



U.S. Department
of Transportation

Federal Aviation
Administration

FAA-S-ACS-8B
(with Change 1)

IPC Abbreviated ACS Guidance PilotSafety.org

**Instrument Rating – Airplane
Airman Certification Standards**

*For training purposes only.
Always refer to current FAA Materials*

June 2018

Guide to Highlight Colors

1. Special Emphasis or Caution

2. Required for IPC

3. Required for IPC(MultiEngine Only)

4. Recommended to Add and Emphasize by Gary “GPS” Reeves

5. Reference Note

**Flight Standards Service
Washington, DC 20591**

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I. Preflight Preparation

Task	A. Pilot Qualifications
References	14 CFR part 61; FAA-H-8083-2, FAA-H-8083-15, AC 68-1
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with the requirements to act as PIC under instrument flight rules.
Knowledge	The applicant demonstrates understanding of:
<i>IR.I.A.K1</i>	Certification requirements, recency of experience, and recordkeeping.
<i>IR.I.A.K2</i>	Privileges and limitations.
<i>IR.I.A.K3</i>	Part 68 BasicMed Privileges and Limitations.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.I.A.R1</i>	Failure to distinguish proficiency versus currency.
<i>IR.I.A.R2</i>	Failure to set personal minimums.
<i>IR.I.A.R3</i>	Failure to ensure fitness for flight and physiological factors that might affect the pilot's ability to fly under instrument conditions.
<i>IR.I.A.R4</i>	Flying unfamiliar airplanes, or operating with unfamiliar flight display systems and avionics.
Skills	The applicant demonstrates the ability to:
<i>IR.I.A.S1</i>	Apply requirements to act as PIC under Instrument Flight Rules (IFR) in a scenario given by the evaluator.

I. Preflight Preparation

Task	B. Weather Information
References	14 CFR part 91; FAA-H-8083-25, AC 00-6; AC 00-45, AIM
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with obtaining, understanding, and applying weather information for a flight under IFR.
Knowledge	The applicant demonstrates understanding of:
<i>IR.I.B.K1</i>	Sources of weather data (e.g., National Weather Service, Flight Service) for flight planning purposes.
<i>IR.I.B.K2</i>	Acceptable weather products and resources utilized for preflight planning, current and forecast weather for departure and en route operations and arrival phases of flight.
<i>IR.I.B.K3</i>	Meteorology applicable to the departure, en route, alternate, and destination for flights conducted under Instrument Flight Rules (IFR) to include expected climate and hazardous conditions such as:
<i>IR.I.B.K3a</i>	a. Atmospheric composition and stability
<i>IR.I.B.K3b</i>	b. Wind (e.g., crosswind, tailwind, windshear, mountain wave, etc.)
<i>IR.I.B.K3c</i>	c. Temperature
<i>IR.I.B.K3d</i>	d. Moisture/precipitation
<i>IR.I.B.K3e</i>	e. Weather system formation, including air masses and fronts
<i>IR.I.B.K3f</i>	f. Clouds
<i>IR.I.B.K3g</i>	g. Turbulence
<i>IR.I.B.K3h</i>	h. Thunderstorms and microbursts
<i>IR.I.B.K3i</i>	i. Icing and freezing level information
<i>IR.I.B.K3j</i>	j. Fog/mist
<i>IR.I.B.K3k</i>	k. Frost
<i>IR.I.B.K3l</i>	l. Obstructions to visibility (e.g., smoke, haze, volcanic ash, etc.)
<i>IR.I.B.K4</i>	Flight deck displays of digital weather and aeronautical information.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.I.B.R1</i>	Factors involved in making the go/no-go and continue/divert decisions, to include:
<i>IR.I.B.R1a</i>	a. Circumstances that would make diversion prudent
<i>IR.I.B.R1b</i>	b. Personal Weather Minimums
<i>IR.I.B.R1c</i>	c. Hazardous weather conditions to include known or forecast icing or turbulence aloft
<i>IR.I.B.R2</i>	Limitations of:
<i>IR.I.B.R2a</i>	a. Onboard weather equipment
<i>IR.I.B.R2b</i>	b. Aviation weather reports and forecasts
<i>IR.I.B.R2c</i>	c. Inflight weather resources
Skills	The applicant demonstrates the ability to:
<i>IR.I.B.S1</i>	Use available aviation weather resources to obtain an adequate weather briefing.
<i>IR.I.B.S2</i>	Analyze the implications of at least three of the conditions listed in K3a through K3l above, using actual weather or weather conditions in a scenario provided by the evaluator.
<i>IR.I.B.S3</i>	Correlate weather information to make a competent go/no-go decision.
<i>IR.I.B.S4</i>	Determine whether an alternate airport is required, and, if required, whether the selected alternate airport meets regulatory requirements.

I. Preflight Preparation

Task	C. Cross-Country Flight Planning
References	14 CFR part 91; FAA-H-8083-2, FAA-H-8083-15, FAA-H-8083-16, FAA-H-8083-25; Navigation Charts, Chart Supplements; AIM; NOTAMs
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with planning an IFR cross-country and filing an IFR flight plan.
Knowledge	The applicant demonstrates understanding of:
<i>IR.I.C.K1</i>	Route planning, including consideration of the available navigational facilities, special use airspace, preferred routes, and alternate airports.
<i>IR.I.C.K2</i>	Altitude selection accounting for terrain and obstacles, glide distance of airplane, IFR cruising altitudes, effect of wind, and oxygen requirements.
<i>IR.I.C.K3</i>	Calculating:
<i>IR.I.C.K3a</i>	a. Time, climb and descent rates, course, distance, heading, true airspeed, and groundspeed
<i>IR.I.C.K3b</i>	b. Estimated time of arrival to include conversion to universal coordinated time (UTC)
<i>IR.I.C.K3c</i>	c. Fuel requirements, to include reserve
<i>IR.I.C.K4</i>	Elements of an IFR flight plan.
<i>IR.I.C.K5</i>	Procedures for activating and closing an IFR flight plan in controlled and uncontrolled airspace.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.I.C.R1</i>	Pilot.
<i>IR.I.C.R2</i>	Aircraft.
<i>IR.I.C.R3</i>	Environment (e.g., weather, airports, airspace, terrain, obstacles).
<i>IR.I.C.R4</i>	External pressures.
<i>IR.I.C.R5</i>	Limitations of air traffic control (ATC) services.
<i>IR.I.C.R6</i>	Limitations of electronic planning applications and programs.
<i>IR.I.C.R7</i>	Improper fuel planning.
Skills	The applicant demonstrates the ability to:
<i>IR.I.C.S1</i>	Prepare, present, and explain a cross-country flight plan assigned by the evaluator including a risk analysis based on real time weather which includes calculating time en route and fuel considering factors such as power settings, operating altitude, wind, fuel reserve requirements, and weight and balance requirements.
<i>IR.I.C.S2</i>	Recalculate fuel reserves based on a scenario provided by the evaluator.
<i>IR.I.C.S3</i>	Create a navigation plan and simulate filing an IFR flight plan.
<i>IR.I.C.S4</i>	Interpret departure, arrival, en route, and approach procedures with reference to appropriate and current charts.
<i>IR.I.C.S5</i>	Recognize simulated wing contamination due to airframe icing and demonstrate knowledge of the adverse effects of airframe icing during pre-takeoff, takeoff, cruise, and landing phases of flight as well as the corrective actions.
<i>IR.I.C.S6</i>	Apply pertinent information from appropriate and current aeronautical charts, Charts Supplement; NOTAMs relative to airport, runway and taxiway closures; and other flight publications.

II. Preflight Procedures

Task	A. Airplane Systems Related to IFR Operations
References	14 CFR parts 61, 91; FAA-H-8083-2, FAA-H-8083-15; AFM; AC 91-74
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with anti-icing and de-icing systems.
Knowledge	The applicant demonstrates understanding of:
<i>IR.II.A.K1</i>	The general operational characteristics and limitations of applicable anti-icing and deicing systems, including airframe, propeller, intake, fuel, and pitot-static systems.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.II.A.R1</i>	Pilots with little or no experience with flight in icing conditions.
<i>IR.II.A.R2</i>	Limitations of anti-icing and deicing systems.
Skills	The applicant demonstrates the ability to:
<i>IR.II.A.S1</i>	Demonstrate familiarity with anti- or de-icing procedures or information published by the manufacturer that is specific to the airplane used on the practical test.

II. Preflight Procedures

Task	B. Airplane Flight Instruments and Navigation Equipment
References	14 CFR parts 61, 91; FAA-H-8083-15; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with managing instruments appropriate for an IFR flight.
Knowledge	The applicant demonstrates understanding of:
<i>IR.II.B.K1</i>	Operation of their airplane's applicable flight instrument system(s) including:
<i>IR.II.B.K1a</i>	a. Pitot-static instrument system: altimeter, airspeed indicator, vertical speed indicator
<i>IR.II.B.K1b</i>	b. Gyroscopic/electric/vacuum instrument system: attitude indicator, heading indicator, turn-and-slip indicator/turn coordinator
<i>IR.II.B.K1c</i>	c. Electrical systems, electronic flight instrument displays (PFD, MFD), transponder, and ADS-B
<i>IR.II.B.K1d</i>	d. Magnetic compass
<i>IR.II.B.K2</i>	Operation of their airplane's applicable navigation system(s) including:
<i>IR.II.B.K2a</i>	a. VOR, DME, ILS, marker beacon receiver/indicators
<i>IR.II.B.K2b</i>	b. RNAV, GPS, Wide Area Augmentation System (WAAS), FMS, autopilot
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.II.B.R1</i>	Failure to monitor and manage automated systems.
<i>IR.II.B.R2</i>	The difference between approved and non-approved navigation devices.
<i>IR.II.B.R3</i>	Common failure modes of flight and navigation instruments.
<i>IR.II.B.R4</i>	The limitations of electronic flight bags.
<i>IR.II.B.R5</i>	Failure to ensure currency of navigation databases.
Skills	The applicant demonstrates the ability to:
<i>IR.II.B.S1</i>	Operate and manage installed instruments and navigation equipment.

II. Preflight Procedures

Task	C. Instrument Flight Deck Check
References	14 CFR part 91; FAA-8083-2, FAA-H-8083-3, FAA-H-8083-15, FAA-H-8083-25; AC 91.21-1; POH/AFM
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with conducting a preflight check on the airplane's instruments necessary for an IFR flight.
Knowledge	The applicant demonstrates understanding of:
<i>IR.II.C.K1</i>	Purpose of performing an instrument flight deck check and how to detect possible defects.
<i>IR.II.C.K2</i>	IFR airworthiness, to include airplane inspection requirements and required equipment for IFR flight.
<i>IR.II.C.K3</i>	Required procedures, documentation, and limitations of flying with inoperative equipment.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.II.C.R1</i>	Operating with inoperative equipment.
<i>IR.II.C.R2</i>	Operating with outdated navigation publications or databases.
Skills	The applicant demonstrates the ability to:
<i>IR.II.C.S1</i>	Perform preflight inspection by following the checklist appropriate to the airplane and determine that the airplane is in a condition for safe instrument flight.

III. Air Traffic Control Clearances and Procedures

Task	A. Compliance with Air Traffic Control Clearances
References	14 CFR parts 61, 91; FAA-H-8083-15; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with ATC clearances and procedures solely by reference to instruments. Note: See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for related considerations.
Knowledge	The applicant demonstrates understanding of:
<i>IR.III.A.K1</i>	Elements and procedures related to ATC clearances and pilot/controller responsibilities for departure, en route, and arrival phases of flight including clearance void times.
<i>IR.III.A.K2</i>	PIC emergency authority.
<i>IR.III.A.K3</i>	Lost communication procedures and procedures for flights outside of radar environments.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.III.A.R1</i>	Failure to fully understand an ATC clearance.
<i>IR.III.A.R2</i>	Inappropriate, incomplete, or incorrect ATC clearances.
<i>IR.III.A.R3</i>	ATC clearance inconsistent with airplane performance or navigation capability.
<i>IR.III.A.R4</i>	ATC clearance intended for other aircraft with similar call signs.
Skills	The applicant demonstrates the ability to:
<i>IR.III.A.S1</i>	Correctly copy, read back, interpret, and comply with simulated or actual ATC clearances in a timely manner using standard phraseology as provided in the Aeronautical Information Manual.
<i>IR.III.A.S2</i>	Correctly set communication frequencies, navigation systems (identifying when appropriate), and transponder codes in compliance with the ATC clearance.
<i>IR.III.A.S3</i>	Use the current and appropriate paper or electronic navigation publications.
<i>IR.III.A.S4</i>	Intercept all courses, radials, and bearings appropriate to the procedure, route, or clearance in a timely manner.
<i>IR.III.A.S5</i>	Maintain the applicable airspeed ± 10 knots, headings $\pm 10^\circ$, altitude ± 100 feet; and track a course, radial, or bearing within $\frac{3}{4}$ -scale deflection of the CDI.
<i>IR.III.A.S6</i>	Demonstrate SRM.
<i>IR.III.A.S7</i>	Perform the appropriate airplane checklist items relative to the phase of flight.

III. Air Traffic Control Clearances and Procedures

Task	B. Holding Procedures
References	14 CFR parts 61, 91; FAA-H-8083-15, FAA-H-8083-16; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with holding procedures solely by reference to instruments.
Knowledge	The applicant demonstrates understanding of:
<i>IR.III.B.K1</i>	Elements related to holding procedures, including reporting criteria, appropriate speeds, and recommended entry procedures for standard, nonstandard, published, and non-published holding patterns.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.III.B.R1</i>	Recalculating fuel reserves if assigned an unanticipated EFC time.
<i>IR.III.B.R2</i>	Scenarios and circumstances that could result in minimum fuel or the need to declare an emergency.
<i>IR.III.B.R3</i>	Scenarios that could lead to holding, including deteriorating weather at the planned destination.
<i>IR.III.B.R4</i>	Improper holding entry and improper wind correction while holding.
Skills	The applicant demonstrates the ability to:
<i>IR.III.B.S1</i>	Explain and use an entry procedure that ensures the airplane remains within the holding pattern airspace for a standard, nonstandard, published, or non-published holding pattern.
<i>IR.III.B.S2</i>	Change to the holding airspeed appropriate for the altitude or airplane when 3 minutes or less from, but prior to arriving at, the holding fix and set appropriate power as needed for fuel conservation.
<i>IR.III.B.S3</i>	Recognize arrival at the holding fix and promptly initiate entry into the holding pattern.
<i>IR.III.B.S4</i>	Maintain airspeed ± 10 knots, altitude ± 100 feet, selected headings within $\pm 10^\circ$, and track a selected course, radial, or bearing within $\frac{3}{4}$ -scale deflection of the CDI.
<i>IR.III.B.S5</i>	Use proper wind correction procedures to maintain the desired pattern and to arrive over the fix as close as possible to a specified time and maintain pattern leg lengths when specified.
<i>IR.III.B.S6</i>	Use an MFD and other graphical navigation displays, if installed, to monitor position in relation to the desired flightpath during holding.
<i>IR.III.B.S7</i>	Comply with ATC reporting requirements and restrictions associated with the holding pattern.
<i>IR.III.B.S8</i>	Demonstrate SRM.

IV. Flight by Reference to Instruments

Task	A. Instrument Flight
References	14 CFR part 61; FAA-8083-2, FAA-H-8083-15
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing basic instrument flight maneuvers solely by reference to instruments.
Knowledge	The applicant demonstrates understanding of:
<i>IR.IV.A.K1</i>	Elements related to attitude instrument flying during straight-and-level flight, climbs, turns, and descents while conducting various instrument flight procedures.
<i>IR.IV.A.K2</i>	Interpretation, operation, and limitations of pitch, bank, and power instruments.
<i>IR.IV.A.K3</i>	Normal and abnormal instrument indications and operations.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.IV.A.R1</i>	Situations that can affect physiology and degrade instrument cross-check.
<i>IR.IV.A.R2</i>	Spatial disorientation and optical illusions.
<i>IR.IV.A.R3</i>	Flying unfamiliar airplanes, or operating with unfamiliar flight display systems and avionics.
Skills	The applicant demonstrates the ability to:
<i>IR.IV.A.S1</i>	Maintain altitude ± 100 feet during level flight, selected headings $\pm 10^\circ$, airspeed ± 10 knots, and bank angles $\pm 5^\circ$ during turns.
<i>IR.IV.A.S2</i>	Use proper instrument cross-check and interpretation, and apply the appropriate pitch, bank, power, and trim corrections when applicable.

IV. Flight by Reference to Instruments

Task	B. Recovery from Unusual Flight Attitudes
References	14 CFR part 61; FAA-H-8083-15
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with recovering from unusual flight attitudes solely by reference to instruments.
Knowledge	The applicant demonstrates understanding of:
<i>IR.IV.B.K1</i>	Procedures for recovery from unusual flight attitudes.
<i>IR.IV.B.K2</i>	Unusual flight attitude causal factors, including physiological factors, system and equipment failures, and environmental factors.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.IV.B.R1</i>	Situations that could lead to loss of control or unusual flight attitudes (e.g., stress, task saturation, and distractions).
<i>IR.IV.B.R2</i>	Failure to recognize an unusual flight attitude and follow the proper recovery procedure.
<i>IR.IV.B.R3</i>	Exceeding the operating envelope during the recovery.
Skills	The applicant demonstrates the ability to:
<i>IR.IV.B.S1</i>	Use proper instrument cross-check and interpretation to identify an unusual attitude (including both nose-high and nose-low), and apply the appropriate pitch, bank, and power corrections, in the correct sequence, to return to a stabilized level flight attitude.

V. Navigation Systems

Task	A. Intercepting and Tracking Navigational Systems and Arcs
References	14 CFR parts 61, 91; FAA-H-8083-15, FAA-H-8083-16; AFM; AIM <i>Note: The evaluator must reference the manufacturer's equipment supplement(s) as necessary for appropriate limitations, procedures, etc.</i>
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with intercepting and tracking navigation aids and arcs solely by reference to instruments.
Knowledge	The applicant demonstrates understanding of:
IR.V.A.K1	Ground-based navigation (orientation, course determination, equipment, tests and regulations) including procedures for intercepting and tracking courses and arcs.
IR.V.A.K2	Satellite-based navigation (orientation, course determination, equipment, tests and regulations, interference, appropriate use of databases, RAIM, and WAAS) including procedures for intercepting and tracking courses and arcs.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
IR.V.A.R1	Failure to manage automated navigation and autoflight systems.
IR.V.A.R2	Distractions, loss of situational awareness, or improper task management.
IR.V.A.R3	Limitations of the navigation system in use.
Skills	The applicant demonstrates the ability to:
IR.V.A.S1	Tune and correctly identify the navigation facility/program the navigation system and verify system accuracy as appropriate for the equipment installed in the airplane.
IR.V.A.S2	Determine airplane position relative to the navigational facility or waypoint.
IR.V.A.S3	Set and correctly orient to the course to be intercepted.
IR.V.A.S4	Intercept the specified course at appropriate angle, inbound to or outbound from a navigational facility or waypoint.
IR.V.A.S5	Maintain airspeed ± 10 knots, altitude ± 100 feet, and selected headings $\pm 5^\circ$.
IR.V.A.S6	Apply proper correction to maintain a course, allowing no more than $\frac{3}{4}$ -scale deflection of the CDI. If a DME arc is selected, maintain that arc ± 1 nautical mile.
IR.V.A.S7	Recognize navigational system or facility failure, and when required, report the failure to ATC.
IR.V.A.S8	Use an MFD and other graphical navigation displays, if installed, to monitor position, track wind drift, and to maintain situational awareness.
IR.V.A.S9	Use the autopilot to make appropriate course intercepts, if installed.

V. Navigation Systems

Task	B. Departure, En Route, and Arrival Operations
References	14 CFR parts 61, 91; FAA-H-8083-15, FAA-H-8083-16; AC 91-74; AFM; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with IFR departure, en route, and arrival operations solely by reference to instruments. Note: See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for related considerations.
Knowledge	The applicant demonstrates understanding of:
<i>IR.V.B.K1</i>	Elements related to ATC routes, including departure procedures (DPs) and associated climb gradients; arrival procedures (STARs) and associated constraints.
<i>IR.V.B.K2</i>	Pilot/controller responsibilities, communication procedures, and ATC services available to pilots.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.V.B.R1</i>	Failure to communicate with ATC or follow published procedures.
<i>IR.V.B.R2</i>	Failure to recognize limitations of traffic avoidance equipment.
<i>IR.V.B.R3</i>	Failure to use see and avoid techniques when possible.
Skills	The applicant demonstrates the ability to:
<i>IR.V.B.S1</i>	Select, identify (as necessary) and use the appropriate communication and navigation facilities associated with the proposed flight.
<i>IR.V.B.S2</i>	Perform the appropriate airplane checklist items relative to the phase of flight.
<i>IR.V.B.S3</i>	Use the current and appropriate paper or electronic navigation publications..
<i>IR.V.B.S4</i>	Establish two-way communications with the proper controlling agency, use proper phraseology, and comply in a timely manner with all ATC instructions and airspace restrictions, and exhibit adequate knowledge of communication failure procedures.
<i>IR.V.B.S5</i>	Intercept all courses, radials, and bearings appropriate to the procedure, route, or clearance in a timely manner.
<i>IR.V.B.S6</i>	Comply with all applicable charted procedures.
<i>IR.V.B.S7</i>	Maintain airspeed ± 10 knots, altitude ± 100 feet, and selected headings $\pm 10^\circ$, and apply proper correction to maintain a course allowing no more than $\frac{3}{4}$ -scale deflection of the CDI.
<i>IR.V.B.S8</i>	Update/interpret weather in flight.
<i>IR.V.B.S9</i>	Explain and use flight deck displays of digital weather and aeronautical information, as applicable.
<i>IR.V.B.S10</i>	Demonstrate SRM.

VI. Instrument Approach Procedures

Task	A. Nonprecision Approach
References	14 CFR parts 61, 91; FAA-H-8083-15, FAA-H-8083-16; IFP, AIM, AC 120-108
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing nonprecision approach procedures solely by reference to instruments. Note: See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for related considerations.
Knowledge	The applicant demonstrates understanding of:
IR.VI.A.K1	Procedures and limitations associated with a nonprecision approach, including the differences between Localizer Performance (LP) and Lateral Navigation (LNAV) approach guidance.
IR.VI.A.K2	Navigation system annunciations expected during an RNAV approach.
IR.VI.A.K3	Ground-based and satellite-based navigation systems used for a nonprecision approach.
IR.VI.A.K4	A stabilized approach, to include energy management concepts.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
IR.VI.A.R1	Failure to follow the correct approach procedure (e.g., descending too early, etc.).
IR.VI.A.R2	Selecting an incorrect navigation frequency.
IR.VI.A.R3	Failure to manage automated navigation and autoflight systems.
IR.VI.A.R4	Failure to ensure proper airplane configuration during an approach and missed approach.
IR.VI.A.R5	An unstable approach, including excessive descent rates.
IR.VI.A.R6	Deteriorating weather conditions on approach.
IR.VI.A.R7	Operating below the minimum descent altitude (MDA) or continuing a descent below decision altitude (DA) without proper visual references.
Skills	The applicant demonstrates the ability to:
IR.VI.A.S1	Accomplish the nonprecision instrument approaches selected by the evaluator.
IR.VI.A.S2	Establish two-way communications with ATC appropriate for the phase of flight or approach segment, and use proper communication phraseology.
IR.VI.A.S3	Select, tune, identify, and confirm the operational status of navigation equipment to be used for the approach.
IR.VI.A.S4	Comply with all clearances issued by ATC or the evaluator.
IR.VI.A.S5	Recognize if any flight instrumentation is inaccurate or inoperative, and take appropriate action.
IR.VI.A.S6	Advise ATC or the evaluator if unable to comply with a clearance.
IR.VI.A.S7	Complete the appropriate checklist.
IR.VI.A.S8	Establish the appropriate airplane configuration and airspeed considering meteorological and operating conditions.
IR.VI.A.S9	Maintain altitude ± 100 feet, selected heading $\pm 10^\circ$, airspeed ± 10 knots, and accurately track radials, courses, and bearings, prior to beginning the final approach segment.
IR.VI.A.S10	Adjust the published MDA and visibility criteria for the aircraft approach category, as appropriate, for factors that include NOTAMS, inoperative aircraft or navigation equipment, or inoperative visual aids associated with the landing environment, etc.
IR.VI.A.S11	Establish a stabilized descent to the appropriate altitude.
IR.VI.A.S12	For the final approach segment, maintain no more than a $\frac{3}{4}$ -scale deflection of the CDI, maintain airspeed ± 10 knots, and altitude, if applicable, above MDA, +100/-0 feet, to the Visual Descent Point (VDP) or Missed Approach Point (MAP).
IR.VI.A.S13	Execute the missed approach procedure if the required visual references are not distinctly visible and identifiable at the appropriate point or altitude for the approach profile; or execute a normal landing from a straight-in or circling approach.
IR.VI.A.S14	Use an MFD and other graphical navigation displays, if installed, to monitor position, track wind drift, and to maintain situational awareness.

VI. Instrument Approach Procedures

Task	B. Precision Approach
References	14 CFR parts 61, 91; FAA-H-8083-15, FAA-H-8083-16; IFP; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing precision approach procedures solely by reference to instruments. Note: See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for related considerations.
Knowledge	The applicant demonstrates understanding of:
IR.VI.B.K1	Procedures and limitations associated with a precision approach, including determining required descent rates and adjusting minimums in the case of inoperative equipment.
IR.VI.B.K2	Navigation system displays, annunciations, and modes of operation.
IR.VI.B.K3	Ground-based and satellite-based navigation (orientation, course determination, equipment, tests and regulations, interference, appropriate use of navigation data, signal integrity)
IR.VI.B.K4	A stabilized approach, to include energy management concepts
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
IR.VI.B.R1	Failure to follow the correct approach procedure (e.g. descending below the glideslope, etc.).
IR.VI.B.R2	Selecting an incorrect navigation frequency.
IR.VI.B.R3	Failure to manage automated navigation and autoflight systems.
IR.VI.B.R4	Failure to ensure proper airplane configuration during an approach and missed approach.
IR.VI.B.R5	An unstable approach including excessive descent rates.
IR.VI.B.R6	Deteriorating weather conditions on approach.
IR.VI.B.R7	Continuing to descend below the Decision Altitude (DA)/Decision Height (DH) when the required visual references are not visible.
Skills	The applicant demonstrates the ability to:
IR.VI.B.S1	Accomplish the precision instrument approach(es) selected by the evaluator.
IR.VI.B.S2	Establish two-way communications with ATC appropriate for the phase of flight or approach segment, and use proper communication phraseology.
IR.VI.B.S3	Select, tune, identify, and confirm the operational status of navigation equipment to be used for the approach.
IR.VI.B.S4	Comply with all clearances issued by ATC or the evaluator.
IR.VI.B.S5	Recognize if any flight instrumentation is inaccurate or inoperative, and take appropriate action.
IR.VI.B.S6	Advise ATC or the evaluator if unable to comply with a clearance.
IR.VI.B.S7	Complete the appropriate checklist.
IR.VI.B.S8	Establish the appropriate airplane configuration and airspeed considering turbulence and windshear.
IR.VI.B.S9	Maintain altitude ± 100 feet, selected heading $\pm 10^\circ$, airspeed ± 10 knots, and accurately track radials, courses, and bearings, prior to beginning the final approach segment.
IR.VI.B.S10	Adjust the published DA/DH and visibility criteria for the aircraft approach category, as appropriate, to account for NOTAMs, Inoperative airplane or navigation equipment, or inoperative visual aids associated with the landing environment.
IR.VI.B.S11	Establish a predetermined rate of descent at the point where vertical guidance begins, which approximates that required for the airplane to follow the vertical guidance.
IR.VI.B.S12	Maintain a stabilized final approach from the Final Approach Fix (FAF) to DA/DH allowing no more than $\frac{3}{4}$ -scale deflection of either the vertical or lateral guidance indications and maintain the desired airspeed ± 10 knots.
IR.VI.B.S13	Immediately initiate the missed approach procedure when at the DA/DH, and the required visual references for the runway are not unmistakably visible and identifiable.
IR.VI.B.S14	Transition to a normal landing approach (missed approach for seaplanes) only when the airplane is in a position from which a descent to a landing on the runway can be made at a normal rate of descent using normal maneuvering.

VI. Instrument Approach Procedures

Task	<i>B. Precision Approach</i>
<i>IR.VI.B.S15</i>	Maintain a stabilized visual flight path from the DA/DH to the runway aiming point where a normal landing may be accomplished within the touchdown zone.
<i>IR.VI.B.S16</i>	Use an MFD and other graphical navigation displays, if installed, to monitor position, track wind drift, and to maintain situational awareness.

VI. Instrument Approach Procedures

Task	C. Missed Approach
References	14 CFR parts 61, 91; FAA-H-8083-15; IFP; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing a missed approach procedure solely by reference to instruments.
Knowledge	The applicant demonstrates understanding of:
<i>IR.VI.C.K1</i>	Elements related to missed approach procedures and limitations associated with standard instrument approaches, including while using an FMS or autopilot, if equipped.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.VI.C.R1</i>	Failure to follow prescribed procedures.
<i>IR.VI.C.R2</i>	Holding, diverting, or electing to fly the approach again.
<i>IR.VI.C.R3</i>	Failure to ensure proper airplane configuration during an approach and missed approach.
<i>IR.VI.C.R4</i>	Factors that might lead to executing a missed approach procedure before the missed approach point or to a go-around below DA/MDA.
<i>IR.VI.C.R5</i>	Failure to manage automated navigation and autoflight systems.
Skills	The applicant demonstrates the ability to:
<i>IR.VI.C.S1</i>	Promptly initiate the missed approach procedure and report it to ATC.
<i>IR.VI.C.S2</i>	Apply the appropriate power setting for the flight condition and establish a pitch attitude necessary to obtain the desired performance.
<i>IR.VI.C.S3</i>	Configure the airplane in accordance with airplane manufacturer's instructions, establish a positive rate of climb, and accelerate to the appropriate airspeed, ± 10 knots.
<i>IR.VI.C.S4</i>	Follow the recommended checklist items appropriate to the missed approach/go-around procedure.
<i>IR.VI.C.S5</i>	Comply with the published or alternate missed approach procedure.
<i>IR.VI.C.S6</i>	Advise ATC or the evaluator if unable to comply with a clearance, restriction, or climb gradient.
<i>IR.VI.C.S7</i>	Maintain the heading, course, or bearing $\pm 10^\circ$; and altitude(s) ± 100 feet during the missed approach procedure.
<i>IR.VI.C.S8</i>	Use an MFD and other graphical navigation displays, if installed, to monitor position and track to help navigate the missed approach.
<i>IR.VI.C.S9</i>	Demonstrate SRM or CRM, as appropriate.
<i>IR.VI.C.S10</i>	Request ATC clearance to attempt another approach, proceed to the alternate airport, holding fix, or other clearance limit, as appropriate, or as directed by the evaluator.

VI. Instrument Approach Procedures

Task	D. Circling Approach
References	14 CFR parts 61, 91; FAA-H-8083-15; IFP; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing a circling approach procedure.
Knowledge	The applicant demonstrates understanding of:
<i>IR.VI.D.K1</i>	Elements related to circling approach procedures and limitations including approach categories and related airspeed restrictions.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.VI.D.R1</i>	Failure to follow prescribed circling approach procedures.
<i>IR.VI.D.R2</i>	Executing a circling approach at night or with marginal visibility.
<i>IR.VI.D.R3</i>	Losing visual contact with an identifiable part of the airport.
<i>IR.VI.D.R4</i>	Failure to manage automated navigation and autoflight systems.
<i>IR.VI.D.R5</i>	Failure to maintain an appropriate altitude, airspeed, or distance while circling.
<i>IR.VI.D.R6</i>	Low altitude maneuvering including stall, spin, or CFIT.
<i>IR.VI.D.R7</i>	Executing an improper missed approach after the MAP while circling.
Skills	The applicant demonstrates the ability to:
<i>IR.VI.D.S1</i>	Comply with the circling approach procedure considering turbulence, windshear, and the maneuvering capability and approach category of the aircraft.
<i>IR.VI.D.S2</i>	Confirm the direction of traffic and adhere to all restrictions and instructions issued by ATC or the evaluator.
<i>IR.VI.D.S3</i>	Demonstrate SRM.
<i>IR.VI.D.S4</i>	Establish the approach and landing configuration. Maintain a stabilized approach and a descent rate that ensures arrival at the MDA, or the preselected circling altitude above the MDA, prior to the missed approach point.
<i>IR.VI.D.S5</i>	Maintain airspeed ± 10 knots, desired heading/track $\pm 10^\circ$, and altitude $+100/-0$ feet until descending below the MDA or the preselected circling altitude above the MDA.
<i>IR.VI.D.S6</i>	Visually maneuver to a base or downwind leg appropriate for the landing runway and environmental conditions.
<i>IR.VI.D.S7</i>	If a missed approach occurs, turn in the appropriate direction using the correct procedure and appropriately configure the airplane.
<i>IR.VI.D.S8</i>	If landing, initiate a stabilized descent. Touch down on the first one-third of the selected runway without excessive maneuvering, without exceeding the normal operating limits of the airplane, and without exceeding 30° of bank.

VI. Instrument Approach Procedures

Task	E. Landing from an Instrument Approach
References	14 CFR parts 61, 91; FAA-H-8083-15; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing the procedures for a landing from an instrument approach.
Knowledge	The applicant demonstrates understanding of:
IR.VI.E.K1	Elements related to the pilot's responsibilities, and the environmental, operational, and meteorological factors that affect landing from a straight-in or circling approach.
IR.VI.E.K2	Airport signs, markings and lighting, to include approach lighting systems.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
IR.VI.E.R1	Attempting to land from an unstable approach.
IR.VI.E.R2	Flying below the glidepath.
IR.VI.E.R3	Transitioning from instrument to visual references for landing.
Skills	The applicant demonstrates the ability to:
IR.VI.E.S1	Transition at the DA/DH, MDA, or visual descent point (VDP) to a visual flight condition, allowing for safe visual maneuvering and a normal landing.
IR.VI.E.S2	Adhere to all ATC or evaluator advisories, such as NOTAMs, windshear, wake turbulence, runway surface, braking conditions, and other operational considerations.
IR.VI.E.S3	Complete the appropriate checklist.
IR.VI.E.S4	Maintain positive airplane control throughout the landing maneuver.
IR.VI.E.S5	Demonstrate SRM.

VII. Emergency Operations

Task	A. Loss of Communications
References	14 CFR parts 61, 91; AIM
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with loss of communications while operating solely by reference to instruments.
Knowledge	The applicant demonstrates understanding of:
<i>IR.VII.A.K1</i>	Procedures to follow in the event of lost communication during various phases of flight, including techniques for reestablishing communications, when it is acceptable to deviate from an IFR clearance, and when to begin an approach at the destination.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.VII.A.R1</i>	Possible reasons for loss of communication.
<i>IR.VII.A.R2</i>	Failure to follow procedures for lost communications.
Skills	The applicant demonstrates the ability to:
<i>IR.VII.A.S1</i>	Recognize a simulated loss of communication.
<i>IR.VII.A.S2</i>	Simulate actions to re-establish communication.
<i>IR.VII.A.S3</i>	Determine whether to continue to flight plan destination or deviate.
<i>IR.VII.A.S4</i>	Determine appropriate time to begin an approach.

VII. Emergency Operations

Task	B. One Engine Inoperative (Simulated) during Straight-and-Level Flight and Turns (AMEL, AMES)
References	14 CFR 61; FAA-H-8083-3, FAA-H-8083-15
Objective	To determine the applicant exhibits satisfactory knowledge, risk management and skills associated with flight solely by reference to instruments with one engine inoperative.
Knowledge	The applicant demonstrates understanding of:
<i>IR.VII.B.K1</i>	Procedures used if engine failure occurs during straight-and-level flight and turns while on instruments.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.VII.B.R1</i>	Failure to identify the inoperative engine.
<i>IR.VII.B.R2</i>	Inability to climb or maintain altitude with an inoperative engine.
<i>IR.VII.B.R3</i>	Low altitude maneuvering including stall, spin, or CFIT.
<i>IR.VII.B.R4</i>	Distractions, loss of situational awareness, or improper task management.
<i>IR.VII.B.R5</i>	Fuel management during single-engine operation.
Skills	The applicant demonstrates the ability to:
<i>IR.VII.B.S1</i>	Promptly recognize an engine failure and maintain positive airplane control.
<i>IR.VII.B.S2</i>	Set the engine controls, reduce drag, identify and verify the inoperative engine, and simulate feathering of the propeller on the inoperative engine. (Evaluator should then establish zero thrust on the inoperative engine.)
<i>IR.VII.B.S3</i>	Establish the best engine-inoperative airspeed and trim the airplane.
<i>IR.VII.B.S4</i>	Use flight controls in the proper combination as recommended by the manufacturer, or as required to maintain best performance, and trim as required.
<i>IR.VII.B.S5</i>	Verify the prescribed checklist procedures normally used for securing the inoperative engine.
<i>IR.VII.B.S6</i>	Attempt to determine and resolve the reason for the engine failure.
<i>IR.VII.B.S7</i>	Monitor engine functions and make necessary adjustments.
<i>IR.VII.B.S8</i>	Maintain the specified altitude ± 100 feet or minimum sink rate if applicable, airspeed ± 10 knots, and the specified heading $\pm 10^\circ$.
<i>IR.VII.B.S9</i>	Assess the airplane's performance capability and decide an appropriate action to ensure a safe landing.
<i>IR.VII.B.S10</i>	Avoid loss of airplane control or attempted flight contrary to the engine-inoperative operating limitations of the airplane.
<i>IR.VII.B.S11</i>	Demonstrate SRM.

VII. Emergency Operations

Task	C. Instrument Approach and Landing with an Inoperative Engine (Simulated) (AMEL, AMES) Note: See Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations for related considerations.
References	14 CFR parts 61,91; FAA-H-8083-3, FAA-H-8083-15, IFP
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with executing a published instrument approach solely by reference to instruments with one engine inoperative.
Knowledge	The applicant demonstrates understanding of:
<i>IR.VII.C.K1</i>	Instrument approach procedures with one engine inoperative.
Risk Management	The applicant demonstrates the ability to identify, assess, and mitigate risks, encompassing:
<i>IR.VII.C.R1</i>	Failure to plan for engine failure during approach and landing.
<i>IR.VII.C.R2</i>	Collision hazards, to include aircraft, terrain, obstacles, wires, vehicles, vessels, persons, and wildlife.
<i>IR.VII.C.R3</i>	Improper airplane configuration.
<i>IR.VII.C.R4</i>	Low altitude maneuvering including stall, spin, or CFIT.
<i>IR.VII.C.R5</i>	Distractions, loss of situational awareness, or improper task management.
<i>IR.VII.C.R6</i>	Performing a go-around/rejected landing with a powerplant failure.
Skills	The applicant demonstrates the ability to:
<i>IR.VII.C.S1</i>	Promptly recognize a engine failure and maintain positive airplane control.
<i>IR.VII.C.S2</i>	Set the engine controls, reduce drag, identify and verify the inoperative engine, and simulate feathering of the propeller on the inoperative engine. (Evaluator should then establish zero thrust on the inoperative engine.)
<i>IR.VII.C.S3</i>	Use flight controls in the proper combination as recommended by the manufacturer, or as required to maintain best performance, and trim as required.
<i>IR.VII.C.S4</i>	Follow the manufacturer's recommended emergency procedures.
<i>IR.VII.C.S5</i>	Monitor the operating engine and make adjustments as necessary.
<i>IR.VII.C.S6</i>	Request and follow an actual or a simulated ATC clearance for an instrument approach.
<i>IR.VII.C.S7</i>	Maintain altitude ± 100 feet or minimum sink rate if applicable, airspeed ± 10 knots, and selected heading $\pm 10^\circ$.
<i>IR.VII.C.S8</i>	Establish a rate of descent that will ensure arrival at the MDA or DA/DH with the airplane in a position from which a descent to a landing on the intended runway can be made, either straight in or circling as appropriate.
<i>IR.VII.C.S9</i>	On final approach segment, maintain vertical (as applicable) and lateral guidance within $\frac{3}{4}$ -scale deflection.
<i>IR.VII.C.S10</i>	Avoid loss of airplane control, or attempted flight contrary to the operating limitations of the airplane.
<i>IR.VII.C.S11</i>	Comply with the published criteria for the aircraft approach category if circling.
<i>IR.VII.C.S12</i>	Execute a normal landing.
<i>IR.VII.C.S13</i>	Complete the appropriate checklist.

VII. Emergency Operations

Task	<i>D. Approach with Loss of Primary Flight Instrument Indicators</i>
References	14 CFR parts 61, 91; FAA-H-8083-15; IFP
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with performing an approach solely by reference to instruments with the loss of primary flight control instruments.
Knowledge	The applicant demonstrates understanding of:
<i>IR.VII.D.K1</i>	Recognizing if primary flight instruments are inaccurate or inoperative, and advising ATC or the evaluator.
<i>IR.VII.D.K2</i>	Common failure modes of vacuum and electric attitude instruments and how to correct or minimize the effect of their loss.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.VII.D.R1</i>	Use of secondary flight displays when primary displays have failed.
<i>IR.VII.D.R2</i>	Failure to maintain airplane control.
<i>IR.VII.D.R3</i>	Distractions, loss of situational awareness, or improper task management.
Skills	The applicant demonstrates the ability to:
<i>IR.VII.D.S1</i>	Advise ATC or the evaluator of if unable to comply with a clearance.
<i>IR.VII.D.S2</i>	Complete a nonprecision instrument approach without the use of the primary flight instruments using the skill elements of the nonprecision approach Task (See Area of Operation VI, Task A).
<i>IR.VII.D.S3</i>	Demonstrate SRM.

VIII. Postflight Procedures

Task	<i>A. Checking Instruments and Equipment</i>
References	14 CFR parts 61, 91
Objective	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with checking flight instruments and equipment during postflight.
Knowledge	The applicant demonstrates understanding of:
<i>IR.VIII.A.K1</i>	Procedures for checking the functionality of all installed instruments and navigation equipment.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.VIII.A.R1</i>	Failure to perform a proper postflight inspection and properly document airplane discrepancies.
Skills	The applicant demonstrates the ability to:
<i>IR.VIII.A.S1</i>	Conduct a postflight inspection, and document discrepancies and servicing requirements, if any.

Instrument Proficiency Check

14 CFR part 61, section 61.57(d) sets forth the requirements for an instrument proficiency check (IPC). Instructors and evaluators conducting an IPC must ensure the pilot meets the standards established in this ACS. A representative number of Tasks must be selected to assure the competence of the applicant to operate in the IFR environment. As a minimum, the applicant must demonstrate the ability to perform the Tasks listed in the table below. The person giving the check should develop a scenario that incorporates as many required Tasks as practical to assess the pilot's ADM and risk management skills.

Guidance on how to conduct an IPC is found in Advisory Circular 61-98, *Currency Requirements and Guidance for the Flight Review and Instrument Proficiency Check*. You may obtain a copy at www.faa.gov.

Area of Operation	IPC (Proficiency Check) ²
I	None
II	None
III	B
IV	B
V	A
VI	All
VII ³	B, C, D
VIII	All

² AATDs can be utilized for the majority of the IPC as specified in the Letter of Authorization issued for the device. However, the circling approach, the landing Task, and the multiengine airplane Tasks must be accomplished in an aircraft or FFS (Level B, C, or D). A BATD cannot be used for any part of the IPC.

³ Tasks B and C are applicable only to multiengine airplanes.

Appendix 6: Safety of Flight

General

Safety of flight must be the prime consideration at all times. The evaluator, applicant, and crew must be constantly alert for other traffic. If performing aspects of a given maneuver, such as emergency procedures, would jeopardize safety, the evaluator will ask the applicant to simulate that portion of the maneuver. The evaluator will assess the applicant's use of visual scanning and collision avoidance procedures throughout the entire test.

Stall and Spin Awareness

During flight training and testing, the applicant and the instructor or evaluator must always recognize and avoid operations that could lead to an inadvertent stall or spin.

Use of Checklists

Throughout the practical test, the applicant is evaluated on the use of an appropriate checklist.

Assessing proper checklist use depends upon the specific Task. In all cases, the evaluator should determine whether the applicant appropriately divides attention and uses proper visual scanning. In some situations, reading the actual checklist may be impractical or unsafe. In such cases, the evaluator should assess the applicant's performance of published or recommended immediate action "memory" items along with his or her review of the appropriate checklist once conditions permit.

In a single-pilot airplane, the applicant should demonstrate the crew resource management (CRM) principles described as single-pilot resource management (SRM). Proper use is dependent on the specific Task being evaluated. The situation may be such that the use of the checklist while accomplishing elements of an Objective would be either unsafe or impractical in a single-pilot operation. In this case, a review of the checklist after the elements have been accomplished is appropriate. Use of a checklist should also consider visual scanning and division of attention at all times.

Use of Distractions

Numerous studies indicate that many accidents have occurred when the pilot has been distracted during critical phases of flight. The evaluator should incorporate realistic distractions during the flight portion of the practical test to evaluate the pilot's situational awareness and ability to utilize proper control technique while dividing attention both inside and outside the flight deck.

Positive Exchange of Flight Controls

There must always be a clear understanding of who has control of the aircraft. Prior to flight, the pilots involved should conduct a briefing that includes reviewing the procedures for exchanging flight controls.

The FAA recommends a positive three-step process for exchanging flight controls between pilots:

- When one pilot seeks to have the other pilot take control of the aircraft, he or she will say, "You have the flight controls."
- The second pilot acknowledges immediately by saying, "I have the flight controls."
- The first pilot again says, "You have the flight controls," and visually confirms the exchange.

Pilots should follow this procedure during any exchange of flight controls, including any occurrence during the practical test. The FAA also recommends that both pilots use a visual check to verify that the exchange has occurred. There must never be any doubt as to who is flying the aircraft.

Aeronautical Decision-Making, Risk Management, Crew Resource Management and Single-Pilot Resource Management

Throughout the practical test, the evaluator must assess the applicant's ability to use sound aeronautical decision-making procedures in order to identify hazards and mitigate risk. The evaluator must accomplish this requirement by reference to the risk management elements of the given Task(s), and by developing scenarios that incorporate and combine Tasks appropriate to assessing the applicant's risk management in making safe aeronautical

decisions. For example, the evaluator may develop a scenario that incorporates weather decisions and performance planning.

In assessing the applicant's performance, the evaluator should take note of the applicant's use of CRM and, if appropriate, SRM. CRM/SRM is the set of competencies that includes situational awareness, communication skills, teamwork, task allocation, and decision-making within a comprehensive framework of standard operating procedures (SOP). SRM specifically refers to the management of all resources onboard the aircraft as well as outside resources available to the single pilot.

Deficiencies in CRM/SRM almost always contribute to the unsatisfactory performance of a Task. While evaluation of CRM/SRM may appear to be somewhat subjective, the evaluator should use the risk management elements of the given Task(s) to determine whether the applicant's performance of the Task(s) demonstrates both understanding and application of the associated risk management elements.

Multiengine Considerations

For multiengine practical tests conducted in the airplane, the evaluator must discuss with the applicant during the required preflight briefing the methods for simulating an engine failure in accordance with the aircraft manufacturer's recommended procedures.

Practical tests conducted in an FSTD can only be accomplished as part of an approved curriculum or training program. Any limitations for powerplant failure will be noted in that program.

Appendix 7: Aircraft, Equipment, and Operational Requirements & Limitations

Aircraft Requirements & Limitations

14 CFR part 61, section 61.45 prescribes the required aircraft and equipment for a practical test. The regulation states the minimum aircraft registration and airworthiness requirements as well as the minimum equipment requirements, to include the minimum required controls.

Applicants testing in a multiengine airplane must provide a multiengine airplane with a published V_{MC} . The only exception is if the airman's certificate is limited to center thrust. If the aircraft presented for the practical test has inoperative instruments or equipment, it must be addressed in accordance with 14 CFR part 91, section 91.213. If the aircraft can be operated in accordance with 14 CFR part 91, section 91.213, then it must be determined if the inoperative instruments or equipment are required to complete the practical test.

Equipment Requirements & Limitations

The equipment examination should be administered before the flight portion of the practical test, but it must be closely coordinated and related to the flight portion. In a training core curriculum that has been approved under 14 CFR part 142, the evaluator may accept written evidence of the equipment exam, provided that the Administrator has approved the exam and authorized the individual who administers it. This section requires the aircraft must:

- Be of U.S., foreign, or military registry of the same category, class and type, if applicable, for the certificate and/or rating for which the applicant is applying.
- Have fully functional dual controls, except as provided for in 14 CFR part 61, section, 61.45 (c) and (e); and
- Be capable of performing all Areas of Operation appropriate to the rating sought and have no operating limitations, which prohibit its use in any of the Area of Operation, required for the practical test.

Consistent with 14 CFR part 61, section 61.45 (b) and (d), the aircraft must have:

- the flight instruments necessary for controlling the aircraft without outside references,
- the radio equipment required for ATC communications, and
- the ability to perform instrument approach procedures
- GPS equipment must be instrument certified and contain the current database.

To assist in management of the aircraft during the practical test, the applicant is expected to demonstrate automation management skills by utilizing installed equipment such as autopilot, avionics and systems displays, and/or a flight management system (FMS). The evaluator is expected to test the applicant's knowledge of the systems that are installed and operative during both the oral and flight portions of the practical test. If the applicant has trained using a class portable EFB to display charts and data, and wishes to use the EFB during the practical test, the applicant is expected to demonstrate appropriate knowledge, risk management, and skill.

If the practical test is conducted in an aircraft, the applicant is required by 14 CFR part 61, section 61.45(d)(2) to provide an appropriate view limiting device acceptable to the evaluator. The applicant and the evaluator should establish a procedure as to when and how this device should be donned and removed, and brief this procedure before the flight. The device must be used during all testing that has flight "solely by reference to instruments" included as part of the Task objective. This device must prevent the applicant from having visual reference outside the aircraft, but it must not restrict the evaluator's ability to see and avoid other traffic. The use of the device does not apply to specific elements within a Task when there is a requirement for visual references.

Operational Requirements, Limitations, & Task Information

V. Navigation Systems

While the applicant is expected to be able to fly DME Arcs, they may be selected for testing only if they are charted and available.

VI. Instrument Approach Procedures

Stabilized Approach Criteria

A stabilized approach is characterized by a constant angle, constant rate of descent approach profile ending near the touchdown point, where the landing maneuver begins.

Use of RNAV or GPS System

If the practical test is conducted in an airplane equipped with an approach-approved RNAV or GPS system or FSTD that is equipped to replicate an approved RNAV or GPS system, **the applicant must demonstrate approach proficiency using that system.** If the applicant has contracted for training in an approved course that includes GPS training, and the airplane/FSTD has a properly installed and operable GPS, the applicant must demonstrate GPS approach proficiency.

Localizer Performance with Vertical Guidance (LPV Minimums)

Localizer performance with vertical guidance (LPV) minimums with a decision altitude (DA) greater than 300 feet height above touchdown (HAT) may be used as a nonprecision approach; however, due to the precision of its glidepath and localizer-like lateral navigation characteristics, an **LPV minimums approach can be used to demonstrate precision approach proficiency if the DA is equal to or less than 300 feet HAT.**

Vertical or Lateral Deviation Standard

The standard is to allow no more than a ¼ scale deflection of either the vertical or lateral deviation indications during the final approach. As markings on flight instruments vary, a ¼ scale deflection of either vertical or lateral guidance is deemed to occur when it is displaced three-fourths of the distance that it may be deflected from the indication representing that the aircraft is on the correct flight path.

Task A. Nonprecision Approach

The evaluator will select nonprecision approaches representative of the type that the applicant is likely to use. The choices must use at least two different types of navigational aids.

Examples of acceptable nonprecision approaches include: VOR, VOR/DME, LOC procedures on an ILS, LDA, RNAV (RNP) or RNAV (GPS) to LNAV, LNAV/VNAV or LPV line of minima as long as the LPV DA is greater than 300 feet HAT. The equipment must be installed and the database must be current and qualified to fly GPS-based approaches.

The applicant must accomplish at least two nonprecision approaches in simulated or actual weather conditions.

- One must include a procedure turn or, in the case of a GPS-based approach, a Terminal Arrival Area (TAA) procedure.
- At least one must be flown without the use of autopilot and without the assistance of radar vectors. The yaw damper and flight director are not considered parts of the autopilot for purposes of this Task.
- One is expected to be flown with reference to backup or partial panel instrumentation or navigation display, depending on the aircraft's instrument avionics configuration, representing the failure mode(s) most realistic for the equipment used.

The evaluator has discretion to have the applicant perform a landing or a missed approach at the completion of each non precision approach.

Task B. Precision Approach

The applicant must accomplish a precision approach to the decision altitude (DA) using aircraft navigational equipment for centerline and vertical guidance in simulated or actual instrument conditions. Acceptable instrument approaches for this part of the practical test are the ILS and GLS. In addition, if the installed equipment and database is current and qualified for IFR flight and approaches to LPV minima, an LPV minima approach can be flown to demonstrate precision approach proficiency if the LPV DA is equal to or less than 300 feet HAT.

The evaluator has discretion to have the applicant perform a landing or a missed approach at the completion of the precision approach.

Use of Aviation Training Devices

14 CFR part 61, section 61.4(c) states the Administrator may approve a device other than an FFS or FTD for specific purposes. Under this authority, the FAA's General Aviation and Commercial Division provides approvals for aviation training devices (ATD).

Advisory Circular (AC) 61-136A, *FAA Approval of Aviation Training Devices and Their Use for Training and Experience*, provides information and guidance for the required function, performance, and effective use of ATDs for pilot training and aeronautical experience (including instrument currency). FAA issues a letter of authorization (LOA) to an ATD manufacturer approving an ATD as a basic aviation training device (BATD) or an advanced aviation training device (AATD). LOAs are valid for a five year period with a specific expiration date and include the amount of credit a pilot may take for training and experience requirements.

Aviation Training Device (ATD)—a training device, other than an FFS or FTD, that has been evaluated, qualified, and approved by the Administrator. In general, this includes a replica of aircraft instruments, equipment, panels, and controls in an open flight deck area or an enclosed aircraft cockpit. It includes the hardware and software necessary to represent a category and class of aircraft (or set of aircraft) operations in ground and flight conditions having the appropriate range of capabilities and systems installed in the device as described within the AC 61-136 for the specific basic or advanced qualification level.

Basic Aviation Training Device (BATD)—provides an adequate training platform for both procedural and operational performance Tasks specific to instrument experience and the ground and flight training requirements for the Private Pilot Certificate and instrument rating per 14 CFR parts 61 and 141.

Advanced Aviation Training Device (AATD)—provides an adequate training platform for both procedural and operational performance Tasks specific to the ground and flight training requirements for the Private Pilot Certificate, Instrument Rating, Commercial Pilot Certificate, Airline Transport Pilot (ATP) Certificate, and Flight Instructor Certificate per 14 CFR parts 61 and 141. It also provides an adequate platform for Tasks required for instrument experience and the instrument proficiency check.

Note: ATDs cannot be used for practical tests, aircraft type specific training, or for an aircraft type rating; therefore the use of an ATD for the instrument – airplane rating practical test is not permitted. An AATD, however, may be used for some of the required Tasks of an instrument proficiency check as further explained in this appendix.

Credit for Time in an FSTD

14 CFR part 61, section 61.65 specifies the minimum aeronautical experience requirements for a person applying for an instrument rating. Paragraph (d) specifies the time requirements for an instrument-airplane rating, which includes specific experience requirements that must be completed in an airplane. Paragraph (h) of this section specifies the amount of credit a pilot can take for time in an FFS or FTD. For those that received training in programs outside of 14 CFR part 142, section 61.65(h)(2)⁶ applies. For those pilots that received training through a 14 CFR part 142 program, section 61.65(h)(1) applies.

Credit for Time in an ATD

14 CFR part 61, section 61.65 specifies the minimum aeronautical experience requirements for a person applying for an instrument rating. Paragraph (d) specifies the time requirements for an instrument-airplane rating, which includes specific experience requirements that must be completed in an airplane. Paragraph (i) specifies the maximum instrument time in an ATD a pilot may credit towards the instrument rating aeronautical experience requirements. Paragraph (j) specifies the maximum instrument time a pilot may credit in any combination of an FFS, FTD, and ATD.

In order to credit pilot time, the ATD must be FAA-approved and the instrument time must be provided by an authorized instructor. AC 61-136A, states the LOA for each approved ATD will indicate the credit allowances for pilot training and experience, as provided under 14 CFR parts 61 and 141. Time with an instructor in a BATD and an AATD may be credited towards the aeronautical experience requirements for the instrument-airplane rating as specified in the LOA for the device used. It is recommended that applicants who intend to take credit for time in a

⁶ As part of program approval, 14 CFR part 141 training providers must also adhere to the requirements for permitted time in an FFS, FTD, or ATD per Appendix C to 14 CFR part 141.

BATD or an AATD towards the aeronautical experience requirements for the instrument-airplane rating obtain a copy of the LOA for each device used so they have a record for how much credit may be taken. For additional information on the logging of ATD time, reference Appendix 4 of AC 61-136.

Instrument Experience

14 CFR part 61, section 61.57 provides the recent flight experience requirements to serve as a PIC. Paragraph (c) specifies the necessary instrument experience required to serve as a PIC under IFR. The experience may be gained in an airplane, an FSTD, or an ATD. Refer to the subparagraphs of 14 CFR part 61, section 61.57(c) to determine the experience needed.

Instrument Proficiency Check

If a person fails to meet the experience requirements of 14 CFR part 61, section 61.57(c), a pilot may only establish instrument currency through an instrument proficiency check as described in 14 CFR section 61.57(d). An FSTD may be used as part of an approved curriculum to accomplish all or portions of this check. If specified in its LOA, an AATD may be used to complete most of the required Tasks. However, the circling approach, the landing Task, and the multiengine airplane Tasks must be accomplished in an aircraft or FFS (Level B, C, or D). A BATD cannot be used for an instrument proficiency check. See the [Instrument Proficiency Check table in Appendix 5: Practical Test Roles, Responsibilities, and Outcomes](#) for additional information.

Use of an FSTD on a Practical Test

14 CFR part 61, section 61.45 specifies the required aircraft and equipment that must be provided for a practical test unless permitted to use an FFS or FTD for the flight portion. 14 CFR part 61, section 61.64 provides the criteria for using an FSTD for a practical test. Specifically, paragraph (a) states –

If an applicant for a certificate or rating uses a flight simulator or flight training device for training or any portion of the practical test, the flight simulator and flight training device—

- (1) Must represent the category, class, and type (if a type rating is applicable) for the rating sought; and*
- (2) Must be qualified and approved by the Administrator and used in accordance with an approved course of training under 14 CFR part 141 or 142 of this chapter; or under 14 CFR part 121 or part 135 of this chapter, provided the applicant is a pilot employee of that air carrier operator.*

Therefore, practical tests or portions thereof, when accomplished in an FSTD, may only be conducted by FAA aviation safety inspectors (ASI), aircrew program designees (APD) authorized to conduct such tests in FSTDs in 14 CFR parts 121 or 135, qualified personnel and designees authorized to conduct such tests in FSTDs for 14 CFR part 141 pilot school graduates, or appropriately authorized 14 CFR part 142 Training Center Evaluators (TCE).

In addition, 14 CFR part 61, section 61.64(b) states if an airplane is not used during the practical test for a type rating for a turbojet airplane (except for preflight inspection), an applicant must accomplish the entire practical test in a Level C or higher FFS and the applicant must meet the specific experience criteria listed. If the experience criteria cannot be met, the applicant can either—

- (f)(1) [...] complete the following s on the practical test in an aircraft appropriate to category, class, and type for the rating sought: Preflight inspection, normal takeoff, normal instrument landing system approach, missed approach, and normal landing; or*
- (f)(2) The applicant's pilot certificate will be issued with a limitation that states: "The [name of the additional type rating] is subject to pilot-in-command limitations," and the applicant is restricted from serving as pilot-in-command in an aircraft of that type.*

When flight Tasks are accomplished in an airplane, certain Task elements may be accomplished through "simulated" actions in the interest of safety and practicality. However, when accomplished in an FFS or FTD, these same actions would not be "simulated." For example, when in an airplane, a simulated engine fire may be addressed by retarding the throttle to idle, simulating the shutdown of the engine, simulating the discharge of the fire suppression agent, if applicable, and simulating the disconnection of associated electrical, hydraulic, and pneumatics systems. However, when the same emergency condition is addressed in an FSTD, all Task elements must be accomplished as would be expected under actual circumstances.

Appendix 9: References

This ACS is based on the following 14 CFR parts, FAA guidance documents, manufacturer's publications, and other documents.

Reference	Title
14 CFR part 61	Certification: Pilots, Flight Instructors, and Ground Instructors
14 CFR part 68	Requirements for Operating Certain Small Aircraft Without a Medical Certificate
14 CFR part 91	General Operating and Flight Rules
AC 00-6	Aviation Weather
AC 00-45	Aviation Weather Services
AC 60-28	English Language Skill Standards Required by 14 CFR parts 61, 63 and 65
AC 61-136	FAA Approval of Aviation Training Devices and Their Use for Training and Experience
AC 68-1	Alternative Pilot Physical Examination and Education Requirements
AC 91-74	Pilot Guide: Flight in Icing Conditions
AC 91.21-1	Use of Portable Electronic Devices Aboard Aircraft
AC 120-108	Continuous Descent Final Approach
AFM	Airplane Flight Manual
AIM	Aeronautical Information Manual
FAA-H-8083-2	Risk Management Handbook
FAA-H-8083-3	Airplane Flying Handbook
FAA-H-8083-15	Instrument Flying Handbook
FAA-H-8083-16	Instrument Procedures Handbook
FAA-H-8083-25	Pilot's Handbook of Aeronautical Knowledge
IFP	Instrument Flight Procedures
POH/AFM	Pilot's Operating Handbook/FAA-Approved Airplane Flight Manual
Other	Chart Supplements
	Navigation Charts
	NOTAMs

Note: Users should reference the current edition of the reference documents listed above. The current edition of all FAA publications can be found at www.faa.gov.

Appendix 10: Abbreviations and Acronyms

The following abbreviations and acronyms are used in the ACS.

Abb./Acronym	Definition
14 CFR	Title 14 of the Code of Federal Regulations
AATD	Advanced Aviation Training Device
AC	Advisory Circular
ACS	Airman Certification Standards
ADM	Aeronautical Decision-Making
AEELS	Aviation English Language Standard
AFM	Airplane Flight Manual
AFS	Flight Standards Service
AIM	Aeronautical Information Manual
AKTR	Airman Knowledge Test Report
AMEL	Airplane Multiengine Land
AMES	Airplane Multiengine Sea
AOO	Area of Operation
ASEL	Airplane Single-Engine Land
ASES	Airplane Single-Engine Sea
ASI	Aviation Safety Inspector
ATC	Air Traffic Control
ATD	Aviation Training Device
ATP	Airline Transport Pilot
BATD	Basic Aviation Training Device
CDFA	Constant Descent Final Approach
CDI	Course Deviation Indicator
CFIT	Controlled Flight Into Terrain
CFR	Code of Federal Regulations
CRM	Crew Resource Management
DA	Decision Altitude
DH	Decision Height
DME	Distance Measuring Equipment
DP	Departure Procedures
DPE	Designated Pilot Examiner
FAA	Federal Aviation Administration
FFS	Full Flight Simulator
FMS	Flight Management System
FSDO	Flight Standards District Office
FSTD	Flight Simulation Training Device
FTD	Flight Training Device
GPS	Global Positioning System
HAT	Height Above Threshold (Touchdown)
IACRA	Integrated Airman Certificate and Rating Application
ICAO	International Civil Aviation Organization
IFO	International Field Office
IFR	Instrument Flight Rules
IFU	International Field Unit

Abb./Acronym	Definition
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
ICP	Instrument Rating Airplane <i>Canadian Conversion</i>
IPC	Instrument Proficiency Check
IR	Instrument Rating
IRA	Instrument Rating Airplane
LDA	Localizer-Type Directional Aid
LOA	Letter of Authorization
LOC	ILS Localizer
LPV	Localizer Performance with Vertical Guidance
LSC	Learning Statement Codes
MAP	Missed Approach Point
MDA	Minimum Descent Altitude
MFD	Multi-function Display
NAS	National Airspace System
NOTAMs	Notices to Airmen
NSP	National Simulator Program
PAR	Private Pilot Airplane
PFD	Primary Flight Display
PIC	Pilot-in-Command
POA	Plan of Action
POH	Pilot's Operating Handbook
QPS	Qualification Performance Standard
RAIM	Receiver Autonomous Integrity Monitoring
RNAV	Area Navigation
RNP	Required Navigation Performance
SMS	Safety Management System
SOP	Standard Operating Procedures
SRM	Single-Pilot Resource Management
STAR	Standard Terminal Arrival
TPP	Terminal Procedures Publications
UTC	Coordinated Universal Time
VDP	Visual Descent Point
VFR	Visual Flight Rules
V _{MC}	Minimum Control Speed with the Critical Engine Inoperative
VOR	Very High Frequency Omnidirectional Range
WAAS	Wide Area Augmentation System