ASA's 2025 FAR/AIM Update

Changes to the Federal Aviation Regulations occur via the *Federal Register*, which is published daily. The *Aeronautical Information Manual* is updated every 180 days, and Advisory Circulars are revised as the FAA deems necessary. ASA tracks all relevant changes to keep you current and informed: the ASA FAR/AIM Series is published annually, and all Updates are available at **asa2fly.com/farupdate** and through a free email subscription service that notifies you of changes affecting the information printed in your books.

ASA's 2025 *FAR/AIM* book is current through May 10, 2024. With this Update, information is current through **July 2, 2025**.

The *AIM* changes (*AIM Change 3* effective September 5, 2024, to *AIM Basic* effective April 20, 2023, and *AIM Basic* effective February 20, 2025) begin on page 23.

TITLE 14: AERONAUTICS AND SPACE

PART 1
DEFINITIONS AND ABBREVIATIONS

➨ ***Change Date:*** *August 22, 2024*
➨ ***Effective Date:*** *October 21, 2024*
➨ ***Source:*** *Amdt. 1–76, 89 FR 67848*

The authority citation for Part 1 is revised to read as follows:

Authority: 49 U.S.C. 106(f), 40113, 44701.

➨ ***Change Date:*** *November 21, 2024*
➨ ***Effective Date:*** *January 21, 2025*
➨ ***Source:*** *Amdt. 1–78, 89 FR 92483*

Amend §1.1 by revising the introductory text and the definition of "Autorotation" to read as follows:

§1.1 General definitions.

As used in this chapter, unless the context requires otherwise:
* * * * *

Autorotation means a rotorcraft or powered-lift flight condition in which the lifting rotor is driven entirely by action of the air when the rotorcraft or powered-lift is in motion.
* * * * *

➨ ***Change Date:*** *October 2, 2024*
➨ ***Effective Date:*** *December 2, 2024*
➨ ***Source:*** *Amdt. 1–77, 89 FR 80338*

Amend §1.1 by revising paragraph (1)(ii) of the definition of "Public aircraft" to read as follows:

§1.1 General definitions.
* * * * *

Public aircraft * * *
(1) * * *
(ii) For the sole purpose of determining public aircraft status, *governmental function* means an activity undertaken by a government, such as national defense, intelligence missions, firefighting, search and rescue, law enforcement (including transport of prisoners, detainees, and illegal aliens), aeronautical research, biological or geological resource management (including data collection on civil aviation systems undergoing research, development, test, or evaluation at a test range (as such term is defined in 49 U.S.C. 44801)), infrastructure inspections, or any other activity undertaken by a governmental entity that the Administrator determines is inherently governmental.
* * * * *

➨ ***Change Date:*** *August 22, 2024*
➨ ***Effective Date:*** *October 21, 2024*
➨ ***Source:*** *Amdt. 1–76, 89 FR 67848*

Amend §1.1 by adding in alphabetical order the definition of "Supplemental restraint system" to read as follows:

§1.1 General definitions.
* * * * *

Supplemental restraint system means any device that is not installed on the aircraft pursuant to an FAA approval, used to secure an individual inside an aircraft when that person is not properly secured by an FAA-approved safety belt and, if installed, shoulder harness, or an approved child restraint system. It consists of a harness secured around the torso of the individual using the supplemental restraint system and a lanyard that connects the harness to an FAA-approved airframe attachment point inside the aircraft.
* * * * *

➨ ***Change Date:*** *November 21, 2024*
➨ ***Effective Date:*** *January 21, 2025*
➨ ***Source:*** *Amdt. 1–78, 89 FR 92483*

Amend §1.2 by revising the introductory text to read as follows:

§1.2 Abbreviations and symbols.

In this chapter:
* * * * *

Amend §1.3 by revising paragraphs (a) introductory text and (b) introductory text to read as follows:

§1.3 Rules of construction.

(a) In this chapter, unless the context requires otherwise:

* * * * *

(b) In this chapter, the word:

* * * * *

PART 43
MAINTENANCE, PREVENTIVE MAINTENANCE, REBUILDING, AND ALTERATION

➨ ***Change Date:*** *November 21, 2024*
➨ ***Effective Date:*** *January 21, 2025*
➨ ***Source:*** *Amdt. 43–62, 89 FR 92483*

Amend §43.1 by adding paragraph (e) to read as follows:

§43.1 Applicability.

* * * * *

(e) Additional applicability of maintenance provisions for powered-lift is set forth in part 194 of this chapter.

PART 61
CERTIFICATION: PILOTS, FLIGHT INSTRUCTORS, AND GROUND INSTRUCTORS

Editorial Correction: *In Part 61 on page 84 of ASA's 2025 FAR/AIM print book, change the section number for "Use of a flight simulator and flight training device" so the full section header reads as follows:*

§61.64 Use of a flight simulator and flight training device.

➨ ***Change Date:*** *October 1, 2024*
➨ ***Effective Date:*** *December 1, 2024*
➨ ***Source:*** *Amdt. 61–155, 89 FR 80049*

The authority citation for part 61 is revised to read as follows:

Authority: 49 U.S.C. 106(f), 40113, 44701–44703, 44707, 44709–44711, 44729, 44903, 45102–45103, 45301–45302; Sec. 2307 Pub. L. 114–190, 130 Stat. 615 (49 U.S.C. 44703 note); Sec. 318, Pub. L. 115–254, 132 Stat. 3186 (49 U.S.C. 44703 note); and Sec. 820, Pub. L. 118–63, 138 Stat. 1330 (49 U.S.C. 44939 note).

➨ ***Change Date:*** *November 18, 2024*
➨ ***Effective Date:*** *November 18, 2024*
➨ ***Source:*** *Amdt. 61–158, 89 FR 90577*

The authority citation for part 61 is revised to read as follows:

Authority: 49 U.S.C. 106(f), 40113, 44701–44703, 44707, 44709–44711, 44729, 44903, 45102–45103, 45301–45302; Sec. 2307 Pub. L. 114–190, 130 Stat. 615 (49 U.S.C. 44703 note); sec. 318, Pub. L. 115–254, 132 Stat. 3186 (49 U.S.C. 44703 note); and secs. 815 and 828, Pub. L. 118–63, 138 Stat. 1330 (49 U.S.C. 44703 note).

➨ ***Change Date:*** *December 27, 2024*
➨ ***Effective Date:*** *December 27, 2024*
➨ ***Source:*** *Amdt. 61–158A, 89 FR 105446*

The authority citation for part 61 is revised to read as follows:

Authority: 49 U.S.C. 106(f), 40113, 44701–44703, 44707, 44709–44711, 44729, 44903, 45102–45103, 45301–45302; Sec. 2307, Pub. L. 114–190, 130 Stat. 615 (49 U.S.C. 44703 note); sec. 318, Pub. L. 115–254, 132 Stat. 3186 (49 U.S.C. 44703 note); sec. 820, Pub. L. 118–63, 138 Stat. 1330 (49 U.S.C. 44939 note); secs. 815 and 828, Pub. L. 118–63, 138 Stat. 1328, 1336 (49 U.S.C. 44703 note).

➨ ***Change Date:*** *November 21, 2024*
➨ ***Effective Date:*** *January 21, 2025*
➨ ***Source:*** *Amdt. 61–157, 89 FR 92483*

In part 61, revise all references of "cross-country flight time" to read "cross-country time".

➨ ***Change Date:*** *July 23, 2024*
➨ ***Effective Date:*** *August 22, 2024*
➨ ***Source:*** *Amdt. 61–154, 89 FR 59608*

Revise Special Federal Aviation Regulation No. 73 to read as follows:

SFAR No. 73

ROBINSON HELICOPTER COMPANY, ROBINSON R-22/R-44 SPECIAL TRAINING AND EXPERIENCE REQUIREMENTS

Sections

1. Applicability.
2. Required training, aeronautical experience, endorsements, and flight review.
3. Expiration date.

1. ***Applicability.*** Under the procedures prescribed in this section, this Special Federal Aviation Regulation (SFAR) applies to all persons who seek to manipulate the controls, act as pilot in command, provide ground training or flight training, or conduct a flight review in a Robinson model R-22 or R-44 helicopter. The requirements stated in this SFAR are in addition to the current requirements of this part.

2. ***Required training, aeronautical experience, endorsements, and flight review.***

(a) *Ground Training.*

(1) Except as provided in paragraph 2(a)(2) of this SFAR, no person may manipulate the controls of a Robinson model R-22 or R-44 helicopter-for the purpose of flight unless the ground training specified in paragraph 2(a)(3) of this SFAR is completed and the person's logbook has been endorsed by a flight instructor authorized under paragraph 2(b)(5)(iv) of this SFAR.

(2) A person who holds a rotorcraft category and helicopter class rating on that person's pilot certificate and meets the experience requirements of paragraph 2(b)(1) or paragraph 2(b)(2) of this SFAR may not manipulate the controls of a Robinson model R-22 or R-44 helicopter for the purpose of flight unless the ground training specified in paragraph 2(a)(3) of this SFAR is completed and the person's logbook has been endorsed by a flight instructor authorized under paragraph 2(b)(5)(iv) of this SFAR.

(3) Ground training must be conducted by a flight instructor who has been authorized under paragraph 2(b)(5)(iv) of this SFAR and consists of the following general subject areas:

(i) Energy management;

(ii) Mast bumping;

(iii) Low rotor revolutions per minute (RPM) and rotor stall;

(iv) Low G conditions, effects, and proper recovery procedures; and

(v) Rotor RPM decay.

(4) The general subject areas identified in paragraph 2(a)(3) of this SFAR are intended to cover both Robinson model R-22 and R-44 helicopters.

(5) A person who can show satisfactory completion of the manufacturer's safety course may obtain an endorsement from an FAA aviation safety inspector in lieu of completing the ground training required by paragraphs 2(a)(1) and (2) of this SFAR.

(b) *Aeronautical Experience.*

(1) No person may act as pilot in command of a Robinson model R-22 unless that person:

(i) Has logged at least 200 flight hours in helicopters, at least 50 flight hours of which were in the Robinson model R-22 helicopter; or

(ii) Has logged at least 10 hours of flight training in the Robinson model R-22 helicopter and has received an endorsement from a flight instructor authorized under paragraph 2(b)(5)(iv) of this SFAR that the individual has been given the training required by this paragraph 2(b)(1)(ii) and is proficient to act as pilot in command of an R-22. The flight training must include at least the following abnormal and emergency procedures:

(A) Training in autorotation procedures and energy management, including utilizing a combination of flight control inputs and maneuvering to prevent overshooting or undershooting the selected landing area from an entry altitude that permits safe recovery;

(B) Autorotations at an entry altitude that permits safe maneuvering and recovery utilizing maximum glide configuration;

(C) Engine rotor RPM control without the use of the governor; and

(D) Low rotor RPM recognition and recovery.

(iii) Pilots who do not meet the experience requirement of paragraph 2(b)(1)(i) of this SFAR may not act as pilot in command of a Robinson model R-22 helicopter beginning 12 calendar months after the date of the endorsement identified in paragraph 2(b)(1)(ii) of this SFAR until those pilots have:

(A) Completed a flight review of the ground training subject areas identified by paragraph 2(a)(3) of this SFAR and the flight training identified in paragraph 2(b)(1)(ii) of this SFAR in an R-22; and

(B) Obtained an endorsement for that flight review from a flight instructor authorized under paragraph 2(b)(5)(iv) of this SFAR.

(2) No person may act as pilot in command of a Robinson model R-44 helicopter unless that person—

(i) Has logged at least 200 flight hours in helicopters, at least 50 flight hours of which were in the Robinson model R-44 helicopter. The pilot in command may credit up to 25 flight hours in the Robinson model R-22 helicopter toward the 50-hour requirement in the Robinson model R-44 helicopter; or

(ii) Has logged at least 10 hours of flight training in a Robinson helicopter, at least 5 hours of which must have been accomplished in the Robinson model R-44 helicopter, and has received an endorsement from a flight instructor authorized under paragraph 2(b)(5)(iv) of this SFAR that the individual has been given the training required by this paragraph 2(b)(2)(ii) and is proficient to act as pilot in command of an R-44. The flight training must include at least the following abnormal and emergency procedures—

(A) Training in autorotation procedures and energy management, including utilizing a combination of flight control inputs and maneuvering to prevent overshooting or undershooting the selected landing area from an entry altitude that permits safe recovery;

(B) Autorotations at an entry altitude that permits safe maneuvering and recovery utilizing minimum rate of descent configuration and maximum glide configuration;

(C) Engine rotor RPM control without the use of the governor; and

(D) Low rotor RPM recognition and recovery.

(iii) Pilots who do not meet the experience requirement of paragraph 2(b)(2)(i) of this SFAR may not act as pilot in command of a Robinson model R-44 helicopter beginning 12 calendar months after the date of the endorsement identified in paragraph 2(b)(2)(ii) of this SFAR until those pilots have:

(A) Completed a flight review of the ground training subject areas identified by paragraph 2(a)(3) and the flight training identified in paragraph 2(b)(2)(ii) of this SFAR in an R-44; and

(B) Obtained an endorsement for that flight review from a flight instructor authorized under paragraph 2(b)(5)(iv) of this SFAR.

(3) A person who does not hold a rotorcraft category and helicopter class rating must have logged at least 20 hours of flight training in a Robinson model R-22 helicopter from a flight instructor authorized under paragraph 2(b)(5)(iv) of this SFAR prior to operating it in solo flight. In addition, the person must obtain an endorsement from a flight instructor authorized under paragraph 2(b)(5)(iv) of this SFAR that training has been given in those maneuvers and procedures, and the instructor has found the applicant proficient to solo a Robinson model R-22 helicopter. This endorsement is valid for a period of 90 days. The flight training must include at least the following abnormal and emergency procedures:

(i) Training in autorotation procedures and energy management, including utilizing a combination of flight control inputs and maneuvering to prevent overshooting or undershooting the selected landing area from an entry altitude that permits safe recovery;

(ii) Autorotations at an entry altitude that permits safe maneuvering and recovery utilizing maximum glide configuration;

(iii) Engine rotor RPM control without the use of the governor; and

(iv) Low rotor RPM recognition and recovery.

(4) A person who does not hold a rotorcraft category and helicopter class rating must have logged at least 20 hours of flight training in a Robinson model R-44 helicopter from a flight instructor authorized under paragraph 2(b)(5)(iv) of this SFAR prior to operating it in solo flight. In addition, the person must obtain an endorsement from a flight instructor authorized under paragraph 2(b)(5)(iv) of this SFAR that training has been given in those maneuvers and procedures and the instructor has found the applicant proficient to solo a Robinson model R-44 helicopter. This endorsement is valid for a period of 90 days. The flight training must include at least the following abnormal and emergency procedures:

(i) Training in autorotation procedures and energy management, including utilizing a combination of flight control inputs and maneuvering to prevent overshooting or undershooting the selected landing area from an entry altitude that permits safe recovery;

(ii) Autorotations at an entry altitude that permits safe maneuvering and recovery utilizing minimum rate of descent configuration and maximum glide configuration;

(iii) Engine rotor RPM control without the use of the governor, and

(iv) Low rotor RPM recognition and recovery.

(5) No flight instructor may provide training or conduct a flight review in a Robinson R-22 or R-44 unless that instructor—

(i) Completes the ground training in paragraph 2(a) of this SFAR.

(ii) For the Robinson model R-22 helicopter, has logged at least 200 flight hours in helicopters, at least 50 flight hours of which were in the Robinson model R-22 helicopter, or for the Robinson model R-44 helicopter, logged at least 200 flight hours in helicopters, 50 flight hours of which were in Robinson helicopters. Up to 25 flight hours of Robinson model R-22 helicopter flight time may be credited toward the 50-hour requirement.

(iii) Has completed flight training in a Robinson model R-22 or R-44 helicopter, or both, on the following abnormal and emergency procedures—

(A) Training in autorotation procedures and energy management, including utilizing a combination of flight control inputs and maneuvering to prevent overshooting or undershooting the selected landing area from an entry altitude that permits safe recovery;

(B) For the Robinson model R-22 helicopter, autorotations at an entry altitude that permits safe maneuvering and recovery utilizing maximum glide configuration. For the Robinson model R-44 helicopter, autorotations at an entry altitude that permits safe maneuvering and recovery utilizing maximum glide configuration and minimum rate of descent configuration;

(C) Engine rotor RPM control without the use of the governor; and

(D) Low rotor RPM recognition and recovery.

(iv) Has been authorized by endorsement from an FAA aviation safety inspector or authorized designated examiner that the instructor has completed the appropriate training, meets the experience requirements, and has satisfactorily demonstrated an ability to provide training on the general subject areas of paragraph 2(a)(3) of this SFAR, and the flight training identified in paragraph 2(b)(5)(iii) of this SFAR.

(c) *Flight Review.*

(1) No flight review completed to satisfy §61.56 by an individual after becoming eligible to function as pilot in command in a Robinson model R-22 helicopter shall be valid for the operation of an R-22 unless that flight review was taken in an R-22.

(2) No flight review completed to satisfy §61.56 by an individual after becoming eligible to function as pilot in command in a Robinson model R-44 helicopter shall be valid for the operation of an R-44 unless that flight review was taken in the R-44.

(3) The flight review will include a review of the ground training subject areas of paragraph 2(a)(3) of this SFAR and flight training in abnormal and emergency procedures in the Robinson model R-22 or R-44 helicopter, as appropriate, identified in paragraph 2(b) of this SFAR.

(d) *Currency Requirements.* No person may act as pilot in command of a Robinson model R-22 or R-44 helicopter carrying passengers unless the pilot in command has met the recency of flight experience requirements of §61.57 in an R-22 or R-44, as appropriate.

3. *Expiration date.* This SFAR expires August 22, 2029, unless sooner revised or rescinded.

➧ ***Change Date:*** *October 1, 2024*
➧ ***Effective Date:*** *December 1, 2024*
➧ ***Source:*** *Amdt. 61–155, 89 FR 80049*

Remove Special Federal Aviation Regulation No. 100–2 from Part 61.

SPECIAL FEDERAL AVIATION REGULATION NO. 100–2 [REMOVED]

➧ ***Change Date:*** *November 21, 2024*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 61–157, 89 FR 92483*

Amend §61.1 by:

a. Revising paragraph (a); and

b. In paragraph (b) in the definition of "Cross-country time", revising paragraph (i) introductory text.

The revisions read as follows:

§61.1 Applicability and definitions.

(a) Except as provided in parts 107 and 194 of this chapter, this part prescribes:

(1) The requirements for issuing pilot, flight instructor, and ground instructor certificates and ratings; the conditions under which those certificates and ratings are necessary; and the privileges and limitations of those certificates and ratings.

(2) The requirements for issuing pilot, flight instructor, and ground instructor authorizations; the conditions under which those authorizations are necessary; and the privileges and limitations of those authorizations.

(3) The requirements for issuing pilot, flight instructor, and ground instructor certificates and ratings for persons who have taken courses approved by the Administrator under other parts of this chapter.

(b) * * *

Cross-country time * * *

(i) Except as provided in paragraphs (ii) through (vii) of this definition, time acquired during flight—

* * * * *

➧ ***Change Date:*** *October 2, 2024*
➧ ***Effective Date:*** *December 2, 2024*
➧ ***Source:*** *Amdt. 61–156, 89 FR 80339*

Amend §61.1 in paragraph (b) by adding the definition of "Passenger" in alphabetical order to read as follows:

§61.1 Applicability and definitions.

* * * * *

(b) * * *

Passenger means any person on board an aircraft other than a crewmember, FAA personnel, manufacturer personnel required for type certification, or a person receiving or providing flight training, checking, or testing as authorized by this part.

* * * * *

➧ ***Change Date:*** *October 1, 2024*
➧ ***Effective Date:*** *December 1, 2024*
➧ ***Source:*** *Amdt. 61–155, 89 FR 80049*

Amend §61.2 by revising paragraphs (b)(1) and (2) to read as follows:

§61.2 Exercise of Privilege.

* * * * *

(b) * * *

(1) Exercise privileges of an airman certificate, rating, endorsement, or authorization issued under this part unless that person meets the appropriate airman recent experience and medical requirements of this part, specific to the operation or activity.

(2) Exercise privileges of a foreign pilot license within the United States to conduct an operation described in §61.3(b), unless that person meets the appropriate airman recent experience and medical requirements of the country that issued the license, specific to the operation.

➨ ***Change Date:*** *November 21, 2024*
➨ ***Effective Date:*** *January 21, 2025*
➨ ***Source:*** *Amdt. 61–157, 89 FR 92484*

Amend §61.3 by revising paragraphs (e)(1) and (2), (f)(2)(i) and (ii), and (g)(2)(i) and (ii) to read as follows:

§61.3 Requirement for certificates, ratings, and authorizations.

* * * * *

(e) * * *

(1) The appropriate aircraft category, class, type (if a class or type rating is required), and instrument rating on that person's pilot certificate for any airplane, helicopter, or powered-lift being flown;

(2) An airline transport pilot certificate with the appropriate aircraft category, class, and type rating (if a class or type rating is required) for the aircraft being flown;

* * * * *

(f) * * *

(2) * * *

(i) Holds a pilot certificate with category and class ratings (if a class rating is required) for that aircraft and an instrument rating for that category aircraft;

(ii) Holds an airline transport pilot certificate with category and class ratings (if a class rating is required) for that aircraft; or

* * * * *

(g) * * *

(2) * * *

(i) Holds a pilot certificate with category and class ratings (if a class rating is required) for that aircraft and an instrument rating for that category aircraft;

(ii) Holds an airline transport pilot certificate with category and class ratings (if a class rating is required) for that aircraft; or

* * * * *

Amend §61.5 by:

a. Redesignating paragraphs (b)(7)(iii) and (iv) as paragraphs (b)(7)(iv) and (b)(9), respectively; and

b. Adding new paragraph (b)(7)(iii).

The addition reads as follows:

§61.5 Certificates and ratings issued under this part.

* * * * *

(b) * * *

(7) * * *

(iii) Powered-lift.

* * * * *

➨ ***Change Date:*** *October 1, 2024*
➨ ***Effective Date:*** *December 1, 2024*
➨ ***Source:*** *Amdt. 61–155, 89 FR 80049*

Amend §61.19 by revising paragraphs (a)(2), (c)(1), (d) and (e) to read as follows:

§61.19 Duration of pilot and instructor certificates and privileges.

(a) * * *

(2) Except for a certificate issued with an expiration date, a certificate issued under this part is valid unless it is surrendered, suspended, or revoked.

* * * * *

(c) * * *

(1) A pilot certificate (including a student pilot certificate issued after April 1, 2016) issued under this part is issued without an expiration date.

(d) ***Flight instructor certificate.***

(1) A flight instructor certificate issued under this part on or after December 1, 2024, is issued without an expiration date.

(2) A flight instructor certificate issued before December 1, 2024, expires 24 calendar months from the month in which it was issued, renewed, or reinstated, as appropriate.

(e) ***Ground instructor certificate.*** A ground instructor certificate is issued without an expiration date.

* * * * *

➨ ***Change Date:*** *November 18, 2024*
➨ ***Effective Date:*** *November 18, 2024*
➨ ***Source:*** *Amdt. 61–158, 89 FR 90577*

Amend §61.23 by revising paragraphs (a)(3)(iv), (c)(1)(v) and (vi), adding paragraph (c)(1)(vii), and revising paragraph (c)(3)(i)(D) to read as follows:

§61.23 Medical certificates: Requirement and duration.

(a) * * *

(3) * * *

(iv) When performing the duties as an Examiner in an aircraft when administering a practical test or proficiency check for an airman certificate, rating, or authorization, except when meeting the requirements to operate under the conditions and limitations set forth in §61.113(i).

* * * * *

(c) * * *

(1) * * *

(v) Exercising the privileges of a student, recreational or private pilot certificate if the flight is conducted under the conditions and limitations set forth in §61.113(i);

(vi) Exercising the privileges of a flight instructor certificate and acting as the pilot in command or as a required flight crewmember if the flight is conducted under the conditions and limitations set forth in §61.113(i); or

(vii) Serving as an Examiner and administering a practical test or proficiency check for an airman certificate, rating, or authorization if the flight is conducted under the conditions and limitations set forth in §61.113(i).

* * * * *

(3) * * *

(i) * * *

(D) Receive a comprehensive medical examination from a State-licensed physician during the 48 calendar months before acting as pilot in command or serving as a required flightcrew member of an

operation conducted under §61.113(i) and that medical examination is conducted in accordance with the requirements in part 68 of this chapter; and
* * * * *

➧ ***Change Date:*** *November 21, 2024*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 61–157, 89 FR 92484*

Amend §61.31 by:
a. Redesignating paragraph (a)(3) as paragraph (a)(4);
b. Adding new paragraph (a)(3); and
c. Revising paragraph (l)(1).
The revisions and addition read as follows:

§61.31 Type rating requirements, additional training, and authorization requirements.

(a) * * *
(3) Powered-lift.
* * * * *
(l) * * *
(1) This section does not require a pilot to hold category and class ratings for an aircraft that is not identified by category or class under §61.5(b).
* * * * *

➧ ***Change Date:*** *October 1, 2024*
➧ ***Effective Date:*** *December 1, 2024*
➧ ***Source:*** *Amdt. 61–155, 89 FR 80049*

Amend §61.39 by:
a. Revising paragraphs (a) introductory text, (b) introductory text, (b)(3), (c) introductory text, and (c)(2);
b. Redesignating paragraphs (e) through (g) as paragraphs (f) through (h); and
c. Adding new paragraph (e).
The revisions and addition read as follows:

§61.39 Prerequisites for practical tests.

(a) Except as provided in paragraphs (b), (c), (e), and (f) of this section, to be eligible for a practical test for a certificate or rating issued under this part, an applicant must:
* * * * *
(b) Except as provided in paragraph (e) of this section, an applicant for an airline transport pilot certificate with an airplane category multiengine class rating or an airline transport pilot certificate obtained concurrently with a multiengine airplane type rating may take the practical test with an expired knowledge test only if the applicant passed the knowledge test after July 31, 2014, and is employed:
* * * * *
(3) By the U.S. Armed Forces as a flightcrew member in U.S. military air transport operations at the time of the practical test and has satisfactorily completed the pilot in command aircraft qualification training program that is appropriate to the pilot certificate and rating sought.
(c) Except as provided in paragraph (e) of this section, an applicant for an airline transport pilot certificate with a rating other than those ratings set forth in paragraph (b) of this section may take the practical test for that certificate or rating with an expired knowledge test report, provided that the applicant is employed:
* * * * *
(2) By the U.S. Armed Forces as a flightcrew member in U.S. military air transport operations at the time of the practical test and has satisfactorily completed the pilot in command aircraft qualification training program that is appropriate to the pilot certificate and rating sought.
* * * * *
(e) An applicant for an airman certificate or rating issued under this part 61 may take a practical test with an expired knowledge test if the applicant meets the requirements specified in §61.40.
* * * * *

➧ ***Change Date:*** *November 21, 2024*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 61–157, 89 FR 92484*

Amend §61.39 by revising paragraph (a)(3) to read as follows:

§61.39 Prerequisites for practical tests.

(a) * * *
(3) Have satisfactorily accomplished the required training and obtained the aeronautical experience prescribed by this part for the certificate or rating sought, and:
(i) If applying for the practical test with flight time accomplished under §61.159(c), present a copy of the records required by §135.63(a)(4)(vi) and (x) of this chapter; or
(ii) If applying for a practical test for the issuance of an initial category and class rating (if a class rating is required) at the private, commercial, or airline transport pilot certificate level in an aircraft that requires a type rating or a flight simulator or flight training device that represents an aircraft that requires a type rating, meet the eligibility requirements for the type rating or already hold the type rating on their pilot certificate;
* * * * *

➧ ***Change Date:*** *October 1, 2024*
➧ ***Effective Date:*** *December 1, 2024*
➧ ***Source:*** *Amdt. 61–155, 89 FR 80049*

Add §61.40 to read as follows:

§61.40 Relief for U.S. Military and civilian personnel who are assigned outside the United States in support of U.S. Armed Forces operations.

(a) ***Relief.*** A person who satisfies the requirements of paragraph (b) of this section may use the following documents to demonstrate eligibility to renew a flight instructor certificate, establish recent flight instructor experience, take a practical test, or renew an inspection authorization, as appropriate:
(1) For flight instructor certificates issued before December 1, 2024, an expired flight instructor certificate to show eligibility for renewal of a flight instructor certificate under §61.197;
(2) Except as provided in paragraph (a)(3) of this section, for flight instructor certificates issued after December 1, 2024, a record demonstrating the last recent experience event accomplished under §61.197 to show eligibility to reestablish recent experience under §61.197;
(3) For persons who were issued a flight instructor certificate after December 1, 2024, and who served in a U.S. military or civilian capacity outside the United States in support of a U.S. Armed Forces operation for some period of time during the 24 calendar months following the issuance of the person's flight instructor certificate, a flight instructor certificate demonstrating the date of issuance to show eligibility to establish recent experience under §61.197;

(4) An expired written test report to show eligibility under this part to take a practical test;

(5) An expired written test report to show eligibility to take a practical test required under part 63 of this chapter; and

(6) An expired written test report to show eligibility to take a practical test required under part 65 of this chapter or an expired inspection authorization to show eligibility for renewal under §65.93.

(b) ***Eligibility.*** A person is eligible for the relief specified in paragraph (a) of this section if that person meets the following requirements:

(1) The person must have served in a U.S. military or civilian capacity outside the United States in support of a U.S. Armed Forces operation during some period of time beginning on or after September 11, 2001;

(2) One of the following occurred while the person served in an operation as set forth in paragraph (b)(1) of this section or within 6 calendar months after returning to the United States—

(i) The person's flight instructor certificate issued before December 1, 2024, airman written test report, or inspection authorization expired; or

(ii) For flight instructor certificates issued after December 1, 2024, the person has not met the flight instructor recent experience requirements within the preceding 24 calendar months in accordance with §61.197; and

(3) The person complies with §61.197 or §65.93 of this chapter, as appropriate, or completes the appropriate practical test within 6 calendar months after returning to the United States.

(c) ***Required documents.*** To exercise the relief specified in paragraph (a) of this section, a person must complete and sign an application appropriate to the relief sought and send the application to the appropriate Flight Standards office. The person must include with the application one of the following documents, which must show the date of assignment outside the United States and the date of return to the United States:

(1) An official U.S. Government notification of personnel action, or equivalent document, showing the person was a civilian on official duty for the U.S. Government outside the United States and was assigned to a U.S. Armed Forces operation some time on or after September 11, 2001;

(2) Military orders validating the person was assigned to duty outside the United States and was assigned to a U.S. Armed Forces operation some time on or after September 11, 2001; or

(3) A letter from the person's military commander or civilian supervisor providing the dates during which the person served outside the United States and was assigned to a U.S. Armed Forces operation some time on or after September 11, 2001.

➧ ***Change Date:*** *November 21, 2024*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 61–157, 89 FR 92484*

Amend §61.43 by adding paragraph (g) to read as follows:

§61.43 Practical tests: General procedures.

* * * * *

(g) A practical test for an airline transport pilot certificate with category and class rating (if a class rating is required) in an aircraft that requires a type rating or in a flight simulation training device that represents an aircraft that requires a type rating includes the same tasks and maneuvers as a practical test for a type rating.

Amend §61.45 by revising paragraphs (a)(1)(i) and (a)(2)(ii) to read as follows:

§61.45 Practical tests: Required aircraft and equipment.

(a) * * *

(1) * * *

(i) Is of the category, class, and type (if a class or type rating is required) for which the applicant is applying for a certificate or rating; and

* * * * *

(2) * * *

(ii) An aircraft of the same category, class, and type (if a class or type rating is required) of foreign registry that is properly certificated by the country of registry; or

* * * * *

Amend §61.47 by revising the section heading and adding paragraph (d) to read as follows:

§61.47 Status and responsibilities of an examiner who is authorized by the Administrator to conduct practical tests.

* * * * *

(d) An examiner may not conduct a practical test for the issuance of an initial category and class rating (if a class rating is required) at the private, commercial, or airline transport pilot certificate level in an aircraft that requires a type rating or a flight simulator or flight training device that represents an aircraft that requires a type rating unless:

(1) The applicant meets the eligibility requirements for a type rating in that aircraft or already holds that type rating on their certificate; and

(2) The practical test contains the tasks and maneuvers for a type rating specified in the areas of operation at the airline transport pilot certification level.

➧ ***Change Date:*** *October 1, 2024*
➧ ***Effective Date:*** *December 1, 2024*
➧ ***Source:*** *Amdt. 61–155, 89 FR 80049*

Amend §61.51 by revising paragraph (h)(2)(ii) to read as follows:

§61.51 Pilot logbooks.

* * * * *

(h) * * *

(2) * * *

(ii) Include a description of the training given, the length of the training lesson, and the authorized instructor's signature, certificate number, and certificate expiration date or recent experience end date, consistent with the requirements of §61.197.

* * * * *

➧ ***Change Date:*** *October 1, 2024*
➧ ***Effective Date:*** *March 1, 2027*
➧ ***Source:*** *Amdt. 61–155, 89 FR 80050*

Effective March 1, 2027, amend §61.51 by revising paragraph (h)(2)(ii) to read as follows:

§61.51 Pilot logbooks.

* * * * *

(h) * * *

(2) * * *

(ii) Include a description of the training given, the length of the training lesson, and the authorized instructor's signature, certificate number, and recent experience end date.

* * * * *

➧ ***Change Date:*** *October 2, 2024*
➧ ***Effective Date:*** *December 2, 2024*
➧ ***Source:*** *Amdt. 61–156, 89 FR 80339*

Amend §61.51 by:

a. Revising paragraphs (f)(2) and (3);
b. Adding paragraph (f)(4); and
c. Revising paragraph (j)(4).

The revisions read as follows:

§61.51 Pilot logbooks.

* * * * *

(f) * * *

(2) Holds the appropriate category, class, and instrument rating (if a class or instrument rating is required for the flight) for the aircraft being flown, and more than one pilot is required under the type certification of the aircraft or the regulations under which the flight is being conducted;

(3) Serves as second-in-command in operations conducted in accordance with §135.99(c) of this chapter when a second pilot is not required under the type certification of the aircraft or the regulations under which the flight is being conducted, provided the requirements in §61.159(c) are satisfied; or

(4) Is designated by a government entity as second-in-command when operating in accordance with paragraph (j)(4) of this section, provided the aircraft used is a large aircraft or turbo-jet powered airplane or holds or originally held a type certificate that requires a second pilot provided that:

(i) Second-in-command time logged under this paragraph (f)(4) may not be used to meet the aeronautical experience requirements for the private or commercial pilot certificates or an instrument rating; and

(ii) An applicant for an airline transport pilot certificate who logs second in command time under this paragraph (f)(4) in an aircraft that is not type certificated for two pilots issued an airline transport pilot certificate with the limitation "Holder does not meet the pilot in command aeronautical experience requirements of ICAO," as prescribed under Article 39 of the Convention on International Civil Aviation if the applicant does not meet the ICAO requirements contained in Annex 1 "Personnel Licensing" to the Convention on International Civil Aviation. An applicant is entitled to an airline transport pilot certificate without the ICAO limitation specified under this paragraph (f)(4)(ii) when the applicant presents satisfactory evidence of having met the ICAO requirements and otherwise meets the aeronautical experience requirements of §61.159 or §61.161, as applicable.

* * * * *

(j) * * *

(4) An aircraft used to conduct a public aircraft operation under 49 U.S.C. 40102(a)(41) and 40125.

* * * * *

➧ ***Change Date:*** *November 21, 2024*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 61–157, 89 FR 92484*

Amend §61.51 by revising paragraph (f)(2) to read as follows:

§61.51 Pilot logbooks.

* * * * *

(f) * * *

(2) Holds the appropriate category, class, and instrument rating (if a class or instrument rating is required for the flight) for the aircraft being flown, and more than one pilot is required under the type certification of the aircraft or the regulations under which the flight is being conducted; or

* * * * *

Amend §61.55 by revising paragraph (a) to read as follows:

§61.55 Second-in-command qualifications.

(a) A person may serve as a second-in-command of an aircraft type certificated for more than one required pilot flight crewmember or in operations requiring a second-in-command pilot flight crewmember only if that person meets the following requirements:

(1) Holds at least a private pilot certificate with the appropriate category and class rating;

(2) Holds an instrument rating or privilege that applies to the aircraft being flown if the flight is under IFR;

(3) Holds at least a pilot type rating for the aircraft being flown unless the flight will be conducted as domestic flight operations within the United States airspace; and

(4) If serving as second-in-command of a powered-lift, satisfies the requirements specified in §194.209 of this chapter.

* * * * *

➧ ***Change Date:*** *October 1, 2024*
➧ ***Effective Date:*** *December 1, 2024*
➧ ***Source:*** *Amdt. 61–155, 89 FR 80050*

Amend §61.56 by revising paragraphs (d)(2), (e), and (f) to read as follows:

§61.56 Flight review.

* * * * *

(d) * * *

(2) A practical test conducted by an examiner for one of the following:

(i) The issuance of a flight instructor certificate,

(ii) An additional rating on a flight instructor certificate,

(iii) To meet the recent experience requirements for a flight instructor certificate in accordance with §61.197(b)(1); or

(iv) The reinstatement of flight instructor privileges in accordance with §61.199(b)(2).

(e) A person who has, within the period specified in paragraph (c) of this section, satisfactorily accomplished one or more phases of an FAA-sponsored pilot proficiency program need not accomplish the flight review required by this section.

(f) A person who holds a flight instructor certificate need not accomplish the one hour of ground training specified in paragraph (a) of this section if that person has, within the period specified

in paragraph (c) of this section, met one of the following requirements—

(1) Satisfactorily completed the recent experience requirements for a flight instructor certificate under §61.197; or

(2) Reinstated the person's flight instructor privileges by satisfactorily completing an approved flight instructor refresher course in accordance with §61.199(a)(1).

* * * * *

➧ ***Change Date:*** *September 10, 2024*
➧ ***Effective Date:*** *September 10, 2024*
➧ ***Source:*** *Amdt. 61–153A, 89 FR 73272*

Amend §61.57 by removing paragraphs (d)(1)(i) through (vi).

➧ ***Change Date:*** *October 2, 2024*
➧ ***Effective Date:*** *December 2, 2024*
➧ ***Source:*** *Amdt. 61–156, 89 FR 80339*

Amend §61.57 by revising paragraphs (a)(1) introductory text and (b)(1) introductory text and adding paragraphs (e)(5) and (6) to read as follows:

§61.57 Recent flight experience: Pilot in command.

(a) * * *

(1) Except as provided in paragraph (e) of this section, no person may act as a pilot in command of an aircraft carrying persons or of an aircraft certificated for more than one pilot flight crewmember unless that person has made at least three takeoffs and three landings within the preceding 90 days, and—

* * * * *

(b) * * *

(1) Except as provided in paragraph (e) of this section, no person may act as pilot in command of an aircraft carrying persons during the period beginning 1 hour after sunset and ending 1 hour before sunrise, unless within the preceding 90 days that person has made at least three takeoffs and three landings to a full stop during the period beginning 1 hour after sunset and ending 1 hour before sunrise, and—

* * * * *

(e) * * *

(5) Paragraphs (a) and (b) of this section do not apply to a person receiving flight training from an authorized instructor, provided:

(i) The flight training is limited to the purpose of meeting the requirements of paragraphs (a) and (b) of this section;

(ii) Notwithstanding the provisions of paragraphs (a) and (b) of this section, the person receiving flight training meets all other requirements to act as pilot in command of the aircraft; and

(iii) The authorized instructor and the person receiving flight training are the sole occupants of the aircraft.

(6) Paragraphs (a) and (b) of this section do not apply to the examiner or the applicant during a practical test required by this part.

* * * * *

➧ ***Change Date:*** *November 21, 2024*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 61–157, 89 FR 92485*

Amend §61.57 by revising paragraphs (a)(1)(ii), (b)(1)(ii), and (g)(1) and (4) to read as follows:

§61.57 Recent flight experience: Pilot in command.

(a) * * *

(1) * * *

(ii) The required takeoffs and landings were performed in an aircraft of the same category, class, and type (if a class or type rating is required), and, if the aircraft to be flown is an airplane with a tailwheel, the takeoffs and landings must have been made to a full stop in an airplane with a tailwheel.

* * * * *

(b) * * *

(1) * * *

(ii) The required takeoffs and landings were performed in an aircraft of the same category, class, and type (if a class or type rating is required).

* * * * *

(g) * * *

(1) An Examiner who is qualified to perform night vision goggle operations in that same aircraft category and class (if a class rating is required);

* * * * *

(4) An authorized flight instructor who is qualified to perform night vision goggle operations in that same aircraft category and class (if a class rating is required);

* * * * *

Amend §61.63 by removing and reserving paragraph (h).

Amend §61.64 by revising paragraphs (a)(1) and (e), (f) introductory text, and (g)(1) to read as follows:

§61.64 Use of a flight simulator and flight training device.

(a) * * *

(1) Must represent the category, class, and type (if a class or type rating is applicable) for the rating sought; and

* * * * *

(e) Except as provided in paragraph (f) of this section, if a powered-lift is not used during the practical test for a type rating in a powered-lift (except for preflight inspection), an applicant must accomplish the entire practical test in a Level C or higher flight simulator and have 500 hours of flight time in the type of powered-lift for which the rating is sought.

(f) If the applicant does not meet one of the experience requirements of paragraphs (b)(1) through (5), paragraphs (c)(1) through (5), paragraphs (d)(1) through (4), or paragraph (e) of this section, as appropriate to the type rating sought, then—

* * * * *

(g) * * *

(1) Performs 25 hours of flight time in an aircraft of the appropriate category, class (if a class rating is required), and type for which the limitation applies under the direct observation of the pilot in command who holds a category, class (if a class rating is required), and type rating, without limitations, for the aircraft;

* * * * *

Amend §61.109 by revising paragraph (e)(5) introductory text to read as follows:

§61.109 Aeronautical experience.

* * * * *

(e) * * *

(5) 10 hours of solo flight time in a powered-lift consisting of at least—

* * * * *

➨ ***Change Date:*** *November 18, 2024*
➨ ***Effective Date:*** *November 18, 2024*
➨ ***Source:*** *Amdt. 61–158, 89 FR 90577*

Amend §61.113 by revising paragraph (i)(1) to read as follows:

§61.113 Private pilot privileges and limitations: Pilot in command.

* * * * *

(i) * * *

(1) The aircraft is authorized to carry not more than 7 occupants, has a maximum takeoff weight of not more than 12,500 pounds, is operated with no more than 6 passengers on board, and is not a transport category rotorcraft certified to airworthiness standards under part 29 of this chapter; and

* * * * *

➨ ***Change Date:*** *October 2, 2024*
➨ ***Effective Date:*** *December 2, 2024*
➨ ***Source:*** *Amdt. 61–156, 89 FR 80339*

Amend §61.159 by revising paragraph (e) to read as follows:

§61.159 Aeronautical experience: Airplane category rating.

* * * * *

(e) An applicant who credits time under paragraphs (b) through (d) of this section and §61.51(f)(4) is issued an airline transport pilot certificate with the limitation "Holder does not meet the pilot in command aeronautical experience requirements of ICAO," as prescribed under Article 39 of the Convention on International Civil Aviation.

* * * * *

Amend §61.161 by revising paragraph (d) to read as follows:

§61.161 Aeronautical experience: Rotorcraft category and helicopter class rating.

* * * * *

(d) An applicant who credits time under paragraph (c) of this section and §61.51(f)(4) is issued an airline transport pilot certificate with the limitation "Holder does not meet the pilot in command aeronautical experience requirements of ICAO," as prescribed under Article 39 of the Convention on International Civil Aviation.

* * * * *

➨ ***Change Date:*** *November 21, 2024*
➨ ***Effective Date:*** *January 21, 2025*
➨ ***Source:*** *Amdt. 61–157, 89 FR 92485*

Amend §61.163 by adding paragraphs (c), (d), and (e) to read as follows:

§61.163 Aeronautical experience: Powered-lift category rating.

* * * * *

(c) Flight time logged under §61.159(c) may be counted toward the 1,500 hours of total time as a pilot required by paragraph (a) of this section and the flight time requirements of paragraphs (a)(1), (2), and (4) of this section.

(d) An applicant who credits time under paragraph (c) of this section is issued an airline transport pilot certificate with the limitation "Holder does not meet the pilot in command aeronautical experience requirements of ICAO," as prescribed under Article 39 of the Convention on International Civil Aviation.

(e) An applicant is entitled to an airline transport pilot certificate without the ICAO limitation specified under paragraph (d) of this section when the applicant presents satisfactory evidence of having met the ICAO requirements under paragraph (d) of this section and otherwise meets the aeronautical experience requirements of this section.

Amend §61.165 by removing paragraph (g).

Amend §61.167 by revising the introductory text of paragraph (a)(2) to read as follows:

§61.167 Airline transport pilot privileges and limitations.

(a) * * *

(2) A person who holds an airline transport pilot certificate and has met the aeronautical experience requirements of §61.159, 61.161, or 61.163, and the age requirements of §61.153(a)(1) may instruct—

* * * * *

➨ ***Change Date:*** *October 2, 2024*
➨ ***Effective Date:*** *December 2, 2024*
➨ ***Source:*** *Amdt. 61–156, 89 FR 80339*

Amend §61.193 by revising paragraphs (a) introductory text and (a)(7) and adding paragraph (c) to read as follows:

§61.193 Flight instructor privileges.

(a) A person who holds a flight instructor certificate is authorized within the limitations of that person's flight instructor certificate and ratings to conduct ground training, flight training, certain checking events, and to issue endorsements related to:

* * * * *

(7) A flight review, operating privilege, or recency of experience requirement of this part, or training to maintain or improve the skills of a certificated pilot;

* * * * *

(c) The privileges authorized in this section do not permit a person who holds a flight instructor certificate to conduct operations that would otherwise require an air carrier or operating certificate or specific authorization from the Administrator.

➧ ***Change Date:*** *October 1, 2024*
➧ ***Effective Date:*** *December 1, 2024*
➧ ***Source:*** *Amdt. 61–155, 89 FR 80051*

Amend §61.195 by revising paragraph (h) to read as follows:

§61.195 Flight instructor limitations and qualifications.

* * * * *

(h) ***Qualifications to provide ground or flight training to initial flight instructor applicants***—

(1) *Ground training.* The ground training provided to an initial applicant for a flight instructor certificate must be given by an authorized instructor who—

(i) Holds a ground or flight instructor certificate with the appropriate rating, has held that certificate for at least 24 calendar months, and has given at least 40 hours of ground training; or

(ii) Holds a ground or flight instructor certificate with the appropriate rating, and has given at least 100 hours of ground training in an FAA-approved course.

(2) *Flight training.* A flight instructor who provides flight training to an initial applicant for a flight instructor certificate must meet the eligibility requirements prescribed in §61.183; hold the appropriate flight instructor certificate and rating; meet the requirements of the part under which the flight training is provided; and meet one of the following requirements—

(i) Have held a flight instructor certificate for at least 24 calendar months; and

(A) For training in preparation for an airplane, rotorcraft, or powered-lift rating, have given at least 200 hours of flight training as a flight instructor; or

(B) For training in preparation for a glider rating, have given at least 80 hours of flight training as a flight instructor;

(ii) Have trained and endorsed, during the preceding 24 calendar months, at least five applicants for a practical test for a pilot certificate or rating, and at least 80 percent of all applicants endorsed in that period passed that test on their first attempt; or

(iii) After completing the flight training requirements in paragraph (h)(2)(i)(A) or (B) of this section, as appropriate, have graduated from an FAA-approved flight instructor enhanced qualification training program that satisfies the requirements specified in paragraph (h)(3) of this section.

(3) *Flight instructor enhanced qualification training program.* A flight instructor enhanced qualification training program must be approved and conducted under part 141 or 142 of this chapter, and meet the following requirements—

(i) The ground training must include at least 25 hours of instruction that includes the following subjects:

(A) Flight instructor responsibilities, functions, lesson planning, and risk management, including how to instruct an initial flight instructor applicant on these subjects.

(B) Teaching methods, procedures, and techniques applicable to instructing an initial flight instructor applicant.

(C) Methods of proper evaluation of an initial flight instructor applicant to detect improper and insufficient transfer of instructional knowledge, training, and performance of the initial flight instructor applicant.

(D) Corrective action in the case of unsatisfactory training progress.

(ii) The flight training must include at least 10 hours of training that includes the following areas:

(A) Scenario-based training to develop the flight instructor's ability to instruct an initial flight instructor applicant how to satisfactorily perform the procedures and maneuvers while giving effective flight training.

(B) Instructional knowledge and proficiency to teach an initial flight instructor applicant in abnormal and emergency procedures, which must include stall awareness, spin entry, spins, and spin recovery procedures, if applicable to the category and class of aircraft used in the flight instructor enhanced qualification training program.

(C) Risk management and potential results of improper, untimely, or non-execution of safety measures critical to flight training.

(D) Methods of proper evaluation of an initial flight instructor applicant to detect improper and insufficient transfer of instructional knowledge, training, and performance of the initial flight instructor applicant.

(E) Corrective action in the case of unsatisfactory training progress.

(F) Methods to detect personal characteristics of an initial flight instructor applicant that could adversely affect safety.

(iii) Each flight instructor enrolled in the flight instructor enhanced qualification training program must satisfactorily complete an end-of-course written test specific to the ground training subjects in paragraph (h)(3)(i) of this section and an end-of-course instructional proficiency flight test specific to the flight training areas in paragraph (h)(3)(ii) of this section.

(iv) A full flight simulator or flight training device may be used to meet the flight training requirements of paragraph (h)(3)(ii) of this section. The FFS or FTD must be—

(A) Qualified and maintained in accordance with part 60 of this chapter, or a previously qualified device as permitted in accordance with §60.17 of this chapter;

(B) Approved by the Administrator pursuant to §61.4(a); and

(C) Used in accordance with the part under which the FAA-approved course is conducted.

(v) A maximum of 5 hours of training received in an advanced aviation training device may be used to meet the flight training requirements of paragraph (h)(3)(ii) of this section for part 141 flight instructor enhanced qualification training programs. The advanced aviation training device must be—

(A) Approved by the Administrator pursuant to §61.4(c); and

(B) Used in accordance with part 141 of this chapter.

(vi) No certificate holder may use a person, nor may any person serve, as an instructor of the flight instructor enhanced qualification training program unless the instructor holds a flight instructor certificate or ground instructor certificate and meets one of the following qualifications:

(A) Serves as a chief instructor or assistant chief instructor in a part 141 pilot school;

(B) Serves as a training center program manager or assistant training center program manager of a part 142 training center; or

(C) Meets the qualifications of an assistant chief instructor, pursuant to §141.36(d).

(vii) A part 141 pilot school or part 142 training center must issue a graduation certificate to each flight instructor who successfully completes the flight instructor enhanced qualification training program.

Revise §61.197 to read as follows:

§61.197 Recent experience requirements for flight instructor certification.

(a) A person may exercise the privileges of the person's flight instructor certificate only if, within the preceding 24 calendar months, that person has satisfied one of the recent experience requirements specified in paragraph (b) of this section. The 24 calendar

month period during which the flight instructor must establish recent experience shall start from one of the following—

(1) The month the FAA issued the flight instructor certificate;

(2) The month the recent experience requirements of paragraph (b) of this section are accomplished; or

(3) The last month of the flight instructor's current recent experience period provided the recent experience requirements of paragraph (b) of this section are accomplished within the 3 calendar months preceding the last month of the certificate holder's current recent experience period.

(b) A person who holds a flight instructor certificate may establish recent experience by satisfying one of the following requirements—

(1) Passing a practical test for—

(i) One of the ratings listed on the flight instructor certificate;

(ii) An additional flight instructor rating; or

(2) Satisfactorily completing one of the following recent experience requirements, and submitting documentation of such in a form and manner acceptable to the Administrator—

(i) During the preceding 24 calendar months, the flight instructor has endorsed at least 5 applicants for a practical test for a certificate or rating and at least 80 percent of all applicants endorsed passed that test on the first attempt.

(ii) Within the preceding 24 calendar months, the flight instructor has served as a company check pilot, chief flight instructor, company check airman, or flight instructor in a part 121 or 135 operation, or in a position involving the regular evaluation of pilots.

(iii) Within the preceding 3 calendar months, the person has successfully completed an approved flight instructor refresher course consisting of ground training or flight training, or a combination of both.

(iv) Within the preceding 24 calendar months from the month of application, the flight instructor passed an official U.S. Armed Forces military instructor pilot or pilot examiner proficiency check in an aircraft for which the military instructor already holds a rating or in an aircraft for an additional rating.

(v) Within the preceding 24 calendar months from the month of application, the flight instructor has served as a flight instructor in an FAA-sponsored pilot proficiency program, provided the flight instructor meets the following requirements—

(A) Holds a flight instructor certificate and meets the appropriate flight instructor recent experience requirements of this part;

(B) Has satisfactorily completed at least one phase of an FAA-sponsored pilot proficiency program in the preceding 12 calendar months; and

(C) Has conducted at least 15 flight activities recognized under the FAA-sponsored pilot proficiency program, during which the flight instructor evaluated at least 5 different pilots and has made the necessary endorsements in the logbooks of each pilot for each activity.

(c) Except as provided in paragraph (f) of this section, a person who fails to establish recent experience in accordance with paragraph (b) of this section during the 24 calendar month period specified in paragraph (a) of this section may not exercise flight instructor privileges until those privileges are reinstated in accordance with §61.199.

(d) The practical test required by paragraph (b)(1) of this section may be accomplished in a full flight simulator or flight training device if the test is accomplished pursuant to an approved course conducted by a training center certificated under part 142 of this chapter.

(e) A person who holds an unexpired flight instructor certificate issued before December 1, 2024, may renew that certificate by establishing recent experience in accordance with paragraph (b) of this section prior to the month of expiration on that person's flight instructor certificate. Except as provided in §61.40, if that person fails to establish recent experience prior to the expiration of that person's flight instructor certificate, that person may not exercise flight instructor privileges until those privileges are reinstated in accordance with §61.199.

(f) A person who qualifies for the relief prescribed in §61.40 may establish recent experience in accordance with paragraph (b) of this section, provided the requirements of §61.40 are met.

Amend §61.199 by revising the section heading and paragraph (a), and removing paragraphs (c) and (d). The revisions read as follows:

§61.199 Reinstatement of flight instructor privileges.

(a) ***Flight instructor privileges.*** The holder of a flight instructor certificate who has not complied with the flight instructor recent experience requirements of §61.197 may reinstate their flight instructor privileges by filing a completed and signed application with the FAA and satisfactorily completing one of the following reinstatement requirements:

(1) If 3 calendar months or less have passed since the last month of the flight instructor's recent experience period, the flight instructor may successfully complete an approved flight instructor refresher course consisting of ground training or flight training, or a combination of both, or satisfy one of the requirements specified in paragraph (a)(2) of this section.

(2) If more than 3 calendar months have passed since the last month of the flight instructor's recent experience period, the flight instructor must satisfactorily complete one of the following:

(i) A flight instructor certification practical test, as prescribed by §61.183(h), for one of the ratings held on the flight instructor certificate; or

(ii) A flight instructor certification practical test for an additional rating.

(3) For military instructor pilots and pilot examiners, provide a record showing that, within the preceding 6 calendar months from the date of application for reinstatement, the person—

(i) Passed a U.S. Armed Forces instructor pilot or pilot examiner proficiency check; or

(ii) Completed a U.S. Armed Forces instructor pilot or pilot examiner training course and received an additional aircraft qualification as a military instructor pilot or pilot examiner that is appropriate to the flight instructor rating sought.

* * * * *

Revise §61.215 by adding paragraph (e) to read as follows:

§61.215 Ground instructor privileges.

* * * * *

(e) Ground training provided to an initial applicant for a flight instructor certificate may only be provided by an authorized instructor in accordance with §61.195(h)(1).

➧ ***Change Date:*** *October 2, 2024*
➧ ***Effective Date:*** *December 2, 2024*
➧ ***Source:*** *Amdt. 61–156, 89 FR 80340*

Amend §61.413 by revising paragraphs (a) introductory text and (a)(6) and adding paragraph (c) to read as follows:

§61.413 What are the privileges of my flight instructor certificate with a sport pilot rating?

(a) If you hold a flight instructor certificate with a sport pilot rating, you are authorized, within the limits of your certificate and rating, to conduct ground training, flight training, certain checking events, and to issue endorsements related to:
* * * * *

(6) A flight review or operating privilege for a sport pilot, or training to maintain or improve the skills of a sport pilot;
* * * * *

(c) The privileges authorized in this section do not permit a person who holds a flight instructor certificate with a sport pilot rating to conduct operations that would otherwise require an air carrier or operating certificate or specific authorization from the Administrator.

➧ ***Change Date:*** *October 1, 2024*
➧ ***Effective Date:*** *December 1, 2024*
➧ ***Source:*** *Amdt. 61–155, 89 FR 80052*

Revise §61.425 to read as follows:

§61.425 How do I establish recent experience for my flight instructor certificate with a sport pilot rating?

(a) If you hold a flight instructor certificate with a sport pilot rating issued after December 1, 2024, you must establish recent experience in accordance with §61.197.

(b) If you hold an unexpired flight instructor certificate with a sport pilot rating issued before December 1, 2024, you must renew your certificate by establishing recent experience in accordance with §61.197 prior to the month of expiration on your flight instructor certificate. If you fail to establish recent experience prior to the expiration of your flight instructor certificate, you may not exercise flight instructor privileges until you reinstate those privileges in accordance with §61.427.

Revise §61.427 to read as follows:

§61.427 How do I reinstate my flight instructor privileges if I fail to establish recent experience for my flight instructor certificate with a sport pilot rating?

If you fail to establish recent experience for your flight instructor certificate with a sport pilot rating, you must reinstate your flight instructor privileges by satisfactorily completing one of the following reinstatement requirements:

(a) If 3 calendar months or less have passed since the last month of your recent experience period, you must successfully complete an approved flight instructor refresher course consisting of ground training or flight training, or a combination of both, or satisfy the requirements specified in paragraph (b) of this section.

(b) If more than 3 calendar months have passed since the last month of the flight instructor's recent experience period, you must pass a practical test as prescribed in §61.405(b) or §61.183(h) for one of the ratings listed on your flight instructor certificate with a sport pilot rating. The FAA will reinstate any privilege authorized by that flight instructor certificate with a sport pilot rating.

PART 68
REQUIREMENTS FOR OPERATING CERTAIN SMALL AIRCRAFT WITHOUT A MEDICAL CERTIFICATE

➧ ***Change Date:*** *November 18, 2024*
➧ ***Effective Date:*** *November 18, 2024*
➧ ***Source:*** *Amdt. 68–3, 89 FR 90577*

The authority citation for part 68 is revised to read as follows:

Authority: 49 U.S.C. 106(f), 44701–44703, sec. 2307 of Pub. L. 114–190, 130 Stat. 615 (49 U.S.C. 44703 note); sec. 828 of Pub. L. 118–63, 138 Stat. 1330 (49 U.S.C. 44703).

Amend §68.7 by revising paragraph (a)(1) to read as follows:

§68.7 Comprehensive Medical Examination Checklist.
* * * * *

(a) * * *

(1) Boxes 3 through 13 and boxes 16 through 19 of the FAA Form 8500-8 (3–99), or any successor form; and
* * * * *

PART 71
DESIGNATION OF CLASS A, B, C, D, AND E AIRSPACE AREAS; AIR TRAFFIC SERVICE ROUTES; AND REPORTING POINTS

➧ ***Change Date:*** *August 26, 2024; September 30, 2024*
➧ ***Effective Date:*** *September 15, 2024, through September 15, 2025*
➧ ***Source:*** *Amdt. 71–56, 89 FR 68338 & 79429*

§71.1 is revised to read as follows:

§71.1 Applicability.

A listing for Class A, B, C, D, and E airspace areas; air traffic service routes; and reporting points can be found in FAA Order JO 7400.11J, Airspace Designations and Reporting Points, dated July 31, 2024. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552 (a) and 1 CFR part 51. The approval to incorporate by reference FAA Order JO 7400.11J is effective September 15, 2024, through September 15, 2025. During the incorporation by reference period, proposed changes to the listings of Class A, B, C, D, and E airspace areas; air traffic service routes; and reporting points will be published in full text as proposed rule documents in the **Federal Register**, unless there is good cause to forego notice and comment. Amendments to the listings of Class A, B, C, D, and E airspace areas; air traffic service routes; and reporting points will be published in full text as final rules in the **Federal Register**. Periodically, the final rule amendments will be integrated into a revised edition of the Order and submitted to the Director of the Federal Register for approval for incorporation by reference in this section. This incorporation by reference material is available for inspection at the Federal Aviation Administration (FAA) and at the National Archives and Records Administration (NARA). Contact the FAA at: Rules and Regulations Group, Federal Aviation Administration, 600 Independence Avenue SW, Washington, DC 20597; phone: (202) 267–8783. An electronic version of FAA Order JO 7400.11J is available on the FAA website at *www.faa.gov/air_traffic/publications*. A copy of FAA Order JO 7400.11J may be inspected in Docket No. FAA–2024–2061; Amendment No. 71–56, on

www.regulations.gov. For information on the availability of this material at NARA, *email fr.inspection@nara.gov* or visit *www.archives.gov/federal-register/cfr/ibr-locations*.

§§71.5; 71.15; 71.31; 71.33(c); 71.41; 71.51; 71.61; 71.71(b), (c), (d), (e), and (f); and 71.901(a) are amended by removing the words "FAA Order 7400.11H" everywhere that they appear and adding, in their place, the words "FAA Order JO 7400.11J."

PART 91
GENERAL OPERATING AND FLIGHT RULES

➨ ***Change Date:*** *August 22, 2024*
➨ ***Effective Date:*** *October 21, 2024*
➨ ***Source:*** *Amdt. 91–376, 89 FR 67849*

The authority citation for Part 91 is revised to read as follows:

Authority: 49 U.S.C. 106(f), 40101, 40103, 40105, 40113, 40120, 44101, 44111, 44701, 44704, 44709, 44711, 44712, 44715, 44716, 44717, 44722, 46306, 46315, 46316, 46504, 46506–46507, 47122, 47508, 47528–47531, 47534, Pub. L. 114–190, 130 Stat. 615 (49 U.S.C. 44703 note); articles 12 and 29 of the Convention on International Civil Aviation (61 Stat. 1180), (126 Stat. 11).

➨ ***Change Date:*** *November 18, 2024*
➨ ***Effective Date:*** *November 18, 2024*
➨ ***Source:*** *Amdt. 91–380, 89 FR 90577*

The authority citation for part 91 is revised to read as follows:

Authority: 49 U.S.C. 106(f), 40101, 40103, 40105, 40113, 40120, 44101, 44111, 44701, 44704, 44709, 44711, 44712, 44715, 44716, 44717, 44722, 46306, 46315, 46316, 46504, 46506–46507, 47122, 47508, 47528–47531, 47534; Pub. L. 114–190, 130 Stat. 615 (49 U.S.C. 44703 note); Sec. 828 of Pub. L. 118–63, 138 Stat. 1330 (49 U.S.C. 44703 note); articles 12 and 29 of the Convention on International Civil Aviation (61 Stat. 1180), (126 Stat. 11).

➨ ***Change Date:*** *November 21, 2024*
➨ ***Effective Date:*** *January 21, 2025*
➨ ***Source:*** *Amdt. 91–379, 89 FR 92485*

Amend §91.1 by revising paragraph (d) and adding paragraph (g) to read as follows:

§91.1 Applicability.

* * * * *

(d) This part also establishes requirements for operators to take actions to support the continued airworthiness of each aircraft.

* * * * *

(g) Additional requirements for powered-lift operations are set forth in part 194 of this chapter.

➨ ***Change Date:*** *August 22, 2024*
➨ ***Effective Date:*** *October 21, 2024*
➨ ***Source:*** *Amdt. 91–376, 89 FR 67849*

Amend §91.107 by revising paragraph (a)(3)(i) to read as follows:

§91.107 Use of safety belts, shoulder harnesses, and child restraint systems.

(a) * * *

(3) * * *

(i) Be held by an adult, except as outlined in §91.108(j), who is occupying an approved seat or berth, provided that the person being held has not reached his or her second birthday and does not occupy or use any restraining device;

* * * * *

Add §91.108 to read as follows:

§91.108 Use of supplemental restraint systems.

(a) ***Use of supplemental restraint systems.*** Except as provided in this section, no person may conduct an operation in a civil aircraft in which any individual on board is secured with a supplemental restraint system, as defined in §1.1 of this chapter.

(b) ***Doors opened or removed flight operations.*** Except as provided under paragraph (k) of this section:

(1) No person may operate a civil aircraft with the doors opened or removed unless—

(i) Each individual on board occupies an approved seat or berth with a safety belt and, if installed, shoulder harness, properly secured about the individual or an approved child restraint system properly secured to an approved seat or berth with a safety belt and, if installed, shoulder harness in accordance with §91.107(a)(3)(iii) or §135.128(a)(2) of this chapter, during all phases of flight; or

(ii) Each individual on board—

(A) Occupies an approved seat or berth with a safety belt and, if installed, shoulder harness, properly secured about the individual during movement on the surface, takeoff, and landing; and

(B) Is secured during the remainder of the flight using a supplemental restraint system in accordance with, and that meets the requirements of, this section.

(2) Prior to releasing an FAA-approved safety belt and, if installed, shoulder harness during an operation with the doors opened or removed, an individual must be properly secured by a supplemental restraint system that is connected to an FAA-approved airframe attachment point. An individual cannot release their safety belt and, if installed, shoulder harness until the pilot in command authorizes them to do so.

(c) ***Supplemental restraint system design requirements.*** Each supplemental restraint system must:

(1) Have a harness that secures around the torso of the individual using the supplemental restraint system;

(2) Have a lanyard that connects the harness to an FAA-approved airframe attachment point or points inside the aircraft and that ensures the torso of the individual using the supplemental restraint system remains inside the aircraft at all times;

(3) Not impede egress from the aircraft in an emergency after being released; and

(4) Have a release mechanism that—

(i) Can be quickly operated by the individual using the supplemental restraint system with minimal difficulty;

(ii) Is attached to the front or side of the harness in a location easily accessible to and visible by the individual using the supplemental restraint system;

(iii) Prevents inadvertent release; and

(iv) Can be released without the use of a knife to cut the restraint, and without any additional tool or the assistance of any other individual.

(d) ***Who may provide the supplemental restraint system.*** The supplemental restraint system may be provided by the operator or by the individual using the supplemental restraint system. An operator or individual providing a supplemental restraint system must:

(1) Confirm with the pilot in command, either verbally or in writing, as determined by the pilot in command, the system's continued serviceability and readiness for its intended purpose; and

(2) Ensure the individual who will occupy the supplemental restraint system complies with the sizing criteria for which the system is rated.

(e) ***Supplemental restraint system operational requirements.*** The following are supplemental restraint system operational requirements:

(1) A qualified person designated by the operator must—

(i) Connect the supplemental restraint system to an FAA-approved airframe attachment point or points rated equal to or greater than the weight of the individual using the supplemental restraint system (or the combined weight if there is more than one supplemental restraint system attached to an attachment point);

(ii) Not connect the supplemental restraint system to any airframe attachment point located in the flightdeck; and

(iii) Not connect the supplemental restraint system to any safety belt or shoulder harness attachment point(s) unless the attachment point is FAA-approved as described in paragraph (e)(1)(i) of this section.

(2) A supplemental restraint system must fit the individual using it based on the sizing criteria for which the supplemental restraint system is rated.

(3) Nothing may attach to the supplemental restraint system that is not relevant to its function as defined under §1.1 of this chapter.

(f) ***Pilot in command.*** The pilot in command—

(1) Has the overall responsibility to ensure that the supplemental restraint system meets the requirements of this section and must not permit an individual to use a supplemental restraint system that does not meet the requirements of this section;

(2) Must receive confirmation from the operator or any individual providing the supplemental restraint system of the system's continued serviceability and readiness for its intended purpose before each takeoff;

(3) May only permit an individual to use a supplemental restraint system provided by the operator or the pilot in command if that individual complies with the sizing criteria for which the supplemental restraint system is rated;

(4) Has final authority regarding whether the supplemental restraint system may be used during flight operations; and

(5) Has final authority to authorize an individual to release the FAA-approved safety belt and, if installed, shoulder harness and remain secured only by the supplemental restraint system.

(g) ***Passenger briefing.*** Before each takeoff, the pilot in command must ensure that each passenger who intends to use a supplemental restraint system has been briefed on:

(1) How to use, secure, and release the supplemental restraint system properly. This requirement is not necessary for an individual providing their own supplemental restraint system, but that individual must meet the passenger demonstration requirements in paragraph (h) of this section.

(2) Means of direct communication between crewmembers and passengers during normal and emergency operating procedures regarding—

(i) The use of headset and intercom systems, if installed;

(ii) How passengers will be notified of an event requiring action, including emergencies, egress procedures, and other unforeseen circumstances;

(iii) How each passenger will be notified when the passenger is permitted to release the FAA-approved safety belt and, if installed, shoulder harness, and move within the aircraft using the supplemental restraint system;

(iv) How each passenger will be notified when the passenger must return to their seat and secure the FAA-approved safety belt and, if installed, shoulder harness; and

(v) When and how to notify a crewmember of safety concerns.

(h) ***Passenger demonstration.*** After the briefing required by paragraph (g) of this section, prior to ground movement, any passenger intending to use a supplemental restraint system must demonstrate to the pilot in command, a crewmember, or other qualified person designated by the operator, the following:

(1) The ability to use, secure, and release the FAA-approved safety belt and, if installed, shoulder harness, and

(2) The ability to accomplish all actions required for quick release of the supplemental restraint system without assistance and with minimal difficulty.

(i) ***Individuals not permitted to use supplemental restraint systems.*** The following individuals are not permitted to use a supplemental restraint system, as defined in §1.1 of this chapter:

(1) Any passenger who cannot demonstrate—

(i) That they are able to use, secure, and release the FAA-approved safety belt and, if installed, shoulder harness; or

(ii) That they are able to release quickly the supplemental restraint system with no assistance and with minimal difficulty.

(2) Any individual who is less than 15 years of age.

(3) Any individual seated in the flightdeck.

(4) Any passenger who occupies or uses an approved child restraint system.

(j) ***Lap-held child.*** Notwithstanding any other requirement of this chapter, a child who has not reached their second birthday may not be held by an adult during civil aircraft operations when:

(1) The adult uses a supplemental restraint system; or

(2) The aircraft doors are opened or removed.

(k) ***Excluded operations.*** Unless otherwise stated:

(1) This section does not apply to operations conducted under part 105 or 133 of this chapter and does not apply to the persons described in §91.107(a)(3)(ii) of this chapter.

(2) Operators subject to the requirements of paragraph (b)(1) of this section may operate an aircraft with doors opened or removed, notwithstanding any flight crewmembers on board who are subject to the requirements of §§91.105 or 135.171 of this chapter and who need to unfasten their shoulder harnesses in accordance with those sections.

(3) Paragraph (b)(2) of this section does not apply to any flight crewmembers subject to §§91.105 or 135.171 of this chapter to the extent that the flight crewmembers need to unfasten their shoulder harnesses in accordance with those sections.

➨ ***Change Date:*** *November 21, 2024*
➨ ***Effective Date:*** *January 21, 2025*
➨ ***Source:*** *Amdt. 91–379, 89 FR 92485*

Amend §91.113 by revising paragraph (d) to read as follows:

§91.113 Right-of-way rules: Except water operations.

* * * * *

(d) Converging. When aircraft of the same category are converging at approximately the same altitude (except head-on, or nearly so), the aircraft to the other's right has the right-of-way. If the aircraft are of different categories—

(1) A balloon has the right-of-way over any other category of aircraft;

(2) A glider has the right-of-way over an airship, powered parachute, weight-shift-control aircraft, airplane, powered-lift, or rotorcraft.

(3) An airship has the right-of-way over a powered parachute, weight-shift-control aircraft, airplane, powered-lift, or rotorcraft.

(4) An aircraft towing or refueling other aircraft has the right-of-way over all other engine-driven aircraft.

* * * * *

Amend §91.205 in the section headings and paragraph (a) by removing the phrase "standard category" and adding in its place the word "standard". The amended text reads as follows:

§91.205 Powered civil aircraft with standard U.S. airworthiness certificates: Instrument and equipment requirements.

(a) ***General.*** Except as provided in paragraphs (c)(3) and (e) of this section, no person may operate a powered civil aircraft with a standard U.S. airworthiness certificate in any operation described in paragraphs (b) through (f) of this section unless that aircraft contains the instruments and equipment specified in those paragraphs (or FAA-approved equivalents) for that type of operation, and those instruments and items of equipment are in operable condition.

* * * * *

➧ ***Change Date:*** *October 2, 2024*
➧ ***Effective Date:*** *December 2, 2024*
➧ ***Source:*** *Amdt. 91–378, 89 FR 80340*

Revise §91.315 to read as follows:

§91.315 Limited category civil aircraft: Operating limitations.

Except as provided in §91.326, no person may operate a limited category civil aircraft carrying persons or property for compensation or hire in operations that:

(a) Require an air carrier or commercial operator certificate issued under part 119 of this chapter;

(b) Are listed in §119.1(e) of this chapter;

(c) Require management specifications for a fractional ownership program issued in accordance with subpart K of this part; or

(d) Are conducted under part 129, 133, or 137 of this chapter.

Amend §91.319 by:

a. Revising paragraphs (a) introductory text, (a)(2), (d)(3), (e), and (f); and

b. Removing and reserving paragraph (h).

The revisions read as follows:

§91.319 Aircraft having experimental certificates: Operating limitations.

(a) Except as provided in §91.326, no person may operate an aircraft that has an experimental certificate—

* * * * *

(2) Carrying persons or property for compensation or hire in operations that:

(i) Require an air carrier or commercial operator certificate issued under part 119 of this chapter;

(ii) Are listed in §119.1(e) of this chapter;

(iii) Require management specifications for a fractional ownership program issued in accordance with subpart K of this part; or

(iv) Are conducted under part 129, 133, or 137 of this chapter.

* * * * *

(d) * * *

(3) Notify air traffic control of the experimental nature of the aircraft when utilizing air traffic services.

(e) No person may operate a light-sport aircraft that is issued an experimental certificate under §21.191 of this chapter for compensation or hire, except:

(1) A person may operate an aircraft issued an experimental certificate under §21.191(i)(1) of this chapter to tow a glider that is a light-sport aircraft or unpowered ultralight vehicle in accordance with §91.309; or

(2) A person may operate a light-sport aircraft issued an experimental certificate under §21.191 of this chapter to conduct operations authorized under §91.326.

(f) No person may lease a light-sport aircraft that is issued an experimental certificate under §21.191 of this chapter, except—

(1) In accordance with paragraph (e)(1) of this section; or

(2) To conduct a solo flight in accordance with a training program included as part of the deviation authority specified under §91.326(b).

* * * * *

➧ ***Change Date:*** *November 18, 2024*
➧ ***Effective Date:*** *November 18, 2024*
➧ ***Source:*** *Amdt. 91–380, 89 FR 90578*

Amend §91.319 by revising paragraph (j) to read as follows:

§91.319 Aircraft having experimental certificates: Operating limitations.

* * * * *

(j) No person may operate an aircraft that has an experimental certificate under §61.113(i) of this chapter unless the aircraft is carrying not more than 7 occupants.

➧ ***Change Date:*** *October 2, 2024*
➧ ***Effective Date:*** *December 2, 2024*
➧ ***Source:*** *Amdt. 91–378, 89 FR 80340*

Revise §91.325 to read as follows:

§91.325 Primary category aircraft: Operating limitations.

(a) Unless provided for in this section, no person may operate a primary category aircraft carrying persons or property for compensation or hire in operations that:

(1) Require an air carrier or commercial operator certificate issued under part 119 of this chapter;

(2) Are listed in §119.1(e) of this chapter;

(3) Require management specifications for a fractional ownership program issued in accordance with subpart K of this part; or

(4) Are conducted under part 129, 133, or 137 of this chapter.

(b) Except as provided in §91.326(c), no person may operate a primary category aircraft that is maintained by the pilot-owner under an approved special inspection and maintenance program except—

(1) The pilot-owner; or

(2) A designee of the pilot-owner, provided that the pilot-owner does not receive compensation for the use of the aircraft.

(c) A primary category aircraft that is maintained by an appropriately rated mechanic or an authorized certificated repair station in accordance with the applicable provisions of part 43 of this chapter may be used to conduct flight training, checking, and testing for compensation or hire.

Add §91.326 to read as follows:

§91.326 Exception to operating certain aircraft for the purposes of flight training, flightcrew member checking, or flightcrew member testing.

(a) ***General.*** Notwithstanding the prohibitions in §§91.315, 91.319(a), and 91.325, a person may conduct flight training, checking, or testing in a limited category aircraft, experimental aircraft, or primary category aircraft under the provisions of this section.

(b) ***Operations requiring a letter of deviation authority.*** Except as provided in paragraphs (c) and (d) of this section, no per-

son may conduct flight training, checking, or testing in a limited category or experimental aircraft without deviation authority issued under this paragraph (b).

(1) No person may operate under this section without a letter of deviation authority (LODA) issued by the Administrator.

(2) The FAA may deny an application for a letter of deviation authority if it determines the deviation would not be in the interest of safety or is unnecessary. The FAA may cancel or amend a letter of deviation authority if it determines that the deviation holder has failed to comply with the conditions and limitations or at any time if the Administrator determines that the deviation is no longer necessary or in the interest of safety.

(3) An applicant must submit a request for deviation authority in a form and manner acceptable to the Administrator at least 60 days before the date of intended operations. A request for deviation authority must contain a complete description of the proposed operation that establishes a level of safety equivalent to that provided under the regulations for the deviation requested, including:

(i) A letter identifying the name and address of the applicant;

(ii) The name and contact information of the individual with ultimate responsibility for operations authorized under the deviation authority;

(iii) Specific aircraft make(s), model(s), registration number(s), and serial number(s) to be used;

(iv) Copies of each aircraft's airworthiness certificate, including the FAA-issued operating limitations, if applicable;

(v) Ejection seat information, if applicable;

(vi) A detailed training program that demonstrates the proposed activities will meet the intended training objectives;

(vii) A description of the applicant's process to determine whether a trainee has a specific need for formation or aerobatic training, or training leading to the issuance of an endorsement, if those types of training are being requested; and

(viii) Any other information that the Administrator deems necessary to evaluate the application.

(4) The holder of a letter of deviation authority must comply with any conditions and limitations provided in that letter of deviation authority. Unless otherwise authorized by the Administrator, the deviation authority will include the following conditions and limitations:

(i) The operator must use the aircraft-specific flight and ground training program for the training authorized by the letter of deviation authority. Demonstration flights, discovery flights, experience flights, and other flights not related to the training program are not authorized.

(ii) As appropriate to the aircraft being flown, all trainees must hold category and class ratings; a type rating, Authorized Experimental Aircraft authorization, or temporary Letter of Authorization; and endorsements listed in §61.31 of this chapter, as appropriate, with the following exceptions:

(A) Persons receiving gyroplane training or training leading to the initial issuance of a sport pilot certificate or flight instructor certificate with a sport pilot rating in a low mass, high drag aircraft with an empty weight less than 650 pounds and a V_H ≤87 Knots Calibrated Airspeed (KCAS) are not required to hold category or class ratings. For training leading to an endorsement for additional sport pilot privileges, the pilot receiving the training must hold at least a sport pilot certificate with appropriate category and class ratings and endorsements issued under §61.31 of this chapter, as appropriate.

(B) Persons with a specific need to receive training toward the issuance of an endorsement are not required to hold the §61.31 of this chapter endorsement sought. Any endorsements being provided must be authorized in the LODA.

(C) Persons receiving jet unusual attitude and upset recovery training, limited category type rating training, or authorized experimental aircraft authorization training, if required for the type of aircraft being flown, are not required to hold the applicable type rating, authorized experimental authorization rating, or a temporary Letter of Authorization prior to the commencement of training.

(D) For ultralight-style training, the person receiving training is not required to meet category and class ratings or §61.31 of this chapter endorsement requirements. However, if the flight training includes a solo flight segment, this does not relieve the person receiving training from the requirements of part 61, subpart C, of this chapter. This training is limited to a low mass, high drag aircraft with an empty weight less than 650 pounds and a maximum speed in level flight with maximum continuous power less than 87 KCAS.

(iii) If the aircraft is equipped with ejection seats and systems, such systems must be rigged, maintained, and inspected in accordance with the manufacturer's recommendations. Before providing training in aircraft equipped with operable ejection systems, whether armed or not armed, all aircraft occupants must complete a course of ejection seat training.

(iv) When conducting spin and upset training, the operator must maintain a minimum recovery altitude of 6,000 feet above ground level unless the Administrator authorizes a lower altitude.

(v) A copy of the LODA must be carried on board the aircraft during flight training conducted under the LODA.

(vi) The LODA holder must keep a record of the training given for a period of 36 calendar months from the completion date of the training. The authorized instructor must sign the trainee's training record certifying that the flight training or ground training was given. The training record must include the following:

(A) The name and certificate number (if applicable) of the trainee;

(B) The name, signature, and certificate number of the instructor;

(C) The date trained;

(D) The training received;

(E) The trainee's specific need for training, if applicable.

(vii) Notwithstanding §43.1(b) of this chapter or §91.409(c)(1), all aircraft must:

(A) Except for turbine powered or large aircraft, within the preceding 100 hours of time in service, have received an annual, 100-hour, or condition inspection equivalent to the scope and detail of appendix D to part 43 of this chapter and been approved for return to service in accordance with part 43. The 100-hour limitation may be exceeded by not more than 10 hours while enroute to reach a place where the inspection can be done. The excess time used to reach a place where the inspection can be done must be included in computing the next 100 hours of time in service; or

(B) Except for turbine powered or large aircraft, be inspected in accordance with an FAA-approved inspection program that includes provisions for ensuring continued airworthiness and recording the current status on life-limited parts and in accordance with the manufacturer's instructions.

(C) For turbine-powered or large aircraft, be inspected in accordance with an FAA-approved inspection program that meets the scope and detail of the requirements of §91.409(e), (f)(4), and (g) for ensuring continued airworthiness and recording time remaining on life-limited parts in accordance with the manufacturer's instructions.

(viii) Notwithstanding any exception due to the experimental airworthiness certification of the aircraft, LODA holders with experimental aircraft must comply with FAA Airworthiness Directives applicable to any corresponding make or model aircraft holding a different type of airworthiness certificate or applicable to any article installed on the aircraft. The LODA holder must evaluate the aircraft and its articles to determine if compliance with the FAA Airworthiness Directive is necessary for the continued safe operation of the aircraft. LODA holders must keep a maintenance record entry of those FAA Airworthiness Directives evaluated. For those FAA Airworthiness Directives for which the LODA holder determined compliance was necessary for the continued safe operation of the aircraft, the record must also include the method of compliance, and if the FAA Airworthiness Directive requires recurring action, the time and date when the next action is required.

(5) Only the following persons may be on board the aircraft during operations conducted under the deviation authority:

(i) The authorized instructor, designated examiner, person receiving flight training or being checked or tested, or persons essential for the safe operation of the aircraft; and

(ii) Notwithstanding any operating limitation applicable under §91.9(a) that prohibits the carriage of passengers for compensation or hire, up to two persons enrolled in a LODA training course for the same aircraft may observe the flight training from a forwardmost observer seat with an unobstructed view of the flight deck, provided carriage of those persons is not prohibited by any other regulation.

(6) The Administrator may limit the types of training, testing, and checking authorized under this deviation authority. Training, testing, and checking under this deviation authority must be conducted consistent with the training program submitted for FAA review.

(c) ***Operations not requiring a letter of deviation authority.*** The following operations may be conducted without a letter of deviation authority.

(1) An authorized instructor, registered owner, lessor, or lessee of an aircraft is not required to obtain a letter of deviation authority from the Administrator to allow, conduct, or receive flight training, checking, or testing in a limited category aircraft, experimental aircraft, or primary category aircraft if—

(i) The authorized instructor is not providing both the training and the aircraft;

(ii) No person advertises or broadly offers the aircraft as available for flight training, checking, or testing; and

(iii) No person receives compensation for the use of the aircraft for any flight during which flight training, checking, or testing was received, other than expenses for owning, operating, and maintaining the aircraft. Compensation for the use of the aircraft for profit is prohibited.

(2) A person may operate a limited category aircraft, experimental aircraft, or primary category aircraft to conduct flight training, checking, or testing without a letter of deviation authority if no person provides and no person receives compensation for the flight training, checking, or testing, or for the use of the aircraft.

(d) ***Previously issued letters of deviation authority.*** For deviation authority issued under §91.319 prior to December 2, 2024, the following requirements apply—

(1) The deviation holder may continue to operate under the letter of deviation authority until December 1, 2026;

(2) The deviation holder must continue to comply with the conditions and limitations in the letter of deviation authority when conducting an operation under the letter of deviation authority in accordance with paragraph (b)(1) of this section;

(3) The letter of deviation authority may be cancelled or amended at any time; and

(4) The letter of deviation authority terminates on December 1, 2026.

Amend §91.327 by revising paragraph (a)(2) to read as follows:

§91.327 Aircraft having a special airworthiness certificate in the light-sport category: Operating limitations.

(a) * * *

(2) To conduct flight training, checking, and testing.

* * * * *

➨ ***Change Date:*** *August 23, 2024*
➨ ***Effective Date:*** *October 22, 2024*
➨ ***Source:*** *Amdt. 91–377, 89 FR 68100*

Amend §91.517 by revising paragraph (a) to read as follows:

§91.517 Passenger information.

(a) Except as provided in paragraph (b) of this section, no person may operate an airplane carrying passengers unless it is equipped with signs that are visible to passengers and flight attendants to notify them when smoking is prohibited and when safety belts must be fastened.

(1) The signs that notify when safety belts must be fastened must be so constructed that the crew can turn them on and off.

(2) The signs that prohibit smoking and signs that notify when safety belts must be fastened must be illuminated during airplane movement on the surface, for each takeoff, for each landing, and when otherwise considered to be necessary by the pilot in command.

* * * * *

➨ ***Change Date:*** *November 21, 2024*
➨ ***Effective Date:*** *January 21, 2025*
➨ ***Source:*** *Amdt. 91–379, 89 FR 92486*

Amend §91.903 by revising paragraph (a) to read as follows:

§91.903 Policy and procedures.

(a) The Administrator may issue a certificate of waiver authorizing the operation of aircraft in deviation from any rule listed in this subpart or any rule listed in this subpart as modified by subpart C of part 194 of this chapter if the Administrator finds that the proposed operation can be safely conducted under the terms of that certificate of waiver.

* * * * *

➨ ***Change Date:*** *June 10, 2021*
➨ ***Effective Date:*** *September 9, 2024*
➨ ***Source:*** *Amdt. 91–363, 86 FR 31060*

Effective September 9, 2024, §91.1051 is removed.

§91.1051 [Removed]

➧ ***Change Date:*** *November 21, 2024*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 91–379, 89 FR 92486*

Amend §91.1053 by revising paragraph (a)(2)(i) to read as follows:

§91.1053 Crewmember experience.

(a) * * *

(2) * * *

(i) Pilot in command—Airline transport pilot and applicable type ratings not limited to VFR only.

* * * * *

➧ ***Change Date:*** *June 18, 2024*
➧ ***Effective Date:*** *July 18, 2024*
➧ ***Source:*** *Amdt. 91–375, 89 FR 51424*

Amend §91.1063 by revising paragraphs (b)(2)(i) and (ii) to read as follows:

§91.1063 Testing and training: Applicability and terms used.

* * * * *

(b) * * *

(2) * * *

(i) Each program manager must include in upgrade ground training for pilots, instruction in at least the subjects identified in §121.419(a) of this chapter, as applicable to their assigned duties; and, for pilots serving in crews of two or more pilots, instruction and facilitated discussion in the subjects identified in §121.419(c) of this chapter.

(ii) Each program manager must include in upgrade flight training for pilots, flight training for the maneuvers and procedures required in §121.424(a), (c), (e), and (f) of this chapter; and, for pilots serving in crews of two or more pilots, the flight training required in §121.424(b) of this chapter.

* * * * *

➧ ***Change Date:*** *November 21, 2024*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 91–379, 89 FR 92486*

Amend §91.1115(b)(1) by removing the word “airplane” and adding in its place the word “aircraft”.

➧ ***Change Date:*** *March 20, 2025*
➧ ***Effective Date:*** *March 19, 2025*
➧ ***Source:*** *Amdt. No. 91–321G, 90 FR 13076*

Amend §91.1603 by revising paragraph (e) to read as follows:

§91.1603 Special Federal Aviation Regulation No. 112—Prohibition Against Certain Flights in the Territory and Airspace of Libya.

* * * * *

(e) *Expiration.* This SFAR will remain in effect until March 20, 2028. The FAA may amend, rescind, or extend this SFAR, as necessary.

➧ ***Change Date:*** *October 16, 2024*
➧ ***Effective Date:*** *October 16, 2024*
➧ ***Source:*** *Amdt. 91–353C, 89 FR 83427*

Amend §91.1605 by revising paragraph (e) to read as follows:

§91.1605 Special Federal Aviation Regulation No. 77—Prohibition Against Certain Flights in the Baghdad Flight Information Region (FIR) (ORBB).

* * * * *

(e) *Expiration.* This SFAR will remain in effect until October 26, 2027. The FAA may amend, rescind, or extend this SFAR, as necessary.

➧ ***Change Date:*** *December 30, 2024*
➧ ***Effective Date:*** *December 30, 2024*
➧ ***Source:*** *Amdt. 91–340E, 89 FR 106307*

Amend §91.1611 by revising paragraph (e) to read as follows:

§91.1611 Special Federal Aviation Regulation No. 115—Prohibition Against Certain Flights in Specified Areas of the Sanaa Flight Information Region (FIR) (OYSC).

* * * * *

(e) *Expiration.* This SFAR will remain in effect until January 7, 2028. The FAA may amend, rescind, or extend this SFAR, as necessary.

➧ ***Change Date:*** *October 3, 2024*
➧ ***Effective Date:*** *October 3, 2024*
➧ ***Source:*** *Amdt. 91-359B, 89 FR 80390*

Amend §91.1617 by revising paragraph (e) to read as follows:

§91.1617 Special Federal Aviation Regulation No. 117—Prohibition Against Certain Flights in the Tehran Flight Information Region (FIR) (OIIX).

* * * * *

(e) *Expiration.* This SFAR will remain in effect until October 31, 2027. The FAA may amend, rescind, or extend this SFAR as necessary.

➧ ***Change Date:*** *July 5, 2024*
➧ ***Effective Date:*** *July 5, 2024*
➧ ***Source:*** *Amdt. 91-369A, 89 FR 55507*

Amend §91.1619 by revising paragraph (c) to read as follows:

§91.1619 Special Federal Aviation Regulation No. 119—Prohibition Against Certain Flights in the Kabul Flight Information Region (FIR) (OAKX).

* * * * *

(c) *Permitted operations.* This section does not prohibit persons described in paragraph (a) of this section from conducting flight operations in the Kabul Flight Information Region (FIR) (OAKX) under the following circumstances:

(1) *Permitted operations that do not require an approval or exemption from the FAA.*

(i) Overflights of the Kabul Flight Information Region (FIR) (OAKX) may be conducted at altitudes at and above Flight Level (FL) 320, subject to the approval of, and in accordance with the conditions established by, the appropriate authorities of Afghanistan.

(ii) Transiting overflights of the Kabul Flight Information Region (FIR) (OAKX) may be conducted on jet routes P500–G500 at altitudes at and above FL300, subject to the approval of, and in accordance with the conditions established by, the appropriate authorities of Afghanistan.

(2) *Operations permitted under an approval or exemption issued by the FAA.* Flight operations may be conducted in the Kabul Flight Information Region (FIR) (OAKX) at altitudes below FL320, provided that such flight operations occur under a contract, grant, or cooperative agreement with a department, agency, or instrumentality of the U.S. Government (or under a subcontract between the prime contractor of the U.S. Government department, agency, or instrumentality and the person described in paragraph (a) of this section) with the approval of the FAA or under an exemption issued by the FAA. The FAA will consider requests for approval or exemption in a timely manner, with the order of preference being: first, for those operations in support of U.S. Government-sponsored activities; second, for those operations in support of government-sponsored activities of a foreign country with the support of a U.S. Government department, agency, or instrumentality; and third, for all other operations.

* * * * *

➧ ***Change Date:*** *July 1, 2025*
➧ ***Effective Date:*** *July 1, 2025*
➧ ***Source:*** *Amdt. 91–369B, 90 FR 27987*

Amend §91.1619 by revising paragraph (e) to read as follows:

§91.1619 Special Federal Aviation Regulation No. 119—Prohibition Against Certain Flights in the Kabul Flight Information Region (FIR) (OAKX).

* * * * *

(e) ***Expiration.*** This SFAR will remain in effect until July 25, 2028. The FAA may amend, rescind, or extend this SFAR, as necessary.

PART 97
STANDARD INSTRUMENT PROCEDURES

➧ ***Change Date:*** *November 21, 2024*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 97–1340, 89 FR 92486*

Amend §97.1 by adding paragraph (c) to read as follows:

§97.1 Applicability.

* * * * *

(c) Additional applicability of copter procedures for powered-lift is set forth in part 194 of this chapter.

PART 136
COMMERCIAL AIR TOURS AND NATIONAL PARKS AIR TOUR MANAGEMENT

➧ ***Change Date:*** *August 22, 2024*
➧ ***Effective Date:*** *October 21, 2024*
➧ ***Source:*** *Amdt. 136–3, 89 FR 67850*

The authority citation for Part 136 is revised to read as follows:

Authority: 49 U.S.C. 106(f), 40113, 40119, 44101, 44701–44702, 44705, 44709–44711, 44713, 44716–44717, 44722, 44901, 44903–44904, 44912, 46105.

➧ ***Change Date:*** *November 21, 2024*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 136–4, 89 FR 92488*

Amend §136.1 by adding paragraph (f) to read as follows:

§136.1 Applicability and definitions.

* * * * *

(f) Additional requirements for powered-lift operations are set forth in part 194 of this chapter.

➧ ***Change Date:*** *August 22, 2024*
➧ ***Effective Date:*** *October 21, 2024*
➧ ***Source:*** *Amdt. 136–3, 89 FR 67850*

Amend §136.7 by adding paragraph (c) to read as follows:

§136.7 Passenger briefings.

* * * * *

(c) If any passengers on board a flight conducted under this part are secured with a supplemental restraint system, the pilot in command of that flight must ensure those passengers are briefed in accordance with §91.108(g) of this chapter.

➧ ***Change Date:*** *November 21, 2024*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 136–4, 89 FR 92488*

Amend §136.75 by revising paragraph (a) introductory text to read as follows:

§136.75 Equipment and requirements.

(a) ***Flotation equipment.*** No person may conduct an air tour in Hawaii in a single-engine rotorcraft beyond the shore of any island, regardless of whether the rotorcraft is within gliding distance of the shore, unless:

* * * * *

PART 141
PILOT SCHOOLS

➧ ***Change Date:*** *October 1, 2024*
➧ ***Effective Date:*** *December 1, 2024*
➧ ***Source:*** *Amdt. 141–25, 89 FR 80053*

The authority citation for part 141 is revised to read as follows:

Authority: 49 U.S.C. 106(f), 40113, 44701–44703, 44707, 44709, 44711, 45102–45103, 45301–45302.

➧ ***Change Date:*** *November 21, 2024*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 141–26, 89 FR 92488*

Revise §141.1 to read as follows:

§141.1 Applicability.

This part prescribes the requirements for issuing pilot school certificates, provisional pilot school certificates, and associated ratings, and the general operating rules applicable to a holder of a certificate or rating issued under this part. Additional requirements for pilot schools seeking to provide training courses for powered-lift certification and ratings are set forth in part 194 of this chapter.

➧ ***Change Date:*** *October 1, 2024*
➧ ***Effective Date:*** *December 1, 2024*
➧ ***Source:*** *Amdt. 141–25, 89 FR 80053*

Amend §141.11 by adding paragraph (b)(2)(ix) and paragraph (b)(4) to read as follows:

§141.11 Pilot school ratings.

* * * * *

(b) * * *

(2) * * *

(ix) Flight instructor enhanced qualification training program.

* * * * *

(4) *Combined Private Pilot Certification and Instrument Rating Course*. (Appendix M).

➧ ***Change Date:*** *November 21, 2024*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 141–26, 89 FR 92488*

Amend §141.37 by revising paragraph (a)(3)(ii) to read as follows:

§141.37 Check Instructor Qualifications.

* * * * *

(a) * * *

(3) * * *

(ii) Except for a course of training for a lighter-than-air rating, hold either a current flight instructor certificate with the appropriate category and class of aircraft, or ground instructor certificate with appropriate ratings, to be used in the course of training; and

* * * * *

➧ ***Change Date:*** *October 1, 2024*
➧ ***Effective Date:*** *December 1, 2024*
➧ ***Source:*** *Amdt. 141–25, 89 FR 80053*

Amend appendix K to part 141 by:

a. Revising the paragraph heading of paragraph 4;
b. Revising paragraphs 4.(a) through (c); and
c. Adding paragraph 14.

The revisions and addition read as follows:

Appendix K to Part 141

Special Preparation Courses

* * * * *

4. *Use of full flight simulators, flight training devices, or aviation training devices.*

(a) The approved special preparation course may include training in a full flight simulator or flight training device, provided it is representative of the aircraft for which the course is approved, meets requirements of this paragraph, and the training is given by an authorized instructor. A flight instructor enhanced qualification training program may include training in an advanced aviation training device in accordance with paragraph 14 of this appendix and §61.195(h)(3)(v) of this chapter.

(b) Except for the airline transport pilot certification program in paragraph 13 of this appendix and the flight instructor enhanced qualification training program in paragraph 14 of this appendix, training in a full flight simulator that meets the requirements of §141.41(a) may be credited for a maximum of 10 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

(c) Except for the airline transport pilot certification program in paragraph 13 of this appendix and the flight instructor enhanced qualification training program in paragraph 14 of this appendix, training in a flight training device that meets the requirements of §141.41(a), may be credited for a maximum of 5 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.

* * * * *

14. *Flight instructor enhanced qualification training program.* An approved flight instructor enhanced qualification training program must include the ground and flight training specified in §61.195(h)(3) of this chapter. The FAA will not approve a course with fewer hours than those prescribed in §61.195(h)(3) of this chapter.

PART 142
TRAINING CENTERS

➧ ***Change Date:*** *November 21, 2024; January 3, 2025*
➧ ***Effective Date:*** *January 21, 2025*
➧ ***Source:*** *Amdt. 142–11, 89 FR 92488; Amdt. 142–11A, 90 FR 216*

Amend §142.1 by adding paragraph (d) to read as follows:

§142.1 Applicability.

* * * * *

(d) Additional requirements for training centers seeking to provide curriculums for powered-lift certification and ratings are set forth in part 194 of this chapter.

Amend §142.11 by revising paragraph (d)(2)(iii) to read as follows:

§142.11 Application for issuance or amendment.

* * * * *

(d) * * *

(2) * * *

(iii) For each flight simulator or flight training device, the make model, and series of aircraft or the set of aircraft being simulated and the qualification level assigned;

* * * * *

Amend §142.47 by revising paragraphs (a)(5) and (c)(2)(ii) to read as follows:

§142.47 Training center instructor eligibility requirements.

(a) * * *

(5) Meets at least one of the requirements in paragraphs (a)(5)(i) through (iv) of this section:

(i) Except as allowed by paragraph (a)(5)(ii) of this section, meets the aeronautical experience requirements of §61.129(a), (b), (c), or (e) of this chapter, as applicable, excluding the required hours of instruction in preparation for the commercial pilot practical test, or holds a commercial pilot certificate with the appropriate ratings;

(ii) Meets the aeronautical experience requirements of §61.159, §61.161, or §61.163 of this chapter, as applicable, or holds an unrestricted airline transport pilot certificate with the appropriate ratings, if instructing:

(A) In a flight simulation training device that represents an airplane or rotorcraft requiring a type rating, a powered-lift over 12,500 pounds, or a turbojet powered powered-lift, except as provided in paragraph (a)(5)(iv) of this section, or

(B) In a curriculum leading to the issuance of an airline transport pilot certificate or an added rating to an airline transport pilot certificate.

(iii) Is employed as a flight simulator instructor or a flight training device instructor for a training center providing instruction and testing to meet the requirements of part 61 of this chapter on August 1, 1996.

(iv) A person employed as an instructor and providing training in an FSTD that represents a rotorcraft requiring a type rating is not required to meet the aeronautical experience requirements of paragraph (a)(5)(ii) of this section and may instead meet the experience requirements of paragraph (a)(5)(i) of this section if:

(A) The person meets the experience requirements of paragraph (a)(5)(i) of this section;

(B) The person is not providing training in a curriculum leading to the issuance of an airline transport pilot certificate or an added rating to an airline transport pilot certificate, and

(C) The person was employed and met the remaining requirements of this section on March 21, 2025.

* * * * *

(c) * * *

(2) * * *

(ii) That is accepted by the Administrator as being of equivalent difficulty, complexity, and scope as the tests provided by the Administrator for the applicable flight instructor and instrument flight instructor knowledge tests to the aircraft category in which they are instructing.

Amend §142.53 in paragraphs (b)(2)(i) and (b)(3)(i) by removing the word “airplane” and adding in its place the word “aircraft”.

Amend §142.57(c) by removing the word “Airplanes” and adding in its place the word “Aircraft”.

PART 194

SPECIAL FEDERAL AVIATION REGULATION NO. 120—POWERED-LIFT: PILOT CERTIFICATION AND TRAINING; OPERATIONS REQUIREMENTS

➨ ***Change Date:*** *November 21, 2024*
➨ ***Effective Date:*** *January 21, 2025*
➨ ***Source:*** *Amdt. 194–1, 89 FR 92489*

A new subchapter L, consisting of part 194, was added effective January 21, 2025. It is accessible online at govinfo.gov.

Aeronautical Information Manual
Explanation of Major Changes

Change 3 effective September 5, 2024 (to Basic Manual effective April 20, 2023) and Basic Manual effective February 20, 2025.

1–2–4. Recognizing, Mitigating, and Adapting to GPS Interference (Jamming or Spoofing)

This change provides additional guidance and recommendations for jamming and/or spoofing of Global Positioning System (GPS) and reiterates the need for pilots' reporting of events.

3–5–2. Military Training Routes

This change adds explanatory material on Special Military Advisory Routes (SMARs).

3–5–5. Published VFR Routes

9–1–4. General Description of Each Chart Series

This change updates the names to three visual flight rules (VFR) charted products published by Aeronautical Information Services via the Terminal Area Chart (TAC) and VFR Flyway Planning Chart. These charts contain the VFR Flyway and VFR Transition Routes developed where applicable due to traffic volume and airspace complexity. The descriptions for each route are updated to better describe the products and the compliance requirements for each. A new section covering the Helicopter Route Chart is added to include a description and example of this charted VFR product.

4–4–12. Speed Adjustments

5–4–1. Standard Terminal Arrival Procedures

This change adds language to clarify that any published speed, including a chart note speed, is canceled when aircraft are vectored or deviate off of a procedure.

4–4–12. Speed Adjustments

This change is being made to align ICAO language with NAS orders and procedures by removing "turbojet" as the only aircraft that can be assigned a Mach number speed.

4–5–2. Air Traffic Control Radar Beacon System (ATCRBS)

Appendix 3. Abbreviations/Acronyms

This change removes the note in subparagraph 4-5-2c; Figure 4-5-3 and Figure 4-5-4 that illustrate the old systems; and references to Automated Radar Terminal System in Appendix 3, Abbreviations/Acronyms.

4–7–1. Introduction and General Policies

This change removes subparagraph f that previously instructed pilots to use Strategic Lateral Offset Procedures (SLOP) when flying in airspace over the Gulf of Mexico. We have revised the general guidance on SLOP in the U.S. AIP, ENR 7.1, accordingly.

5–1–3. Notice to Airmen (NOTAM) System

This change removes mention of Chart Update Bulletin and replaces it with a description and link to the AJV-A website containing Safety Alerts, Charting Notices and Digital Product Notices.

5–2–5. Line Up and Wait (LUAW)

This change moves the cautionary statement "Line Up and Wait (LUAW) is not an authorization to takeoff" to the first paragraph for emphasis. This change also adds a note advising readers of the increased number of instances where pilots correctly read back LUAW instructions yet depart without a takeoff clearance. It reminds pilots of the need for vigilance during LUAW operations. This change emphasizes situational awareness and vigilance to subparagraphs respectively.

5–4–5. Instrument Approach Procedures (IAP) Charts

This change corrects the inconsistency between documents and charting to reflect the current method of procedure titling.

5–4–5. Instrument Approach Procedure (IAP) Charts

This change clarifies the "Fly Visual" guidance by adding the recommendation that the visual segment should be flown with flight instrumentation when advisory lateral and vertical guidance is provided.

5–4–7. Instrument Approach Procedures

This change clarifies when the phraseology "cleared approach" is issued without specifying which instrument approach to fly, pilots are not authorized to fly a visual or contact approach. The change also clarifies guidance instructing pilots what is expected when controllers clear IFR aircraft for a specific instrument approach.

Editorial Changes

An editorial change to subparagraph 5-1-1d corrects the time frame for updating Section Charts from 6 months to 56 days. Changesalso include correcting an airport name change from Pensacola "Regional" to "International" in Table 3-2-1, another change updates the hyperlink to the Graphical Forecasts for Aviation (GFA) static images website in paragraph 7-1-4, and updates the graphics used in Figure 7-1-2 and Figure 7-1-3. The term "Notice(s) to Air Missions" is changed to "Notice(s) to Airmen" throughout. Finally, the CFR "part" and "section" references are lower-cased throughout, to make consistent with usage across publications.

Entire Publication

Additional editorial/format changes were made where necessary. Revision bars were not used because of the insignificant nature of these changes.

Aeronautical Information Manual (AIM)

Basic Flight Information and ATC Procedures

* * * * *

Publication Schedule		
Basic or Change	**Cutoff Date for Completion**	**Effective Date of Publication**
Basic Manual	9/5/24	2/20/25
Change 1	2/20/25	8/7/25
Change 2	8/7/25	1/22/26
Change 3	1/22/26	7/9/26
Basic Manual	7/9/26	12/24/26
Change 1	12/24/26	6/10/27
Change 2	6/10/27	11/25/27
Change 3	11/25/27	5/11/28

* * * * *

Chapter 1. Air Navigation

1–1–3 VHF Omni-Directional Range (VOR)

* * * * *

f. * * *

3. * * *

(b) * * *

(2) Also, in case of a GPS outage, pilots may coordinate with ATC and elect to continue through the outage or land. The VOR MON is designed to ensure that an aircraft is within 100 NM of an airport, but pilots may decide to proceed to any appropriate airport where a landing can be made. WAAS users flying under part 91 are not required to carry VOR avionics. These users do not have the ability or requirement to use the VOR MON. Prudent flight planning, by these WAAS-only aircraft, should consider the possibility of a GPS outage.

* * * * *

1–1–4 VOR Receiver Check

* * * * *

d. Federal Aviation Regulations (14 CFR section 91.171) provides for certain VOR equipment accuracy checks prior to flight under instrument flight rules. To comply with this requirement and to ensure satisfactory operation of the airborne system, the FAA has provided pilots with the following means of checking VOR receiver accuracy:

* * * * *

1–1–17 Global Positioning System (GPS)

* * * * *

b. * * *

1. * * *

(c) * * *

(3) Antenna Location. The antenna location for GPS receivers used for IFR and VFR operations may differ. VFR antennae are typically placed for convenience more than performance, while IFR installations ensure a clear view is provided with the satellites. Antennae not providing a clear view have a greater opportunity to lose the satellite navigational signal. This is especially true in the case of hand-held GPS receivers. Typically, suction cups are used to place the GPS antennas on the inside of cockpit windows. While this method has great utility, the antenna location is limited to the cockpit or cabin which rarely provides a clear view of all available satellites. Consequently, signal losses may occur due to aircraft structure blocking satellite signals, causing a loss of navigation capability. These losses, coupled with a lack of RAIM capability, could present erroneous position and navigation information with no warning to the pilot. While the use of a hand-held GPS for VFR operations is not limited by regulation, modification of the aircraft, such as installing a panel- or yoke-mounted holder, is governed by 14 CFR part 43. Consult with your mechanic to ensure compliance with the regulation and safe installation.

* * * * *

(e) * * *

(1) VFR waypoints provide VFR pilots with a supplementary tool to assist with position awareness while navigating visually in aircraft equipped with area navigation receivers. VFR waypoints should be used as a tool to supplement current navigation procedures. The uses of VFR waypoints include providing navigational aids for pilots unfamiliar with an area, waypoint definition of existing reporting points, enhanced navigation in and around Class B and Class C airspace, enhanced navigation around Special Use Airspace, and entry points for commonly flown mountain passes. VFR pilots should rely on appropriate and current aeronautical charts published specifically for visual navigation. If operating in a terminal area, pilots should take advantage of the Terminal Area Chart available for that area, if published. The use of VFR waypoints does not relieve the pilot of any responsibility to comply with the operational requirements of 14 CFR part 91.

* * * * *

2. * * *

(b) * * *

(5) * * *

[d] * * *

[1] For all extended over-water operations (defined in 14 CFR part 1 as greater than 50 NM from the nearest shoreline), operators may consider dual GPS-based systems to meet the “independent” criteria stipulated by regulation, e.g. §121.349, §135.165.

* * * * *

3. * * *

(a) * * *

TABLE 1–1–5
GPS IFR EQUIPMENT CLASSES/CATEGORIES

TSO-C129						
Equipment Class	**RAIM**	**Int. Nav Sys. to Prov. RAIM Equiv.**	**Oceanic**	**En Route**	**Terminal**	**Nonprecision Approach Capable**
Class A—GPS sensor and navigation capability.						
A1	yes		yes	yes	yes	yes
A2	yes		yes	yes	yes	no
Class B—GPS sensor data to an integrated navigation system (i.e., FMS, multi-sensor navigation system, etc.)						
B1	yes		yes	yes	yes	yes
B2	yes		yes	yes	yes	no
B3		yes	yes	yes	yes	yes
B4		yes	yes	yes	yes	no
Class C—GPS sensor data to an integrated navigation system (as in Class B) which provides enhanced guidance to an autopilot, or flight director, to reduce flight tech. errors. Limited to 14 CFR part 121 or equivalent criteria.						
C1	yes		yes	yes	yes	yes
C2	yes		yes	yes	yes	no
C3		yes	yes	yes	yes	yes
C4		yes	yes	yes	yes	no

* * * * *

1–1–18 Wide Area Augmentation System (WAAS)

* * * * *

c. * * *

9. * * *

(a) Pilots with WAAS receivers may flight plan to use any instrument approach procedure authorized for use with their WAAS avionics as the planned approach at a required alternate, with the following restrictions. When using WAAS at an alternate airport, flight planning must be based on flying the RNAV (GPS) LNAV or circling minima line, or minima on a GPS approach procedure, or conventional approach procedure with "or GPS" in the title. Code of Federal Regulation (CFR) part 91 non-precision weather requirements must be used for planning. Upon arrival at an alternate, when the WAAS navigation system indicates that LNAV/VNAV or LPV service is available, then vertical guidance may be used to complete the approach using the displayed level of service. The FAA has begun removing the ⚠ **NA** (Alternate Minimums Not Authorized) symbol from select RNAV (GPS) and GPS approach procedures so they may be used by approach approved WAAS receivers at alternate airports. Some approach procedures will still require the ⚠ **NA** for other reasons, such as no weather reporting, so it cannot be removed from all procedures. Since every procedure must be individually evaluated, removal of the ⚠ **NA** from RNAV (GPS) and GPS procedures will take some time.

* * * * *

d. * * *

7. The Along-Track Distance (ATD) during the final approach segment of an LNAV procedure (with a minimum descent altitude) will be to the MAWP. On LNAV/VNAV and LPV approaches to a decision altitude, there is no missed approach waypoint so the along-track distance is displayed to a point normally located at the runway threshold. In most cases the MAWP for the LNAV approach is located on the runway threshold at the centerline, so these distances will be the same. This distance will always vary slightly from any ILS DME that may be present, since the ILS DME is located further down the runway. Initiation of the missed approach on the LNAV/VNAV and LPV approaches is still based on reaching the decision altitude without any of the items listed in 14 CFR section 91.175 being visible, and must not be delayed while waiting for the ATD to reach zero. The WAAS receiver, unlike a GPS receiver, will automatically sequence past the MAWP if the missed approach procedure has been designed for RNAV. The pilot may also select missed approach prior to the MAWP; however, navigation will continue to the MAWP prior to waypoint sequencing taking place.

1–2–4 Recognizing, Mitigating, and Adapting to GPS Jamming and/or Spoofing

a. The low-strength data transmission signals from GPS satellites are vulnerable to various anomalies that can significantly reduce the reliability of the navigation signal. The GPS signal is vulnerable and has many uses in aviation (e.g., communication, navigation, surveillance, safety systems and automation); therefore, pilots must place additional emphasis on closely monitoring aircraft equipment performance for any anomalies and promptly inform Air Traffic Control (ATC) of any apparent GPS degradation. Pilots should also be prepared to operate without GPS navigation systems.

* * * * *

c. Manufacturers, operators, and air traffic controllers should be aware of the general impacts of GPS jamming and/or spoofing, which include, but are not limited to:

1. Inability to use GPS for navigation.

2. Inability to use hybrid GPS inertial systems for navigation.

3. Loss of, or degraded, performance-based navigation (PBN) capability (e.g., inability to fly required navigation performance (RNP) procedures).

4. Unreliable triggering of Terrain Awareness and Warning Systems (TAWS).

5. Inaccurate aircraft position on navigation display (e.g., moving map and electronic flight bag).

6. Loss of, or erroneous, Automatic Dependent Surveillance–Broadcast (ADS-B) outputs.

7. Unexpected effects when navigating with conventional NAVAIDS (e.g., if the aircraft is spoofed from the intended flight path, autotuning will not select the nearby NAVAID).

8. Unanticipated position-dependent flight management system effects (e.g., erroneous insufficient fuel indication).

9. Failure or degradation of Air Traffic Management (ATM) infrastructure and its associated systems reliant on GPS, resulting in potential airspace infringements and/or route deviations.

10. Failure of, or erroneous aircraft clocks (resulting in inability to log on to Controller-Pilot Data Link Communications CPDLC).

11. Erroneous wind and ground speed indications.

* * * * *

e. Prior to departure, the FAA recommends operators to:

1. Be aware of potential risk locations.

2. Check for any relevant Notices to Airmen (NOTAMs).

3. Plan fuel contingencies.

4. Plan to use conventional NAVAIDs and appropriate arrival/approach procedures at the destination.

5. Follow the detailed guidance from the respective Original Equipment Manufacturer (OEM).

f. During flight, the FAA recommends operators do the following:

1. Be vigilant for any indication that the aircraft's GPS is disrupted by reviewing the manufacturer's guidance for that specific aircraft type and avionics equipage. Verify the aircraft position by means of conventional NAVAIDs, when available. Indications of jamming and/or spoofing may include:

(a) Changes in actual navigation performance.

(b) Aircraft clock changes (e.g., incorrect time).

(c) Incorrect Flight Management System (FMS) position.

(d) Large shift in displayed GPS position.

(e) Primary Flight Display (PFD)/Navigation Display (ND) warnings about position error.

(f) Other aircraft reporting clock issues, position errors, or requesting vectors.

2. Assess operational risks and limitations linked to the loss of GPS capability, including any on-board systems requiring inputs from a GPS signal.

3. Ensure NAVAIDs critical to the operation for the intended route/approach are available.

4. Remain prepared to revert to conventional instrument flight procedures.

5. Promptly notify ATC if they experience GPS anomalies. Pilots should not inform ATC of GPS jamming and/or spoofing when flying through known NOTAMed testing areas unless they require ATC assistance. (See paragraph 1-1-13)

g. Post flight, the FAA recommends operators to:

1. Document any GPS jamming and/or spoofing in the maintenance log to ensure all faults are cleared.

2. File a detailed report at the reporting site: *Report a GPS Anomaly Federal Aviation Administration*, www.faa.gov/air_traffic/nas/gps_reports.

Chapter 2. Aeronautical Lighting and Other Airport Visual Aids

2–1–9 Airport/Heliport Beacons

* * * * *

d. In Class B, Class C, Class D and Class E surface areas, operation of the airport beacon during the hours of daylight often indicates that the ground visibility is less than 3 miles and/or the ceiling is less than 1,000 feet. ATC clearance in accordance with 14 CFR part 91 is required for landing, takeoff and flight in the traffic pattern. Pilots should not rely solely on the operation of the airport beacon to indicate if weather conditions are IFR or VFR. At some locations with operating control towers, ATC personnel turn the beacon on or off when controls are in the tower. At many airports the airport beacon is turned on by a photoelectric cell or time clocks and ATC personnel cannot control them. There is no regulatory requirement for daylight operation and it is the pilot's responsibility to comply with proper preflight planning as required by 14 CFR section 91.103.

2–2–4 LED Lighting Systems

* * * * *

It is recommended that air carriers/operators—including part 91 operators—who use NVGs incorporate procedures into manuals and/or standard operating procedures (SOPs) requiring periodic, unaided scanning when operating at low altitudes and when performing a reconnaissance of landing areas.

2–3–15 Security Identification Display Area (SIDA)

a. Security Identification Display Areas (SIDA) are limited access areas that require a badge issued in accordance with procedures in 49 CFR part 1542. A SIDA can include the Air Operations Area (AOA), e.g., aircraft movement area or parking area, or a Secured Area, such as where commercial passengers enplane. The AOA may not be a SIDA, but a Secured Area is always a SIDA. Movement through or into a SIDA is prohibited without authorization and proper identification being displayed. If you are unsure of the location of a SIDA, contact the airport authority for additional information. Airports that have a SIDA will have a description and map detailing boundaries and pertinent features available.

* * * * *

Chapter 3. Airspace

3–1–4 Basic VFR Weather Minimums

a. * * *

Note: *Student pilots must comply with 14 CFR section 61.89(a)(6) and (7).*

b. Except as provided in 14 CFR section 91.157, Special VFR Weather Minimums, no person may operate an aircraft beneath the ceiling under VFR within the lateral boundaries of controlled airspace designated to the surface for an airport when the ceiling is less than 1,000 feet. (See 14 CFR section 91.155(c).)

3–2–1 General

* * * * *

d. VFR Requirements. It is the responsibility of the pilot to ensure that ATC clearance or radio communication requirements are met prior to entry into Class B, Class C, or Class D airspace. The pilot retains this responsibility when receiving ATC radar advisories. (See 14 CFR part 91.)

* * * * *

g. Ultralight Vehicles. No person may operate an ultralight vehicle within Class A, Class B, Class C, or Class D airspace or within the lateral boundaries of the surface area of Class E airspace designated for an airport unless that person has prior authorization from the ATC facility having jurisdiction over that airspace. (See 14 CFR part 103.)

h. Unmanned Free Balloons. Unless otherwise authorized by ATC, no person may operate an unmanned free balloon below 2,000 feet above the surface within the lateral boundaries of Class B, Class C, Class D, or Class E airspace designated for an airport. (See 14 CFR part 101.)

i. Parachute Jumps. No person may make a parachute jump, and no pilot-in-command may allow a parachute jump to be made from that aircraft, in or into Class A, Class B, Class C, or Class D airspace without, or in violation of, the terms of an ATC authorization issued by the ATC facility having jurisdiction over the airspace. (See 14 CFR part 105.)

3–2–2 Class A Airspace

* * * * *

b. Operating Rules and Pilot/Equipment Requirements. Unless otherwise authorized, all persons must operate their aircraft under IFR. (See 14 CFR section 71.33, sections 91.167 through 91.193, sections 91.215 through 91.217, and sections 91.225 through 91.227.)

3–2–3 Class B Airspace

* * * * *

b. Operating Rules and Pilot/Equipment Requirements. Regardless of weather conditions, an ATC clearance is required prior to operating within Class B airspace. Pilots should not request a clearance to operate within Class B airspace unless the requirements of 14 CFR sections 91.131, 91.215, and 91.225 are met. Included among these requirements are:

* * * * *

3. * * *

(b) The pilot-in-command holds a recreational pilot certificate and has met the requirements of 14 CFR section 61.101; or

(c) The pilot-in-command holds a sport pilot certificate and has met the requirements of 14 CFR section 61.325; or

(d) The aircraft is operated by a student pilot:

(1) Who seeks a private pilot certificate and has met the requirements of 14 CFR section 61.95.

(2) Who seeks a recreational pilot or sport pilot certificate and has met the requirements of 14 CFR section 61.94.

* * * * *

6. Mode C Veil. The airspace within 30 nautical miles of an airport listed in Appendix D, section 1 of 14 CFR part 91 (generally primary airports within Class B airspace areas), from the surface upward to 10,000 feet MSL. Unless otherwise authorized by ATC, aircraft operating within this airspace must be equipped with an operable radar beacon transponder with automatic altitude reporting capability and operable ADS-B Out equipment.

* * * * *

d. * * *

2. * * *

(c) Aircraft not landing or departing the primary airport may obtain an ATC clearance to transit the Class B airspace when traffic conditions permit and provided the requirements of 14 CFR section 91.131 are met. Such VFR aircraft are encouraged, to the extent possible, to operate at altitudes above or below the Class B airspace or transit through established VFR corridors. Pilots operating in VFR corridors are urged to use frequency 122.750 MHz for the exchange of aircraft position information.

e. * * *

3. This program is not to be interpreted as relieving pilots of their responsibilities to see and avoid other traffic operating in basic VFR weather conditions, to adjust their operations and flight path as necessary to preclude serious wake encounters, to maintain appropriate terrain and obstruction clearance or to remain in weather conditions equal to or better than the minimums required by 14 CFR section 91.155. Approach control should be advised and a revised clearance or instruction obtained when compliance with an assigned route, heading and/or altitude is likely to compromise pilot responsibility with respect to terrain and obstruction clearance, vortex exposure, and weather minimums.

4. ATC may assign altitudes to VFR aircraft that do not conform to 14 CFR section 91.159. **"RESUME APPROPRIATE VFR ALTITUDES"** will be broadcast when the altitude assignment is no longer needed for separation or when leaving Class B airspace. Pilots must return to an altitude that conforms to 14 CFR section 91.159.

3–2–4 Class C Airspace

* * * * *

g. * * *

TABLE 3–2–1

CLASS C AIRSPACE AREAS BY STATE	
State/City	**Airport**
* * * * *	
Florida	
* * * * *	
Pensacola	International
* * * * *	

3–3–2 VFR Requirements

Rules governing VFR flight have been adopted to assist the pilot in meeting the responsibility to see and avoid other aircraft. Minimum flight visibility and distance from clouds required for VFR flight are contained in 14 CFR section 91.155. (See Table 3-1-1.)

3–3–3 IFR Requirements

a. Title 14 CFR specifies the pilot and aircraft equipment requirements for IFR flight. Pilots are reminded that in addition to altitude or flight level requirements, 14 CFR section 91.177 includes a requirement to remain at least 1,000 feet (2,000 feet in designated mountainous terrain) above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown.

* * * * *

3–4–1 General

* * * * *

b. Prohibited and restricted areas are regulatory special use airspace and are established in 14 CFR part 73 through the rulemaking process.

* * * * *

3–4–3 Restricted Areas

a. Restricted areas contain airspace identified by an area on the surface of the earth within which the flight of aircraft, while not wholly prohibited, is subject to restrictions. Activities within these areas must be confined because of their nature or limitations imposed upon aircraft operations that are not a part of those activities or both. Restricted areas denote the existence of unusual, often invisible, hazards to aircraft such as artillery firing, aerial gunnery, or guided missiles. Penetration of restricted areas without authorization from the using or controlling agency may be extremely hazardous to the aircraft and its occupants. Restricted areas are published in the Federal Register and constitute 14 CFR part 73.

* * * * *

3–4–5 Military Operations Areas

* * * * *

b. Examples of activities conducted in MOAs include, but are not limited to: air combat tactics, air intercepts, aerobatics, formation training, and low-altitude tactics. Military pilots flying in an active MOA are exempted from the provisions of 14 CFR section 91.303(c) and (d) which prohibits aerobatic flight within Class D and Class E surface areas, and within Federal airways. Additionally, the Department of Defense has been issued an authorization to operate aircraft at indicated airspeeds in excess of 250 knots below 10,000 feet MSL within active MOAs.

* * * * *

3–4–8 National Security Areas

NSAs consist of airspace of defined vertical and lateral dimensions established at locations where there is a requirement for increased security and safety of ground facilities. Pilots are requested to voluntarily avoid flying through the depicted NSA. When it is necessary to provide a greater level of security and safety, flight in NSAs may be temporarily prohibited by regulation under the provisions of 14 CFR section 99.7. Regulatory prohibitions will be issued by System Operations Security and disseminated via NOTAM. Inquiries about NSAs should be directed to System Operations Security.

* * * * *

3–5–2 Military Training Routes

* * * * *

d. * * *

2. * * *

(b) VFR Sectional Aeronautical Charts. These charts will depict military training activities such as IR and VR information. Special Military Activity Routes (SMARs) may also be charted on the VFR Sectional Chart, showing the extent of the airspace allocated to the associated IFR Military Training Routes within which the Department of Defense conducts periodic operations involving Unmanned Aircraft Systems. These aircraft may be accompanied by military or other aircraft that provide the pilots of the Unmanned Aircraft Systems visual observation information about other aircraft operations near them. Further information on SMAR charting can be found on the border of the printed VFR Sectional Chart and in the FAA Aeronautical Chart Users' Guide available online at: https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/aero_guide/.

* * * * *

g. Nonparticipating aircraft are not prohibited from flying within an MTR or SMAR; however, extreme vigilance should be exercised when conducting flight through or near these routes. Pilots, while inflight, should contact the FSS within 100 NM of a particular MTR to obtain current information or route usage in their vicinity. Information available includes times of scheduled activity, altitudes in use on each route segment, and actual route width. Route width varies for each MTR and can extend several miles on either side of the charted MTR centerline. Route width information for IFR Military Training Route (IR) and VFR Military Training Route (VR) MTRs is also available in the FLIP AP/1B along with additional MTR (slow routes/air refueling routes) information. When requesting MTR information, pilots should give the FSS the MTR designation of interest, their position, route of flight, and destination in order to reduce frequency congestion and permit the FSS specialist to identify the MTR or SMAR that could be a factor.

3–5–3 Temporary Flight Restrictions

a. General. This paragraph describes the types of conditions under which the FAA may impose temporary flight restrictions. It also explains which FAA elements have been delegated authority to issue a temporary flight restrictions NOTAM and lists the types of responsible agencies/offices from which the FAA will accept requests to establish temporary flight restrictions. The 14 CFR is explicit as to what operations are prohibited, restricted, or allowed in a temporary flight restrictions area. Pilots are responsible to comply with 14 CFR sections 91.137, 91.138, 91.141 and 91.143 when conducting flight in an area where a temporary flight restrictions area is in effect, and should check appropriate NOTAMs during flight planning.

b. The purpose for establishing a temporary flight restrictions area is to:

1. Protect persons and property in the air or on the surface from an existing or imminent hazard associated with an incident on the surface when the presence of low flying aircraft would magnify, alter, spread, or compound that hazard (14 CFR section 91.137(a)(1));

2. Provide a safe environment for the operation of disaster relief aircraft (14 CFR section 91.137(a)(2)); or

3. Prevent an unsafe congestion of sightseeing aircraft above an incident or event which may generate a high degree of public interest (14 CFR section 91.137(a)(3)).

4. Protect declared national disasters for humanitarian reasons in the State of Hawaii (14 CFR section 91.138).

5. Protect the President, Vice President, or other public figures (14 CFR Section 91.141).

6. Provide a safe environment for space agency operations (14 CFR section 91.143).

c. Except for hijacking situations, when the provisions of 14 CFR section 91.137(a)(1) or (a)(2) are necessary, a temporary flight restrictions area will only be established by or through the area manager at the Air Route Traffic Control Center (ARTCC) having jurisdiction over the area concerned. A temporary flight restrictions NOTAM involving the conditions of 14 CFR section 91.137(a)(3) will be issued at the direction of the service area office director having oversight of the airspace concerned. When hijacking situations are involved, a temporary flight restrictions area will be implemented through the TSA Aviation Command Center. The appropriate FAA air traffic element, upon receipt of such a request, will establish a temporary flight restrictions area under 14 CFR section 91.137(a)(1).

d. The FAA accepts recommendations for the establishment of a temporary flight restrictions area under 14 CFR section 91.137(a)(1) from military major command headquarters, regional directors of the Office of Emergency Planning, Civil Defense State Directors, State Governors, or other similar authority. For the situations involving 14 CFR section 91.137(a)(2), the FAA accepts recommendations from military commanders serving as regional, subregional, or Search and Rescue (SAR) coordinators; by military commanders directing or coordinating air operations associated with disaster relief; or by civil authorities directing or coordinating organized relief air operations (includes representatives of the Office of Emergency Planning, U.S. Forest Service, and State aeronautical agencies). Appropriate authorities for a temporary flight restrictions establishment under 14 CFR section 91.137(a)(3) are any of those listed above or by State, county, or city government entities.

e. The type of restrictions issued will be kept to a minimum by the FAA consistent with achievement of the necessary objective. Situations which warrant the extreme restrictions of 14 CFR section 91.137(a)(1) include, but are not limited to: toxic gas leaks or spills, flammable agents, or fumes which if fanned by rotor or propeller wash could endanger persons or property on the surface, or if entered by an aircraft could endanger persons or property in the air; imminent volcano eruptions which could endanger airborne aircraft and occupants; nuclear accident or incident; and hijackings. Situations which warrant the restrictions associated with 14 CFR section 91.137(a)(2) include: forest fires which are being fought by releasing fire retardants from aircraft; and aircraft relief activities following a disaster (earthquake, tidal wave, flood, etc.). 14 CFR section 91.137(a)(3) restrictions are established for events and incidents that would attract an unsafe congestion of sightseeing aircraft.

* * * * *

h. ATC may authorize operations in a temporary flight restrictions area under its own authority only when flight restrictions are established under 14 CFR section 91.137(a)(2) and (a)(3). The appropriate ARTCC/airport traffic control tower manager will, however, ensure that such authorized flights do not hamper activities or interfere with the event for which restrictions were implemented. However, ATC will not authorize local IFR flights into the temporary flight restrictions area.

i. * * *

Example 1: 14 CFR section 91.137(a)(1):

The following NOTAM prohibits all aircraft operations except those specified in the NOTAM.

Flight restrictions Matthews, Virginia, effective immediately until 9610211200. Pursuant to 14 CFR section 91.137(a)(1) temporary flight restrictions are in effect. Rescue operations in progress. Only relief aircraft operations under the direction of the Department of Defense are authorized in the airspace at and below 5,000 feet MSL within a 2-nautical-mile radius of Laser AFB, Matthews, Virginia. Commander, Laser AFB, in charge (897) 946-5543 (122.4). Steenson FSS (792) 555-6141 (123.1) is the FAA coordination facility.

Example 2: 14 CFR section 91.137(a)(2):

The following NOTAM permits flight operations in accordance with 14 CFR section 91.137(a)(2). The on-site emergency response official to authorize media aircraft operations below the altitudes used by the relief aircraft. Flight restrictions 25 miles east of Bransome, Idaho, effective immediately until 9601202359 UTC. Pursuant to 14 CFR section 91.137(a)(2) temporary flight restrictions are in effect within a 4-nautical-mile radius of the intersection of county roads 564 and 315 at and below 3,500 feet MSL to provide a safe environment for fire fighting aircraft operations. Davis County sheriff's department (792) 555-8122 (122.9) is in charge of on-scene emergency response activities. Glivings FSS (792) 555-1618 (122.2) is the FAA coordination facility.

Example 3: 14 CFR section 91.137(a)(3):

The following NOTAM prohibits sightseeing aircraft operations.

Flight restrictions Brown, Tennessee, due to Olympic activity. Effective 9606181100 UTC until 9607190200 UTC. Pursuant to 14 CFR section 91.137(a)(3) temporary flight restrictions are in effect within a 3-nautical-mile radius of N355783/W835242 and Volunteer VORTAC 019 degree radial 3.7 DME fix at and below 2,500 feet MSL. Norton FSS (423) 555-6742 (126.6) is the FAA coordination facility.

Example 4: 14 CFR section 91.138:

The following NOTAM prohibits all aircraft except those operating under the authorization of the official in charge of associated emergency or disaster relief response activities, aircraft carrying law enforcement officials, aircraft carrying personnel involved in an emergency or legitimate scientific purposes, carrying properly accredited news media, and aircraft operating in accordance with an ATC clearance or instruction.

Flight restrictions Kapalua, Hawaii, effective 9605101200 UTC until 9605151500 UTC. Pursuant to 14 CFR section 91.138 temporary flight restrictions are in effect within a 3-nautical-mile radius of N205778/W1564038 and Maui/OGG/VORTAC 275 degree radial at 14.1 nautical miles. John Doe 808-757-4469 or 122.4 is in charge of the operation. Honolulu/HNL 808-757-4470 (123.6) FSS is the FAA coordination facility.

Example 5: 14 CFR section 91.141:

The following NOTAM prohibits all aircraft.

Flight restrictions Stillwater, Oklahoma, June 21, 1996. Pursuant to 14 CFR section 91.141 aircraft flight operations are prohibited within a 3-nautical-mile radius, below 2000 feet AGL of N360962/W970515 and the Stillwater/SWO/VOR/DME 176 degree radial 3.8- nautical-mile fix from 1400 local time to 1700 local time June 21, 1996, unless otherwise authorized by ATC.

Example 6: 14 CFR section 91.143:

The following NOTAM prohibits any aircraft of U.S. registry, or pilot any aircraft under the authority of an airman certificate issued by the FAA.

Kennedy space center space operations area effective immediately until 9610152100 UTC. Pursuant to 14 CFR section 91.143, flight operations conducted by FAA certificated pilots or conducted in aircraft of U.S. registry are prohibited at any altitude from surface to unlimited, within the following area 30-nautical-mile radius of the Melbourne/MLB/VORTAC 010 degree radial 21-nautical-mile fix. St. Petersburg, Florida/PIE/FSS 813-545-1645 (122.2) is the FAA coordination facility and should be contacted for the current status of any airspace associated with the space shuttle operations. This airspace encompasses R2933, R2932, R2931, R2934, R2935, W497A and W158A. Additional warning and restricted areas will be active in conjunction with the operations. Pilots must consult all NOTAMs regarding this operation.

3–5–4 Parachute Jump Aircraft Operations

a. Procedures relating to parachute jump areas are contained in 14 CFR part 105. Tabulations of parachute jump areas in the U.S. are contained in the Chart Supplement.

* * * * *

3–5–5 Published VFR Routes

Published VFR routes for transitioning around, under and through complex airspace such as Class B airspace were developed through a number of FAA and industry initiatives. All of the following terms, i.e., "VFR Flyway" "VFR Corridor" and "VFR Transition Route" have been used when referring to the same or different types of routes or airspace. The following paragraphs identify and clarify the functionality of each type of route and specify where and when an ATC clearance is required.

a. VFR Flyways.

1. A VFR Flyway is defined as a general flight path not defined as a specific course, for use by pilots in planning flights into, out of, through or near complex terminal airspace to avoid Class B airspace. An ATC clearance is NOT required to fly these routes.

2. VFR Flyways are depicted on the reverse side of some VFR Terminal Area Charts (TACs). (See Figure 3-5-1.) These charts identify VFR Flyways designed to help VFR pilots avoid major controlled traffic flows. They may further depict multiple VFR routings throughout the area which may be used as an alternative to flight within Class B airspace. The ground references provide a guide for improved visual navigation. These routes are not intended to discourage requests for VFR operations within Class B airspace but are designed solely to assist pilots in planning for flights under and around busy Class B airspace without entering Class B airspace.

3. It is very important to remember that these suggested routes are not sterile of other traffic. The entire Class B airspace, and the airspace underneath it, may be heavily congested with many different types of aircraft. Pilot adherence to VFR rules must be exercised at all times. Communications must be established and maintained between your aircraft and any control tower while

transiting Class C or Class D surface areas of airports under Class B airspace.

* * * * *

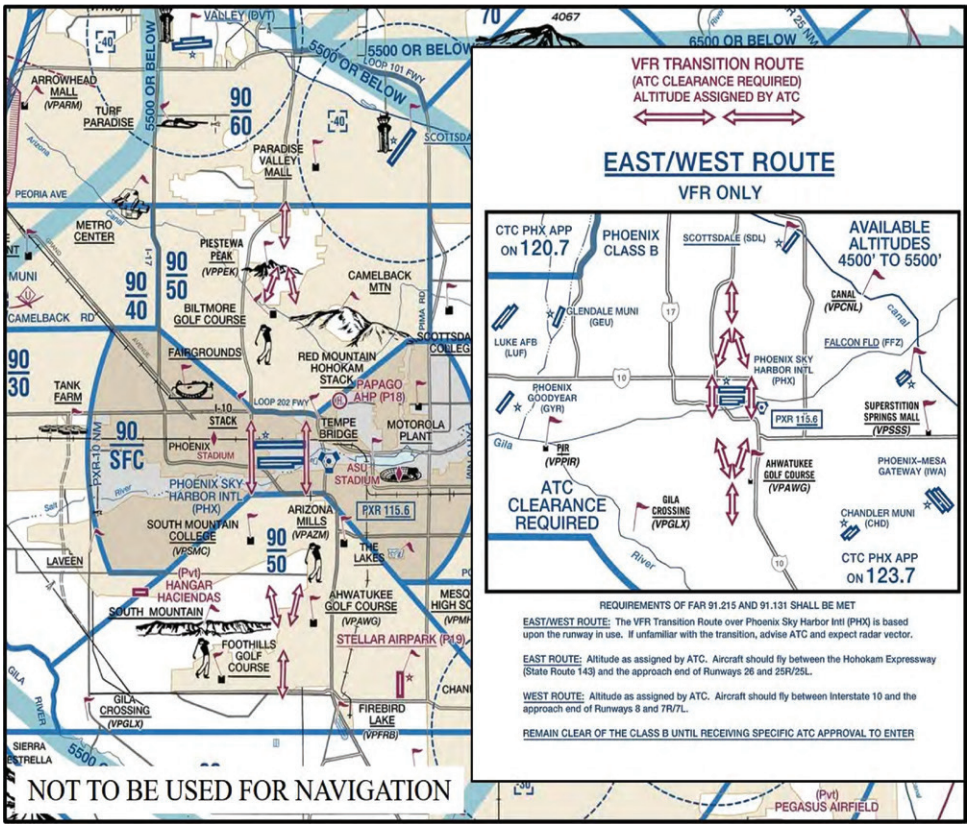
c. VFR Transition Routes.

1. To accommodate VFR traffic through terminal airspace, VFR Transition Routes were developed. A VFR Transition Route is defined as a specific flight course depicted and described on a TAC and/or VFR Flyway Planning Chart. Communication with ATC where the route transitions Class B, Class C, and/or Class D airspace is required. In addition to communication requirements, a clearance is required to operate in Class B airspace. VFR Transition Routes may include published altitudes or ATC-assigned altitudes. Per 14 CFR section 91.123, pilot compliance is expected for all route and altitude restrictions as published or assigned by ATC. VFR Transition Route and altitude assignments do not relieve pilots from their duty to comply with 14 CFR section 91.119. Pilots are expected to request an alternate clearance if necessary for compliance.

2. These routes, as depicted in Figure 3-5-3, are designed to show the pilot where to position the aircraft where an ATC assignment or clearance for the route can normally be expected with minimal or no delay. Until ATC authorization is received, pilots must remain clear of Class B airspace. On initial contact, pilots should advise ATC of their position, altitude, route name desired, and direction of flight.

3. For secondary airports underlying or in close proximity to Class B or Class C airspace, VFR Transition Routes may be developed and depicted for arrivals/departures. These arrivals/departures may be requested from or assigned by ATC.

FIGURE 3–5–3
VFR Transition Route

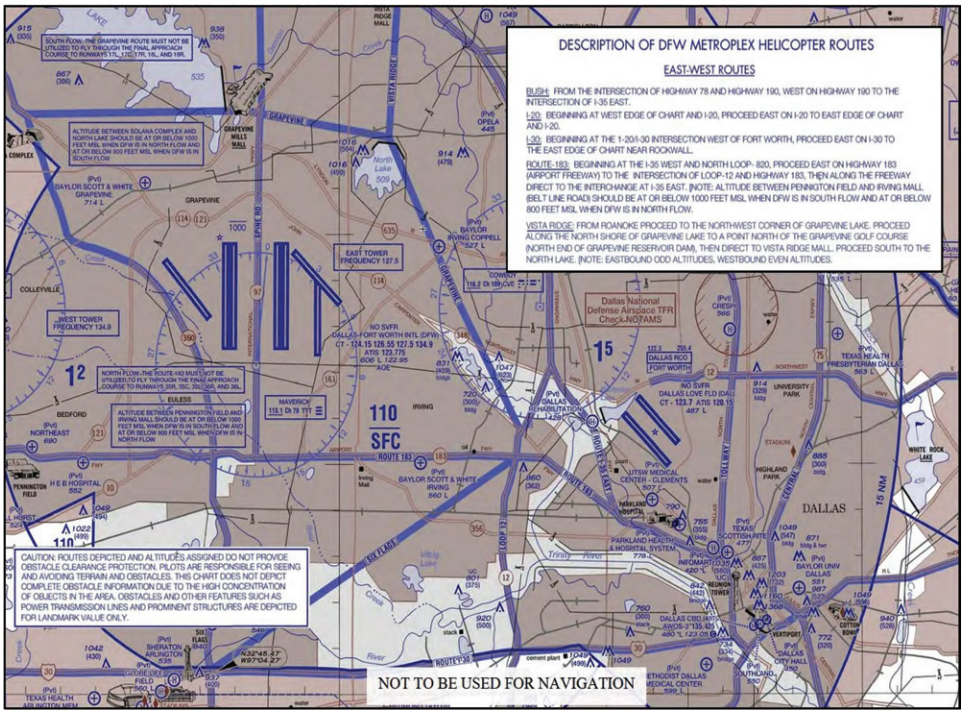


d. Helicopter Route Chart.

1. Helicopter Routes are depicted on a specialized VFR chart established for select high traffic density areas to enhance helicopter access and ease of operation. The Helicopter Route Chart depicts prominent geographical features, roads and obstructions. A Helicopter Route is a specific VFR flight course and is depicted on the Helicopter Route Chart. These routes contain specific altitudes and instructions for navigating over visual reference points as published, or as instructed by ATC.

2. Helicopter Route Charts, as depicted in Figure 3-5-4, incorporate expanded ground reference and unique symbology to improve visual navigation. The charts contain additional information such as frequencies to self-announce on and other route information. On initial contact, pilots should advise ATC of their position, altitude, and route name desired. Helicopter Routes may include published altitudes or ATC-assigned altitudes. Per 14 CFR section 91.123, pilot compliance is expected for all route and altitude restrictions as published or assigned by ATC. Helicopter Route and altitude assignments do not relieve pilots from their duty to comply with 14 CFR section 91.119 and 132.203(b). Pilots are expected to request an alternate clearance if necessary for compliance.

FIGURE 3–5–4
Helicopter Route Chart



3–5–6 Terminal Radar Service Area (TRSA)

a. Background. TRSAs were originally established as part of the Terminal Radar Program at selected airports. TRSAs were never controlled airspace from a regulatory standpoint because the establishment of TRSAs was never subject to the rulemaking process; consequently, TRSAs are not contained in 14 CFR part 71 nor are there any TRSA operating rules in 14 CFR part 91. Part of the Airport Radar Service Area (ARSA) program was to eventually replace all TRSAs. However, the ARSA requirements became relatively stringent and it was subsequently decided that TRSAs would have to meet ARSA criteria before they would be converted. TRSAs do not fit into any of the U.S. airspace classes; therefore, they will continue to be non-part 71 airspace areas where participating pilots can receive additional radar services which have been redefined as TRSA Service.

* * * * *

3–5–7 Special Air Traffic Rules (SATR) and Special Flight Rules Area (SFRA)

a. Background. The Code of Federal Regulations (CFR) prescribes special air traffic rules for aircraft operating within the boundaries of certain designated airspace. These areas are listed in 14 CFR part 93 and can be found throughout the NAS. Procedures, nature of operations, configuration, size, and density of traffic vary among the identified areas.

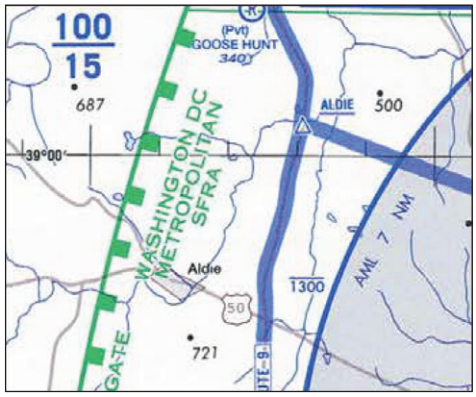
b. SFRAs. Airspace of defined dimensions, above land areas or territorial waters, within which the flight of aircraft is subject to the rules set forth in 14 CFR part 93, unless otherwise authorized by air traffic control. Not all areas listed in 14 CFR part 93 are designated SFRA, but special air traffic rules apply to all areas described in 14 CFR part 93.

* * * * *

c. Participation. Each person operating an aircraft to, from, or within airspace designated as a SATR area or SFRA must adhere to the special air traffic rules set forth in 14 CFR part 93, as applicable, unless otherwise authorized or required by ATC.

d. Charts. SFRAs are depicted on VFR sectional, terminal area, and helicopter route charts. (See Figure 3-5-5.)

FIGURE 3–5–5
SFRA Boundary



3–5–8 Washington, DC, Special Flight Rules Area (SFRA) including the Flight Restricted Zone (FRZ)

* * * * *

a. 14 CFR section 93.339, Washington, DC, Metropolitan Area Special Flight Rules Area including the FRZ.

b. 14 CFR section 91.161, Special Awareness Training for the DC SFRA/FRZ, also located on the FAA website at https://www.faasafety.gov/.

c. Any 14 CFR section 99.7 special security instructions for the DC SFRA/FRZ published via NOTAM by FAA in the interest of national security.

Chapter 4. Air Traffic Control

4–1–18 Terminal Radar Services for VFR Aircraft

* * * * *

b. * * *

7. * * *

(a) Must maintain an altitude when assigned by ATC unless the altitude assignment is to maintain at or below a specified altitude. ATC may assign altitudes for separation that do not conform to 14 CFR section 91.159. When the altitude assignment is no longer needed for separation or when leaving the TRSA, the instruction will be broadcast, "RESUME APPROPRIATE VFR ALTITUDES." Pilots must then return to an altitude that conforms to 14 CFR section 91.159 as soon as practicable.

4–1–20 Transponder and ADS-B Out Operation

a. * * *

4. * * *

(a) Unless otherwise requested by ATC, aircraft equipped with an ATC transponder maintained in accordance with 14 CFR section 91.413 MUST operate with this equipment on the appropriate Mode 3/A code, or other code as assigned by ATC, and with altitude reporting enabled whenever in controlled airspace. If practicable, aircraft SHOULD operate with the transponder enabled in uncontrolled airspace.

* * * * *

5. * * *

(b) When required to operate their transponder/ADS-B, pilots must always operate that equipment with altitude reporting enabled unless otherwise instructed by ATC or unless the installed equipment has not been tested and calibrated as required by 14 CFR section 91.217. If deactivation is required, turn off altitude reporting.

* * * * *

c. * * *

2. Adjust the transponder/ADS-B to reply on the Mode 3/A code specified by ATC and with altitude reporting enabled, unless otherwise directed by ATC or unless the altitude reporting equipment has not been tested and calibrated as required by 14 CFR section 91.217. If deactivation is required by ATC, turn off the altitude reporting feature of your transponder/ADS-B. An instruction by ATC to "STOP ALTITUDE SQUAWK, ALTITUDE DIFFERS BY (number of feet) FEET," may be an indication that the transmitted altitude information is incorrect, or that the aircraft's altimeter setting is incorrect. While an incorrect altimeter setting has no effect on the transmitted altitude information, it will cause the aircraft to fly at a true altitude different from the assigned altitude. When a controller indicates that an altitude readout is invalid, the pilot should verify that the aircraft altimeter is set correctly.

* * * * *

f. * * *

1. Specific details concerning requirements to carry and operate Mode C transponders and ADS-B Out, as well as exceptions and ATC authorized deviations from those requirements, are found in 14 CFR sections 91.215, 91.225, and 99.13.

* * * * *

3. 14 CFR section 99.13 requires all aircraft flying into, within, or across the contiguous U.S. ADIZ be equipped with a Mode C or Mode S transponder. Balloons, gliders and aircraft not equipped with an engine-driven electrical system are excepted from this requirement.

* * * * *

4–1–21 Airport Reservation Operations and Special Traffic Management Programs

* * * * *

a. * * *

3. For more detailed information on operations and reservation procedures at a Slot Controlled Airport, please see 14 CFR part 93, Subpart K—High Density Traffic Airports.

* * * * *

4–3–3 Traffic Patterns

a. It is recommended that aircraft enter the airport traffic pattern at one of the following altitudes listed below. These altitudes should be maintained unless another traffic pattern altitude is published in the Chart Supplement or unless otherwise required by the applicable distance from cloud criteria (14 CFR section 91.155). (See Figure 4-3-2 and Figure 4-3-3):

* * * * *

4–3–6 Use of Runways/Declared Distances

* * * * *

d. * * *

2. All 14 CFR part 139 airports report declared distances for each runway. Other airports may also report declared distances for a runway if necessary to meet runway design standards or to indicate the presence of a clearway or stopway. Where reported, declared distances for each runway end are published in the Chart Supplement. For runways without published declared distances, the declared distances may be assumed to be equal to the physical length of the runway unless there is a displaced landing threshold, in which case the Landing Distance Available (LDA) is shortened by the amount of the threshold displacement.

* * * * *

4–3–8 Braking Action Reports and Advisories

* * * * *

b. * * *

1. FICON NOTAM reporting of a braking condition for paved runway surfaces is not permissible by Federally Obligated Airports or those airports certificated under 14 CFR part 139.

* * * * *

4–3–21 Exiting the Runway After Landing

* * * * *

b. * * *

Note 2: *Guidance contained in subparagraphs a and b above is considered an integral part of the landing clearance and satisfies the requirement of 14 CFR section 91.129.*

* * * * *

4–3–22 Practice Instrument Approaches

a. Various air traffic incidents have indicated the necessity for adoption of measures to achieve more organized and controlled operations where practice instrument approaches are conducted. Practice instrument approaches are considered to be instrument approaches made by either a VFR aircraft not on an IFR flight plan or an aircraft on an IFR flight plan. To achieve this and thereby enhance air safety, it is Air Traffic's policy to provide for separation of such operations at locations where approach control facilities are located and, as resources permit, at certain other locations served by ARTCCs or parent approach control facilities. Pilot requests to practice instrument approaches may be approved by ATC subject to traffic and workload conditions. Pilots should anticipate that in some instances the controller may find it necessary to deny ap-

proval or withdraw previous approval when traffic conditions warrant. It must be clearly understood, however, that even though the controller may be providing separation, pilots on VFR flight plans are required to comply with basic VFR weather minimums (14 CFR section 91.155). Application of ATC procedures or any action taken by the controller to avoid traffic conflictions does not relieve IFR and VFR pilots of their responsibility to see-and-avoid other traffic while operating in VFR conditions (14 CFR section 91.113). In addition to the normal IFR separation minimums (which includes visual separation) during VFR conditions, 500 feet vertical separation may be applied between VFR aircraft and between a VFR aircraft and the IFR aircraft. Pilots not on IFR flight plans desiring practice instrument approaches should always state "practice" when making requests to ATC. Controllers will instruct VFR aircraft requesting an instrument approach to maintain VFR. This is to preclude misunderstandings between the pilot and controller as to the status of the aircraft. If pilots wish to proceed in accordance with instrument flight rules, they must specifically request and obtain, an IFR clearance.

* * * * *

4–4–1 Clearance

* * * * *

b. 14 CFR section 91.3(a) states: "The pilot-in-command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft." If ATC issues a clearance that would cause a pilot to deviate from a rule or regulation, or in the pilot's opinion, would place the aircraft in jeopardy, IT IS THE PILOT'S RESPONSIBILITY TO REQUEST AN AMENDED CLEARANCE. Similarly, if a pilot prefers to follow a different course of action, such as make a 360 degree turn for spacing to follow traffic when established in a landing or approach sequence, land on a different runway, takeoff from a different intersection, takeoff from the threshold instead of an intersection, or delay operation, THE PILOT IS EXPECTED TO INFORM ATC ACCORDINGLY. When the pilot requests a different course of action, however, the pilot is expected to cooperate so as to preclude disruption of traffic flow or creation of conflicting patterns. The pilot is also expected to use the appropriate aircraft call sign to acknowledge all ATC clearances, frequency changes, or advisory information.

* * * * *

4–4–3 Clearance Items

* * * * *

e. * * *

6. * * *

Note: *In the event of two-way communications failure, pilots are required to comply with 14 CFR section 91.185.*

4–4–8 IFR Clearance VFR-on-Top

* * * * *

e. * * *

1. Fly at the appropriate VFR altitude as prescribed in 14 CFR section 91.159.

2. Comply with the VFR visibility and distance from cloud criteria in 14 CFR section 91.155 (Basic VFR Weather Minimums).

* * * * *

4–4–10 Adherence to Clearance

* * * * *

d. * * *

Note: *Leveling off at 10,000 feet MSL on descent or 2,500 feet above airport elevation (prior to entering a Class C or Class D surface area) to comply with 14 CFR section 91.117 airspeed restrictions is commonplace. Controllers anticipate this action and plan accordingly. Leveling off at any other time on climb or descent may seriously affect air traffic handling by ATC. Consequently, it is imperative that pilots make every effort to fulfill the above expected actions to aid ATC in safely handling and expediting traffic.*

* * * * *

f. In case emergency authority is used to deviate from provisions of an ATC clearance, the pilot-in-command must notify ATC as soon as possible and obtain an amended clearance. In an emergency situation which does not result in a deviation from the rules prescribed in 14 CFR part 91 but which requires ATC to give priority to an aircraft, the pilot of such aircraft must, when requested by ATC, make a report within 48 hours of such emergency situation to the manager of that ATC facility.

* * * * *

4–4–12 Speed Adjustments

a. ATC will issue speed adjustments to pilots of radar controlled aircraft to achieve or maintain appropriate spacing. If necessary, ATC will assign a speed when approving deviations or radar vectoring off procedures that include published speed restrictions or a chart note used to transition from Mach to IAS. If no speed is assigned, speed becomes pilot's discretion. However, when the aircraft reaches the end of the STAR, the last published speed on the STAR must be maintained until ATC deletes it, assigns a new speed, issues a vector, assigns a direct route, or issues an approach clearance.

Note: *A chart note identifying a speed to maintain after transitioning from Mach to IAS may be published in lieu of or in addition to other published speed restrictions on a STAR.*

Reference: *AIM, ¶5-4-1, Standard Terminal Arrival (STAR) Procedures.*

b. ATC will express all speed adjustments in terms of knots based on indicated airspeed (IAS) in 5 or 10 knot increments except that at or above FL 240 speeds may be expressed in terms of Mach numbers in 0.01 increments. The use of Mach numbers is restricted to aircraft with Mach meters.

* * * * *

e. * * *

Note: *The maximum speeds below 10,000 feet as established in 14 CFR section 91.117 still apply. If there is any doubt concerning the manner in which such a clearance is to be executed, request clarification from ATC.*

* * * * *

f. * * *

1. Advise the pilot to "resume normal speed." Normal speed is used to terminate ATC assigned speed adjustments on segments where no published speed restrictions apply. It does not cancel published restrictions on upcoming procedures. This does not relieve the pilot of those speed restrictions which are applicable to 14 CFR section 91.117.

* * * * *

Note: *The ATC assigned speed assignment of two two zero knots would apply until BALTR. The aircraft would then resume a normal operating speed while remaining in compliance with 14 CFR section 91.117.*

* * * * *

3. * * *

Note: *When instructed to "comply with speed restrictions" or to "resume published speed," ATC anticipates pilots will begin adjusting speed the minimum distance necessary prior to a published speed restriction so as to cross the waypoint/fix at the published speed. Once at the published speed, ATC expects pilots will maintain the published speed until additional adjustment is required to comply with further published or ATC assigned speed restrictions or as required to ensure compliance with 14 CFR section 91.117.*

* * * * *

i. Pilots are reminded that they are responsible for rejecting the application of speed adjustment by ATC if, in their opinion, it will cause them to exceed the maximum indicated airspeed prescribed by 14 CFR section 91.117(a), (c) and (d). *IN SUCH CASES, THE PILOT IS EXPECTED TO SO INFORM ATC*. Pilots operating at or above 10,000 feet MSL who are issued speed adjustments which exceed 250 knots IAS and are subsequently cleared below 10,000 feet MSL are expected to comply with 14 CFR section 91.117(a).

j. Speed restrictions of 250 knots do not apply to U.S. registered aircraft operating beyond 12 nautical miles from the coastline within the U.S. Flight Information Region, in Class E airspace below 10,000 feet MSL. However, in airspace underlying a Class B airspace area designated for an airport, or in a VFR corridor designated through such as a Class B airspace area, pilots are expected to comply with the 200 knot speed limit specified in 14 CFR section 91.117(c).

k. For operations in a Class C and Class D surface area, ATC is authorized to request or approve a speed greater than the maximum indicated airspeeds prescribed for operation within that airspace (14 CFR section 91.117(b)).

Note: *Pilots are expected to comply with the maximum speed of 200 knots when operating beneath Class B airspace or in a Class B VFR corridor (14 CFR section 91.117(c) and (d)).*

* * * * *

4–4–14 Visual Separation

* * * * *

d. Since the eye can focus only on a narrow viewing area, effective scanning is accomplished with a series of short, regularly spaced eye movements that bring successive areas of the sky into the central visual field. Each movement should not exceed ten degrees, and each area should be observed for at least one second to enable collision detection. Although many pilots seem to prefer the method of horizontal back-and-forth scanning every pilot should develop a scanning pattern that is not only comfortable but assures optimum effectiveness. Pilots should remember, however, that they have a regulatory responsibility (14 CFR section 91.113(a)) to see and avoid other aircraft when weather conditions permit.

4–5–2 Air Traffic Control Radar Beacon System (ATCRBS)

* * * * *

c. A part of the ATCRBS ground equipment is the decoder. This equipment enables a controller to assign discrete transponder codes to each aircraft under his/her control. Normally only one code will be assigned for the entire flight. Assignments are made by the ARTCC computer on the basis of the National Beacon Code Allocation Plan. The equipment is also designed to receive Mode C altitude information from the aircraft.

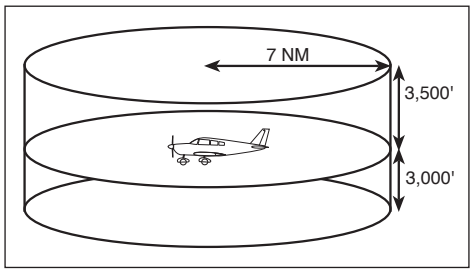
d. It should be emphasized that aircraft transponders greatly improve the effectiveness of radar systems.

Reference: *AIM, ¶4-1-20, Transponder and ADS-B Out Operation.*

4–5–6 Traffic Information Service (TIS)

a. Introduction. The Traffic Information Service (TIS) provides information to the cockpit via data link, that is similar to VFR radar traffic advisories normally received over voice radio. Among the first FAA-provided data services, TIS is intended to improve the safety and efficiency of "see and avoid" flight through an automatic display that informs the pilot of nearby traffic and potential conflict situations. This traffic display is intended to assist the pilot in visual acquisition of these aircraft. TIS employs an enhanced capability of the terminal Mode S radar system, which contains the surveillance data, as well as the data link required to "uplink" this information to suitably-equipped aircraft (known as a TIS "client"). TIS provides estimated position, altitude, altitude trend, and ground track information for up to 8 intruder aircraft within 7 NM horizontally, +3,500 and –3,000 feet vertically of the client aircraft (see Figure 4-5-3, TIS Proximity Coverage Volume). The range of a target reported at a distance greater than 7 NM only indicates that this target will be a threat within 34 seconds and does not display a precise distance. TIS will alert the pilot to aircraft (under surveillance of the Mode S radar) that are estimated to be within 34 seconds of potential collision, regardless of distance or altitude. TIS surveillance data is derived from the same radar used by ATC; this data is uplinked to the client aircraft on each radar scan (nominally every 5 seconds).

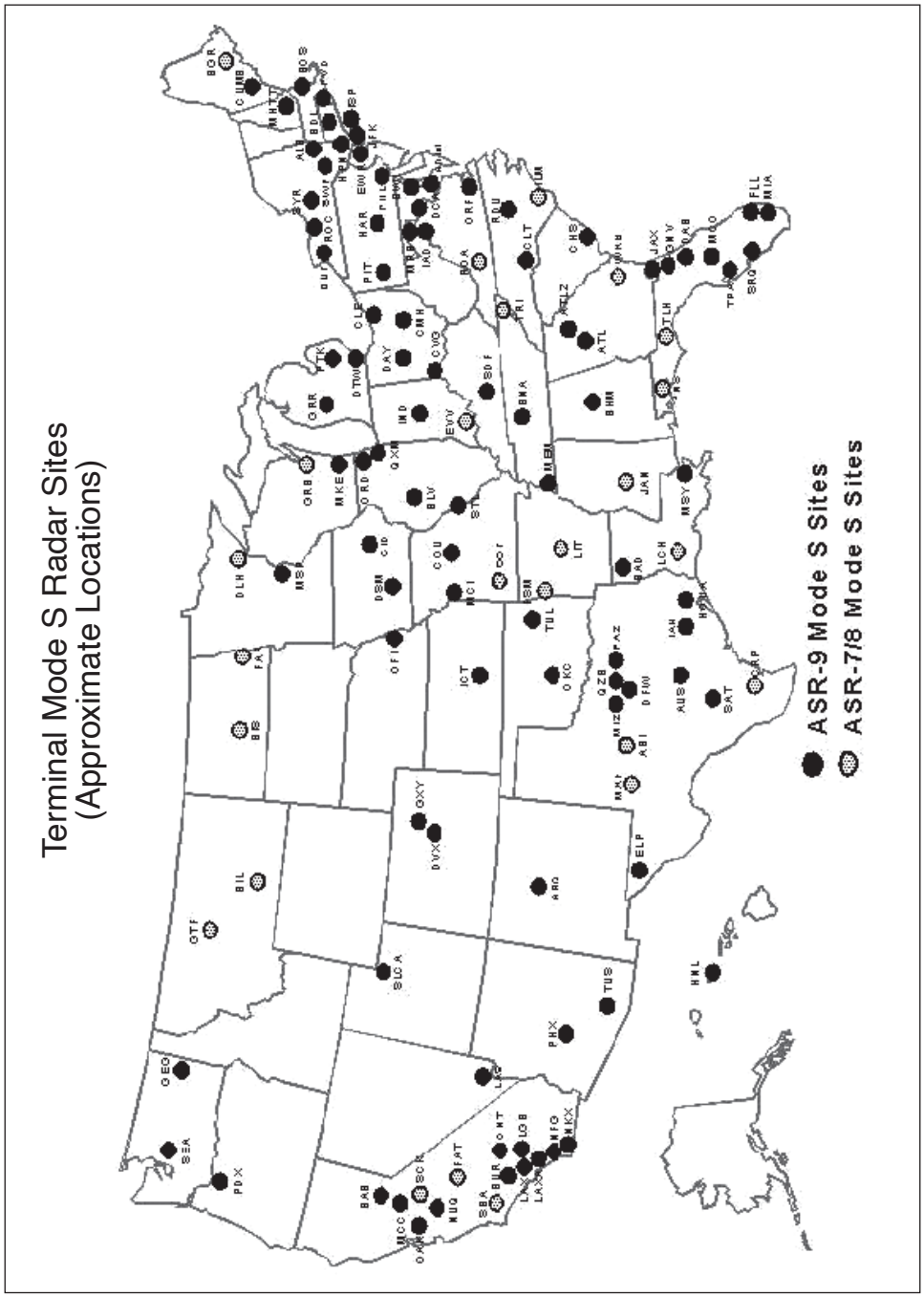
FIGURE 4–5–3
TIS Proximity Coverage Volume



b. * * *

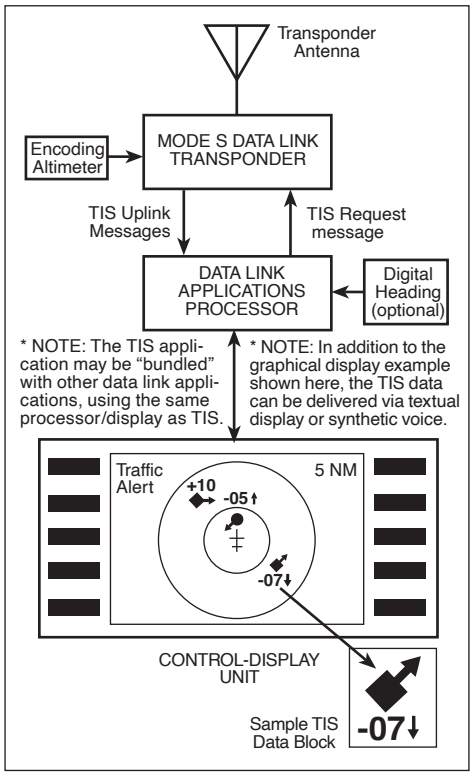
1. In order to use TIS, the client and any intruder aircraft must be equipped with the appropriate cockpit equipment and fly within the radar coverage of a Mode S radar capable of providing TIS. Typically, this will be within 55 NM of the sites depicted in Figure 4-5-4, Terminal Mode S Radar Sites. ATC communication is not a requirement to receive TIS, although it may be required by the particular airspace or flight operations in which TIS is being used.

FIGURE 4–5–4
Terminal Mode S Radar Sites



2. The cockpit equipment functionality required by a TIS client aircraft to receive the service consists of the following (refer to Figure 4-5-5):

FIGURE 4–5–5
Traffic Information Service (TIS)
Avionics Block Diagram



* * * * *

4. TIS will initially be provided by the terminal Mode S systems that are paired with ASR-9 digital primary radars. These systems are in locations with the greatest traffic densities, thus will provide the greatest initial benefit. The remaining terminal Mode S sensors, which are paired with ASR-7 or ASR-8 analog primary radars, will provide TIS pending modification or relocation of these sites. See Figure 4-5-4, Terminal Mode S Radar Sites, for site locations. There is no mechanism in place, such as NOTAMs, to provide status update on individual radar sites since TIS is a nonessential, supplemental information service.

The FAA also operates en route Mode S radars (not illustrated) that rotate once every 12 seconds. These sites will require additional development of TIS before any possible implementation. There are no plans to implement TIS in the en route Mode S radars at the present time.

* * * * *

c. * * *

5. Depending on avionics system design, TIS may be presented to the pilot in a variety of different displays, including text and/or graphics. Voice annunciation may also be used, either alone or in combination with a visual display. Figure 4-5-5, Traffic Information Service (TIS), Avionics Block Diagram, shows an example of a TIS display using symbology similar to the Traffic Alert and Collision Avoidance System (TCAS) installed on most passenger air carrier/commuter aircraft in the U.S. The small symbol in the center represents the client aircraft and the display is oriented "track up," with the 12 o'clock position at the top. The range rings indicate 2 and 5 NM. Each intruder is depicted by a symbol positioned at the approximate relative bearing and range from the client aircraft. The circular symbol near the center indicates an "alert" intruder and the diamond symbols indicate "proximate" intruders.

6. The inset in the lower right corner of Figure 4-5-5, Traffic Information Service (TIS), Avionics Block Diagram, shows a possible TIS data block display. The following information is contained in this data block:

* * *

d. * * *

2. * * *

(b) TIS Client Altitude Reporting Requirement. Altitude reporting is required by the TIS client aircraft in order to receive TIS. If the altitude encoder is inoperative or disabled, TIS will be unavailable, as TIS requests will not be honored by the ground system. As such, TIS requires altitude reporting to determine the Proximity Coverage Volume as indicated in Figure 4-5-3. TIS users must be alert to altitude encoder malfunctions, as TIS has no mechanism to determine if client altitude reporting is correct. A failure of this nature will cause erroneous and possibly unpredictable TIS operation. If this malfunction is suspected, confirmation of altitude reporting with ATC is suggested.

* * * * *

(d) * * *

(1) TIS will typically be provided within 55 NM of the radars depicted in Figure 4-5-4, Terminal Mode S Radar Sites. This maximum range can vary by radar site and is always subject to "line of sight" limitations; the radar and data link signals will be blocked by obstructions, terrain, and curvature of the earth.

* * * * *

e. * * *

1. * * *

Note: *TIS operates at only those terminal Mode S radar sites depicted in Figure 4-5-4. Though similar in some ways, TIS is not related to TIS-B (Traffic Information Service–Broadcast).*

4–5–7 Automatic Dependent Surveillance–Broadcast (ADS-B) Services

a. * * *

1. Automatic Dependent Surveillance–Broadcast (ADS-B) is a surveillance technology deployed throughout the NAS (see Figure 4-5-6). The ADS-B system is composed of aircraft avionics and a ground infrastructure. Onboard avionics determine the position of the aircraft by using the GNSS and transmit its position along with additional information about the aircraft to ground stations for use by ATC and other ADS-B services. This information is transmitted at a rate of approximately once per second. (See Figure 4-5-7 and Figure 4-5-8.)

FIGURE 4–5–6
ADS-B, TIS-B, and FIS-B: Broadcast Services Architecture

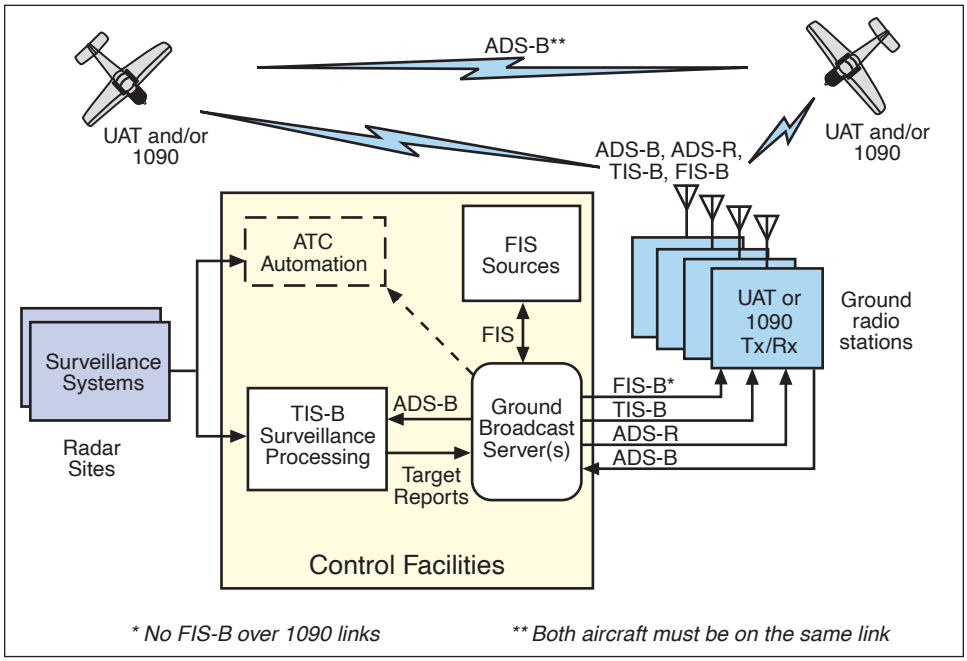


FIGURE 4–5–7
En Route – ADS-B/ADS-R/ TIS-B/FIS-B Service Ceilings/Floors

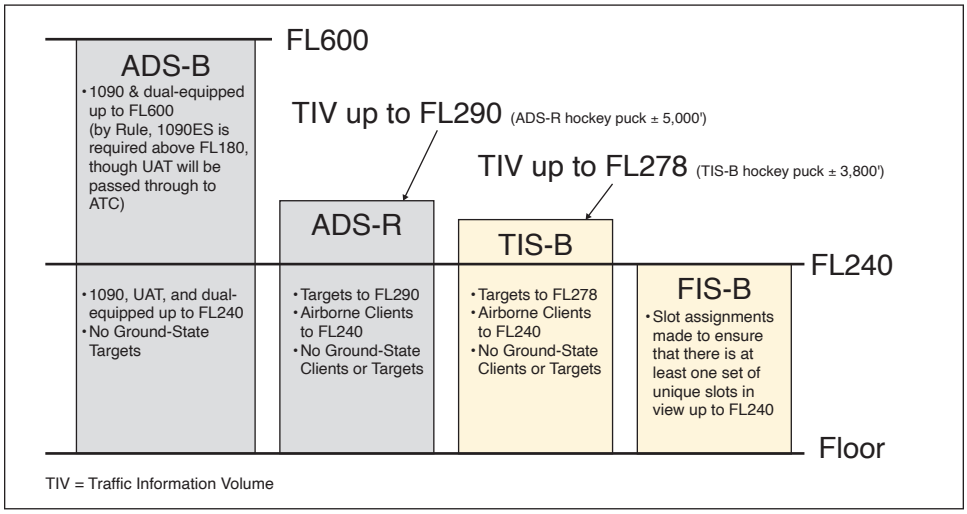
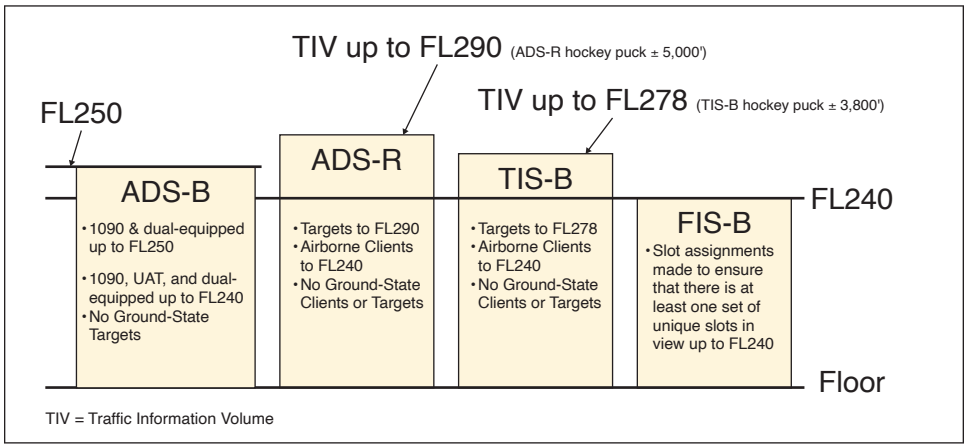


FIGURE 4–5–8
Terminal – ADS-B/ADS-R/ TIS-B/FIS-B Service Ceilings/Floors



* * * * *

4–5–8 Traffic Information Service–Broadcast (TIS-B)

a. Introduction.

TIS-B is the broadcast of ATC derived traffic information to ADS-B equipped (1090ES or UAT) aircraft from ground radio stations. The source of this traffic information is derived from ground-based air traffic surveillance sensors. TIS-B service will be available throughout the NAS where there are both adequate surveillance coverage from ground sensors and adequate broadcast coverage from ADS-B ground radio stations. The quality level of traffic information provided by TIS-B is dependent upon the number and type of ground sensors available as TIS-B sources and the timeliness of the reported data. (See Figure 4-5-7 and Figure 4-5-8.)

* * * * *

4–5–9 Flight Information Service–Broadcast (FIS-B)

a. Introduction.

FIS-B is a ground broadcast service provided through the ADS-B Services network over the 978 MHz UAT data link. The FAA FIS-B system provides pilots and flight crews of properly equipped aircraft with a cockpit display of certain aviation weather and aeronautical information. FIS-B reception is line-of-sight within the service volume of the ground infrastructure. (See Figure 4-5-7 and Figure 4-5-8.)

* * * * *

4–5–10 Automatic Dependent Surveillance–Rebroadcast (ADS-R)

a. Introduction

ADS-R is a datalink translation function of the ADS-B ground system required to accommodate the two separate operating frequencies (978 MHz and 1090 ES). The ADS-B system receives the ADS-B messages transmitted on one frequency and ADS-R translates and reformats the information for rebroadcast and use on the other frequency. This allows ADS-B In equipped aircraft to see nearby ADS-B Out traffic regardless of the operating link of the other aircraft. Aircraft operating on the same ADS-B frequency exchange information directly and do not require the ADS-R translation function. (See Figure 4-5-7 and Figure 4-5-8.)

* * * * *

4–6–1 Applicability and RVSM Mandate (Date/Time and Area)

* * * * *

c. RVSM Authorization. In accordance with 14 CFR section 91.180, with only limited exceptions, prior to operating in RVSM airspace, operators must comply with the standards of part 91, Appendix G, and be authorized by the Administrator. If either the operator or the operator's aircraft have not met the applicable RVSM standards, the aircraft will be referred to as a "non-RVSM" aircraft. Paragraph 4-6-10 discusses ATC policies for accommodation of non-RVSM aircraft flown by the Department of Defense, Air Ambulance (MEDEVAC) operators, foreign State governments and aircraft flown for certification and development. Paragraph 4-6-11, Non-RVSM Aircraft Requesting Climb to and Descent from Flight Levels Above RVSM Airspace Without Intermediate Level Off, contains policies for non-RVSM aircraft climbing and descending through RVSM airspace to/from flight levels above RVSM airspace.

* * * * *

4–6–3 Aircraft and Operator Approval Policy/ Procedures, RVSM Monitoring and Databases for Aircraft and Operator Approval

a. RVSM Authority. 14 CFR section 91.180 applies to RVSM operations within the U.S. 14 CFR section 91.706 applies to RVSM operations outside the U.S. Both sections require that the operator be authorized prior to operating in RVSM airspace. For Domestic RVSM operations, an operator may choose to operate under the provisions of part 91, Appendix G, section 9; or if intending to operate outside U.S. airspace, hold a specific approval (OpSpec/MSpec/LOA) under the provisions of section 3 of part 91, Appendix G.

* * * * *

c. TCAS Equipage. TCAS equipage requirements are contained in 14 CFR sections 121.356, 125.224, 129.18 and 135.189. part 91 Appendix G, does not contain TCAS equipage requirements specific to RVSM, however, Appendix G, does require that aircraft equipped with TCAS II and flown in RVSM airspace be modified to incorporate TCAS II Version 7.0 or a later version.

* * * * *

4–6–4 Flight Planning into RVSM Airspace

* * * * *

b. * * *

1. An operator may operate in RVSM airspace under the provisions of part 91, Appendix G, section 9, without specific authorization and should file "/w" in accordance with paragraph d.

* * * * *

4–6–9 Contingency Actions: Weather Encounters and Aircraft System Failures that Occur After Entry into RVSM Airspace

* * * * *

TABLE 4–6–2

CONTINGENCY ACTIONS: WEATHER ENCOUNTERS AND AIRCRAFT SYSTEM FAILURES THAT OCCUR AFTER ENTRY INTO RVSM AIRSPACE

* * * * *	
Transponder Failure	
Pilot will: • Contact ATC and request authority to continue to operate at cleared flight level • Comply with revised ATC clearance, if issued ***Note:*** *14 CFR section 91.215 (ATC transponder and altitude reporting equipment and use) regulates operation with the transponder inoperative.*	**Controller will:** • Consider request to continue to operate at cleared flight level • Issue revised clearance, if necessary

4–6–10 Procedures for Accommodation of Non-RVSM Aircraft

a. * * *

2. If the operator is not authorized or the aircraft is not RVSM-compliant, the aircraft will be referred to as a "non-RVSM" aircraft. 14 CFR section 91.180 and part 91, Appendix G, enable the FAA to authorize a deviation to operate a non-RVSM aircraft in RVSM airspace.

* * * * *

4–7–1 Introduction and General Policies

* * * * *

e. Useful information for flight planning and operations over the Gulf of Mexico, under this 50 NM lateral separation policy, as well as information on how to obtain RNP 10 or RNP 4 authorization, can be found in the West Atlantic, Gulf of Mexico, and Caribbean Resource Guide for U.S. Operators located at: https://www.faa.gov/headquartersoffices/avs/wat-gomex-and-caribbean-resource-guide.

4–7–3 Obtaining RNP 10 or RNP 4 Operational Authorization

a. For U.S. operators, AC 90-105, Approval Guidance for RNP Operations and Barometric Vertical Navigation in the U.S. National Airspace System and in Oceanic and Remote Continental Airspace, provides the aircraft and operator qualification criteria for RNP 10 or RNP 4 authorizations. FAA personnel at flight standards district offices (FSDO) and certificate management offices (CMO) will use the guidance contained in AC 90-105 to evaluate an operator's application for RNP 10 or RNP 4 authorization. Authorization to conduct RNP operations in oceanic airspace is provided to all U.S. operators through issuance of Operations Specification (OpSpec), Management Specification (MSpec), or Letter of Authorization (LOA) B036, as applicable to the nature of the operation; for example, part 121, part 91, etc. Operators may wish to review FAA Order 8900.1, Flight Standards Information Management System, volume 3, chapter 18, section 4, to understand the specific criteria for issuing OpSpec, MSpec, and/or LOA B036.

* * * * *

Chapter 5. Air Traffic Procedures

5–1–1 Preflight Preparation

* * * * *

i. Pilots operating under provisions of 14 CFR part 135 on a domestic flight without having an FAA assigned 3-letter designator, must prefix the normal registration (N) number with the letter "T" on flight plan filing; for example, TN1234B.

* * * * *

5–1–2 Follow IFR Procedures Even When Operating VFR

* * * * *

b. Simulated IFR flight is recommended (under the hood); however, pilots are cautioned to review and adhere to the requirements specified in 14 CFR section 91.109 before and during such flight.

* * * * *

5–1–3 Notice to Airmen (NOTAM) System

* * * * *

e. NAVAID NOTAMs. Pilots should check NOTAMs to ensure NAVAIDs required for the flight are in service. A NOTAM is published when a NAVAID is out of service or Unserviceable (U/S). Although a NAVAID is deemed U/S and planned for removal from service, it may be a long time before that NAVAID is officially decommissioned and removed from charts. A NOTAM is the primary method of alerting pilots to its unavailability. Pilots using VFR charts can also review the Aeronautical Information Services' (AIS) website concerning Safety Alerts, Charting Notices, and Digital Product Notices at https://www.faa.gov/air_traffic/flight_info/aeronav/safety_alerts/ for additional chart information.

* * * * *

5–1–5 Flight Plan—VFR Flights

* * * * *

a. * * *

2. * * *

Note: *Detailed ADIZ procedures are found in Section 6, National Security and Interception Procedures, of this chapter. (See 14 CFR part 99).*

* * * * *

5–1–10 IFR Operations to High Altitude Destinations

* * * * *

b. * * *

1. An IFR flight to an airport where the Minimum Descent Altitudes (MDAs) or landing visibility minimums for *all instrument approaches* are higher than the forecast weather minimums specified in 14 CFR section 91.167(b). For example, there are 3 high altitude airports in the U.S. with approved instrument approach procedures where all of the MDAs are greater than 2,000 feet and/or the landing visibility minimums are greater than 3 miles (Bishop, California; South Lake Tahoe, California; and Aspen–Pitkin Co./Sardy Field, Colorado). In the case of these airports, it is possible for a pilot to elect, on the basis of forecasts, not to carry sufficient fuel to get to an alternate when the ceiling and/or visibility is actually lower than that necessary to complete the approach.

* * * * *

3. An IFR flight to an airport which requires special equipment; i.e., DME, glide slope, etc., in order to make the available approaches to the lowest minimums. Pilots should be aware that all other minimums on the approach charts may require weather conditions better than those specified in 14 CFR section 91.167(b). An inflight equipment malfunction could result in the inability to comply with the published approach procedures or, again, in the position of having the airport below the published IFR landing minimums for all remaining instrument approach alternatives.

5–1–15 Canceling IFR Flight Plan

a. 14 CFR sections 91.153 and 91.169 include the statement "When a flight plan has been activated, the pilot-in-command, upon canceling or completing the flight under the flight plan, must notify an FAA Flight Service Station or ATC facility."

* * * * *

5–2–5 Line Up and Wait (LUAW)

a. Line up and wait is an air traffic control (ATC) procedure designed to position an aircraft onto the runway for an imminent departure. The ATC instruction "LINE UP AND WAIT" is used to instruct a pilot to taxi onto the assigned departure runway, align the aircraft with the correct departure direction and await for further ATC instructions. LUAW is not an authorization to takeoff.

* * * * *

Note: *Previous reviews of air traffic events, involving LUAW instructions, revealed that a significant number of pilots read back LUAW instructions correctly and departed without a takeoff clearance. LUAW instructions are not to be confused with a departure clearance; the outcome could be catastrophic, especially during intersecting runway operations.*

b. In instances where the pilot has been instructed to LUAW and has been advised of a reason/condition (wake turbulence, traffic on an intersecting runway, etc.) or the reason/condition is clearly visible (another aircraft that has landed on or is taking off on the same runway), and the reason/condition is satisfied, the pilot should expect an imminent takeoff clearance, unless advised of a delay. If you are uncertain about any ATC instruction or clearance, contact ATC immediately.

c. If a takeoff clearance is not received within a reasonable amount of time after instructed to LUAW, ATC should be contacted.

* * * * *

e. Pilots should be especially vigilant when conducting LUAW operations at night, when intersecting runway operations are being conducted, or during reduced visibility conditions. Pilots should scan the full length of the runway and look for aircraft crossing the runway, on final approach, or landing roll (including intersecting runways) prior to and while taxiing onto the runway. ATC should be contacted anytime there is a concern about a potential conflict or clarity is needed with assigned instructions.

Note: *Pilots are reminded of the importance of maintaining situational awareness during LUAW operations with intersecting/crossing runways. Ensure a takeoff clearance has been received before beginning a takeoff roll.*

* * * * *

5–2–7 Departure Restrictions, Clearance Void Times, Hold for Release, and Release Times

a. * * *

1. * * *

Note 3: *Pilots who depart at or after their clearance void time are not afforded IFR separation and may be in violation of 14 CFR section 91.173 which requires that pilots receive an appropriate ATC clearance before operating IFR in controlled airspace.*

* * * * *

5–2–9 Instrument Departure Procedures (DP)—Obstacle Departure Procedures (ODP), Standard Instrument Departures (SID), and Diverse Vector Areas (DVA)

* * * * *

c. Pilots operating under 14 CFR part 91 are strongly encouraged to file and fly a DP at night, during marginal Visual Meteorological Conditions (VMC) and Instrument Meteorological Conditions (IMC), when one is available. The following paragraphs will provide an overview of the DP program, why DPs are developed, what criteria are used, where to find them, how they are to be flown, and finally pilot and ATC responsibilities.

* * * * *

e. * * *

4. * * *

(b) * * *

Note: *Compliance with 14 CFR part 121 or 135 one-engine-inoperative (OEI) departure performance requirements, or similar ICAO/State rules, cannot be assured by the sole use of "low, close-in" obstacle data as published in the TPP. Operators should refer to precise data sources (for example, GIS database, etc.) specifically intended for OEI departure planning for those operations.*

* * * * *

h. * * *

6. * * *

(c) * * *

Note 2: *ATC anticipates pilots will begin adjusting speed the minimum distance necessary prior to a published speed restriction so as to cross the waypoint/fix at the published speed. Once at the published speed ATC expects pilots will maintain the published speed until additional adjustment is required to comply with further published or ATC assigned speed restrictions or as required to ensure compliance with 14 CFR section 91.117.*

* * * * *

5–3–1 ARTCC Communications

a. * * *

3. * * *

(c) * * *

(1) * * *

Note: *When conducting instrument approach procedures, pilots are responsible to obtain and use the appropriate altimeter setting in accordance with 14 CFR section 97.20. CPDLC issued altimeter settings are excluded for this purpose.*

* * * * *

5–3–5 Airway or Route Course Changes

a. Pilots of aircraft are required to adhere to airways or routes being flown. Special attention must be given to this requirement during course changes. Each course change consists of variables that make the technique applicable in each case a matter only the pilot can resolve. Some variables which must be considered are turn radius, wind effect, airspeed, degree of turn, and cockpit instrumentation. An early turn, as illustrated below, is one method of adhering to airways or routes. The use of any available cockpit instrumentation, such as Distance Measuring Equipment, may be used by the pilot to lead the turn when making course changes. This is consistent with the intent of 14 CFR section 91.181, which requires pilots to operate along the centerline of an airway and along the direct course between navigational aids or fixes.

* * * * *

5–3–6 Changeover Points (COPs)

a. COPs are prescribed for Federal airways, jet routes, area navigation routes, or other direct routes for which an MEA is designated under 14 CFR part 95. The COP is a point along the route or airway segment between two adjacent navigation facilities or waypoints where changeover in navigation guidance should occur. At this point, the pilot should change navigation receiver frequency from the station behind the aircraft to the station ahead.

* * * * *

5–3–8 Holding

* * * * *

f. * * *

Note: *In the event of two-way communications failure, pilots are required to comply with 14 CFR section 91.185.*

* * * * *

j. * * *

2. * * *

(b) * * *

(6) When a climb-in hold is specified by a published procedure (for example, “Climb-in holding pattern to depart XYZ VORTAC at or above 10,000.” or “All aircraft climb-in TRUCK holding pattern to cross TRUCK Int at or above 11,500 before proceeding on course.”), additional obstacle protection area has been provided to allow for greater airspeeds in the climb for those aircraft requiring them. A maximum airspeed of 310 KIAS is permitted in Climb-in-holding, unless a maximum holding airspeed is published, in which case that maximum airspeed is applicable. The airspeed limitations in 14 CFR section 91.117, Aircraft Speed, still apply.

* * * * *

5–4–1 Standard Terminal Arrival (STAR) Procedures

a. * * *

1. STAR procedures may have mandatory speeds and/or crossing altitudes published. Other STARs may have planning information depicted to inform pilots what clearances or restrictions to “expect.” “Expect” altitudes/speeds are not considered STAR procedures crossing restrictions unless verbally issued by ATC. Published speed restrictions are independent of altitude restrictions and are mandatory unless modified by ATC. Pilots should plan to cross waypoints with a published speed restriction, at the published speed, and should not exceed this speed past the associated waypoint unless authorized by ATC or a published note to do so. STAR procedures may have mandatory speeds and/or crossing altitudes published. Other STARs may have planning information depicted to inform pilots what clearances or restrictions to “expect.” “Expect” altitudes/speeds are not considered STAR procedures crossing restrictions unless verbally issued by ATC. Published speed restrictions are independent of altitude restrictions and are mandatory unless modified by ATC. Pilots should plan to cross waypoints with a published speed restriction, at the published speed, and should not exceed this speed past the associated waypoint unless authorized by ATC or a published note to do so. A chart note used to transition from Mach to IAS may also be published. Pilots should maintain their cruise Mach number during the descent until reaching the published transition speed in knots, then continue the descent at that speed until the next published speed restriction on the STAR, or until it is necessary to comply with the speed limits published in 14 CFR §91.117.

* * * * *

2. When an IFR cleared route includes a STAR, pilots must maintain the last assigned altitude until receiving authorization to descend so as to comply with all published/issued altitude restrictions. This authorization may contain the phraseology “DESCEND VIA.” If vectored or cleared to deviate off a STAR, pilots must consider the STAR canceled. If the STAR contains published altitude restrictions, speed restrictions, or a chart note used to transition from Mach to IAS, those restrictions are also canceled and pilots will receive an altitude to maintain and, if necessary, a speed. If ATC intends to clear the aircraft back onto the STAR, controllers will advise pilots where to expect to resume the procedure. Pilots should then be prepared to rejoin the STAR at the subsequent fix or procedure leg.

* * * * *

(a) * * *

(3) * * *

Note 2: *ATC anticipates pilots will begin adjusting speed the minimum distance necessary prior to a published speed restriction so as to cross the waypoint/fix at the published speed. Once at the published speed, ATC expects pilots will maintain the published speed until additional adjustment is required to comply with further published or ATC assigned speed restrictions or as required to ensure compliance with 14 CFR section 91.117.*

* * * * *

5–4–5 Instrument Approach Procedure (IAP) Charts

a. 14 CFR section 91.175(a), Instrument approaches to civil airports, requires the use of SIAPs prescribed for the airport in 14 CFR part 97 unless otherwise authorized by the Administrator (including ATC). If there are military procedures published at a civil airport, aircraft operating under 14 CFR part 91 must use the civil procedure(s). Civil procedures are defined with “FAA” in parenthesis; e.g., (FAA), at the top, center of the procedure chart. DoD

procedures are defined using the abbreviation of the applicable military service in parenthesis; e.g., (USAF), (USN), (USA). 14 CFR section 91.175(g), Military airports, requires civil pilots flying into or out of military airports to comply with the IAPs and takeoff and landing minimums prescribed by the authority having jurisdiction at those airports. Unless an emergency exists, civil aircraft operating at military airports normally require advance authorization, commonly referred to as "Prior Permission Required" or "PPR." Information on obtaining a PPR for a particular military airport can be found in the Chart Supplement.

* * * * *

3. * * *

(a) * * *

Note: *This procedure identification method has changed and these procedures will be revised in the course of the normal procedure amendment process. The slash and equipment (e.g., /DME) information will be removed with future amendments. Pilots should review the procedure's notes, planview annotations, and PBN/ equipment requirements boxes to determine the capability needed to accomplish the procedure.*

* * * * *

d. * * *

4. Entry from the terminal area onto the procedure is normally accomplished via a no procedure turn (NoPT) routing or via a course reversal maneuver. The published procedure will be annotated "NoPT" to indicate when the course reversal is not authorized when flying within a particular TAA sector. Otherwise, the pilot is expected to execute the course reversal under the provisions of 14 CFR section 91.175. The pilot may elect to use the course reversal pattern when it is not required by the procedure, but must receive clearance from air traffic control before beginning the procedure.

* * * * *

5. * * *

(a) An ATC clearance direct to an IAF or to the IF/IAF without an approach clearance does not authorize a pilot to descend to a lower TAA altitude. If a pilot desires a lower altitude without an approach clearance, request the lower TAA altitude from ATC. Pilots not sure of the clearance should confirm their clearance with ATC or request a specific clearance. Pilots entering the TAA with two-way radio communications failure (14 CFR section 91.185, IFR Operations: Two-way Radio Communications Failure), must maintain the highest altitude prescribed by section 91.185(c)(2) until arriving at the appropriate IAF.

* * * * *

l. In isolated cases, an IAP may contain a published visual flight path. These procedures are annotated "Fly Visual to Airport" or "Fly Visual." A dashed arrow indicating the visual flight path will be included in the profile and plan views with a defined flightpath or approximate heading and distance to the end of the runway.

1. The depicted ground track or flightpath associated with the "Fly Visual to Airport" segment should be flown with flight instrumentation (when advisory lateral and vertical guidance is provided) and/or pilotage or dead reckoning navigation techniques. When executing the "Fly Visual to Airport" segment, the flight visibility must not be less than that prescribed in the IAP; the pilot must remain clear of clouds and proceed to the airport maintaining visual contact with the ground. Altitude on the visual flight path is at the discretion of the pilot, and recommended altitudes may be shown, but it is the responsibility of the pilot to visually acquire and avoid obstacles in the "Fly Visual to Airport" segment.

2. Missed approach obstacle clearance is assured only if the missed approach is commenced at or above the MDA/DA and flown from the published MAP. Before initiating an IAP that contains a "Fly Visual to Airport" segment, the pilot should have preplanned climb out options based on aircraft performance and terrain features. Obstacle clearance is the responsibility of the pilot when the missed approach maneuver is initiated below the MDA/ DA or when the approach is continued beyond the MAP.

Note: *The FAA Administrator retains the authority to approve instrument approach procedures where the pilot, on arrival at the MDA/DA on the prescribed flightpath, may not necessarily have one of the visual references specified in 14 CFR §91.175 and related rules. While it is not a function of procedure design to ensure compliance with §91.175, the pilot is always required to assess prevailing flight visibility against the published minima. When published on the procedure, the annotation "Fly Visual to Airport" provides specific relief only from §91.175 (c)(3)(i) through (x) requirements that the pilot have distinctly visible and identifiable visual references prior to descent below MDA/DA.*

* * * * *

m. * * *

6. * * *

(b) * * *

(2) MDA will be published as the minima line on approaches with lateral guidance only, LNAV, or LP. Descent below the MDA must meet the conditions stated in 14 CFR section 91.175.

* * * * *

5–4–7 Instrument Approach Procedures

* * * * *

d. It is important to remember that 14 CFR section 91.175(c) requires that "where a DA/DH or MDA is applicable, no pilot may operate an aircraft below the authorized MDA or continue an approach below the authorized DA/DH unless the aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and for operations conducted under part 121 or part 135 unless that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing."

* * * * *

f. When operating on an unpublished route or while being radar vectored, the pilot, when an approach clearance is received, must, in addition to complying with the minimum altitudes for IFR operations (14 CFR section 91.177), maintain the last assigned altitude unless a different altitude is assigned by ATC, or until the aircraft is established on a segment of a published route or IAP. After the aircraft is so established, published altitudes apply to descent within each succeeding route or approach segment unless a different altitude is assigned by ATC. Notwithstanding this pilot responsibility, for aircraft operating on unpublished routes or while being radar vectored, ATC will, except when conducting a radar approach, issue an IFR approach clearance only after the aircraft is established on a segment of a published route or IAP, or assign an altitude to maintain until the aircraft is established on a segment of a published route or instrument approach procedure. For this purpose, the procedure turn of a published IAP must not be considered a segment of that IAP until the aircraft reaches the initial fix or navigation facility upon which the procedure turn is predicated.

* * * * *

i. At times ATC may not specify a particular approach procedure in the clearance, but will state "CLEARED APPROACH."

1. This clearance indicates the pilot may execute any one of the authorized IAPs for that airport.

2. The clearance may be issued in conjunction with the route to or over an IAF or feeder fix.

3. This clearance does not constitute approval for the pilot to execute a contact approach or a visual approach to the airport or runway.

j. Except when being vectored to the final approach course, pilots cleared for an IAP are expected to execute the entire procedure commencing at an IAF or an associated feeder fix as described on the IAP chart. Pilots are not required to execute the entire procedure if:

1. An appropriate new or revised ATC clearance is received, or

2. The IFR flight plan is canceled.

k. Pilots planning flights to locations which are private airfields or which have instrument approach procedures based on private navigation aids should obtain approval from the owner. In addition, the pilot must be authorized by the FAA to fly special instrument approach procedures associated with private navigation aids (see paragraph 5-4-8). Owners of navigation aids that are not for public use may elect to turn off the signal for whatever reason they may have; for example, maintenance, energy conservation, etc. Air traffic controllers are not required to question pilots to determine if they have permission to land at a private airfield or to use procedures based on privately owned navigation aids, and they may not know the status of the navigation aid. Controllers presume a pilot has obtained approval from the owner and the FAA for use of special instrument approach procedures and is aware of any details of the procedure if an IFR flight plan was filed to that airport.

l. Pilots should not rely on radar to identify a fix unless the fix is indicated as "RADAR" on the IAP. Pilots may request radar identification of an OM, but the controller may not be able to provide the service due either to workload or not having the fix on the video map.

m. If a missed approach is required, advise ATC and include the reason (unless initiated by ATC). Comply with the missed approach instructions for the instrument approach procedure being executed, unless otherwise directed by ATC.

* * * * *

5–4–8 Special Instrument Approach Procedures

Instrument Approach Procedure (IAP) charts reflect the criteria associated with the U.S. Standard for Terminal Instrument [Approach] Procedures (TERP), which prescribes standardized methods for use in developing IAPs. Standard IAPs are published in the Federal Register (FR) in accordance with Title 14 of the Code of Federal Regulations, part 97, and are available for use by appropriately qualified pilots operating properly equipped and airworthy aircraft in accordance with operating rules and procedures acceptable to the FAA. Special IAPs are also developed using TERPs but are not given public notice in the FR. The FAA authorizes only certain individual pilots and/or pilots in individual organizations to use special IAPs, and may require additional crew training and/or aircraft equipment or performance, and may also require the use of landing aids, communications, or weather services not available for public use. Additionally, IAPs that service private use airports or heliports are generally special IAPs. FDC NOTAMs for Specials, FDC T-NOTAMs, may also be used to promulgate safety-of-flight information relating to Specials provided the location has a valid landing area identifier and is serviced by the United States NOTAM system. Pilots may access NOTAMs online or through an FAA Flight Service Station (FSS). FSS specialists will not automatically provide NOTAM information to pilots for special IAPs during telephone pre-flight briefings. Pilots who are authorized by the FAA to use special IAPs must specifically request FDC NOTAM information for the particular special IAP they plan to use.

5–4–9 Procedure Turn and Hold-in-lieu of Procedure Turn

a. * * *

Note: *The pilot may elect to use the procedure turn or hold-in-lieu-of-PT when it is not required by the procedure, but must first receive an amended clearance from ATC. If the pilot is uncertain whether the ATC clearance intends for a procedure turn to be conducted or to allow for a straight-in approach, the pilot must immediately request clarification from ATC (14 CFR section 91.123).*

* * * * *

5–4–10 Timed Approaches from a Holding Fix

a. * * *

5. When cleared for the approach, pilots must not execute a procedure turn. (14 CFR section 91.175.)

* * * * *

5–4–16 Simultaneous Close Parallel PRM Approaches and Simultaneous Offset Instrument Approaches (SOIA)

* * * * *

b. * * *

1. * * *

(a) For operations under 14 CFR parts 121, 129, and 135, pilots must comply with FAA-approved company training as identified in their Operations Specifications. Training includes the requirement for pilots to view the FAA training slide presentation, "Precision Runway Monitor (PRM) Pilot Procedures." Refer to https://www.faa.gov/training_testing/training/prm/ or search key words "FAA PRM" for additional information and to view or download the slide presentation.

(b) For operations under part 91:

* * * * *

5–4–20 Approach and Landing Minimums

a. Landing Minimums. The rules applicable to landing minimums are contained in 14 CFR section 91.175. Table 5-4-1 may be used to convert RVR to ground or flight visibility. For converting RVR values that fall between listed values, use the next higher RVR value; do not interpolate. For example, when converting 1800 RVR, use 2400 RVR with the resultant visibility of 1/2 mile.

* * * * *

5–4–22 Use of Enhanced Flight Vision Systems (EFVS) on Instrument Approaches

* * * * *

g. EFVS Pilot Requirements. A pilot who conducts EFVS operations must receive ground and flight training specific to the EFVS operation to be conducted. The training must be obtained from an authorized training provider under a training program approved by the FAA. Additionally, recent flight experience and proficiency or competency check requirements apply to EFVS operations. These requirements are addressed in 14 CFR §§61.66, 91.1065, 121.441, Appendix F to part 121, 125.287, and 135.293.

* * * * *

5–4–23 Visual Approach

a. A visual approach is conducted on an IFR flight plan and authorizes a pilot to proceed visually and clear of clouds to the airport. The pilot must have either the airport or the preceding identified aircraft in sight. This approach must be authorized and controlled by the appropriate air traffic control facility. Reported weather at the airport must have a ceiling at or above 1,000 feet

and visibility 3 miles or greater. ATC may authorize this type of approach when it will be operationally beneficial. Visual approaches are an IFR procedure conducted under IFR in visual meteorological conditions. Cloud clearance requirements of 14 CFR section 91.155 are not applicable, unless required by operation specifications. When conducting visual approaches, pilots are encouraged to use other available navigational aids to assist in positive lateral and vertical alignment with the runway.
* * * * *

5–5–1 General
* * * * *

b. The pilot-in-command of an aircraft is directly responsible for, and is the final authority as to the safe operation of that aircraft. In an emergency requiring immediate action, the pilot-in-command may deviate from any rule in the General Subpart A and Flight Rules Subpart B in accordance with 14 CFR section 91.3.
* * * * *

5–5–3 Contact Approach
* * * * *

b. * * *

3. Provides approved separation between the aircraft cleared for a contact approach and other IFR or special VFR aircraft. When using vertical separation, does not assign a fixed altitude, but clears the aircraft at or below an altitude which is at least 1,000 feet below any IFR traffic but not below Minimum Safe Altitudes prescribed in 14 CFR section 91.119.
* * * * *

5–5–9 Speed Adjustments
a. * * *

2. * * *

(b) Operating at or above 10,000 feet MSL on an ATC assigned SPEED ADJUSTMENT of more than 250 knots IAS and subsequent clearance is received for descent below 10,000 feet MSL. In such cases, pilots are expected to comply with 14 CFR section 91.117(a).
* * * * *

5–5–13 VFR-on-Top
a. * * *

2. * * *

(a) Fly at the appropriate VFR altitude as prescribed in 14 CFR section 91.159.

(b) Comply with the VFR visibility and distance from clouds criteria in 14 CFR section 91.155, *Basic VFR Weather Minimums*.
* * * * *

5–6–1 National Security
National security in the control of air traffic is governed by 14 Code of Federal Regulations (CFR) part 99, *Security Control of Air Traffic*.

5–6–2 National Security Requirements
a. Pursuant to 14 CFR 99.7, *Special Security Instructions*, each person operating an aircraft in an Air Defense Identification Zone (ADIZ) or Defense Area must, in addition to the applicable rules of part 99, comply with special security instructions issued by the FAA Administrator in the interest of national security, pursuant to agreement between the FAA and the Department of Defense (DoD), or between the FAA and a U.S. Federal security or intelligence agency.
* * * * *

5–6–4 ADIZ Requirements
* * * * *

e. * * *

1. Except for the national security requirements in paragraph 5-6-2, transponder requirements in subparagraph 5-6-4b1, and position reporting in subparagraph 5-6-4c, the ADIZ requirements in 14 CFR part 99 described in this section do not apply to the following aircraft operations pursuant to section 99.1(b), Applicability:
* * * * *

5–6–5 Civil Aircraft Operations To or From U.S. Territorial Airspace
a. * * *

5. Comply with all applicable U.S. Customs and Border Protection (CBP) requirements, including Advance Passenger Information System (APIS) requirements (see subparagraph 5-6-5c below for CBP APIS information), in accordance with 19 CFR part 122, *Air Commerce Regulations*; and

6. Are in receipt of, and are operating in accordance with, an FAA routing authorization if the aircraft is registered in a U.S. State Department-designated special interest country or is operating with the ICAO three letter designator (3LD) of a company in a country listed as a U.S. State Department-designated special interest country, unless the operator holds valid FAA part 129 operations specifications. VFR and DVFR flight operations are prohibited for any aircraft requiring an FAA routing authorization. (See paragraph 5-6-11 for FAA routing authorization information).

b. * * *

6. Comply with all applicable U.S. CBP requirements, including Advance Passenger Information System (APIS) requirements (see subparagraph 5-6-5c below for CBP APIS information), in accordance with 19 CFR part 122, *Air Commerce Regulations*.
* * * * *

5–6–6 Civil Aircraft Operations Within U.S. Territorial Airspace
* * * * *

b. Civil aircraft with a maximum certificated takeoff gross weight less than or equal to 100,309 pounds (45,500 kgs) and registered in a U.S. State Department-designated special interest country or operating with the ICAO 3LD of a company in a country listed as a U.S. State Department-designated special interest country, unless the operator holds valid FAA part 129 operations specifications, must operate within U.S. territorial airspace in accordance with the same requirements as civil aircraft with a maximum certificated takeoff gross weight greater than 100,309 pounds (45,500 kgs), as described in subparagraph 5-6-6c below.

c. * * *

6. Are in receipt of, and are operating in accordance with an FAA routing authorization and an FAA/TSA airspace waiver if the aircraft is registered in a U.S. State Department-designated special interest country or is operating with the ICAO 3LD of a company in a country listed as a U.S. State Department-designated special interest country, unless the operator holds valid FAA part 129 operations specifications. VFR and DVFR flight operations are prohibited for any aircraft requiring an FAA routing authorization. (See paragraph 5-6-11 for FAA routing authorization information.); and
* * * * *

5–6–7 Civil Aircraft Operations Transiting U.S. Territorial Airspace

a. * * *

7. Are in receipt of, and are operating in accordance with, an FAA routing authorization if the aircraft is registered in a U.S. State Department-designated special interest country or is operating with the ICAO 3LD of a company in a country listed as a U.S. State Department-designated special interest country, unless the operator holds valid FAA part 129 operations specifications. VFR and DVFR flight operations are prohibited for any aircraft requiring an FAA routing authorization. (See paragraph 5-6-11 for FAA routing authorization information.)

* * * * *

5–6–8 Foreign State Aircraft Operations

* * * * *

f. * * *

1. A foreign air carrier that holds valid FAA part 129 operations specifications; and

* * * * *

5–6–11 FAA Flight Routing Authorizations

* * * * *

c. Aircraft operating with the ICAO 3LD assigned to a company or entity from a country listed as a State Department-designated special interest country and holding valid FAA part 129 operations specifications do not require FAA flight routing authorization.

* * * * *

5–6–12 Emergency Security Control of Air Traffic (ESCAT)

a. During defense emergency or air defense emergency conditions, additional special security instructions may be issued in accordance with 32 CFR part 245, *Plan for the Emergency Security Control of Air Traffic (ESCAT)*.

b. Under the provisions of 32 CFR part 245, the military will direct the action to be taken in regard to landing, grounding, diversion, or dispersal of aircraft in the defense of the U.S. during emergency conditions.

* * * * *

Chapter 6. Emergency Procedures

6–1–1 Pilot Responsibility and Authority

a. The pilot-in-command of an aircraft is directly responsible for and is the final authority as to the operation of that aircraft. In an emergency requiring immediate action, the pilot-in-command may deviate from any rule in 14 CFR part 91, Subpart A, General, and Subpart B, Flight Rules, to the extent required to meet that emergency.

* * * * *

b. If the emergency authority of 14 CFR section 91.3(b) is used to deviate from the provisions of an ATC clearance, the pilot-in-command must notify ATC as soon as possible and obtain an amended clearance.

c. Unless deviation is necessary under the emergency authority of 14 CFR section 91.3, pilots of IFR flights experiencing two-way radio communications failure are expected to adhere to the procedures prescribed under "IFR operations, two-way radio communications failure."

* * * * *

6–3–2 Obtaining Emergency Assistance

a. * * *

1. Climb, if possible, for improved communications, and better radar and direction finding detection. However, it must be understood that unauthorized climb or descent under IFR conditions within controlled airspace is prohibited, except as permitted by 14 CFR section 91.3(b).

* * * * *

6–4–1 Two-Way Radio Communications Failure

a. It is virtually impossible to provide regulations and procedures applicable to all possible situations associated with two-way radio communications failure. During two-way radio communications failure, when confronted by a situation not covered in the regulation, pilots are expected to exercise good judgment in whatever action they elect to take. Should the situation so dictate they should not be reluctant to use the emergency action contained in 14 CFR section 91.3(b).

b. Whether two-way communications failure constitutes an emergency depends on the circumstances, and in any event, it is a determination made by the pilot. 14 CFR section 91.3(b) authorizes a pilot to deviate from any rule in Subparts A and B to the extent required to meet an emergency.

c. In the event of two-way radio communications failure, ATC service will be provided on the basis that the pilot is operating in accordance with 14 CFR section 91.185. A pilot experiencing two-way communications failure should (unless emergency authority is exercised) comply with 14 CFR section 91.185 quoted below:

* * * * *

Note: *This procedure also applies when two-way radio failure occurs while operating in Class A airspace. The primary objective of this provision in 14 CFR section 91.185 is to preclude extended IFR operation by these aircraft within the ATC system. Pilots should recognize that operation under these conditions may unnecessarily as well as adversely affect other users of the airspace, since ATC may be required to reroute or delay other users in order to protect the failure aircraft. However, it is not intended that the requirement to "land as soon as practicable" be construed to mean "as soon as possible." Pilots retain the prerogative of exercising their best judgment and are not required to land at an unauthorized airport, at an airport unsuitable for the type of aircraft flown, or to land only minutes short of their intended destination.*

3. * * *

(b) * * *

(2) The minimum altitude (converted, if appropriate, to minimum flight level as prescribed in 14 CFR section 91.121(c)) for IFR operations; or

(3) * * *

Example 1: *A pilot experiencing two-way radio failure at an assigned altitude of 7,000 feet is cleared along a direct route which will require a climb to a minimum IFR altitude of 9,000 feet, should climb to reach 9,000 feet at the time or place where it becomes necessary (see 14 CFR section 91.177(b)). Later while proceeding along an airway with an MEA of 5,000 feet, the pilot would descend to 7,000 feet (the last assigned altitude), because that altitude is higher than the MEA.*

* * * * *

Example 3: *The MEA between a and b: 5,000 feet. The MEA between b and c: 5,000 feet. The MEA between c and d: 11,000 feet. The MEA between d and e: 7,000 feet. A pilot had been cleared*

via a, b, c, d, to e. While flying between a and b the assigned altitude was 6,000 feet and the pilot was told to expect a clearance to 8,000 feet at b. Prior to receiving the higher altitude assignment, the pilot experienced two-way failure. The pilot would maintain 6,000 to b, then climb to 8,000 feet (the altitude advised to expect). The pilot would maintain 8,000 feet, then climb to 11,000 at c, or prior to c if necessary to comply with an MCA at c. (14 CFR section 91.177(b).) Upon reaching d, the pilot would descend to 8,000 feet (even though the MEA was 7,000 feet), as 8,000 was the highest of the altitude situations stated in the rule (14 CFR section 91.185).

* * * * *

Chapter 7. Safety of Flight

7–1–3 Use of Aviation Weather Products

a. Air carriers and operators certificated under the provisions of 14 CFR part 119 are required to use the aeronautical weather information systems defined in the Operations Specifications issued to that certificate holder by the FAA. These systems may utilize basic FAA/National Weather Service (NWS) weather services, contractor- or operator-proprietary weather services and/or Enhanced Weather Information System (EWINS) when approved in the Operations Specifications. As an integral part of this system approval, the procedures for collecting, producing and disseminating aeronautical weather information, as well as the crew member and dispatcher training to support the use of system weather products, must be accepted or approved.

b. Operators not certificated under the provisions of 14 CFR part 119 are encouraged to use FAA/NWS products through Flight Service Stations, Leidos Flight Service, and/or Flight Information Services-Broadcast (FIS-B).

* * * * *

k. * * *

3. Commercial Weather Information Providers. In general, commercial providers produce proprietary weather products based on NWS/FAA products with formatting and layout modifications but no material changes to the weather information itself. This is also referred to as “repackaging.” In addition, commercial providers may produce analyses, forecasts, and other proprietary weather products that substantially alter the information contained in government-produced products. However, those proprietary weather products that substantially alter government-produced weather products or information, may only be approved for use by 14 CFR part 121 and part 135 certificate holders if the commercial provider is EWINS qualified.

* * * * *

7–1–4 Graphical Forecasts for Aviation (GFA)

* * * * *

b. * * *

4. GFA Static Images. Some users with limited internet connectivity may access static images via the Aviation Weather Center (AWC) Decision Support Imagery at: https://aviationweather.gov/graphics/. There are two static graphical images available, titled Aviation Cloud Forecast and Aviation Surface Forecast. The Aviation Cloud Forecast provides cloud coverage, bases, layers, and tops with AIRMETs for mountain obscuration and AIRMETs for icing overlaid. The Aviation Surface Forecast provides visibility, weather phenomena, and winds (including wind gusts) with AIRMETs for instrument flight rules conditions and AIRMETs for sustained surface winds of 30 knots or more overlaid. These images are presented on ten separate maps providing forecast views for the entire contiguous United States (U.S.) on one and nine regional views which provide more detail for the user. They are updated every 3 hours and provide forecast snapshots for 3, 6, 9, 12, 15, and 18 hours into the future. (See Figure 7-1-2 and Figure 7-1-3.)

* * * * *

FIGURE 7–1–2
Aviation Surface Forecast

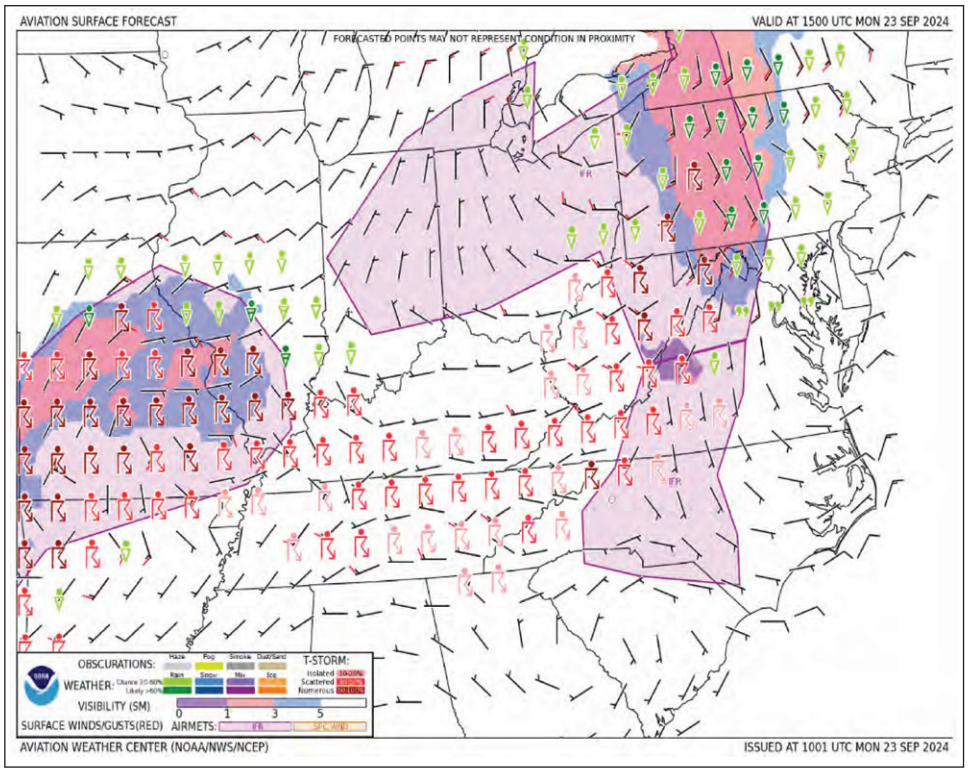
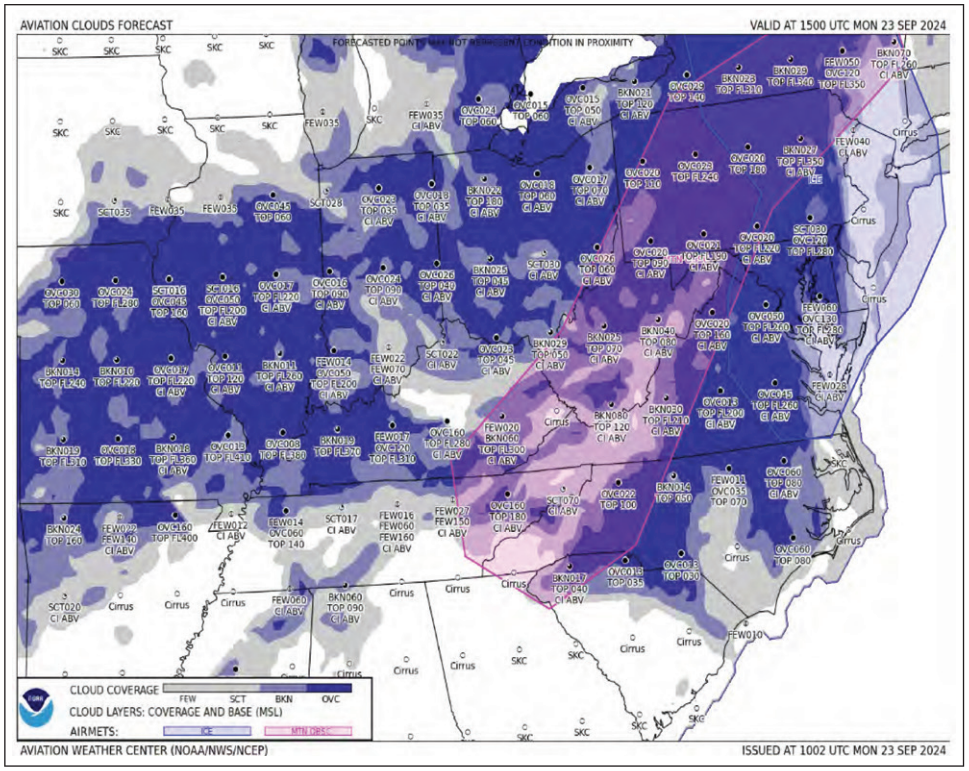


FIGURE 7–1–3
Aviation Cloud Forecast



7–1–20 Definitions of Inflight Icing Terms

* * * * *

TABLE 7–1–10
ICING CONDITIONS

Appendix C Icing Conditions	Appendix C (14 CFR, part 25 and 29) is the certification icing condition standard for approving ice protection provisions on aircraft. The conditions are specified in terms of altitude, temperature, liquid water content (LWC), representative droplet size (mean effective drop diameter [MED]), and cloud horizontal extent.
* * * * *	

7–2–3 Altimeter Errors

a. Manufacturing and installation specifications, along with 14 CFR part 43, Appendix E requirement for periodic tests and inspections, helps reduce mechanical, elastic, temperature, and installation errors. (See Instrument Flying Handbook.) Scale error may be observed while performing a ground altimeter check using the following procedure:

* * * * *

c.

3. When the minimum altitude per 14 CFR section 91.159 and 14 CFR section 91.177 is above 18,000 feet MSL, the lowest usable flight level must be the flight level equivalent of the minimum altitude plus the number of feet specified in Table 7-2-2. ATC will accomplish this calculation.

* * * * *

7–3–3 Effects of Cold Temperature on Baro-Vertical Navigation (VNAV) Vertical Guidance

* * * * *

a. Uncompensated Baro-VNAV note on 14 CFR part 97 IAPs. The area navigation (RNAV) global positioning system (GPS) and RNAV required navigation performance (RNP) notes, “For uncompensated Baro-VNAV systems, lateral navigation (LNAV)/VNAV NA below –XX°C (–XX°F) or above XX°C (XXX°F)” and “For uncompensated Baro-VNAV systems, procedure NA below –XX°C (–XX°F) or above XX°C (XXX°F)” apply to baro-VNAV equipped aircraft. These temperatures and how they are used are independent of the temperature and procedures applied for a Cold Temperature Airport.

* * * * *

7–3–5 Cold Temperature Airport Procedures

* * * * *

d. Use of corrected MDA/DA: Pilots will use the corrected MDA or DA as the minimum altitude for an approach. Pilots must meet the requirements in 14 CFR part 91.175 in order to operate below the corrected MDA or DA. Pilots must see and avoid obstacles when descending below the minimum altitude on the approach.

* * * * *

7–3–6 Examples for Calculating Altitude Corrections on CTAs

All 14 CFR part 97 IAPs must be corrected at an airport. The following example provides the steps for correcting the different segments of an approach and will be applied to all 14 CFR part 97 IAPs:

* * * * *

7–4–9 Air Traffic Wake Turbulence Separations

* * * * *

f. * * *

Note: *14 CFR section 91.3(a) states: “The pilot-in-command of an aircraft is directly responsible for and is the final authority as to the operation of that aircraft.”*

* * * * *

7–6–4 Obstructions To Flight

a. General. Many structures exist that could significantly affect the safety of your flight when operating below 500 feet above ground level (AGL), and particularly below 200 feet AGL. While 14 CFR part 91.119 allows flight below 500 feet AGL when over sparsely populated areas or open water, such operations involve increased safety risks. At and below 200 feet AGL there are numerous power lines, antenna towers, etc., that are not marked and lighted and/or charted as obstructions and, therefore, may not be seen in time to avoid a collision. Notices to Airmen NOTAM are issued on those lighted structures experiencing temporary light outages. However, some time may pass before the FAA is notified of these outages, and the NOTAM issued, thus pilot vigilance is imperative. Additionally, new obstructions may not be on current charts because the information was not received prior to the FAA publishing the chart.

* * * * *

c. Overhead Wires. Overhead transmission and utility lines often span approaches to runways, natural flyways such as lakes, rivers, gorges, and canyons, and cross other landmarks pilots frequently follow such as highways, railroad tracks, etc. As with antenna towers, these power transmission and/or utility lines and the supporting structures of these lines may not always be readily visible. The wires may be virtually impossible to see under certain conditions. Spherical markers may be used to identify overhead wires and catenary transmission lines and may be lighted. In some locations, the supporting structures of overhead transmission lines are equipped with unique sequence flashing white strobe light systems to indicate that there are wires between the structures. The flash sequence for the wire support structures will be middle, top, and bottom with all lights on the same level flashing simultaneously. However, not all power transmission and/or utility lines require notice to the FAA as they do not exceed 200 feet AGL or meet the obstruction standard of 14 CFR part 77 and, therefore, are not marked and/or lighted. All pilots are cautioned to remain extremely vigilant for power transmission and/or utility lines and their supporting structures when following natural flyways or during the approach and landing phase. This is particularly important for seaplane and/or float equipped aircraft when landing on, or departing from, unfamiliar lakes or rivers.

* * * * *

7–6–6 Unmanned Aircraft Systems

* * * * *

b. To ensure segregation of UAS operations from other aircraft, the military typically conducts UAS operations within restricted or other special use airspace. However, UAS operations are now being approved in the NAS outside of special use airspace through the use of FAA-issued Certificates of Waiver or Authorization (COA) or through the issuance of a special airworthiness certificate. COA and special airworthiness approvals authorize UAS flight operations to be contained within specific geographic boundaries and altitudes, usually require coordination with an ATC facility, and typically require the issuance of a NOTAM describing the operation to be conducted. UAS approvals also require observers to provide "see-and-avoid" capability to the UAS crew and to provide the necessary compliance with 14 CFR section 91.113. For UAS operations approved at or above FL180, UAS operate under the same requirements as that of manned aircraft (i.e., flights are operated under instrument flight rules, are in communication with ATC, and are appropriately equipped).

* * * * *

7–6–9 Seaplane Safety

* * * * *

b. Seaplane pilots must have a thorough understanding of the right-of-way rules as they apply to aircraft versus other vessels. Seaplane pilots are expected to know and adhere to both the U.S. Coast Guard's (USCG) Navigation Rules, International—Inland, and 14 CFR section 91.115, Right-of-Way Rules; Water Operations. The navigation rules of the road are a set of collision avoidance rules as they apply to aircraft on the water. A seaplane is considered a vessel when on the water for the purposes of these collision avoidance rules. In general, a seaplane on the water must keep well clear of all vessels and avoid impeding their navigation. The CFR requires, in part, that aircraft operating on the water "...shall, insofar as possible, keep clear of all vessels and avoid impeding their navigation, and shall give way to any vessel or other aircraft that is given the right-of-way..." This means that a seaplane should avoid boats and commercial shipping when on the water. If on a collision course, the seaplane should slow, stop, or maneuver to the right, away from the bow of the oncoming vessel. Also, while on the surface with an engine running, an aircraft must give way to all nonpowered vessels. Since a seaplane in the water may not be as maneuverable as one in the air, the aircraft on the water has right-of-way over one in the air, and one taking off has right-of-way over one landing. A seaplane is exempt from the USCG safety equipment requirements, including the requirements for Personal Flotation Devices (PFD). Requiring seaplanes on the water to comply with USCG equipment requirements in addition to the FAA equipment requirements would be an unnecessary burden on seaplane owners and operators.

* * * * *

e. The FAA recommends that each seaplane owner or operator provide flotation gear for occupants any time a seaplane operates on or near water. 14 CFR section 91.205(b)(12) requires approved flotation gear for aircraft operated for hire over water and beyond power-off gliding distance from shore. FAA-approved gear differs from that required for navigable waterways under USCG rules. FAA-approved life vests are inflatable designs as compared to the USCG's noninflatable PFDs that may consist of solid, bulky material. Such USCG PFDs are impractical for seaplanes and other aircraft because they may block passage through the relatively narrow exits available to pilots and passengers. Life vests approved under Technical Standard Order (TSO) TSO–C13E contain fully inflatable compartments. The wearer inflates the compartments (AFTER exiting the aircraft) primarily by independent CO_2 cartridges, with an oral inflation tube as a backup. The flotation gear also contains a water-activated, self-illuminating signal light. The fact that pilots and passengers can easily don and wear inflatable life vests (when not inflated) provides maximum effectiveness and allows for unrestricted movement. It is imperative that passengers are briefed on the location and proper use of available PFDs prior to leaving the dock.

f. The FAA recommends that seaplane owners and operators obtain Advisory Circular (AC) 91-69, Seaplane Safety for 14 CFR part 91 Operations, free from the U.S. Department of Transportation, Subsequent Distribution Office, SVC-121.23, Ardmore East Business Center, 3341 Q 75th Avenue, Landover, MD 20785; fax: (301) 386-5394. The USCG Navigation Rules International—Inland (COMDTINSTM 16672.2B) is available for a fee from the Government Publishing Office by facsimile request to (202) 512-2250, and can be ordered using Mastercard or Visa.

7–6–17 Space Launch and Reentry Area

Locations where commercial space launch and/or reentry operations occur. Hazardous operations occur in space launch and reentry areas, and for pilot awareness, a rocket-shaped symbol is used to depict them on sectional aeronautical charts. These locations may have vertical launches from launch pads, horizontal launches from runways, and/or reentering vehicles coming back to land. Because of the wide range of hazards associated with space launch and reentry areas, pilots are expected to check NOTAMs for the specific area prior to flight to determine the location and lateral boundaries of the associated hazard area, and the active time. NOTAMs may include terms such as "rocket launch activity," "space launch," or "space reentry," depending upon the type of operation. Space launch and reentry areas are not established for amateur rocket operations conducted per 14 CFR part 101.

* * * * *

Chapter 8. Medical Facts for Pilots

8–1–1 Fitness For Flight

a. * * *

2. The standards for medical certification are contained in 14 CFR part 67. Pilots who have a history of certain medical conditions described in these standards are mandatorily disqualified from flying. These medical conditions include a personality disorder manifested by overt acts, a psychosis, alcoholism, drug dependence, epilepsy, an unexplained disturbance of consciousness, myocardial infarction, angina pectoris and diabetes requiring medication for its control. Other medical conditions may be temporarily disqualifying, such as acute infections, anemia, and peptic ulcer. Pilots who do not meet medical standards may still be qualified under special issuance provisions or the exemption process. This may require that either additional medical information be provided or practical flight tests be conducted.

* * * * *

Chapter 9. Aeronautical Charts and Related Publications

9–1–4 General Description of Each Chart Series

a. * * *

2. VFR Terminal Area Charts (TAC). TACs depict the airspace designated as Class B airspace. While similar to sectional charts, TACs have more detail because the scale is larger. The TAC should be used by pilots intending to operate to or from airfields within or near Class B or Class C airspace. Areas with TAC coverage are indicated by a • on the Sectional Chart indexes. VFR Transition Routes may be depicted and/or described on this chart. Scale 1 inch = 3.43 NM/1:250,000. Revised every 56 days. (See Figure 9-1-1 and Figure 9-1-2.)

* * * * *

c. * * *

5. VFR Flyway Planning Charts. This chart is printed on the reverse side of selected TAC charts. The coverage is the same as the associated TAC. Flyway planning charts depict flight paths and altitudes recommended for use to bypass high traffic areas. Ground references are provided as a guide for visual orientation. Flyway planning charts are designed for use in conjunction with TACs and sectional charts and are not to be used for navigation. VFR Transition Routes may be depicted and/or described on this chart. Chart scale 1 inch = 3.43 NM/1:250,000.

* * * * *

d. * * *

7. Airport Obstruction Charts (OC). The OC is a 1:12,000 scale graphic depicting 14 CFR part 77, Objects Affecting Navigable Airspace, surfaces, a representation of objects that penetrate these surfaces, aircraft movement and apron areas, navigational aids, prominent airport buildings, and a selection of roads and other planimetric detail in the airport vicinity. Also included are tabulations of runway and other operational data.

* * * * *

Chapter 10. Helicopter Operations

10–1–1 Helicopter Flight Control Systems

a. The certification requirements for helicopters to operate under Instrument Flight Rules (IFR) are contained in 14 CFR part 27, Airworthiness Standards: Normal Category Rotorcraft, and 14 CFR part 29, Airworthiness Standards: Transport Category Rotorcraft. To meet these requirements, helicopter manufacturers usually utilize a set of stabilization and/or Automatic Flight Control Systems (AFCSs).

* * * * *

i. Relief from the prohibition to takeoff with any inoperative instruments or equipment may be provided through a Minimum Equipment List (see 14 CFR section 91.213 and 14 CFR section 135.179, Inoperative Instruments and Equipment). In many cases, a helicopter configured for single pilot IFR may depart IFR with certain equipment inoperative, provided a crew of two pilots is used. Pilots are cautioned to ensure the pilot-in-command and second-in-command meet the requirements of 14 CFR section 61.58, Pilot-in-Command Proficiency Check: Operation of Aircraft Requiring More Than One Pilot Flight Crewmember, and 14 CFR section 61.55, Second-in-Command Qualifications, or 14 CFR part 135, Operating Requirements: Commuter and On-Demand Operations, Subpart E, Flight Crewmember Requirements, and Subpart G, Crewmember Testing Requirements, as appropriate.

* * * * *

10–1–2 Helicopter Instrument Approaches

* * * * *

b. * * *

1. Helicopters flying conventional (i.e. non-Copter) IAPs may reduce the visibility minima to not less than one-half the published Category A landing visibility minima, or 1/4 statute mile visibility/1200 RVR, whichever is greater, unless the procedure is annotated with "**Visibility Reduction by Helicopters NA.**" This annotation means that there are penetrations of the final approach obstacle identification surface (OIS) and that the 14 CFR section 97.3 visibility reduction rule does not apply and you must take precaution to avoid any obstacles in the visual segment. No reduction in MDA/DA is permitted at any time. The helicopter may initiate the final approach segment at speeds up to the upper limit of the highest approach category authorized by the procedure, but must be slowed to no more than 90 KIAS at the missed approach point (MAP) in order to apply the visibility reduction. Pilots are cautioned that such a decelerating approach may make early identification of wind shear on the approach path difficult or impossible. If required, use the Inoperative Components and Visual Aids Table provided inside the front cover of the U.S. Terminal Procedures Publication to derive the Category A minima before applying the 14 CFR section 97.3 rule.

* * * * *

4. * * *

Note: *Several factors affect the ability of the pilot to acquire and maintain the visual references specified in 14 CFR section 91.175(c), even in cases where the flight visibility may be at the minimum derived from the criteria in Table 10-1-1. These factors include, but are not limited to:*

* * * * *

10–1–3 Helicopter Approach Procedures to VFR Heliports

a. * * *

2. * * *

(a) These procedures require the pilot, at or prior to the MAP, to determine if the published minimum visibility, or the weather minimums required by the operating rule (e.g., part 91, part 135, etc.), or operations specifications (whichever is higher) is available to safely transition from IFR to VFR flight. If not, the pilot must execute a missed approach. For part 135 operations, pilots may not begin the instrument approach unless the latest weather report indicates that the weather conditions are at or above the authorized IFR minimums or the VFR weather minimums (as required by the class of airspace, operating rule and/or Operations Specifications) whichever is higher.

* * * * *

10–2–1 Offshore Helicopter Operations

* * * * *

j. * * *

2. * * *

(c)

Note: *Pilots of helicopters operating VFR above 3,000 feet above the surface should refer to the current Federal Aviation Regulations (14 CFR part 91), and Paragraph 3-1-4, Basic VFR Weather Minimums, of the AIM.*

* * * * *

10–2–2 Helicopter Night VFR Operations

* * * * *

b. * * *

2. Title 14 of the Code of Federal Regulations applies these concepts and definitions in addressing the definition of night (section 1.1), the requirement for aircraft lighting (section 91.209) and pilot recency of night experience (section 61.67).

* * * * *

Chapter 11. Unmanned Aircraft Systems (UAS)

11–1–1 General

* * * * *

b. 14 CFR part 107, Small Unmanned Aircraft Systems. Examples of 14 CFR part 107 operations include commercial aerial photography, commercial aerial survey, other operations for hire, and operations that are not conducted purely for pleasure/recreation. These operations will be referred to as part 107 operations. Part 107 operations are limited to small UAS (sUAS) weighing less than 55 pounds.

* * * * *

d. 14 CFR part 91, UAS Operations. 14 CFR part 91 operations include public UAS, and civil UAS 55 pounds or more Maximum Gross Operating Weight (MGOW). These operations will be referred to as part 91 UAS operations in Chapter 11. For more information on public UAS operations, the requirements for qualification as a public operator, and how aircraft and pilots are certified, refer to AC 00-1.1, Public Aircraft Operations—Manned and Unmanned.

Note: *14 CFR part 91 operations can include UAS weighing less than 55 lbs.*

* * * * *

11–1–2 Access to the National Airspace System (NAS) for UAS Operators

* * * * *

b. * * *

1. Part 107 sUAS operators can request airspace authorizations via Low Altitude Authorization and Notification Capability (LAANC) or DroneZone to fly within Class B, Class C, Class D or within the lateral boundaries of the surface area of Class E airspace designated for an airport. Operations within controlled airspace can be readily approved in accordance with the altitude values indicated on the corresponding UAS Facility Map (UASFM). The UASFM values indicate the maximum altitude at which a UAS operation can be approved without any further coordination with the respective ATC facility. Part 107 remote pilots and operators may request "further coordination" for an airspace authorization to operate above UASFM values, up to 400 feet AGL. (See paragraph 11-4-2 for further information regarding part 107 operations.)

* * * * *

3. Part 91 UAS Operations. Public UAS, and civil UAS 55 pounds or more MGOW operate under 14 CFR part 91, UAS operations. Public UAS operators and civil, non-recreational UAS weighing 55 pounds or more MGOW are provided NAS access by compliance with certain parts of 14 CFR part 21, experimental certificates, and 14 CFR part 91, UAS Operations. Part 91 UAS operators require a COA to operate within the NAS. Specific geographic/altitude limitations are prescribed in the COA. Additional pilot and aircraft requirements are applicable to part 91 UAS operations. See Chapter 11, Section 3, Large UAS (MGOW 55 Pounds or More), and paragraph 11-4-3, Airspace Access for PAO, for further information on Part 91 UAS operations.

* * * * *

11–2–1 Part 107 sUAS and Recreational Flyers

a. Part 107 sUAS. A regulatory first step for civil non-recreational UAS operations. To fly under 14 CFR part 107, the UAS must weigh less than 55 pounds and the operator (called a remote pilot) must pass a knowledge test. Also, the UAS must be registered. Part 107 enabled the vast majority of routine sUAS operations, allowing flight within VLOS while maintaining flexibility to accommodate future technological innovations. Part 107 allows sUAS operations for many different purposes without requiring airworthiness certification, exemptions, or a COA for Class G airspace access. Part 107 includes the opportunity for individuals to request waivers for certain provisions of the rules, for example, Beyond Visual Line-Of-Sight (BVLOS). Part 107 also has specific restrictions which are not subject to waiver, such as the prohibition of the carriage or transport of Hazardous Materials (HAZMAT).

* * * * *

11–2–2 Registration Requirements

a. Nearly all UAS flown in the NAS are required to be registered in the FAA aircraft registration database. UAS weighing 55 pounds MGOW or more must be registered under 14 CFR part 47, Aircraft Registration, while UAS less than 55 pounds may be registered under the FAA's newer 14 CFR part 48 online system.

* * * * *

b. Registering UAS under 14 CFR part 47. For those UAS, which do not meet the weight stipulations for registration under 14 CFR part 48, registration is accomplished under 14 CFR part 47. 14 CFR part 47 registration will result in an "N"-number like those assigned to manned aircraft. To learn more about the process and to register a UAS under part 47, see the FAA's Aircraft Registration Unmanned Aircraft (UA) website. If desired by the owner, any UAS may be registered under 14 CFR part 47.

* * * * *

c. Registering UAS under 14 CFR part 48. For most operators of sUAS (those UAS weighing less than 55 pounds MGOW), registration under 14 CFR part 48, Registration and Marking Requirements for Small UA, will be most expedient and the least expensive. 14 CFR part 48 registrants are those UAS flyers operating under either of the following statutes:

1. Part 107. Under the provisions of part 107, all UAS must be registered regardless of weight. Operations under part 107 are generally those involving commerce, but can be for recreation as well.

* * * * *

d. How to register a UAS under 14 CFR part 48:

1. To register a UAS online under part 48, refer to the FAA's DroneZone website. When registering a UAS online under part 48, you will need to select registration in either part 107 or the exception for recreational flyers.

2. Registration fees for part 107 registration are per sUAS, and the registration is valid for three years. Each part 107 registered sUAS will receive a different number. Recreational flyer registration fees are per UAS and valid for three years, but the same registration number can be applied to any UAS in the registrant's ownership. The recreational flyer will receive one registration number that can be used for all UAS flown by that person. In order to register, a person must be 13 years of age or older and be a U.S. citizen or legal permanent resident. If the owner is less

than 13 years of age, another person 13 years of age or older must register the UAS and that person must be a U.S. citizen or legal permanent resident.
* * * * *

11–3–1 Large Public UAS Operations

* * * * *

d. * * *

3. Many of the larger public UAS are equipped with transponders to assist ATC with position and tracking information. These UAS usually operate under IFR under positive ATC control and will tend to be found at very high altitudes; not likely to be encountered by civil aircraft operators. Launch and recovery operations will be likewise under positive ATC control and these UAS will be separated from any other known aircraft traffic. Encounters with low-altitude small UAS, being flown in uncontrolled airspace or under low-altitude controlled airspace authorizations, are therefore unlikely. In accordance with 14 CFR section 91.215(e)(2), ATC Transponder and Altitude Reporting Equipment and Use, no person may operate an unmanned aircraft under part 91 with a transponder on unless: (1) the operation is conducted under a flight plan and the person operating the unmanned aircraft maintains two-way communications with ATC; or (2) the use of a transponder is otherwise authorized by the Administrator.

Note: *In accordance with 14 CFR section 107.52, ATC Transponder Equipment Prohibition, unless otherwise authorized by the Administrator, no person may operate a sUAS under part 107 with a transponder on.*
* * * * *

11–3–2 Exemptions Under 49 USC 44807, Special Authority for Certain Unmanned Systems

a. Exemptions are granted to UAS operations which are permitted in accordance with Public Law 115–254, 49 USC 44807, Special Authority for Certain Unmanned Aircraft Systems. The Secretary of Transportation has determined that certain UAS are eligible to operate in the NAS without possessing the airworthiness certification normally required under 49 USC 44807. 49 USC 44807 permits the FAA to use a risk-based approach to determine whether an airworthiness certificate is required for a UAS to operate. Exemptions are generally requested by civil (non-public) UAS operators who fly UAS weighing 55 pounds or more, and thus cannot fly under 14 CFR part 107. For civil UAS operations conducted under 49 USC 44807 of PL 115–254, the Secretary has determined that specific requirements necessary for safe operation can often be addressed in the form of grants of exemption(s). Operators who desire this regulatory relief must petition the FAA for exemption in accordance with 14 CFR part 11 and the guidance provided on the FAA's Section 44807, Special Authority for Certain Unmanned Systems website. Examples of petitions that have been granted to conduct civil UAS operations include the following activities:
* * * * *

11–3–3 Emerging Large UAS Civil Operations

a. Large civil UAS operations in the NAS are presently considered those UAS weighing 55 pounds or more with or without aircraft airworthiness certification, along with their control stations and radio links operating under 14 CFR part 91. These operations may or may not receive ATC separation services, but will not be operating under UAS Traffic Management (UTM) structures. Examples of current large UAS civil operators include agricultural spraying and operation as radio/telephone airborne relays. Future large UAS operations will include carriage of cargo and passengers, and very long-endurance aircraft, staying aloft for extended periods of time.
* * * * *

2. Absent an onboard pilot, large UAS are unable to "see and avoid" other aircraft, as required by regulations governing the general operation of aircraft in the NAS under Title 14 CFR section 91.111, Operating Near other Aircraft, and 14 CFR section 91.113, Right of Way Rules: Except Water Operations. As a result, they cannot use visual observation to remain "well clear" of other aircraft and avoid collisions. Therefore, an alternate means of compliance is required to remain well clear of other aircraft and surface obstacles, and avoid collisions.
* * * * *

11–4–1 Recreational Flyers

a. Advisory Circular 91-57, Exception for Limited Recreational Operations of Unmanned Aircraft, provides guidance for recreational flyers. Failure of a recreational flyer to adhere to any of the requirements for recreational status under 14 USC 44809 will result in the flight being considered 14 CFR part 107 by the FAA, which may result in greater penalties if the operator is found operating in an unsafe manner. Recreational flyers may only operate under the statutory exception if they adhere to all of the conditions listed in the statute.
* * * * *

11–4–2 14 CFR Part 107 and Waivers to 14 CFR Part 107

a. 14 CFR part 107 was the first new rule dedicated to UAS operations. It was designed to provide a path for integration into the NAS for sUAS, flown under VLOS, and operated for non-recreational purposes. Part 107 allows remote pilots to fly for recreation. Part 107 grants certain flight permissions and altitudes in excess of those provided under 49 USC 44809, The Exception for Limited Recreational Operations of UAS, in view of the greater vetting required for 14 CFR part 107 certification. Eligibility requirements to fly under 14 CFR part 107, are listed in 14 CFR section 107.61, Eligibility.
* * * * *

b. Operations in Class G airspace. Part 107 remote pilots may fly in Class G airspace up to 400 feet AGL, and within 400 feet of a structure without prior coordination with ATC. Other limitations for part 107 operators are described in 14 CFR part 107.51, Operating Limitations for sUAS.
* * * * *

d. Waivers to 14 CFR part 107:

1. A waiver is an official document issued by the FAA which approves certain operations of UAS outside the limitations of a regulation. These waivers allow drone pilots to deviate from certain rules under 14 CFR part 107 by demonstrating they can still fly safely using alternative methods or safety mitigations. 14 CFR part 107 rules which can be waived are listed in 14 CFR section 107.205, List of Regulations Subject to Waiver. Any subpart of 14 CFR part 107 rule which is not specifically listed in 14 CFR section 107.205, such as the §107.36 prohibition on the carriage or transport of HAZMAT, is not subject to waiver, and would require an exemption under 14 CFR part 11, General Rulemaking Procedures. See paragraph 11-3-2, Exemptions Under 49 USC 44807, Special Authority for Certain Unmanned Systems, for guidance on requesting exemptions.

2. To request a 14 CFR part 107 waiver, refer to the FAA's Part 107 Waiver website.
* * * * *

11–4–3 Airspace Access for Public Aircraft Operations (PAOs)

a. * * *

Note 3: *Public safety organizations often conduct operations under 14 CFR part 107, as well as public aircraft operations.*
* * * * *

b. A PAO is conducted under certain 14 CFR part 91, UAS Operations Rules, with a COA granted to allow access to the NAS. A PAO COA allows blanket UAS operations in Class G airspace throughout the entire continental United States, including operations at night with appropriate lighting and training, for the duration of the COA. Waivers and/or authorizations to the COA can permit operations beyond the basic COA. Operating as a PAO requires adherence to specific conditions as directed in the COA. Operations under the public aircraft statute cannot include purposes that are not governmental functions. For example, a police UAS flying without remuneration to obtain footage for a department promotional video would not be a governmental function.
* * * * *

11–4–4 14 CFR Part 89 Remote Identification and FAA-Recognized Identification Areas (FRIAs)

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b. * * *

1. 14 CFR part 89, Remote Identification (RID) of Unmanned Aircraft, will require most drones operating in U.S. airspace to have RID capability. UAS not equipped with RID capability will be limited to operating in specific FAA-approved geographic locations, such as FRIA.
* * * * *

2. * * *

(c) * * *

(2) To operate in a FRIA according to the 14 CFR part 89, RID of unmanned aircraft, operators must be physically located within the boundaries of the FRIA, must only operate drones within those boundaries, and must operate within VLOS at all times. UAS equipped with RID broadcast capability must broadcast continuously even while operating within or transiting a FRIA.
* * * * *

11–4–5 Airspace Access for 14 CFR Part 135 and 14 CFR Part 137

a. 14 CFR part 135, Operating Requirements: Commuter and on Demand Operations and Rules Governing Persons on Board Such Aircraft:

1. Civil operators of UAS may conduct commercial package delivery BVLOS, or may transport HAZMAT on an interstate basis (crossing state boundaries), only under 14 CFR part 135. These types of operations are prohibited for UAS operating under 14 CFR part 107, sUAS. Legally, these operations must be conducted under 14 CFR part 91, UAS operations, in accordance with an air carrier certificate issued under 14 CFR part 135, and an exemption from certain federal aviation regulations granted under 14 CFR part 11, general rulemaking procedures.
* * * * *

2. Generally, UAS cannot comply with certain 14 CFR regulations originally written for a manned aircraft environment and therefore require relief. UAS operators obtain relief from the requirements of these regulations through exemptions, waivers, and deviations. The relief document lists conditions and limitations which provide a level of safety at least equal to that provided by the rule from which relief is needed. Additionally, UAS operators must obtain a Certificate of Waiver or Authorization (COA) from the FAA Air Traffic Organization (ATO). Applicants for 14 CFR part 135 certification should begin the process by contacting their local FAA Flight Standards District Office (FSDO).
* * * * *

(a) Application for a 14 CFR part 135 certificate. Application for a 14 CFR part 135 air carrier certificate for UAS operations uses the same process as that for manned 14 CFR part 135 applicants. For information on how to apply for an air carrier certificate issued under 14 CFR part 135, see the FAA 14 CFR part 135 Air Carrier and Operator Certification website.

Note: *The FAA 14 CFR part 135 Air Carrier and Operator Certification website may be reviewed at: https://www.faa.gov/licenses_certificates/airline_certification/135_certification/.*

(b) Advisory Circular 120-49A, parts 121 and 135 Certification is available to aid an applicant in part 135 certification.
* * * * *

b. 14 CFR part 137, Agricultural Aircraft Operations:

1. Civil and public operators of UAS may conduct agricultural aircraft operations, as defined in 14 CFR part 137.3, Definition of Terms. These operations must be conducted in accordance with an agricultural aircraft operator certificate issued under 14 CFR part 137, and an exemption from certain federal aviation regulations granted under 14 CFR part 11, General Rulemaking Procedures. Operators of sUAS, weighing less than 55 pounds MGOW may conduct agricultural aircraft operations under 14 CFR part 107, sUAS, and 14 CFR part 137. Operators of large UAS, weighing 55 pounds MGOW or more may conduct agricultural aircraft operations under 14 CFR parts 91, UAS operations, and 14 CFR part 137.
* * * * *

2. Generally, as is the case with 14 CFR part 135 standard cargo operations, UAS cannot comply with certain 14 CFR regulations, and therefore require relief. For example, sUAS require relief from carriage of hazardous material (§107.36), aircraft certification (§137.19(d)), carriage of agricultural aircraft operator certificate (§137.33(a)), and, for large UAS, certain aircraft airworthiness requirements (14 CFR parts 21 and 91). UAS operators obtain relief from the requirements of these regulations through an exemption. The exemption lists conditions and limitations which provide a level of safety at least equal to that provided by the rule. Additionally, large UAS operators must obtain a COA from the FAA ATO.

(a) Obtaining an exemption for 14 CFR part 137 operations. For additional information on how to petition for an exemption and obtain a COA, go to the FAA's Advanced Operations website.
* * * * *

(b) Advisory Circular 137-1, Certification Process for Agricultural Aircraft Operators, provides additional information on how to apply for an agricultural aircraft operator certificate issued under 14 CFR part 137.
* * * * *

c. * * *

2. The carriage/transportation of hazardous materials under 14 CFR part 107, sUAS, is strictly prohibited at all times, and is not subject to waiver. In order to transport hazardous materials, UAS operators must follow the 14 CFR part 135 certification regulatory path and must develop dangerous goods training programs and manuals as part of the 14 CFR part 135 Air Carrier and Operator Certificates process, described on the FAA website and subparagraph 11-4-5a, and 14 CFR part 135, Operating Requirements. A brief description of applicable regulations as they apply to UAS can be found on the FAA's UAS website.
* * * * *

11–4–6 Airspace Restrictions To Flight

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d. * * *

1. Temporary Flight Restrictions (TFRs) are non-permanent airspace restrictions created to protect persons and property in the air or on the surface from an existing or imminent hazard associated with an incident on the surface, when the presence of low flying aircraft would magnify, alter, spread, or compound that hazard (14 CFR section 91.137(a)(1)). TFRs can exist to protect aircraft from hazards, and also to protect people/objects on the ground from aircraft hazards. Examples of TFRs include natural disaster areas especially forest fires, floods, congested flight areas, the area around spacecraft launches and recoveries, certain stadium sporting events, and the security of national public figures.

* * * * *

e. * * *

2. Special Security Instructions under 14 CFR section 99.7 of the public laws allow the FAA to prohibit the operation of aircraft in certain airspace, in the interest of national security. The 14 CFR section 99.7 interim solution prohibits UAS over approved fixed site facilities and limits the fixed site facilities to Federal owned sites UAS operations may be approved under the SGI process.

* * * * *

h. * * *

4. Correctional Institutions. Flight over some federal prisons is restricted under 14 CFR section 99.7, Special Security Instructions. Flight near other correctional institutions may be prohibited by other federal, state or local statutes. Subparagraph 11-4-6e, Special Restrictions over Critical Infrastructure, contains additional information regarding restrictions over critical infrastructure.

* * * * *

11–5–1 UAS Pilot Certification and Requirements for Part 107 and Recreational Flyers

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b. * * *

1. Part 107 operations. Applicants must be at least 16 years of age and be able to speak and understand English. For further information on part 107 testing see the FAA's website, Become a Drone Pilot.

* * * * *

c. * * *

1. * * *

(a) Current 14 CFR part 61 certificate holder (Online Training). A person who holds a part 61 manned pilot certificate (other than a Student pilot certificate), and who has a current flight review, as per 14 CFR section 61.56, may complete Online Training that is offered by the FAA to obtain their 14 CFR part 107, in lieu of taking the Initial Knowledge Test. However, a part 61 certificate holder may also take the sUAS Initial Aeronautical Knowledge Test for certification.

(b) Non 14 CFR part 61 certificate holder, or 14 CFR part 61 certificate holder lacking currency (Initial Aeronautical Knowledge Test). A person who does not hold a 14 CFR part 61 manned pilot certificate and/or they do not have a current flight review must take the Initial Aeronautical Knowledge Test at an FAA designated Knowledge Testing Center to obtain their sUAS Certificate.

2. * * *

Note: *A current 14 CFR part 107 sUAS certificate holder may fly recreationally under that part, but must adhere entirely to 14 CFR part 107 rules and requirements. If a part 107 sUAS certificate holder wishes to fly under 49 USC 44809, they must take and pass TRUST.*

* * * * *

d. * * *

1. * * *

(a) To exercise the privileges of a sUAS certificate that was issued under 14 CFR part 107, a person must maintain currency. Therefore, the FAA requires that a person take a recurrent course within 24 months from the month the Initial Aeronautical Knowledge Test was passed, or the Online Training was completed.

* * * * *

e. * * *

1. * * *

(a) No documented pre-test training is required under part 107 to take the Initial Aeronautical Knowledge Test. However, the FAA Remote Pilot Small Unmanned Aircraft Systems Study Guide is an excellent resource.

* * * * *

(b) Initial Aeronautical Knowledge Test subject areas. The testing topics for the sUAS Knowledge Test can be found in 14 CFR section 107.73, Knowledge and Training.

* * * * *

(c) Part 107 online training. This online training may be used by those who hold a 14 CFR part 61 pilot certificate (not including a student pilot certificate) seeking 14 CFR part 107 remote pilot certification. A person who holds a 14 CFR part 61 pilot certificate must also show, at the time of certification, a current Flight Review as per 14 CFR section 61.56.

* * * * *

f. Endorsements and re-testing. Neither the part 107 Initial Aeronautical Knowledge Test nor the Recreational TRUST have any requirements for flight instructor endorsements prior to testing. A person who fails the Initial Aeronautical Knowledge Test must wait 14 calendar days before they may retake the test. TRUST may be retaken at any time.

g. Registering to take the part 107 sUAS Initial Aeronautical Knowledge Test:

* * * * *

h. Applying for a 14 CFR Part 107 sUAS Certificate. The Become a Drone Pilot website has instructions on how to obtain the 14 CFR part 107 Pilot Certificate, following testing or online training completion.

* * * * *

i. * * *

2. Any remote pilot who holds a 14 CFR part 107 sUAS certificate issued prior to April 6, 2021, must take the updated recurrent training (the online training) to operate at night or over people.

* * * * *

11–5–3 Pilot Certification for 14 CFR Part 135, Part 137, and Large Civil UAS

a. Currently, FAA regulations require a commercial pilot certificate for 14 CFR part 135 Remote PICs.

b. Pilot certification for 14 CFR part 137. For civil UAS agricultural aircraft operations, the 14 CFR section 137.19(b) and (c) requirement (that the pilot hold a private or commercial pilot certificate) is exempted; only a 14 CFR part 107 pilot certificate is required. This policy pertains to all UAS regardless of weight. However, all civil pilots conducting agricultural aircraft operations must satisfactorily pass the knowledge and skill test of 14 CFR section 137.19(e) and 14 CFR section 137.41(b) or (c).

* * * * *

11–5–4 Foreign Pilot Certification

a. * * *

1. Foreign national holding a U.S. issued 14 CFR part 61 certificate. Foreign nationals are eligible for a sUAS certificate in the same way that a U.S. citizen is eligible.

2. Foreign national not holding a U.S. issued 14 CFR part 61 certificate. A foreign national who does not hold a U.S.-issued 14 CFR part 61 certificate, must take and pass the Initial Aeronautical Knowledge Test to obtain a sUAS Pilot Certificate in order to operate in the NAS.

* * * * *

c. Security vetting. All applicants, regardless of nationality, must pass a Transportation Security Administration (TSA) Security Threat Analysis (STA) before the FAA will issue a temporary or permanent Pilot's Certificate under part 107.

* * * * *

11–8–3 Precautions: Flight Over or Near People, Vehicles, Manned Aircraft, and Night Operations

a. * * *

1. Remote pilots and recreational flyers should carefully consider the hazards of flight operations over or near people. 14 CFR part 107, subpart D, Operations Over Human Beings, allows certain Operations Over People (OOP) and vehicles, based upon four different operational categories of UA weight and construction, and the likely severity of injury to people on the ground, in the case of contact. Part 107 operators may request a waiver to these restrictions.

* * * * *

c. * * *

1. Night operations are permitted under 14 CFR parts 91, 14 CFR part 107, and section 44809. However, requirements for meteorological visibility, and for the operator or visual observer (VO) to maintain VLOS with the UAS at all times, should be considered; see subparagraph 11-5-1i.

2. 14 CFR section 107.29, Operation at Night, requirements include initial pilot training and equipment such as an anti-collision light which is visible for at least three statute miles, with a flash rate sufficient to avoid a collision.

* * * * *

11–8–4 Accidents and Incidents: UAS Operator Responsibilities

a. Reporting responsibility. A drone crash or malfunction, irrespective of which flight rules govern the flight, may trigger a reporting requirement to either the FAA, the NTSB, or both. The NTSB reporting requirements listed in 49 CFR 830.5, Immediate Notification, are separate and distinct from the FAA reporting requirements. All UAS flyers operating in the NAS recreational, civil, and public are encouraged to read and follow NTSB reporting requirements should they experience a crash or malfunction that meets NTSB criteria and triggers NTSB reporting. See NTSB Reporting Requirements and subparagraph 11-8-4b. COAs issued to part 91 civil and public operators will contain specific incident/accident reporting requirements for the operator.

1. Part 107 Operations. Part 107 operators have a reporting requirement described in 14 CFR section 107.9, Accident Reporting. A remote pilot-in-command is required to report any sUAS crash that causes serious injury or loss of consciousness, or property damage other than to the UAS of over $500. Property damage refers to any property that is not part of the UA System or attached to the UAS.

* * * * *

11–8–5 Emergency UAS Authorizations Through Special Government Interest (SGI) Airspace Waivers

a. Background. UAS are used by public safety agencies to respond to emergencies. The SGI process is for any part 107 or part 91 operator that either due to time limitations, airspace restrictions or emergency situations that requires expedited authorization by contacting the system operations support center (SOSC) at 9-ATOR-HQ-SOSC@faa.gov.

* * * * *

11–8–7 Resources for UAS Operators

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b. FAA DroneZone. The FAA DroneZone is the Agency's portal for registering drones, requesting part 107 airspace authorizations and waivers, registering as a CBO, requesting fixed flying sites, and other tasks.

Appendix 3. Abbreviations/Acronyms

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C/A	Coarse Acquisition
CAT	Clear Air Turbulence

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