

QCS-83-4 Rev. F
July 2000
SUPERSEDES
QCS-83-4
October 1993

GENERAL DYNAMICS
LAND SYSTEMS

QUALITY TEST SPECIFICATION

QCS-83-4

FOR

FIRST ARTICLE INSPECTION (F.A.I.)

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FIRST ARTICLE INSPECTION REQUIREMENTS QCS 83-4

I. SCOPE

This document by reference therein supplements the subcontractor's/supplier's contract and component Technical Data Package (TDP) establishing the GDLS requirements for First Article Inspection (F.A.I.) approval.

II. APPLICABILITY

All requirements specified herein are applicable to subcontractors/suppliers when First Article Approval is required and when this document is incorporated in the GDLS Work Assignment Authorization (WAA), contract or purchase order.

A. This document shall be made a requirement for sub-tier suppliers as appropriate to allow for F.A.I. approval.

B. This document applies to the first production configured components that are manufactured, assembled, processed and tested in the same manner as intended for subsequent production components. These components are intended for shipment under a GDLS production purchase order/contract/WAA.

III. DEFINITIONS

A. Technical Data Package (TDP) Dimensional, material, process, environmental, inspections and performance requirements as specified by the drawing, Quality Assurance Requirement (QAR) / Quality Assurance Provision (QAP) document, GDLS specification and/or military / commercial specification.

B. First Article Sample. A production component (s) submitted as being representative of a specific process using production tooling, equipment, methods, technique, standards, personnel and controls.

C. First Article Approval (F.A.A.) First Article Approval is defined as the approval of the requirements of D, First Article Inspection (F.A.I.), and E, First Article Test (F.A.T.).

D. First Article Inspection (F.A.I.) Verification that the normal production manufacturing process (planning, technical /work instructions, material processing systems and controls, tools, fixtures, test equipment and personnel proficiency) will produce a component in compliance with all TDP requirements (such as drawing dimensional characteristics and material content).

E. First Article Test (F.A.T.) Tests conducted to verify that the First Article samples meet the performance requirements of the TDP before, during and after all specified environmental and durability/endurance conditions.

IV. APPLICABLE DOCUMENTS

A. QCS-16 First Article Inspection Report

B. QCS-16-1 First Article Inspection Report (FAIR) Checklist

C. QCS-16-2 First Article Inspection Report Non-Conformance Summary

D. PQA 2000 General Requirements

V. GENERAL

A. First Article Inspection (F.A.I.) shall be performed on two of the first ten production pieces unless otherwise specified in the purchase order. The local Government representative or GDLS will select the F.A.I. samples. Once the samples are selected, no repair, adjustment or modification is permitted without GDLS approval.

B. A supplier of source control drawing items must also conform to the contents of this document. This includes all details and assemblies within the supplier's control. Details of specification and envelope drawing type items must conform if the product supplied contains serviceable details within the specified envelope.

C. The supplier must perform F.A.I. at the assembly and detail parts level. The use of sub-tier supplier, receiving inspection, in process and final inspection data may be acceptable. GDLS reserves the right to select detail parts and characteristics deemed representative of the procurement for F.A.I. validation purposes. If separate representative subassemblies or detailed components are available hardware disassembly will not be required. The parts used to satisfy the F.A.I. requirement must be made available to GDLS along with the supplier's inspection results. The traceability of the inspection records to the actual parts used is mandatory.

D. F.A.I. shall be documented on a F.A.I. Report (FAIR Form No. QCS-16 and associated checklist sheets QCS-16-1 attachments 1 & 2) or GDLS approved equivalent.

E. A GDLS Quality Representative shall verify the supplier's F.A.I. results. The GDLS Quality Representative has the right to witness dimensional and performance verifications. The supplier shall advise GDLS at least five working days in advance of any scheduled F.A.I. activities.

F. The F.A.I. approval can only be granted by GDLS once GDLS has exercised its right to validate the supplier inspection data against the actual hardware inspected.

G. F.A.I. must be performed in accordance with this procedure. No deviation is acceptable except under specific written direction by GDLS Quality.

Note: The supplier should seek GDLS opinion and written concurrence if a more economical approach to F.A.I. is available.

H. F.A.I. approval will be in effect as long as the component is in continuous production or until a new F.A.A. is required. Continuous production is defined as the supplier has not had a break in production in excess of one year and the design and manufacturing / assembly processes or the location have not changed.

1. Hardware and/or Process Changes. Notwithstanding any other contractual requirements, if after the acceptance of the first production item, which thatby specification, QAR, or QAP requires First Article Approval, the supplier or his subcontractor(s) elects to change the design (if the supplier/subcontractor or his subcontractor(s) has design control of the item), materials, the manufacturing or assembly process, or the source of supply, the supplier shall perform, at the suppliers expense, another F.A.I. and F.A.T. in accordance with the applicable specifications, QAR or QAP prior to GDLS/Government acceptance of any items containing the new change components. The supplier shall transmit all changes to GDLS with sufficient lead-time to allow for completion of F.A.A. prior to implementation so as not to adversely impact production deliveries. Information shall include reasons/rational for change and results of any testing conducted to validate performance of change to the TDP.

2. Relocation of Manufacturing Site. The supplier (subcontractor) or his subcontractor(s) may decide that their manufacturing site must be relocated. A location change notice must be submitted in writing with an explanation of the changes and the supplier's recommendation for F.A.A. retesting that may be required. GDLS will inform the supplier, in writing, of their decision on F.A.A. testing required by the change. After agreement with GDLS, the supplier may then make the change.

2.1. New Site Audit. The location change may necessitate an audit from GDLS personnel. The supplier may have to perform GDLS designated acceptance and/or F.A.A. testing to verify that the location change has not affected his product as specified by the technical documentation.

3. Retest Cost. The costs associated with any re-tests required as a result of any of the aforementioned changes and all associated costs and time required by GDLS personnel to verify/approve these test shall be borne by the suppliers (subcontractor) or their supplier / subcontractors.

4. Hardware Shipments. If any of the aforementioned changes are made, hardware cannot be shipped prior to F.A.A. completion and approval unless authorized in writing by GDLS.

5. Request for Waiver of Retest. The supplier may request a waiver of the new First Article Approval or of specific test requirements. The request shall provide a detailed technical explanation as to why the change does not affect the performance and reliability of the component or why reduced scope testing is sufficient (e.g.; F.A.I., control test, high low temperature only, etc.). The request must be submitted in a timely manner, so that production or delivery delays will not occur if GDLS or the Government disapproves the waiver.

VI. REQUIREMENTS

A. The selected samples shall be inspected to all of the contract and TDP requirements. A checklist shall be created (prior to any inspections) using the FAIR checklist (QCS-16-1) or GDLS approved equivalent. The checklist shall itemize the following:

1. Product related purchase order requirements.
2. All ordinance drawing notes.
3. Material/component certification or analysis. The supplier must have a certification (reference PQA 2000) or actual material analysis to verify conformance to all drawing material requirements. Actual material analysis may be required by the Purchase Order.

Note: Material certifications shall be available as one organized package for review.

4. Component location and part number marking requirements.
5. All ordinance drawing dimensional requirements.
6. All specification (GDLS or military), Quality Assurance Requirement (QAR) or Quality Assurance Provision (QAP) requirements.
7. Each specification listed on the drawing.

Note 1: Each paragraph of the Specification, QAR or QAP required for F.A.I. (all performance requirements and physical characteristics as applicable) shall be itemized.

Note 2: All performance tests will be conducted at the voltage, current, pressure and flow extremes as applicable and as specified for First Article Test Approval (e.g.; 18 & 30 volts versus 26 volts as normally required for acceptance prior to shipment).

Note 3: Process specifications (welding, plating, soldering etc.) also must be itemized. GDLS Quality reserves the right to approve special processes as well as Government approval if stated in the Technical Data Package.

8. Parts that are produced using various subassemblies require a separate FAIR for each subassembly part number. If a sub-tier supplier produces the sub-assembly, the sub-tier supplier must supply sufficient documentation that will allow the requirements of this document to be met. This document may be transmitted to the sub-tier in its entirety.

B. The FAIR (QCS-16) and FAIR checklist (QCS-16-1), described in paragraph VI.A. shall be developed by the supplier and presented to the GDLS Quality Representative at the start of F.A.I. The GDLS Quality Representative shall review the documents for completeness and accuracy.

C. Once review of the FAIR and checklist have been completed, the supplier shall proceed to conduct F.A.I. The GDLS Quality Representative shall have the opportunity to witness any and all F.A.I. activities, if desired. The supplier may, at their own risk, present the FAIR and Checklist complete at the time of review.

D. Once the F.A.I. has been completed, the results shall be evaluated:

1. If all characteristics were found to be acceptable, (i.e. no QCS 16-2 non-conformance's noted), state so under "Remarks " on the QCS-16.
2. If deficiencies exist, indicate disapproval under "Remarks" on the QCS-16 and individually record nonconformances on QCS 16-2 Form
3. An authorized supplier's Quality Representative shall sign and date the First Article Inspection Report (QCS-16) cover sheet along with the GDLS Representative.

E. A copy of the completed/signed QCS-16 FAIR cover sheet, 16-1 and 16-2 (if applicable) shall be returned to the cognizant Regional Lead

Product containing nonconformances cannot be released for shipment without proper documentation added to the Purchase Order (ie Waiver, Deviation, ECP etc.).

F. The completed FAIR and applicable shall be retained by the supplier for five years after completion of the purchase order.

VII. ATTACHMENTS

1. First Article Inspection Report (FAIR)
 2. FAIR Checklist
 3. FAIR Non-Conformance Summary
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FIRST ARTICLE INSPECTION REPORT

Part Number (GDLS) _____	FAIR # (Audit Sequence No.) _____
Part Name _____	Purchase Order/Supplement _____
Drawing Revision _____	Supplier _____
Part Number (Supplier) _____	City, State _____
Serial Number(s) _____	VCN _____

DATA USED FOR EVALUATION

Drawings _____	ECP CR _____	Specifications/QAR/QAP _____
_____	_____	Mil Specification _____
_____	_____	Other (e.g.; _____
_____	_____	Waiver/Deviation) _____
_____	_____	

SUMMARY CHECK AS APPROPRIATE (X) = Documentation Attached to this Report

- | | |
|----------------------------------|---------------------------|
| Material Verification | Welder Certification |
| Temper/Hardness Verification | Solder Certification |
| Dimensional Inspection | Special Processing |
| Part Identification/Marking | Tooling |
| Finish Requirements | Calibration Certification |
| Nondestructive Test | Software Validation |
| Performance Test | Other (state) |
| Outside Certification (Test Lab) | |

REMARKS

_____ SUPPLIERS SIGNATURE	_____ DATE	_____ GDLS SIGNATURE	_____ DATE	_____ STAMP
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FIRST ARTICLE INSPECTION REPORT CHECKLIST

QCS 83-4
ATTACHMENT 2
PAGE ____ OF ____

QSC 16-1

PART NUMBER _____ S/N _____ SUPPLIER _____ FAIR # _____

ITEM NO.	DWG CHARACTERISTICS WITH TOLERANCE	BP ZONE	SUPPLIER ACTUAL RESULTS	SUPPLIER INSPECTION	INSPECTION METHOD	GAGE NO.	GDLS ACTUAL RESULTS	GDLS INSPECTION	ECP IF APPL.



**FIRST ARTICLE INSPECTION REPORT
NON-CONFORMANCE SUMMARY**

GCS-16-2

QCS 83-4
ATTACHMENT 3
PAGE ____ OF ____

FAIR NO. _____ FAI DATE _____

GDLS P/N _____ REINSPECT DATE _____

SUPPLIER P/N _____ SUPPLIER NAME _____

PART NAME _____ SERIAL NO. _____

PO NO. _____

QSC 16-1 ITEM #	DWG NO/ B/P ZONE	GDLS SPEC/DWG RQMT (LIST)	INSP. ACTUAL (LIST)	REQ. C/A	ACTION MPR

SUPPLIER SIGNATURE: _____ DATE: _____

GDLS SIGNATURE: _____ DATE: _____