (PQA) Codes

- In addition to the requirements of this document, PQA codes may be flowed down to any given supplier on their purchase order. Those PQA codes are found in document 4-OF-04867. A PQA Code is an additional quality requirement

beyond the requirements found in WPQR-9100, this supplement, or elsewhere. PQA codes provide additional quality requirements unique to the part being procured, as required by the customer, the commodity, or specific regulations applicable to a part.

Production Part Approval Process (PPAP)

When a PPAP is required, it will be specified on the purchase order. If the PPAP class is not specified on the purchase order, the default shall be Class A.

- A preliminary PPAP package shall be submitted electronically to the designated SQE for review and process control approval at least two weeks before the required due date of the parts. The preliminary PPAP is to be submitted by email via email to site using one of the following emails, PPAP.niles@woodward.com or Drake.supplierQA@woodward.com (depending on plant issuing purchase order) or to the Woodward approved secured portal when dictated by ITAR or file size restrictions as directed by supplier quality. This package will contain at a minimum the following documents;
 1. Class A PPAP: PSW, Woodward PO, balloon drawing, waivers (if applicable)
 2. Class B PPAP: PSW, Woodward PO, balloon drawing, waivers (if applicable), control plan, process flow/traveler
 3. Class C PPAP: PSW, Woodward PO, balloon drawing, waivers (if applicable), control plan, process flow/traveler, PFMEA, MSA
 4. Class D PPAP: Same as Class C, plus part marking, packaging/preservation and advanced approval matrix as determined during APQP review.
- Templates for these items may be found in form 4-06-3461 on the Woodward eBusiness website.

In lieu of the dimensional results template in Woodward specified form (4-06-3461), a first article inspection report compliant to the current revision of SAE AS9102 is required.
- After the preliminary PPAP has been approved by the Woodward SQE or designee, it will be transmitted electronically back to the supplier and the PPAP samples shall be shipped in with a full and complete PPAP package. This includes an AS9102 compliant FAIR, and all required material and processing certifications. Please refer to WPQR-9102 for the complete PPAP submission requirements and further guidance. Shipment of parts shall comply with PO required due dates.

NOTE: Woodward reserves the right to request changes in FAIRs from suppliers to meet customer demands.

- The final approved PSW is contingent upon dimensional acceptance of the PPAP samples by Woodward, along with the successful completion of any other mutually accepted functional and/or performance tests of those samples as components or installed in their next higher assemblies. Part functional approval box is not required unless specifically required by engineering to perform a functional and/or fit test.
- Waiver of the 10% sample size for a sample size of 3 can be done without a waiver form, and instead indicated on the PSW comments section by the SQE.
- Parts from supplier inventory previously supplied to Woodward that have not been received in two years do not require a new PPAP if the supplier has not produced new parts within the (minimally) two-year period. However, a copy of the previous AS9102 FAIR under which the parts were originally produced and accepted by Woodward shall be submitted with the parts. The supplier shall also clearly certify that the parts are from inventory on their C of C and thus exempt from a new FAI per AS9102. On the first shipment from the new production lot after the previously produced parts are consumed from inventory, the supplier is responsible to submit a new FAIR as required by AS9102 with the shipment.
- When submitting a PPAP for =UC parts, all exceptions noted on the PO shall be completely specified in the 'EXPLANATION/COMMENTS' section of the PSW, and the 'NO' box shall be checked confirming that 'these results do not meet all drawing and specification requirements'.
- All ballooned requirements on the FAIR marked as N/A shall have an explanation in the 'COMMENTS' column where this process will be completed.

Interpretation of Drawings

Interpretation of drawings shall be in accordance with the latest revision of Woodward document 9995902975 (Interpretation of Engineering Drawings) and the applicable revision of the American Standard Drafting Practices, ANSI Y14.5 Dimensioning and Tolerance Standard stated on the drawing. When a note specifies to “prevent lead wire abrasion”, the Supplier may round the edges using their preferred methods to achieve a very smooth transition between surfaces.

Preservation, Packaging, and Shipping

It shall be the Supplier's responsibility to maintain adequate control of storage and packaging methods and choice of shipping carriers to ensure that the quality of the product is maintained and that any damage, deterioration, and loss in storage or transit is prevented. Damage includes, but is not limited to, dings, dents, nicks, and scratches. Some damage, particularly damage to electronic components, may occur internally of the product and cannot be visually inspected and may present itself as a

latent failure. This may require the use of temporary support fixtures to protect the product.

- Supplier shall clearly mark all exterior and interior component packaging with the Woodward part number, purchase order number with line-item number, supplier name, vendor number and lot code (if applicable).
- Shelf-Life Limited Item Marking Requirements (Examples include lubed bearings, paints, epoxies, sealants, adhesives, etc.): All shelf-life items shall have the item's date of expiration clearly marked on exterior packaging and each individual interior package or unit.
- Chemicals: All chemicals shall have their NFPA 704 ratings clearly marked on the shipment package and individual unit packaging.
- Suppliers of raw materials such as bar stock, flat stock or when indicated on the purchase order or drawing to maintain lot homogeneity shall not send in mixed batches/lots.

Material Requirements

- Woodward requires new materials to be used in the production of all products and raw material, unless otherwise stated on the drawing, to provide virgin material or produce components from a drawing specified component. Drawing specified components could include but are not limited to: COTS components such as MS or NAS fasteners, insulation tubing, etc.
- At the time of the supplier's use, all age sensitive material used within Woodward products must be within the specified shelf-life period.

Woodward requires all specialty metals purchased for internal consumption or used in the production of components be compliant to DFARS 252.225-7008 and DFARS 252.225-7009 Preference for Domestic Specialty Metals, unless the supplier receives written authorization from Woodward Supplier Quality to use non-DFAR compliant material. Woodward may issue a waiver for non-DFARS material for a specific lot or quantity of components under the following requirements:

- 1.1.1 The components are used solely on a commercial application and the customer does not require material to be DFAR compliant.
- 1.1.2 The customer is not the US government.
- 1.1.3 The components are on a current exemption to DFAR requirements as published in the US Federal Register.
- 1.1.4 The components can be issued to a specific lot for consumption that is eligible for waiver as indicated above.
- 1.1.5 The Woodward drawing indicates non-DFAR material is acceptable.
- 1.1.6 Waivers will not be issued for blanket purchase orders.

1.1.7 See site specific sections in the Appendix for further DFARS requirements, exclusions and/or clarifications.

- FOD (Foreign Object Debris) Control - Suppliers must comply with housekeeping and cleanliness control per NAS 412 and AS 9146 FOREIGN OBJECT DAMAGE (FOD) PREVENTION PROGRAM - REQUIREMENTS FOR AVIATION, SPACE, AND DEFENSE ORGANIZATIONS to prevent potential contamination of components.
- The supplier's FOD prevention process and FOD occurrence records shall be available for review by Woodward. Also see PQA section herein.
- Industry Standard Items with a part revision of "00" require the most recent industry standard revision for the part number listed on the PO, at the time the PO was received by the supplier. The part number on the PO takes precedence over the revision, in cases where the part numbers change with a revision change.
- COTS items shall be provided at the latest revision level as determined by the design authority. The revision level on the certificate of conformance shall take precedence over the PO product revision level if a later revision is provided.
- Order of precedence for determining shelf life is the Woodward drawing, industry standard, manufacturer's recommendation, and Appendix A for standard Woodward shelf-life requirements.
- Special process requirements (heat treat, plating/coating, NDT, etc.) are communicated on the drawing by a combination of three possible methods:
 1. A national or military standard. (AMS, MIL, NAS, etc.)
 2. A Woodward specific internal instruction. (999...)
 3. A generic call out without a specification noted. (Anodize black, Passivate, etc.)
- If a National or military standard is specified, and said process is covered by NADCAP as per eAudit.net, the process must be performed and certified by a supplier with NADCAP accreditation for said standard.
- If a Woodward specific instruction number is specified, it may be performed by a NADCAP, or Woodward approved supplier for said process as specified on the print. The Woodward specific number must be included on the C of C from the special process supplier.
- Generic drawing callouts for special processes that do not include specific requirement must be done to a national standard that is covered by NADCAP; selection of which is at the discretion of the supplier. The special processor shall provide a C of C for the process that was used.
- The C of C from the processor must list the full and entire process name, class, and/or type, exactly as it called out on the Woodward drawing or PO.

Any situations not covered by the above methods must be handled on a case-by-case basis. For special situations, exceptions, or clarifications to the above requirement contact Woodward Supplier Quality. Any exceptions must be clearly stated on the PO.

Specific Process Requirements

Suppliers performing soldering operations on electrical/electronic products such as electrical connectors, wire terminations and populated printed circuit boards shall be compliant to J-STD-001 Class 3 and inspect product per IPC-A-610 or as otherwise indicated on the drawing and/or purchase order.

Suppliers producing or handling electronic board assemblies shall comply with the requirements within Woodward document 3-OF-02334 (PCBA Quality and Manufacturing Requirements).

When X-rays are required by the drawing or specification, the results shall include: acceptance or rejection of the X-ray evaluation, the name of X-ray reader, the date, the signature of the responsible laboratory representative, and an adequate method of identifying and cross-referencing each film exposure to specific parts being X-rayed. When parts are serialized, serial numbers must appear on the report.

Suppliers producing or handling electronic components, assemblies or subassemblies containing electronic components are required to have an Electro Static Discharge (ESD) prevention program that complies with the requirements of ANSI/ESD S20.20 or MIL-STD-1686. Static discharge protective packaging must be used on these items as prescribed by the aforementioned standards. Such packaging must be clearly identified as containing ESD sensitive components and be free from physical damage (such as punctures and tears). Moisture sensitive materials shall be handled and identified per J-STD-033. PWBs shall be handled and stored in accordance with IPC-1601.

Special process requirements (heat treat, plating/coating, NDT, etc.) are communicated on the drawing by a combination of three possible methods: a Woodward specific internal instruction, a national or military standard, or generically without specific requirements. These methods require one of the following:

- A certification statement, including the Woodward specific instruction number must be included on the C of C from the special process supplier.
- National or military standards that are covered by NADCAP, must be done by a supplier with NADCAP accreditation for said standard.
- Generic drawing callouts for special processes that do not include specific requirement must be done to a national standard that is covered by NADCAP; selection of which is at the discretion of the supplier. The special processor shall provide a C of C for the process that was used.
- The C of C from the processor must list the full and entire process name, class, and / or type, exactly as it called out on the Woodward drawing or PO.

Any situations not covered by the above methods must be handled on a case-by-case basis. For special situations and exceptions to the above requirement contact Woodward Supplier Quality. Any exceptions must be clearly stated on the PO.

Nonconventional machining and surface enhancement methods are not allowed unless stated on the Woodward drawing or stated in writing from Woodward. These methods are set forth by NADCAP and include: Electrochemical Machining (ECM), Electrochemical Grinding (ECG), Electrical Discharge Machining (EDM), Laser Beam Machining (LBM), Water Jet Machining (WJM), and shot-peening.

Nonconventional machining processes are permitted without authorization under the following conditions:

- When utilized for roughing of material prior to finish machining. A minimum of .100" of finish stock shall be removed from all affected surfaces by traditional machining methods.
- Sheet metal parts except for laminations
- Cutting spiral or roll pins to length

Hot or cold forming of metal, other than for sheet metal, forgings or castings, is not allowed for meeting in-process or final drawing dimensions.

Supplier Process Change Notification (PCN)

Supplier process changes need to be approved by Woodward in advance of their implementation. Please refer to Woodward Standard Operating Procedure 3-06-2977 for the details.

Legacy Engineering Drawings containing an EPAR (Engineering Process Approval Requirements) stamp also require Woodward approval prior to the implementation of any process changes. Woodward document 9995902973 applies. EPAR approval must be obtained by the Supplier from Woodward in writing before production units may be shipped to Woodward unless otherwise stated on the Woodward PO.

Non-Conformance to Woodward Requirements

Any deviations from drawings, specifications, or other purchase order requirements must be communicated by the supplier through a SNCR (Supplier Non-Conformance Request). Suppliers cannot ship any parts without an approved disposition from Woodward. To gain permission to ship non-conforming material, the supplier must complete the SNCR request in e-Business. A final Approval or Rejection disposition will be provided to the supplier via e-mail. The Approved SNCR, for the waived requirements, must be stored at the Supplier and at Woodward. The Supplier must reference the Approved SNCR number on the Certificate of Conformance, Packing List and provide Form number F27950 on the shipment and with the documentation sent to Woodward. Supplier shall only ship material that has been approved by Woodward. Any SNCRs that contain "Reject" or "Quarantine/Hold" dispositions shall not be shipped

to Woodward. Any SNCRs that contain instructions for the supplier to perform shall be annotated on the CofC.

Poor workmanship is considered a non-conformance. For guidance on evaluating the workmanship of a product Woodward standard procedure 9995902975 and/or MI75100001 shall be used. Some drawings and/or the purchase orders may incorporate addition data to follow in addition to the standard Woodward procedures.

NOTE for Niles items: Any part that is incomplete (i.e. not all of the print requirements are met) and is not designated with an =UC suffix on the part number is considered to be non-conforming and the supplier is required to submit an SNCR to Woodward for approval prior to shipment.

Counterfeit Goods

Parts purchased for use in product shipped to Woodward should be from the original manufacturer, authorized supplier, or other authorized source. Counterfeit items and goods are not allowed under Woodward Terms and Conditions (4-74-4022) section 17.

Further requirements include:

- Suppliers that purchase components for use in product shipped to Woodward must participate in the Government Industry Data Exchange Program (GIDEP) and take appropriate actions for suspect or known problem materials / components.
- Suppliers must have a counterfeit parts protection program, as defined in AS9100D in accordance with AS5553, AS6174, and AS6081. Suppliers without AS9100D certification must be compliant to AS5553, AS6174, and AS6081 when the applicable types of components are purchased for use in product shipped to Woodward. Said compliance shall be made available for Woodward review upon request.
- Suppliers that purchase electronic components for use in product shipped to Woodward must subscribe to an independent service (i.e. ERAI) that identifies counterfeit, suspected counterfeit and non-conforming components and take appropriate actions for suspect or known problem materials / components.
- For electronic components, if documentation does not show traceability back to the manufacturer, then the supplier shall perform verification tests on randomly selected samples from each lot provided, to establish that the components are authentic, new and previously unused. Verification testing shall include all items from the below table, but more testing may be required by Woodward to ensure parts are authentic:

Electronic Component Testing Requirements Table

<u>Test Type</u>	<u>Performed Per</u>	<u>Sample size</u>
Burn-in	AS5553 E1.9	100%
Electrical	CCAP-101	100%
Hermeticity (if applicable)	AS5553 E1.10	100%
Visual - Product	AS5553 E1.2	100%
Visual - Package & Documentation	AS5553 E1.1	All
X-ray Fluorescence	AS5553 E1.5	100%
X-ray	AS5553 E1.4	100%
Thermal Cycle	AS5553 E1.7	100%
Destructive Physical Analysis (DPA)	AS5553 E1.6	MIL-STD-883 Method 5009.1
Marking Permanency	AS5553 E1.3	Same as DPA
Solderability	IPC-JEDEC J-STD-002	Same as DPA

Right of Access

The supplier shall grant Woodward, its customers, and regulatory authorities the right of access to applicable areas of all facilities at any level of the supply chain involved in the order and to all applicable records. The supplier shall flow down this right of access clause to all sub-tier and raw material suppliers through the supplier's purchasing system. The supplier shall not subcontract the manufacturing of product that can be produced at their facility as listed on the PO without an approved PPAP or PCN from Woodward.

Inspection Requirements for Suppliers

Woodward requires suppliers to perform mechanical inspections using measurement techniques which meets or exceeds a 10:1 ratio between the product tolerance and the certified accuracy of the measurement device. Where state of the art limitations exist that prohibit use of a 10:1 ratio, a minimum of a 4:1 ratio may be used.

Gauges required to produce components are the responsibility of the supplier.

Woodard has several standard notes defining burrs and sharp corners; for example, "Remove all burrs and sharp edges equivalent to .005 R max". Unless otherwise specified, the interpretation of these requirements is as follows:

- Shape or configuration of edge break is optional as long as it is within maximum radius limit.
- Visual inspection of burrs can be aided at up to 5 times magnification. Any burr visible under this magnification is cause for rejection.

Drawings calling out dimensional requirements per 3D CAD/CAM files shall be acquired by the supplier from Woodward Procurement each time the job is run or the Supplier must verify that the files in their possession are the current revision listed on the drawing. Supplier inspections shall be performed using the most current 3D CAD/CAM file. Measurement readings from CAD/CAM file inspection shall be included with the required certification package with each shipped lot. Woodward receiving inspection shall perform these inspections using the most current Woodward CAD/CAM file in the PLM System.

Inspections should be done in accordance with DP82410001 Inspection Methods, which specifies the correct inspection equipment to use for a given part feature.

If required on the Purchase Order, Woodward inspections may be required at the supplier prior to shipment. These inspections may involve a review of the assembly paperwork, material traceability, review of any applicable test results, and a visual inspection of the product. Additionally, the Purchase Order may specify Woodward witnessing of certain manufacturing operations.

Inspection of Sub-Assemblies

The procurement of assemblies consisting of Woodward designed individual piece parts may be subject to source inspection (also see PQA code section herein). This source inspection will be accomplished either by on-site review and measurement validation by Woodward or Woodward designated personnel or by having the Supplier send in sample pieces for verification at a Woodward facility. This requirement may be waived if the Supplier has submitted AS9102 compliant FAI's of the piece parts in the past. Waiver of this requirement will be communicated on the Woodward PO to the Supplier. This requirement does not apply to the procurement of sub-assemblies or full assemblies where Woodward has not designed or contributed to the design of the item in question, typically Industry Standard or Commercial items.

Source inspection of the piece parts shall be completed before the Supplier begins any assembly work and must be done on production parts. Ideally the parts inspected for the source inspection will be tracked and used in the assembly of the end items that will be submitted to Woodward for FAI inspection and verification.

Hard tooling sample approval process

All Woodward designed piece parts that are produced from hard tooling (castings, forgings, injection molded plastics, etc.) are subject to a tooling approval process. The tooling approval process shall be invoked at the creation of new tooling, movement of tooling from one supplier to another, major repair or modification of tooling, or major changes to production processes. The tooling approval process may be invoked after minor tooling repairs or process changes. Applicability of the tooling approval process will be communicated either by the Woodward PO or by being trigger by changes described in 3-06-2977 Supplier Process Change Control. The requirements of the tooling approval process will be communicated to the Supplier by Woodward Supplier

Quality or Procurement. The Supplier must receive tooling approval in writing from Woodward Supplier Quality before starting any production runs of the associated part.

Any production parts produced by the Supplier prior to receiving the tooling approval form are done so solely at the Supplier's risk.

Woodward reserves the right to deny tooling approval even if the samples submitted are 100% compliant to Woodward's drawing.

The Hard Tool Sample approval process does not apply to commercial or industry standard items.

Repair Station Requirements

- Repair stations are required to be an FAA approved repair station, maintaining current FAA and EASA repair station certificates
- Have an FAA approved Repair Station Manual that is current
- Have a training procedure approved by FAA
- Comply with a duty time limitation requirement for any personnel performing maintenance or preventive maintenance (no more than 24 consecutive hours on duty during any seven consecutive days, or the equivalent thereof within any one calendar month)
- Have a work turnover procedure (work turned over from one shift to another shall have a system of documentation that assures continuity of the work and that the complete bill of-work is accomplished)
- Have an active, FAA registered anti-drug and alcohol misuse prevention program
- Also see PQA Code section herein

Process Records

Suppliers shall assure that retained records are maintained and are readily retrievable within 48 hours of request by Woodward.

Appendix A- Standard Shelf-Life Requirements

The standard shelf-life requirements shown below shall be the Woodward default unless otherwise specified by the material drawing, part drawing, industry standard, or per manufacturer's C of C.

GENERAL ITEM DESCRIPTION	SHELF-LIFE REQUIREMENT	ALLOWABLE EXTENSION	TERMS OF EXTENSION
Bearings w/Lubrication	24 months	YES	Shelf-life may be restarted for another 24 months (or as specified by manufacturer) when re-lube per drawing is approved.
Heat Shrink & Molded Tubing	24 months	YES	Shelf-life may be extended 12 months per the acceptance of applicable specification test.
O-Rings & Seals	10 years	NO	N/A

• w/Adhesive -----	24 months	NO	N/A
Flux core Solder & Solder flux Materials	24 months	NO	N/A
Adhesives & Epoxies	12 months	NO	N/A
Miscellaneous tape & Labels with adhesive	24 months	NO	N/A
Insulated Wire	24 months	YES	Shelf-life may be extended 24 months per acceptance of a solder ability test and visual inspection of insulation for discoloration.

Certificate of Conformance shall at a minimum contain the Date of Manufacture and or Date of Expiration, where no less than 75% of the product life remains upon receipt at Woodward.

Appendix B- Drake Specific Site Requirements

In addition to the requirements outlined within this document, Appendix B outlines additional requirements applicable only when orders are placed by the Woodward Drake location in Fort Collins, Colorado. In cases of conflict/contradiction between the material in the document above and this Appendix, the stricter or more restrictive requirement of the two shall be followed. If there is any question as to which should be followed, please contact your Woodward Supplier Quality Engineer.

1.0 REFERENCE DOCUMENT INFORMATION

- | | |
|---------------------|--|
| F27894 | - Supplier Engineering Request |
| WI 8.4.3-201 | - Supplier Characteristic Accountability (was WI 7.43-201) |
| 9U9290 | - Methods of Preservation, Handling and Packaging |
| 9U9671 | - Process Substitution List |
| 9U9673 | - Standard Part Equivalent List |
| ESS157 | - Special Handling Codes |
| 9U9222 | - Acceptance Criteria for Non-Destructive Testing |

2.0 QUALITY SYSTEM REQUIREMENTS CLARIFICATIONS

The following material is intended to function as either an addition ("Added Subsection") or enhancement/clarification ("Amplification") to certain sections of the Quality System Requirements Document 2-OF-01420.

Material Requirements (Drake Site Only)

For any Purchase Order displaying a Prime Contract Number, DPAS Rating, or purchase order note specifying that items are being bought in support of US Government requirements, specialty metal melts purchased for internal consumption or used in the production of components shall be compliant to DFARS 252.225-7008 and 252.225-7009, Preference for Domestic Specialty Metals.

Purchase orders not displaying a Prime Contract Number, DPAS Rating, or purchase order note specifying that items are being bought in support of US Government requirements are purchased for forecast or commercial contract and do not carry this requirement.

For drawings that require Non-Destructive Testing (NDT), if acceptance criteria is not stated, then the default is Woodward specification 9U9222.

3.0 **SUPPLEMENTAL QUALITY REQUIREMENTS**

The following material is intended to function as either an addition (“Added Subsection”) or enhancement/clarification (“Amplification”) to certain sections of the WPQR-9100 specification.

WPQR-9100 Section #:	Supplemental Requirement: <i>(Applies to Woodward Drake purchases)</i>
3.4.1 Added Subsection	All key characteristics shall be subjected to 100% inspection and statistical process control (SPC). All results shall be retained at the supplier per WPQR-9100, section 7.5.3.

WPQR-9100 Section #:	Supplemental Requirement: (Applies to Woodward Drake purchases)
3.7 Added Subsection	<p>Woodward Drake Additional Requirements</p> <p>1. Safran Hardware All part numbers listed under the following programs: CF34: LJ-85; F7X AS907; BR710; A318; RRJ (SAM 146); HTF7000 may use the 9U9671 Process Substitution List</p> <p>Suppliers shall cite/reference the 9U9671 Process Substitution List on their certificate of conformance as such:</p> <p><i>“Magnetic Particle Inspection: ASTM-E1444 in lieu of PS74 (reference 9U9671).”</i></p> <p>The following definitions are applicable on drawings for the programs mentioned above:</p> <ul style="list-style-type: none"> ➤ Inspection ID – part number in title block ➤ Batch Number – traceable/unique job number or work order. <p>2. Boeing Hardware – Approved Processors All Boeing applicable hardware shall be processed in accordance with Boeing’s D1-4426. Boeing hardware is defined as items that are on Boeing drawings or any item that is processed to a Boeing owned specification (e.g. BAC, PS, DPS, etc.) Contact your buyer/SQE for any clarification.</p> <p>Reference http://www.boeingsuppliers.com/d14426/</p> <p>3. Boeing Hardware – H900 All Boeing applicable hardware is to be processed in accordance with the latest revision of Boeing’s H900 document. Suppliers shall comply with H900 Clauses:</p> <p style="margin-left: 40px;">13 Export Licensing Information/Offshore Procurement 25 COUNTERFEIT GOODS 26 MATERIAL SUBSTITUTION PROHIBITION</p> <p>Reference H900: http://www.boeingsuppliers.com/idscommon/courses/clause_h.htm</p> <p>4. Woodward Drake Part Marking All items shall be marked per drawing requirements. If a revision is required per the drawing or specification, the item shall reflect the revision on the drawing (even if “-” is displayed).</p> <p>Certificates of Conformance (COC) from tier 1 suppliers shall reflect the part revision on the PO except under the special circumstances shown in Figure 1.</p> <p>The initial release of document will be identified by Revision NEW, Revision NEWx (x to be a numerical value), Revision NC, Revision -, or Revision -x (x to be a numerical value). Revision NEW, Revision NEWx (x to be a numerical value), Revision NC, Revision -, or Revision -x (x to be a numerical value) are identical and signify the initial release. When part marking is required, product marking revision should match the drawing revision. Associated documents are acceptable. See Figure 1 for example revision table. If there is any question on part marking and revision, please contact your Woodward Supplier Quality Engineer.</p> <p>Note: Processing certs may reflect the drawing revision</p>

WPQR-9100 Section #:	Supplemental Requirement: (Applies to Woodward Drake purchases)
4.1 d) Added Subsection	The supplying organization shall notify their Woodward buyer and SQE for any changes to their organization's quality representative for Woodward. This person will receive important communication from Woodward (e.g. NCR's and document changes).
7.2 Amplification	<ul style="list-style-type: none"> Near Vision – Snellen 14/18, (20/25), Jaeger 2 at no less than 12 inches or as otherwise agreed with Woodward Drake Supplier Quality or as defined by specific specification processing requirements. Color Vision – No color vision requirements currently exist for Woodward Drake product acceptance.
8.4 & 8.5.6 Amplification	<p>Source Controlled Drawings:</p> <p>All supplier drawings that are governed by Woodward Drake source controlled / specification controlled / envelope drawings shall not be modified and/or changed without Woodward Drake engineering approval. All changes shall be submitted on form 4-74-3414 to the respective buyer (reference 3-06-2977 per WPQR-9100, section 8.5.6). This includes changes to any top level assembly or internal components regardless of form, fit or function.</p>
3.6 & 7.5.2 Amplification	The supplier shall have a control process in place for CNC, test stand software, and CMM programs to assure the proper version of the software is qualified and acceptable for use for deliverable hardware.
8.5.1.2 Amplification	Special processing such as surface treatments, heat treating, EDM, welding, plating, grinding of plating, and nondestructive testing required for completion of this order shall be performed only by processors approved for the process by NADCAP or the end item customer, when required by the customer (e.g. for applicable Boeing specifications, reference D1-4426 for approved sources).
8.6 Amplification	<p>1. Certificates of Conformance</p> <p>All deliveries shall include a legible and reproducible copy of all certificates of conformance (from the material melt/source to the organization's end item) along with any applicable tests results. Any special or supplementary processing, (such as heat-treating performed after original manufacture) of the material shall be separately certified.</p> <p>Each certificate shall include:</p> <ol style="list-style-type: none"> 1)Part number per the PO 2)Part revision <ul style="list-style-type: none"> ➤ All parts should be certified to the exact revision stated on the <u>PO</u> (e.g. '-', 'A', 'B', etc.) except under the special circumstances shown in Figure 1 below. <p>See Figure 1 for example revision table. If there is any question on part marking and revision, please contact your Woodward Supplier</p>

WPQR-9100 Section #:	Supplemental Requirement: (Applies to Woodward Drake purchases)
	<p>Quality Engineer.</p> <ul style="list-style-type: none"> ➤ All parts should be marked per the revision on the <u>drawing</u> (even if drawing revision is "-" or "N/C") <ol style="list-style-type: none"> 3) Traceable PO number 4) Quantity of parts processed 5) Woodward work order (when applicable) 6) Supplier name (manufacturer, processor, distributor, etc.) 7) Country of Origin where parts were manufactured / processed 8) All processes performed (when applicable) 9) All specifications to which the item conforms (when applicable) 10) All specification revisions (when applicable) 11) NADCAP certification displayed (when applicable) 12) Process type, class, etc. (when applicable) 13) SNCR number (when applicable) 14) Serial Numbers (when applicable) 15) Statement that the parts comply to WI 8.4.3-201 (was WI 7.43-201) Supplier Characteristic Accountability 16) Statement that the parts comply with the PO requirements 17) Signature of an authorized representative of processor (electronic signatures are acceptable) <p>The Certificate of Conformance for standard components (i.e. NAS, MS, AN, etc.) shall document the original manufacturer's name and address per Qualified Products List (QPL) or when specification and/or drawing requires procurement of the product through approved sources listed on the specification, drawing and/or customer material specification.</p> <p>2. Functional Test Reports Each shipment must be accompanied by one (1) legible and reproducible copy of actual test results identifiable with test parameters and products submitted.</p> <p>NOTE: Functional tests are defined as product function verification (e.g. mechanical, electronic, hydraulic etc.).</p> <p>3. Woodward Drake Specifications Certifications are required for compliance to all Woodward Drake 9U9XXX process specifications, if applicable. All 9U9XXX shall be done by a NADCAP or Woodward Drake approved processor. Refer to eAuditNet.com for a list of all NADCAP controlled processes and approved processors.</p> <p>4. Inspection Data Suppliers shall inspect all hardware for conformance to drawing, routing and purchase order requirements. Sampling inspection must be processed in accordance with Woodward Drake work instruction, WI 8.4.3-201 (was WI 7.43-201) Supplier Characteristic Accountability.</p>

WPQR-9100 Section #:	Supplemental Requirement: (Applies to Woodward Drake purchases)
	<p>5. Age Sensitive Materials</p> <p>Elastomeric materials shipped with limited life restrictions shall be marked on the item, package or container with the manufactured date, storage temperature, special handling requirements, and expiration date of the items. When items are fabricated of rubber, the cure date of the rubber is to be shown in lieu of the date of manufacture. All identification markings shall be placed in accordance with applicable specifications. Certifications of conformance of life limited materials shall provide date of manufacture (month and year) and date of expiration (month and year) and recommended storage conditions as applicable.</p> <p>a. Assemblies containing synthetic rubber products: <i>Certify that all synthetic rubber products used in assemblies meet the age requirements of SAE ARP 5316. All assemblies shall be marked with the cure date of the oldest synthetic rubber part in the assembly, as well as the date of assembly. Assembly marking may be accomplished using decal, rubber stamp, or metal tag.</i></p> <p>b. Synthetic rubber components and raw material: <i>Each package of synthetic rubber components shall be marked with the date of cure, part number, purchase order number, quantity, and compound number. Date of cure on O-rings shipped to Woodward Drake shall be acceptable in accordance with SAE ARP 5316 "Storage of Aerospace Elastomeric Seals and Seal Assemblies which include an Elastomer Element prior to Hardware Assembly". Rubber raw material shall be identified with date of cure, compound purchase order number and manufacturer's name.</i></p>
8.5.3 Amplification	If Woodward Drake furnished material is scrapped at the supplier, the supplier shall follow the SNCR request process to notify Woodward Drake.
8.5.4 Amplification	<p>Ultimately it shall be the Supplier's responsibility to maintain adequate control of storage and packaging methods and choice of shipping carriers to ensure that the quality of the product is maintained and that any damage, deterioration, and loss in storage or transit is prevented. As a guide though, all parts and materials must be minimally packaged per 9U9290, or ESS157 (as applicable), in a manner which will prevent damage or contamination when handling and in transit. This requirement applies to all material, items, shipments, etc. that are furnished to Woodward Drake.</p> <p>When segregating lots of serialized product, the serial number may be used for purposes of segregation in lieu of manufacturing lot/cure date provided full material and as-built traceability can be demonstrated for each serialized part.</p>

WPQR-9100 Section #:	Supplemental Requirement: <i>(Applies to Woodward Drake purchases)</i>
8.7.1 Added Subsection	<p>Non-conforming parts shall be tagged accordingly and segregated for each shipment. The unique SNCR number shall be referenced on the certificate of conformance. Non-conforming parts received at Woodward Drake without authorization will be subject to rejection and disposition in accordance with Woodward procedures and will count against the supplier's performance rating and may affect future business opportunities with Woodward.</p> <p>The supplier shall make reference to Woodward Drake rejection document (and serial number, when applicable) when resubmitting rejected material.</p> <p>NOTE: Substituting rejected material with new production and/or overruns without Woodward Drake concurrence and valid certification traceability is cause for immediate termination as a Woodward Drake approved supplier.</p>
8.7.2 Added Subsection	<p>Unless specifically granted in writing, Woodward Drake does not grant any MRB authority to suppliers for items (assemblies and /or components) regardless of form, fit or function. All Non-conformances must be submitted via e-Business to Woodward for approval.</p> <p>NOTE: This includes components within source-controlled drawings.</p>

FIGURE 1 – PO vs. Drawing Revision Part Marking Guide

PO Material Revision	Drawing Revision	Product Marking Revision	CoC Revision	Windchill
- or -x	NC	NC	NC	NEW or NEWx* or NC or – or -x*
- or -x	-	-	-	NEW or NEWx* or NC or – or -x*
- or -x	NEW	NEW	NEW	NEW or NEWx* or NC or – or -x*
- or -x	NEW1	NEW1	NEW1	NEW or NEWx* or NC or – or -x*

**x to be a numerical value*

TABLE 1 – Former QR code (2-OF-01422) to PQA code (4-OF-04867) equivalent cross reference

QR Code:	Quality Clause Detail was:	PQA Code Equivalent:
QR 1	Woodward – Duarte Source Inspection Woodward Duarte will perform source surveillance on materials submitted for this purchase order at the supplier's facility. Approval of the items by the Woodward- Duarte Quality Representative does not constitute final approval or acceptance of the items, nor does it relieve seller of the responsibility to furnish conforming items. Woodward Duarte has the right to inspect all shipments at Woodward- Duarte as a condition of final acceptance. Notify Woodward Duarte Quality Control at least 48 hours in advance of the time the articles will be ready for source surveillance. A copy of the Source Surveillance Report must be submitted with the shipper when the parts are shipped to Woodward Duarte.	1
QR 2	Government Source Inspection (DOD) Government inspection is required prior to shipment from your plant. Upon receipt of this order, promptly notify the Government representative who normally services your facility so that appropriate planning for Government inspection can be accomplished. In the event a DCAS Representative or office cannot be located, the Woodward Duarte Purchasing Department must be notified immediately.	2
QR 3	Customer / Government Review During performance on this order, supplier's Quality Control or Inspection System and manufacturing processes are subject to review, verification and analysis by authorized Customer/Government Representatives. Customer or Government release of product prior to shipment is not required unless you are otherwise notified. Verification by the customer shall not absolve the supplier of the responsibility to provide acceptable product, nor shall it preclude subsequent rejection.	N/A – Added as an amplification to WPQR-9100 section 1.1

QR Code:	Quality Clause Detail was:	PQA Code Equivalent:
QR 4	<p>First Article Inspection</p> <p>All First Article Inspection Reports (FAIRs) are to be in accordance with AS9102. A copy of the FAIR shall accompany the First Article Part upon shipment to Woodward-Duarte. Characteristic Accountability (sampling inspection) shall meet or exceed requirements of WI 7.43-201 (replaced by WI 8.4.3-201).</p> <p>Any FAIR changes in accordance with AS9102 shall be documented and sent in for review. All <u>drawing</u> notes on FAIR that are documented on Form 3 shall be explicitly written out as they appear on the drawing.</p> <p><i>NOTE: Woodward-Duarte reserves the right to request changes in FAIRs from suppliers to meet customer demands.</i></p> <p><i>NOTE: Per AS9102 "Instructions to Complete Form 2" (reference #9, Customer Approval Verification), special processes do require Woodward-Duarte approval (reference section 7.5.2.f.3.)</i></p>	<p>N/A –</p> <p>Covered by PPAP requirements stated above and PQA code 34B</p>
QR 5	<p>Production Part Approval Process</p> <p>All Production Part Approvals (PPAPs) are to be in accordance with WPQR-9102 with exception that characteristic accountability (sampling inspection) requirements shall meet or exceed WI 7.43-201 (replaced by WI 8.4.3-201), rather than SS-185. A copy of the PPAP shall accompany the PPAP parts upon shipment to Woodward Duarte.</p> <p>Any PPAP changes in accordance with WPQR-9102 shall be documented and sent in for review. Feature requirements, notes, etc. as documented on the drawing or purchase order shall be completely written out within the Dimensional Results form of the PPAP submission.</p> <p><i>NOTE: Woodward Duarte reserves the right to request changes in PPAPs from suppliers to meet customer demands.</i></p>	<p>N/A –</p> <p>Covered by PPAP requirements stated above and WI 8.4.3-201</p>
QR 6	<p>Source Substantiation List</p> <p>Specific process sources are established and frozen for this part. Contact Woodward Duarte buyer for the current, customer-approved process source.</p>	<p>34B</p>

QR Code:	Quality Clause Detail was:	PQA Code Equivalent:
QR 7	Critical Materials Parts on this order are designated as a Flight Safety Part. Either one or more of the following specifications apply: D8-4890.279 "Supplier Quality Requirements for Critical/Process Sensitive Rotorcraft Hardware" 145PJ-002 "Process Sensitive/Flight Safety Parts and Assemblies" CH-47D or D8-0965 "Control Requirements for Fabricators of Critical Parts" D210-11000-1 "Requirements for Test and Records of Process Sensitive Parts" Specific process sources are established and frozen for this part. Verification of requirements shown on drawing.	34B
QR 8	Non-Traditional Machining Methods Non-traditional methods of machining (e.g., EDM, laser cutting, etc.) shall be allowed even though not specified on the engineering drawing.	N/A – Will be flowed down via drawing
QR 9	Third-Party Source Inspection <u>A third party source inspection, approved by Woodward-Duarte, shall be used prior to releasing hardware.</u> Please allow for adequate planning for the Source Inspection activities to occur while not impacting purchase order delivery dates. Specifics for the source inspection will be flowed down on the PO. Third party source inspector shall stamp/date the supplier's certificate of conformance prior to shipment. <u>NOTE: final acceptance will be made at Woodward.</u>	1A
QR 10	<u>Air Worthiness Certificate</u> This PO requires an FAA 8130-3 Air Worthiness Certificate	35
QR 11	<u>Mandatory new FAIR</u> This PO requires a new FAIR to be completed on a part used to fulfill this order. Please reference QR4 for additional requirements.	N/A – Covered when PO states "PPAP SUBMISSION REQUIRED PER WPQR-9102"

REVISION RECORD

Approval is the name of the manager who is listed as the owner of this process. Description is a brief listing of the changes made from one revision to the next.

Change date	Revision	Approval	Description
11/18/2013	2	Bakke	Major rewrite of DP74200001 to align with WPQR-9100 Quality Requirements and 4-74-4022 Terms and Conditions
3/14/2014	3	Bakke	Update to document requirements, definitions, PPAP, special processes, and addition of Appendix A
4/3/2014	4	Bakke	Added (SK) to Title of the document
7/21/2014	5	Bakke	Revised counterfeit parts section, added PCBA requirements, added inspection requirements
11/03/2014	6	A Bakke	Added reference to J-STD-033 and IPC-1601. Added requirements for moisture sensitive materials.
05/19/2017	7	A. Natale	Added Boeing FOD Requirement
	8		
08/21/2017	9	A. Natale	Added 3-OF-02761 Counterfeit Prevention Plan to ref. document section. Revised PPAP requirements.
02/23/2018	10	A Natale	Updated FOD callout to AS 9146. Updated COTS callout page 6 and 11. Added Supplier Process Change Notification (PCN) section. Revised name of Woodward procedure 3-06-2977 in Reference Documents section. Added Woodward document 4-74-3414 in Reference Documents section.
04/19/2018	11	A Natale	Corrected AS9146 callout on page 11
5/15/2018	12	A Natale	Added PQA code references, raw material verification to the corresponding section
08/30/2018	13	John Bowman Richard Thomason	<ul style="list-style-type: none"> - Minor formatting and numbering corrections. - Added Woodward Drake as an Applicable Site and removed Niles/MPC specific references to make document more inclusive. - Note added about 'preliminary PPAP' submissions. - Revision number column added to Revision Record - Added Appendix B, Table 1, & Figure 1 in support of unique Drake site needs due to the addition of Drake as an applicable site to cover the Duarte to Drake site transition.
02/21/2019	14	John Bowman Richard Thomason	Updated Drake specific DFARs requirements only Appendix B section 2.0

08/02/2019	15	Anthony Natale	Revised Appendix B Drake Material Requirements Sec. 1 Revised purpose section: See site-specific requirements in appendix for clarification or exclusion of specific requirements in this procedure.
8/30/2019	16	Dympna Slechter Matthew Dzielo	Revised Appendix B Drake Material Requirements Sec. 3.7 subsection 4. Added definition for initial release revision. Modified figure 1 (added "Windchill" column)
03/10/2020	17	Nara Sankrithi Matthew Dzielo	Updated hierarchy in Purpose, Reference documents, supplier certification retention, process certification revision requirements, counterfeit goods requirements
12/30/2020	18	Nara Sankrithi Jason Cough	Requested by: Carl Kenar/SQE Revised: Component Part Certification sec section Revised: Production Part Approval Process (PPAP) section Revised: Specific Process Requirements section
03/05/2021	19	Nara Sankrithi Jason Cough	Requested by: Carl Kenar/SQE Minor formatting corrections. Revised: References and Definitions added SNCR: Supplier Non-Conformance Request/Record Revised: Reference Documents added 3-OF-05107, F27950, deleted 4-QCI-01429 Revised: Process Requirements The supplier shall obtain formal approval to ship a non-conformance by requesting an SNCR (Supplier Non-Conformance Record) utilizing the Woodward e-Business supplier portal. Revised: PPAP Requirements-added Class D PPAP: Revised: Non-Conformance to Woodward Requirements: Any deviations from drawings, specifications, or other purchase order requirements must be communicated by the supplier through a SNCR Revised: Counterfeit goods section added: Terms and Conditions (4-74-4022) section 17 Changed 'Concession' verbiage to 'SNCR'
04/07/2021	20	Nara Sankrithi Jason Cough	Added: Right of Access to Suppliers

07/28/2021	21	Nara Sankrithi-Niles Jason Cough-Drake	Change: Added sec to general Quality Requirements for Suppliers to notify Woodward if QMS Certificates changes Requested by: Carl Kenar Reason: Clarify General Quality Section
06/08/2022	22	Ryan Irwin, Jason Cough (Drake) Brian Garside, Nara Sankrithi (Niles)	Change: corrected typographical error throughout the document (Was: procedure WI 8.43-201, Is: procedure WI 8.4.3-201) Requested by: Robert Martin Reason: Avoiding confusion among users
03/17/2023	23	Jason Cough (Drake), Nara Sankrithi, Brian Garside	Change: Removed last sentence in 1st para of section 'Supplier Change Notification (PCN)' page 17 Requested by: Nara Sankrithi, Carl Kenar Reason: Form 4-74-3414 not needed any more since PCNs are directly being handled through supplier portal e-biz.
05/16/2023	24	Jason Cough (Drake), Nara Sankrithi, Brian Garside	Change: Under PPAP section page 13, upon consumption of existing inventory, supplier will submit FAI on 1st shipment; Under Right of Access section page 19, for parts supplier can produce, any sub-contracting will require PPAP or PCN approvals from Woodward. Requested by: Carl Kenar Reason: Missing requirements on approvals of new inventory on existing product and further sub subcontracting for suppliers.
03/06/2024	25	Mark Donovan, Kyle Braun, Brian Garside, Ryan Irwin	Requested by: Kyle Braun General formatting updates. Added details to Requirements by Document Type, CoCs including statement of conformity, signature by Quality representative and not allowing ambiguous statements (see DCMA Q-TIP No. 12-003). Requested by: Robert Martin Sections Material Certification and Process Certification: Replaced requirement for Woodward's approval via SNCR and NCR processes in cases where specification or standards have been cancelled, with verbiage from

			<p>WPQR-9100.</p> <p>Appendix B, section 1.0: Added reference to 9U9222 Woodward document “Acceptance Criteria for Non-Destructive Testing’, 9U9222, for clarification of Woodward requirements for the acceptance of items subjected to non-destructive testing.</p> <p>Appendix B, section 2.0: Added 9U9222 as default for drawings that require NDT without specifying acceptance criteria.</p> <p>Appendix B, section 3.7.4, and Figure 1: added options -x and NEWx.</p>
10/31/2024	26	Dympna Slechter, Mark Donovan, Rick Thomason	Updated Non-Conformance to Woodward Requirements section “note for Niles items”
11/04/2024	27	Dympna Slechter, Rick Thomason	Added revision change number to change table, added email addresses for PPAP submittal
02/20/2025	28	M. Donovan, D. Slechter, R. Thomason	<p>Requested by Rob Sikole.</p> <p>Reason for change: corrective action NC123.</p> <p>Section Counterfeit Goods: Removed “or” from list of required standards and added AS6081 to the same list for alignment to 3-OF-02671 and customer requirements.</p>