

Supplier Quality Requirements

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INTRODUCTION

This document contains the quality requirements for Monogram Systems Suppliers. All suppliers of items used in the production of shippable product are required to meet these supplier quality requirements. Compliance with the requirements in this document are demonstrated via an audit to a supplemental questionnaire, SQR-2, which is performed at least once every 2 years to maintain Monogram supplier approval status. Monogram Systems will also accept Suppliers who are registered to ISO9001 or AS9100 by completing page 1 of SQR-2 (omit questions 1 through 65) and attach a copy of your current registration certificate. In those cases, Monogram supplier approval status will be tied to the underlying certification expiration.

1. POLICY

- 1.1. The contractual obligations of Monogram Systems and the highly competitive and technical nature of the aviation industry, cause quality control requirements to assume a most vital role. The proportion of the Monogram product fabricated by suppliers, the complexity of many such components, and the level of reliability make it impractical or impossible to adequately assure product quality by inspections and controls at Monogram plants alone.
- 1.2. In order to assure product quality, appropriate inspections must be made, controls initiated, and/or data gathered for each phase of the product, from the refining and compounding of raw materials to customer service.
- 1.3. Therefore, since Monogram is obligated to assure and certify the overall quality of the end product, including its service reliability, Monogram must verify that each supplier of material going into the end product is aware of, is enforcing, and is recording the accomplishment of adequate quality controls.
- 1.4. This requires that all work performed pursuant to a Monogram purchase order shall be subject to "Right of Entry" for purposes of inspection, surveillance, test and Quality Control audit by Monogram, as well as Monogram's customer or FAA when required, at all reasonable times, including the period of performance, and at all places, including the plant or plants of the supplier or any of its suppliers engaged in the performance of work to fulfill the Monogram purchase order.
- 1.5. This document or any part thereof referenced on the Monogram purchase order shall be applicable to either foreign or domestic procurement.

2. SCOPE

- 2.1. This document contains requirements for the maintenance of a Quality Control system by the supplier to assure that materials and services meet the quality standards required by Monogram. This Quality Control system shall be based upon considerations of complexity of design, interchangeability, reliability requirements, and manufacturing techniques. The system shall assure that adequate control of quality is maintained throughout the entire process of manufacturing, including receiving, packaging, and shipping. Objective evidence of inspections made to assure the maintenance of this system shall be available to Monogram at all times.
- 2.2. This document is contractual with the suppliers when referenced in the purchase order specification or subcontract.

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3. AUTHORITY AND RESPONSIBILITY OF MONOGRAM QUALITY ASSURANCE AND CONTRACT REPRESENTATIVES

The Monogram Quality Assurance representatives shall have the supplier's cooperation and perform the following:

- 3.1. Conduct initial and periodic quality control surveys to assure that the supplier has a quality control system that meets the requirements of this document and the purchase order.
- 3.2. Conduct a continuous planned review of all phases of the approved quality control system to assure compliance. If deficiencies are found, request the supplier to take corrective action.
- 3.3. Assist the supplier in obtaining interpretation of Monogram quality, purchase order, drawing and specification requirements.
- 3.4. Conduct "First Article" inspection and planned inspections of components, assemblies and processes as judged necessary in time to determine that the products meet the Quality and Engineering requirements of the purchase order.
- 3.5. Conduct justified inspection to assure the incorporation of engineering changes, planning changes and other configuration changes.
- 3.6. Enter into Material Review activities at the supplier's facilities, either as a consultant or as a member, as determined by the purchase order requirements. Assist the supplier in obtaining Monogram Material Review action on discrepant articles.
- 3.7. Coordinate reports of unsatisfactory material conditions received from the supplier and ascertain that the supplier establishes the root cause of such discrepancies and takes prompt and complete corrective action. Performance of the above by the Monogram Quality Control representative does not relieve the supplier of his contractual Quality Control responsibilities.

4. PUBLICATION OF REQUIREMENTS

4.1. Procedure

The supplier shall establish and maintain written procedures defining his Quality Control system. These procedures shall be subject to the right of disapproval by Monogram and shall include but are not limited to the following:

- 4.1.1. Management responsibility for the Quality Control function will be set on the supplier's organization chart. The responsibility for the Quality Control function will be placed so that schedules and cost will not compromise quality.
- 4.1.2. Requirements for a regular periodic review of the supplier's written quality control procedures and his quality control system. These procedures shall also include instructions for revising the procedures and system as the need for changes is discovered.
- 4.1.3. Copies of all forms and other records used by the supplier to record the quality status of the supplier's products purchased by Monogram.
- 4.1.4. A description of the method by which the supplier indicated inspection action through the use of approved stamps and signatures, and including replica of stamp impressions.
- 4.1.5. Complete procedures to provide control of the quality of all materials, processes, tests, etc., either produced within the supplier's plant or procured by him from other sources.
- 4.1.6. A system of adequate inspection records covering the control, manufacture, processing, testing, and acceptance of parts or assemblies in the sequence of their manufacture, including provisions for split orders.

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- 4.1.7. A system that will provide instructions for the detection of discrepancies together with a system of corrective action to prevent recurrence.
- 4.1.8. A requirement that the supplier may be required to submit a quality program plan for approval which is applicable to the product furnished to Monogram.
- 4.2. Drawings and Specifications and Changes**
- 4.2.1. The supplier shall maintain a system for the control of experimental, engineering, manufacturing, tooling, and test drawings and specifications. Such a system shall guarantee that only latest revision drawings and changes are available to operating personnel.
- 4.2.2. When design is the supplier's responsibility, but that design requires Monogram approval prior to qualification and/or production, product and/or process definition changes shall not be made in design or manufacture without written approval by Monogram engineering and/or Quality Assurance. Supplier shall inform Monogram in writing of any and all proposed changes to the Product, processes and or tools used to make the product, or drawings defining the Product prior to implementing a change. This applies for both Class I changes (changes affecting form, fit, function, qualification documentation, top assembly drawings, and/or CMMs) and Class II changes (changes not affecting form, fit, function, qualification documentation, top assembly drawings, and/or CMMs). For all proposed changes, Supplier shall provide all affected detail drawings, and an engineering analysis supporting the classification and impact of the change in a format specified by Monogram. (See "Engineered Product Change Proposal" form on Monogram Systems' web-site). If Monogram disagrees with implementing a change or its classification, Monogram shall inform Supplier within thirty (30) days of Supplier submittal. For Class I changes, Supplier shall not implement the change without prior Monogram written approval. If such approval is granted, all part numbers and the originals of all drawings and data shall be revised accordingly.
 - 4.2.2.1. Additionally for these types of product, the supplier shall inform Monogram prior to any major industrial change. This may include plant location or layout change, transportation method, ERP system change, top level organizational change, major process change, and major supplier change.
 - 4.2.2.2. Supplier shall ensure there are no duplicate serial numbers for the same basic part number. In all cases where a serialized procured product is undergoing a part number change (first or second dash), but the fundamental part is the same and being used in the same application, the supplier shall ensure no serial numbers from the previously shipped units with the same basic design or same basic part number are duplicated.
- 4.2.3. When the supplier is manufacturing to Monogram's design, no deviation from the drawing and/or specification shall be made unless specifically authorized by Engineering and/or Quality Assurance and in writing on the purchase order and/or contract. If the supplier wishes to propose a design change to a Monogram design, it shall be submitted via a form specified by Monogram (See "Engineering Change Request" form on Monogram Systems' web-site). In no event shall the supplier implement a change without Monogram's express written authorization.
- 4.2.4. Monogram system shall make available all drawings and specifications to the supplier's production and quality control personnel to fabricate and verify that the product meets the Monogram purchase order requirements. If the supplier finds they do not have the latest revisions called out on purchase orders or drawings, it is supplier's responsibility to request the latest revision documents. This shall be done at time of order acceptance.

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5. RECORDS AND STAMPS

5.1. Records

Records of inspections and tests performed under the responsibility of the supplier shall be maintained. These records shall include but are not limited to the following:

- 5.1.1. Evidence of inspection to assure adherence to applicable drawings and specifications, which includes evidence of inspection for change incorporation. Complete results of the inspection of the first parts manufactured for qualification or production shall be recorded.
- 5.1.2. Evidence of complete liability for adherence to contractual Quality Control requirements. Evidence shall be furnished to Monogram as specified in the contract and/or purchase order.
- 5.1.3. Periodic inspection and control of inspection records, forms, precision tools, instruments and gauges calibration.
- 5.1.4. Evidence of statistical control (such as measurement data, SPC control charts, capability study, use of hard tooling to control variables, etc) on all Key Characteristics defined on drawing(s) (see Appendix A).
- 5.1.5. Evidence of in-process control through rejection report including repetitive discrepancy control. In-process inspection records shall not be used to eliminate the final inspection or test of the end item.
- 5.1.6. Control and care of Monogram and Monogram customer owned materials, gauges, tools, and equipment.
- 5.1.7. Test records of all tests performed. Such test records will be traceable to acceptable tested material.
- 5.1.8. Certifications of personnel, material, and processes (heat-treating, plating, anodizing, welding, etc) when and as required by specification, contract and/or purchase order.
- 5.1.9. Interchangeability and replaceability requirements.
- 5.1.10. Control of inspection stamps.
- 5.1.11. Discrepancy control and discrepancy disposition records. Quality control records shall be maintained on file and available to authorized Monogram representatives. The supplier shall retain such records for a period of seven (7) years.

5.2. Inspection Stamps

Inspection stamps shall be designed to identify the supplier and the supplier's inspector who affixes the stamp. When direct use of the inspection stamp is impracticable because of size, construction, finish or number of parts, the stamp shall be applied to an attached tag, label, sticker, or plate, or to the package containing the material. Stamps shall be used to control in-process manufacturing operations, tests and Materials Review. The supplier's final acceptance stamps shall indicate acceptance by the supplier of end items to be delivered to Monogram.

6. FACILITIES

6.1. Measurement and Test Equipment

- 6.1.1. Measurement and test equipment includes all types of instruments, gauges, meters, calibrators, fixtures and other devices used to check, evaluate, verify and control the quality of

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- materials or processes or used to verify the accuracy of other measurement or test equipment.
- 6.1.2. All measurement and test equipment shall be subjected to a visual, dimensional and operational inspection as applicable when initially received and at periodic intervals thereafter.
- 6.1.2.1. Each piece of equipment shall have a record of the date by which the next inspection is required and the stamp or signature of the person who made the last inspection.
- 6.1.2.2. The same information covering date of next inspection, stamp, or signature shall be physically attached to each piece of equipment.
- 6.1.2.3. The necessity for and/or frequency of periodic inspection shall be based on objective evidence of the stability and continued accuracy of the equipment.
- 6.1.2.4. The supplier's Quality Control procedures describe how the supplier's quality control system maintains and enforces the requirements.
- 6.1.3. All test and measurement equipment used to check product components and systems, to check materials that are used in a product, or to check control of the processing of a product, shall be checked against a standard that has greater accuracy.
- The required accuracy of shop test and measurement equipment is the accuracy required to evaluate the most precise tolerances of any item required to be checked by the equipment.
- 6.1.4. The standards against which test and measurement equipment is periodically checked shall have their accuracy verified directly by or through a precise comparison with legal standards traceable to the N.I.S.T.

6.2. Tooling

- 6.2.1. The supplier must establish a system which will provide records for liability, identification and maintenance of tooling. Tooling that is required for producing product should be called out on shop traveler, process record or manufacturing plan.
- 6.2.2. Tools must be given periodic inspections to verify their continued accuracy and the results of such inspections must be recorded.
- 6.2.3. Tools must be properly stored and controlled to prevent misuse, damage, and deterioration. Tools in storage shall be periodically checked for condition and preservation.

7. PROCUREMENT CONTROL

7.1. Procurement by the Supplier

- 7.1.1. The supplier shall assume the responsibility for the quality of all purchased materials, articles, and services unless otherwise directed by Monogram in writing. This responsibility includes:
 - 7.1.1.1. Selection of qualified procurement sources.
 - 7.1.1.2. Transmission of all design, reliability, and quality requirements to procurement subcontracts and purchase orders.
 - 7.1.1.3. Evaluation of procured articles against purchase order requirements.
 - 7.1.1.4. Effective provisions for early information feedback and correction of deficiencies.
 - 7.1.1.5. Providing technical assistance and training to suppliers when necessary to achieve required reliability and quality levels.
- 7.1.2. The supplier shall include in his subcontracts provisions necessary to allow Monogram to determine and verify the quality of work and materials at any place, including the plant of any supplier, and at all production stages, of materials intended for incorporation into Monogram

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Systems products. Such investigations by Monogram Systems will be performed with the knowledge of and jointly with the supplier.

7.1.3. The supplier must have objective evidence on file, subject to review and acceptance by Monogram Quality Assurance Representatives, to show that all materials and processing received by the supplier to be incorporated into Monogram products meet the Monogram purchase order requirements.

7.1.4. The supplier's organization having responsibility for quality control shall have authority to disapprove the use of sources which do not have a quality control system to meet the procurement requirements.

7.2. Receiving Inspection

7.2.1. All incoming materials shall be inspected by an approved statistical quality control plan or 100 percent. Such inspection shall include visual, dimensional, functional, hardness, magnetic particle, penetrant, etc., or other methods necessary to affirm required material composition and quality.

7.2.2. Material test reports shall be checked 100 percent against the purchase order requirements. Material certifications and test reports shall be filed and available upon request.

7.2.3. Laboratory facilities equipped to perform required tests shall be used by the supplier when testing material, either within the supplier's plant or independent laboratories.

7.2.4. An identification system shall be provided to preclude the use of wrong materials during manufacture.

7.2.5. All materials shall be properly stored to prevent damage, corrosion, etc., and will be properly segregated. Material will be used on a "first-in-first-out" basis and shelf life sensitive controls maintained.

7.2.6. Materials shall be stored in such a manner as to prevent withdrawal by unauthorized personnel.

7.2.7. Supplier's Receiving Inspection acceptance shall be based on the requirements of the supplier's purchase orders.

7.2.8. A list of supplier approved sources, along with supporting objective evidence of the capability of both manufacturers and process facilities, shall be available.

7.2.9. Records shall be kept of all functional or qualification tests conducted or certifications received on supplier purchased equipment.

7.2.10. A system shall be maintained to assure and record action to correct and prevent recurrence of discrepancies noted on supplier purchased items.

8. PROCESS CONTROL

8.1. The supplier's quality control system shall monitor all processing operations and shall enforce all applicable process requirements. Suppliers manufacturing to Monogram detail drawings and specifications shall use Monogram process specifications unless Monogram Engineering and Quality Assurance approves an equivalent.

8.2. Outside vendor facilities processing to specifications listed on Monogram blueprint drawings, or to supplier specification used in lieu of the Monogram Systems specification, may be subject to Monogram Engineering and/or Quality Assurance approval. Suppliers manufacturing to their own drawings shall use Monogram process specifications if they are listed on the Monogram purchase order and must use Monogram approved processors.

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- 8.3. Process control shall not eliminate the requirements for final inspection and test of the end item, but it may be used to reduce these requirements. Records of process controls used as acceptance devices shall be retained as inspection records.

9. **PRODUCT CONTROL**

9.1. **Proprietary Design**

- 9.1.1. The requirements included under this heading apply to all non-Monogram designs. The term "non-Monogram designs", used in this document, means all supplier proprietary designs including those based on Monogram Systems or Government "form, fit, and function" specifications, but excludes all Monogram designs.
- 9.1.2. The supplier will have available drawings, specifications, and special process descriptions for each item submitted to Monogram Engineering and/or Quality Assurance for approval at the time that the item is submitted. These drawings, specifications, and process descriptions shall be adequate for the supplier to produce the items on a production line basis. This requirement is to assure that all production requirements have been considered in the design submitted for qualification and approval.
- 9.1.3. The supplier shall have production and inspection records to verify acceptance of the configuration and performance of the submitted article.
- 9.1.4. The supplier shall correct all workmanship and design deficiencies found in the submitted article and shall assure that appropriate drawing and/or specification changes are made to cover such corrections, following the requirements regarding changes in this document.
- 9.1.5. After acceptance by the supplier's Quality Control system, Monogram Quality Control shall verify that the first production article meets the final design and quality requirements established as a result of first article approval.
- 9.1.6. Monogram Quality Control will continue to verify that satisfactory quality levels are maintained during production by receiving inspection at Monogram plant. If needed, it may request an inspection at the supplier's plant that may include verification, testing and equipment evaluation to assure its suitability for incorporation into Monogram products from the standpoint of conformance to specification, workmanship and product reliability and safety.

9.2. **Corrective Actions**

- 9.2.1. The supplier shall provide details of corrective action in a timely manner as specified on Monogram's Corrective Action Request (CAR) in a format specified by Monogram.
- 9.2.2. Any Corrective Action responses not received within the time specified may result in any or all the following: Escalation in the supplier's management chain, rejection of follow-on orders, stop-payment of outstanding invoices.
- 9.2.3. Supplier may request and extension for completing a CAR. Extension requests shall be submitted to Monogram's buyer, or designated Quality Engineer. Extension requests shall be submitted no later than one week prior to the CAR response due date, and will only be considered for valid reasons such as difficult or on-going extensive investigations, where supplier can show adequate progress has been made to date.

9.3. **Manufacturing Control and Inspection**

- 9.3.1. The supplier's quality control system shall assure compliance with Engineering drawings, manufacturing process specifications and quality standards during fabrication and testing of prototype, first article, or production articles, regardless of whether the articles are built to supplier or other specifications.

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- 9.3.2. Quality requirements shall be specified on all work orders or process cards. Adequate measures shall be provided for the control of process inspections, such as: SPC, heat treat, magnetic particle, x-ray, etc. Results of the inspection shall be recorded.
- 9.3.3. Manufacturing Plan, shop traveler or process record shall show Part Number, Revision, description, P.O./Work Order number outlining process steps including identification and final inspection. This process record is to remain with parts at all times until stocked/shipped.
- 9.3.4. Requirements for the functional and physical interchangeability and replaceability shall be so specified in the purchase order. These requirements cannot be deviated from by Materials Review Board action. Any deviation from these requirements requires a contract change.
- 9.3.5. Completed materials shall be given final dimensional inspections before the application of protective finishes if so indicated by the drawing/specification. Materials shall be given final inspection after protective finish for part number, final acceptance inspection, stamps, satisfactory finish, etc. "Check Fits" will be accomplished when required by contract. Supplier inspection should assure full compliance with the Monogram purchase order, blueprint and specification at the time of final inspection, either by reference to the purchase order, blueprint, specification or to the supplier's internal paper reflecting Monogram Systems purchase order requirements.
- 9.4. Shipping, PO Quality Clauses, Inspection Requirements, Paperwork Delivery**
- 9.4.1. In all cases, suppliers are required to perform in process and final inspections necessary to ensure the product meets all the requirements of the drawing and specification.
- 9.4.2. In all cases, suppliers are required to submit a Certificate of Conformance (C of C) with the shipment for production parts, whether of Monogram design or purchased catalog items.
- 9.4.2.1. The supplier's quality control system shall provide and enforce procedures for the proper inspection of shipments for completeness of manufacture, and to assure that the shipments meet all requirements for marking, packing and packaging, and for the presence of properly completed packing sheets and certification of conformance. Certificate of Conformance (C of C) for production parts, whether of Monogram design or purchased catalog items, must be submitted at the time of shipment. Parts procured to Monogram approved design, subsequent to Monogram First Article approval, must include on the face of the C of C, all relevant material and process cert.'s traceable to those material and process cert.'s that are held on file and available for Monogram's review.
- 9.4.3. Suppliers shall adhere to the Quality Clause called out on the Purchase Order as follows:
 - Q1 – Source Delegated Approval (Dock to Stock)
 - Q2 – Source Inspection Required
 - Q3 – Monogram receiving inspection required
 - Q3IR – Monogram receiving inspection required, AND Supplier is required to submit a supplier inspection report
 - Q4 – First Article with material & process certificates required
- 9.4.3.1. In the case of Q1, the supplier must meet all the requirements outlined in this document under "Delegation of Monogram Verification Authority to the Supplier", Supplier is to create and retain the inspection records on file at the supplier's facility.
- 9.4.3.2. In the case of Q2, the inspection records and the product will be presented to a Monogram source inspector prior to shipping the product.
- 9.4.3.3. In the case of Q3, the supplier shall create and retain all the required inspection records at the supplier's facility, and provide them to Monogram upon request.
- 9.4.3.4. In the case of a Q3IR, the supplier shall submit all necessary inspection records with the delivery of the product.

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- 9.4.3.5. In the case of Q4, the supplier shall deliver a completed First Article or Delta First Article package, in a format that meets the latest AS9102 First Article Inspection Requirements, with the delivery of the product.
- 9.4.3.6. Sample forms for the Inspection Report and First Article Inspection Reports can be found on Monogram's website under Supplier Forms
- 9.4.4. Evidence of First Article, along with all material and process certifications, are required on first run parts, engineering and/or tooling changes.
- 9.4.4.1. Such documented First Article Inspection Report (FAIR) shall be per the latest AS9100 standard, and include:
 - a) Conformance of each item of the bill of material with attached FAIR for each.
 - b) On each FAIR, conformance to the respective (attached) raw material by reference number, traceable to the material certification (by heat number, test report number or other suitable means).
 - c) Conformance specified by process type as called out on each drawing note.
 - d) A complete listing of each specified dimension, allowable tolerance and a separate column for recording the actual condition for each.
 - e) For hardware items (nuts, bolts, screws, etc.), itemize in a) above, reference to the P.O. for that item, and copy of which shall be attached C of C for each included in the FAIR package.
- 9.4.4.2. Delta FAIR is required to document compliance difference resulting from a revision change. Such delta FAIR shall reference the previously submitted FAIR for the earlier revision.
- 9.4.5. Where required by contract and/or P.O., evidence of capability shall be provided with product on designated Key characteristics defined by Monogram Engineering drawings (see Appendix A).
- 9.4.6. Verification by Monogram or Monogram's customer shall not absolve the supplier of the responsibility to provide acceptable product, nor shall it preclude subsequent rejection by Monogram.

10. FUNCTIONAL TEST

- 10.1. The supplier shall assure that all functional equipment delivered has been tested and accepted to applicable functional requirements. Records shall be maintained to indicate the results of such testing. The supplier's functional test equipment shall be periodically checked to assure continued accuracy and records shall be maintained of such periodic checking.
- 10.2. Testing of supplier procured items shall be accomplished by one or more of the following methods:
 - 10.2.1. Tests conducted in the plant of the supplier under the inspection control of the supplier's own personnel.
 - 10.2.2. Tests conducted outside the supplier's plant and witnessed by an inspector employed by the supplier who verifies test acceptance by stamping the tested item and related records.
 - 10.2.3. Tests conducted by a certified independent laboratory that will certify that the items meet test requirements.
- 10.3. Functional tests shall be performed strictly in compliance with the drawing, specifications, and other functional test data required by Monogram purchase orders.

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11. SPECIAL PROCEDURES

11.1. Discrepancy Controls

- 11.1.1. The quality control procedures will assure that nonconforming materials, tools, or test equipment will be identified as discrepant, segregated, and reviewed for disposition.
- 11.1.2. The supplier's Quality Control system shall assure that adequate records of Material Review actions on discrepant material are maintained and kept available for review and analysis. These records shall show the cause and responsibility for the discrepancy, the way in which the discrepancy was corrected, and shall note what action was taken to prevent its recurrence.
- 11.1.3. The supplier, manufacturing to Monogram design, is not authorized to hold formal Material Review on any discrepant material. They shall submit his request for action to the Monogram Quality Assurance Representative directed through Monogram on an Advance Rejection Tag. Materials covered by such a request shall be withheld from production and delivery until Monogram has completed the Material Review and advised supplier as to the material's disposition.
- 11.1.4. The Advance Rejection Tag and instructions for filling it out are available on Monogram Systems web-site under "Supplier Forms".
- 11.1.5. The supplier cannot conduct Material Review actions on Monogram design items unless and until specific authorization for such actions has been received from Monogram. The supplier may request authority from Monogram to hold formal Material Review action by establishing adequate procedures to be approved by Monogram, and designating qualified Quality Control and Engineering personnel to act on the Material Review as authorized by Monogram. Material Review decisions are binding upon all members of the supplier's organization. When the supplier is approved to hold Material Review actions, Monogram reserves the right to reject the decisions of the supplier.
- 11.1.6. Suppliers of proprietary designed articles cannot conduct Material Review action on a discrepancy which will result in departure from the requirements of the Monogram drawing and/or specification as noted on the purchase order or blueprint. Such departures must be authorized by Monogram Material Review Board action.

11.2. Reliability

The supplier's quality control system shall incorporate provisions for the assurance of required reliability and for the collection and transmission of reliability data as specified by Monogram.

11.3. Single Standard Quality Control

Single Standard Quality Control is a policy of the Monogram company. There shall be no distinction between the quality level required for an item intended for aircraft use and an identical or similar item intended for commercial use.

11.4. Statistical Quality Control

- 11.4.1. Where required by Monogram contract or P.O., and as called out on the engineering drawing, each key characteristic shall be subject to flowdown of Advanced Quality Systems (AQS), control of variation, and must exhibit evidence of capability in accordance with SQR-1 Appendix A of this document.
- 11.4.2. Statistical Quality Control applications used in acceptance of materials and/or processes by the supplier shall be approved by Monogram Quality Assurance. While the supplier is being evaluated, use of published statistical control plans are permissible provided it is based on MIL-STD-105E or other generally recognized and accepted statistical control system, except any lot with known defects must be rejected (c=0).

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11.5. Training

The supplier shall develop, implement, and document training programs as necessary by the supplier's management to maintain acceptable areas of performance in quality control, purchasing and manufacturing. Training programs shall include, as needed, familiarization with parts, components, equipment, systems, inspection and test equipment; and instruction in techniques and methods for procuring, processing, fabrication, inspection, test, checkout, quality control, statistical quality control, packaging and handling. Importance shall be given to the function and mission of the end item, to new articles, and to new or sensitive fabrication processes or materials. The training program shall include sufficient training to ensure personnel skill, knowledge and ability and a means of determining the level of professionalism of persons completing the courses. Inspector training programs shall, where practical, include the inspection of appropriate articles with known deficiencies in order to evaluate the inspector's skill.

11.6. Delegation of Monogram Verification Authority to the Supplier

- 11.6.1. Suppliers granted authority to conduct product verification on behalf of Monogram cannot further delegate that authority without written approval.
 - 11.6.1.1. Only suppliers that have their quality system found compliant by an on-site audit are subject to supplier delegation authority.
 - 11.6.1.2. Each deficiency found during the audit will be recorded separately on Monogram document SQR-3, Supplier Quality Report (see figure 3). Resolution and closure shall be obtained for each prior to approvals.
- 11.6.2. Suppliers granted authority to conduct product verification on behalf of Monogram shall have procedure for:
 - a.) Identifying qualified delegate(s);
 - b.) Maintaining the qualification of designated delegate(s);
 - c.) Describing the process by which delegate(s) will accept product on behalf of Monogram.
 - d.) Lot acceptance tag (Figure 1) attached to each batch traceable to Monogram's P.O.
- 11.6.3. Candidate delegates and procedures are subject to the approval of Monogram's Quality Assurance Manager. Such approvals of supplier's delegates and procedure are to be documented, showing a part listing for such authorization, on form MS4-6-3 (see Figure 2).
- 11.6.4. Ratings of exceptional suppliers with high performance high standards based on product history are required as well as an on-site audit of the supplier's quality system prior to granting delegated authority.
- 11.6.5. Only suppliers who have maintained less than 3% rejection rate over a period of 12 months and has demonstrated a high level of system and product quality may be considered.
- 11.6.6. Delinquent or absence of response to corrective action requests issued by the Quality Department shall result in immediate disqualification of delegation source approval.
- 11.6.7. Suppliers are to notify Monogram immediately of any suspected problems with previously delivered product.
- 11.6.8. Product with known defects that cannot be reworked to drawing or specification must be submitted to Monogram Engineering and Quality Assurance prior to shipping.
- 11.6.9. Delegated source responsibility does not apply to first articles, part revision due to engineering change or parts produced from a new tool or process change.
- 11.6.10. In those instances, supplier shall not use acceptance tag and parts shall be routed for Monogram receiving inspection. Vendor is to submit a first article reports as well as material and process certification.
- 11.6.11. Suppliers of "preferred" status shall implement the requirements of SQR-1, Appendix A, and Section 4.20, AQS flow down.

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11.7. Quality Control Audit Program

- 11.7.1. The supplier shall audit the adequacy of quality program procedures, inspections, tests, process controls, and certifications performed in each area on a timely basis. The audit shall be performed by an impartial team familiar with written procedures and standards applicable to the areas being audited, but not having specific line responsibilities in those areas.
- 11.7.2. The audit shall include examination of all quality operations and documentation, comparison with established requirements, notification of required corrective action, and follow up to assess results of corrective action. An example of an examination of an inspection operation would include, but not be limited to:
 - 11.7.2.1. A re-inspection of work accepted by the inspectors in the area.
 - 11.7.2.2. An investigation of the availability of all required documents.
 - 11.7.2.3. A determination of the familiarity of personnel concerned with required documents.
 - 11.7.2.4. A review of discrepant material and corrective action taken.
 - 11.7.2.5. An evaluation of the adequacy of acceptance and rejection documents.

12. Document Revision History

Rev	Description of Change	Date	Appr./Initials
A	Initial Release	7-Nov-03	ASD
B	Added Introduction 3.4 – grammar update 3.7 – “cause” to “root cause” 4.2 - Changed Title to add “and Changes” 4.2.2 – Added detail on Supplier change control 4.2.3 – Added detail on Supplier change control 4.2.4 – Clarification on supplier responsibility for requesting necessary drawings 5.1.4 – Clarified SPC requirement 9.2 – renumbered to create stand-alone section on Corrective Actions. Added detail in subsection on requirements and repercussions for CARS 9.3 – Changed Title to add “Inspection” 9.3.5 – added clarification “if required by drawing/spec” 9.4 – Changed Title from “Shipping” to “Shipping, PO Quality Clauses, Inspection Requirements, Paperwork Delivery” Added detail regarding PO Quality Clauses 9.4.4.1 – added AS9100 std for FAI form 11.1.3 / 4 – Removed Figure 2. Refer to forms on web-site Note – Figure 1 & 2 removed due to non-use or other source for form.	13-Dec-10	GFL
C	4.2.2.1 – added control of industrial change 4.2.2.2 – added duplicate serial number control 9.4.3.5 – changed standard from AS9100 to AS9102	2/16/11	KPJ

Supplier Quality Requirements

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**SQR-1 Figure 3
Supplier Quality Report
Form SQR-3**

MONOGRAM SYSTEMS QUALITY ASSURANCE		Page of
SUPPLIER QUALITY REPORT - SQR-3		SQR No.
		Report Date:
Supplier Information	Initiator Name:	
Company Name:	Telephone: (310) 638-8445	
Supplier Code:	FAX:	
Telephone:		
Corrective Action Response for all findings identified in this report is due on:		
The undersigned has reviewed and understands the statements included herein and acknowledges receipt of a copy of this report:		
Name / Signature _____ / _____		
Title: _____		
Date: _____		
Corrective Action Plan acceptable:	Name / Date:	
ID Number of acceptable Corrective Action Plan	ID No.:	
All Correction Actions Verified:	Name / Date:	
Comments:		
Supplier Notified of Closure:	Name / Date:	
CORRECTIVE ACTION SHALL BE FORMATTED AND SUBMITTED AS FOLLOWS FOR EACH FINDING:		
1. Restatement of the finding 2. Immediate Corrective Action 3. Root Cause Analysis 4. Root Cause Correction and 5. Corrective Action Verification Plan & Follow-up		

SQR-3 9/2001



Supplier Quality Requirements

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SUPPLIER QUALITY REQUIREMENTS

APPENDIX A

ADVANCED QUALITY SYSTEMS

Supplier Quality Requirements

Document No: SQR-1

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Revision: C



DOE

Indicate "yes" if design of experiment was conducted to correlate sources of variation for the characteristic.

Part/Process Name

Description of part or family of parts as identified on purchase order, blueprint or specification.

Part Name

Identified on Monogram Systems purchase order or request for quote.

Team Captain

Name of project leader performing initial capability study.

Company Name

Enter name of Supplier.

Used-on Part Number

Next level drawing where part is used.

Date (original)

Date control plan was established.

Revision Number

Number of subsequent revisions.

Revision Date

Date of subsequent revisions.



Supplier Quality Requirements

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**Attachment A
Control Plan**

Advanced Quality System — Control Plan

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KEY CHARACTERISTIC								GAGE VARIATION		PROCESS VARIATION				
KEY Characteristic	Engineering Specification	Process step with measurement taken	Control Chart Used	Sample Size	Sampling Frequency	Initial Cpk	Type, make, and model of gage	Gage Capability	Process Step & Operation Number	Key Process Parameters	Process Parameter Settings	Control Method	DOE ?	

Part/Process Name _____ Team Captain _____ Date (orig) _____
 Part/Process Number _____ Company Name _____ Revision Number _____
 Used-on Part Number _____ Revision Date _____