



DERCO
A E R O S P A C E , I N C .

Derco Aerospace Inc., Derco Repair Service Inc.	Supplier Quality Manual		
Monitor: Quality Assurance Manager	Approved by:	Bill Aeschliman	
Policy No. QA 100-102	Revision 8/5/08	Created On: 6/01/02	Page 2 of 13

INTRODUCTION

Derco Aerospace & Repair's products and services have earned a worldwide reputation for the highest standards of quality and reliability. Derco embraces the philosophy of Continuous Improvement. We would like you, our supplier, to be a part of that reputation.

1.0. PURPOSE AND SCOPE

This manual supplements the requirements stated on Derco's' Purchase Orders (PO) and applicable commercial and military standards, i.e. FAA, ISO 9001:2000, AS 9100. These requirements are necessary to ensure that material delivered to Derco by its suppliers will meet or exceed required quality levels. The requirements, as listed, are based on a defect prevention system, which will improve quality, lower costs and increase productivity.

- 1.1. Acceptance of the purchase order is considered acceptance of Derco's terms and conditions.
- 1.2. Drawings and engineering specifications set tolerances and performance requirements. The responsibility of each supplier is to ensure that those requirements are met. Derco encourages each supplier to work toward continuous improvement in all areas regarding quality, delivery, and performance.
- 1.3. Derco reserves the right to audit its suppliers for compliance with the requirements stated in this document and applicable standards. Either Derco or its authorized representative may accomplish this through scheduled audits.

2.0. MANUFACTURING AND QUALITY REQUIREMENTS

In order to ensure manufacturing control, the supplier shall establish and document process standards and criteria for all aspects of the manufacturing operation. These standards shall include documented route sheets and processing specifications that identify specific requirements.

- 2.1. Inspection standards for evaluation of the manufactured product based on drawings and engineering specifications, shall be established and documented.
 - 2.1.1. Inspection sample plans may be used to evaluate product quality. The use of established plans such as Mil-Std-105E or Dodge-Romig for attribute data and Mil-Std-414 for variable data is encouraged.
- 2.2. Acceptable Quality Levels (AQLs) must be set by the supplier to ensure acceptable product quality levels are maintained.
 - 2.2.1. AQL selection is governed by the capability of the manufacturing process to maintain tolerance. In all cases, it is based on a statistical probability and does not relieve the supplier from maintaining tolerance conformance on all parts.
- 2.3. Workmanship standards shall be in compliance with those called out on the drawing or specification, or when not stated, best available industry standard. If internal standards are

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developed, or industry standards are used such as ANSI or SAE, they must be compliant with invoked standards. They must also be acceptable to Derco's Quality Assurance Department.

- 2.4. Derco encourages the use of statistical methods to control quality. Such methods include Statistical Process Control (SPC) techniques. In some cases, Derco may require the supplier to submit quality control plans and process flow charts in advance of the start of manufacturing.
- 2.4.1. Process capability determination CP, CPK indexes
- 2.4.2. X-bar & R charts for variable data p, np, c & u charts for attribute data
- 2.5. The supplier shall establish procedures for the verification, storage, maintenance, and accounting of Derco Aerospace owned material, products, tools, Mylar's, and equipment provided to the supplier for use in producing product for Derco. This would include drawings, specifications, and official correspondence. Any items that are lost, damaged, or unusable, shall be reported to the Derco buyer immediately.
- 2.6. The supplier shall have procedures for the positive identification and control of all components, including raw materials, used during manufacturing, processing, and delivery so that in the event of a recall, Traceability to raw materials and processing can be ascertained.
- 2.7. The supplier is responsible for ensuring that all items regardless if made by the supplier or a subcontractor, meet the technical specifications for form, fit, function, and methods, using stated or recognized industry best workmanship practices.
- 2.8. The supplier shall assure that all incoming materials and components used in the manufacture of products to be delivered to Derco shall be inspected, tested or otherwise verified to be conforming prior to use or processing. Non-conforming material shall be conspicuously identified and segregated to prevent commingling with acceptable material until properly dispositioned. Material that is found non-conforming can only be reworked back to drawing or specification requirements. Material that cannot be reworked will not be dispositioned as use-as-is by the supplier without written approval from Derco's Quality Assurance department. Contact the Derco buyer immediately should either of these dispositions be required.
- 2.9. The supplier shall ensure prior to delivery, that the product meets all requirements, standards, and acceptance criteria. Records shall be retained for seven years. Records created by and/or retained by suppliers shall be readily retrievable and available for traceability in a method to prevent deterioration for evaluation by the customer.
- 2.10. The packaging methods used by the supplier shall assure that the product will not be damaged during transit.
- 2.11. Derco may require the supplier to participate in pre-production review and readiness meetings. Items covered in these meetings could include the following:

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- Quality Planning
- Specifications & drawing requirements
- Process flowcharts and control
- FMEA (Failure Modes and Effects Analysis)
- Critical characteristic selection
- Process capabilities
- Test and Qualification
- First Article Inspection
- Metrology, gaging, and measurement methods
- Statistical Process Control
- Packaging, labeling, and delivery
- Documentation and record retention
- FAA requirements – Form 8130-3 / JAA Form 1

3.0. FIRST ARTICLE INSPECTION

All parts delivered to Derco must comply with all drawing and specification requirements by the manufacturer before shipment.

- 3.1. All dimensions and requirements must be assured by the supplier. Derco may verify dimensions on at least one piece of an incoming lot. Major attributes are checked on a sample basis. Any deviations must be explained and accepted by Derco's QA department prior to production run.
- 3.2. The supplier is to provide measurement / test results and attribute type data in a report format detailing specified test parameters and results when required by PO.

4.0. CORRECTIVE ACTION

Suppliers must have a system for Corrective Action. Corrective Action refers to an internal problem solving process initiated to prevent future delivery of defective product. Emphasis should be on identifying potential problems and implementing a solution at the source.

- 4.1. Corrective action should be performed by an individual knowledgeable in the area or process that caused the defect. That person will conduct a failure analysis to identify the cause of the problem, propose and implement a solution.
- 4.2. The solution should be verified to ensure the problem is solved.
- 4.3. Derco may request that a supplier take corrective action via a written Supplier Corrective Action Request (SCAR). A SCAR may be initiated by the rejection of material at Derco or may be based on a trend or repeated rejections or failures.

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4.4. The reason for rejection will be stated on the SCAR that accompanies the returned parts. The supplier has the responsibilities described above and must describe the implemented corrective action in the reply.

4.4.1. The SCAR form originates from Derco's Quality Assurance and is addressed to a designated individual at the supplier's facility.

4.4.1.1. The SCAR specifies quantities of parts rejected and the nature of the rejection. The supplier is responsible for analyzing the defect as stated

4.4.1.2. The supplier block shall provide information on the specific reason, which caused the defect.

4.4.1.3. The corrective action block shall state the change to the operation or process that the supplier\manufacturer has implemented to eliminate the defect on future parts.

4.4.2. The SCAR should be reviewed by the management for concurrence and then returned to Derco's Manager of Quality for review and approval.

4.4.3. Suppliers must provide a SCAR response within 15 calendar days. If a response is not received, a reminder call, email, or letter will be sent. If SCARs are not responded to within 30 days of receipt, Derco reserves the right to terminate for cause any open purchase orders with the supplier. Unusual circumstances that require additional time to resolve should be arranged in advance by the supplier through Derco' s Quality or Materials departments.

5.0. SURVEYS AND SOURCE INSPECTIONS

Quality Assurance may perform an on-site survey prior to the first scheduled delivery of the product. The purpose of this survey is to determine the supplier's ability to produce a product that will meet the requirements of the drawing, specification, and purchase order.

5.1. Pre-arranged surveys normally will take at least a day to complete. The date and time of the survey will be arranged in advance through Derco Supplier Quality or Materiel departments. Surveys are based on the requirements defined in the applicable drawing or specification. Other commodity specific military specifications may also be applied.

5.2. The success of the audit depends on the supplier's ability to demonstrate its capability to consistently produce the product in compliance with the purchase order, applicable drawings, and military specifications. Areas subject to survey are:

5.2.1. Management structure and organization

5.2.2. Supplier's manufacturing system and processes:

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- Manufacturing process control
- Work instructions
- Control of work-in-process
- Tooling/fixture control
- ESD (Electrostatic Discharge) Protection on electronic components

5.2.3. Quality control and inspection

- Quality Assurance policy manual
- Inspection and test instructions
- Data analysis
- Control of documentation and record keeping
- Statistical methods

5.2.4. Engineering capability

- Design review process
- Failure analysis

5.2.5. Performance history and certifications.

- Government approvals
- Customer approvals

5.2.6. Facilities, general upkeep, and maintenance.

5.2.7. Calibration system

5.2.8. Problem analysis and corrective action

5.2.9. Quality improvement plans and methods

5.3. Derco Quality Assurance may also survey qualifying suppliers for the purpose of Supplier Certification to supply parts on a dock-to-stock basis. Certification surveys will normally take one to two days to complete. Certification will be done on a part number basis arranged with Derco Quality Assurance through the buyer.

5.4. Source inspections may be performed at the supplier's plant by either Derco or it's designated representative.

5.4.1. The source inspector will verify that the material to be shipped complies with the requirements in the purchase order and the drawing or specification.

5.4.1.1. The supplier will provide required inspection information and manufacturing documentation to provide evidence of control and acceptability.

5.4.1.2. The supplier will provide required inspection/test equipment and personnel to permit the source inspector to verify inspection results

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5.5. A Certificate of Compliance (CoC) will be supplied with each shipment of parts when required by the purchase order.

- CoC shall include as a minimum:
- Supplier name, address, and telephone number
- Part number
- Lot number, quantity and serial number (if applicable)
- Date code (if applicable)
- Certification references, i.e. Mil, FAA, DoD (if applicable) Statement that all parts comply with drawing, specification, Technical Order (T.O.), and purchase order requirements
- Statement of traceability for raw materials and processes to the products delivered to Derco
- Legible approval signature(s), including titles, by an authorized supplier representative
- Derco Purchase Order number

6.0. REQUESTS FOR CHANGES AND DEVIATIONS

The supplier must thoroughly review the documentation and Purchase Order provided by Derco. All associated drawing changes and related engineering specifications and test procedures should be in the supplier's possession. Questions should be directed to the Derco buyer.

- 6.1. When quoting a commodity, the supplier must thoroughly evaluate its capability to deliver. The supplier is solely responsible for making an accurate quote based on drawings and specifications. The Derco buyer should be contacted for any clarification.
- 6.2. The supplier is responsible for alerting Derco to any discrepancies or problems as soon as they arise or are anticipated.
- 6.3. A request can be made to Derco to accept the product with a minor deviation. The deviation should be of an inconsequential nature such that it will not affect form, fit or function. The product should be of a value that scraping it would be uneconomical. Requests will be considered only for unusual circumstances. They will not be accepted on a routine basis.
- 6.3.1 Deviation requests must include the Derco part number, purchase order number, number of pieces affected, a clear description of the discrepancy, and the corrective action to prevent recurrence. Deviations will be considered only for those pieces being shipped.
- 6.3.2 Lots with the same discrepancy will not be accepted. The supplier must implement corrective action to prevent recurrence. If a specific parameter is impossible to meet, the supplier should request a review by Derco.

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NOTE: THE ACCEPTANCE OR REJECTION OF DEVIANT MATERIAL IS AT THE SOLE DISCRETION OF DERCO. THE SUPPLIER MUST SECURE APPROVAL OF DERCO IN WRITING PRIOR TO DELIVERING MATERIAL THAT HAS ANY DEVIATIONS AND MUST OBTAIN SUCH APPROVAL, IN WRITING, THROUGH AN AMENDMENT TO THE PURCHASE ORDER.

7.0. CALIBRATION

All Derco's suppliers are required to comply with the calibration system described by ISO 10012, Mil-Std-45662, ANSI/NCSL Z540-1, or equivalent.

7.1. The goals of this system are to ensure the accuracy of all measuring and test equipment used in a supplier's facility, and to prevent or readily detect inaccuracies and provide for immediate correction. The basic requirements are:

- Written description of the calibration system
- Standards and equipment of the appropriate capability
- Traceability to National Institute of Standards and Technology (NIST)
- Calibration schedules and intervals
- Recall system to ensure specific equipment is calibrated when due
- Individual equipment records/histories
- Written calibration instructions and published standard practices
- Labeling to indicate calibration status
- Analysis of calibration results and provisions for dealing with out-of-tolerance conditions

7.2. QA 400-001 Quality Codes (Appendix A):

Code	Description
Derco General	
Q100	Unless otherwise stated on this Purchase Order (PO), drill only precision holes that are shown on the drawing/print with a three (3) or greater (xx.xxx) decimal location. If in doubt, contact the Derco Buyer for verification. Items drilled incorrectly will NOT be accepted.
Q101	Items bearing part numbers other than those listed on the PO will NOT be accepted.
Q102	All life-limited items must have a minimum of 75% life remaining upon receipt at Derco per limits established by the Aerospace Standard for age control, SAE AS 1933 and SAE ARP 5316, or the manufacturer or MIL-HDBK-695. Cure date/date of manufacture and shelf life/expiration date are required. Manufacturer's name and batch/lot number are required if applicable.
Q103	A complete kit list is required with all kits
Q104	All applicable hardware MUST conform to Mil-S-7742 and/or MIL-S-8879, and/or AN, MS, NAS prints and specifications. Metallic fasteners, including bolts, nuts, screws, and studs having internal or external threads with a nominal diameter of 6 millimeters or ¼ inch or greater, that are manufactured to National/Military Standards such as MS..., AN..., NAS...,etc. require test reports & Certifications be on file, in accordance with the Fastener Quality Act and be provided if requested by Derco.
Q105	PB Fastener Hardware manufactured prior to November 6, 2002, Lawrence Engineering hardware (LE) or parts from Advanced Metal Products (AMP) will not be accepted.
Q106	Derco Aerospace, Inc. reserves the right to audit certifications on all new items purchased. This may require traceability & full source documentation

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Code	Description
Q107	All raw material, machining, & processing certifications are required with this order
Q108	Requires Source Inspection - Government or Derco/Unitek
Q109	Teardown and final test report are required with all repaired or overhauled components.
Q110	Where applicable, a current calibration tag is required
Q111	Pull test reports are required with all cables
Q112	Pressure test reports are required with all hoses
Q113	Bearings must be individually packaged in original manufacturers package. For Sealed bearings: lube date and re-lube date/shelf life are required. Must have a minimum of 75% of life remaining prior to re-lube date upon receipt at Derco.
Q114	All rubber products must be individually packaged per spec#: SAE ARP5316
Q115	Protective coating and proper packaging to prevent damage is required for sheet metal products
Q116	Material Safety Data Sheet (MSDS) - If an MSDS is required for this material, the SELLER shall include one copy of the MSDS and it shall be identifiable and provided with each shipment of the items furnished under this order
Q117	Hazardous materials shipped in cans must have a lid locking device
Q118	UN (United Nations) number required with hazardous materials as per IATA instructions
Q119	A copy of work orders from an FAA or EASA authorized repair Station and an overhaul tag not older than 2 years is required with overhauled components. Any deviation requires written approval from Derco
Q120	An FAA Form 8130-3 is required for with all top assemblies
Q121	Manufacturer Certification required with shipment
Q122	Complete Small Business Status Survey and is available at the location listed below. http://www.derco aerospace.com/quality/bizstatus/bizstatussurvey.asp
Q123	Repairable as removed parts are subject to inspection and must be repairable. Invoice for repairable parts to be released for payment upon receipt of an overhaul quotation from an FAA authorized repair station or equivalent. If unit is determined to be beyond economical repair, inspection charges will be the responsibility of seller.
Q124	All documentation must be numerically linked to maintain full Traceability. Numerical link can be established by referencing either a common PO/job/lot/batch or work order number on all documents provided with each shipment. A part number is not considered a numerical link.
Q125	Overhauled, Repairable, or As Removed parts must not have been exposed to extreme heat and/or stress
Q126	Serviceable Condition parts documentation must be provided to validate serviceability from an authorized Air Carrier (121, 129, or 135) FAA Repair Station or by the original equipment manufacturer
Q127	All items must be manufactured in accordance with the applicable Lockheed Martin or OEM technical data unless Derco provides an exception in writing.
F-5 Aircraft	
Q200	This item requires copies of all chemical and physical certifications, as well as the results of a 100% dimensional inspection, to be sent with the first shipment. If this specific part number has been previously supplied to Derco Aerospace, Inc, this requirement is not applicable unless otherwise stated on this Purchase Order. When manufacturing this Northrop-Grumman (NGC) part for Derco Aerospace, ONLY NGC Approved Processors may be used unless otherwise stated on the Special Instructions and Exception sheet provided with the Purchase Order.
Q201	This US Government Purchase Order DOES require the following: copies of all chemical and physical certifications, as well as the results of a 100% dimensional inspection, to be sent with the shipment. IF a First Article Piece has been sent for the part, this is NOT required for the Production Qty line. When manufacturing this Northrop-Grumman (NGC) part for Derco Aerospace, ONLY NGC Approved Processors may be used unless otherwise stated on the Special Instructions and Exception sheet provided with the Purchase Order.
A-4/F-4 Aircraft	
Q300	This item requires copies of all chemical and physical certifications, as well as the results of a 100% dimensional inspection, to be sent with the shipment. If this specific part number has been previously supplied to Derco Aerospace, Inc, this requirement is not applicable unless otherwise stated on this Purchase Order.
Q301	This US Government Purchase Order DOES require the following: copies of all chemical and physical certifications, as well as the results of a 100% dimensional inspection, to be with the shipment. IF a First Article Piece has been sent for the part, this is NOT required for the Production Qty line.

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7.3. Purchase Order Requirements (Appendix B)

Certifications

Supplier certifications must be enclosed with all incoming material. The following information must appear on each certificate:

1. **Supplier name, address, telephone and fax numbers.**
2. **Derco Aerospace, Inc. part number.**
3. **Material specifications and revision numbers when applicable.**
4. **Purchase order number.**
5. **Condition.**
6. **Quantity.**
7. **Nomenclature.**
8. **Batch/serial number when applicable.**
9. **For rubber products: cure date and shelf life information. For specifics see Q102 code.**
10. **For chemical products: mfg. MSDS, mfg. Date and shelf life information (minimum of 75% remaining).**
11. **For bearing products: individual packaging, mfg. Date and lube Date. For specifics see Q 113 code.**

All documentation must be numerically linked to maintain full Traceability. Numerical link can be established by referencing either a common PO/ job/lot/batch or work order number on all documents provided with each shipment. A part number is not considered a numerical link.

If you have any questions or require assistance regarding these requirements contact Supplier Quality at (414) 355-3066.

First Piece Receiving Requirements

THE MINIMUM ACCEPTABLE CERTIFICATION REQUIREMENTS MUST BE ENCLOSED WITH EACH SHIPMENT:

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12. Any deviation to the drawing and / or technical data must be approved by Derco Aerospace prior to manufacturing or release form your facility.
13. Supplier certificate of conformance required.
14. A copy of certifications for each process performed must accompany the parts.
15. Each dimension on a drawing identified on an inspection form.
16. Each dimension shown with actual reading and if out of tolerance by how much.

A-4 F-4

This item requires copies of all chemical and physical certifications, as well as the results of a 100% dimensional inspection, to be sent with the first shipment. If this specific part number has been previously supplied to Derco Aerospace, Inc, this requirement is not applicable unless otherwise stated on this Purchase Order. When manufacturing this Northrop-Grumman (NGC) part for Derco Aerospace, ONLY NGC Approved Processors may be used unless otherwise stated on the Special Instructions and Exception sheet provided with the Purchase Order.

F-5 T-38 RF-5

In addition to the above paragraph, the following also applies: *When manufacturing this Northrop-Grumman (NGC) part for Derco Aerospace, Inc., ONLY approved processors can be used unless otherwise stated on this order.*

All documentation must be numerically linked to maintain full Traceability. Numerical link can be established by referencing either a common PO/ job/lot/batch or work order number on all documents provided with each shipment. A part number is not considered a numerical link.

Above items to be supplied with the parts for Derco's receiving inspection to verify.

If you have any questions or require assistance regarding these requirements contact Supplier Quality at (414) 355-3066.

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8. CHANGES FROM PREVIOUS VERSION

8.1 Revised Q125 in paragraph 7.2. 6/25/08