



NASA Procedural Requirements

COMPLIANCE IS MANDATORY FOR NASA EMPLOYEES

NPR 7900.3D
 Effective Date: May 01, 2017
 Expiration Date: May 01, 2025

[Printable Format \(PDF\)](#)

Subject: Aircraft Operations Management

Responsible Office: Office of Safety and Mission Assurance

| [TOC](#) | [ChangeHistory](#) | [Preface](#) | [Chapter1](#) | [Chapter2](#) | [Chapter3](#) | [Chapter4](#) | [Chapter5](#) | [Chapter6](#) | [Chapter7](#) | [Chapter8](#) | [Chapter9](#) | [Chapter10](#) | [Chapter11](#) | [Chapter12](#) | [Chapter13](#) | [AppendixA](#) | [AppendixB](#) | [AppendixC](#) | [AppendixD](#) | [AppendixE](#) | [AppendixF](#) | [AppendixG](#) | [AppendixH](#) | [AppendixI](#) | [ALL](#) |

Appendix C. Compliance Matrix

Measurements and Reporting

Req #	Section	Requirement Statement	Responsible Party	Method to Ensure Compliance
1	1.1.2	NASA shall use its aircraft/UAS resources in an effective and efficient manner to conduct and support missions, approved/planned programs, and projects.	AMD/Center Directors	IAOP Review
2	1.1.3	NASA shall maintain the level of airworthiness and aircraft/UAS operating standards that will ensure the safe operation of aircraft/UAS.	Center's Chief of Flight Operations	IAOP Review
3	1.1.3 a	Except for flights operated to carry individual(s) other than crewmember(s) or qualified non-crewmember(s) (QNC) or operated for commercial purposes, NASA and NASA-contracted aircraft shall be operated as public use aircraft in accordance with public law and U.S. Code, regardless of whether the NASA or NASA-contracted aircraft possesses an FAA Airworthiness Certificate (49 U.S. Code Part 40125).	Center's Chief of Flight Operations	Flight Operations Performance Measurements and Reporting

4	1.1.4	NASA aircraft shall be operated in accordance with applicable provisions of the FAA's Federal Aviation Regulations (FAR)-14 CFR-except: a.Where this directive prescribes more stringent requirements. b.Where Center local directives are more stringent than this directive. c.Where deviations from the FAA regulations have been approved by the FAA, a Center airworthiness/flight readiness review board, or NASA policy.	NASA aircraft pilots	IAOP Review
5	1.1.5	For each Center operating aircraft/UAS, procuring, and/or acquiring aircraft/UAS services, the Center Director shall maintain a program-independent Flight Operations Office, the specific purpose of which will be to plan, organize, direct, and control the operations, maintenance, modification, safety, and support of all Center-assigned or -contracted aircraft.	Center Directors	IAOP Review
6	1.1.5.1	The head of this office, the Chief of Flight Operations, is responsible for all Center-assigned, newly acquired, or contracted aircraft. The head of this office shall be the senior line manager who is responsible for aviation activities at the Center.	Center Directors	IAOP Review
7	1.1.5.2	The Center Director shall assign the Chief of the Flight Operations Office the authority and responsibility and provide the resources necessary to manage and conduct safe, effective, and efficient operations in accordance with NASA directives, guidance, and other applicable Federal regulations.	Center Directors	IAOP Review
8	1.1.5.3	Prior to issuing an RFI (Request for Information) or RFP (Request for Proposal) solicitation, or award of a sole source contract, grant, or other aviation service procurement, the Chief of the Flight Operations Office shall review and concur upon any Center	Center's Chief of Flight Operations	IAOP Review

		contract or agreement that includes aviation operations or aircraft modification		
9	1.1.5.4	If a Center does not have a Flight Operations Department, the Center Director shall coordinate with NASA HQ Aircraft Management Division (AMD) to have another Center's Flight Operations Department review and concur on such contracts or agreements for them each time the Center procures aviation services.	Center Directors	IAOP Review
10	1.2.1	The Director, AMD shall assign aircraft to the appropriate Center after consultation with the affected Mission Directorates and Center Directors.	Director AMD	MSD
11	1.2.1.1	Records created throughout flight operations management shall be maintained, managed, and disposed of by each Center's Flight Operations Office or designated office in accordance with NPR 1441.1.	Center's Chief of Flight Operations	IAOP Review
12	1.2.2.1	Mission Directorate Associate Administrators shall coordinate early with the OSI to establish program or project plans involving the requirement for acquisition or use of aircraft, including UAS meeting Agency capitalization threshold defined by NPR 9250.1.	Mission Directorate Associate Administrators	Flight Operations Performance Measurements and Reporting
13	1.2.2.2	Mission Directorate Associate Administrators shall comply with applicable OMB Circulars as they apply to the acquisition of aircraft/UAS and coordinate related documentation requirements with the Assistant Administrator for the OSI.	Mission Directorate Associate Administrators	Flight Operations Performance Measurements and Reporting
14	1.2.2.3	Mission Directorate Associate Administrators shall annually review aircraft mission and program requirements, use, and associated costs, and project those requirements and costs over 5 years in an annual report to the HQ AMD not later than March 31 of each year.	Mission Directorate Associate Administrators	Flight Operations Performance Measurements and Reporting

15	1.2.2.4	Mission Directorate Associate Administrators shall coordinate with the OSI and the Office of the Chief Financial Officer for the submission of all Aviation Business Cases per OMB Circular A-11, Preparation, Submission, and Execution of the Budget, for aircraft and aircraft programs funded by their Directorate.	Mission Directorate Associate Administrators	Flight Operations Performance Measurements and Reporting
16	1.2.3. a	Center Directors shall be responsible for: the airworthiness and flight safety of all Center-assigned aircraft and UAS, including commercial aircraft services (CAS).	Center Directors	IAOP Review
17	1.2.3. b	Center Directors shall be responsible for: coordination with the OSI in establishing program or project plans involving the requirement, assignment, and operation of aircraft/UAS.	Center Directors	IAOP Review
18	1.2.3. c	Center Directors shall be responsible for: annually reviewing aircraft mission and program requirements (for those programs controlled/funded by their respective Center), use, and associated costs and for projecting those requirements and costs over 5 years in an annual report to the AMD not later than March 31 of each year.	Center Directors	IAOP Review
19	1.2.3. d	Center Directors shall be responsible for: Ensuring compliance with the OCFO NPRs in the appropriate use and application of order codes that are used to account for, track, and report aircraft costs.	Center Directors	IAOP Review
20	1.2.3. e	Center Directors shall be responsible for: quarterly reporting of aircraft operations and costs to AMD, as stipulated in Chapter 11, and specific monthly passenger transportation reporting requirements detailed in Chapter 4.	Center Directors	IAOP Review

21	1.2.3. f	Center Directors shall be responsible for: ensuring compliance with 41 CFR Part 102-33, Management of Government Aircraft; 41 CFR Chapter 300, Federal Travel Regulation System-General; 41 CFR Chapter 301, Temporary Duty (TDY) Travel Allowance; and OMB Circular A-126, Improving the Management and Use of Government Aircraft.	Center Directors	IAOP Review
22	1.2.3. g	Center Directors shall be responsible for: the budget for personnel and travel in support of the Inter-Center Aircraft Operations Panel (IAOP) semiannual meetings and the IAOP Review Program.	Center Directors	IAOP Review
23	1.2.3. h	Center Directors shall be responsible for: Approving aircraft charters or leases for periods aggregating 30 days or less per year with 7 days' prior notice to the AMD.	Center Directors	IAOP Review
24	1.2.3. i	Center Directors shall be responsible for: technical assessment, cost evaluation, acquisition, use, and disposition of all aircraft/UAS under their control. This includes disposal of aircraft/UAS used solely in wind tunnels or other nonflyable test models.	Center Directors	IAOP Review
25	1.2.3. j	Center Directors shall be responsible for: coordinating and submitting all aircraft acquisition and disposition proposals to the Director, AMD for approval.	Center Directors	IAOP Review
26	1.2.3. k	Center Directors shall be responsible for: reporting all acquisition and disposal actions to the AMD to comply with Federal aircraft data reporting requirements.	Center Directors	IAOP Review
27	1.2.3. l	Center Directors shall be responsible for: ensuring that Center managers who acquire aircraft/UAS or commercial aviation services coordinate those acquisitions with the Center's Chief of Flight Operation Office to ensure compliance with the	Center Directors	IAOP Review

		NASA Aviation Safety Program and aircraft management policies.		
28	1.2.4. a	Program/Project Managers shall: coordinate early with the Center Chief of Flight Operations expected to conduct the effort to establish program or project plans involving the requirement for acquisition or use of aircraft, including UAS.	Program/Project Managers	Flight Operations Performance Measurements and Reporting
29	1.2.4. b	Program/Project Managers shall: support the Mission Directorate or Center Director in the preparation of a Business Case Analysis (BCA) in accordance with OMB Circular A-11, as required.	Program/Project Managers	Flight Operations Performance Measurements and Reporting
30	1.2.4. c	Program/Project Managers shall: support the Mission Directorate and Center Directors in the annual review of aircraft mission and program requirements, use, and associated cost and project those requirements and costs over 5 years to support their annual report to the AMD, not later than March 31 of each year.	Program/Project Managers	Flight Operations Performance Measurements and Reporting
31	1.2.5.1	The Center's Chief of Flight Operations shall hold the following qualifications for assignment to this position: a.A minimum of 10 years of relevant aviation-related experience, of which a minimum of 3 years will be supervisory or managerial experience in aircraft operations similar to the primary aircraft type operated at the Center and a high level of familiarity with the organization's aircraft operations. b.Current or previously held qualifications as a NASA Pilot in Command (PIC), a military rating as an Aircraft Commander, or a FAA Airline Transport Pilot (ATP) certificate.	Center's Chief of Flight Operations	IAOP Review
32	1.2.5.3 a	The Center's Chief of Flight Operations shall ensure the effective management of flight operations under that Center's cognizance, per NPD 7900.4.	Center's Chief of Flight Operations	IAOP Review

33	1.2.5.3 b	The Center's Chief of Flight Operations shall implement a process to ensure all CAS operations are appropriately approved.	Center's Chief of Flight Operations	IAOP Review
34	1.2.5.3 c	The Center's Chief of Flight Operations shall authorize personnel to operate and maintain aircraft under NASA's control. The Center Flight Operations Office has the final operational flight release authority for any NASA aircraft operating from or under the cognizance of that Center.	Center's Chief of Flight Operations	IAOP Review
35	1.2.5.3 d	The Center's Chief of Flight Operations shall determine the number of aircraft types in which an individual crewmember may maintain qualification at any given time and annually review that determination.	Center's Chief of Flight Operations	IAOP Review
36	1.2.5.3 e	The Center's Chief of Flight Operations shall recommend assignment of the Center Aviation Safety Officer (ASO), with the concurrence of the Center, Safety and Mission Assurance Director, to the Center Director for approval.	Center's Chief of Flight Operations	IAOP Review
37	1.2.5.3 f	The Center's Chief of Flight Operations shall fly as a crewmember or observer on all assigned aircraft, where practicable, and as necessary, to observe performance of assigned flightcrews.	Center's Chief of Flight Operations	IAOP Review
38	1.2.6.1	The ASO shall manage the Center's Aviation Safety Program as described in Chapter 6.	Aviation Safety Officer	IAOP Review
39	1.2.6.2	The ASO shall be a civil servant assigned to the Flight Operations Office, serve as the Center's focal point for aviation safety, and act on behalf of the Center Director when discharging this responsibility.	Aviation Safety Officer	IAOP Review
40	1.2.6.3	Managers may use the advice of the ASO in formulating decisions, but shall not expect or rely on the ASO to make managerial decisions.	Center's Chief of Flight Operations / Chief Pilot	IAOP Review

41	1.2.7.1	To qualify for assignment, the Chief Pilot shall: a. Hold and maintain qualification as a NASA PIC. b. Have at least 3 years' experience within the past 6 years as PIC of an aircraft similar in category and class to at least one of the aircraft used in the types of operations being conducted at the Center. c. Demonstrate satisfactory supervisory and managerial capabilities.	Chief Pilot	IAOP Review
42	1.2.8	The Chief of Maintenance shall be a civil servant assigned to the Flight Operations Office and serve as the Chief of Flight Operations' focal point for all aircraft maintenance activities.	Center Directors	IAOP Review
43	1.2.8.1	To qualify for assignment, the Chief of Maintenance shall: a. Have had at least 3 years of experience within the past 6 years in aircraft maintenance in a similar-size operation maintaining aircraft similar to those used by the Center, with management experience such as supervisor or lead in aircraft maintenance. b. Have held an FAA Airframe and Power Plant (A&P) Certification, have held an equivalent military designation, or demonstrate an equivalent level of qualifications and expertise.	Chief of Maintenance	IAOP Review
44	1.2.9	The Chief of Quality Assurance or Quality Inspection shall be a civil servant assigned to the Flight Operations Office and serve as the Chief of Flight Operations' focal point for all aircraft quality assurance activities.	Center Directors	IAOP Review
45	1.2.9.1	To qualify for assignment, the Chief of Quality Assurance or Quality Inspection shall: a. Hold a current FAA Inspection Authorization Certificate, have held an equivalent military designation. or	Chief of Quality Assurance	IAOP Review

		<p>demonstrate an equivalent level of qualifications and expertise.</p> <p>b. Maintain a level of inspection expertise and activity needed to meet FAA Inspection Authorization Certificate renewal requirements or the military equivalent.</p> <p>c. Have had at least 3 years of maintenance experience within the last 6 years, 1 year of which shall have been as a maintenance inspector.</p> <p>d. Have at least 1 year of experience in a supervisory capacity.</p>		
46	1.2.10 a	The IAOP shall advise the Assistant Administrator for the OSI regarding operational, management, and safety policies for NASA aircraft.	IAOP	Flight Operations Performance Measurements and Reporting
47	1.2.10 b	The IAOP shall conduct periodic meetings with the HQ AMD to review policies and procedures related to aircraft/UAS operational matters affecting all Centers and to make recommendations to the AMD regarding policies, procedures, and guidelines that may be applicable to all Centers.	IAOP	Flight Operations Performance Measurements and Reporting
48	1.2.10 c	The IAOP shall conduct reviews of a special nature at the request of the Assistant Administrator for the OSI and support the conduct of periodic reviews of all aspects of flight operations at NASA Centers, including compliance with applicable Federal regulations and Headquarters and Center policies and procedures.	IAOP	Flight Operations Performance Measurements and Reporting
49	1.2.12 a	The Director of AMD shall coordinate the formulation of Agency-wide policies, procedures, and guidelines concerning aircraft/UAS operation and ensure their effective and efficient communication to Centers and appropriate Headquarters offices.	Director AMD	Flight Operations Performance Measurements and Reporting

50	1.2.12 b	The Director of AMD shall advise and assist the Assistant Administrator for the OSI, the Mission Directorates, and the Center Directors concerning the acquisition and disposition process.	Director AMD	Flight Operations Performance Measurements and Reporting
51	1.2.12 c	The Director of AMD shall advise the Assistant Administrator for the OSI regarding the establishment of policy for the use of NASA aircraft and UAS.	Director AMD	Flight Operations Performance Measurements and Reporting
52	1.2.12 d	The Director of AMD shall coordinate the findings and recommendations of IAOP reviews dealing with institutional management issues with the appropriate institutional Associate Administrator.	Director AMD	Flight Operations Performance Measurements and Reporting
53	1.2.12 e	The Director of AMD shall maintain liaison with other Government agencies and the private sector on matters pertaining to flight operations, maintenance, airworthiness, and aviation management practices common to all Centers.	Director AMD	Flight Operations Performance Measurements and Reporting
54	1.2.12 f	The Director of AMD shall provide coordination and other assistance in the assignment of IAOP teams as they review and evaluate the adequacy of Center organizations, facilities, and procedures for flight operations.	Director AMD	Flight Operations Performance Measurements and Reporting
55	1.2.12 g	The Director of AMD shall collect, collate, and report Agency aircraft data (e.g., Federal Aviation Interactive Reporting System (FAIRS) data) to GSA or other Federal agencies as required.	Director AMD	Flight Operations Performance Measurements and Reporting
56	1.2.12 h	The Director of AMD shall be responsible for the functional leadership, staff support to the Administrator, and central services as they relate to aircraft management and is the Agency's Aircraft Capability Leader and the Senior Aviation Management Official (SAMO) as required by Federal Management Regulation (FMR) 102-33.30.	Director AMD	Flight Operations Performance Measurements and Reporting

57	1.2.13	The Chief, Office of Safety and Mission Assurance shall provide leadership, policy direction, functional oversight, assessment, standards, and coordination for safety and mission assurance affecting NASA's aviation operations.	Chief, Safety and Mission Assurance	Flight Operations Performance Measurements and Reporting
58	1.5.1	Each NASA aircraft shall be operated in accordance with an aircraft manual providing standard operating procedures.	Center's Chief of Flight Operations	IAOP Review
59	1.5.1 a	For manned aircraft, these manuals (or checklists) shall be available electronically or carried onboard all NASA aircraft.	Center's Chief of Flight Operations	IAOP Review
60	1.5.1 b	For unmanned aircraft, manuals shall be immediately accessible to the pilots.	Center's Chief of Flight Operations	IAOP Review
61	1.5.2	All NASA Flight Operations flight planning libraries shall have available the necessary Flight Information Publications for U.S. and international operations.	Center's Chief of Flight Operations	IAOP Review
62	1.5.3	Each Center shall have a program for their aircrews to maintain a level of proficiency that will ensure their ability to safely operate an aircraft within governing regulations to include abnormal and emergency situations.	Center's Chief of Flight Operations	IAOP Review
63	1.5.4	Each Center shall establish and maintain a training program using check flights to assess its adequacy and ensure that personnel are competent to perform their assigned duties.	Center's Chief of Flight Operations	IAOP Review
64	1.6.1	When deviations from this NPR are necessary, Center Directors or Associate Administrators shall submit requests for waivers to the Assistant Administrator for the OSI via HQ AMD.	NASA officials who request waivers	IAOP Review

65	1.6.1.1	Prior written approval from the Assistant Administrator for the OSI shall be obtained before implementing procedures that are less restrictive than those contained in this NPR.	NASA officials who request waivers	IAOP Review
66	1.6.4	The waiver approval authority shall approve waivers only for a specific event, period, or duration and specify the boundaries of the requirements being waived.	NASA officials who request waivers	IAOP Review
67	1.6.5	The waiver approval authority shall review all who have current waivers against this NPR when the NPR is updated and request verification of continued validity.	NASA officials who request waivers	IAOP Review
68	1.6.6	NASA officials who request waivers shall document the following in the request for waiver: a. Identification of the directive and specific requirement(s) for which the waiver is requested. b. Scope (e.g., site, facility, operation, or activity) and duration of the waiver request. c. Justification for the waiver, including: (1) Purpose/rationale for requesting the waiver. (2) Whether application of the requirement in the particular circumstances would conflict with another requirement. (3) Whether application of the requirement in the particular circumstances would not achieve, or is not necessary to achieve, the underlying purpose of the requirement. (4) Any other pertinent data or information related to the waiver request (e.g., cost or schedule considerations). (5) Identification and justification of the acceptance of any additional risk that will be incurred if the waiver is granted. (6) A description of any special circumstances that warrant granting the waiver, including whether: (a) Application of the requirement in	NASA officials who request waivers	IAOP Review

		<p>the particular circumstances would not be justified by any safety and health reason.</p> <p>(b) The waiver would result in a health and safety improvement that compensates for any detriment that would result from granting the waiver.</p> <p>(c) There exists any other material circumstances that were not considered when the requirement was adopted, for which it is in the public interest to grant a waiver.</p> <p>(7) A description of any alternative or mitigating action that will be taken to ensure adequate safety and health and protection of the public, the workers, and the environment for the effective period of the waiver.</p>		
69	2.2.1	Airworthiness reviews shall be conducted for all aircraft modifications.	Center Directors	IAOP Review
70	2.2.2	Each Center shall clearly identify the appropriate airworthiness review process for experimental, research, and operational configurations and nonstandard ground or flight operations for all aircraft contracted or operated by the Center.	Center Directors	IAOP Review
71	2.2.3	In addition to being certified as airworthy through a Center airworthiness process, all NASA aircraft shall be cleared through separate flight readiness reviews as described in section 3.17.	Center Directors	IAOP Review
72	2.2.4	Centers and Component Facilities that do not have an aircraft operations department and desire to conduct NASA-conducted or NASA-sponsored operations (aircraft/UAS/CAS) shall coordinate with AMD and the IAOP for support from another NASA Center aircraft operations department with a standard airworthiness review process.	Center Directors	IAOP Review

73	2.3.1	NASA aircraft shall be operated in an airworthy condition as certified by a formal NASA Center airworthiness review process, under the authority of a NASA Center Director, in accordance with Federal public use aircraft laws and regulations.	Center Directors	IAOP Review
74	2.3.1.1	All NASA-owned aircraft performing a public use operation shall possess and maintain a NASA Certificate of Airworthiness (Appendix G) approved by the Center Director. This includes loaned and bailed aircraft to NASA.	Center Directors	IAOP Review
75	2.3.1.2	All NASA commercial aircraft services (CAS) aircraft shall possess and maintain a NASA Statement of Airworthiness (Appendix G) or Certificate of Airworthiness, approved by the Center Director in accordance with Chapter 10.	Center Directors	IAOP Review
76	2.3.1.3	For all CAS aircraft, the statement shall define the duration of applicability, as well as any limitations to that statement.	Center Directors	IAOP Review
77	2.3.1.3 a	If a CAS aircraft is altered outside of its FAA type certificate or not maintained under an FAA-accepted maintenance program during its operations for NASA, the NASA contract shall require the responsibility of the CAS owner to conduct a conformity inspection, which is required to ensure the aircraft meets all civil regulations, prior to operating that aircraft as a civil aircraft.	Center Contracting Officer	IAOP Review
78	2.3.1.4	All NASA-owned aircraft used for passenger transportation purposes shall operate in Civil Aircraft status and possess a Standard FAA Certificate of Airworthiness.	Center Directors	IAOP Review
79	2.3.1.4 a	If CAS aircraft are operated for NASA under a FAA Operating Certificate for passenger or cargo transportation, the aircraft shall be operated within the limitations imposed by the FAA Operating Certificate (with the	Center Directors	IAOP Review

		exception of scheduled airline passenger transportation).		
80	2.3.1.4 b	Aircraft that have been modified from the FAA-approved configuration shall not be used for passenger transportation purposes.	Center Directors	IAOP Review
81	2.3.1.5	When NASA aircraft are transferred between Centers, a new NASA Certificate of Airworthiness approved by the receiving Center Director shall be obtained prior to commencing flight.	Center Directors	IAOP Review
82	2.3.1.6	If aircraft are used for a multi-Center mission, roles and responsibilities for airworthiness mission operational control, and mishap response shall be established in writing.	Center Directors	IAOP Review
83	2.3.1.7	If an aircraft is registered internationally and the operations are being conducted internationally, whether modified or flown in a certified condition, an airworthiness and on site flight readiness and safety review shall be conducted. Exception: An on-site review is not required for passenger operations if the aircraft is not modified and is being operated in compliance with recognized International Civil Aviation Organization (ICAO) scheduled passenger standards.	Center Directors	IAOP Review
84	2.3.1.8	All NASA UAS, whether NASA-owned, -sponsored, or -contracted, shall receive an airworthiness review per this chapter.	Center Directors	IAOP Review
85	2.3.1.9	For all NASA aircraft bailed or loaned outside of NASA, the aircraft Certificate of Airworthiness shall be removed and suspended.	Center Directors	IAOP Review
86	2.4.2	Aircraft Management Division (AMD) shall establish airworthiness policy and requirements and provide support and oversight of airworthiness process.	HQ AMD	IAOP Review

87	2.4.3	Center Directors shall establish airworthiness and configuration control review processes and procedures for overall engineering oversight to identify and review engineering analysis and limitations, to manage hazards and risks associated with flight programs, to ensure safe flight operations, to manage and thoroughly document aircraft configurations, and to ensure that flight objectives satisfy programmatic requirements.	Center Directors	IAOP Review
88	2.4.3.1	Center Directors shall ensure that these review processes and procedures are incorporated into the contracts of those who operate, maintain, and provide support for NASA aircraft as well as contracted aircraft used for NASA missions, with the exception of scheduled airline passenger transportation.	Center Directors	IAOP Review
89	2.4.3.2	Center Directors shall establish configuration control procedures to ensure that the configuration of each NASA aircraft is fully documented and reviewed.	Center Directors	IAOP Review
90	2.4.3.3	Center Directors shall establish a minimum equipment list (MEL) for all non-test-related equipment for all aircraft operations. Waivers to a MEL may be granted by the Chief of Flight Operations but may not be delegated to a lower office/position.	Center Directors	IAOP Review
91	2.4.3.5	The Center Engineering Technical Authority shall ensure all engineering documentation, reports, and analysis for aircraft airworthiness complies with this NPR, is readily accessible, is archived for the life of the aircraft while owned or operated by NASA and is properly reviewed based on sound engineering rationale through design reviews, which are scalable based on scope and magnitude of the engineering effort.	Center Engineering Technical Authority	

92	2.4.4	Program/Project Managers shall ensure Airworthiness Review Board and Center Engineering Technical Authority are made aware of missions and operations requiring airworthiness review early in the development phase of the Program/Project and provide all requisite documentation, analysis, resources, and presentations to support the review processes.	Program/Project Managers	IAOP Review
93	2.5.1.1	The Airworthiness Review Board (ARB) Chair shall be independent of flight operations and Project Management and the assignment documented in writing.	Center Directors	IAOP Review
94	2.5.1.2	All reviews shall include, at a minimum, representatives from safety, flight operations, and engineering and documentation for what constitutes a quorum for the ARB.	Center Directors	IAOP Review
95	2.5.1.3	The flight operations representative shall be a pilot who is either a qualified ASO or Test Pilot who is a graduate of a formal Test Pilot School.	Center Directors	IAOP Review
96	2.5.2	Any cockpit or cabin modifications that might interfere with aircrew egress shall be reviewed by a subpanel, including aircrew and life-support personnel.	Center Directors	IAOP Review
97	2.6.1	All aircraft conducting NASA or NASA-sponsored operations shall be evaluated and approved by a NASA Center Airworthiness Board.	Center Directors	IAOP Review
98	2.6.1.1	Test-related equipment will be handled through the flight test planning process. If test equipment remains on the aircraft for non-test-related missions, then such equipment shall be addressed in the aircraft documentation.	Center Directors	IAOP Review
99	2.6.2	The [Center ARB] review shall include the engineering rationale, substantiation documentation, and risk mitigations in an ARB package.	Center Directors	IAOP Review

100	2.6.4	The airworthiness process shall be continual throughout the course of a project.	Center Directors	IAOP Review
101	2.6.5	All aircraft modifications and/or configuration changes that require ARB approval shall go through an appropriate level of design reviews.	Center Directors	IAOP Review
102	2.6.5 a	Design review documentation shall be presented to the Center Engineering Technical Authority for review and approval and can be in conjunction with NPR 7120.5/NPR 7120.8 reviews if coordinated by the Program/Project Manager.	Chair of the Airworthiness Review Board	IAOP Review
103	2.6.5 b	Results of the [design] review shall be documented and action items or Review Item Discrepancies (RIDs) tracked using a closed-loop system.	Center Directors	IAOP Review
104	2.6.5 c	Design review results and action item status shall be presented to the Airworthiness Review Board during approval request.	Center Directors	IAOP Review
105	2.6.6	Prior to award of any CAS contract or other written agreement, the flight operations office at the NASA Center that manages the contract shall follow the requirements in Chapter 10.	Center Directors	IAOP Review
106	2.6.6 a	The [flight operations office] review shall be conducted in the initial planning stage and results of this review incorporated into the contractor selection process.	Center Directors	IAOP Review
107	2.6.6 b	If the contract is expected to provide long-term, continuous support (greater than 1 year), the aviation program shall be subject to the IAOP review process.	Center Directors	IAOP Review
108	2.7.1	Airworthiness request and approval requirements shall be documented in Center-level procedures.	Center Directors	IAOP Review
109	2.7.1 b	The results of tests conducted to verify the engineering analyses also shall be considered.	Center Directors	IAOP Review

110	2.7.1 c	Actions to be taken in the event of in-flight malfunctions or emergency conditions associated with the aircraft modifications or nonstandard operations also shall be described.	Center Directors	IAOP Review
111	2.7.2	Each Center shall establish the content of the Airworthiness Review package based on the aircraft mission, complexity of the modifications, and the inherent hazards associated with the operation.	Center Directors	IAOP Review
112	2.7.3	Requirements for design, documentation, and workmanship shall be established and meet or exceed standard aerospace industry practices for flight hardware if there are no NASA engineering standards in place for the following requirements: a. Engineering substantiation documentation and drawings. b. Material conformity for materials used in primary and secondary structures whose failure could result in loss of or damage to the aircraft or injury to or loss of personnel based on experience gained through past or current testing. c. Electrical design requirements to include electromagnetic interference. d. Avionics requirements, including a review of all system vulnerabilities. e. Structural load and stability requirements.	Center Directors	IAOP Review
113	2.7.4	Hazard Analysis shall be provided, identifying real or potential conditions that could cause injury, illness, or death to the personnel; damage to or loss of a system, equipment, or property; or damage to the environment.	Center Directors	IAOP Review
14	2.7.4.2	The following supporting documentation shall be included in the Airworthiness Review: a. All design review documentation, results, RIDs/action items and associated status.	Center Directors	IAOP Review

		<p>b. Weight and balance.</p> <p>c. Traceability to closed work packages associated with modification.</p> <p>d. Status of any review or audit findings affecting the modification or flight. If applicable, include any mitigations put in place to address issues.</p> <p>e. Minimum equipment list (MEL).</p> <p>f. Associated waivers and deviations.</p> <p>g. Product verification results.</p> <p>h. QA results and issues.</p> <p>i. Maintenance results and issues.</p>		
115	2.7.5	Airworthiness approval is based on the results of Center-approved engineering and safety analyses. The final approval shall contain a description of the configuration of the aircraft, operating instructions and procedures, operating limitations and restrictions, and specific maneuvers or operations for which the aircraft is cleared.	Center Directors	IAOP Review
116	2.7.5.1	A NASA Certificate of Airworthiness (Appendix F) or Statement of Airworthiness shall be issued prior to flight.	Center Directors	IAOP Review
117	2.8.1	All maintenance and inspections shall be performed in accordance with this chapter and the applicable manufacturer and military manuals as appropriate.	Center Directors	IAOP Review
118	2.8.2	Any deviations from the procedures in the maintenance program shall conform to an airworthiness review and be substantiated by a risk analysis.	Center Directors	IAOP Review
119	2.8.3	NASA aircraft shall be maintained in accordance with an established and documented Center maintenance program, using standards of quality in workmanship, materials, and support equipment that will ensure airworthiness of aircraft for safety of flight.	Center's Chief of Flight Operations	IAOP Review

120	2.8.3.1	All NASA aircraft shall be maintained in a condition for safe operation and meet their respective type designs or properly altered condition.	Center's Chief of Flight Operations	IAOP Review
121	2.8.3.2	A maintenance program shall meet FAA regulations for any passenger-seating capacity for an aircraft that is used for passenger transportation.	Center's Chief of Flight Operations	IAOP Review
122	2.8.4.1	Center Flight Operations shall maintain continuous onsite oversight of vendors and facilities performing aircraft depot-level maintenance or major aircraft modifications to ensure quality of workmanship, adherence to NASA standards, schedule, and cost control.	Center's Chief of Flight Operations	IAOP Review
123	2.8.4.2	This oversight function shall be performed only by NASA employees or contractors that are independent of the vendor facility to reduce any conflict of interest and incorporate the requirement of NPR 8735.2.	Center's Chief of Flight Operations	IAOP Review
124	2.8.4.3	Individuals assigned onsite contractor's facility responsibilities shall have expertise and experience in aircraft maintenance and airworthiness standards and requirements.	Center's Chief of Flight Operations	IAOP Review
125	2.8.4.4 a	For maintenance performed external to NASA facilities, the Chief of Maintenance shall ensure that the person(s) performing the maintenance, preventive maintenance, or alteration is properly certificated and qualified to perform the assigned function.	Center's Chief of Maintenance	IAOP Review
126	2.8.4.4 b	For maintenance performed external to NASA facilities, the Chief of Maintenance shall ensure that the work performed is done in accordance with the NASA-approved continuous airworthiness maintenance program or Federal Aviation Regulations (FAR).	Center's Chief of Maintenance	IAOP Review

127	2.8.4.4 c	For maintenance performed external to NASA facilities, the Chief of Maintenance shall ensure that a record is made in NAMIS or the aircraft log book, where applicable, of the description of work performed, the date, certificate number, and type of certificate held by the person performing the work. Maintenance and inspection records will, at a minimum, contain a complete description of the maintenance/repair/inspection accomplished and will include technical manual and paragraph information references.	Center's Chief of Maintenance	IAOP Review
128	2.8.5 f	For maintenance conducted by any contractor, NPR 8735.2 provides the requirements for selection and assignment of Government Mandatory Inspection Points (GMIPs) and lists the sources of information that shall be evaluated during the GMIP definition process.	Center's Chief of Maintenance	IAOP Review
129	2.8.6	Each Center shall develop written maintenance procedures and practices in a Center's maintenance manual that supports the aircraft-specific (manufacturer, NASA, or DoD) maintenance programs and ensures that information and technical data appropriate to the work performed are used.	Center's Chief of Maintenance	IAOP Review
130	2.8.6.1	While this maintenance program may be completed by contractor maintenance, the contractor is required to follow the Center maintenance manual whose accuracy and currency shall be the responsibility of the Chief of Maintenance.	Center's Chief of Maintenance	IAOP Review
131	2.8.6.2	Maintenance procedures shall ensure that no person or organization performs maintenance on NASA aircraft unless the person is an authorized employee of NASA or has been authorized to perform the work under the terms of a written	Center's Chief of Maintenance	IAOP Review

		maintenance agreement or other form of authorization specified in the Center's operations manual or maintenance manual.		
132	2.8.6.3	The maintenance manual also shall address how the flightcrew will obtain maintenance services when away from the Center.	Center's Chief of Maintenance	IAOP Review
133	2.8.6.4 a	At a minimum, the Center's maintenance manual shall include a description of how aircraft records and associated documentation for assigned aircraft and components are maintained.	Center's Chief of Maintenance	IAOP Review
134	2.8.6.4 a (1)	Aircraft records and documentation shall be maintained electronically in NAMIS.	Center Directors	IAOP Review
135	2.8.6.4 a (3)	NAMIS electronic records and documentation shall be promptly updated and used as the primary source of aircraft documentation.	Center Directors	IAOP Review
136	2.8.6.4 b	Persons signing entries on serviceable parts tags and all documentation in NAMIS for work performed on aircraft, systems, and components shall: (1) Be authorized in accordance with NASA requirements and applicable FARs and have satisfactorily completed maintenance training or possess the equivalent current experience on the applicable type appliance, aircraft, engine, or propeller. The equivalent experience will be documented on the individual's training record, which is filed in the maintenance organization. (2) Understand and have knowledge of FARs and the applicable types of maintenance or overhaul manuals and follow the applicable procedures set forth in this manual. (3) Meet Center-defined certification processes.	Center's Chief of Maintenance	IAOP Review

137	2.8.6.4 c	At a minimum, the Center's maintenance manual shall include a documented aircraft release procedure that ensures that all maintenance release authorities are designated in writing and that ensures a maintenance release authorization been completed following maintenance.	Center's Chief of Maintenance	IAOP Review
138	2.8.6.4 c (1)	Additionally, there shall be a documented aircraft release process for aircraft that are deployed from the Center.	Center's Chief of Maintenance	IAOP Review
139	2.8.6.4 d	At a minimum, the Center's maintenance manual shall include the process to ensure that persons with maintenance release authority have at least 6 months' experience during the preceding 24 months in the inspection, servicing, or maintenance of an aircraft or system or maintenance control duty in accordance with Center maintenance procedures.	Center's Chief of Maintenance	IAOP Review
140	2.8.6.4 e	At a minimum, the Center's maintenance manual shall include written ground handling procedures that may be accomplished only by qualified ground handling personnel to perform fire guard, application of external electrical power, towing, engine run, and taxi operations that document aircraft-specific training and designate those qualified in writing.	Center's Chief of Maintenance	IAOP Review
141	2.8.6.4 f	At a minimum, the Center's maintenance manual shall include a documented Metrology and Calibration (METCAL) program that establishes policy, responsibilities, and requirements to ensure that calibrated and tested tools/special equipment performance is compared to referenced calibration standards (CALSTDs) of known and sufficiently greater accuracy.	Center's Chief of Maintenance	IAOP Review

142	2.8.6.4 g	At a minimum, the Center's maintenance manual shall include a documented foreign object damage (FOD) control program that addresses the periodicity and inspection criteria and effectively reduces the risk of FOD both during maintenance and flight operations.	Center's Chief of Maintenance	IAOP Review
143	2.8.6.4 g (1)	All flight operations personnel and employees shall be constantly on lookout for material that could be ingested into engines, struck by propeller blades, and/or blown by the exhaust of engines or propellers, causing injury to personnel or damage to aircraft.	Center's Chief of Maintenance	IAOP Review
144	2.8.6.4 g (2)	Maintenance personnel shall be assigned to perform a general inspection of hangar and ramp areas for FOD on a weekly basis, at a minimum.	Center's Chief of Maintenance	IAOP Review
145	2.8.6.4 h	At a minimum, the Center's maintenance manual shall include a documented tool control program (TCP) that ensures the accuracy of tool inventories at specific intervals, contains a lost tool process, and prohibits aircraft from flying until all tools used on an aircraft have been accounted for.	Center's Chief of Maintenance	IAOP Review
146	2.8.6.4 h (1)	The TCP shall apply to all commercial and Government activities performing contract maintenance, production, or other support functions on NASA aircraft.	Center's Chief of Maintenance	IAOP Review
147	2.8.6.4 h (2)	The TCP shall provide instant inventory capability.	Center's Chief of Maintenance	IAOP Review
148	2.8.6.4 i	At a minimum, the Center's maintenance manual shall include a documented process to ensure that all GSE used on aircraft are safe and operable.	Center's Chief of Maintenance	IAOP Review

149	2.8.6.4 i (1)	GSE shall be maintained per written requirements that document how to identify and remove equipment that is unserviceable.	Center's Chief of Maintenance	IAOP Review
150	2.8.6.4 i (3)	GSE shall be maintained and documented under an aviation maintenance system or other NASA-approved system.	Center's Chief of Maintenance	IAOP Review
151	2.8.6.4 j	At a minimum, the Center's maintenance manual shall include maintenance procedures and technical standards for Aviation Survival Equipment (including life support and ejection seats) for the equipment being flown that are an integrated function of aircraft maintenance.	Center's Chief of Maintenance	IAOP Review
152	2.8.6.4 j (1)	If the Center maintains explosive devices (propellant actuated devices (PADs)/cartridge-actuated devices (CADs)), the Center maintenance manual shall document the program for personnel training and qualifications.	Center's Chief of Maintenance	IAOP Review
153	2.8.6.4 j (2)	All tools shall be accounted for after the repack and inspection of each item (for example, parachutes and floatation equipment, since these items cannot be functionally checked prior to use).	Center's Chief of Maintenance	IAOP Review
154	2.8.6.4 k	At a minimum, the Center's maintenance manual shall include a documented confined space program that defines all aircraft confined spaces and ensures safety in these spaces prior to entry per NPR 8715.3.	Center's Chief of Maintenance	IAOP Review
155	2.8.6.4 l	At a minimum, the Center's maintenance manual shall include a documented program that ensures that aircraft maintenance complies with Center Electromagnetic Interference (EMI)/Electrostatic Discharge (ESD) programs.	Center's Chief of Maintenance	IAOP Review

156	2.8.6.4 m	At a minimum, the Center's maintenance manual shall include a Fuel Surveillance Program that ensures that fuel is free of contaminants prior to fuel entering any Center aircraft.	Center's Chief of Maintenance	IAOP Review
157	2.8.6.4 n	At a minimum, the Center's maintenance manual shall include a documented program that ensures aircraft maintenance is conducted in compliance with the Center Hazardous Material Program and the Protection of the Environment Act, 40 CFR Part 260, Part 261, Part 262, Part 263, Part 264, and Part 265.	Center's Chief of Maintenance	IAOP Review
158	2.8.6.4 n (1)	The program shall include use, disposal, and both long-term and worksite storage of hazardous materials.	Center's Chief of Maintenance	IAOP Review
159	2.8.6.4 n (2)	All chemicals, paints, and oils shall be stored in approved chemical lockers at the end of each shift.	Center's Chief of Maintenance	IAOP Review
160	2.8.6.4 o	At a minimum, the Center's maintenance manual shall include an oil analysis program, per original equipment manufacturer (OEM) and/or DoD maintenance instructions, to identify mechanical breakdown precursors that exist prior to catastrophic failure.	Center's Chief of Maintenance	IAOP Review
161	2.8.6.4 o (1)	The program shall be specific to the type of engine installed and provide trend analysis, immediate feedback, and recommended actions to the Center's Chief of Maintenance.	Center's Chief of Maintenance	IAOP Review
162	2.8.6.4 p	At a minimum, the Center's maintenance manual shall include a documented Weight and Balance (W&B) Program for each aircraft in compliance with any existing Center program, to include the procedure used to ensure that the W&B of an aircraft is maintained, current, and properly documented.	Center's Chief of Maintenance	IAOP Review

163	2.8.6.4 q	At a minimum, the Center's maintenance manual shall include a configuration control process (CCP) established to determine applicability and ensure compliance with Product Improvement Publications (PIP), which are defined as airworthiness directives, technical orders, service and safety bulletins, or other pertinent requirements, including those from FAA, DoD, or OEMs.	Center's Chief of Maintenance	IAOP Review
164	2.8.6.4 q (2)	The CCP shall provide a complete audit trail of decisions and design modifications.	Center's Chief of Maintenance	IAOP Review
165	2.8.6.4 r	At a minimum, the Center's maintenance manual shall include an Aviation Material Management process to ensure that aircraft and aircraft parts are qualified for flight and properly documented per Center procedures.	Center's Chief of Maintenance	IAOP Review
166	2.8.6.4 s	At a minimum, the Center's maintenance manual shall include general housekeeping procedures to ensure that aviation facilities are maintained by NASA standards for hangars, shops, and ramps.	Center's Chief of Maintenance	IAOP Review
167	2.8.6.4 s (1)	Housekeeping procedures shall ensure all electrical equipment connections are at least 18 in. above the hangar floor when aircraft are in a hangar with fuel onboard.	Center's Chief of Maintenance	IAOP Review
168	2.8.6.4 s (2)	Housekeeping procedures shall ensure no cell phone usage is allowed within 5 feet of any fuel vent and aircraft engines.	Center's Chief of Maintenance	IAOP Review
169	2.8.6.4 s (3)	Housekeeping procedures shall ensure, to maintain situational awareness, electronic devices with ear buds or headphones are not allowed while working on/near aircraft on the flight line or in hangars.	Center's Chief of Maintenance	IAOP Review

170	2.8.6.4 s (3) (a)	Supervisors shall make a concerted effort to ensure that all maintenance personnel maintain a reasonable situational awareness during maintenance conduct.	Center's Chief of Maintenance	IAOP Review
171	2.8.6.4 t	At a minimum, the Center's maintenance manual shall include a documented aircraft component inspection program to determine the serviceability, authenticity, traceability, and airworthiness of parts, components, accessories, and assemblies by subjecting them to inspections, tests, or operational checks.	Center's Chief of Maintenance	IAOP Review
172	2.8.6.4 t (1)	Organizations providing maintenance support to the Center shall have a procurement program to prevent the purchase of unapproved parts and material in type certificated products.	Center's Chief of Maintenance	IAOP Review
173	2.8.6.4 t (2)	The Center-approved parts program shall include, at a minimum, methods to establish qualified suppliers who are authorized to manufacture or distribute parts they supply and criteria to identify and screen potential unapproved parts suppliers.	Center's Chief of Maintenance	IAOP Review
174	2.8.6.4 u	At a minimum, the Center's maintenance manual shall include a detailed description of the procedure used to ensure that any maintenance tasks required by the maintenance schedule/program, an airworthiness directive, or any task required for the rectification of a defect is completed within the time constraints specified in maintenance procedures.	Center's Chief of Maintenance	IAOP Review
175	2.8.6.4 v	At a minimum, the Center's maintenance manual shall include a description of a fatigue management system for maintenance personnel, whose provisions are also required in all maintenance agreements to ensure that maintenance personnel do not carry out maintenance work when they are fatigued. This includes procedures	Center's Chief of Maintenance	IAOP Review

		to manage the risks associated with maintenance personnel working alone.		
176	2.8.6.4 w	At a minimum, the Center's maintenance manual shall include a continuing structural integrity program, an aging aircraft program, a condition monitoring program, and reliability program descriptions for aircraft systems, components, and power plants.	Center's Chief of Maintenance	IAOP Review
177	2.8.6.5	Explosives-laden aircraft shall be parked in designated aircraft parking areas that meet airfield criteria and afford appropriate quantity distance criteria to eliminate hazards to personnel and resources per NASA STD 8719.12, paragraph 5.15.13.	Center's Chief of Maintenance	IAOP Review
178	2.8.7.1	A documented training program shall be defined in the Center's maintenance manual that ensures that maintenance personnel, Maintenance Inspectors (MI), and Quality Assurance (QA) personnel are trained and qualified prior to being assigned.	Center Directors	IAOP Review
179	2.8.7.2	In addition to a description of the maintenance training and required competencies of the maintenance staff, the program shall document the Center-defined recurrent and proficiency training requirements to ensure that maintenance personnel, MI, and QA personnel attend refresher training that addresses changes to aircraft systems, test equipment, or critical troubleshooting and repair techniques at least every 24 months.	Center Directors	IAOP Review
180	2.8.7.3	All maintenance personnel that are qualified to perform servicing, inspections, and functional tests shall have completed the required training program, which will be documented in their individual training records.	Center Directors	IAOP Review

181	2.8.7.4	The training program shall include all Center safety program training requirements, including training on fire protection equipment, medical stations, and hazardous materials.	Center Directors	IAOP Review
182	2.8.7.5	Within the training program, all required support functions shall be addressed. These include computer training, logistics training, and operator training for facilities and ground support equipment such as hoists, tow tractors, and lifts.	Center Directors	IAOP Review
183	2.8.7.6	Qualification records shall be kept up to date by the Chief of Maintenance or Center Training Officer to reflect both resident and onsite training.	Center Directors	IAOP Review
184	2.8.8.2	NAMIS shall be utilized to track servicing, inspections, and METCAL compliance.	Center Directors	IAOP Review
185	2.8.8.3	NAMIS can be used to track demands (i.e., requisitions) and shall be used to track receipts and issues, regardless of how or by whom the item was requisitioned.	Center Directors	IAOP Review
186	2.8.9.1 a	Each NASA Center that is responsible for the maintenance of NASA aircraft shall ensure that the quality program requirements are planned, implemented, maintained, and integrated into every aspect of aircraft maintenance and that only fully qualified personnel are assigned quality program responsibilities.	Center Directors	IAOP Review
187	2.8.9.1 c	The Center shall operate a program to provide for analysis and surveillance of its continuous airworthiness maintenance program, including work performed according to Center requirements by a non-NASA entity.	Center Directors	IAOP Review
188	2.8.9.5	Each Center shall develop a documented quality program (i.e., appropriate policies, procedures, and practices) that covers all aspects of maintenance. material acceptance.	Center Directors	IAOP Review

		documentation review, maintenance instruction applicability, and currency that fits within the scope of the Center's quality management system (QMS).		
189	2.8.9.6	QA shall ensure that aircraft configuration and components have been properly maintained and that all requirements have been properly documented.	Center Directors	IAOP Review
190	2.8.9.7 a	Inspection for acceptance shall be performed by qualified persons other than those who performed or directly supervised the work being inspected.	Center Directors	IAOP Review
191	2.8.9.7 d	Sampling and surveillance verifications shall be used independently, or in combination, to accomplish the verification function of the quality program processes.	Center Directors	IAOP Review
192	2.8.9.8 a	QA responsibilities shall be performed to establish qualification requirements for QA personnel and collateral duty personnel.	Center Directors	IAOP Review
193	2.8.9.8 a (1)	Centers shall maintain a list of all personnel qualified and authorized to conduct inspections.	Center Directors	IAOP Review
194	2.8.9.8 b	QA responsibilities shall be performed to provide a continuous training program in techniques and procedures pertaining to aircraft maintenance quality program, per paragraph 2.6.4, and the conduct of inspections.	Center Directors	IAOP Review
195	2.8.9.8 c	QA responsibilities shall be performed to ensure that established standard procedures are observed for conducting scheduled and unscheduled inspections, ground tests, and bench check of components, including engines.	Center Directors	IAOP Review
196	2.8.9.8 d	QA responsibilities shall be performed to ensure that the configuration of aircraft and components is correct and all essential modifications have been incorporated.	Center Directors	IAOP Review

197	2.8.9.8 e	QA responsibilities shall be performed to ensure that an inspection is conducted on all equipment, parts, and materials received for use, returned for repair, or held awaiting repair to verify satisfactory material condition, identification, packaging, preservation, and configuration and, when applicable, that shelf-life limits are not exceeded.	Center Directors	IAOP Review
198	2.8.9.8 f	QA responsibilities shall be performed to ensure that check pilots and aircrew are briefed before post-maintenance functional check flights (FCF) so that the purpose and objectives of the flight are clearly understood. After completion of the FCF, debrief the check pilots, aircrew, maintenance control representative, and applicable work center representatives to determine compliance with objectives outlined on the FCF checklist and clarify noted discrepancies.	Center Directors	AOP Review
199	2.8.9.8 g	QA responsibilities shall be performed to review all incoming technical publications and directives to determine their applicability to Center-maintained aircraft.	Center Directors	IAOP Review
200	2.8.9.8 h	QA responsibilities shall be performed to conduct Parts and Hardware Certification of all items procured. All incoming serviceable aircraft material, parts, or components will be placed in a secured area and inspected by a QA inspector or designee, who will ensure that the part or material is in good condition and conforms to specifications and standards and that certification paperwork or data is correct for applicability and acceptance requirements.	Center Directors	IAOP Review
201	2.8.9.8 i	QA responsibilities shall be performed to ensure that personnel are trained in the Government-Industry Data Exchange Program (GIDEP) and FAA Suspected Unapproved Parts (SUP)	Center Directors	IAOP Review

		Program and coordinate all actions with the Center's GIDEP office, HQ AMD, and the Inspector General (IG), as appropriate.		
202	2.8.9.8 j	QA responsibilities shall be performed to monitor weight and balance of all Center aircraft, in accordance with Center guidelines.	Center Directors	IAOP Review
203	2.8.9.8 k	QA responsibilities shall be performed to validate all work orders (excluding minor aircraft write-ups/gripes) and oversee the installation of all work orders on aircraft.	Center Directors	IAOP Review
204	2.8.9.8 l	QA responsibilities shall be performed to assist the Aviation Safety Officer (ASO) in the impounding of Center aircraft involved in a mishap or when directed by ASO.	Center Directors	IAOP Review
205	2.8.9.8 m	QA responsibilities shall be performed to monitor maintenance using a program to develop trend analysis of processes. This program analyzes all reports of findings and/or actions taken during aircraft and component maintenance.	Center Directors	IAOP Review
206	2.8.10.2 a	All manuals shall be maintained in accordance with the original manufacturers' updates or revisions (or DoD updates or revisions for DoD aircraft) as modified with NASA- or FAA-approved data.	Center Directors	IAOP Review
207	2.8.10.2 b	Centers shall maintain documentation to confirm that periodic revision status audits of the technical library have been conducted.	Center Directors	IAOP Review
208	2.8.10.2 c	Exceptions to this [document maintenance] policy, including additional changes to documents, shall be approved by the Chief of Flight Operations.	Center Directors	IAOP Review

209	3.1.1.1	Centers' Chiefs of Flight Operations shall establish procedures to ensure that all flights of NASA aircraft are properly approved and documented, allowing for all contingencies such as deployed aircraft and aircraft ferry approvals.	Center Chief of Flight Operations	IAOP Review
210	3.1.1.2	Emergency lifesaving, humanitarian operations, and Homeland Security missions, as pre-approved by the Center Director, may be carried out in any NASA aircraft. The circumstances shall be documented and reported to the Assistant Administrator for the OSI via the Director of AMD within 30 days of action.	Center Directors	IAOP Review
211	3.2.1.1	Considering weather forecasts and any known en route delays, the minimum amount of useable fuel required at takeoff shall be sufficient to do the following: a. Complete the flight to the destination airport. b. Fly from that airport to the alternate airport, if required. c. Fly after that for 45 minutes at normal cruising speed or, for helicopters, fly after that for 30 minutes at normal cruising speed.	Pilot in Command	IAOP Review
212	3.2.1.2	Fuel Planning Deviations shall be authorized in writing by the Center Chief of Flight Operations to enable Mission accomplishment.	Center Chief of Flight Operations	IAOP Review
213	3.2.1.3	An aircraft shall not be refueled when personnel are embarking, on board, or disembarking unless it is properly attended by qualified personnel ready to initiate and direct an evacuation of the aircraft by the most practical and expeditious means available.	Pilot in Command	IAOP Review
214	3.2.1.3 a	When refueling with personnel embarking, on board, or disembarking, two-way communications shall be maintained by the aircraft's intercommunication system or other suitable means between the ground	Pilot in Command	IAOP Review

		crew supervising the refueling and the qualified personnel on board the aircraft.		
215	3.2.2	Prior to takeoff, the PIC shall receive a thorough weather briefing concerning current weather and forecasts for the proposed route, destination, and alternate destination.	Pilot in Command	IAOP Review
216	3.2.2.1	Weather minimums for takeoffs shall be not less than landing minimums unless a takeoff alternate is available.	Pilot in Command	IAOP Review
217	3.2.2.1 a	The weather reported at the departure alternate shall be above landing minimums and forecast to remain so for at least 2 hours after takeoff, per the following: (1) Precision Approach available: 200-foot ceiling and 1/2-statute mile (SM) visibility added to the published Precision Approach minimums. (2) Non-Precision Approach (only) available: 300-foot ceiling and 1-SM visibility added to the published Non-Precision Approach minimums.	Pilot in Command	IAOP Review
218	3.2.2.2	Airborne weather or weather-capable radar shall be operative for any flight into areas where current weather reports or forecasts indicate that thunderstorms may reasonably be expected and flight under daylight visual meteorological conditions is not possible.	Pilot in Command	IAOP Review
219	3.2.2.3 a	If the destination weather is reported and forecast to be less than a 2,000-foot ceiling or less than 3-mile visibility from 1 hour before, until 1 hour after, the estimated time of arrival (ETA), an alternate airport shall be listed on the flight plan.	Pilot in Command	IAOP Review
220	3.2.2.3 b	Airport weather minimums shall meet or exceed the requirements of FAR Part 91.	Pilot in Command	IAOP Review

221	3.2.3	International Operations: Flightcrews operating aircraft in international airspace shall be familiar with the relationship between State Regulations and the ICAO Rules of the Air.	Center Chief of Flight Operations	IAOP Review
222	3.2.3.1	Centers shall have a training program to provide familiarization with international procedures.	Center Chief of Flight Operations	IAOP Review
223	3.2.3.2	Prior to operating in international airspace, flightcrew members shall complete international procedures training.	Center Chief of Flight Operations	IAOP Review
224	3.2.3.3	NASA pilots shall secure diplomatic clearance approval prior to entry into the airspace of a foreign country, except for brief use of foreign airspace adjoining the United States, as directed by air traffic control (ATC).	Pilot in Command	IAOP Review
225	3.2.3.4	Those operations not conducted following ICAO flight procedures are conducted under the "due regard" or "operational prerogative of state aircraft" and aircraft shall satisfy one or more of the following conditions: a. Be operated in visual meteorological conditions (VMC). b. Be operated within radar surveillance and radio communications of a surface or airborne (AWACS or HAWKEYE) radar facility. c. Be equipped with airborne radar that is sufficient to provide separation between themselves, aircraft they may be controlling, and other aircraft. d. Be operated outside controlled airspace.	Center Chief of Flight Operations	IAOP Review
226	3.2.3.4 e	The conditions listed above [a-d] shall be followed in order to provide a level of safety equivalent to that normally given by ICAO ATC agencies and to fulfill U.S. obligations under Article 3 of the Chicago Convention.	Center Chief of Flight Operations	IAOP Review

227	3.2.3.5	All flightcrews conducting international, reduced vertical separation minimum (RVSM), minimum navigation performance specifications (MNPS), random area navigation (RNAV), or required navigation performance (RNP) shall complete (as appropriate to the operation) airspace operations training and be authorized by the Chief of Flight Operations to operate in such airspace in accordance with international requirements.	Center Chief of Flight Operations	IAOP Review
228	3.2.3.6	The Chief of Flight Operations shall establish a process to review the rules for flights operating outside U.S. airspace in accordance with the latest, most current ICAO and foreign nation rules.	Center Chief of Flight Operations	IAOP Review
229	3.2.3.7	Center Flight Operations shall utilize DOD 4500.54-M (DoD Foreign Clearance Guide) and DoD Flight Information Publications for proper international operations coordination.	Center Chief of Flight Operations	IAOP Review
230	3.2.3.8	The PIC of any NASA aircraft entering a foreign country or returning to the United States shall be responsible for the custody and care of disembarking crewmembers from the time they leave the aircraft until they are accepted for examination for entry into the country's immigration or Customs checkpoint.	Pilot in Command	IAOP Review
231	3.2.3.9	The Center Director shall be responsible for identifying and complying with all national and local environmental laws and requirements for the proper handling and disposal of international garbage on NASA aircraft.	Center Director	IAOP Review
232	3.2.4 a	All NASA aircraft operations shall establish applicable stabilized-approach criteria suited to their particular flight operation.	Pilot in Command	IAOP Review

233	3.2.4 b	In the absence of flight manual or aircraft directive guidance, for a straight-in approach a stabilized approach shall be established by 1,000 feet above airport elevation in instrument meteorological conditions (IMC) and by 500 feet above airport elevation in visual meteorological conditions (VMC).	Pilot in Command	Check Flight
234	3.2.4 c	In the event that a stabilized approach is not established by the altitudes required in paragraph 3.2.4 b, a missed approach shall be executed.	Pilot in Command	Check Flight
235	3.2.5	Centers shall have a Fatigue Management Plan and a mitigation process to address risks associated with flightcrew and maintenance crew fatigue.	Center Director	IAOP Review
236	3.2.5.1	Centers shall establish and implement a fatigue management system containing the following elements to ensure that personnel involved in the operation and maintenance of aircraft do not carry out their duties when fatigued: a. Fatigue management procedures. b. Appropriate training and education regarding preventive and operational fatigue countermeasures. c. Flight and duty time limitations. d. Fatigue reporting system. e. System for monitoring flightcrew fatigue. f. An evaluation process that assesses the effectiveness of the fatigue management system.	Center's Chief of Flight Operations	IAOP Review
237	3.2.5.2	If deviations from the flight and/or duty time limitations are permitted, the system shall include provisions to: a. Assess the associated risks and apply the appropriate mitigation to maintain an acceptable level of risk for that operation. b. Identify the management person who is authorized to approve the deviation.	Center's Chief of Flight Operations	IAOP Review

		c. Record the deviations, the risk assessment, and related mitigation.		
238	3.2.5.3	Deviations [from the flight and/or duty time limitations] shall be made only with the express approval of all personnel involved.	Center's Chief of Flight Operations	IAOP Review
239	3.3.1	All manned NASA aircraft shall be configured with FAA-approved Traffic Alert and Collision Avoidance System (TCAS) and Terrain Awareness and Warning System (TAWS) for the specific type model aircraft to mitigate midair collisions and controlled flight into terrain, or FAA-approved alternative system.	Center Directors	IAOP Review
240	3.3.2	For NASA manned aircraft without an available TCAS/TAWS solution, all NASA flight operations shall develop a TCAS/TAWS Risk Management Plan in accordance with NPR 8000.4 and update it annually.	Center Directors	IAOP Review
241	3.3.4	All manned NASA aircraft contracted through commercial vendors shall be configured with FAA-approved TCAS and TAWS for the specific type model aircraft to mitigate midair collisions and controlled flight into terrain.	Center Directors	IAOP Review
242	3.3.5	All flight deck crew members of large or turbojet aircraft shall communicate through a boom or throat microphones below the transition level/altitude.	Flight Deck Crew Members	Check Flight
243	3.3.6	If installed and operative, the CVR and FDR shall be turned on during the entire flight.	Pilot in Command	IAOP Review
244	3.3.7	Should an incident occur, the CVR and FDR power shall be removed and appropriate circuit breakers pulled following completion of the after-shutdown checklist.	Pilot in Command	IAOP Review
245	3.4.1 b	A secondary or back up source of aeronautical information necessary for the flight will be available. If the secondary or backup information is an additional EFB/ECD, there shall be	Pilot in Command	IAOP Review

		one more EFB on board the aircraft than the number of pilots.		
246	3.5.1	Unpressurized Aircraft. Oxygen shall be used at all altitudes above 10,000 feet above mean sea level (MSL).	Pilot in Command	IAOP Review
247	3.5.3 a	Oxygen masks shall be ready for immediate use when above flight level (FL) 180.	Pilot in Command	IAOP Review
248	3.5.3 b	Above FL 250, one pilot at the controls shall either use oxygen or have an approved quick-donning mask with instant intercommunication system (ICS) capability properly adjusted and positioned for use within 5 seconds.	Pilot in Command	IAOP Review
249	3.5.3 c	When above FL 250, when one pilot leaves his flight control position, the other pilot shall use oxygen.	Pilot in Command	IAOP Review
250	3.6.1	Only designated NASA pilots specifically authorized by the Center Chief of Flight Operations shall be allowed to manipulate the flight controls of a NASA aircraft and only in performance of NASA missions.	Center Chief of Flight Operations	IAOP Review
251	3.6.1.1	Only pilots designated in type, or in training for designation in type, crewmembers, or maintenance personnel designated in writing by the Center Chief of Flight Operations as being qualified to perform taxiing operations shall taxi a fixed-wing (F/W) aircraft.	Center Chief of Flight Operations	IAOP Review
252	3.6.1.2	Only pilots designated in type, or in training for designation in type, shall taxi a rotary-wing (R/W) aircraft.	Center Chief of Flight Operations	IAOP Review
253	3.6.2	Instructor pilots shall be selected by the Center's Chief of Flight Operations from highly qualified PICs who have demonstrated the skill, maturity, and temperament to perform instructor duties.	Center Chief of Flight Operations	IAOP Review

254	3.7.1	All personnel scheduled as primary flightcrew members on NASA aircraft shall be trained and qualified in accordance with this chapter.	Center Chief of Flight Operations	IAOP Review
255	3.7.2	Crew assignment, including identification of a PIC, shall be designated in writing for each flight.	Center Chief of Flight Operations	IAOP Review
256	3.7.3	No aircraft shall be operated with less than the minimum basic crew specified by the Center.	Center Chief of Flight Operations	IAOP Review
257	3.7.5.1	The PIC of a NASA aircraft shall be a designated NASA pilot.	Center Chief of Flight Operations	IAOP Review
258	3.5.7.2	The PIC shall refuse to carry any person, or accept any aircrew for duty, who appear to be intoxicated or under the influence of alcohol or drugs.	Pilot in Command	IAOP Review
259	3.7.5.3	The PIC of a NASA aircraft shall ensure that the crew is briefed on the mission plan, safety procedures, and emergency information, including emergency egress.	Pilot in Command	IAOP Review
260	3.7.5.4	Center Chiefs of Flight Operations shall have a written process to train, designate, and document individuals authorized to pilot Functional Check Flight operations.	Center Chief of Flight Operations	IAOP Review
261	3.7.5.5	All NASA PICs shall be trained on the operating rules and procedures of the FAA FARs and the ICAO Rules of the Air when operating in international airspace.	Center Chief of Flight Operations	IAOP Review
262	3.7.5.6	The duties and responsibilities of the PIC shall be specified in the Center's policy, in accordance with NPR 7900.3.	Center Director	IAOP Review
263	3.7.5.7	The PIC will direct the duties of the SIC. In the event of PIC incapacitation, the pilot flying as second-in-command (SIC) on a NASA aircraft shall assume PIC duties.	Pilot in Command	IAOP Review

264	3.7.5.8	The PIC shall ensure that each occupant of a NASA aircraft in motion occupies an aircraft seat and wears a properly fastened safety belt or Center-approved personnel retention system unless otherwise directed by the PIC.	Pilot in Command	IAOP Review
265	3.7.5.9	Where installed, both a safety belt and shoulder harness shall be worn.	Pilot in Command	IAOP Review
266	3.8.1	Center directives shall establish separate aircrew qualification and currency requirements for unique aircraft (e.g., project, military, experimental) in which the aircrew cannot meet the following requirements.	Center Director	IAOP Review
267	3.8.2	NASA flightcrews shall be qualified in accordance with written standards set forth in Center-developed competency criteria, including flying skills, airmanship, stabilized approach, runway excursions, autopilot/automation procedures, and upset recovery.	Center Director	IAOP Review
268	3.8.2.1	Prior to assigning personnel to flightcrew duties on NASA flights, the requirements contained in this chapter shall be met.	Center Chief of Flight Operations	IAOP Review
269	3.8.2.2	Records of qualification and flight evaluation are required and shall be maintained in aircrew training records in accordance with NPR 1441.1.	Center Chief of Flight Operations	IAOP Review
270	3.8.2.3	A review of pilot and crew qualifications shall be made prior to flight assignment to ensure that prerequisites for the intended mission are met.	Center Chief of Flight Operations	IAOP Review
271	3.8.2.4	The Center's Chief of Flight Operations shall designate in writing the crewmembers for aircraft that are under the Center's purview.	Center Chief of Flight Operations	IAOP Review

272	3.8.2.6	Flight Engineers shall possess an FAA Flight Engineer Certificate appropriate for the aircraft category or equivalent military certification.	Center Chief of Flight Operations	IAOP Review
273	3.8.2.6 a	Centers with one-of-a-kind NASA aircraft may develop a documented local certification equivalent.	Center Chief of Flight Operations	IAOP Review
274	3.8.2.6 b	Centers shall develop alternate training programs to satisfy this requirement should commercial training sources or personnel not be available for the requisite training.	Center Chief of Flight Operations	IAOP Review
275	3.8.3	Qualified non-crewmembers (QNC) shall be authorized by the Chief of Flight Operations to participate in flight operations to support mission requirements.	Center Chief of Flight Operations	IAOP Review
276	3.8.3.1	Qualified non-crewmembers shall be trained and will maintain qualification (in accordance with local Center policies and procedures), which will include, at a minimum, cabin emergency egress procedures and medical clearances.	Center Chief of Flight Operations	IAOP Review
277	3.8.3.3	Media Representatives. The Center shall establish policies for qualifying media representatives for flight.	Center Chief of Flight Operations	IAOP Review
278	3.8.4.1	Center Flight Operations shall develop sufficient proficiency requirements or flight time/sortie requirements on flightcrews to meet mission needs.	Center Chief of Flight Operations	IAOP Review
279	3.8.4.2	Private pilot time shall not be recorded in NAMIS or utilized to meet any proficiency requirements.	Center Chief of Flight Operations	IAOP Review
280	3.8.4.3	Each Center shall develop a written flightcrew training plan incorporating pilot competency, emergency procedures, abnormal procedures, high altitude training, and the upgrade process which, at a minimum, meets the following requirements: a. Annual night flying requirements. b. Landings in category (fixed-wing/rotorcraft).	Center Chief of Flight Operations	IAOP Review

		<p>c. Six instrument approaches under actual or simulated conditions within 6 calendar months.</p> <p>d. Completing 100 hours of flight time per year (fiscal or calendar year to be determined by Center policy) in any NASA manned aircraft or flight simulator approved by the Center's Chief of Flight Operations or 80 hours of flight time and 100 sorties if all are flown in the same model, design, and series of aircraft or flight simulator.</p>		
281	3.8.4.4	Lapse in Proficiency. Crewmembers overdue the annual flight time requirement shall not be assigned as PIC or SIC.	Center Chief of Flight Operations	IAOP Review
282	3.8.4.4 a	The Center's Chief of Flight Operations shall document the method to regain qualification in the flightcrew training plan and notify the Assistant Administrator for the OSI, via HQ AMD, of this action in a letter from the Center's Director.	Center Chief of Flight Operations	IAOP Review
283	3.8.4.4 b	The Center's Chief of Flight Operations shall establish requalification procedures for pilots not meeting any of the remaining requirements above.	Center Chief of Flight Operations	IAOP Review
284	3.8.5.1	All flightcrew currency documentation shall be recorded in NAMIS.	Center Chief of Flight Operations	IAOP Review
285	3.8.5.1 d	Private pilot time shall not be recorded in NASA information systems or utilized to meet any of the above currency requirements.	Center Chief of Flight Operations	IAOP Review
286	3.8.5.1 e (1)	A pilot at the controls who does not meet the 90-day total hour requirements but is otherwise current shall increase all instrument approach minimums by 200 feet and one half mile visibility (or the Runway Visual Range equivalent).	Center Chief of Flight Operations	IAOP Review

287	3.8.5.2	At the discretion of the Chief Pilot, pilots flying multiple types of aircraft who have met the all-types requirements may satisfy the in-type currency requirement by flying a training flight with a flight instructor. This training flight shall include a minimum of two instrument approaches, three takeoffs, and three landings.	Center Chief of Flight Operations	IAOP Review
288	3.9.1	Each primary crewmember shall complete an approved formal course of instruction in the type aircraft to be flown, including a study of the systems and procedures applicable to the individual's crew position.	Center Chief of Flight Operations	IAOP Review
289	3.9.3	Survival Training. Each primary crewmember shall receive basic survival training on a one-time basis.	Center Chief of Flight Operations	IAOP Review
290	3.9.3.1	Additional survival training shall be required by appropriate Center management for those crewmembers engaged in frequent over-water or remote-area flights.	Center Chief of Flight Operations	IAOP Review
291	3.9.3.2	Newly assigned personnel with no previous survival training shall complete this requirement within 12 months of being assigned to flightcrew duties.	Center Chief of Flight Operations	IAOP Review
292	3.9.3.3	Pilots shall not be assigned as PICs until this requirement has been met. This requirement does not apply to UAS/sUAS crews.	Center Chief of Flight Operations	IAOP Review
293	3.9.4	Prior to initial designation, primary crewmembers shall receive instruction in the physiological aspects of high-altitude flight, including altitude chamber indoctrination or recognized equivalent training; i.e., Reduced Oxygen Breathing Device training.	Center Chief of Flight Operations	IAOP Review

294	3.9.4.1	Altitude chamber training received prior to initial designation meets this requirement. Refresher training academics shall be accomplished every 5 years.	Center Chief of Flight Operations	IAOP Review
295	3.9.5	Prior to initial designation and annually thereafter, each crewmember shall receive emergency egress training on each type of aircraft assigned.	Center Chief of Flight Operations	IAOP Review
296	3.9.5 .1	Training shall include instructions on the location and operation of normal and emergency exits and cabin emergency equipment, such as fire extinguishers and life vests.	Center Chief of Flight Operations	IAOP Review
297	3.9.6	In-Flight Technicians shall attend refresher training that addresses changes to aircraft systems, test equipment, or critical troubleshooting and repair techniques every 24 months.	Center Chief of Flight Operations	IAOP Review
298	3.9.7	All NASA aircrew personnel shall, at least once per calendar year, attend a crew resource management course of at least 4 hours (instruction per year) in duration.	Center Chief of Flight Operations	IAOP Review
299	3.9.8	All NASA maintenance and QA personnel shall, at least once biennially, attend a maintenance resource management course of at least 4 hours' (instruction per year) duration.	Center Chief of Flight Operations	IAOP Review
300	3.10.1.1	Designated instructor pilots (IPs) shall administer all flight checks.	Center Chief of Flight Operations	IAOP Review
301	3.10.1.2	An IP shall be designated for all flights in which instruction or evaluation is planned.	Center Chief of Flight Operations	IAOP Review
302	3.10.2	Flight checks conducted by a NASA IP shall be recorded on NASA Form 1615 or Center equivalent, reviewed by the Center's Chief of Flight Operations, and filed in the individual's training file.	Center Chief of Flight Operations	IAOP Review

303	3.10.3	Flight proficiency shall be evaluated at least annually by a NASA or NASA-designated pilot, who is an instructor or examiner pilot, in the aircraft used for the evaluation.	Center Chief of Flight Operations	IAOP Review
304	3.10.4	Instrument flying proficiency shall be evaluated at least annually using professional aeronautical standards such as FAA Instrument Practical Test Standards.	Center Chief of Flight Operations	IAOP Review
305	3.10.5	Written tests shall be administered and reviewed annually by a check pilot to ensure current pilot knowledge of air traffic control procedures, aircraft systems, and normal and emergency operating procedures, Agency and local instructions, and other pertinent regulations and procedures.	Center Chief of Flight Operations	IAOP Review
306	3.10.6	Pilot annual flight evaluations shall be reviewed by the Center's Chief of Flight Operations as part of a comprehensive review of all flight-related aspects of the assigned pilot under review. These aspects include, but are not limited to, mishap and close call reports, observed behavior reflecting CRM principles, and management counseling necessitated by concerning in-flight and work behaviors.	Center Chief of Flight Operations	IAOP Review
307	3.11.1	Each crewmember shall be designated, in writing, to the respective crew position, and required training be completed and documented in the individual's training file.	Center Chief of Flight Operations	IAOP Review
308	3.11.2	A training file shall be maintained for each flightcrew member and contain all documentation pertaining to crew qualification and training.	Center Chief of Flight Operations	IAOP Review
309	3.11.2 b	At a minimum, the file will contain a list of ground training accomplishments (including simulator training) indicating dates, location, and amount of training. A record of refresher training shall be maintained for the past 2 calendar	Center Chief of Flight Operations	IAOP Review

		years.		
310	3.11.3	All flightcrew currency documentation shall be recorded in NAMIS.	Center Chief of Flight Operations	IAOP Review
311	3.11.4	NASA UAS pilot flight time shall be kept separate from NASA manned flight time, by type, in NAMIS.	Center Chief of Flight Operations	IAOP Review
312	3.11.5	Each Center shall establish a means to document that flight critical information has been passed to all flightcrews.	Center Chief of Flight Operations	IAOP Review
313	3.11.5.1	Records pertaining to NASA's flight activities shall include, at a minimum, the following: a. Approval of mission. b. Name and functions of all on board. c. Purpose of the flight. d. Routing (route of flight) or flight events and takeoff /landing times.	Center Chief of Flight Operations	IAOP Review
314	3.12.1	There are two categories of readiness reviews that shall be applied to both piloted aircraft and UAS. These readiness reviews may be referred to as flight readiness reviews or operational readiness reviews and mission readiness reviews where the purpose is to ensure that hazards associated with aircraft performance, mission profile, research, payloads, and other operational limitations are identified and that risks are adequately managed to enhance the likelihood of mission and program success for all aircraft missions or operations and to minimize the risks to persons or property.	Center Chief of Flight Operations	IAOP Review
315	3.12.1 a	For CAS, the reviews shall also include the terms of the contract and the capabilities of the contractor.	Center Director	IAOP Review
316	3.12.1 b	NASA Centers shall have written Flight Readiness Review (FRR)/Operations Readiness Review (ORR) and Mission Readiness Review (MRR) processes.	Center Director	IAOP Review

317	3.12.1.1	FRR/ORR shall focus on the flight operational safety aspects of a specific aircraft flight, mission, or campaign.	Center Director	IAOP Review
318	3.12.1.2	MRR shall focus on mission operational safety using multiple aircraft and multiple activities to ensure mission success.	Center Director	IAOP Review
319	3.12.2	Chief of Flight Operations from one of the participating NASA Centers shall ensure a MRR is conducted when multiple aircraft operations are to be conducted.	Center Chief of Flight Operations	IAOP Review
320	3.12.3	Prior to conducting an FRR/ORR, each individual aircraft involved in the flight or campaign shall have an approved Certificate of Airworthiness or Statement of Airworthiness.	Center Chief of Flight Operations	IAOP Review
321	3.12.4	The Chair of the Center Airworthiness Process Program or a representative shall attend all readiness reviews.	Chair of the Center Airworthiness Process Program	IAOP Review
322	3.12.5	A supervisory Flight Operations pilot or other Flight Operations supervisory personnel shall chair and approve the FRR/ORR flight authorization.	Center Chief of Flight Operations	IAOP Review
323	3.12.6	The review should address a description of the required flight operations, including operating procedures, test conditions, maneuvers, required instrumentation, mission control operations, mission rules and flight limitations, nonstandard operation or inspection criteria, and associated checklists. Actions to be taken in the event of in-flight malfunctions or emergency conditions associated with the aircraft modifications or nonstandard operations also shall be described.	Center Directors	IAOP Review

324	3.12.6.1	Areas of consideration shall include: a. Science mission requirements. b. Flight operations procedures. c. Operational Go/No-Go criteria. d. Pilot qualifications, flight operations training, and flight manuals. e. UAS operations requirements. f. Aircraft configuration. g. Aircraft maintenance. h. Science payload and operations. i. Payload combination. j. Status of reviews. k. Special weather conditions. l. Science functional flight test plan. m. Pre-accident and/or incident plan.	Chair of the Center Airworthiness Process Program	IAOP Review
325	3.12.7	Prior to conducting an MRR, each aircraft involved in the flight or campaign shall have an approved FRR/ORR.	Center Chief of Flight Operations	IAOP Review
326	3.12.7.1	The program/project management of the flight/campaign event shall assign an individual who has authorization to proceed with the flight program to chair and make the MRR evaluation.	Program/Project Manager	IAOP Review
327	3.12.7.3	Information required for a MRR include the following: a. Airspace management, including aircraft separation/coordination. b. Checklists. c. Communication plan, including inter-Center/interagency communication/coordination. d. Deployment. e. Flight experiment and science flight requirements, including test conditions and science coordination requirements. f. Flight operations procedures, including maneuvers and nonstandard operation. g. Ground operations procedures dealing with hazardous systems. h. Inspection criteria. i. Liability coverage. j. Logistics. k. Mission control operations, including mission rules and flight limitations. l. Organizational and functional chart.	Center Chief of Flight Operations	IAOP Review

		<p>including roles and responsibilities.</p> <p>m. Payload status.</p> <p>n. Program/Project Mishap Preparedness and Contingency Plan.</p> <p>o. Public affairs/outreach.</p> <p>p. Required instrumentation,</p> <p>q. Safety and mission assurance, including actions to be taken in the event of in-flight malfunctions or emergency conditions associated with the aircraft modifications or nonstandard operations.</p> <p>r. Schedule timeline.</p>		
328	3.12.8	Centers, Component Facilities, and contractors that do not have an aircraft operations department and operate NASA aircraft/UAS shall coordinate with an alternate NASA Center aircraft operations department for FRR/ORR and MRR services and support.	Center Director	IAOP Review
329	3.14.1	Flight personnel shall comply with applicable Federal laws governing drug and alcohol use by aircrew members. See 14 CFR 91.17.	Center Chief of Flight Operations	IAOP Review
330	4.2.1	When carrying passengers, NASA aircraft shall be operated as civil aircraft. NASA aircraft are prohibited from carrying passengers when operating as public aircraft.	Center Chief of Flight Operations	IAOP Review
331	4.2.1.1	When operated as civil aircraft, maintenance and aircrew standards shall meet the requirements for retention of FAA Airworthiness Certification and operation.	Center Chief of Flight Operations	IAOP Review
332	4.2.1.1 a	Those requirements [for retention of FAA Airworthiness Certification and operation] shall be followed for any NASA flight that carries passengers.	Center Chief of Flight Operations	IAOP Review
333	4.2.1.2	The Certificate of Airworthiness shall be displayed, per 14 C.F.R § 91.203, Subparts (a) and (b).	Center Chief of Flight Operations	IAOP Review

334	4.2.1.3	Passenger Transportation flights shall be operated and maintained in accordance with 14 CFR Part 21, Part 21, Part 39, Part 61, Part 65, and Part 91.	Center Chief of Flight Operations	IAOP Review
335	4.2.1.4	Centers shall develop policies/procedures to operate Passenger Transportation flights in accordance with the procedures specified in OMB Circular A-126 and 41 CFR, Section 101-37, as well as the provisions of this chapter.	Center Director	IAOP Review
336	4.2.2	Passenger Transportation flights shall be conducted only in support of activities that constitute the discharge of NASA's official responsibilities and only when the aircraft is not otherwise scheduled for Mission Required or Required Use flight operations.	Center Director	IAOP Review
337	4.2.2.1	NASA employees shall not use Passenger Transportation flights if commercial airlines, charter aircraft services, or ground transportation are reasonably available to meet the mission need, unless the flight is cost justified in accordance with OMB Circular A-126 and this chapter.	Center Director	IAOP Review
338	4.2.3	Flights that require excessive deadheading or involve long, unproductive layovers shall be avoided, absent special emergency situations.	Center Director	IAOP Review
339	4.2.4	Whenever practicable, inter-Center airlift requirements shall be combined.	Center Director	IAOP Review
340	4.2.5	Each passenger traveling aboard NASA Passenger Transportation flights shall be a U.S. Government employee or contractor on official U.S. Government business and have either an approved NASA travel authorization, in accordance with NASA directives, or a travel authorization approved by another Federal agency or Congressional committee.	Center Director	IAOP Review

341	4.2.5.1	Travel authorized by another Federal agency or Congressional committee also shall be approved by an Official-in-Charge of a Headquarters Office or a NASA Center Director.	Center Director	IAOP Review
342	4.2.5.3	The names of the passengers and purpose of travel for such passengers shall be documented in the Passenger Transportation flight request form.	Center Director	IAOP Review
343	4.2.5.4	Reimbursement by nonofficial travelers shall comply with paragraph 4.7.	Center Chief of Flight Operations	IAOP Review
344	4.2.6	All passengers shall be manifested on NASA Form 1269, Flight Itinerary and Passenger Manifest.	Center Director	IAOP Review
345	4.2.6.1	Prior to departure of any Passenger Transportation flight, the PIC shall certify the accuracy of the manifest and file a copy with a responsible ground agency such as a military, civil, or NASA operations office.	Center Chief of Flight Operations	IAOP Review
346	4.2.7	NASA Passenger Transportation flight operations shall be conducted under the cognizance of the Assistant Administrator for the OSI.	Pilot in Command	IAOP Review
347	4.3.1	Required Use designation shall be controlled solely by the NASA Administrator and approved in accordance with paragraph 4.4.2 of this chapter.	Assistant Administrator for the OSI	Flight Operations
348	4.3.2	Classification of a Passenger Transportation (passenger or cargo) flight as Mission Required requires approval from the Assistant Administrator for the OSI before the flight and shall be coordinated with the HQ AMD.	NASA Administrator	IAOP Review
349	4.3.3	Travel on Passenger Transportation flights that are designated as Other Official Travel shall be authorized in advance on a trip-by-trip basis as detailed in Section 4.4.	Assistant Administrator for the OSI	IAOP Review

350	4.3.3.1	NASA employees shall not use Passenger Transportation flights for Other Official Travel if commercial airline, charter aircraft services, or ground transportation are reasonably available, unless the flight is cost justified in accordance with OMB Circular A-126 and this chapter.	Assistant Administrator for the OSI	IAOP Review
351	4.3.5 a	When using "no commercial airline or aircraft service is reasonably available" to justify the use of Passenger Transportation flights, actual airline schedule information shall be provided as part of, and attached to, the aircraft request.	Center Director	IAOP Review
352	4.3.5	Other Official Travel that is not Required Use or Mission Required, as defined in paragraph 4.3.3, shall be authorized only when one of the following conditions is met: a. No commercial airline or aircraft (including charter) service is reasonably available (i.e., able to meet the traveler's departure or arrival requirements within a 24-hour period), unless extraordinary circumstances require a shorter period to effectively fulfill Agency requirements. b. The actual cost of using a Government aircraft is not more than the cost of using commercial airline or aircraft (including charter service).	Center Director	IAOP Review
353	4.3.5.1	Such cost justification shall be computed consistent with paragraph 4.4.5. a.	Center Director	IAOP Review
354	4.3.7	Use of NASA aircraft for passenger transportation purposes, regardless of travel classification category, shall follow the same requirements as used for all other Passenger Transportation flights, including: compliance with 41 CFR Part 101-37, Government Aviation Administration and Coordination, and OMB Circular A-126, flight request and approval using NASA Form 1653. cost	Center Director	IAOP Review

		justification on NASA Form 1653 as required, and obtaining travel authorization approvals.		
355	4.3.7.1	When operated as civil aircraft, maintenance and aircrew standards shall meet those required for retention of FAA Airworthiness Certification and operation and be followed for any NASA Passenger Transportation flight that carries passengers.	Center Director	IAOP Review
356	4.3.7.2	Centers shall exercise caution to ensure that aircraft are returned to their FAA-certificated configuration after being modified for program support or research purposes.	Center Director	IAOP Review
357	4.3.8	Nonofficial travel on NASA Passenger Transportation flights shall be authorized only when all the following conditions are met: a. The aircraft is already scheduled for use for an official purpose. b. Such nonofficial travel use does not require a larger aircraft than needed or alteration of flight itinerary for the official purpose. c. Nonofficial travel use results only in minor additional cost to the Government.	Center Director	IAOP Review
358	4.3.8.2	All nonofficial travelers shall reimburse the U.S. Treasury, in accordance with Section 4.7.	Center Director	IAOP Review
359	4.3.9	The Center Director shall certify, in writing, that nonofficial travel on a scheduled flight has met the above conditions.	Center Director	IAOP Review
360	4.3.9.1	The Center shall retain this certification [that nonofficial travel on a scheduled flight has met the above conditions] for a minimum of 2 years.	Center Director	IAOP Review
361	4.4.1	All flights with passengers aboard NASA aircraft assigned to a Center shall be reviewed by the Center's Chief Counsel for compliance with 41 CFR, Part 101-37. Government Aviation	Center Director	IAOP Review

		Administration and Coordination, and OMB Circular A 126, and approved in advance by the Center Director.		
362	4.4.1.1	In the case of aircraft assigned to HQ, those flights shall be reviewed by the General Counsel or Deputy General Counsel and approved in advance by the Assistant Administrator for the OSI.	Center Director	IAOP Review
363	4.4.1.2	All flights classified as Other Official Travel that have senior Federal officials aboard shall be reviewed by the General Counsel and approved in advance by the appropriate NASA HQ or Center approval authority.	Assistant Administrator for the Office of Strategic Infrastructure	IAOP Review
364	4.4.2	Passenger Transportation flights also shall be approved in advance, in writing, and generally on a trip-by-trip basis.	Center Director	IAOP Review
365	4.4.2.1	The Administrator shall in each instance determine the appropriateness of Required Use flights following a finding of compliance with OMB Circular A-126 requirements by the General Counsel.	Center Director	IAOP Review
366	4.4.2.2	While the Administrator may make a blanket determination that all use of NASA aircraft by certain employees, or travel in specified categories, qualifies as Required Use travel, such determinations shall likewise be in writing, be determined to be compliant with OMB Circular A-126 requirements by the General Counsel, and set forth the justification for that determination.	NASA Administrator	IAOP Review
367	4.4.2.3 a	The Center Director will complete the following when a member of the flightcrew also is considered a passenger: The justification shall be annotated in the remarks section of NASA Form 1653.	NASA Administrator	IAOP Review

368	4.4.2.3 b	The Center Director will complete the following when a member of the flightcrew also is considered a passenger: The flightcrew member shall have either a NASA travel authorization approved in accordance with NASA directives or a travel authorization approved by another Federal agency or Congressional committee for purposes or activities beyond their crew flight duties.	Center Director	IAOP Review
369	4.4.2.3 c	The Center Director will complete the following when a member of the flightcrew also is considered a passenger: The flightcrew member shall be listed as a passenger on Form 1653.	Center Director	IAOP Review
370	4.4.2.3 d	The Center Director will complete the following when a member of the flightcrew also is considered a passenger: If the flightcrew member is a Senior Federal Official, a family member of such Senior Federal Official, or a non-Federal traveler, the flight request shall be reviewed by the General Counsel.	Center Director	IAOP Review
371	4.4.3	Flights classified as Mission Required, where NASA personnel are traveling to meet mission requirements, also shall be reviewed by the General Counsel and approved in advance by the Assistant Administrator for the OSI.	Center Director	IAOP Review
372	4.4.3.1	The Assistant Administrator for the OSI shall ascertain, prior to authorizing the flight, whether the trip is for Mission Required travel, as described in paragraph 4.3.2.	Assistant Administrator for the OSI	IAOP Review
373	4.4.3.2	Should special emergency situations preclude preflight review and approval, immediate action to review and approve the flight shall be taken as soon as practicable following the flight.	Assistant Administrator for the OSI	IAOP Review

374	4.4.3.3 a	General Counsel shall review the flight [classified as Mission Required conducted on research or program support aircraft, where passengers are aboard but the primary purpose of the flight is not passenger transport] in advance, if a Senior Federal Official, families of such senior Federal officials, or non-Federal travelers are passengers.	Center Director	IAOP Review
375	4.4.3.3 b	Authorization shall be coordinated with the HQ AMD.	Center Director	IAOP Review
376	4.4.3.3 c	A Passenger Transportation Flight Request (NASA Form 1653) is required, and the passenger manifest (NASA Form 1269) shall clearly distinguish aircrew from passengers.	Center Director	IAOP Review
377	4.4.3.3 d	The remarks section of the NASA Form 1653 shall indicate what training and for whom the flight is being conducted.	Center Director	IAOP Review
378	4.4.4	Travel by the following categories of people shall be authorized in advance and in writing when traveling aboard Passenger Transportation flights on Other Official Travel and their status annotated on the flight request and manifest: a. Senior Federal officials. b. Members and families of such Senior Federal officials. c. Non-Federal travelers.	Center Director	IAOP Review
379	4.4.4.2	Authorizations for Other Official Travel flights with senior Federal officials, families of such senior Federal officials, and non-Federal travelers aboard shall be: a. Reviewed in advance on a trip-by-trip basis by the Center's Chief Counsel. b. Approved by the Center Director. c. Reviewed by the NASA General Counsel.	Center Director	IAOP Review

380	4.4.4.3	At NASA HQ, all flights shall be reviewed by the General Counsel and approved in advance by the Assistant Administrator for the OSI.	Center Director	IAOP Review
381	4.4.4.4	Other Official Travel flights on Center-assigned aircraft with no senior Federal officials aboard shall be reviewed by the Center's Chief Counsel and approved by the Center Director without HQ review.	Assistant Administrator for the OSI	IAOP Review
382	4.4.5	When a Passenger Transportation flight is for Other Official Travel, the approving official shall determine that one of the following criteria has been satisfied: a. No commercial aircraft or airline service is reasonably available in accordance with paragraph 4.3.5a. b. The actual cost of Passenger Transportation flights does not exceed the cost of using commercial airlines or aircraft (including charter service).	Center Director	IAOP Review
383	4.4.5.1	For such cost-justified flights, the cost of using commercial airline or aircraft services for justifying the use of Government aircraft shall: a. Be the current Government contract fare or price or the lowest fare or price known to be available for the trip(s) in question. b. Include any differences in the costs of any additional ground or air travel, per diem and miscellaneous travel (e.g., taxis, parking), and lost employee work time (computed at gross hourly costs to the Government, including benefits) between commercial air, charter air service, and Government aircraft.	Center Director	IAOP Review
384	4.4.5.1 b (1)	To capture the cost, including fringe benefits, of the employee's lost work time, a multiplier of 1.3285 shall be applied to the locality-adjusted hourly salaries of the individual travelers for the additional travel time.	Center Director	IAOP Review

385	4.5.1 a.	The Assistant Administrator for the OSI shall have the following responsibilities: approving policies and other matters involving NASA Passenger Transportation flights (except those specifically outlined above) and ensuring that the number of NASA-owned aircraft and their capacity to carry passengers and cargo does not exceed the level necessary to meet NASA's mission requirements.	Center Director	IAOP Review
386	4.5.1 b.	The Assistant Administrator for the OSI shall have the following responsibilities: coordinating acquisition, assignment, or disposition of aircraft whose primary purpose is the conduct of Passenger Transportation flights with the appropriate Associate Administrators and Center Directors, in accordance with OMB Circular A-76, Performance of Commercial Activities.	Assistant Administrator for the OSI	IAOP Review
387	4.5.1 c.	The Assistant Administrator for the OSI shall have the following responsibilities: annually reviewing Passenger Transportation flight requirements, use, and associated costs, including variable cost rates for each aircraft used to conduct Passenger Transportation flights.	Assistant Administrator for the OSI	IAOP Review
388	4.5.1 d.	The Assistant Administrator for the OSI shall have the following responsibilities: periodically reviewing the need for all NASA aircraft whose primary purpose is Passenger Transportation flight operations, and the cost effectiveness of NASA Passenger Transportation flight operations, in accordance with the requirements of OMB Circular A-76.	Assistant Administrator for the OSI	IAOP Review
389	4.5.1 d (1)	Each such review of NASA-owned aircraft whose primary purpose is Passenger Transportation flight operations shall be submitted to GSA when completed and to OMB with NASA's next budget submission.	Assistant Administrator for the OSI	IAOP Review

390	4.5.1 e.	The Assistant Administrator for the OSI shall have the following responsibilities: Ensuring that current (by fiscal year) variable cost rate for each aircraft utilized to conduct Passenger Transportation flights is used by all NASA officials who operate and account for NASA Passenger Transportation flights to calculate the flight-by-flight cost justification required by OMB Circular A-126.	Assistant Administrator for the OSI	IAOP Review
391	4.5.2 a	Center Directors shall ensure that aircraft are used properly and that the functions, including contract functions, performed by their aircraft comply, at a minimum, with NASA, FAA, OMB, and other Federal requirements, policies, and procedures.	Assistant Administrator for the OSI	IAOP Review
392	4.5.2 b	Center Directors shall ensure compliance with 41 CFR, Part 101-37, and OMB Circular A-126.	Center Director	IAOP Review
393	4.5.2 c	Center Directors shall approve the use of their assigned aircraft to conduct Passenger Transportation flights where passenger transport is not the primary mission.	Center Director	IAOP Review
394	4.5.2 d	Center Directors shall designate aircrew to conduct Passenger Transportation flights and ensure continuing compliance with all governing regulations.	Center Director	IAOP Review
395	4.5.2 e	Center Directors shall establish variable cost rates for aircraft under their control that are, or may be, used for passenger transportation. The rate will be developed using OMB Circular A-126, Attachments A and B, incorporating the most recent 12 months of historical cost data available, and be used to determine the cost justification for Passenger Transportation flight requests.	Center Director	IAOP Review

396	4.5.2 e (1)	The rate shall be reported to the HQ AMD, not later than September 15 of each year, and cannot be used until approved by that office.	Center Director	IAOP Review
397	4.5.2 f	Center Directors shall annually review and document the Center's continuing need for aircraft, whose primary purpose is the transport of passengers, and the cost-effectiveness of such aircraft operations, as required by OMB Circular A-126 and reflected in the guidance from the HQ AMD.	Center Director	IAOP Review
398	4.5.2 f (1)	Content of this review shall include, in narrative format, a comparison of the past years' use with future requirements.	Center Director	IAOP Review
399	4.5.2 f (2)	Upon completion of the annual review, a copy shall be forwarded to the HQ AMD, not later than October 31 of each year.	Center Director	IAOP Review
400	4.5.2 f (3)	When Government ownership of an aircraft is no longer justified, Center Directors shall identify such aircraft to the Assistant Administrator for the OSI for reassignment or disposal.	Center Director	IAOP Review
401	4.5.2 g	Center Directors shall submit a monthly report of Passenger Transportation flight data to the HQ AMD to arrive not later than the 20th of the next month.	Center Director	IAOP Review
402	4.5.2 g (1)	This data shall include all available Passenger Transportation flight request records for NASA aircraft under the control of the Center Director and reflect every flight flown by aircraft that has been, or may be, approved to transport passengers, regardless of whether the passengers were aboard that flight.	Center Director	IAOP Review
403	4.5.1 g (2)	At a minimum, the following shall be provided: (a) NASA Form 1653, Passenger Transportation Flight Request. (b) NASA Form 1269, Flight Itinerary	Center Director	IAOP Review

		and Manifest. (c) Cost Calculation Spreadsheet. (d) NAMIS Form 1672, Aircraft Log.		
404	4.5.2.1	Certification documentation, demonstrating compliance with paragraph 4.3.5 for any nonofficial travel use and documentation of the required reimbursement described in paragraph 4.7, shall be included in the monthly Passenger Transportation flight data submission. This responsibility may be delegated.	Center Director	IAOP Review
405	4.5.4.2 a	For subpanels, the IAOP chairperson shall ensure that subpanel members are Chiefs of Aircraft Operations and Chiefs of Aircraft Maintenance or their designees, as well as a representative from the HQ AMD who will act as permanent Executive Secretary.	Center Director	IAOP Review
406	4.5.4.2 b	For subpanels, the IAOP chairperson shall ensure that subpanels will be convened at least annually in formal meetings; however, the subpanels will act as standing committees subject to call by the chairperson to review urgent business. Informal meetings may be conducted by teleconference.	IAOP Chair	IAOP Review
407	4.5.4.2 c	For subpanels, the IAOP chairperson shall ensure that subpanels, with the IAOP chairperson's concurrence, will forward their recommendations through the HQ AMD to the Assistant Administrator for the OSI for final approval.	IAOP Chair	IAOP Review
408	4.5.4.2 d	For subpanels, the IAOP chairperson shall ensure that HQ-approved recommendations will be considered directive in nature and be reflected in NASA policy documents.	IAOP Chair	IAOP Review
409	4.5.5.1	Maintaining the highest standards of safety is the primary concern of all crewmembers. Other concerns, such as passenger service, courtesy, promptness, and reliability are important, but shall always be	IAOP Chair	IAOP Review

		secondary to safety.		
410	4.5.5.2	All crewmembers shall comply with the provisions set forth in this NPR, and with FAA and OEM publications for their aircraft and other applicable directives, regulations, and instructions.	NASA Crewmembers	IAOP Review
411	4.5.6	A fully qualified pilot shall be designated as PIC and charged with the responsibility of conducting each NASA Passenger Transportation flight.	NASA Crewmembers	IAOP Review
412	4.5.7	The pilot assigned to duty as SIC during flight shall be qualified as either a PIC or SIC, as specified in paragraph 4.11.4.	Pilot in Command	IAOP Review
413	4.6.1.1	NASA's aircraft programs shall be included in NASA's Management Control Plan and comply with the internal control requirements of OMB Circular A-123.	Pilot in Command	IAOP Review
414	4.6.1.2	Any material weaknesses found shall be reported in the next annual internal controls report to the President and Congress.	Center Director	IAOP Review
415	4.6.1.4	On a semiannual basis, NASA reports to GSA on each Passenger Transportation flight for "Other Official Travel" by senior Federal officials, staff of the Executive Office of the President, members of the families of such officials, and any non-Federal travelers. Such reports will be in a format as specified by GSA and list all such travel conducted during the preceding 6-month period. The report shall include, at a minimum: <ul style="list-style-type: none"> a. The name of each such traveler. b. The official purpose of the trip. c. Destination(s). d. For travel in which the report states that a Passenger Transportation flight would be less expensive than a commercial carrier, the allocated share of the full operating cost of each trip and the corresponding commercial cost for the trip. 	Center Director	IAOP Review

416	4.6.1.4 d (1)	Reports on classified trips will not be reported to GSA, but shall be maintained by the Agency using the Passenger Transportation flights and be available for review as authorized.	Center Director	IAOP Review
417	4.6.1.5	Records of all Passenger Transportation flight operations shall be retained for at least 2 years and include, at a minimum: a. The tail number of the plane used. b. The date(s) used. c. The name(s) of the pilot(s) and flightcrew. d. The purpose(s) of the flight. e. The route(s) flown. f. The names and status of all passengers on all legs of the mission.	Center Director	IAOP Review
418	4.6.2 a.	Center Directors shall ensure strict compliance with the following reporting requirements: Monthly submission of Passenger Transportation flight data to the HQ AMD, as required in paragraph 4.5.2.7.	Center Director	IAOP Review
419	4.6.2 b.	Center Directors shall ensure strict compliance with the following reporting requirements: Annually reviewing and documenting the Center's continuing need for aircraft, whose primary purpose is the transport of passengers, and the cost-effectiveness of such aircraft operations, as required by OMB Circular A-126 and reflected in the guidance from the HQ AMD. Content of this review is to include, in narrative format, a comparison of the past years' use with future requirements. Upon completion of the annual review, a copy will be forwarded to the HQ AMD, not later than October 31 of each year.	Center Director	IAOP Review
420	4.6.2 c.	Center Directors shall ensure strict compliance with the following reporting requirements: Establishing variable cost rates for each fiscal year for aircraft under their control that are, or may be. used for Passenger	Center Director	IAOP Review

		Transportation.		
421	4.6.2 c (1)	This rate is to be used to determine cost justification for Passenger Transportation flight requests and shall be reported to the HQ AMD, not later than September 15 of each year.	Center Director	IAOP Review
422	4.6.2 c (3)	The Center variable rate shall be approved by HQ AMD prior to being applied at the beginning of each fiscal year.	Center Director	IAOP Review
423	4.6.2 c (4)	If, during the fiscal year, a Center needs to adjust the variable rate, substantiation shall be submitted and approved prior to being applied.	Center Director	IAOP Review
424	4.7.1	Reimbursement for nonofficial travel use shall be made in advance of the flight for travel on FAA aircraft, consistent with current FAA procedures.	Center Director	IAOP Review
425	4.7.2	Reimbursement for nonofficial travel use of NASA-owned or -controlled aircraft shall be made in advance of the flight.	Center Director	IAOP Review
426	4.7.2.1	Travelers aboard such flights shall reimburse the Agency at the full commercial coach fare for the most direct route possible between the origin and destination, except: (a) as authorized under 10 U.S.C., § 2648, Persons and Supplies: Sea, Land, and Air Transportation, and regulations implementing the statute and (b) by civilian personnel and their dependents in remote locations (i.e., locations not reasonably accessible to regularly scheduled commercial airline services).	Center Director	IAOP Review
427	4.7.3	Any flight involving nonofficial travelers shall require notification to the HQ AMD, prior to the flight, to ensure application of the Agency-wide procedures for reimbursement.	Center Director	IAOP Review

428	4.8.2	NASA aircraft used to conduct Passenger Transportation flights shall meet the FAA certification standards required of Passenger Transportation flights.	Center Director	IAOP Review
429	4.8.3	Airworthiness of NASA Passenger Transportation flights shall, at a minimum, meet the standards set forth in the Federal Aviation Regulations for similar business-type aircraft.	Center Director	IAOP Review
430	4.8.3.1	Aircraft whose primary or secondary purpose is the transport of passengers shall be maintained, as required, for retention of FAA Airworthiness Certification.	Center Director	IAOP Review
431	4.8.4	The cost of operation and the utilization of Passenger Transportation flights shall be reported in accordance with OMB Circular A-126.	Center Director	IAOP Review
432	4.9.1	NASA-owned and -controlled aircraft, including lease and charter, whose primary purpose is to meet other mission requirements of research or program support, are public aircraft and are not authorized to carry passengers (even if the classification of the flight is Mission Required) without written approval from the Assistant Administrator for the OSI prior to such use. Approval shall be coordinated with the HQ AMD.	Center Director	IAOP Review
433	4.9.1.2	The use of a NASA aircraft to provide Passenger Transportation shall be restricted to circumstances where such use does not conflict with program support or research operations.	Center Director	IAOP Review
434	4.9.1.3 a	When using a NASA aircraft for Passenger Transportation flights, the aircraft shall be in a valid FAA-certificated configuration.	Center Director	IAOP Review

435	4.9.1.4	Centers shall document the justification for and approval of each flight used for Passenger Transportation purposes and retain the documentation for 2 years.	Center Director	IAOP Review
436	4.9.1.4 a	Additionally, every flight in such aircraft, including flights without passengers, shall be accounted for in monthly documentation provided to the HQ AMD as described in paragraph 4.6.2a.	Center Director	IAOP Review
437	4.10.1	When deviations from this NPR are necessary, Center Directors shall submit requests for deviations or waivers to the Assistant Administrator for the OSI.	Center Director	IAOP Review
438	4.11.1	Prior to assigning personnel to flightcrew duties on NASA Passenger Transportation flights, the requirements contained in this chapter shall be met.	Center Director	IAOP Review
439	4.11.2	A training file shall be maintained for each flightcrew member that contains all documentation pertaining to crew qualification and training.	Center Chief of Flight Operations	IAOP Review
440	4.11.2 b	A record of refresher training shall be maintained for the past 2 calendar years [in a crewmember's training file].	Center Chief of Flight Operations	IAOP Review
441	4.11.3	Pilots of aircraft used for Passenger Transportation flights shall possess a current FAA First-Class Medical Certificate.	Center Chief of Flight Operations	IAOP Review
442	4.11.3.1	Flight Maintenance Technicians shall possess a valid FAA Third-Class Medical Certificate or NASA medical certificate issued within the past 12 months by a NASA-approved medical examiner.	Center Chief of Flight Operations	IAOP Review
443	4.11.4	PICs/SICs shall possess an FAA Airline Transport Pilot (ATP) Certificate with appropriate category, class, and type rating in the aircraft assigned.	Center Chief of Flight Operations	IAOP Review

444	4.11.4.1	To be designated an aircraft commander, the pilot shall meet the following minimum flight experience requirements: a. 2,500 pilot hours (500 hours multi-engine). b. 100 pilot hours in type.	Center Director	IAOP Review
445	4.11.5	Instructor pilots shall be selected by the Center's Chief of Flight Operations from highly qualified PICs who have demonstrated the skill, maturity, and temperament to perform instructor duties.	Center Chief of Flight Operations	IAOP Review
446	4.11.7	Flight maintenance technicians shall possess an FAA A&P Certificate.	Center Chief of Flight Operations	IAOP Review
447	4.13.1	Each primary crewmember shall receive basic survival training on a one-time basis.	Center Chief of Flight Operations	IAOP Review
448	4.13.1 a	Additional survival training shall be required by appropriate Center management for those crewmembers engaged in frequent over-water or remote-area flights.	Center Chief of Flight Operations	IAOP Review
449	4.13.1 b	Newly assigned personnel with no previous survival training shall complete this requirement within 12 months of being assigned to flightcrew duties.	Center Chief of Flight Operations	IAOP Review
450	4.13.1 c	Pilots shall not be assigned as PICs until this requirement has been met.	Center Chief of Flight Operations	IAOP Review
451	4.13.2	Prior to initial designation, primary crewmembers shall receive instruction in the physiological aspects of high-altitude flight, including altitude chamber indoctrination or recognized equivalent training; i.e., Reduced Oxygen Breathing Device training.	Center Chief of Flight Operations	IAOP Review
452	4.13.2 a	Altitude chamber training received prior to initial designation meets this requirement. Refresher training academics shall be accomplished every 5 years.	Center Chief of Flight Operations	IAOP Review

453	4.13.3	Emergency Egress Training. Prior to initial designation and annually thereafter, each crewmember shall receive emergency egress training on each type of aircraft assigned.	Center Chief of Flight Operations	IAOP Review
454	4.13.3 a	Training shall include instructions on the location and operation of normal and emergency exits and cabin emergency equipment, such as fire extinguishers and life vests.	Center Chief of Flight Operations	IAOP Review
455	4.13.4	Each primary crewmember shall complete an approved formal course of instruction in the type aircraft to be flown, including a study of the systems and procedures applicable to the individual's crew position.	Center Chief of Flight Operations	IAOP Review
456	4.13.5	A formal systems training course that consists of a minimum of 7 hours of academic training shall be required every 6 months for pilots and every 18 months for flight maintenance technicians.	Center Chief of Flight Operations	IAOP Review
457	4.13.6	Maintenance Technicians shall attend refresher training that addresses changes to aircraft systems, test equipment, or critical troubleshooting and repair techniques every 24 months.	Center Chief of Flight Operations	IAOP Review
458	4.14.1	Flight training shall be conducted under the supervision of a NASA-designated flight IP or an FAA-certified flight instructor, either in an approved simulator or in an aircraft.	Center Chief of Flight Operations	IAOP Review
459	4.14.2	Prior to initial designation, each pilot shall receive a minimum of 10 hours of flight training, 8 hours of which may be conducted in a simulator.	Center Chief of Flight Operations	IAOP Review
460	4.14.3	Refresher Pilot Training. In each 6-month period, pilots shall receive a minimum of 6 hours of flight or simulator training.	Center Chief of Flight Operations	IAOP Review
461	4.14.3.1	At least one-half of this training shall be completed in the pilot's (left seat) position.	Center Chief of Flight Operations	IAOP Review

462	4.14.4.1	Prior to initial designation, each maintenance technician shall receive training in such areas as traffic awareness and "see-and-avoid" techniques, aircraft servicing, weight and balance, and passenger care.	Center Chief of Flight Operations	IAOP Review
463	4.14.4.3	Initial training will consist of at least two passenger missions. One mission shall include an overnight stop away from the home duty station.	Center Chief of Flight Operations	IAOP Review
464	4.15.1	Only crewmembers who have completed their required training shall be used as required crewmembers on any passenger missions.	Center Chief of Flight Operations	IAOP Review
465	4.16.1	All flightcrew currency documentation shall be recorded in the NASA standard application NAMIS.	Center Chief of Flight Operations	IAOP Review
466	4.16.2.1	In the interest of flight safety and to ensure that all crewmembers have the opportunity to exercise their aeronautical skills and, thereby, maintain the proficiency level for which they have been trained, pilots shall meet the minimum currency requirements of Table 4-2.	Center Chief of Flight Operations	IAOP Review
467	4.16.2.1 d	Private pilot time shall not be recorded in NASA information systems or utilized to meet any of the above currency requirements.	Center Chief of Flight Operations	IAOP Review
468	4.17.1.1	A pilot at the controls who does not meet the 90-day total hour requirements, but is otherwise current, shall increase all instrument approach minimums by 200 feet and one-half mile visibility (or the Runway Visual Range equivalent).	Center Chief of Flight Operations	IAOP Review
469	4.17.1.3	At the discretion of the Chief Pilot, pilots flying multiple types of aircraft who have met the all-types requirements may satisfy the in-type currency requirement by flying a training flight with a flight instructor. This training flight shall include a minimum of two instrument	Center Chief of Flight Operations	IAOP Review

		approaches, three takeoffs, and three landings.		
470	4.17.1.5	Lapse in qualification greater than 90 days shall require retraining of at least 6 hours of dedicated flight or simulator training as determined by the Center's Chief of Flight Operations and requires a formal flight evaluation by an IP.	Center Chief of Flight Operations	IAOP Review
471	4.18.1 a	Designated IPs shall administer all flight checks.	Center Chief of Flight Operations	IAOP Review
472	4.18.1 b	An IP shall be designated for all flights in which instruction or evaluation is planned.	Center Chief of Flight Operations	IAOP Review
473	4.18.2	Prior to being designated in their crew position, and annually thereafter, pilots shall complete a proficiency evaluation flight conducted by a NASA-designated IP or an FAA-designated flight IP.	Center Chief of Flight Operations	IAOP Review
474	4.18.2 .2	Pilots with overdue proficiency checks shall be scheduled only on training flights (i.e., non-passenger flights) with an IP.	Center Chief of Flight Operations	IAOP Review
475	4.18.2.3	The Annual Proficiency Check shall not be accomplished with passengers aboard, and no in-flight emergency training shall be conducted with passengers aboard.	Center Chief of Flight Operations	IAOP Review
476	4.18.3	Prior to being designated an aircraft commander, and annually thereafter, pilots shall complete a line evaluation flight conducted by an IP.	Center Chief of Flight Operations	IAOP Review
477	4.18.3.2	Pilots with overdue line checks shall not be scheduled as a PIC until a check is completed.	Center Chief of Flight Operations	IAOP Review
478	4.18.4	Flight checks conducted by a NASA IP shall be recorded on NASA Form 1615 or Center equivalent, reviewed by the Center's Chief of Flight Operations, and filed in the individual's training file.	Center Chief of Flight Operations	IAOP Review

479	4.19.1 a	The Assistant Administrator for the OSI and the Center Directors shall ensure that the most cost-effective aircraft is used to satisfy approved requirements. Exceptions to this will be documented in writing.	Center Directors	IAOP Review
480	4.19.1 b	The Assistant Administrator for the OSI and the Center Directors shall coordinate trip itineraries and requirements with other NASA activities that could benefit from the use of available seats on each trip.	Assistant Administrator for the OSI	IAOP Review
481	4.20.1	All personnel scheduled as primary flightcrew members on NASA Passenger Transportation flights shall be trained and qualified in accordance with this chapter.	Center Chief of Flight Operations	IAOP Review
482	4.20.1.1	Crew assignment, including identification of a PIC, shall be designated in writing for each flight.	Center Chief of Flight Operations	IAOP Review
483	4.20.2	Basic Crew. No aircraft carrying passengers shall be operated with less than the minimum basic crew specified below. Exception: G-II/III aircraft may be operated with three pilots, one of whom functions as the Flight Maintenance Technician, or the flight may be operated without a flight maintenance technician at the direction of the Center's Chief of Flight Operations. a. Gulfstream II/III -- PIC and SIC. Flight Maintenance Technician (optional). b. King Air B200 -- PIC and SIC.	Center Chief of Flight Operations	IAOP Review
484	4.21.2	Duty Time Limitations. Basic crew duty time shall not be scheduled to exceed 14 consecutive hours, except as set forth below.	Center Chief of Flight Operations	IAOP Review
485	4.21.2.1	The aircraft shall be pressurized and have a functional autopilot.	Center Directors	IAOP Review

486	4.21.2.2 a	Consideration shall be given to limiting passenger load to ensure that an adequate crew rest capability is available.	Center Chief of Flight Operations	IAOP Review
487	4.21.2.2 b	Augmented crew duty time shall not be scheduled to exceed 18 consecutive hours.	Center Chief of Flight Operations	IAOP Review
488	4.21.2.2 c	The aircraft shall be pressurized and have a functional autopilot.	Center Directors	IAOP Review
489	4.21.2.2 d	Flights requiring augmentation shall be approved by the Center's Chief of Flight Operations and documented and maintained on file for a period of 12 months.	Center Chief of Flight Operations	IAOP Review
490	4.21.2.3	Relief crews shall be pre-positioned if the mission schedule cannot be supported within the duty time limitations specified for a single or augmented crew.	Center Chief of Flight Operations	IAOP Review
491	4.22.2.1	Crew rest shall normally provide at least 10 consecutive hours free of all official duties.	Pilot in Command	IAOP Review
492	4.22.2.2	At en route stops, crew rest shall not commence until 1 hour after termination of the mission in order to allow for necessary post-flight duties.	Pilot in Command	IAOP Review
493	4.22.2.3	The crew rest period shall end 1 hour prior to the crew beginning official duties in preparation for departure, normally at least 1 hour prior to scheduled takeoff time.	Pilot in Command	IAOP Review
494	4.22.2.4 a	Approvals for reduced crew rest shall be limited to one occurrence per crewmember during any 7-day period.	Center Chief of Flight Operations	IAOP Review
495	4.22.2.4 b	Such approvals shall be documented and maintained on file for a period of 12 months.	Center Chief of Flight Operations	IAOP Review
496	4.23.1	Flightcrew members shall not be scheduled, nor permitted, to function as members of Passenger Transportation flightcrews, if their total professional flying time exceeds the following flight hours in Table 4-3.	Center Chief of Flight Operations	IAOP Review

497	4.24.1	Hazardous material, as defined in 49 C.F.R Part 105.5, shall not be transported aboard Passenger Transportation flights.	Pilot in Command	IAOP Review
498	4.24.1.1	Cargo to be shipped shall be routed through the Center's transportation office before acceptance or, if en route, normally only be accepted from a certified shipper or freight-forwarding agency.	Pilot in Command	IAOP Review
499	4.25.1	During all critical flight operations, cockpit activities and conversation shall be limited to those involved with the direct operation of the aircraft.	Pilot in Command	IAOP Review
500	4.25.1.1	This Sterile Cockpit environment shall be maintained when below 10,000 feet above ground level (AGL) during approach and departure, except during prolonged cruise at an altitude below 10,000 feet AGL.	Pilot in Command	IAOP Review
501	4.26.1	Before departure, the PIC shall brief the crew on all essential information concerning the flight, including weather, restrictions, and the duties and responsibilities of each flightcrew member.	Pilot in Command	IAOP Review
502	4.27.1	In those instances when, in the determination of the PIC, an extenuating circumstance requires loading or unloading passengers or cargo with an engine running, the following minimum precautions shall be followed: a. Only the engine on the opposite side of the aircraft from the loading door will be operating and be operated at as low a power setting as practical. b. A flightcrew member will be positioned on the ground to ensure that passengers do not approach close to an operating engine or windmilling propeller.	Pilot in Command	IAOP Review

503	4.27.2	The PIC shall ensure that all passengers have been briefed on the Disclosure for Persons Flying Aboard Federal Government Aircraft.	Pilot in Command	IAOP Review
504	4.27.3	Thorough flight planning is essential to the safe and efficient conduct of Passenger Transportation passenger flights. A flight plan shall be filed for each flight.	Pilot in Command	IAOP Review
505	4.27.4	Passenger flights shall be operated under instrument flight rules and, to the maximum extent possible, in controlled airspace. However, daylight flights of less than 100 nautical miles may be operated under visual flight rules if weather conditions permit.	Pilot in Command	IAOP Review
506	4.27.5	Considering weather forecasts and any known en route delays, the minimum amount of useable fuel required at takeoff shall be sufficient to do the following: a. Complete the flight to the destination airport. b. Fly from that airport to the alternate airport, if required. c. Fly after that for 45 minutes at normal cruising speed or, for helicopters, fly after that for 30 minutes at normal cruising speed.	Pilot in Command	IAOP Review
507	4.27.6	Refueling with Passengers On Board: An aircraft shall not be refueled when passengers are embarking, on board, or disembarking unless it is properly attended by qualified personnel ready to initiate and direct an evacuation of the aircraft by the most practical and expeditious means available.	Pilot in Command	IAOP Review
508	4.27.6.1	When refueling with passengers embarking, on board or disembarking, two-way communications shall be maintained by the aircraft's intercommunication system or other suitable means between the ground crew supervising the refueling and the qualified personnel on board the aircraft.	Pilot in Command	IAOP Review

509	4.27.7	Prior to takeoff, the PIC shall receive a thorough weather briefing concerning current weather and forecasts for the proposed route, destination, and alternate destination.	Pilot in Command	IAOP Review
510	4.27.7.1	Weather minimums for takeoffs shall be not less than landing minimums unless a takeoff alternate is available.	Pilot in Command	IAOP Review
511	4.27.7.3	The weather reported at the departure alternate shall be above landing minimums and forecast to remain so for at least 2 hours after takeoff, per the following: a. Precision Approach available: 200-foot ceiling and 1/2-statute mile (SM) visibility added to the published Precision Approach minimums. b. Non-Precision Approach (only) available: 300-foot ceiling and 1-SM visibility added to the published Non-Precision Approach minimums.	Pilot in Command	IAOP Review
512	4.27.7.4 a	The PIC of a Passenger Transportation flight shall not file a flight plan requesting clearance into areas of reported or a forecast of severe icing conditions.	Pilot in Command	IAOP Review
513	4.27.7.4 b	Airborne radar shall be operative for any flight into areas where current weather reports or forecasts indicate that thunderstorms may reasonably be expected and flight under daylight visual meteorological conditions is not possible.	Pilot in Command	IAOP Review
514	4.27.7.4 c	All flights shall be planned to circumnavigate areas of thunderstorm activity.	Pilot in Command	IAOP Review
515	4.27.7.5 a	If the destination weather is reported and forecast to be less than a 2,000-foot ceiling or less than 3-mile visibility from 1 hour before, until 1 hour after, the estimated time of arrival (ETA), an alternate airport shall be listed on the flight plan.	Pilot in Command	IAOP Review

516	4.27.7.5 b	Airport weather minimums shall meet or exceed the requirements of FAR Part 91.	Pilot in Command	IAOP Review
517	4.27.8	When the pilot has less than 100 hours PIC experience in the type (make and model) aircraft being operated, the minimum descent altitude (MDA) or the Decision Altitude (DA) and visibility landing minimums shall be increased by 200 feet and 1/2 mile (or the RVR equivalent) for all instrument approaches conducted by that pilot.	Pilot in Command	IAOP Review
518	4.27.8.1	In no case shall the landing minimums be less than a 400-foot ceiling and 1-mile visibility.	Pilot in Command	IAOP Review
519	4.27.8.2	Similarly, takeoffs shall not be made if the airfield is below these adjusted landing minimums.	Pilot in Command	IAOP Review
520	4.27.9	Prior to activating any aircraft system, aircraft maintenance forms shall be reviewed and evaluated.	Pilot in Command	IAOP Review
521	4.27.9.1	Prior to flight, the PIC shall accept the aircraft by signing the form. DoD aircraft forms, NAMIS, or equivalent forms may be used as a substitute for specific NASA forms.	Pilot in Command	IAOP Review
522	4.27.10	A copy of the current weight and balance data shall be carried aboard each Passenger Transportation flight.	Pilot in Command	IAOP Review
523	4.28.1	On departure, navigational aids (NAVAIDS) shall be set up to aid in a possible expedited emergency return, as well as to aid in establishing the initial en route course.	Pilot in Command	IAOP Review
524	4.28.2	Cockpit Voice Recorder (CVR) and Flight Data Recorder (FDR). If installed and operative, the CVR and FDR shall be turned on during the entire flight.	Pilot in Command	IAOP Review
525	4.28.2.1	Should an incident occur, the CVR and FDR power shall be removed and appropriate circuit breakers pulled following completion of the after-shutdown checklist.	Pilot in Command	IAOP Review

526	4.28.3	Enhanced Ground Proximity Warning System (EGPWS)/Terrain Awareness and Warning System (TAWS) shall be used on all flights.	Pilot in Command	IAOP Review
527	4.28.3.1	If the equipment tests satisfactorily prior to takeoff, it shall be assumed that any EGPWS/TAWS warning is valid unless the aircraft position can immediately and positively be verified by visual reference.	Pilot in Command	IAOP Review
528	4.28.3.2	Immediate and appropriate action shall be taken in response to all valid EGPWS/TAWS warning calls.	Pilot in Command	IAOP Review
529	4.28.4	Landing lights shall be used during all takeoffs and landings and when operating near airports or in high-density traffic areas.	Pilot in Command	IAOP Review
530	4.28.6	Flight Maintenance Technicians shall remain at their duty station throughout the climb and descent.	Pilot in Command	IAOP Review
531	4.28.7	Traffic Alert and Collision Avoidance System (TCAS) resolution advisories (RA) shall be followed.	Pilot in Command	IAOP Review
532	4.29.1	The PIC is responsible for the safety and comfort of the passengers and shall make every reasonable effort to keep the senior passenger or trip coordinator apprised of any significant deviations from the itinerary or schedule.	Pilot in Command	IAOP Review
533	4.29.1.1	In-flight delays and readily discernible abnormal conditions shall be explained to the passengers.	Pilot in Command	IAOP Review
534	4.29.1.2	The PIC shall require that all passengers and crewmembers have safety belts securely fastened for taxiing, takeoffs, landings, and before entering an area of in-flight turbulence.	Pilot in Command	IAOP Review
535	4.29.1.3	Admission to the Flight Deck. Passengers shall not be admitted to the flight deck during sterile cockpit phases of flight.	Pilot in Command	IAOP Review

536	4.29.2	The PIC shall notify ATC of the aircraft's minimum fuel status at any time the fuel supply has reached a quantity where, upon reaching destination, little or no delay can be accepted. In no case may this quantity be less than that specified in Table 4-6.	Pilot in Command	IAOP Review
537	4.29.2.1	If fuel remaining indicates a need for traffic priority to ensure a safe landing, the PIC shall formally declare an emergency due to low fuel and report fuel remaining in minutes.	Pilot in Command	IAOP Review
538	4.29.3	When an emergency or in-flight difficulty arises, the crew shall complete the checklists and report the nature and extent of the difficulty, intentions, and assistance required to the controlling ground agency.	Pilot in Command	IAOP Review
539	4.29.4	In the event of an engine failure or shutdown, the aircraft shall land at the nearest suitable airport at which a safe landing can be made.	Pilot in Command	IAOP Review
540	4.30.1	During instrument arrivals, all available navigational aids shall be used. When available, precision approach guidance (any precision approach) will be used for all night arrivals except for specific events during training flights.	Pilot in Command	IAOP Review
541	4.30.2	Pilots operating aircraft shall land the aircraft only when the flight visibility is equal to or greater than the visibility prescribed in the standard instrument approach procedure being used.	Pilot in Command	IAOP Review
542	4.30.3	The weather at the alternate shall be at or above alternate minimums and forecast to remain so until the new ETA plus one hour.	Pilot in Command	IAOP Review
543	4.30.4	Before starting an approach, the pilot flying shall brief the crew on the procedures to be followed during the approach and landing and in the event of a missed approach.	Pilot in Command	IAOP Review

544	4.30.5 a	The pilot shall set up to execute a stabilized approach to landing.	Pilot in Command	IAOP Review
545	4.30.5 b	A stabilized approach shall be established by 1,000 feet above airport elevation in instrument meteorological conditions (IMC) and by 500 feet above airport elevation in visual meteorological conditions (VMC).	Pilot in Command	IAOP Review
546	4.30.5 c	The pilot flying the approach shall announce his/her progress and intentions periodically.	Pilot in Command	IAOP Review
547	4.30.5 d	The pilot monitoring shall observe the approach and provide a continual cross-check of the navigational aids, instruments, ATC instructions, and approach procedures.	Pilot in Command	IAOP Review
548	4.30.5 e	Any deviations from the prescribed procedure shall immediately be brought to the attention of the pilot flying.	Pilot in Command	IAOP Review
549	4.30.5 f	The pilot monitoring shall call out "1,000 feet above" and "100 feet above" all key altitudes, as well as minimums upon reaching the Missed Approach position.	Pilot in Command	IAOP Review
550	4.30.5 g	When the runway is in sight, the pilot monitoring shall state, "runway in sight."	Pilot in Command	IAOP Review
551	4.30.5 h	If the runway is not in sight when the aircraft reaches the Missed Approach point, the pilot monitoring shall state, "go around."	Pilot in Command	IAOP Review
552	4.30.6.1	To prevent excessive loss of altitude in the event of an autopilot failure, the pilot directing the aircraft shall maintain flight control contact throughout the final portion of an automatic coupler approach.	Pilot in Command	IAOP Review
553	4.30.6.2	Full manual control shall be assumed at or above published minimum altitude.	Pilot in Command	IAOP Review

554	4.30.6.3	Pilots shall observe all cautions on use of autopilots in icing.	Pilot in Command	IAOP Review
555	4.31.1	On completion of the flight, the PIC shall ensure that the flight plan is closed with the appropriate facility.	Pilot in Command	IAOP Review
556	4.31.2	The PIC shall take prudent measures to secure and protect the aircraft at en route stops.	Pilot in Command	IAOP Review
557	4.31.2.1	State Department Advisories and the DoD Foreign Clearance Guide (FCG) shall be consulted for out-of-continental United States (CONUS) operations.	Pilot in Command	IAOP Review
558	4.31.3	Aircraft Flight Logs. The flightcrew shall enter in the aircraft flight log each mechanical irregularity discovered during the flight.	Pilot in Command	IAOP Review
559	4.32.1	Aircraft flight manual data shall be used to ensure that adequate takeoff, climb, approach, and landing performance is available for the actual conditions encountered.	Pilot in Command	IAOP Review
560	4.32.2	Table 4-4 contains the minimum runway lengths that shall be used for the aircraft. An HQ waiver is required for takeoffs from or landings on runways of lesser length.	Pilot in Command	IAOP Review
561	4.32.3	For normal operations, airfields shall be considered below minimums for takeoff and landing when winds, including gusts, are greater than those in Table 4-5.	Pilot in Command	IAOP Review
562	4.32.4	Minimum Fuel for Landing. Minimum fuel for landing is established in recognition of three factors: (1) Fuel required to execute an unanticipated go-around and traffic pattern; (2) Fuel required for landing and rollout; and (3) Allowance for fuel quantity measuring system error. All flights shall be planned to have no less than the minimum indicated fuel shown in Table 4-6 available at touchdown on the final landing:	Center Director	IAOP Review

563	5.1.1	UAS are aircraft and therefore, shall comply with all Federal and Agency regulations pertaining to UAS, including operations, acquisition and disposal.	Center Director	IAOP Review
564	5.1.2	Center Directors shall establish procedures to ensure that all UAS flights are properly approved, documented, and operated in accordance with this chapter.	Center Director	IAOP Review
565	5.1.2.1	Center Directors also shall ensure that UAS flightcrews and operations receive direct oversight by the Center's Flight Operations Office or through another Center with a Flight Operations Department.	Center Director	IAOP Review
566	5.1.3.2	In all cases, waiver and oversight responsibility shall be IN ACCORDANCE WITH this NPR and applicable NASA HQ-approved Center guidelines.	Center Director	IAOP Review
567	5.1.4	UAS flightcrew are responsible for the safe control and operation of the UAS and shall be involved in all mission planning; complete prelaunch, mission, and recovery checklists; and assist in evaluating and disseminating in-flight data.	Center Director	IAOP Review
568	5.1.4.1	All flight operations shall be within visual line of sight of the controlling pilot.	UAS Pilot/Mission Commander	IAOP Review
569	5.1.4.5 a	The UAS Mission Commander shall understand the sections of 14 CFR Subpart E 61.105 and 61.107 that apply to all aircraft operations (public and civil) in the U.S. National Airspace System (NAS).	Center Chief of Flight Operations	IAOP Review
570	5.1.4.5 c	If not qualified in type, UAS Mission Commanders shall receive all required ground training for the UAS under their purview.	Center Chief of Flight Operations	IAOP Review

571	5.1.4.6	The holder of a NASA UAS Instrument Rating shall understand the sections of 14 CFR Subpart F 61.125 and 61.127 that apply to instrument flight operations (public and civil) in the NAS.	Center Chief of Flight Operations	IAOP Review
572	5.1.5	UAS flightcrews shall have the capability to command, control, and manage the UAS and to coordinate access and integration into the airspace utilized to complete the mission.	Center Chief of Flight Operations	IAOP Review
573	5.2.1	Before any deployment, considerable planning takes place well in advance of a UAS operation. UAS increase the workload on personnel assigned, who very often know little about the unique requirements of UAS integration in operations in CONUS or overseas. Coordination with appropriate agencies or countries shall occur as soon as the decision is made to employ a UAS.	Center Director	IAOP Review
574	5.2.1.2	If a UAS will be flown outside the boundaries of special-use airspace, sufficient time shall be allowed to process a COA request to the FAA to conduct UAS operations.	Center Director	IAOP Review
575	5.2.1.4	Letter of Agreement (LOA). An LOA with local air facilities shall be completed to ensure that proper coordination of support requirements is understood and agreed upon. It will address: a. >Fuel and hazardous material storage. b. Hangar facilities. c. Runway use. d. Any other logistical and support requirements.	Center Director	IAOP Review
576	5.2.2.1	UAS planners shall ensure that UAS operations are included at the outset of integration planning within host nation (HN) airspace.	Center Director	IAOP Review

577	5.2.2.2	Planners shall have a firm understanding of the UAS to be employed so that they can satisfy any protests or concerns from the HN.	Center Director	IAOP Review
578	5.2.2.3	The UAS planner shall work via the Office of International and Interagency Relations (OIIR) to gain diplomatic clearances prior to any UAS operations within their represented country.	Center Director	IAOP Review
579	5.3.1	UAS managers and flightcrews shall ensure particular consideration is given to the location of the UAS operations site.	Pilot in Command	IAOP Review
580	5.3.1.1	At a minimum, a proper landing surface shall be available to safely recover the UAS upon completing its mission and consideration given to the distance from the UAS launch site to the area of operations (AO).	Pilot in Command	IAOP Review
581	5.3.2	UAS managers and flightcrews at all times shall consider the expected weather conditions in the AO at the time of operations.	Pilot in Command	IAOP Review
582	5.3.3	UAS managers and flightcrews shall ensure effective command and control architecture is linked to the UAS.	Pilot in Command	IAOP Review
583	5.3.4 a	The UAS managers and the flightcrew shall study the assigned mission and plan for its operation.	Pilot in Command	IAOP Review
584	5.3.4 b	The maintenance crew shall begin preparation of the UAS and the UAS ground control system.	Center's Chief of Flight Operations	IAOP Review
585	5.3.4 c	Communications personnel shall ensure that the proper communication connectivity is provided to fulfill the mission.	Center's Chief of Flight Operations	IAOP Review
586	5.3.5	UAS missions shall be planned by the UAS flightcrew in close coordination with the Center's Flight Operations Office.	Center's Chief of Flight Operations	IAOP Review

587	5.3.6	During planning, sufficient attention shall be given to the possibility that an in-flight emergency may occur.	Center's Chief of Flight Operations	IAOP Review
588	5.3.6.2	Flight paths, minimum-risk routes, and other air management tools shall be included.	Center's Chief of Flight Operations	IAOP Review
589	5.3.6.3	When a UAS senses a significant delay or loss of the command uplink, the predetermined loss-of-link procedures shall be initiated to place the UAS on the return home profile or a suitable alternate route and recovery location.	Pilot in Command	IAOP Review
590	5.3.6.4	The Center Flight Operations Office shall incorporate mishap reporting responsibilities into the Center Mishap Response Plan, to include UAS-specific notification requirements.	Center's Chief of Flight Operations	IAOP Review
591	5.4.1	Flight Brief. A flight brief that includes the flightcrew, a program representative, and a maintenance representative shall be conducted prior to all flights. Centers will develop briefing guides appropriate to the operations, which include at a minimum: a. Weather update. b. Program brief. c. System update. d. Emergency divert airfields. e. Emergency procedures and terminology. f. Mission profile.	Center's Chief of Flight Operations	IAOP Review
592	5.4.2.1	Systems checks shall include an independent means to verify waypoints entered into a navigational system prior to takeoff.	Pilot in Command	IAOP Review
593	5.4.2.3	If a suitable runway is not available, then an alternate launch method shall be used.	Pilot in Command	IAOP Review
594	5.4.3	An adequate surface area shall be available for a safe landing for the UAS and safely accessible to personnel.	Pilot in Command	IAOP Review

595	5.4.3.2	The UAS recovery checklist shall be adhered to in accordance with the operations manual.	Pilot in Command	IAOP Review
596	5.5.1	Centers shall conduct Airworthiness Reviews to establish the airworthiness and evaluate the safety of the aircraft in accordance with the Center processes outlined in Chapter 2 and will include Range Safety personnel.	Center Directors	IAOP Review
597	5.5.2	The following additional topics shall be addressed by a NASA Airworthiness Review to assess the risks associated with a UAS flight program: a. General overview of UAS. b. Communication links and frequency management plan. c. Flight control system and configuration control procedures. d. Backup systems and procedures. e. Flight terminations systems, including ground abort.	Center Directors	IAOP Review
598	5.5.2.1	UAS shall operate only in airspace for which the degree of airworthiness allows.	Center's Chief of Flight Operations	IAOP Review
599	5.5.2.2	The airworthiness statement shall specifically clear each UAS for the appropriate Mission Qualification Standards (MQS) level (as defined in section 5.6.2.4).	Center Directors	IAOP Review
600	5.5.3	The program/project manager shall limit the assessed collective risk associated with aerospace vehicle operation and ensure that the probability of doing harm to a member of the general public is not greater than the criteria established by NPR 8715.5.	Center Directors	IAOP Review
601	5.5.4	Flight Readiness Reviews/Operational Readiness Reviews shall be conducted in accordance with Chapter 3 of this manual with additional UAS-specific personnel.	Center Directors	IAOP Review
602	5.6.1	UAS flightcrew members shall become qualified in accordance with written Center standards.	Center Director	IAOP Review

603	5.6.1.1	The Center's Chief of Flight Operations, with the concurrence of the Center Director, shall designate UAS pilots for the specific type of UAS they operate.	Chief of Flight Operations	IAOP Review
604	5.6.1.2	The Center's Chief of Flight Operations shall ensure that each UAS flightcrew possesses an adequate level of training and experience to perform the duties of the designated positions.	Chief of Flight Operations	IAOP Review
605	5.6.2	Initial UAS training shall be documented by each Center in accordance with this chapter with the approval of the Center's Chief of Flight Operations.	Chief of Flight Operations	IAOP Review
606	5.6.2.1	Recurrent training shall be Center-developed and Chief of Flight Operations-approved.	Chief of Flight Operations	IAOP Review
607	5.6.2.3 e	In the case of prototype, experimental, or research UAS aircraft for which no formal schools are available, the services of the designers and the manufacturer's best qualified personnel shall be utilized to brief and familiarize the UAS pilots with the aircraft, UAS aircraft systems, and ground control stations.	Chief of Flight Operations	IAOP Review
608	5.6.2.3	Qualification training will vary with the UAS type, but will normally include: a. Ground training (including UAS ground control station checkout), handbook study, attendance at formal UAS aircraft training programs, emergency procedure training, and the performance of a UAS aircraft written examination (open book). b. Simulator training, if available, including normal and emergency procedure training. c. UAS aircraft checkout flights, including a prescribed number of UAS flights and landings (if applicable) under the supervision of a UAS IP. d. A mission profile flight monitored by a UAS IP to obtain full UAS mission qualification.	Chief of Flight Operations	IAOP Review

		e. In the case of prototype, experimental, or research UAS aircraft for which no formal schools are available, the services of the designers and the manufacturer's best qualified personnel shall be utilized to brief and familiarize the UAS pilots with the aircraft, UAS aircraft systems, and ground control stations. In addition, existing UAS simulators and UAS aircraft of a similar nature will be used to train pilots prior to flying a UAS research vehicle.		
609	5.6.2.4	Each UAS crew shall have the knowledge and knowledge-based skills needed to safely conduct flight in the required airspace and flight conditions.	Chief of Flight Operations	IAOP Review
610	5.6.2.4 a	MQS Level I. VFR conditions below 1200 feet AGL in Class E, G, or special use airspace (or international equivalents). UAS Pilots shall complete a Center-developed training course on airspace procedures, but no other formal certification is required.	Chief of Flight Operations	IAOP Review
611	5.6.2.5	All UAS pilots shall complete a Center-developed and administered annual flight check and be certified as qualified by a designated authority from the Chief of Flight Operations Office.	Chief of Flight Operations	IAOP Review
612	5.6.2.6	Holders of a NASA UAS instrument rating shall pass a Center-developed UAS instrument rating exam.	Chief of Flight Operations	IAOP Review
613	5.6.2.7	UAS Mission Commanders and observers shall pass an annual FAA Third-Class medical exam or NASA / Military equivalent with vision correctable to 20/20 (as determined by an FAA AME or NASA flight surgeon).	Center Directors	IAOP Review
614	5.6.2.8	Fully qualified NASA pilots may be assigned as UAS pilots, but for UAS pilots to fly manned NASA aircraft, they shall meet NASA pilot qualification minimums.	Center Directors	IAOP Review

615	5.6.2.9	Training for all members of the UAS flightcrew shall include crew resource management training.	Chief of Flight Operations	IAOP Review
616	5.6.2.10	NASA UAS flight time for MQS level II and III operations shall be kept separate from NASA manned aircraft flight time, by type, in NAMIS.	Chief of Flight Operations	IAOP Review
617	5.6.2.11	A review of UAS pilot and crew qualifications shall be made prior to flight assignment to ensure that prerequisites for the intended mission are met.	Chief of Flight Operations	IAOP Review
618	5.6.2.12	A PIC shall be designated for all NASA UAS flight operations and is responsible for safe flight conduct.	Chief of Flight Operations	IAOP Review
619	5.6.2.13	When transferring from one control mode to another (i.e., Pilot Operator to RC Pilot), a new PIC shall be declared and PIC responsibilities be transferred when handing off from one control room to another MC or in all cases, a positive three-way change of control is required.	Chief of Flight Operations	IAOP Review
620	5.6.2.14	Center Directors shall establish policy to standardize all UAS control transfers.	Center Directors	IAOP Review
621	6.1.3.2	This NPR establishes policy and procedures for the NASA Aircraft Operations SMS in accordance with ICAO, Federal, and industry standards. Compliance is mandatory and shall be monitored during IAOP functional reviews.	Center Directors	IAOP Review
622	6.1.3.2 a	The SMS shall establish the mechanisms necessary to deliver and monitor safety performance.	Chief of Safety and Mission Assurance	IAOP Review
623	6.1.3.3	Centers shall assign an individual within aircraft operations with the responsibility for managing the Center's aircraft operations SMS to include at a minimum documentation control, training of personnel, and promotion of the program to ensure all aircraft operations personnel are	Center Directors	IAOP Review

		aware of their responsibilities.		
624	6.2.2.1	Center Directors shall support and maintain an Aviation Safety Program and organization in accordance with this NPR and this chapter.	Center Directors	IAOP Review
625	6.2.2.2	Center Directors shall ensure that the Center ASO is granted formal and direct access to senior management when safety issues cannot be resolved at a lower level in the flight organization.	Center Directors	IAOP Review
626	6.2.5	The AMD ASO shall be a qualified ASO in accordance with the Federal Management Regulation on the Management of Government Aircraft and meet the training requirements in section 6.2.7.4 within 3 years of appointment.	Center Directors	IAOP Review
627	6.2.6	The ASO subpanel chair is responsible for briefing aviation safety issues and concerns of the Centers to the IAOP and shall schedule and conduct subpanel meetings and teleconferences.	IAOP Aviation Safety Officer Subpanel Chair	IAOP Review
628	6.2.7	The Center's Chief of Flight Operations, shall recommend assignment of the Center Aviation Safety Officer (ASO), with the concurrence of the Center, Safety and Mission Assurance Director, to the Center Director for approval.	Center Directors	IAOP Review
629	6.2.7.3	If the ASO believes that a safety concern has not been dealt with sufficiently by the Flight Operations organization, the ASO shall take the concern directly to the Center Director, Chief, Safety and Mission Assurance or the HQ Director, Aircraft Management Division without retribution.	Aviation Safety Officer	IAOP Review
630	6.2.7.4 a	The ASO shall hold qualification as a NASA PIC in primary research aircraft type used at the Center.	Center Directors	IAOP Review

631	6.2.7.4 b	The ASO, within 1 year of appointment, shall complete a course in Aviation Safety Program management and NASA STEP 1 for Aviation Safety.	Center Directors	IAOP Review
632	6.2.7.4 c (1)	The ASO, within 2 years of appointment, shall have graduated from a recognized Military Aviation Safety Officer Course or an Academic Aviation Safety Certificate Program (of at least 6 weeks' duration).	Center Directors	IAOP Review
633	6.2.7.4 c (2)	The ASO, within 2 years of appointment, shall have completed the necessary NASA courses to lead or act as an ex-officio member of a mishap investigation in accordance with NPR 8621.1, which shall include at a minimum: (a) Overview of mishap investigations. (b) Mishap investigation roles and responsibilities. (c) Introduction to human factors in mishap and close call investigation. (d) Completing the investigation and mishap report. (e) Root cause analysis.	Center Directors	IAOP Review
634	6.2.7.5	Each Center shall establish a continuing education program to ensure that each ASO maintains adequate knowledge to discharge the duties of the office.	Center Directors	IAOP Review
635	6.2.7.5 a	To maintain familiarity with the latest aviation safety principles as a NASA ASO, the ASO shall be actively engaged in the Center's aviation operations program and complete 40 hours of continuing education in ASO course elements within 24 calendar months.	Center Directors	IAOP Review
636	6.2.8	Center Aviation Ground Safety Officers (AGSO). The Center's Chief of Flight Operations shall appoint an AGSO.	Center Chief of Flight Operations	IAOP Review

637	6.2.8 .1 a	The AGSO shall hold qualification as an aircraft or helicopter mechanic, aeronautics engineer, or in airport or aviation operations.	Center's Chief of Flight Operations	IAOP Review
638	6.2.8 .1 b	The AGSO, within 1 year of appointment, shall complete NASA STEP 1 for Aviation Safety.	Center's Chief of Flight Operations	IAOP Review
639	6.2.8.2	Each Center shall establish a continuing education program to ensure that each AGSO maintains adequate knowledge to discharge the duties of the office.	Center's Chief of Flight Operations	IAOP Review
640	6.2.8.2 a	To maintain familiarity with the latest aviation safety principles as a NASA AGSO, the AGSO shall be actively engaged in the Center's aviation operations program and complete 40 hours of continuing education in AGSO course elements within 24 calendar months.	Center's Chief of Flight Operations	IAOP Review
641	6.2.8.3	Aviation Ground Safety Officer shall: a. Lead and manage quarterly maintenance aviation safety training. Facilitate monthly safety training by work centers. b. Lead and manage process to identify and resolve hazards identified within the aircraft maintenance activities. c. Investigate initial reporting of hazardous events and hazardous conditions associated with aircraft maintenance activities. d. Inspect and audit the effectiveness/health of Flight Operations processes addressing: (1) Cargo safety for assigned aircraft. (2) Ramp/hangar FOD. (3) Vehicular traffic incursion and tool control. e. Recommend safety policy for aircraft maintenance activities. f. Participate as a member of the Aviation Safety Working Group. g. Investigate and report on aircraft-related NPR8621.1 events as	Center's Chief of Flight Operations	IAOP Review

		<p>assigned.</p> <p>h. Develop and manage portfolio of existing ground safety hazards associated with aircraft maintenance activities.</p> <p>i. Facilitate periodic inspections/audits of aircraft maintenance-related facilities/ramps and resolution of identified deficiencies.</p> <p>j. Serve as the safety liaison between the Center's airfield manager and related aircraft maintenance activities.</p>		
642	6.3.1	The Center's Aviation Safety Program shall be documented in a coherent set of directives maintained in a single comprehensive manual, The Aviation Safety Program shall provide a clear assignment of roles and responsibilities of the Center's SMS and implementation of requirements and policies outlined in this directive, NPR 8621.1, NPR 8715.3, and NPD 7900.4.	Center Directors	IAOP Review
643	6.3.1.1	Center's Aviation Safety Working Group. The Center's Aviation Safety Working Group provides a forum to discuss and resolve Center aviation safety issues. The working group is chaired by the ASO, shall meet at least semiannually, and reports to the Chief of Flight Operations.	Center Directors	IAOP Review
644	6.3.1.2 a	HQ AMD, together with independent oversight from the OSMA, shall conduct an aviation safety review of each Center utilizing the IAOP Review Program.	Aircraft Division	IAOP Review
645	6.3.1.2 b	Centers conducting flight operations shall perform a review of flight operations during the alternate year when an IAOP review is not scheduled by either an internal or external organization.	Center Directors	IAOP Review

646	6.3.1.2 b (2)	External reviews may be conducted by the Center's Safety Office or an external aviation inspection organization that shall provide an objective evaluation of selected aircraft operations, maintenance, crew procedures, and facilities to ensure safe and efficient operations.	Center Directors	IAOP Review
647	6.3.1.2 e	A written report summarizing the review, findings, and recommendations shall be provided to the Center Director, copy to AMD, within 75 days of the review.	Chief of Flight Operations	IAOP Review
648	6.3.1.3	The ASO shall be the primary interface between NMIS and DoD Safety Investigation Databases for gleaning lessons learned and potential mitigations for their operations.	Aviation Safety Officer	IAOP Review
649	6.3.1.4	Cultural Surveys. The Chief of Flight Operations, with the assistance of the ASO, shall conduct a Government/industry-recognized cultural survey, assessment, or workshop within aircraft operations every 2 years.	Chief of Flight Operations	IAOP Review
650	6.3.1.4 a	This survey shall: (1) Determine employees' expectations of the Center's Aviation Safety Program. (2) Evaluate the effectiveness of the current Aviation Safety Program.	Chief of Flight Operations	IAOP Review
651	6.3.1.5	Quarterly Aviation Safety Training. ASOs shall conduct safety training for operations and maintenance personnel and establish a process to ensure that topics covered are disseminated to those who could not attend.	Aviation Safety Officers	IAOP Review
652	6.3.1.6	Centers shall establish an Aviation Safety Awards program.	Center Directors	IAOP Review
653	6.3.1.7	The ASO shall establish risk assessment and hazard-analysis procedures that address risks, hazards, and mitigation methods associated with aircraft modifications	Aviation Safety Officers	IAOP Review

		and research flights, in accordance with Chapter 2 of NPR 8715.3.		
654	6.3.1.8	The Center shall ensure that project and program safety plans are subject to a review process that ensures that the plans address associated risks and hazards with the specific project or program.	Aviation Safety Officers	IAOP Review
655	6.3.1.8 a	Once approved, the Center shall ensure that the [project and program safety] plans are disseminated to all involved personnel.	Aviation Safety Officers	IAOP Review
656	6.3.1.9	Facilities and Equipment. The Chief of Flight Operations shall ensure that aviation facilities both at home and deployed locations are maintained and inspected in accordance with applicable OSHA and NASA safety standards.	Aviation Safety Officers	IAOP Review
657	6.3.1.10 a	The ASO or AGSO shall ensure safety oversight is provided during the handling and stowage of cargo, including hazardous materials, aboard NASA aircraft.	Aviation Safety Officers	IAOP Review
658	6.3.1.10 b	The Transportation Officer shall ensure that mixed cargo and passenger loads meet all Federal requirements, and ensure that contract carriers and airlift services used by NASA comply with Department of Transportation (DoT) regulations, including 49 CFR Part 175, Carriage by Aircraft, in the transportation of hazardous materials and cargo.	Center Directors	IAOP Review
659	6.3.1.11	Dissemination of Aviation Safety-Related Information. ASOs shall ensure that aviation safety-related information is distributed throughout aircraft operations and maintenance and that safety information that would be of interest Agency-wide is sent to the OSMA for distribution.	Aviation Safety Officers	IAOP Review

660	6.4.1	Each Center shall publish and maintain Mishap Preparedness and Contingency Plans that involve aircraft in accordance with the procedures established in NPR 8621.1.	Center Directors	IAOP Review
661	6.4.1 a	In addition to the requirements in NPR 8621.1, each Center's plan shall ensure that Mishap Preparedness and Contingency Plans that involve aircraft contain provisions to comply with NTSB, FAA, and GSA investigation and reporting requirements in accordance with Federal regulations.	Center Directors	IAOP Review
662	6.4.1 b	In addition to the requirements in NPR 8621.1, each Center's plan shall ensure that local fire/crash-rescue personnel are briefed annually, and prior to operation of newly acquired aircraft, on rescue and emergency procedures peculiar to the aircraft regularly operated at that facility.	Center Directors	IAOP Review
663	6.4.1 c	In addition to the requirements in NPR 8621.1, each Center's plan shall ensure that mock mishap drills through desktop or simulation are held annually and that the ASO evaluates the results to ensure optimal coordination with stakeholders for the Mishap Preparedness and Contingency Plan.	Center Directors	IAOP Review
664	6.4.1 d	In addition to the requirements in NPR 8621.1, each Center's plan shall establish procedures for notifying and working with the FAA for aircraft accidents or other reportable aircraft related incidents under Federal regulations.	Center's Chief of Flight Operations	IAOP Review
665	6.4.2	The Center safety office, with the support of the IRT, and the Center Flight Operations, shall coordinate with the Agency NAMIS Manager the impounding of all NAMIS data and records for the aircraft, support equipment, and facilities that may be involved in the mishap to prevent their unauthorized use or modification.	Center's Chief of Flight Operations	IAOP Review

666	7.2.1	Pilots shall hold an FAA First-Class medical certificate, military pilot flight physical, or obtain a NASA flight medical certification, renewed annually or more frequently, if specified by the Center Director or a competent medical authority.	Center's Chief of Flight Operations	IAOP Review
667	7.2.1.1	Flightcrew of high-performance jet aircraft or ejection-seat configured aircraft shall obtain a military pilot flight physical or NASA flight medical certification.	Center's Chief of Flight Operations	IAOP Review
668	7.2.1.2	Pilots 55 years of age and older shall be medically certified every 6 months.	Center's Chief of Flight Operations Operations Operations	IAOP Review
669	7.2.2	Flight Engineers shall hold either an FAA Second- Class medical certificate, military flight physical, or obtain NASA flight medical certification, which will be renewed annually or earlier if specified by a competent medical authority.	Center's Chief of Flight Operations	IAOP Review
670	7.2.3	Other primary aircrew shall hold either an FAA Third- Class medical, military flight physical, or NASA flight medical certification, which will be renewed annually or earlier, if specified by a competent medical authority.	Center's Chief of Flight Operations	IAOP Review
671	7.2.4	Qualified non-crewmembers shall obtain medical clearances as required by Center procedures. At a minimum, a medical screening will be conducted by a NASA physician, as appropriate for the mission.	Center's Chief of Flight Operations	IAOP Review
672	7.2.5	Center Directors shall establish procedures, in coordination with their personnel offices, to ensure that primary aircrews are assigned to duties not involving flight if they become medically disqualified.	Center Directors	IAOP Review

673	7.3.1	Copies of current medical certification shall be kept on file at the primary aircrew and qualified non-crewmembers' operating site.	Center's Chief of Flight Operations	IAOP Review
674	7.5.1	Flightcrews shall report Special Issuances (FAA Waivers) and FAA Statements of Demonstrated Ability (SODA) to the Chief of Flight Operations for review and acceptance by a NASA Aeromedical Physician.	Center's Chief of Flight Operations	IAOP Review
675	8.1.1	The Center's Aircraft Flight Operations organizations shall coordinate all aircraft acquisition and disposition actions with the cognizant Center Supply and Equipment Management Officer(s) in accordance with NPR 4200.1.	Center Directors	IAOP Review
676	8.1.2	In addition, transfer of aircraft between Federal agencies and disposal of aircraft, including exchange/sales by Federal agencies in accordance with 41 CFR Part 102-39, Replacement of Personal Property Pursuant to the Exchange/Sale Authority, shall be completed by GSA.	Center Directors	GSA Review
677	8.2.2	In accordance with NPR 4200.1, Centers shall conduct annual physical inventories of Center-owned aircraft, including display aircraft, parts aircraft, and aircraft in flyable or non-flyable storage to determine the accuracy of the records and the PPES control system and adjustments made to ensure that financial statements are accurate.	Center Directors	IAOP Review
678	8.3.1	Prior to acquiring aircraft and UAS that meet the Agency asset capitalization threshold established by NPR 9250.1, for operational use, the Mission Directorate, the Associate Administrator, or the Center Director shall submit an acquisition request to the HQ AMD, per Appendix H, along with a business case analysis in support of the aircraft acquisition, including the costs to purchase the	Center Directors	IAOP Review

		aircraft and make it operational.		
679	8.3.1.1	The Business Case Analysis may be in a format of choice, but shall contain sufficient detail to answer capital asset planning questions posed in OMB Circular A-11, (Aviation Business Case-ABC).	Center Directors	IAOP Review
680	8.3.1.2	The Business Case Analysis also shall clearly link the aircraft acquisition to Agency strategic objectives and specific program/project goals and identify life-cycle budget requirements.	Center Directors	IAOP Review
681	8.3.1.3	Procurement of aircraft shall be conducted in accordance with established FAR and guidelines, including OMB Circular A-126, and initiated only after approval from the Director, Aircraft Management Division and after the alternatives below have been considered in the following order: a. Use of available NASA aircraft resources. b. Use of public aircraft owned by other Government agencies through loan or transfer. c. Charter or lease of civil aircraft.	Center Directors and Mission Directorates	IAOP Review
682	8.3.1.4	The acquisition of UAS that are below the Agency asset capitalization threshold shall be approved by the Center Director in accordance with documented Center process for UAS acquisition.	Center Directors	IAOP Review
683	8.3.1.4 a	Integral to the Center UAS acquisition process shall be an affirmation statement that the mission of the UAS, resources required, and the oversight burden are aligned with Center and Agency objectives and goals.	Center Directors	IAOP Review
684	8.3.1.4 b	Mission Directorate concurrence with the UAS mission requirements shall be documented and the Center Director approval of the UAS acquisition forwarded to HQ AMD.	Center Directors	IAOP Review

685	8.3.1.4 c	The Center process for acquisition of below-threshold UAS shall be evaluated for compliance during IAOP Reviews.	Center Directors	IAOP Review
686	8.3.2	In completing the requirements of Appendix H, the program/project manager shall coordinate with the Center Environmental Management Office to determine whether the proposed aircraft acquisition requires preparation of an environmental assessment.	Center Directors	IAOP Review
687	8.3.4	Mission Directorates shall establish and Centers endorse the requirements and funding level for each aircraft assigned to support their programs and approve the program/project managers' acquisition requests prior to submission to HQ AMD.	Mission Directorates	Concurrent Clearance Process
688	8.3.5	AMD shall enter all acquired aircraft into the Federal Aircraft Interactive Reporting System (FAIRS).	Aircraft Division	IAOP Review
689	8.3.6	Centers shall record all acquired aircraft in the NASA Equipment Management System (Plant, Property, and Equipment System (PPES)) in accordance with NPR 4200.1.	Center Directors	IAOP Review
690	8.3.7	Centers shall register all aircraft, including UAS but excluding parts and DoD-loaned aircraft, with the FAA.	Center Directors	IAOP Review
691	8.4.1	"Parts Aircraft" Acquisition. The program/project manager or Center Director shall notify the HQ AMD prior to acquisition of an aircraft whose intended use is for "parts aircraft."	Center Directors	IAOP Review
692	8.4.1 a	Centers shall remove the data plates from all aircraft acquired solely for parts purposes and forward the data plates to HQ AMD for disposition.	Center Directors	IAOP Review
693	8.4.1 b	Centers shall enter parts aircraft into each respective Center's property inventory records, in accordance with NPR 4200.1.	Center Directors	IAOP Review

694	8.4.1 c	Centers shall dispose of parts aircraft with 5 years of initial acquisition unless otherwise extended by AMD.	Center Directors	IAOP Review
695	8.4.1 d	Prior to operating any aircraft that were acquired for parts purposes, Centers shall submit a request to activate an aircraft as outlined in 8.2.1.	Center Directors	IAOP Review
696	8.4.2	Aircraft materiel, such as spare parts, shall be acquired, managed, and controlled in compliance with NPR 4100.1 and 41 CFR Part 102-33.	Center Directors	IAOP Review
697	8.4.3.1	For as long as FSCAP or Life Limited Parts are used or kept by NASA, the documentation that accompanies those parts shall be maintained and kept updated.	Center Directors	IAOP Review
698	8.4.3.2	When FSCAP and Life Limited Parts are disposed, the up-to-date documentation shall accompany the parts.	Center Directors	IAOP Review
699	8.4.3.3	The Criticality Code of an FSCAP shall be maintained and perpetuated on all property records and reports of excess.	Center Directors	IAOP Review
700	8.5.1.1	Unless extended or waived by AMD, all Inactive Aircraft shall be dispositioned within 5 years of inactive status in coordination with Center Logistics.	Center Directors	IAOP Review
701	8.5.1.2	Disposal of NASA aircraft identified as artifacts or heritage assets shall be in accordance with NPR 4310.1.	Center Directors	IAOP Review
702	8.5.1.3	Aircraft disposition shall be coordinated and approved in advance by HQ AMD.	Center Directors	IAOP Review
703	8.5.1.4	External [aircraft] loan agreements shall be reviewed by the Center's Chief Counsel, other Center officials as appropriate, and approved by the Center Supply and Equipment Management Officer (SEMO), in accordance with NPR 4200.1.	Center Directors	IAOP Review

704	8.5.1.4 b	Aircraft loaned externally by NASA for display, even when done as part of the NASA Exhibits Program, shall be accompanied by a loan agreement signed by the Center SEMO.	Center Directors	IAOP Review
705	8.5.1.5	NASA aircraft can be exchanged or sold, but shall be coordinated with the GSA.	Center Directors	GSA Review
706	8.5.1.5 a	Requests accompanied by written justifications shall be coordinated through the NASA AMD and the NASA Property Disposal Officer (PDO) as outlined in NPD 4300.1.	Center Directors	IAOP Review
707	8.5.1.5 c	When an aircraft that has an FAA Certificate of Airworthiness is removed from the inventory, the Certificate shall be removed from the aircraft and forwarded to the HQ AMD for disposition, unless the aircraft is transferred to another Government agency that intends to operate it or it is sold through GSA to a civil operator.	Center Directors	IAOP Review
708	8.5.2	When an aircraft is removed from the inventory that is not capable of obtaining an FAA Certificate of Airworthiness or is deemed by the Center's Flight Operations Office to be unsafe for civil use, the manufacturer's data plate shall be removed and forwarded to HQ AMD for disposition.	Center Directors	IAOP Review
709	9.1.1	Results of the [IAOP] reviews shall be used to update NASA-wide or local requirements in order to enhance standardization and improve productivity.	Center Directors	IAOP Review
710	9.1.1.1	NASA IAOP Reviews shall be conducted for commercial aircraft services (CAS) operators that exceed 1 year's period of performance, require a NASA Statement of Airworthiness, or involve NASA personnel participating in flight.	Center Directors	IAOP Review

711	9.1.1.2	IAOP Reviews of CAS operators shall be funded by the project or program procuring the services.	Program/Project Managers	IAOP Review
712	9.1.1.3	NASA IAOP Reviews shall be conducted for Centers, including Federally Funded Research and Development Centers (FFRDC) that operate UAS, including Component Facilities; the Jet Propulsion Laboratory, a Federally Funded Research and Development Center, and other NASA contractors and grantees as specified in their contracts or grants; and to other organizations (i.e., commercial partners, other Federal agencies, international parties, and tenants on Centers) as specified and described in written operating agreements.	Program/Project Managers	IAOP Review
713	9.2.1	The HQ AMD shall establish IAOP Review teams to review all aspects of flight operations at NASA Centers, including the implementation of Center procedures, on a 30-month cycle, Center requested special IAOP Review, or as determined by the HQ AMD.	AMD	IAOP Review
714	9.2.1.1	Center Directors shall provide SMEs to the IAOP Review Teams as requested by AMD to support the IAOP Review Program.	Center Directors	IAOP Review
715	9.2.1.2	Flight Operations Chiefs shall designate a point of contact to coordinate IAOP Review support with HQ AMD.	Center's Chief of Flight Operations	IAOP Review
716	9.3.1.1 a	The size and experience of the [IAOP] Team shall reflect the scope and depth of the review.	AMD	IAOP Review
717	9.3.1.1 b	Team members shall be selected from various Centers and HQ to provide SMEs in the areas of operations, maintenance, QA, facilities, airworthiness, Aviation Life Support Systems, security, UAS, finance, and aviation safety.	AMD	IAOP Review

718	9.3.1.3	Communications. The IAOP Team shall conduct an entrance and exit briefing as well as frequent debriefs to Center Management as necessary.	IAOP Review Team Lead	IAOP Review
719	9.3.1.3 a	The entrance briefing will be conducted prior to the Team's arrival on Center. At the entrance briefing, Center Management shall provide a brief on the Center's Flight Operations Program.	IAOP Review Team Lead	IAOP Review
720	9.3.1.3 b	The exit briefing shall be conducted onsite for the Center Director or, if the Center Director is unexpectedly and unavoidably absent, the Deputy Center Director.	IAOP Review Team Lead	IAOP Review
721	9.3.1.3 b (1)	The exit briefing will not be given to an official further down the Center chain of command and shall be rescheduled if the Center Director and Deputy are both unavailable.	IAOP Review Team Lead	IAOP Review
722	9.3.1.3 b (2)	A draft report concerning all findings and recommendations shall be provided at the exit brief.	IAOP Review Team Lead	IAOP Review
723	9.3.1.4	The entrance briefing given by the Center Flight Chief to the review team shall be a comprehensive review of aircraft operations procedures and documentation.	IAOP Review Team Leader	IAOP Review
724	9.3.2	Reviewers shall ensure compliance with established NASA, FAA, DoD, manufacturer, industry, and association standards, processes, and procedures.	IAOP Review Team Leader	IAOP Review
725	9.3.3	The team leader shall hold daily team progress meetings to discuss discrepancies and recommendations.	IAOP Review Team Leader	IAOP Review
726	9.3.4	The team leader's exit briefing shall be in sufficient detail to inform Center management of the status of local Flight Operations activities with particular emphasis on significant findings and recommendations requiring management's attention.	IAOP Review Team Leader	IAOP Review

727	9.3.4.1	In the interest of safety and clarity of communication, if the consensus of the review team and their findings reflects their view that the level of flight safety at the Center is such that there is a significant increase in the probability of an aviation mishap, the Team Leader shall inform the Center Director or Deputy of that view, to include, as appropriate, a recommendation to cease flight operations pending resolution of the underlying issue(s).	IAOP Review Team Leader	IAOP Review
728	9.3.5	The review team shall document results in a brief report that focuses on findings and recommendations.	IAOP Review Team Leader	IAOP Review
729	9.3.5.1	[Review report] findings shall be objective and impact assessments accurately stated.	IAOP Review Team Leader	IAOP Review
730	9.3.5.4	The report shall be forwarded by the review team leader to the Assistant Administrator for the OSI for endorsement and forwarding to the Center Director for corrective action. A copy will be provided to the Director, AMD.	IAOP Review Team Leader	IAOP Review
731	9.3.6	The Center Director shall respond to the Assistant Administrator for the OSI concerning corrective actions.	Center Directors	IAOP Review
732	10.1.3	Except for passenger carriage, CAS flights shall be conducted as public use aircraft operations under NASA's aircraft authority.	Center Contracting Officer	IAOP Review
733	10.1.4	All CAS operations shall be inspected by NASA Center Flight Operations personnel prior to contract award.	Center Contracting Officer	IAOP Review
734	10.1.5	For all CAS contracts and agreements NASA shall ensure that the operator hold and maintain a 14 CFR 121 Certificate or 14 CFR 135 Certificate and meet the requirements of this chapter.	Center Contracting Officer	IAOP Review

735	10.1.5.1	NASA may approve deviations to an operator's 14 CFR 135 Certificate under NASA's public use authority while operating a NASA mission. Such deviations shall be authorized in writing by the Center Chief of Flight Operations.	Center Chief of Flight Operations	IAOP Review
736	10.1.5.4	If a CAS aircraft has a FAA Experimental or Provisional Certificate, the airworthiness of the aircraft shall be reviewed and approved by the Center's airworthiness review process and a NASA airworthiness certificate issued.	Center Directors	IAOP Review
737	10.1.5.5	If a CAS aircraft has been modified as described in section 2.6, the aircraft configuration and airworthiness shall be reviewed and approved by the Center's airworthiness review process and a NASA Airworthiness Certificate or statement issued.	Center Directors	IAOP Review
738	10.1.5.6	If the aircraft has FAA Form 337 documentation (FAA Series 8110, 8100.9), the Center shall review the Designated Engineering Representative (DER)/Designated Airworthiness Representative (DAR) evaluation.	Center Directors	IAOP Review
739	10.2.1	The Assistant Administrator, OSI, shall ensure that the CAS policies are in compliance with applicable Federal regulations.	Assistant Administrator, OSI	IAOP Review
740	10.2.2	MDs shall coordinate with AMD as early as possible in the planning process when establishing program or project plans that involve the acquisition of commercial aircraft services.	Mission Directorates	IAOP Review
741	10.2.3	Center Directors shall ensure Center Flight Operations is involved in the CAS planning and review process as soon as practical.	Center Directors	IAOP Review

742	10.2.4	All Center CAS contracts or agreements including Space Act Agreements that include aviation operations, shall be coordinated, reviewed, and concurred with by the Center's Flight Operations prior to contract award or execution of the agreement.	Center Contracting Officer	IAOP Review
743	10.2.4 .1	The Chief of Flight Operations oversees the Center's surveillance of contractor aircraft operations. The Chief of Flight Operations shall determine which requirements and regulations apply to the contract and then ensure the contractor meets those requirements.	Center Chief of Flight Operations	IAOP Review
744	10.2.4 .2	The Chief of Quality Assurance shall provide support for CAS oversight and Surveillance Plan development and implementation.	Chief of Quality Assurance	IAOP Review
745	10.2.4 .3	The Center Engineering Technical Authority working with the Center Airworthiness Review Board shall provide airworthiness coordination and support for CAS operations as required.	Center Chief Engineer	IAOP Review
746	10.3.1	The contractor shall ensure that the aircraft and all required equipment are operated and maintained in accordance with the manufacturer's specifications.	Center Contracting Officer	IAOP Review
747	10.3.1.1 a	The contractor shall comply with Manufacturer's Mandatory Service Bulletins (MMSBs) and FAA Airworthiness Directives (Ads) before and during agreement performance.	Center Contracting Officer	IAOP Review
748	10.3.1.1 b	The contractor shall provide and make available a list of all completed MMSBs and FAA ADs applicable to the contract aircraft in the format shown in FAA Advisory Circular (AC) 43-9C complete with authorized signature, certificate, type, and number.	Center Contracting Officer	IAOP Review
749	10.4.1	The [CAS] contractor shall have a documented Aviation Safety Program.	Center's Chief of Flight Operations	IAOP Review

750	10.4.2	The Chief of Flight Operations shall incorporate CAS mishap prevention and mishap notification in the Center's Aviation Safety Program.	Center's Chief of Flight Operations	IAOP Review
751	10.5.1	In accordance with Agency requirements, a Surveillance Plan shall be implemented for all CAS contracts due to the critical and complex nature of CAS operations as defined in NPR 8735.2.	Center's Chief of Flight Operations	IAOP Review
752	10.5.2	The CAS contract shall cite and allow NASA access to all maintenance and flight efforts performed under a NASA contract regardless of contractor/subcontractor status.	Center Contracting Officer	IAOP Review
753	10.5.3	The Surveillance Plan shall be coordinated and supported by flight operations to ensure that qualified aircraft operations and maintenance personnel are involved through the life of the contract.	Center's Chief of Flight Operations	IAOP Review
754	10.5.4	Inspections shall be conducted for all CAS operators, aircraft, pilots, and maintainers.	Center's Chief of Flight Operations	IAOP Review
755	10.5.4.1	Centers shall develop and use a standard checklist to document the inspection and associated results. This inspection will review as a minimum: a. The operator's flight operations and maintenance manuals, aircraft logbooks, and personnel training records. b. The aircraft for configuration control and material condition to meet NASA mission requirements.	Center's Chief of Flight Operations	IAOP Review
756	10.5.5	Surveillance and Inspection Teams shall include, at a minimum, a pilot and maintainer to provide expertise in the areas of operations, maintenance, quality assurance, airworthiness, and aviation safety. The mix of members may vary for each inspection.	Center's Chief of Flight Operations	IAOP Review

757	10.5.6	Programs and projects that involve CAS shall ensure that the oversight and surveillance functions required for CAS operations are included in their budgets and allocated to the appropriate organizations.	Program/Project Managers	IAOP Review
758	11.3.1	Centers shall use the NASA Aircraft Cost and Performance worksheets in Appendix H to report aircraft data, including use of Commercial Aviation Services (CAS), to HQ AMD within 45 days after the end of each quarter.	Center Directors	IAOP Review
759	11.3.1.1	Aircraft Inventory Data Reporting. Centers shall use the Aviation Inventory Report worksheet in Appendix H to report the number and type of aircraft operated.	Center Directors	IAOP Review
760	11.3.1.2	Centers shall ensure all aircraft operational information is accurately recorded in NAMIS.	Center Directors	IAOP Review
761	11.3.1.2 a	CAS aircraft operations are not normally recorded in NAMIS. CAS hours and sorties flown but not reported in NAMIS shall be provided to AMD via other electronic means.	Center Directors	IAOP Review
762	11.3.1.3	Centers shall ensure all mishap information with costs of mishaps to the nearest dollar, including CAS aircraft operations, are accurately recorded in NMIS (NASA Mishap Information System) to report aircraft operational safety metrics.	Center Directors	IAOP Review
763	11.3.1.4	Aircraft Cost Data Reporting. The Centers shall use the Aircraft Cost and Performance worksheets in Appendix H-5 to report aircraft costs, including contracted CAS.	Center Directors	IAOP Review
764	11.3.1.4 a	Accrued costs, as opposed to disbursements or obligations, shall be reported for each aircraft type operated during the fiscal year.	Center Directors	IAOP Review
765	11.3.1.4 c	Costs shall be reported to the nearest dollar.	Center Directors	IAOP Review

766	11.3.1.4 c (1) (a)	While it is not necessary to backtrack and correct the data in the Business Warehouse to report costs as requested, any data errors observed in the Business Warehouse and any data adjustments necessary to formulate and report accurate aircraft costs shall be documented.	Center Directors	IAOP Review
767	11.3.1.4 c (1) (b)	Center CFOs shall implement actions to correct any financial errors uncovered in the Business Warehouse.	Center Chief Financial Officer	IAOP Review
768	12.2.1	To be eligible to be assigned to flight status, aircrew members shall meet all applicable requirements of Chapters 3 and 4, including any additional Center requirements, and will be assigned as either of the following: (1) GS-2181, Aircraft Operations Series. (2) GS-0861, Aerospace Engineering Series.	Center Directors	IAOP Review
769	12.2.1.1	Pilots and aircrew shall meet the applicable series and grade requirements of the applicable OPM standard.	Center Directors	IAOP Review
770	12.2.3	Each Center Director and Chief of Flight Operations, in close coordination with the Center's Human Resources Office, shall establish a process to designate pilots and aircrew.	Center Directors	IAOP Review
771	12.2.3.2	To qualify for assignment as a NASA pilot of manned aircraft, only manned aircraft time shall apply.	Center Directors	IAOP Review
772	12.2.4	Each Center's Chief of Flight Operations shall establish procedures for assignment of aircrew to flight status and document those procedures in the Center Aviation Operations Manual.	Center's Chief of Flight Operations	IAOP Review
773	12.2.4.1	Fully qualified NASA pilots may be assigned as UAS pilots, but for UAS pilots to fly manned NASA aircraft, they shall meet NASA pilot qualification minimums.	Center's Chief of Flight Operations	IAOP Review

774	12.3.1	Each Center's Chief of Flight Operations shall establish procedures for temporary removal of aircrew personnel from flight status for situations other than medical disqualification (Chapter 7).	Center's Chief of Flight Operations	IAOP Review
775	12.3.1.2	The Center Director, in accordance with human resources procedures, shall review and approve any non-medical-related proposal for removal from flight status in excess of 30 days.	Center Directors	IAOP Review
776	12.3.4	The [flight performance] board shall be composed of, at a minimum, two pilots and a flight surgeon.	Center's Chief of Flight Operations	IAOP Review
777	12.3.4.1	Board Members shall be assigned to the board at the discretion of the convening authority. At a minimum, one from each of the following specialties should be assigned as advisors: (1) Flight Surgeon. The board participating Flight Surgeon cannot be called as a witness for the process. (2) Pilots senior to the individual being evaluated with at least one of the pilots thoroughly versed in the type of flight operations involved. (3) When pilots or Flight Surgeons from the convening Center are not available, Centers will utilize pilots and/or Flight Surgeons from other Centers.	Center Directors	IAOP Review
778	12.3.4.2	If a Flight Performance Board is convened, a flight status recommendation shall be delivered to the Center Director.	Center's Chief of Flight Operations	IAOP Review
779	12.3.4.3	The recommendation from the Flight Performance Board shall recommend either Continuation of Flight Status or the Termination of Flight Status.	Center Directors	IAOP Review

780	13.1.1	a. Center Directors shall equip airfield management personnel with sufficient budget and human resources to comply with the requirements of this NPR.	Center Directors	IAOP Review
781	13.1.2	Centers only shall operate an airfield when the Center adopts and complies with an Airfield Operations Manual, in accordance with paragraph 13.2.	Center Directors	IAOP Review
782	13.1.3	NASA heliports shall comply with the airfield requirements in this NPR. Specific references in this chapter also apply to NASA-owned and -maintained ramp and movement areas.	Center Directors	IAOP Review
783	13.1.4	A Center operating an airfield shall ensure that the FAA Regional Airports Division Manager is provided a complete copy of the Center's most current Airfield Operations Manual.	Center Directors	IAOP Review
784	13.1.5	Centers providing access to their airfield to the general public for aircraft operations conducted under civil regulations shall identify all deviations and noncompliance from 14 CFR Part 139, Certification of Airports, and provide this information to the Aircraft Management Division, OSI for approval.	Center Directors	IAOP Review
785	13.1.6 a	Centers shall establish and maintain Pre-Mishap Plan/Aircraft Incident Response Plans, in accordance with NPR 8621.1, that meet the following requirements: develop and maintain an airfield emergency plan designed to minimize the possibility and extent of personal injury and property damage on the airfield in an emergency.	Center Directors	IAOP Review
786	13.1.6 b	Centers shall establish and maintain Pre-Mishap Plan/Aircraft Incident Response Plans, in accordance with NPR 8621.1, that meet the following requirements: coordinate the plan with law enforcement agencies, rescue and firefighting agencies, medical personnel and organizations. the	Center Directors	IAOP Review

		principal tenants at the airfield, and all other persons who have responsibilities under the plan.		
787	13.1.6 c	Centers shall establish and maintain Pre-Mishap Plan/Aircraft Incident Response Plans, in accordance with NPR 8621.1, that meet the following requirements: hold a full-scale airfield emergency plan exercise at least once every 24-consecutive calendar months.	Center Directors	IAOP Review
788	13.1.6.2	At least once every 12 consecutive calendar months, the plan shall be reviewed with all the parties with whom the plan is coordinated, as specified in this NPR, to ensure that all parties know their responsibilities and to ensure that all information in the plan is current.	Center Directors	IAOP Review
789	13.1.7	The Center shall conduct training needed to meet the following requirements prior to the initial performance of such duties and at least once every 12 consecutive calendar months: a. To provide qualified personnel to comply with the requirements of this NPR. b. To qualify personnel who access movement areas and safety areas and perform duties in compliance with the requirements of the Airfield Operations Manual and the requirements of this NPR.	Center Directors	IAOP Review
790	13.1.8	Centers operating airfields or aircraft ramp or movement areas shall conduct a Pavement Condition Index (PCI) survey at least once every 5 years.	Center Directors	IAOP Review
791	13.1.9	Airfield-condition reporting shall be conducted in a manner authorized by the Center Director and meet the following requirements: a. Provide for the collection and dissemination of airfield condition information to aircraft operators, including alerts on bird and other wildlife activity.	Center Directors	IAOP Review

		<p>b. Use the Notices to Airmen (NOTAM) system, as appropriate, and other systems and procedures authorized by the FAA.</p> <p>c. Provide information on the following airfield conditions that may affect the safe operations of aircraft:</p> <ul style="list-style-type: none"> (1) Construction or maintenance activity on movement areas, safety areas, or loading ramps and parking areas. (2) Surface irregularities on movement areas, safety areas, or loading ramps and parking areas. (3) Snow, ice, slush, or water on the movement area or loading ramps and parking areas. (4) Snow piled or drifted on or near movement areas. (5) Objects on the movement area or safety areas. (6) Malfunction of any lighting system, holding position signs, or Instrument Landing System (ILS) critical area signs. (7) Unresolved wildlife hazards. (8) Non-availability of any rescue and firefighting capability required. (9) Any other condition specified in the Airfield Operations Manual or that may otherwise adversely affect the safe operation of aircraft. <p>d. Procedures for identifying, marking, and lighting construction and other unserviceable areas.</p> <p>e. Any other item that the Center Director finds is necessary to ensure safety in airfield operations.</p>		
792	13.2.1	<p>The Center shall maintain an Airfield Operations Manual that includes descriptions of operating procedures, facilities and equipment, responsibility assignments, and any other information needed by personnel concerned with operating the airfield.</p>	Center Directors	IAOP Review

793	13.2.2	<p>The Center shall include in the Airfield Operations Manual the following required elements:</p> <ul style="list-style-type: none"> a. Lines of succession of airfield operational responsibility. b. Copies of current waivers, variances, or deviations issued to the airfield. c. Any limitations imposed by the Administrator. d. A grid map or other means of identifying locations and terrain features on and around the airfield that are significant to emergency operations. e. The location of each obstruction within the airfield's area of authority required to be lighted or marked. f. A description of all movement areas that are available for civil and public aircraft operators and the airfield's safety areas and all roads that serve them. g. Procedures for avoidance of interruption or failure during construction work of utilities that serve facilities or NAVAIDS that support aircraft operations. h. A description of airfield personnel training detailed in paragraph 13.1.5. i. Procedures for maintaining paved areas. j. Procedures for maintaining unpaved areas. k. Procedures for maintaining safety areas. l. A plan showing the runway and taxiway identification system, including the location and inscription of signs, runway markings, and holding-position markings. m. A description of marking, signs, and lighting systems and procedures for maintaining them. n. A snow and ice control plan. Prompt notification will be given to all aircraft operators using the airfield when any portion of the movement area is less 	Center Directors	IAOP Review
-----	--------	---	------------------	-------------

		<p>than satisfactorily cleared for safe operation of their aircraft.</p> <p>o. A description of the facilities, equipment, personnel, and procedures for meeting the aircraft rescue and firefighting requirements detailed in paragraph 13.3.</p> <p>p. Procedures for protecting persons and property during storing, dispensing, and handling fuel or other hazardous substances and materials.</p> <p>q. A description of traffic and wind direction indicators and procedures for maintaining them.</p> <p>r. The Pre-Mishap Plan/Aircraft Incident Response Plan, as specified in paragraph 13.1.4.</p> <p>s. Procedures for conducting a biennial self-inspection program.</p> <p>t. Procedures for controlling pedestrians and ground vehicles in movement areas and safety areas.</p> <p>u. Procedures for obstruction removal, marking, or lighting.</p> <p>v. Procedures for protection of NAVAIDS.</p> <p>w. A description of public protection.</p> <p>x. Procedures for wildlife hazard management, as specified in Section 13.4.</p> <p>y. Airfield condition reporting procedures, as specified in Section 13.1.6.</p>		
794	13.3.1	The Center shall provide and maintain facilities, equipment, personnel, and procedures for meeting the aircraft rescue and firefighting requirements, in accordance with NPR 8715.3 and NASA-STD-8719.11 for the capacity of aircraft and the level of aircraft operations being conducted at the airfield.	Center Directors	IAOP Review
795	13.3.1.1	During aircraft operations at the airfield, the Center shall provide the rescue and firefighting capability specified for the level of operations.	Airfield Manager	IAOP Review

796	13.3.1.2	In the event that fire protection is temporarily not available due to lack of personnel, equipment, or other emergencies, the Center shall establish procedures to restrict the use of the airfield and notify aircraft operators of the temporary suspension of airfield operations.	Center Director	IAOP Review
797	13.3.1.3	All rescue and firefighting personnel shall participate in at least one live-fire drill prior to initial performance of rescue and firefighting duties and every 12 consecutive calendar months thereafter.	Airfield Manager	IAOP Review
798	13.4.1	The Center shall take immediate action to eliminate wildlife hazards whenever they are detected.	Airfield Manager	IAOP Review
799	13.4.2	The Center shall ensure that a wildlife hazard assessment is conducted by a wildlife damage management biologist who has professional training and/or experience in wildlife hazard management at airfields or an individual working under direct supervision of such an individual.	Airfield Manager	IAOP Review
800	13.4.3	The Center shall conduct a training program by a qualified wildlife damage management biologist to provide airfield personnel with the knowledge and skills needed to successfully carry out the required wildlife hazard management plan.	Airfield Manager	IAOP Review
801	13.4.4	The Center shall track and report all bird strikes and other wildlife strikes either in NMIS or the NASA Aircraft Anomaly Reporting System (NAARS) in accordance with NPR 8621.1.	Airfield Manager	IAOP Review
802	13.4.5	The Center shall conduct a periodic review of bird hazards using a team similar to the U.S. Air Force Bird/Wildlife Aircraft Strike Hazard (BASH) team.	Airfield Manager	IAOP Review

803	13.4.6	The Center shall implement a wildlife hazard management plan using the wildlife hazard assessment as a basis.	Airfield Manager	IAOP Review
804	13.5.1	Whenever the requirements of this NPR cannot be met to the extent that uncorrected, unsafe conditions exist on the airfield, the Center shall limit aircraft operations to those portions of the airfield not rendered unsafe by those conditions.	Center Directors	IAOP Review
805	13.6.1	In emergency conditions requiring immediate action for the protection of life or property, the Center may deviate from any requirement of this NPR or the Airfield Operations Manual to the extent required for the emergency. Each Center that deviates from a requirement under this paragraph shall, within 14 days after the emergency, notify HQ AMD and OSMA of the nature, extent, and duration of the deviation.	Center Directors	IAOP Review

[| TOC](#) | [| ChangeHistory](#) | [| Preface](#) | [| Chapter1](#) | [| Chapter2](#) | [| Chapter3](#) | [| Chapter4](#) | [| Chapter5](#) | [| Chapter6](#) | [| Chapter7](#) | [| Chapter8](#) | [| Chapter9](#) | [| Chapter10](#) | [| Chapter11](#) | [| Chapter12](#) | [| Chapter13](#) | [| AppendixA](#) | [| AppendixB](#) | [| AppendixC](#) | [| AppendixD](#) | [| AppendixE](#) | [| AppendixF](#) | [| AppendixG](#) | [| AppendixH](#) | [| AppendixI](#) | [| ALL](#) |

[| NODIS Library](#) | [| Program Formulation\(7000s\)](#) | [| Search](#) |

DISTRIBUTION:
NODIS

This document does not bind the public, except as authorized by law or as incorporated into a contract. This document is uncontrolled when printed. Check the NASA Online Directives Information System (NODIS) Library to verify that this is the correct version before use: <https://nodis3.gsfc.nasa.gov>.
