



Section 6 : QUALITY ASSURANCE CLAUSES / CQAR

607. First Article Inspection Requirements (4/13/00).

(a) Seller will perform First Article Inspection (FAI) in accordance with this Clause 607.

(1) First Article Inspection shall be performed by Seller at Seller's facility and shall be validated, as required, by Buyer's Procurement Quality Representative (PQR) at Seller's facility prior to shipment.

(2) FAI shall normally be completed prior to shipment from Seller's facility. For parts/components which require Interchangeability and Replaceability (I&R) demonstration at the next assembly (see paragraph (d) below), FAI is not complete until the I&R requirement has been met.

(3) FAI accomplishment does not assure continued production of acceptable items. Buyer's follow-up activity is required to support continued production of acceptable items.

(4) The FAI requirement once flowed to a supplier will continue to be flowed even after initial compliance. Events that require partial or complete reaccomplishment of the FAI during the production life of the part or component include but are not limited to:

(A) When there is a change in the design affecting form, fit, or function of the part.

(B) When there is a change in manufacturing location, tooling (including relocation), materials, or processes.

(C) When required as part of corrective action.

(D) When extended breaks in production occur, the FAI requirement will be evaluated by Buyer.

(E) When numerical control tapes are either translated to another type machine and/or tool prove is required.

(b) Seller's Responsibility

Seller is responsible to assure that First Article Inspection is performed in accordance with this Clause 607 for the prescribed parts/components manufactured by Seller or Seller's sub-tier suppliers.

Note: Parts having all characteristics identified by industry standards such as National/Military Standard Drawings, British Standard Parts, MDC Standard Parts, and commercial off-the-shelf standard parts do not require First Article Inspection.

(c) Requirements

(1) First Article Inspection must be performed and documented on a First Article Inspection Report (FAIR) prior to initial shipment from Seller's facility. Interpretive issues with Buyer's Engineering Specification and/or planning or other contractual requirements affecting material description discovered in performance of the FAI shall be resolved prior to proceeding with the remainder of the production lot. Request for clarification on interpretive issues should be submitted to Buyer. Suppliers shall have a complete and valid FAIR on file at all times during the production effort for any specific item.

(2) When Source Surveillance is a contractual requirement, Buyer has the option to verify all characteristics listed on the FAIR, including any functional testing performed, by observing its performance or actual inspection by Buyer's representative at Seller's facility. Seller shall notify prior to commencement of any assembly or testing, in order that Buyer can select detail parts/components which require Buyer's validation of Seller's FAIR.

(3) The FAIR must contain the following information at a minimum, with notation of applicable revision/edition utilized. Use form [MDC 1016](#) or equivalent.

- (A) Date of FAI
- (B) Seller's name and manufacturing location and supplier code
- (C) Part number, nomenclature, and revision
- (D) Serial/Heat/Lot number, if applicable
- (E) Purchase Order/Contract number
- (F) All drawing dimensions and tolerances
- (G) Drawing zone
- (H) Actual dimensions and indication of acceptance or rejection to criteria
- (I) Where characteristic being measured is not quantifiable, result shall be recorded as accept/reject
- (J) Compliance with all drawing notes with quantifiable notes listed individually
- (K) Nonconformance Document numbers issued during FAI
- (L) Listing of any non-standard tooling (e.g., Check Fixture) used as a media of inspection including tool numbers and revisions
- (M) List of processes verified, including certification and vendor name for all D1-4426 processes
- (N) Verification that all engineering is approved and released by Buyer, including, Acceptance Test Procedures (ATPs), Qualification Test Reports, and applicable software data
- (O) Seller's FAI inspector's signature, stamp, and date
- (P) Seller's shop order number/job number

(Q) Listing of any special manufacturing instructions

(R) Indication of overall FAI status (Part Acceptable/Follow-up Required)

(4) The FAIR must be updated by an addendum when:

(A) Drawing dimensions and/or planning requirements are changed which affect form, fit, or function of the part

(B) Discrepant dimensions have been corrected

(C) Follow up actions have been taken

(D) Manufacturing methods are significantly changed. This may include, but is not limited to, a change in manufacturing location, tooling (including relocation), materials or processes, and when numerical control tapes are either translated to another type of machine and/or tool prove is required.

(E) When requested by Buyer.

(5) If FAI was performed on a previous contract, Seller will provide evidence that the FAI had been accepted.

(6) Seller is required to forward one copy of the completed FAIR with the first shipment. Additionally, any required FAI addendum reports shall accompany those associated initial shipments.

(7) Verification of FAI will be indicated by Buyer's Quality Representative's stamp on the FAIR adjacent to verified design characteristic.

(d) Interchangeability and Replaceability

(1) General. Seller is responsible for the Interchangeability and Replaceability (I&R) requirements specified herein for items designated as "interchangeable" or "replaceable," when specified by drawing.

(2) Definitions

(A) Interchangeable: Components are considered interchangeable when they are interchangeable structurally, physically (for mating), and functionally (for serving exactly the same purpose without affecting functional values). Interchangeable components shall be capable of being readily installed or removed without modification of the component or mating structure. Installation or removal of an interchangeable component shall require only the installation or removal of attaching means (bolts, nuts, screws, pins, etc.). No fabrication operations (such as cutting, filing, drilling, reaming) or hammering, bending, prying, or forcing shall be required for installation or removal.

(B) Replaceable: Components are considered replaceable when they meet all requirements of

interchangeability except that the installation of such components may require work or operations in addition to installation of the attaching means. Such operations may include drilling, reaming, filing, trimming, or other operations necessary for installation of the component into the mating assembly. Such operations do not include shearing, bending, forming, or other basic operations which cannot be readily performed with ordinary hand tools.

(C) I & R First Article: A first article component is the first component exhibiting the required interchangeable/replaceable characteristics and has all controlled characteristics completed to the appropriate tool or jig, e.g., trimmed net, fully drilled, etc.

(D) I & R First Article Demonstration: A first article demonstration of interchangeability consists of the successful installation and subsequent removal of one first article component on two major assemblies, or the successful installation and subsequent removal of two first article components on one major assembly. In-plant demonstrations are not required for replaceable components; the normal assembly of one replaceable component into one major assembly shall be considered sufficient proof of replaceability.

(E) I & R Cycle Demonstration: Cycle demonstrations are repetitive checks at prescribed intervals consisting of the same requirements as for a first article demonstration performed for items produced subsequent to a successful first article demonstration.

(3) Requirements

(A) Seller shall perform a first article demonstration at the specified effectivity. Demonstration not accomplished at the required effectivity will not be held in abeyance without the approval of Buyer's Quality organization unless: acceptable tooling is not available, the component to be demonstrated is a "shortage item," and/or mating structure required for checking gap, mismatch and spline is not installed because of "shortages." When a first article demonstration is held in abeyance because of the aforementioned reasons, the appropriate reason must be documented on interchangeability records, approved by Seller's Quality Assurance and submitted to Buyer's personnel upon request. First article demonstrations not accomplished for reasons other than the aforementioned will be brought to the immediate attention of Buyer's Quality organization.

(B) Units to be cycle demonstrated will be randomly selected by Seller Quality Assurance within the frequency for cycle demonstration established by the contract. Failure of a cycle demonstration to meet interchangeability requirements shall cause all units not checked after the previous successful cycle demonstration to be cycle demonstrated.

(C) Records of all first article and cycle demonstration, whether successful or unsuccessful, shall be furnished to Buyer's Quality organization.

(D) I & R first article demonstrations will be witnessed and approved by Buyer's Quality Assurance representative and the Customer if both reside at the Seller's facility or by arrangement with Buyer's Quality organization.