

<b>FIRST ARTICLE REQUIREMENTS</b>		1. DATE <b>20001010</b>
<i>(AFMCI 64-110, AFMCI 23-02 and FAR Part 9, Sub Part 9.3) (Additional Instructions on Page 3)</i>		
2. P/R/MIPR NUMBER	3. PART NUMBER <b>4064854</b>	4. NSN <b>2840-01-184-8547PT</b>
5. FIRST ARTICLE QUANTITY THE FIRST ARTICLE IS <u>3</u> UNIT(S) OF LOT/ITEM <u>1</u>		
AND WILL BE: <input checked="" type="checkbox"/> PART OF PRODUCTION QUANTITY <input type="checkbox"/> IN ADDITION TO PRODUCTION QUANTITY		
6. ARTICLES <input type="checkbox"/> WILL <input checked="" type="checkbox"/> WILL NOT SERVE AS A MANUFACTURING STANDARD	7. LONG LEAD TIME ITEMS <input type="checkbox"/> REQUIRED <input checked="" type="checkbox"/> NOT REQUIRED <i>(See FAR 52.209-3 or -4, alternate II)</i>	
8. SPECIAL REQUIREMENT/PRODUCTION FACILITIES <i>(See FAR 52.209-3 or -4 Alternate II)</i> <input checked="" type="checkbox"/> REQUIRED <input type="checkbox"/> NOT REQUIRED *The First Article offered must be manufactured at the facilities in which that item is to be produced under the contract, or if the First Article is a component not manufactured by the contractor, such component must be manufactured at the facilities in which the component is to be produced for the contract. A certification to this effect must accompany each First Article which is offered.*		
9. TEST/INSPECTION REQUIREMENTS A. <input checked="" type="checkbox"/> CONTRACTOR TESTING <input type="checkbox"/> GOVERNMENT TESTING Performance or other characteristics which the First Articles must meet are <u>identified in drawing 4064854, sub-tier drawings and specifications identified therein</u> B. The detailed technical requirements for First Article approval tests are contained in <u>Block 12 of this form</u> <i>(Cite Spec and Para number)</i> C. <input type="checkbox"/> TEST PLAN REQUIRED (1) DD Form 1423 ELIN _____ (2) Delivery due _____ calendar days from date of contract. (3) Number of days for government approval/disapproval _____ days. D. Contractor's notification to ACO and _____ <i>(Requesting Activity)</i> of test time and location due _____ days prior to start of testing. E. <input checked="" type="checkbox"/> TEST REPORT REQUIRED (1) DD Form 1423 ELIN _____ (2) Due <u>120</u> calendar days from date of contract. (3) Forwarded to <u>PCO and then to USAF DLA 339 focal point, in turn.</u> (4) Government written notice of approval/disapproval due <u>60</u> days after receipt of contractor's report.		F. FIRST ARTICLE DELIVERY: (1) Due within _____ calendar days from date contract. (2) Notify _____ calendar days prior to shipment. (3) Delivered to government at _____ <i>(Set Forth Consignee and Address)</i> (4) Government written notice of approval/disapproval within _____ days after receipt of first article package. G. Estimated cost of government testing/inspection evaluation. \$ _____
10. DISPOSITION OF FIRST ARTICLES <input type="checkbox"/> Approved First Articles will be forwarded to _____ <input type="checkbox"/> _____ <i>(insert quantity)</i> First Articles will be expended in testing. Residual components of disapproved First Articles <input type="checkbox"/> will be returned to the contractor/ <input type="checkbox"/> will be retained by _____ pending disposition instructions from the contractor. <input type="checkbox"/> First Articles will be installed on aircraft/equipment to determine proper fit/function. Approved article will remain on the aircraft/equipment and will not be forwarded to USAF Supply, but will be considered part of the contract quantity. <input type="checkbox"/> Disapproved First Articles will be returned to the contractor/ <input type="checkbox"/> will be retained by _____ pending disposition instructions from the contractor. <input type="checkbox"/> On purchase requests designated as direct shipments the following disposition will apply. (NOTE: Always applicable on Foreign Military Sales (FMS)). a. Approved First Articles will be returned to the contractor for shipment with production item. b. Disposition of disapproved First Articles will remain the same as marked above. <input checked="" type="checkbox"/> Other Disposition: <u>See block 12 of this form</u>		

11. CONDITION(S) FOR WAIVER OF FIRST ARTICLE APPROVAL

- a.  Offerors who have previously furnished production quantities of the same or similar article to the prime contractor for delivery to the  Government,  DoD,  Air Force.
- b.  Offerors currently in production of the same or similar article for a \_\_\_\_\_ Government, \_\_\_\_\_ DoD, \_\_\_\_\_ Air Force contract and who have received First Article approval under the existing contract.
- c.  Offerors who have previously furnished production quantities of the same or similar articles to the  Government,  DoD,  Air Force, provided articles thus furnished, have exhibited satisfactory performance in service in the opinion of the Air Force.
- d.  Provided not more than 35 months have elapsed since completion of the contract.
- e.  First Article testing will not be waived.
- f.  See Remarks in block 12 below.

NOTE TO BUYER: UNDER CONDITIONS A AND C ABOVE, THE COGNIZANT ENGINEERING ACTIVITY WILL DECIDE WHETHER OR NOT THE ITEM HAS EXHIBITED SATISFACTORY PERFORMANCE IN SERVICE AND PREPARE AND RETAIN SUPPORTING DOCUMENTATION TO FULLY JUSTIFY THIS DECISION. THE BUYER MUST SOLICIT DUAL PRICES (That is, both with and without requirement for first article approval) AND MUST FURNISH THE COGNIZANT ENGINEERING ACTIVITY WITH THE FOLLOWING INFORMATION ON THE PREVIOUSLY SUPPLIED ARTICLE:

A. PROCURING OFFICE      B. CONTRACT NUMBER      C. DATE OF CONTRACT      D. SPECIFICATION NUMBER AND REVISION

12. REMARKS

9.B. First article test requirements shall include:

- a. Verification of all dimensional and surface texture requirements of Pratt & Whitney drawings 4064854, 4064002, and 642107.
- b. Verification of conformance to the inspection requirements of QAD4064584 and QAD4064002. The source performing the Magnetic Particle Inspection shall be a Pratt & Whitney approved source.
- c. Verification of material properties in accordance with AMS 6322 and AMS 5732, as applicable. Material supplier certifications can be used to verify conformance provided there is documented evidence the material used was from the certified lot of material. The process sheets used to produce the part must clearly indicate that the certified lot of material was used to produce the parts.
- d. Verification of conformance to the requirements of PWA 11-22 and drawing 4064002 note 1.

10. Disposition of first Articles:

- a. Approved first article(s) will be retained at the contractor's facility for reconditioning (if necessary) with final acceptance the same as for production items. If a first article is expended in testing, approval of first article will constitute acceptance.
- b. Disapproved first article(s) shall be retained at the contractor's facility, unless specified otherwise by the PCO.

11. The cognizant Government engineering authority shall be the final authority for determining if a contractor meets the conditions of waiver identified in 11.a or 11.c.

First article testing is waived if the offeror is the prime contractor, Pratt & Whitney.

13. COGNIZANT ENG ORGANIZATION RESPONSIBLE FOR CONDUCTING AND/OR APPROVING TEST (Name, Organization, Phone)

Jolly Sator, OC ALC/LPFRB, (405) 734-8788

14. PR INITIATOR (Name, Organization, Phone)

I. HARDWARE DESCRIPTION.

These Qualification Requirements (QR) apply to those Source Approval Request (SAR) packages submitted for evaluation via a Defense Logistics Agency (DLA) Form 339 (request for Engineering support) for non-Fracture Critical/Durability Critical (non-FC/DC) parts.

II. JUSTIFICATION FOR ESTABLISHING QUALIFICATION REQUIREMENTS.

In accordance with Federal Acquisition Regulation, Part 9.202, the following paragraphs provide the justification for establishing qualification requirements for the subject part.

A. CRITICALITY OF PART.

This part is used on the F-15 and F-16 aircraft primary propulsion system, the F100 engine. Failure of this part can result in secondary engine damage and subsequent mission abort.

B. COMPLEXITY OF PART.

The complexity of this part is documented in the following paragraphs.

1. This part may require special forgings. All forgings must be obtained from OEM-approved forging sources.
2. This part may require special castings. All castings must be obtained from OEM-approved casting sources.
3. This part may require special manufacturing processes and techniques. These processes are specified on the drawing and the prospective contractor's capability to perform the processes must be demonstrated.
4. This part requires sophisticated/rigorous quality assurance controls on the procurement of raw materials, material processing, manufacturing, and inspection. These controls are required because of the high probability of latent defects and to further assure on-time delivery of high quality parts.

C. GOVERNMENT RISK.

The following paragraphs document the reasons why the risk to the government in buying this part from an unqualified contractor is compound.

1. The probability of an unqualified contractor producing an unsatisfactory part is moderate.
2. The probability of an unqualified contractor failing to produce within schedule is moderate.
3. Untimely delivery critically impacts end item manufacturing and/or overhaul/repair schedules. Failure to deliver on-schedule may result in additional high cost emergency procurements.
4. An inferior part can cause extensive damage to the end item resulting in costly repairs.

III. JUSTIFICATION FOR QUALIFICATION PRIOR TO CONTRACT AWARD.

In accordance with Federal Acquisition Regulation, Part 9.202, the following paragraphs document the reasons for requiring a demonstration of qualification prior to contract award.

- A. A prospective contractor who has manufactured this part for the OEM or for another US DoD user of the same part, may be approved as a source for the part provided that the prospective contractor was responsible for all material procurement, inspection, and finishing of the part, i.e., the OEM did not add any value to the part. The prospective contractor must submit evidence of the scope of work for the part indicating primary responsibility for all operations necessary for the completion of the part for delivery to the customer. This evidence shall include MANUFACTURING PROCESS SHEETS.
- B. Other prospective contractors will be considered for approval on the basis of their ability to manufacture a similar part for the OEM, US DoD, or a NATO country. The following conditions must be met for approval by similarity.
1. Submit evidence of the successful manufacture and sale of the similar part, to include purchase orders and shipping documents reflecting production quantities within the last three years. This evidence must document that the prospective contractor had primary responsibility for all operations necessary to produce the similar part and that the similar part was accepted by the customer. Also include a summary of quality deficiencies experienced within the last two years of production of the similar part(s) with coordination from the Q. A. manager. The prospective contractor shall provide SPECIFIC similarities and differences between the subject part and the similar part.
  2. The prospective contractor shall substantiate that the similar part(s) submitted satisfy the following criteria.
    - a. Fabricated of the same alloy or an alloy from the same alloy family, e.g. Alpha Titaniums, Inconels, Austenitic Stainless Steels.
    - b. Illustrates the ability, in conjunction with their sub-vendors, to perform all significant processes to be employed and maintain requisite tolerances and surface finish requirements.
    - c. The data must also show that the manufacturing and inspection/test processes for the similar part demonstrate the full range of difficulty required for the subject part. Included in this data shall be complete MANUFACTURING PROCESS SHEETS for the similar part.
  3. A first article requirement may be included in any contract resulting from approval based upon similarity. The estimated cost of testing the samples is a minimum of \$1500. These tests may include material properties analysis, dimensional analysis, and possibly rig test. At least one sample will be destructively tested.
- C. Any prospective contractor that cannot meet the criteria in either paragraph A or B above shall make arrangements for the testing and evaluation of samples. Testing requirements vary and are based upon the existing expertise demonstrated by the prospective contractor. The cost of testing shall be the responsibility of the prospective contractor, unless it is in the best interest of the government to bear the cost. These samples shall be approved prior to award of a production contract.

The prospective contractor shall submit a description of the product line and manufacturing experience most comparable to the approval part and the documentation substantiating satisfactory manufacture of the most comparable part, as described in paragraph B.1. which demonstrates the required manufacturing expertise.

#### VI. RESPONSIBLE ENGINEERING ORGANIZATION.

The organization responsible for the development of these qualification requirements is the F100 Engineering Branch, Fighter Propulsion Division of the San Antonio Air Logistics Center, Kelly Air Force Base, Texas.

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APPENDIX A

DEFINITIONS

The following definitions shall apply.

1. **Approval Part/Item** - Part/Item for which source approval is sought.
2. **Category 1 Offeror** - A manufacturing source, which in conjunction with their sub-vendors has performed all requisite processes on the approval part for the USAF or Pratt&Whitney. Offerors in this category must provide documentation relevant to the approval part which satisfies all criteria specified under Substantiation of Manufacturing Capability in their respective QR's. In all cases the burden of proof shall reside with the Offeror.
3. **Category 2 Offeror** - Manufacturing source, which in conjunction with their sub-vendors, has performed all requisite processes on a similar part for the DoD or an OEM. Offerors in this category must provide documentation relevant to a similar part(s) which satisfies all criteria specified under Substantiation of Manufacturing Capability. In all cases, the burden of proof lies with the Offeror.
4. **Critical Characteristic** - A part feature which, if non-conforming would result in probable loss of aircraft due to direct part failure or by causing other progressive part failures.
5. **Durability Critical Part** - A highly stressed part which cannot be completely inspected nondestructively; failure of which will result in a significant maintenance burden.
6. **Fabricate** - The manufacturing steps necessary for the making of new parts.
7. **Fracture Critical Part** - A highly stressed part which cannot be completely inspected nondestructively; failure of which will result in loss of aircraft due to non-containment or power loss preventing sustained flight, as a direct result of part failure or subsequent progressive failures.
8. **Inspection Method Sheets (IMS)** - document used to describe the steps involved in executing an inspection or series of inspections to include tooling, gages, fixtures, dimensions and other parameters necessary to execute the required inspections(s).
9. **Major Characteristic** - A part feature which, if non-conforming, could compromise the function of the part, resulting in a significant maintenance burden and/or reduction in weapon system performance.
10. **Manufacturing Process Sheets (MPS)** - document used to describe the steps involved in executing an operation or series of operations to include tooling, machinery, dimensions, speeds, feed rates, coolants, cutters, tape numbers and other operating and/or set-up parameters necessary to execute the operation.
11. **Material** - A general term referring to material at any stage in the manufacturing/repair process.
12. **NIST** - National Institute of Standards and Technology.
13. **Offeror** - Source furnishing a source approval package in an attempt to obtain engineering source approval to supply the approval part in its finished state to SA-ALC.
14. **Original Equipment Manufacturer (OEM)** - Term typically applied to the source responsible for the original design and development of a product or system. In this case it shall refer to sources primarily responsible for the design and development of aircraft gas turbine engines similar to the Pratt&Whitney F100 engine, for a US DoD activity or a NATO country.

15. **Production Quantities** - Quantities which establish a reasonable level of confidence in a prospective source's ability to consistently produce parts whose integrity is equivalent to that exhibited by parts which originally passed substantiation testing. As a minimum it shall be considered representative of several production lots or greater quantities commensurate with those specified in current solicitations or SA-ALC annual buy projections and shall be exclusive of quantities produced in experimental or developmental programs.
16. **Purchaser** - The Purchaser as defined in all applicable government specifications as well as all PWA specifications relative to the part described in this document shall refer to the SA-ALC contracting activity issuing the procurement requirement.
17. **Raw Material** - Ingot, bar, billet, or sheet stock used directly in the fabrication of the finished part or forgings/castings used in the fabrication of the finished part.
18. **Significant Process** - A process which is capable of producing alterations in the material structure of a part which cannot normally be evaluated without destructive testing and which can compromise the mechanical properties and ultimately the reliability of the part. Processes which are considered to be significant by SA-ALC are listed in Appendix B.
19. **Similar part** - A part which satisfies all of the specific criteria for similarity as defined in the QR's for the approval part.
20. **Sub-vendor** - A source supplying material, products, and/or services to the Supplier as required in the performance of the contract. This term applies to all facilities other than the Supplier's facility including those of the same company.

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APPENDIX B

SIGNIFICANT PROCESSES

The following examples are typical processes which are considered significant in that they are capable of producing alterations to material structure, mechanical properties, and ultimately component reliability if performed improperly; and cannot normally be evaluated without destructive testing.

- 1) Casting Processes
- 2) Forging Processes
- 3) Heat Treatment and Surface Hardening Processes
- 4) Broaching
- 5) Grinding
- 6) Drilling, Reaming, and Boring
- 7) Milling
- 8) Finish Turning
- 9) Electrochemical Machining Processes (Cavity Sinking, Drilling, Grinding, etc.)
- 10) Chemical Milling
- 11) Electro-discharge Machining
- 12) Electro-stream Drilling
- 13) Laser Beam Metal Removal Processes
- 14) Electron Beam Metal Removal Processes
- 15) Peening Processes
- 16) Welding
- 17) Brazing
- 18) Metal Electroplating Processes
- 19) Coating Processes
- 20) Surface Finishing Processes (Honing, Saiton Barrel, etc.)
- 21) Cleaning of Titanium