



9060 WINNETKA AVENUE  
NORTHRIDGE, CA 91324  
USA

Dear Supplier,

This Dukes Aerospace Supplier Quality Manual applies to all suppliers that provide parts, materials, software and services purchased by Dukes. Suppliers play an integral role in ensuring the quality of products and shall comply with the requirements defined in this manual or communicate otherwise.

Supplier shall ensure their sub-tier suppliers are in compliance with the purchase order and quality manual.

Changes to process shall be managed to prevent interruptions and quality problems.

Please review and take appropriate actions within your organization to meet Dukes' requirement and in providing high quality parts, materials and services.

Please contact your Dukes quality or purchasing representative if you have any questions.

Sincerely,

Purchasing & Quality  
Dukes Aerospace Inc



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USA

**Supplier Quality**

**Assurance Provisions**

**Manual**

**SQAP-001 Revision H**

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Rev	Reason for Change	Date
N/C	Complete rewrite	July 18, 2006
A	Rewritten for clarity	Sept. 5, 2006
B	Domestic material requirements moved to Section 2	Sept. 27, 2006
C	Added Supplier Control & Evaluation to Section 1 Added use of Dukes approved suppliers required for Sub-Tier Control Added ANSI/NCSL Z540 to 6)D	July 8, 2008
D	Added Supplier Notification of Change	June 17, 2010
E	Updated Format Added paragraph 1.5 In para. 1.8,1.15, 2.8; changed FAI to require AS9012 format	Sept 17, 2012
F	Updated required period in para. 1.15 and 2.9 Updated from ISO 9002 to ISO 9001 in Para. 2.6	Oct 12, 2015
G	Rewrite the specification	12/12/16
H	Added Section 1.1 to include Definitions Added additional requirements for FOD control in Section 1.8 Updated supplier notification of change in Section 1.9 from within 5 days to within 24 hours Added additional requirements for Records Retention in Section 1.10 Updated requirements for First Article Inspection Report (FAIR) in section 1.11 Updated section 1.19 Certificate of Conformance to include missing or incorrect documentation from supplier	Mar 15, 2017

## 1 General Requirements

The quality requirements herein are applicable to all Dukes purchase orders. Supplier shall establish, maintain and meet the minimum Quality System described in this manual to be eligible as approved Dukes' supplier.

In the event that there is a conflict between this document and another referenced Dukes document, Dukes quality or purchasing shall be contacted.

### 1.1 Definitions

Article – material, part, component, process or appliance that is produced per Dukes purchase order or contract requirement.

Certificate of Conformance (C of C) – Statement from a supplier used to attest the delivered articles have been manufactured in accordance with purchase order or contract requirement.

First Article Inspection – A complete, independent and documented physical and functional inspection process to verify that prescribed first run of production methods have produced an acceptable item as specified by drawings, planning, purchase order, engineering or industry specifications, and other applicable design document.

Manufacturing planning – Documentation and instructions used to produce an article, process or test in a consistent manner to requirement specified on design document or purchase order.

Standard Part – A part manufactured in compliance with a published industry standard such as NAS, MIL, AN, etc. which includes design, manufacturing, test, acceptance criteria and identification requirements.

## **1.2 Supplier Control**

Dukes evaluates and selects suppliers based on their ability to supply quality products and/or services in accordance with specified requirements and on time.

Dukes maintains a Qualified Supplier List (QSL). This list is prepared and maintained by Supplier Quality Assurance (SQA) and utilized by buyers to place orders.

## **1.3 Supplier Evaluation (Initial)**

Dukes' purchasing identifies supplier candidates. SQA and purchasing will determine the scope of the evaluation based upon the supplier's quality system and Dukes purchasing requirements.

Supplier quality systems self-assessments/surveys are used to assess supplier's quality system, process control capability, strengths, weaknesses, areas of improvement, and capability to meet Dukes purchase order and quality requirements. The self-assessment result shall be noted on QA Form 003 and evaluated by SQA.

Dukes reserves the right to perform on-site audits based on the results of the self-assessments.

Consideration for supplier approval shall be based upon on-site survey results, supplier quality system, supplier quality manual (if available), survey results, third party certifications/accreditations, and any other factors such as submitted product samples, scope of approval, etc.

All suppliers will be required to provide a Supplier Quality Assurance Survey request every 3 years or as needed by Dukes Aerospace.

## **1.4 Supplier Evaluation (On-going)**

Suppliers are continually evaluated based on their quality and performance. Suppliers failing to demonstrate minimum performance criteria of 95% quality and on time delivery will result in Dukes SQA re-evaluation through the corrective action system. Failure by a supplier to provide adequate corrective action or to implement such action(s) shall be cause for disapproval of the supplier.

## **1.5 Sub-Tier Control**

The supplier shall be responsible for flow down of all the requirements and provisions of Dukes' purchase order and quality requirement.

It is the responsibility of the supplier to ensure that all sub-tier suppliers perform in accordance with the applicable requirements of this manual and purchase order. The supplier shall have a process for the selection, approval, and monitoring of all sub-tier suppliers to Dukes.

The supplier shall have an adequate inspection process to verify all materials or services supplied by sub-tiers meet requirements of this manual and purchase order.

Dukes reserves the right to conduct an audit at a supplier's sub-tier. Such audits shall not relieve the supplier's responsibility to produce and deliver defect-free parts.

All inspection data, test results, C of C, etc. must be shipped with the product. Quality records including but not limited to radiographic film, manufacturing routers, material/process certs, first article inspection, inspection data, and calibration records, shall be maintained at the performing source for a minimum of 10 years unless otherwise specified by purchase order.

### **1.6 Communication**

All communication, manufacturing documents, and forms shall be legible and in English, and any required translation of the documents shall be provided by supplier. All issues regarding purchase orders or contracts shall be addressed to Dukes purchasing, and quality issues to Dukes quality.

Verbal directions are not contractual agreement and supplier shall not accept verbal approval or deviation from purchase orders or drawing specifications.

### **1.7 Facility Access**

Dukes, its customers, and/or the FAA have the right of entry to supplier's facility at any time. Right of entry shall be flowed down to all sub-tier suppliers.

Dukes or representative of FAA or Dukes' customer may elect to audit a supplier's quality system or manufacturing processes at any time to ensure continuing compliance with quality requirements as well as to investigate any quality problems, verify corrective action activity or to evaluate the effect of any change in facility, process, equipment, or management.

Supplier shall provide records pertaining to article, processes, testing, inspection or calibration data, etc. during the visit.

### **1.8 Foreign Object Damage (FOD)**

Supplier shall establish, implement, and maintain a program to control and eliminate foreign object debris/damage (FOD) that includes but is not limited to removal of dust/dirt/oil and all items used for masking, burr, etc.

In addition, suppliers shall provide parts free of dust and debris (FOD) by committing to the following:

- Visual inspections prior to final preservation to ensure parts are free from contaminants, debris, foreign material, finger marks, and stains
- Parts shall be delivered individually packaged

### **1.9 Supplier Notification of Change**

The supplier shall submit notification in writing or e-mail within 24 hours of any changes in product and/or process that affect fit, form, function, and safety of the product.

Supplier also shall submit notification of changes in management or manufacturing location.

### **1.10 Records Retention**

The supplier shall maintain quality records for a minimum of 40 years for flight safety or critical and a minimum of 10 years for other programs from the closing of the purchase order unless stated otherwise in accordance with the terms of the purchase. Records shall be available upon request by Dukes within 24 hours.

The quality records include but are not limited to first articles inspection, receiving, in-process and final inspections, manufacturing planning routers, material and process certification, test records, calibration, training or certification, procurement documents, and part data history.

Inspection records shall indicate the nature and number of observations made, the number and type of deficiencies discovered, the quantities approved and rejected, and the nature of corrective action taken, as appropriate.

Test bars used for heat treat casting shall be stored at the supplier's facility and shall not be destroyed without written approval from Dukes purchasing. Test bars shall be permanently identified with the supplier's name or trademark, melt, heat treat lot number, and alloy type.

Electronic records may be maintained in lieu of hard copies when approved by Dukes.

### **1.11 Production First Article Reports**

First Article Inspection (FAI) shall be performed on the first production run of a new article or assembly that represents the production processes, documentation, tooling, and inspection are capable of producing parts and assemblies that meet the applicable requirements. The article or assembled part shall be identified as "First Article" by paper tagging or any other suitable means of identification.

The FAI shall be performed in accordance with SAE AS9102 with additional requirements below:

- A full FAI shall be performed when any of the following occurs:
  - Design Change
  - Manufacturing location, processes, sources, inspection methods, tooling or materials that affect fit, form and function
  - Numerical control program change
  - Natural or man-made event that affect a manufacturing process
  - New manufacturing processes or new methods are used that could affect compliance to the drawing requirements
  - New, reworked or transferred tooling used that could affect fit, form or function of article
  - Drawing revision that affects the operation(s) performed by the supplier
  - New supplier contracted to manufacture the part
  - As required by Dukes in writing

- Form 1:
  - Field 3, Serial Number: Record Serial Number if applicable
  - Field 4, FAI Report Number: Record the applicable FAIR number
  - Field 5, Part Revision Level: Record applicable drawing revision
  - Field 6, Drawing Number: Record applicable drawing number
  - Field 7, Drawing Revision level: Record applicable drawing revision
  - Field 8, Additional Changes: Record any additional changes
  - Field 9, Manufacturing Process Reference: Record applicable work order or lot number
  - Field 11, Supplier Code: Record assigned supplier code
  - Field 12, PO Number: Record Purchase order number
  - Field 14, for each characteristic: Record FAI inspection measuring equipment used as a media of inspection and the inspector's identification that could be a signature, stamp or electronic authorization.
  - Field 15, Part Number: Record applicable assembly or article part number
  - Field 16, Part Name: Record applicable assembly or article part number
  - Field 17, Part Serial Number: Record applicable serial number
  - Field 18, FAIR Number: Record applicable FAIR number
  - Field 19, Signature: Record name of the individual who prepared the FAIR and stamp
  - Field 21, Reviewed By: Record name of the individual who reviewed the FAIR and stamp
- Form 2:
  - Field 3, Serial Number: Record applicable serial number
  - Field 4, FAIR Number: Record applicable FAIR number
  - Field 5, Material or Process Name: Record applicable material or process name
  - Field 6, Specification Number: Record applicable specification orders
  - Field 7, Code: Record assigned supplier code
  - Field 8, Supplier: Record name, city, state and country for all supplier and country of origin
  - Field 9, Customer Approval Verification: Record Yes if customer approval is required and obtained
  - Field 10, Certificate of Conformance Number: Record C of C number if not applicable use applicable purchase order number or lot number
  - Field 11, Function Test Procedure Number: Record number and revision of applicable functional test procedure used
  - Field 12, Acceptance Report Number: Record applicable number of revision of the test data sheet used to record acceptance
  - Field 14, Signature: Record name of the individual who prepared the FAIR and stamp
- Form 3:
  - Field 3, Serial Number: Record applicable serial number
  - Field 4, FAIR Number: Record applicable FAIR number
  - Field 6, Reference Location: Record applicable drawing zone marked on the balloon drawing and the applicable sheet number
  - Field 7, Characteristic Designation: major minor
  - Field 8, Special Process Supplier Code: Record name, city, state and country for all processors or material



- Field 10, Designed/Qualified Tooling: Record digital inspection media (CMM, laser tracker, etc.) or inspection tools used and its identification or serial number if applicable
- Field 12, Signature: Record name of the individual who prepared the FAIR and stamp
- Field 14, Additional Data/Comment: Record initial or stamp of the individual who inspected the assembly or article

Notes:

- All certs to include country of origin
- Commercial Off The Shelf (COTS) and catalog items such as MS, NAS, AN, etc., only require a certificate of conformance
- Do not leave any field blank. Enter N/A if not applicable.

Supplier shall flow down Dukes' FAI requirement to sub-tier suppliers and ensure the latter complies with the requirement.

### **1.12 Counterfeit and obsolete Parts Program**

“Counterfeit Work” means work that is or contains items misrepresented as having been designed and/or produced under an approved system or other acceptable method. The term also includes approved work that has reached a design life limit or has been damaged beyond possible repair, but is altered and misrepresented as acceptable.

Supplier shall establish and maintain a Counterfeit Parts Prevention and Control Plan using Industry Standard Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, & disposition (AS-5553) as a guideline.

Supplier shall provide authentic parts and mitigate the risks associated with procuring parts from independent distributors and brokers. All active and passive electronic components and raw material shall be purchased from either the OCM/OEM (Original Component Manufacturer/Original Equipment Manufacturer) or Authorized Distributors.

Supplier shall submit certificate of Conformance (CoC) from the appropriate OCM/OEM or Authorized Distributors with their shipment.

Supplier shall obtain Dukes' written approval if they need to purchase components from an Independent Distributor / Broker.

Supplier shall immediately notify Dukes with the pertinent facts if supplier becomes aware or suspects of using or delivering of Counterfeit Material is suspected or verified, supplier shall report to Dukes within 24 hours to assess the potential impact on products, containment activities, and corrective actions.

Supplier shall implement a process to identify product that is or has become obsolete, and shall immediately notify Dukes purchasing with the pertinent facts if supplier becomes aware or suspects potential obsolescence to prevent any work stoppage or disruptions. Under no circumstances supplier shall or sub-tier shall substitute obsolete parts without Dukes prior written approval.

This section applies in addition to any quality provision, specification, and statement of work or other provision addressing the authenticity of work. To the extent that such provisions conflict with this section, this section prevails.

### **1.13 Supplier Non-conformance Requests**

Supplier does not have the authority to approve the use of parts or processes that do not fully comply with the purchase order requirements.

Suppliers shall have a program in effect for identification and segregation of discrepant parts in area with limited access to personnel.

In the event of non-conformance, the supplier shall document and submit a Supplier Non-conformance Approval Request form (SNAR) to Dukes purchasing for review and approval. If disapproved, the supplier cannot ship the discrepant material to Dukes. If approved, a copy of the signed SNAR shall accompany the product.

Supplier may choose to rework to print or scrap any discrepant part within the limitations of their quality system with the exception of parts or material furnished by Dukes.

Supplier shall not ship non-conforming materials or parts knowingly to Dukes without being accompanied by an approved SNAR signed by both Dukes Engineering and Quality.

Supplier shall inform Dukes within 24 hours or next business day of suspect nonconforming product shipped.

### **1.14 Non-conforming Materials Corrective Action (Rejection Notices)**

Dukes has the authority to request corrective action(s) at any time for any nonconformance or discrepant condition. Supplier shall provide containment action within 48 hours and respond to formal corrective action(s) within 20 business days or before the due date. Corrective action(s) request specify "Safety of Flight" or "Work Stoppage" shall be addressed within 24 hours. Supplier shall provide cause(s) of nonconformity and none detection and actions to prevent the nonconformity and none-detection.

Supplier shall be held responsible for any costs of poor quality associated with non-conforming materials.

### **1.15 Reworked/Replaced Material**

When returning previously rejected material to Dukes, the supplier shall reference the discrepancy report number and purchase order number on the shipping document, and shall state if the items have been replaced or reworked and inspected 100%.

Under no circumstances shall supplier or supplier's sub-tier repair or salvage parts.

### **1.16 Drawings, Specifications, and Quality Requirements**

The supplier's quality system shall assure the latest applicable drawings, specifications, and quality requirements are compatible with current purchase order agreements and are

available and in use by the supplier's manufacturing and inspection groups. Military standards and specifications utilized shall be to the latest revision in effect upon the date of the purchase order, unless otherwise specified.

### **1.17 Packaging, Handling, and Marking**

Supplier shall assure that all articles are packaged in a manner and with materials necessary and free of dust, dirt, and oil to prevent deterioration, corrosion, contamination, or damage while in transit or storage. Requirements for packaging shall consider conditions affecting the article while at the supplier's plant, transportation to destination, and the expected or specified conditions at the destination.

Electrostatic sensitive components shall be handled in accordance with the latest DOD-STD-1686 and EIA-625, "Electrostatic Discharge Control Program for the protection of electrical and electronic parts, assemblies and equipment." During fabrication and processing, special carts, boxes, containers and transportation vehicles shall be used as necessary to prevent damage due to handling. Material or articles affected by UV or sunlight shall be packaged for protection from such sources. The outside of the packages containing ESD sensitive articles must have a clearly displayed ESD or UV warning label.

When shipping temperature sensitive material, temperature shall be maintained during transport per material specification and shipment must have objective evidence that the required temperature has been maintained throughout the shipment.

When shipping shelf life limited material, each container/package must be marked with the expiration date and have a remaining useful life of at least 85% of the total life limit upon arrival at Dukes in order to be accepted.

Synthetic rubber products used in assemblies shall meet the age requirements of MIL-STD-1523. In addition, 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. Marking may be accomplished by decal, rubber stamp, or bag and tag.

Each package of synthetic rubber components shall be marked with date of cure, part number, purchase order number, quantity, compound number, and manufacturer's identification (if different than part number). Date of cure on "O" rings shall not exceed 8 quarters from the cure date to ship date and acceptance at Dukes.

Material or articles having definite age degradation characteristics shall be marked with manufacturing data and/or cure date, and date of expended useful life.

When packaging any material or articles, the use of staples shall be avoided.

Marking shall be applied as specified by the engineering drawing or specification; if the engineering drawing or specification does not define marking method, marking shall be applied as instructed by specific purchase order notation.

### **1.18 Inspection**

Supplier shall have a method to verify and document all materials or services at receiving and final inspection. Dukes reserves the right to approve or disapprove sampling plans and request 100% inspection at no additional cost for repeated quality issues.

Supplier shall have a system to document and sample all raw materials periodically to validate the chemical and mechanical analysis.

Supplier shall use conventional methods by trained inspectors to inspect parts unless otherwise specified in the purchase order and SQAP. Evidence of inspections shall be maintained and traceable to the article for which the inspection was performed.

Supplier may use sampling in accordance with ANSI Z1.4. Sampling plans other than from ANSI Z1.4 must be approved in writing by Dukes for usage on Dukes' products. Dukes will not approve any sampling plan which permits acceptance with defectives in the population sample.

Key Characteristic (KC) includes features such as material, process, part, assembly, or test, whose variation has a significant influence on product fit, performance, service life, manufacturability, service or other expected deliverable. KCs will be communicated on the drawing or on the purchase order. KCs shall be inspected 100% and the measured values shall be submitted with the shipment to Dukes for review.

Suppliers with repeated or multiple quality issues will be required to stop using their sampling plan and perform 100% inspection. Suppliers may request using their sampling plan from Dukes quality.

### **1.19 Certificate of Conformance**

A legible copy of a Certificate of Conformance must accompany each shipment. The certificate must include the following as a minimum:

1. Supplier name and address
2. Dukes purchase order number, line item and quantity shipped
3. Part number and Drawing revision
4. Serial number (when applicable)
5. Manufacturing plan revision (when applicable)
6. Operation number (when applicable)
7. Process certifications and Dukes approved supplier name (when applicable) for all the processes required by blue print, specification and/or purchase order such as
  - a. Heat treating (including heat treat test report, actual mill certificate, serial numbers if applicable),
  - b. non-destructive test (fluorescent penetrant (part must be marked per applicable test specification), magnetic particle, and radiographic on casting which needs to be performed after all other applicable operations), et
  - c. welding, surface preparation and treatment,
8. Sub-assembly part number with latest revision (when applicable)
9. Sub-assembly process, specification, certification number and Dukes approved supplier used (when applicable)
10. Material certification including physical / chemical test report and name of sub-tier
11. Functional test certificate with actual results (when applicable)
12. Cure date of the oldest synthetic rubber part (when applicable)

13. Supplier of gears shall submit a 10% red line report (when applicable)
14. Signature and title of authorized representative

The certifications shall contain a statement such as “We certify the listed material was used to fulfill the requirements of Dukes purchase order \_\_\_\_\_.” and shall be signed by an authorized quality representative.

Blanket statements of conformance are unacceptable as are statements of belief rather than fact.

Dukes quality will issue a supplier corrective action for missing or incorrect documentation. Supplier shall be held responsible for any costs associated with Dukes inability to receive articles or assemblies due to missing or incorrect documents.

### **1.20 Statistical Process Control**

When specified by the purchase order, the supplier will submit one (1) copy of the required Statistical Process Control charts to verify control improvement and analysis of processes (i.e. X Bar R charts, histograms, etc). Capability analysis may be imposed by purchase order to demonstrate supplier’s process performance.

### **1.21 Domestic Material**

When specified by purchase order requirements or imposed by DFARS 252.225-7014, all raw material incorporated into the delivered item must be manufactured in the United States, its outlying territories, or by specific qualifying countries as noted in the DFARS 252.225-7002.

### **1.22 Dukes/Customer Furnished Material**

The supplier is required to assure all customer and/or Dukes furnished raw material, partially processed components, sub-assemblies, etc, are free of shipping, storage and handling damages prior or during processing.

Discrepant customer and/or Dukes furnished materials, parts, sub-assemblies, components, etc, may be rejected at time of receipt and return to Dukes. The supplier assumes responsibility of total value of material, components, sub-assemblies, and assemblies when scrapped as a result of damages caused by supplier during processing, storage or shipping subject articles. Supplier is responsible to obtain applicable document (such C of C, FAIR, etc.) for articles or assemblies furnished by Dukes.

### **1.23 Traceability**

Traceability shall be maintained from receipt of raw material through finished product, including all subassemblies, inspection, special processes, lots, material heat batch, melt, etc. from which the component was manufactured.

**1.24 Calibration**

Supplier shall have a system for establishing and maintaining inspection records. The system shall be compliant with ISO/IEC 17025. The supplier shall document and sample all raw materials periodically to validate the chemical and mechanical analysis. Supplier shall maintain traceability to calibration due dates and shipping articles or assemblies.

**1.25 Environmental Protection and Compliance**

Supplier shall adopt a policy to comply with all laws, statutes, treaties and regulations including but not limited to OSHA and Registration, Evaluation, Authorization and Restriction of Chemical substances (REACH).