

CONTRACT AIRCRAFT QUESTIONNAIRE

- **Please respond to each item. If an item does not apply or is yet to be determined, indicate so with “Not Applicable (N/A)” or “To Be Determined (TBD)”.**
- **Please provide a separate questionnaire for each aircraft.**
- **This questionnaire is designed for aircraft with U.S. airworthiness certification. If the contracted aircraft has an international airworthiness certification then substitute that countries regulations in place of FAA and CFR requirements listed in this document.**

Indicate with an “X” one of the following. Additional questions and requirements have been added to this questionnaire version.

- New aircraft questionnaire
- Updated questionnaire for aircraft previously reviewed by NASA Goddard Space Flight Center Wallops Flight Facility. Indicate when previous questionnaire was submitted.

I. REQUIRED DOCUMENTATION

Provide the required documentation listed below:

- a. Copy of current Airworthiness Certificate (both sides) with limitations
- b. Copy of log book page containing entry of total aircraft time
- c. Most recent weight and balance form
- d. Aircraft manufacturer’s weight and balance envelope graph/chart
- e. Copy of last aircraft inspection
- f. Forward, aft, right and left side looking pictures of the aircraft
- g. Pictures of the experimenter port/protrusion to be used (internal and external)
- h. Pictures of each type of instrument rack to be used
- i. Pictures of proposed experimenter installation installed in aircraft
- j. Copy of log book entry of last altimeter and static pressure system inspection
- k. All 8110-3, 337, STC or aircraft modification documentation, used for experimenter/instrument purposes
- l. Floor plan layout depicting the location of experiment installations inside and outside the aircraft (this includes rack and operator seats). This drawing can be CAD or hand drawn.
- m. Proof of an electrical load analysis showing the aircraft can support the experiment installation power requirements
- n. Proof of an electro-magnetic interference check performed with avionics and experiment installations turned on (email confirmation is acceptable)
- o. Copy of the aircraft flight manual
- p. Copy of pilots/operators licenses, medical certification, currency and training records
- q. Copy of the company’s flight operations manual/handbook

- r. Copy of Flight Test Plan (if available)
- s. Copy of Training Plan/Manual (if available)
- t. Copy of the company's Health and Safety Plan

II. GENERAL INFORMATION

1. Aircraft Description

Overall dimensions (length, wing span, tail height, etc.):
Maximum number of passengers capable of carrying:
Maximum altitude:
Maximum and cruise airspeeds:
Stall airspeed:
Maximum takeoff gross weight:
Maximum zero fuel weight:
Maximum allowable payload weight:
Maximum endurance:
Maximum range:
Rate of climb:
Minimum runway lengths required for takeoff and landing:
Engine type and manufacturer:
Performance limitations (i.e. cross winds, etc.):
Describe any icing protection capability:

2. Project/Mission Flight Description

Planned flight altitude:
Planned flight airspeed:
Planned maneuvers (straight and level, spirals, etc.):
Location of planned flights:
Duration of individual flights:

3. Points of Contact

Name of aircraft owner/company:
Address:
Phone:
Fax:
E-mail:

Location of the aircraft:
Contact name at this location:
Address:
Phone:
Fax:

Email:

3. Has a site inspection of your company's processes, facilities and aircraft been performed by a NASA center within the last two years? If so, which NASA Center and when? We will contact the center and request a copy of their inspection report.

III. EXPERIMENT SUPPORT INFORMATION

1. Experiment Ports

Number of existing experiment ports available:

Fuselage location of each existing port:

Size of each existing port:

How is the installation mounted to each existing port (cabin seat tracks, seat tracks mounted around port, each installation custom, etc.):

Does a FAA form 337, 8110-3 or STC exist for each experimenter port? If so, provide.

2. Power

Type of power available to experimenters (115VAC, 28VDC, etc.):

Maximum amount of power available for experimenter use:

Type of circuit protection provided between aircraft power and experiments:

Does the aircraft have a way to disable experimenter power in the event of an emergency requiring all experimenter power to be disabled immediately? If so, explain setup/process. This can be in the form of a master electrical control switch or approved power disconnect procedures.

3. Instrument Racks

Are instrument racks used?

Type of instrument racks used for experimenter use:

Size of racks:

Maximum allowable weight per rack for experimenter hardware:

Maximum allowable tip over moment per rack (when populated):

IV. SAFETY EQUIPMENT INFORMATION

1. Life Rafts – Required for over water flight.

Number of life rafts available:

Type of life rafts available:

Maximum number of people per life raft:

Location of rafts in the aircraft:
2. Passenger Smoke Hoods/Masks

Total number of units available:
Location of units in the aircraft:
Amount of useable time for each unit:
Are the units full-face covering?

3. Oxygen Bottles (Firefighting and Medical)

Total number of bottles available for firefighting:
Total number of bottles available for medical use:
Location of bottles in the aircraft:

4. Supplemental Oxygen – Required for flights above 10,000 feet MSL

Type of supplemental oxygen available for decompression emergencies (oxygen generators, etc.):
Number of units available:
Location of units in the aircraft:

5. Fire Extinguishers

Number of fire extinguishers available:
Type of fire extinguishers available:
Location of fire extinguishers in the aircraft:

6. Personal Floatation Devices – Required for over water flights.

Total number of units available:
Location of units in the aircraft:

7. Arctic Wear (if applicable) – Required for flight operations when the outside air temperature is 32°F or below.

Number of arctic clothing sets available:
Types of arctic clothing available:
Location of arctic clothing in the aircraft:

8. Immersion Suits (if applicable) – Required for flight operations over water when water temperature is 60°F or below and/or the outside air temperature is 32°F or below.

Number of immersion suits available:
Location of immersion suits in the aircraft:

9. Signal Kits

Number of signal kits available:

Type of signal kits available:

Location of signal kits in the aircraft:

10. First Aid Kits

Number of first aid kits available:

Location of first aid kits in the aircraft:

11. TCAS/TAWS

NASA NPR 7900.3 Section 3.1.3.6 requires all contract aircraft to be configured with FAA-approved TCAS and TAWS systems for the specific type of model aircraft. Is the aircraft equipped with FAA-approved TCAS and TAWS systems for the specific type of model aircraft? If no, describe the mitigation strategy for operations without TCAS and TAWS.

V. ENGINEERING INFORMATION

- 1.** Do all installations use a FAA certified Designated Engineering Review (DER) and comply with the FAA process resulting in a signed 8110-3 or 337 forms: Yes or No?

If YES, then ignore section V. Provide a copy of the signed 8110-3/337 forms as well as a copies of the engineering analysis/drawings reviewed by the DER for each item that has a signed 8110-3/337 form.

If NO, then complete the remaining portion of section V and contact NASA for further engineering requirements. In this case NASA will become the review and approval authority for all engineering work.

- 2. Aircraft Design Emergency Landing Loads (g's)**

Forward:

Aft:

Sideward:

Upward:

Downward:

- 3. Aircraft Design Gust/Inertia Loads (g's)**

Maximum upward:

Maximum downward:

Maximum sideward:

Provide copy of a chart depicting gust/inertia loads versus fuselage locations (if applicable).

4. Pressure Relief Valve Settings (PSI)

Maximum cabin differential pressure:

Maximum emergency relief pressure:

5. Ground Clearance (Inches)

Minimum ground clearance:

Location of minimum ground clearance:

6. Seat Tracks and Isles (If applicable)

Ultimate seat track strength:

Ultimate seat track mounting stud strengths:

Ultimate cabin floor strength:

Minimum isle width used:

VI. MAINTENANCE INFORMATION

1. History

Describe the history of the aircraft from the date of manufacture to present including: accidents, mishaps, damage, major repairs, modifications and/or alterations.

2. Inspection Program

Is the manufacturer's recommended inspection program used to maintain the aircraft in an airworthy condition? If not, explain why and what inspection program is used.

3. Overhaul and Replacement

Is the manufacturer's or FAA approved overhaul intervals and recommended replacement times (aircraft engines, propellers, etc.) used to maintain the aircraft? If not, explain why and what program is used.

4. Airworthiness Directives

Is the aircraft maintained in accordance with all applicable FAA airworthiness directives?

5. Weight and Balance

Is the weight and balance and equipment list revised each time equipment is installed or removed?

6. Altimeter and Static Pressure Systems Inspection

If the aircraft is subject to flight under instrument flight rules (IFR) are the altimeters and static systems tested and inspected in accordance with 14 CFR 91?

7. Transponder Inspections

If the aircraft is equipped with an Air Traffic Control transponder, is it tested and inspected in accordance with requirements of 14 CFR 91?

For transponder equipped VFR aircraft with automatic pressure altitude reporting capabilities, is it tested and inspected in accordance with 14 CFR 43 Appendices E and F?

8. Maintenance Records

Are aircraft maintenance records maintained in accordance with 14 CFR 43 and 91?

Are entries made in the aircraft maintenance records performed by a person authorized by 14 CFR 65 for return to service?

9. Maintenance Manuals

Is the aircraft maintained in accordance with factory approved and current maintenance manuals?

10. Maintenance Personnel

Is the aircraft maintained by persons authorized in accordance with 14 CFR 65?

VII. FLIGHT OPERATIONS INFORMATION

1. Policies

Does an operations and procedures manual exist for the company owning the aircraft?

2. Flight Plan

Are flight plans required to be filed for project/science flights?

3. Crew Complement

Describe the crew complement intended to be used when NASA personnel are onboard. What is the minimum flight crew required to operate the aircraft?

4. Qualifications

Describe requirements for pilot and copilot qualifications.

5. Currency

Describe the company's policy on pilot and copilot currency.

6. Crew

Describe operating policies concerning crew duty, rest, and flight time limitations.

7. Medical

NPR 7900.3 Section 7.2 requires all pilots to have a first class medical certificate, military pilot flight physical, or obtain a NASA flight medical certification, renewed annually. Pilots 55 years or age or older require a medical certification every 6 months. Pilots over 65 years of age are prohibited from flying. What are the company medical requirements for pilots and crewmembers?

8. Training

Is there an established pilot and crewmember training program?

What are your training requirements for pilots and crewmembers?

VIII. HIGH RISK AIRCRAFT ADDITIONAL MEDICAL REQUIREMENTS

1. High Risk Aircraft Status

Do the proposed aircraft operations meet or use aircraft with any of the following criteria?

Ejection seat aircraft:

Aircraft operating at cabin altitude > 10,000 ft. MSL:

Sub-orbital spacecraft:

Experimental aircraft:

Aircraft designated as high-risk by any NASA Center Chief of Flight Operations:

2. Additional Medical Testing

If any of the answers to the High Risk Aircraft status were yes, NASA requires all pilots, flight engineers, navigators, other aircrew, Qualified Non-Crewmembers, and passengers to complete additional medical testing and have a physical examination prior to flight operations. The medical tests will be reviewed by and a certified Aviation Medical Examiner or NASA Flight Surgeon.

These additional tests are:

Electrocardiogram.

Pure Tone Audiometry.

Field of vision and peripheral vision tests.

Blood Work, to include:

- Hematocrit (and/or Hemoglobin);
- Lipid Profile: Total Cholesterol, Triglycerides (TG), High Density Lipoprotein (HDL), and Low Density Lipoprotein (LDL);
- Fasting Blood Sugar; and
- Hemoglobin A1-C

3. Medical Testing Reviewers

All medical test results shall be reviewed by and the physical conducted by a certified Aviation Medical Examiner or NASA Flight Surgeon. The Aviation Medical Examiner or NASA Flight Surgeon will approve or deny flight operations onboard High Risk Aircraft.

Cardiovascular status will be assessed using a standard cardiovascular risk assessment tool (e.g. Framingham, Reynolds Scoring System, NASA's AstroCHARM, ACC/AHA ASCVD Risk Calculator). If a risk equal to or greater than 10% in 10 years is obtained, an evaluation by a cardiologist is required. Any confirmed cardiovascular disease is disqualifying.