

**Gulfstream**  
**Production Certificate Operations**

**SUPPLIER QUALITY INSPECTION AND TEST SYSTEM REQUIREMENTS**

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SQAR – 0003 REV. N/C

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## **1. Purpose and Scope**

This document contains the minimum quality requirements for a Supplier Inspection and Test System of aircraft parts to Gulfstream on purchase orders or other contract documentation. This document shall govern the Supplier's Inspection and Test System for products produced as "build-to-print" for Gulfstream.

## **2. Applicability**

This document shall apply when incorporated by reference into any contract to all suppliers performing the work or supplying products to Gulfstream.

In the event of a conflict between the contents of this document and any supplier documents, the terms of this document for the referenced procurement, shall apply unless specifically negotiated and accepted in writing by Gulfstream Quality Assurance.

If a supplier proceeds without an agreed to understanding of this document, Gulfstream reserves the right to interpret the contents of this document.

## **3. Gulfstream Audits, Surveys & Inspections**

Prior to the award of a procurement contract, a supplier Quality Assurance evaluation should be scheduled to appraise the supplier's ability to comply with the requirements of this document. Upon completion of this initial evaluation, the supplier will be notified in writing of their acceptability or any areas of non-conformance. Any documented non-conformances shall be resolved to Gulfstream Quality Assurance's satisfaction prior to award of an approved status.

Gulfstream reserves the right to conduct audits, evaluations and inspections of the supplier's Quality Inspection and Test System and products to be furnished to Gulfstream. In addition, Gulfstream reserves the right to conduct audits, evaluations and inspections of supplier's subcontractors and products to be supplied to Gulfstream. These audits are in addition to the primary supplier's approved Quality Assurance system and does not relieve the primary supplier of the responsibility to maintain a system for the control of quality products and services from their subcontractors.

## **4. Gulfstream Representation**

Gulfstream may assign representatives from Quality Assurance, Purchasing, Engineering, Production Groups or other personnel as required to the supplier's facility during its performance under any Gulfstream contract. These representatives will only be assigned to the supplier's facility in connection with the contract. The supplier will be required to provide these assigned personnel with reasonable facilities and equipment required to conduct their business within the supplier's facility.

## **5. Government Representation**

Gulfstream suppliers shall permit access and provide facilities and assistance, as necessary, to government representatives to enable them, initially and periodically, to evaluate supplier's facilities and to review procedural controls, records, process controls and products at all times and places during manufacture, in accordance with government regulations and applicable specifications.

## **6. REQUIREMENTS - Management Responsibility**

The supplier's management must establish, document and maintain a Quality Program in the form of a procedure manual, which clearly defines Quality objectives and commitment for an Inspection and Test System to the requirements of this document. The Quality Manual shall assign/define specific authorities, duties and responsibilities in addition to defining all functions and activities that have a direct impact on product Quality. The manual shall depict the company's organization in chart form, and a current copy shall be made available to Gulfstream and Government representatives upon request, and to all employees whose responsibilities include Quality System compliance.

The Quality Inspection and Test System in place at the time of the evaluation or audit approval shall be the system considered acceptable.

The supplier's management shall establish a procedure for the approval and maintenance of its subcontractors. A list of all approved subcontractors shall be established, maintained and available to all personnel, primarily those with Quality, Procurement, and Shipping/Receiving functions. In addition, the supplier shall regularly evaluate the quality performance of its subcontractors. A procedure for Corrective Actions (CA) shall be established for system and product non-conformances from a subcontractor.

**The system shall include as a minimum, provisions to address the following:**

### **7. Contract Review**

The supplier shall establish and maintain documented procedures for the review of customer contracts. Before accepting a contract or amendment, the supplier shall assure the following are assessed:

- a. A review of the customer's contract to determine that the quality requirements are clearly defined and documented.
- b. Assure the availability of capacity and capability to meet the contract requirements to include any subcontracted operations.

### **8. Design Control**

Design changes shall be approved by Gulfstream Engineering in accordance with the requirements of the contract.

### **9. Manufacturing Planning System**

The supplier shall develop and maintain a Manufacturing Planning System that defines the requirements to produce, process, inspect and/or test the product or service. This system is to be approved by Gulfstream.

## 10. Document and Data Control

The supplier shall control and maintain required documents and data to assure only approved, released and pertinent revisions are available. These documents may be in electronic format.

The supplier shall have as part of the system a process to ensure the timely review, distribution, implementation and maintenance of the approved data. Approved Data includes but is not limited to drawings, standards, specifications, planning and any revisions. The supplier shall maintain a record of change incorporation.

## 11. Purchasing

The Supplier shall have procedures to ensure that all procured items and raw materials meet specified customer requirements. In addition, the procedures shall make mandatory as a minimum a Certificate of Compliance from all subcontractors, which shall include the following:

**Part Number with Description -or - Description of Service**  
**Serial Number (if applicable)**  
**Manufacturer's or Processor's Certification (if applicable)**  
**Supplier's Name and Address**  
**Name and Signature of Supplier's Quality Control Representative**  
**A Statement of Conformity**

*Typical Statement -*

*"It is certified that item(s) \_\_\_\_\_ comply with annotated specifications and that the inspection / test records are maintained and available upon request."*

Procurement documents shall clearly define the product ordered, including the applicable drawings and specifications with appropriate revision levels, processing requirements and other relevant data.

Procured products shall be verified for conformance upon receipt through a Receiving Inspection or by a Supplier Representative at the subcontractor's facility prior to shipment. A formal system for subcontractor approvals may be used if acceptable to Gulfstream Quality Assurance. All necessary provisions shall be made for First Article Inspections, where applicable.

The supplier shall include right-of-entry provisions in any subcontract. These provisions shall grant the supplier, its customers and regulatory agencies appropriate access to verify the quality of work, records, materials and processes.

The supplier shall ensure the use of customer approved/requested Special Process sources when necessary. Supplier subcontracted products and services shall also be reviewed for the use of customer approved/requested Special Process sources.

## 12. Control of Customer-Supplied Product

The supplier shall establish and maintain documented procedures for the control, verification, storage, and maintenance of customer-supplied products.

The supplier is to maintain a current inventory list and provide it when requested by Gulfstream. Information to be included in the inventory status is also to be determined by the buyer due to the uniqueness of products.

### **13. Product Identification / Traceability**

The supplier shall establish and maintain documented procedures for the identification and traceability of the product upon receipt, and through all manufacturing operations, to delivery. This may be by product or lot using a suitable means that will be maintained through all processes.

The final product shall be identified per the engineering requirements and will bear an acceptance stamp. If the engineering does not reference a method of identification, GAMPS 1105 or GAMPS 1106 Class 2 (non-permanent marking) shall be used with the appropriate sub-class.

### **14. Process Control**

The supplier must establish a documented system defining and controlling production manufacturing, assembly and installation processes to meet the requirements of applicable drawings, specifications and purchase orders. A method to document and control split order quantities must be included. The supplier shall prepare, maintain and monitor manufacturing plans, work instructions, route cards, and travelers.

The supplier must use special process facility sources listed in Gulfstream's "Approved Process Sources" for **items manufactured to Gulfstream Drawings**. Gulfstream approved suppliers with "Delegated Duty" status may use their own approved sources or those listed in the Gulfstream "Approved Source Listing".

Special Processes (e.g. Heat treat, NDT, Platings, Coatings, Welding, Special Cleaning) performed or subcontracted by the supplier require certification in accordance with the applicable specification. Suppliers are responsible to assure such processes are in accordance with the applicable specifications.

Suppliers using sub-contracted processes must maintain objective evidence of the capabilities and performance of sub-tier facilities. Gulfstream reserves the right to disqualify those facilities considered unsatisfactory.

Gulfstream Material Process Specifications (GAMPS), or any other controlling specification called out on a contract, may not be substituted without written approval granted by Gulfstream Materials and Process Engineering. Requests for such approvals must be processed through Gulfstream procurement.

### **15. Inspection and Testing**

The supplier shall establish and maintain documented procedures for inspection and test activities that verify the product's compliance with the approved data.

The supplier shall inspect the product to ensure it conforms with the required purchase order, contract, drawing and/ or specifications.

When certified test reports are utilized to accept material, the supplier shall assure the data in the reports is acceptable to the applicable specifications.

The supplier shall perform the final inspections and verify that all required inspections and tests have been completed.

The supplier shall provide a process for First Article Inspection to include inspection, verification and documentation of the new or changed article. Any changes in the product, tooling or process used to manufacture the product shall constitute a First Article Inspection requirement.

The First Article Inspection documentation shall be maintained for seven years and shall include a list of characteristics required by the design data and any required tolerances, the actual results, any required testing and the actual results.

(Note: Guidance for the performance of First Article Inspection is provided in the SAE AS9102, First Article Inspection.)

## **16. Control of Inspection, Measuring & Test Equipment**

The supplier shall establish and maintain documented procedures to control the equipment calibration system. The system requires all measuring and test equipment used for product or process acceptance be calibrated at defined intervals based upon type of equipment, frequency of usage and calibration history of out-of-tolerance conditions. The system shall provide for the control, calibration, and recall of all inspection, measuring, and test equipment.

The system shall provide for the use of equipment of the required degree of accuracy in order to assure the characteristic being measured is in conformance, (Note: This equates to a minimum of four times more accurate than the measured characteristic's requirement, where possible.)

The system must also assure that calibrations are performed in a stable environment and allows for the "soaking" of the equipment in that environment to assure that it is not influenced by any temperature, humidity, vibration or cleanliness differentials.

The calibration system shall also address recall of product in the case of significantly out-of-tolerance measuring equipment found during calibration. This should also include the ability to assess the amount of uncertainty contributed to significantly out-of-tolerance equipment.

Calibrations shall be traceable to a nationally or internationally recognized standard such as the National Institute of Standards and Technology. There shall be records of the equipment denoting its status through calibration. The records shall reflect the required tolerances, actual measurements, adjustments, equipment acceptance, and actions taken on out-of-tolerance equipment. The equipment should either reflect the calibration status or be traceable, by a control or serial number, to an acceptable calibration record.

## **17. Inspection & Test Status**

The supplier shall establish and maintain a documented process for the identification of a product's inspection or test status.

The process shall provide for the identification by suitable means in regard to conformance or non-conformance of the product as inspected or tested to the design data requirements.

The process shall provide for the traceability of the inspection or test to the individual performing the acceptance.

## **18. Control of Non-Conforming Products**

The supplier shall establish and maintain documented procedures for the identification, documentation, segregation, evaluation and disposition of nonconforming products. The procedures shall have provisions for notification of all concerned parties.

The supplier procedures shall clearly define the acceptable terminology used to represent the status of the nonconforming product following disposition.

**NOTES:** A disposition of "**Rework**" or "**Repair**" may only be used if the nonconformity does not result in a departure from customer specified requirements. A "**Reworked**" or "**Repaired**" product shall be re-inspected in accordance with documented instructions.

A product designated as "**Regrade**" (*Example: product made from an alternate material or manufacturing process*) must be accompanied by a change in identification to preclude its original intended use. Adequate test reports and certifications shall reflect the exact deviation that prompted the "**Regrade**" designation. Dispositions of "**Regrade**" on products that are of a customer's design shall be prohibited.

A supplier designed product that is controlled by means of a customer specification may be dispositioned by the supplier as "**Use-As-Is**" or "**Repair**", provided the nonconformity does not result in a departure from a customer-specified requirement, or affect form, fit, function, reliability or maintainability. Records that support a transaction of this nature must be retained and available upon request.

A supplier shall not return previously rejected material to Gulfstream as: "Returned as Received" or "No Cause for Rejection" without written authorization from Gulfstream Purchasing and Quality Assurance. In all cases when returning material as "Returned as Received," a statement is required on the shipping document defining why the material is being returned as received. A copy of the Gulfstream authorization shall accompany the shipping document.

When a Rejection Notice Change (RNC), GA 840 form has been issued by Gulfstream, the RNC number shall be referenced on all accompanying documentation.

Materials that are dispositioned as "**Scrap**" shall be conspicuously and permanently identified and segregated from all production material. The material shall then be physically destroyed to preclude its use. All corresponding transactions logged and auditable.

The Supplier's documented procedures shall provide for the prompt notification of all customers, when it is discovered that a discrepant product has already been delivered. Notification shall include a description of the discrepancy, parts and serial numbers affected, lot numbers, delivered quantities and ship dates.

## **19. Corrective Action**

The supplier shall establish and maintain documented procedures for corrective action for all products, manufacturing and test operations supplied to Gulfstream. Each type of nonconformance shall be documented, investigated, and the appropriate corrective action implemented.

A. The supplier shall have a method for positive identification, recall, and replacement of parts in the event of a nonconformance.

B. Corrective Action items to be addressed:

- The discrepancy, part number(s), part name, serial numbers
- Cause of the discrepancy
- Root cause analysis
- Any interim fixes to the system to assure conforming products
- Extent of the discrepancy, with justification
- The final system or product changes that were implemented to prevent re-occurrence



To maintain effective control of quality throughout all phases of the program, the supplier shall be responsible for performing analysis of rejection data forwarded by Gulfstream Quality Assurance via the Gulfstream Quality Control Discrepancy Report (QCDR) form GA 100, and/or other Quality Assurance initiated correspondence. Failure to respond in writing to such correspondence within the prescribed time period will have a direct impact on the supplier's overall quality standing.

## **20. Handling and Storage – Including Preservation, Packaging and Delivery**

The supplier shall establish and maintain documented procedures for the handling and storage of products and materials to prevent damage or deterioration.

## **21. Control of Quality Records**

The supplier shall establish and maintain documented procedures for identification, access and storage of quality records. Records may be in any form, such as hard copy or electronic media. Records shall be secured to prevent unauthorized access.

Quality records shall be maintained to verify conformance to specified requirements and the effective operation of the quality system. Quality records from a subcontractor shall be included.

All quality records shall be legible and shall be retained for 7 years and the supplier is responsible to assure a system to prevent damage, deterioration and loss.

Quality records shall be made available to Gulfstream representatives and Regulatory authority upon request.

## **22. Internal Quality Audit**

The supplier shall establish and maintain a procedure to periodically audit the effectiveness of the Quality Assurance and Configuration Control Systems as they relate to Gulfstream contract requirements.

The audits shall be performed by personnel autonomous to the area or function being audited.

## **23. Training**

Personnel performing specific assigned functions shall be qualified by the supplier or by means acceptable to Gulfstream Quality Assurance. Basis for this qualification may be appropriate education, formal or on-the-job training and/or previous experience. Records of training effecting decisions on product quality shall be maintained.

## **24. Statistical Techniques**

Statistical methods of control shall be utilized as required by the contract. When used, a mutually agreed upon plan for reporting the data will be established, and become part of the contract. Acceptance sampling shall have a customer-approved plan that provides for a zero acceptance of defects in the lot.

Implementation and application of statistical control methods shall be documented and the agreed upon documentation, forwarded to the customer.