



U.S. Department
of Transportation

**Federal Aviation
Administration**

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

Instrument Rating – Airplane Airman Certification Standards

June 2018

**Flight Standards Service
Washington, DC 20591**

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.