

Design, Fabrication and Installation of a 400-Gallon Removable Fuel Tank Suitable for Both the NASA Langley Research Center's B200 and UC-12B Aircraft

Statement of Work, Version 2

October 29, 2015

Background

NASA N529NA, a Beechcraft B200 aircraft (serial number (S/N) BB1091), and NASA N528NA, a Beechcraft UC-12B aircraft (S/N BJ003), are NASA Langley Research Center (LaRC) public-use aircraft, which are utilized for research missions. Scientists at NASA LaRC have developed a suite of research sensors to be flown on these flight platforms in research configurations in support of NASA and other federally sponsored initiatives. In order to reach some of the desired research areas, a removable ferry tank is required. The vendor will design, fabricate and install a removable 400-gal ferry tank which can be used in both aircraft.

Project Scope

NASA has a need to procure a removable 400-gal ferry tank which can be installed in both the LaRC B200 (S/N BB1091) and UC-12B (S/N BJ003) aircraft in order to reach some of the more distant desired research areas. Both of these aircraft have been modified to incorporate dual nadir structural camera ports in accordance with Supplemental Type Certificate (STC) Number SA2429CE. Floor plugs are installed in these ports when they are not in use. The floor plugs return the floors to their original conditions. The vendor will install the ferry tank in one of the aircraft at NASA LaRC; the aircraft cannot be dispatched to another site due to project schedule constraints and aircraft availability. The vendor shall install the removable ferry tank in the interior of either the fuselage of the LaRC B200 (S/N BB1091) or UC-12B (S/N BJ003) aircraft, as selected by NASA, using a design specifically adapted for these two Beechcraft aircraft. The vendor shall secure approval of the installation of the removable ferry tank from a Federal Aviation Administration (FAA) Designated Engineering Representative (DER). The installation of the removable ferry tank will be documented on FAA Form 8110-3s. However, formal approvals by the FAA are not required.

Tasks:

1. The vendor shall design and provide a removable aluminum or collapsible 400-gal ferry tank suitable for installation in both the NASA LaRC B200 and UC-12B aircraft.
2. The vendor shall install a removable 400-gal ferry tank in either the NASA LaRC B200 or UC-12B aircraft, as selected by NASA, while the aircraft is at NASA LaRC.

3. The vendor shall relocate all components that are necessary to install the removable fuel tank in each aircraft.
4. The vendor shall provide all materials, to include structural materials, fasteners, and plumbing associated with the completion of this SOW.
5. The vendor shall provide training to NASA LaRC personnel on future removal and installation of the removable ferry tanks during the initial installation.
6. The vendor shall install all necessary electrical and plumbing provisions associated with the ferry tank installation in each aircraft.
7. The vendor shall demonstrate the successful functional operability of the modifications on one aircraft as selected by NASA.
Note: Initial demonstration will be a ground test. Airborne operability will be demonstrated by NASA personnel during the Functional Check Flight at the completion of the installation and integration activities in this SOW.
8. The vendor shall restore each aircraft to the as-delivered condition with the exception of the modifications performed per this SOW.
9. The vendor shall ensure that access to project management and coordination is provided while working with NASA-designated personnel and shall be available for technical and program interface via teleconferencing or face-to-face meetings at NASA LaRC to update schedule and activity status at a mutually agreed upon date and time.
10. NASA shall provide on-site aircraft access to vendor-designated personnel to include engineering, maintenance, and quality assurance.
11. The vendor shall assist NASA-LaRC personnel during system activation and aircraft preparation for the functional check flight on the selected aircraft.
12. The vendor shall resolve any discrepancies or issues that might be revealed during the functional check flight(s) due to the installation of the removable ferry tank.
13. After completion of aircraft modification, the vendor shall perform and provide to NASA an updated Weight and Balance for the selected aircraft.
14. The vendor shall secure written approval from the NASA Contracting Officer prior to commencing any work activities other than those set forth in the SOW.
Note: All work performed by the Contractor without prior written approval from the NASA Contracting Officer is at the sole risk of the Contractor.

Meeting/Deliverables/Documentation Requirements

1. The vendor shall provide an overview of the design and installation approach to the NASA LaRC Technical Monitor (TM). This overview shall be conducted via a conference call with presentation documentation provided in electronic format. The presentation material shall include an overview of the analysis previously conducted, assembly drawings of the installation, a summary of any previous modeling or test results, flight operational or performance changes that are expected from the installation of the removable ferry tank on each aircraft, any airframe lifetime changes, any additional maintenance requirements, the location of the ferry tank on the aircraft, and any requirements for the interfaces for the ferry tank installation.
2. The vendor shall review and provide written approval of the LaRC-provided programmatic Vendor-to-NASA Interface Control Document (ICD). This ICD will capture mutually agreed-to design interfaces and organizational responsibilities between the vendor and NASA.
3. The vendor shall have the design of the removable ferry tank reviewed and approved by a DER using FAA Form 8110-3. The vendor shall provide the signed documents and analysis document to NASA LaRC. Vendor shall also provide their certifications to accomplish this work. Upon request NASA would like to review past performances of similar tasks completed.
 - a. *Note: Formal approvals by the FAA are not required.*
 - b. *Note: NASA may elect to conduct internal engineering reviews in lieu of vendor-provided engineering review(s).*
4. In accordance with LaRC Management System Center Procedure LMS-CP-0901 provided as attachment 1) and FAR 52.246-11, the NASA Quality Assurance (QA) personnel shall conduct the final inspection and approval of all modifications done to the NASA LaRC B200 and UC-12B aircraft.
 - a. *Note: NASA's quality assurance authority is limited to normal quality control issues and does not allow NASA to change FAA-approved design data and/or installation drawings or procedures.*
5. Upon completion of the tasks in this SOW, the vendor shall participate in a short-duration NASA Flight Readiness Review (FRR) via teleconference.
 - a. *Note: The typical duration of a FRR is one hour.*

6. The vendor shall ensure that their project management staff shall be available to work with NASA LaRC personnel for technical and program interface, via teleconferencing and/or face-to-face meetings at NASA LaRC, at a mutually agreed upon dates and times. The meetings will include updated schedule milestones, issues, risks, technical design and analysis progress and installation activity status.
7. The vendor shall provide copies of all documentation generated as a consequence of this contractual effort, including: all installation and removal documentation; drawings; approvals of task modifications; all substantiation analyses; Pilot Operating Handbook supplement on use of the system; Instructions for Continued Airworthiness (ICAWs); maintenance manuals; parts manuals; and all quality-assurance approvals (such as FAA Forms 8110-3 and 8130-3, and material certifications).
 - a. All document copies shall be in the electronic PDF format.
 - b. All drawing copies shall be in the electronic AutoCAD-compatible format.
 - c. Four copies of all engineering drawings shall be provided (two full size and two half size) in accordance with accepted aerospace industry standards.
8. The Vendor shall provide FAA repair station Licenses along with their quotation.

NASA LaRC Responsibilities:

1. Provide the vendor with the FRR requirements within two weeks after award of the contract.
2. Provide the specific B200 and UC-12B aircraft for installation during a two-week period based on aircraft availability.
 - a. *Note: The exact dates for access to each aircraft during the period of performance will be agreed upon between the vendor and NASA LaRC.*
3. Conduct a FRR using NASA LaRC procedures upon completion and documentation of all modification activity on each aircraft.
4. Observe all ground checks of the ferry tank installation on each aircraft.
5. Perform a Functional Check Flight (FCF) at NASA LaRC upon the completion of the installation and integration activities in this SOW for the selected aircraft.

Period of Performance:

- An 8-week period during December 1, 2015 – March 15, 2016.