

# Airman Certification Standards

## What's New and What's Next?

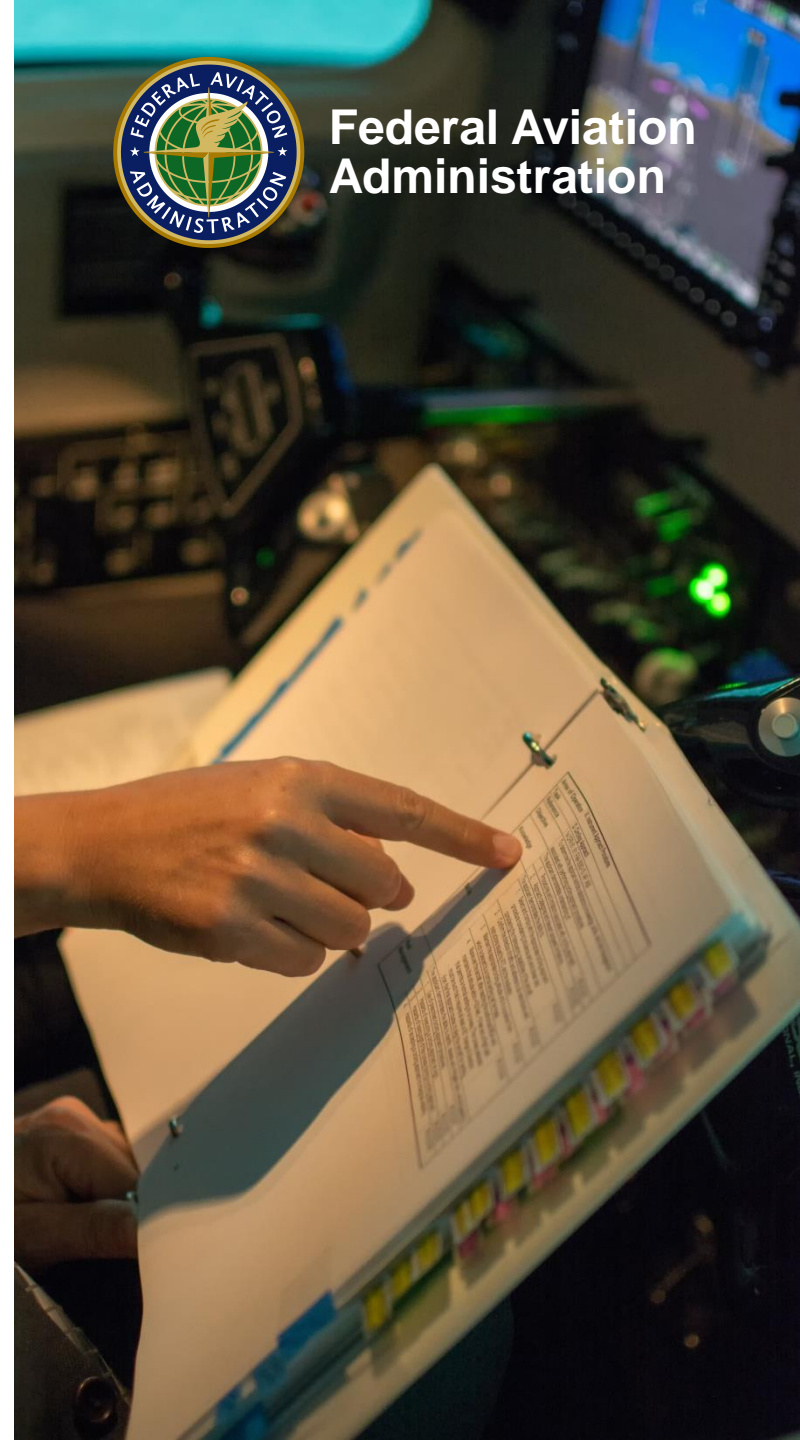
Presented to: Applicants, Instructors, Evaluators

By: Federal Aviation Administration

Date: Spring/Summer 2017



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# Overview – ACS Changes

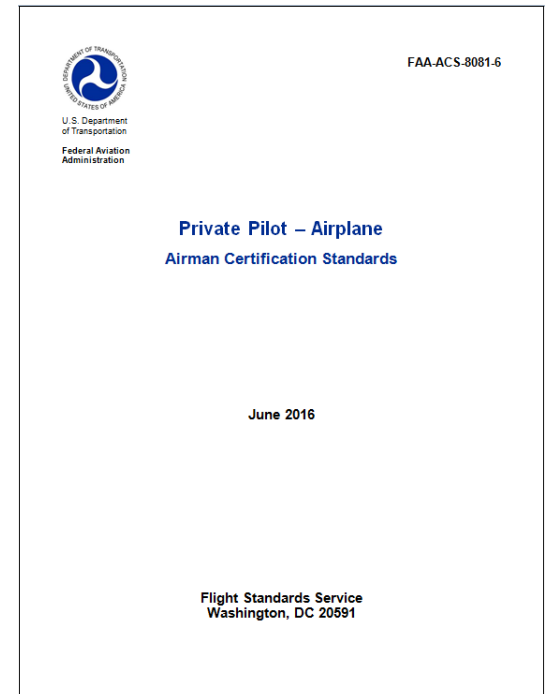


- Recap – what, why, who?
- What's new in 2017?
  - Private Pilot Airplane – revised
  - Instrument Airplane rating – revised
  - Commercial Pilot Airplane – new
  - Modification of Slow Flight/Stall Tasks
- How do I use the ACS?
- What's next?
- Resources



# Recap - What is the ACS?

- **Airman Certification Standards**
  - “Enhanced” version of the Practical Test Standards (PTS) – ACS replaces the PTS
  - Adds task-specific knowledge and risk management elements to each PTS Area of Operation/Task
  - Result:
    - Integrated presentation of specific knowledge, risk management, and skill elements for each Task
    - Single source set of standards for both knowledge exam and the practical test



# Recap – What is the ACS?

Definition & integration of elements = comprehensive standard

<b>Task</b>	<b>Task A. Steep Turns</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with steep turns.

<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.V.A.K1	Purpose of steep turns.
PA.V.A.K2	Aerodynamics associated with steep turns, to include:
PA.V.A.K2a	a. Coordinated and uncoordinated flight
PA.V.A.K2b	b. Overbanking tendencies
PA.V.A.K2c	c. Maneuvering speed, including impact of weight changes
PA.V.A.K2d	d. Accelerated stalls
PA.V.A.K2e	e. Rate and radius of turn
PA.V.A.K3	Altitude control at various airspeeds.

Aeronautical knowledge

Know

<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.V.A.R1	Failure to divide attention between airplane control and orientation.
PA.V.A.R2	Collision hazards, to include aircraft, terrain, obstacles and wires.
PA.V.A.R3	Low altitude maneuvering/stall/spin.
PA.V.A.R4	Distractions, loss of situational awareness, and/or improper Task management.
PA.V.A.R5	Failure to maintain coordinated flight.

Aeronautical decision-making and special emphasis

Consider

<b>Skills</b>	The applicant demonstrates the ability to:
PA.V.A.S1	Clear the area.
PA.V.A.S2	Establish the manufacturer's recommended airspeed or, if not stated, a safe airspeed not to exceed $V_A$ .
PA.V.A.S3	Roll into a coordinated 360° steep turn with approximately a 45° bank.
PA.V.A.S4	Perform the Task in the opposite direction
PA.V.A.S5	Maintain the entry altitude $\pm 100$ feet, airspeed $\pm 10$ knots, bank and $\pm 5^\circ$ ; and roll out on the entry heading, $\pm 10^\circ$ .

PTS-based flight proficiency

Do



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# Recap – What is the ACS?

## I. Preflight Preparation

<b>Task</b>	<i>Task D. Cross-Country Flight Planning</i>
<b>References</b>	14 CFR part 91; FAA-H-8083-2, FAA-H-8083-25; Navigation Charts; Chart Supplements; AIM; NOTAMS
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with cross-country flights and VFR flight planning.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.D.K1</i>	Route planning, to include consideration of special use airspace and selection of appropriate navigation/communication systems and facilities.
<i>PA.I.D.K2</i>	Altitude selection accounting for terrain and obstacles, glide distance of aircraft, VFR cruising altitudes, and the effect of wind.
<i>PA.I.D.K3</i>	Calculating:
<i>PA.I.D.K3a</i>	a. Time, climb and descent rates, course, distance, heading, true airspeed, and groundspeed
<i>PA.I.D.K3b</i>	b. Estimated time of arrival to include conversion to universal coordinated time (UTC)
<i>PA.I.D.K3c</i>	c. Fuel requirements, to include reserve
<i>PA.I.D.K4</i>	Elements of a VFR flight plan.
<i>PA.I.D.K5</i>	Procedures for activating and closing a VFR flight plan.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.I.D.R1</i>	Pilot.
<i>PA.I.D.R2</i>	Aircraft.
<i>PA.I.D.R3</i>	Environment (e.g., weather, airports, airspace, terrain, obstacles).
<i>PA.I.D.R4</i>	External pressures.
<i>PA.I.D.R5</i>	Limitations of air traffic control (ATC) services.
<i>PA.I.D.R6</i>	Improper fuel planning.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.I.D.S1</i>	Prepare, present and explain a cross-country flight plan assigned by the evaluator including a risk analysis based on real-time weather, to the first fuel stop.
<i>PA.I.D.S2</i>	Apply pertinent information from appropriate and current aeronautical charts, chart supplements; NOTAMS relative to airport, runway and taxiway closures; and other flight publications.
<i>PA.I.D.S3</i>	Create a navigation log and simulate filing a VFR flight plan.
<i>PA.I.D.S4</i>	Recalculate fuel reserves based on a scenario provided by the evaluator.

## ACS coding system

The ACS assigns a unique code to each element of knowledge, risk management, & skill

**PA** = Private Pilot Airplane  
(*applicable ACS*)

**I** = Preflight Preparation  
(*Area of Operation*)

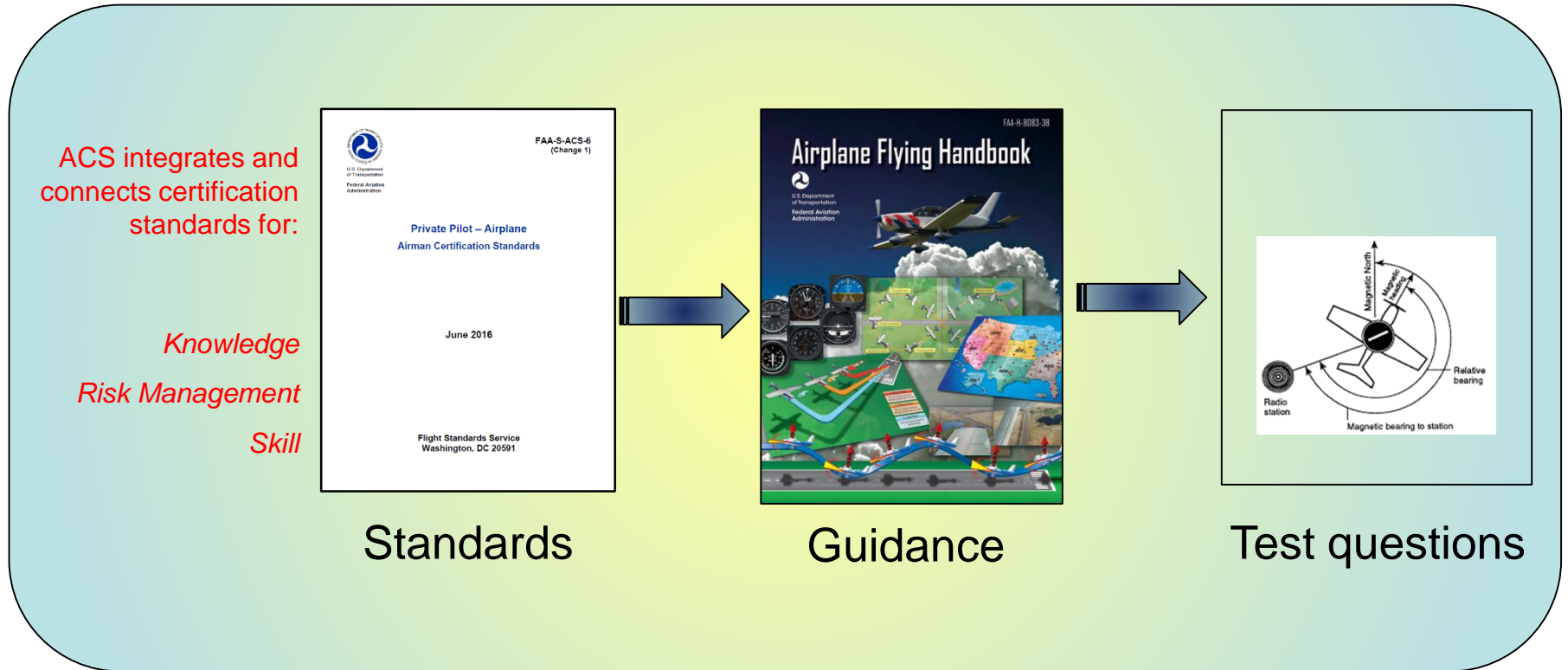
**D** = Cross-Country  
Flight Planning  
(*Task*)

**K4** = Elements of a  
VFR Flight Plan  
(*Task Element*)



# What is the ACS?

ACS is the single-source set of standards for knowledge test & practical test.



ACS coding connects standards to guidance and test questions.



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# Recap - Why change?

- ACS started in 2011 as a way to fix knowledge testing.
- FAA and industry partners determined the need for a systematic approach that would:
  - Provide clear standards for aeronautical knowledge
  - List specific behaviors for risk management and ADM
  - Consolidate overlapping tasks in the PTS
  - Tie the many “special emphasis” items to knowledge and skill
  - Connect the standards for knowledge, risk management, and skill to guidance (H-series handbooks), to knowledge test questions, and the practical test



# Recap - Who created the ACS?

ACS arises from extensive FAA/industry collaboration



- **Industry-led development** – the ACS has been developed, refined, and tested through three consecutive aviation training industry groups with diverse representation.
- **Public comment** - the FAA established several dockets for the industry groups to receive public comments on the ACS.
- **Prototyping** - the FAA and its industry partners conducted ACS prototype activities to test and refine the ACS for private pilot (airplane) and instrument rating (airplane).





# What's New?

June 2017:

- First version of ACS for Commercial Pilot – Airplane
- Updates to ACS for Private Pilot Airplane certificate and Instrument-Airplane Rating that will:
  - Incorporate corrections and changes suggested by stakeholders
  - Streamline presentation by consolidating certain task elements
  - Standardize phrasing and sequence of certain task elements
- Modifications to Slow Flight and Stalls Area of Operation in Private and Commercial Airplane ACS.
- The FAA will publish all three of these documents to the FAA website's Airman Testing web page with an effective date of June 12, 2017.



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# What's New?

## Private Pilot Airplane ACS

June 2016

<b>Task</b>	<b>Task A. Steep Turns</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with steep turns.
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.V.A.K1	1. Coordinated flight.
PA.V.A.K2	2. Attitude control at various airspeeds.
PA.V.A.K3	3. Maneuvering speed, including changes in weight.
PA.V.A.K4	4. Controlling rate and radius of turn.
PA.V.A.K5	5. Accelerated stalls.
PA.V.A.K6	6. Overbanking tendencies.
PA.V.A.K7	7. Use of trim in a turn.
PA.V.A.K8	8. Aerodynamics associated with steep turns.
PA.V.A.K9	9. Aerobatic requirements and limitations.

<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.V.A.R1	1. Dividing attention between airplane control and orientation.
PA.V.A.R2	2. Task management.
PA.V.A.R3	3. Energy management.
PA.V.A.R4	4. Stall/spin awareness.
PA.V.A.R5	5. Situational awareness.
PA.V.A.R6	6. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.V.A.R7	7. Importance of coordinated flight.

<b>Skills</b>	The applicant demonstrates the ability to:
PA.V.A.S1	1. Establish the manufacturer's recommended airspeed or if one is not stated, a safe airspeed not to exceed $V_A$ .
PA.V.A.S2	2. Roll into a coordinated 360° steep turn with a 45° bank.
PA.V.A.S3	3. Perform the task in the opposite direction, as specified by the evaluator.
PA.V.A.S4	4. Maintain the entry altitude $\pm 100$ feet, airspeed $\pm 10$ knots, bank and $\pm 5^\circ$ ; and roll out on the entry heading, $\pm 10^\circ$ .

June 2017

<b>Task</b>	<b>Task A. Steep Turns</b>
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with steep turns.
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.V.A.K1	Purpose of steep turns.
PA.V.A.K2	Aerodynamics associated with steep turns, to include:
PA.V.A.K2a	a. Coordinated and uncoordinated flight
PA.V.A.K2b	b. Overbanking tendencies
PA.V.A.K2c	c. Maneuvering speed, including impact of weight changes
PA.V.A.K2d	d. Accelerated stalls
PA.V.A.K2e	e. Rate and radius of turn
PA.V.A.K3	Altitude control at various airspeeds.

<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.V.A.R1	Failure to divide attention between airplane control and orientation.
PA.V.A.R2	Collision hazards, to include aircraft, terrain, obstacles and wires.
PA.V.A.R3	Low altitude maneuvering /stall /spin.
PA.V.A.R4	Distractions, loss of situational awareness, and/or improper Task management.
PA.V.A.R5	Failure to maintain coordinated flight.

<b>Skills</b>	The applicant demonstrates the ability to:
PA.V.A.S1	Clear the area.
PA.V.A.S2	Establish the manufacturer's recommended airspeed or, if not stated, a safe airspeed not to exceed $V_A$ .
PA.V.A.S3	Roll into a coordinated 360° steep turn with approximately a 45° bank.
PA.V.A.S4	Perform the Task in the opposite direction
PA.V.A.S5	Maintain the entry altitude $\pm 100$ feet, airspeed $\pm 10$ knots, bank and $\pm 5^\circ$ ; and roll out on the entry heading, $\pm 10^\circ$ .



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# What's New?

## Instrument Airplane Rating ACS

June 2016

<b>Task</b>	<i>Task B. Holding Procedures</i>
<b>References</b>	14 CFR parts 61, 91; FAA-H-8083-15; AIM
<b>Objective</b>	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with holding procedures.

<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>IR.III.B.K1</i>	1. The purpose of holding.
<i>IR.III.B.K2</i>	2. Reporting criteria associated with holding patterns.
<i>IR.III.B.K3</i>	3. Recommended entry procedures and holding speeds.
<i>IR.III.B.K4</i>	4. The reporting criteria associated with minimum and emergency fuel.
<i>IR.III.B.K5</i>	5. Applying wind corrections to the holding pattern.
<i>IR.III.B.K6</i>	6. Using the autopilot (if equipped) for holding.

<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>IR.III.B.R1</i>	1. Fuel reserves if assigned an unanticipated expect further clearance (EFC) time.
<i>IR.III.B.R2</i>	2. Scenarios and circumstances associated with declaring minimum or emergency fuel.
<i>IR.III.B.R3</i>	3. Scenarios that could lead to holding.
<i>IR.III.B.R4</i>	4. Deteriorating weather while in holding or at the destination.
<i>IR.III.B.R5</i>	5. Improper holding entry.
<i>IR.III.B.R6</i>	6. Improper wind correction while holding.
<i>IR.III.B.R7</i>	7. Failure to maintain the proper holding airspeed.
<i>IR.III.B.R8</i>	8. Improper management of the navigation system or automation while holding.

<b>Skills</b>	The applicant demonstrates the ability to:
<i>IR.III.B.S1</i>	1. Update fuel reserve calculations based on expect further clearance times.
<i>IR.III.B.S2</i>	2. Maintain the airspeed within $\pm 10$ knots; altitude within $\pm 100$ feet; headings within $\pm 10^\circ$ ; and track a selected course, radial or bearing within $\frac{1}{4}$ -scale deflection of the CDI.
<i>IR.III.B.S3</i>	3. Use appropriate navigation displays, as supplementary devices, to maintain prescribed ground track.
<i>IR.III.B.S4</i>	4. Use proper wind correction procedures to maintain the desired pattern and to arrive over the fix as close as possible to a specified time.
<i>IR.III.B.S5</i>	5. Comply with restrictions, if applicable, associated with the holding pattern.
<i>IR.III.B.S6</i>	6. Set appropriate power settings for fuel conservation.
<i>IR.III.B.S7</i>	7. Change to the holding airspeed appropriate for the altitude or aircraft when 3 minutes or less from, but prior to arriving at, the holding fix.
<i>IR.III.B.S8</i>	8. Explain and use an entry procedure that ensures the aircraft remains within the holding pattern airspace for a standard, nonstandard, published, or non-published holding pattern.
<i>IR.III.B.S9</i>	9. Recognize arrival at the holding fix and initiate a prompt entry into the holding pattern.
<i>IR.III.B.S10</i>	10. Comply with ATC reporting requirements.
<i>IR.III.B.S11</i>	11. Use the proper timing criteria, where applicable, as required by altitude or ATC instructions and comply with pattern leg lengths when a leg length is specified.

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<b>Task</b>	<i>B. Holding Procedures</i>
<b>References</b>	14 CFR parts 61, 91; FAA-H-8083-15, FAA-H-8083-16; AIM
<b>Objective</b>	To determine the applicant exhibits satisfactory knowledge, risk management, and skills associated with holding procedures.

<b>Knowledge</b>	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.

<b>Risk Management</b>	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 expect further clearance (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.

<b>Skills</b>	The applicant demonstrates the ability to:
<i>IR.III.B.S1</i>	Explain and use an entry procedure that ensures the aircraft 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 aircraft 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 within $\pm 10$ knots; altitude within $\pm 100$ feet; headings within $\pm 10^\circ$ ; and track a selected course, radial or bearing within $\frac{1}{4}$ -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 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.



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# What's New?

## Commercial Airplane ACS

### V. Performance and Ground Reference Maneuvers

Task	Task C. Chandelles (ASEL, ASES)
References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with chandelles.
Knowledge	The applicant demonstrates understanding of:
CA.V.C.K1	Purpose of chandelles.
CA.V.C.K2	Aerodynamics associated with chandelles, to include:
CA.V.C.K2a	a. Coordinated and uncoordinated flight
CA.V.C.K2b	b. Overbanking tendencies
CA.V.C.K2c	c. Maneuvering speed, including impact of weight changes
CA.V.C.K2d	d. Accelerated stalls
CA.V.C.K3	Positioning of flaps and gear for maximum performance climb.
CA.V.C.K4	Proper pitch control required for continually decreasing airspeed.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
CA.V.C.R1	Failure to divide attention between airplane control and orientation.
CA.V.C.R2	Collision hazards, to include aircraft, terrain, obstacles, and wires.
CA.V.C.R3	Low altitude maneuvering/stall/spin.
CA.V.C.R4	Distractions, loss of situational awareness, and/or improper task management.
CA.V.C.R5	Failure to maintain coordinated flight.
CA.V.C.R6	Failure to manage energy.
CA.V.C.R7	Rate and radius of turn with confined area operations.
Skills	The applicant demonstrates the ability to:
CA.V.C.S1	Clear the area.
CA.V.C.S2	Select an altitude that will allow the maneuver to be performed no lower than 1,500 feet above ground level (AGL).
CA.V.C.S3	Establish the appropriate entry configuration, power, and airspeed.
CA.V.C.S4	Establish the angle of bank at approximately 30°.
CA.V.C.S5	Simultaneously apply power and pitch to maintain a smooth, coordinated climbing turn, in either direction, to the 90° point, with a constant bank and continually decreasing airspeed.
CA.V.C.S6	Begin a coordinated constant rate rollout from the 90° point to the 180° point maintaining power and a constant pitch attitude.
CA.V.C.S7	Complete rollout at the 180° point, $\pm 10^\circ$ just above a stall airspeed, and maintaining that airspeed momentarily avoiding a stall.
CA.V.C.S8	Resume a straight-and-level flight with minimum loss of altitude.

### V. Performance and Ground Reference Maneuvers

Task	Task D. Lazy Eights (ASEL, ASES)
References	FAA-H-8083-3
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with lazy eights.
Knowledge	The applicant demonstrates understanding of:
CA.V.D.K1	Purpose of lazy eights.
CA.V.D.K2	Aerodynamics associated with lazy eights, to include coordinated and uncoordinated flight.
CA.V.D.K3	Performance and airspeed limitations.
CA.V.D.K4	Phases of the lazy eight maneuver from entry to recovery.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
CA.V.D.R1	Failure to divide attention between airplane control and orientation.
CA.V.D.R2	Collision hazards, to include aircraft, terrain, obstacles, and wires.
CA.V.D.R3	Low altitude maneuvering/stall/spin.
CA.V.D.R4	Distractions, loss of situational awareness, and/or improper task management.
CA.V.D.R5	Failure to maintain coordinated flight.
CA.V.D.R6	Failure to manage energy.
CA.V.D.R7	Accelerated stalls.
Skills	The applicant demonstrates the ability to:
CA.V.D.S1	Clear the area.
CA.V.D.S2	Select an altitude that will allow the maneuver to be performed no lower than 1,500 feet AGL.
CA.V.D.S3	Establish the recommended entry configuration, power, and airspeed.
CA.V.D.S4	Maintain coordinated flight throughout the maneuver.
CA.V.D.S5	Complete the maneuver in accordance with the following:
CA.V.D.S5a	a. Approximately 30° bank at the steepest point
CA.V.D.S5b	b. Constant change of pitch and roll rate and airspeed
CA.V.D.S5c	c. Altitude at 180° point, $\pm 100$ feet from entry altitude
CA.V.D.S5d	d. Airspeed at the 180° point, plus $\pm 10$ knots from entry airspeed
CA.V.D.S6	Continue the maneuver through the number of symmetrical loops specified, then resume straight-and-level flight.



# What's the Story on Slow Flight?

## Maneuvering During Slow Flight in an Airplane

Continuum of reducing aircraft speed and energy state of the aircraft:

### Normal flight operations:

Slow flight - Operation at the bottom on the normal flight regime -- develops the notion that the stall warning device indicates an abnormal situation that needs to be addressed.

### Abnormal flight operations:

Flight between the stall warning and the stall (up to the critical angle of attack). Part of stall prevention training is to respond to the warning and return to normal flight. Maneuvering flight in this area is not tested under the ACS.

### Emergency flight operations:

Full stall and recovery training includes slowing/loading to the break in the stall through the full recovery. The testing standard for stall recovery is appropriately separate from the slow flight standard.

*Please see FAA-H-8083-3B - Airplane Flying Handbook Chapter 4 -*

[https://www.faa.gov/regulations\\_policies/handbooks\\_manuals/aviation/airplane\\_handbook/](https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/airplane_handbook/)



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# What's the Story on Slow Flight?

## Maneuvering During Slow Flight in an Airplane

Change 3 (May 2, 2012)

**VIII. Slow Flight and Stalls**

(Note removed)

**Task A: Maneuvering During Slow Flight (ASEL and ASES)**

References: FAA-H-8083-3; POH/AFM.

**Objective:** To determine that the applicant:

1. Exhibits satisfactory knowledge of the elements related to maneuvering during slow flight.
2. Selects an entry altitude that will allow the task to be completed no lower than 1,500 feet AGL.
3. Establishes and maintains an airspeed at which any further increase in angle of attack, increase in load factor, or reduction in power, would result in an immediate stall.
4. Accomplishes coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the examiner.
5. Divides attention between airplane control and orientation.
6. Maintains the specified altitude,  $\pm 100$  feet; specified heading,  $\pm 10^\circ$ ; airspeed,  $+10/-0$  knots; and specified angle of bank,  $\pm 10^\circ$ .

### Practical Test Standards

**VII. Slow Flight and Stalls**

Task	Task A. Maneuvering During Slow Flight
<b>References</b>	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with maneuvering during slow flight.
<b>Knowledge</b>	The applicant demonstrates understanding of:
PA.VII.A.K1	1. This maneuver as it applies to different phases of flight.
PA.VII.A.K2	2. The relationship between angle of attack (AOA), airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude.
PA.VII.A.K3	3. The range and limitations of stall warning indicators (e.g.: aircraft buffet, stall horn, etc.).
PA.VII.A.K4	4. The difference between AOA and aircraft attitude during all flight conditions and how it relates to aircraft performance.
PA.VII.A.K5	5. How environmental elements affect aircraft performance.
PA.VII.A.K6	6. The importance of the 1,500-foot AGL (ASEL/ASES) or 3,000-foot AGL (AMEL/AMES) minimum altitude.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VII.A.R1	1. The interplay of aerodynamic factors (angle of attack (AOA), airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude).
PA.VII.A.R2	2. Range and limitations of stall warning indicators (e.g.: aircraft buffet, stall horn etc.).
PA.VII.A.R3	3. The effect of environmental elements on aircraft performance.
PA.VII.A.R4	4. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.VII.A.R5	5. Failure to react appropriately to a stall warning.
PA.VII.A.R6	6. Failure to maintain coordinated flight during the maneuver.
PA.VII.A.R7	7. Failure to manage pitch attitude and power to avoid a stall warning or a stall.
<b>Skills</b>	The applicant demonstrates the ability to:
PA.VII.A.S1	1. Select an entry altitude that will allow the Task to be completed no lower than 1,500 feet AGL (ASEL/ASES) or 3,000 feet AGL (AMEL/AMES).
PA.VII.A.S2	2. Establish and maintain an airspeed, approximately 5-10 knots above the 1G stall speed, at which the airplane is capable of maintaining controlled flight without activating a stall warning.
PA.VII.A.S3	3. Accomplish coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the evaluator without activating a stall warning.
PA.VII.A.S4	4. Divide attention between airplane control, traffic avoidance and orientation.
PA.VII.A.S5	5. Maintain the specified altitude, $\pm 100$ feet; specified heading, $\pm 10^\circ$ ; airspeed $+10/-0$ knots; and specified angle of bank, $\pm 10^\circ$ or as recommended by aircraft manufacturer to a safe maneuvering altitude.

Private ACS – June 2016



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# What's the Story on Slow Flight?

## Maneuvering During Slow Flight in an Airplane

### VII. Slow Flight and Stalls

Task	Task A. Maneuvering During Slow Flight
References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with maneuvering during slow flight.
Knowledge	The applicant demonstrates understanding of: <ul style="list-style-type: none"> <li>PA.VII.A.K1 1. This maneuver as it applies to different phases of flight.</li> <li>PA.VII.A.K2 2. The relationship between angle of attack (AOA), airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude.</li> <li>PA.VII.A.K3 3. The range and limitations of stall warning indicators (e.g.: aircraft buffet, stall horn, etc.).</li> <li>PA.VII.A.K4 4. The difference between AOA and aircraft attitude during all flight conditions and how it relates to aircraft performance.</li> <li>PA.VII.A.K5 5. How environmental elements affect aircraft performance.</li> <li>PA.VII.A.K6 6. The importance of the 1,500-foot AGL (ASEL/ASES) or 3,000-foot AGL (AMEL/AMES) minimum altitude.</li> </ul>
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing: <ul style="list-style-type: none"> <li>PA.VII.A.R1 1. The interplay of aerodynamic factors (angle of attack (AOA), airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude).</li> <li>PA.VII.A.R2 2. Range and limitations of stall warning indicators (e.g.: aircraft buffet, stall horn etc.).</li> <li>PA.VII.A.R3 3. The effect of environmental elements on aircraft performance.</li> <li>PA.VII.A.R4 4. Collision avoidance, scanning, obstacle and wire strike avoidance.</li> <li>PA.VII.A.R5 5. Failure to react appropriately to a stall warning.</li> <li>PA.VII.A.R6 6. Failure to maintain coordinated flight during the maneuver.</li> <li>PA.VII.A.R7 7. Failure to manage pitch attitude and power to avoid a stall warning or a stall.</li> </ul>
Skills	The applicant demonstrates the ability to: <ul style="list-style-type: none"> <li>PA.VII.A.S1 1. Select an entry altitude that will allow the Task to be completed no lower than 1,500 feet AGL (ASEL/ASES) or 3,000 feet AGL (AMEL/AMES).</li> <li>PA.VII.A.S2 2. Establish and maintain an airspeed, approximately 5-10 knots above the 1G stall speed, at which the airplane is capable of maintaining controlled flight without activating a stall warning.</li> <li>PA.VII.A.S3 3. Accomplish coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the evaluator without activating a stall warning.</li> <li>PA.VII.A.S4 4. Divide attention between airplane control, traffic avoidance and orientation.</li> <li>PA.VII.A.S5 5. Maintain the specified altitude, <math>\pm 100</math> feet; specified heading, <math>\pm 10^\circ</math>; airspeed <math>+10/-0</math> knots; and specified angle of bank, <math>\pm 10^\circ</math> or as recommended by aircraft manufacturer to a safe maneuvering altitude.</li> </ul>

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### VII. Slow Flight and Stalls

Task	A. Maneuvering During Slow Flight
References	FAA-H-8083-2, FAA-H-8083-3; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with maneuvering during slow flight. <i>Note: See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements &amp; Limitations.</i>
Knowledge	The applicant demonstrates understanding of: <ul style="list-style-type: none"> <li>PA.VII.A.K1 Aerodynamics associated with slow flight in various aircraft configurations, to include the relationship between angle of attack, airspeed, load factor, power setting, aircraft weight and center of gravity, aircraft attitude, and yaw effects.</li> </ul>
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing: <ul style="list-style-type: none"> <li>PA.VII.A.R1 Inadvertent slow flight and flight with a stall warning, which could lead to loss of control.</li> <li>PA.VII.A.R2 Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).</li> <li>PA.VII.A.R3 Failure to maintain coordinated flight.</li> <li>PA.VII.A.R4 Effect of environmental elements on aircraft performance. (e.g., turbulence, microbursts, and high density altitude).</li> <li>PA.VII.A.R5 Collision hazards, to include aircraft, terrain, obstacles, and wires.</li> <li>PA.VII.A.R6 Distractions, loss of situational awareness, and/or improper task management.</li> </ul>
Skills	The applicant demonstrates the ability to: <ul style="list-style-type: none"> <li>PA.VII.A.S1 Clear the area.</li> <li>PA.VII.A.S2 Select an entry altitude that will allow the Task to be completed no lower than 1,500 feet AGL (ASEL, ASES) or 3,000 feet AGL (AMEL, AMES).</li> <li>PA.VII.A.S3 Establish and maintain an airspeed at which any further increase in angle of attack, increase in load factor, or reduction in power, would result in a stall warning (e.g., aircraft buffet, stall horn, etc.).</li> <li>PA.VII.A.S4 Accomplish coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the evaluator without a stall warning (e.g., aircraft buffet, stall horn, etc.).</li> <li>PA.VII.A.S5 Maintain the specified altitude, <math>\pm 100</math> feet; specified heading, <math>\pm 10^\circ</math>; airspeed <math>+10/-0</math> knots; and specified angle of bank, <math>\pm 10^\circ</math>.</li> </ul>

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- With the primary focus on understanding aerodynamics associated with flying slow in different phases of flight, there is now only one knowledge element for slow flight.
- The FAA refined and consolidated the risk management elements in the ACS.
- The FAA modified the phrasing of the skill element as follows: *Establish and maintain an airspeed at which any further increase in angle of attack, increase in load factor, or reduction in power, would result in a stall warning (e.g., aircraft buffet, stall horn, etc.).*



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# What's the Story on Slow Flight?

## Modifications to Stall Tasks

### VII. Slow Flight and Stalls

Task	Task B. Power-Off Stalls
References	FAA-H-8083-2, FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with power-off stalls.
Knowledge	The applicant demonstrates understanding of:
PA.VII.B.K1	1. The importance of the 1,500-foot AGL (ASEL/ASES) or 3,000-foot AGL (AMEL/AMES) minimum altitude.
PA.VII.B.K2	2. How the maneuver relates to a normal flight.
PA.VII.B.K3	3. The components of a stabilized descent.
PA.VII.B.K4	4. Approach to stall indications.
PA.VII.B.K5	5. Full stall indications.
PA.VII.B.K6	6. Which aircraft inputs are required to meet heading or bank angle requirements.
PA.VII.B.K7	7. The stall recovery procedure.
PA.VII.B.K8	8. The importance of establishing the correct aircraft configuration during the recovery process and the consequences of failing to do so.
PA.VII.B.K9	9. Aerodynamics associated with stalls and spins in various aircraft configurations and attitudes.
PA.VII.B.K10	10. The circumstances that can lead to an inadvertent stall or spin.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VII.B.R1	1. The interplay of aerodynamic factors (angle of attack (AOA), airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude.)
PA.VII.B.R2	2. The range and limitations of stall warning indicators (e.g.: aircraft buffet, stall horn, etc.).
PA.VII.B.R3	3. The effect of environmental elements on aircraft performance.
PA.VII.B.R4	4. Required actions for aircraft maximum performance and the consequences of failing to do so.
PA.VII.B.R5	5. Collision avoidance, scanning, obstacle and wire strike avoidance.
PA.VII.B.R6	6. Failure to follow the stall recovery procedure.
PA.VII.B.R7	7. Failure to maintain coordinated flight during the maneuver.
PA.VII.B.R8	8. Secondary stalls.
PA.VII.B.R9	9. Inadvertent stall or spin.
Skills	The applicant demonstrates the ability to:
PA.VII.B.S1	1. Select an entry altitude that will allow the Task to be completed no lower than 1,500 feet AGL (ASEL, ASES) or 3,000 feet AGL (AMEL, AMES).
PA.VII.B.S2	2. Establish a stabilized descent in the approach or landing configuration, as specified by the evaluator.
PA.VII.B.S3	3. Transition smoothly from the approach or landing attitude to a pitch attitude that will induce a stall.
PA.VII.B.S4	4. Maintain a specified heading, $\pm 10^\circ$ , if in straight flight, and maintain a specified angle of bank not to exceed $20^\circ$ , $\pm 10^\circ$ if in turning flight, while inducing the stall or as recommended by the aircraft manufacturer to a safe maneuvering altitude.
PA.VII.B.S5	5. Recognize and recover promptly after a full stall has occurred.
PA.VII.B.S6	6. Retract the flaps to the recommended setting; retract the landing gear, if retractable, after a positive rate of climb is established.
PA.VII.B.S7	7. Execute a stall recovery in accordance with procedures set forth in the AFM/POH.
PA.VII.B.S8	8. Accelerate to $V_x$ or $V_y$ speed before the final flap retraction and return to the altitude, heading and airspeed specified by the examiner.

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### VII. Slow Flight and Stalls

Task	B. Power-Off Stalls
References	FAA-H-8083-2, FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with power-off stalls. <i>Note: See Appendix 7: Aircraft, Equipment, and Operational Requirements &amp; Limitations.</i>
Knowledge	The applicant demonstrates understanding of:
PA.VII.B.K1	Aerodynamics associated with stalls in various aircraft configurations, to include the relationship between angle of attack, airspeed, load factor, power setting, aircraft weight and center of gravity, aircraft attitude, and yaw effects.
PA.VII.B.K2	Stall characteristics (i.e., airplane design) and impending stall and full stall indications (i.e., how to recognize by sight, sound, or feel).
PA.VII.B.K3	Factors and situations that can lead to a power-off stall and actions that can be taken to prevent it.
PA.VII.B.K4	Fundamentals of stall recovery.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.VII.B.R1	Factors and situations that could lead to inadvertent power-off stall, spin, and loss of control.
PA.VII.B.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
PA.VII.B.R3	Failure to recognize and recover at the stall warning during normal operations.
PA.VII.B.R4	Improper stall recovery procedure.
PA.VII.B.R5	Secondary stalls, accelerated stalls, and cross-control stalls.
PA.VII.B.R6	Effect of environmental elements on aircraft performance related to power-off stalls (e.g., turbulence, microbursts, and high density altitude).
PA.VII.B.R7	Collision hazards, to include aircraft, terrain, obstacles, and wires.
PA.VII.B.R8	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
PA.VII.B.S1	Clear the area.
PA.VII.B.S2	Select an entry altitude that will allow the Task to be completed no lower than 1,500 feet AGL (ASEL, ASES) or 3,000 feet AGL (AMEL, AMES).
PA.VII.B.S3	Configure the airplane in the approach or landing configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver.
PA.VII.B.S4	Establish a stabilized descent.
PA.VII.B.S5	Transition smoothly from the approach or landing attitude to a pitch attitude that will induce a stall.
PA.VII.B.S6	Maintain a specified heading, $\pm 10^\circ$ if in straight flight; maintain a specified angle of bank not to exceed $20^\circ$ , $\pm 10^\circ$ if in turning flight, while inducing the stall.
PA.VII.B.S7	Acknowledge cues of the impending stall and then recover promptly after a full stall has occurred.
PA.VII.B.S8	Execute a stall recovery in accordance with procedures set forth in the POH/AFM.
PA.VII.B.S9	Retract the flaps to the recommended setting; retract the landing gear, if retractable, after a positive rate of climb is established.
PA.VII.B.S10	Accelerate to $V_x$ or $V_y$ speed before the final flap retraction; return to the altitude, heading, and airspeed specified by the evaluator.

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# What's the Story on Slow Flight?

## Commercial Pilot ACS – Stall Tasks

### VII. Slow Flight and Stalls

Task	Task B. Power-Off Stalls
References	FAA-H-8083-2, FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with power-off stalls.
Knowledge	The applicant demonstrates understanding of:
CA.VII.B.K1	Aerodynamics associated with stalls in various aircraft configurations and attitudes, to include the relationship between angle of attack, airspeed, load factor, power setting, aircraft configuration, aircraft weight, aircraft attitude, and yaw effects.
CA.VII.B.K2	Stall characteristics (i.e., airplane design) and impending stall and full stall indications (i.e., how to recognize by sight, sound, and feel).
CA.VII.B.K3	Factors and situations that can lead to a power-off stall and actions that can be taken to prevent it.
CA.VII.B.K4	Fundamentals of stall recovery.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
CA.VII.B.R1	Factors and situations that could lead to an inadvertent power-off stall, spin, and loss of control.
CA.VII.B.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
CA.VII.B.R3	Failure to recognize and recover at the stall warning during normal operations.
CA.VII.B.R4	Improper stall recovery procedure.
CA.VII.B.R5	Secondary stalls, accelerated stalls, and cross-control stalls.
CA.VII.B.R6	Effect of environmental elements on aircraft performance related to power-off stalls (e.g., turbulence, microbursts, and high density altitude).
CA.VII.B.R7	Collision hazards, to include aircraft, terrain, obstacles, and wires.
CA.VII.B.R8	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
CA.VII.B.S1	Clear the area.
CA.VII.B.S2	Select an entry altitude that will allow the Task to be completed no lower than 1,500 feet AGL (ASEL, ASES) or 3,000 feet AGL (AMEL, AMES).
CA.VII.B.S3	Configure the airplane in the approach or landing configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver.
CA.VII.B.S4	Establish a stabilized descent.
CA.VII.B.S5	Transition smoothly from the approach or landing attitude to a pitch attitude that will induce a stall.
CA.VII.B.S6	Maintain a specified heading, $\pm 10^\circ$ if in straight flight; maintain a specified angle of bank not to exceed $20^\circ$ , $\pm 5^\circ$ , if in turning flight, while inducing the stall.
CA.VII.B.S7	Acknowledge the cues and recover promptly at the first indication of an impending stall (e.g., aircraft buffet, stall horn, etc.).
CA.VII.B.S8	Execute a stall recovery in accordance with procedures set forth in the POH/AFM.
CA.VII.B.S9	Retract the flaps to the recommended setting; retract the landing gear, if retractable, after a positive rate of climb is established.
CA.VII.B.S10	Accelerate to $V_x$ or $V_y$ speed before the final flap retraction; return to the altitude, heading, and airspeed specified by the evaluator.

### VII. Slow Flight and Stalls

Task	C. Power-On Stalls
References	FAA-H-8083-2, FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with power-on stalls. <i>Note: See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements &amp; Limitations.</i>
Knowledge	The applicant demonstrates understanding of:
CA.VII.C.K1	Aerodynamics associated with stalls in various aircraft configurations, to include the relationship between angle of attack, airspeed, load factor, power setting, aircraft weight and center of gravity, aircraft attitude, and yaw effects.
CA.VII.C.K2	Stall characteristics (i.e., airplane design) and impending stall and full stall indications (i.e., how to recognize by sight, sound, or feel).
CA.VII.C.K3	Factors and situations that can lead to a power-on stall and actions that can be taken to prevent it.
CA.VII.C.K4	Fundamentals of stall recovery.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
CA.VII.C.R1	Factors and situations that could lead to an inadvertent power-on stall, spin, and loss of control.
CA.VII.C.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
CA.VII.C.R3	Failure to recognize and recover at the stall warning during normal operations.
CA.VII.C.R4	Improper stall recovery procedure.
CA.VII.C.R5	Secondary stalls, accelerated stalls, elevator trim stalls, and cross-control stalls.
CA.VII.C.R6	Effect of environmental elements on aircraft performance related to power-on stalls (e.g., turbulence, microbursts, and high density altitude).
CA.VII.C.R7	Collision hazards, to include aircraft, terrain, obstacles, and wires.
CA.VII.C.R8	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
CA.VII.C.S1	Clear the area.
CA.VII.C.S2	Select an entry altitude that will allow the Task to be completed no lower than 1,500 feet AGL (ASEL, ASES) or 3,000 feet AGL (AMEL, AMES).
CA.VII.C.S3	Establish the takeoff, departure, or cruise configuration, as specified by the evaluator, and maintain coordinated flight throughout the maneuver.
CA.VII.C.S4	Set power (as assigned by the evaluator) to no less than 65 percent available power.
CA.VII.C.S5	Transition smoothly from the takeoff, departure, or cruise attitude to the pitch attitude that will induce an impending stall.
CA.VII.C.S6	Maintain a specified heading, $\pm 10^\circ$ if in straight flight; maintain a specified angle of bank not to exceed $20^\circ$ , $\pm 10^\circ$ , if in turning flight, until an impending stall is reached.
CA.VII.C.S7	Acknowledge the cues and promptly recover at the first indication of an impending stall (e.g., aircraft buffet, stall horn, etc.).
CA.VII.C.S8	Execute a stall recovery in accordance with procedures set forth in the POH/AFM.
CA.VII.C.S9	Retract the flaps to the recommended setting, if applicable; retract the landing gear, if retractable, after a positive rate of climb is established.
CA.VII.C.S10	Accelerate to $V_x$ or $V_y$ speed before the final flap retraction; return to the altitude, heading, and airspeed specified by the evaluator.

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# What's the Story on Slow Flight?

## Commercial Pilot ACS - Accelerated Stall Task

### VII. Slow Flight and Stalls

- To perform an accelerated stall safely in a multiengine airplane and achieve the learning objectives, the FAA emphasizes the power should be set so that the airspeed is at, or below, the design maneuvering speed ( $V_A$ ) for the airplane.
- The pilot should maintain coordinated flight and, once the turn is established, use a deceleration rate of 3-5 knots per second to reach the first indications of a stall.
- The pilot should promptly initiate the stall recovery procedure at the first indication of a stall.
- During the recovery, the FAA stresses the importance of reducing the angle of attack first, followed by rolling wings level prior to the addition of power to alleviate the risk of asymmetric thrust while in a turn.
- The FAA also notes that the pilot should delay application of high power if the aircraft is not above  $V_{MC}$  and responding as expected.

Task	D. Accelerated Stalls
References	FAA-H-8083-2, FAA-H-8083-3; AC 61-67; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management related to accelerated (power-on or power-off) stalls. <i>Note: See Appendix 6: Safety of Flight and Appendix 7: Aircraft, Equipment, and Operational Requirements &amp; Limitations.</i>
Knowledge	The applicant demonstrates understanding of:
CA.VII.D.K1	Aerodynamics associated with accelerated stalls in various aircraft configurations, to include the relationship between angle of attack, airspeed, load factor, power setting, aircraft weight and center of gravity, aircraft attitude, and yaw effects.
CA.VII.D.K2	Stall characteristics (i.e., airplane design) and impending stall and full stall indications (i.e., how to recognize by sight, sound, or feel).
CA.VII.D.K3	Factors and situations that can lead to an accelerated stall and actions that can be taken to prevent it.
CA.VII.D.K4	Fundamentals of stall recovery.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
CA.VII.D.R1	Factors and situations that could lead to an inadvertent accelerated stall, spin, and loss of control.
CA.VII.D.R2	Range and limitations of stall warning indicators (e.g., aircraft buffet, stall horn, etc.).
CA.VII.D.R3	Failure to recognize and recover at the stall warning during normal operations.
CA.VII.D.R4	Improper stall recovery procedure.
CA.VII.D.R5	Secondary stalls, cross-control stalls, and spins.
CA.VII.D.R6	Effect of environmental elements on aircraft performance related to accelerated stalls (e.g., turbulence, microbursts, and high density altitude).
CA.VII.D.R7	Collision hazards, to include aircraft, terrain, obstacles, and wires.
CA.VII.D.R8	Distractions, loss of situational awareness, and/or improper task management.
Skills	The applicant demonstrates the ability to:
CA.VII.D.S1	Clear the area.
CA.VII.D.S2	Select an entry altitude that will allow the Task to be completed no lower than 3,000 feet AGL.
CA.VII.D.S3	Establish the configuration as specified by the evaluator.
CA.VII.D.S4	Set power appropriate for the configuration, such that the airspeed does not exceed the maneuvering speed ( $V_A$ ), flap extension speed ( $V_{FE}$ ), landing gear extended speed ( $V_{LE}$ ), and any other POH/AFM limitation.
CA.VII.D.S5	Establish and maintain a coordinated turn in a 45° bank, increasing elevator back pressure smoothly and firmly until an impending stall is reached.
CA.VII.D.S6	Acknowledge the cues and recover promptly at the first indication of an impending stall (e.g., aircraft buffet, stall horn, etc.).
CA.VII.D.S7	Execute a stall recovery in accordance with procedures set forth in the POH/AFM.
CA.VII.D.S8	Retract the flaps to the recommended setting, if applicable; retract the landing gear, if retractable, after a positive rate of climb is established.
CA.VII.D.S9	Accelerate to $V_X$ or $V_Y$ speed before the final flap retraction; return to the altitude, heading, and airspeed specified by the evaluator.

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# How do I use the ACS?

- Read carefully!
- As discussed earlier in this presentation, **Task elements in the 2017 versions have been streamlined and edited.**
- The ACS places introductory material from the PTS in specifically focused appendices. **Some have been updated.**
- Lengthy notes in individual PTS Tasks have been integrated into the appropriate Appendix.

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# How do I use the ACS?

Learn how the ACS format works

- Area of Operations
- Task
- Elements

## I. Preflight Preparation

<b>Task</b>	<i>Task E. National Airspace System</i>
<b>References</b>	14 CFR parts 71, 91, 93; FAA-H-8083-2; Navigation Charts; AIM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with the National Airspace System (NAS) operating under VFR as a private pilot.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.E.K1</i>	Types of airspace/airspace classes and associated requirements and limitations.
<i>PA.I.E.K2</i>	Charting symbology.
<i>PA.I.E.K3</i>	Special use airspace (SUA), special flight rules areas (SFRA), temporary flight restrictions (TFR), and other airspace areas.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.I.E.R1</i>	Various classes of airspace.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.I.E.S1</i>	Explain the requirements for basic VFR weather minimums and flying in particular classes of airspace, to include SUA, SFRA, and TFR.
<i>PA.I.E.S2</i>	Correctly identify airspace and operate in accordance with associated communication and equipment requirements.



# How do I use the ACS?

- A Task within an Area of Operation applies to all classes in the category – in this case, the airplane category – unless the Task title includes a limitation.

II. Preflight Procedures	
Task	D. Taxiing (ASEL, AMEL)
References	FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25 (Appendix 1); POH/AFM; AC 91-73,; A/FD; AIM
Objective	To determine that the applicant exhibits satisfactory knowledge, skills and risk management associated with safe taxiing operations.
Knowledge	The applicant demonstrates understanding of:
PA.II.D.K1	1. Positioning aircraft controls for wind, water and sailing procedures, including the use of flaps, doors, water rudder, and power as to follow the desired course while sailing.
PA.II.D.K2	2. Air

II. Preflight Procedures	
Task	E. Taxiing and Sailing (ASES, AMES)
References	FAA-H-8083-2; FAA-H-8083-23, FAA-H-8083-25; POH/AFM; AC 91-73; A/FD, AIM.
Objective	To determine that the applicant exhibits satisfactory knowledge, skills and risk management associated with safe taxiing and sailing operations, including runway incursion avoidance.
Knowledge	The applicant demonstrates understanding of:
PA.II.E.K1	1. Positioning aircraft controls for wind, water and sailing procedures, including the use of flaps, doors, water rudder, and power as to follow the desired course while sailing.

- The evaluator's Plan of Action must include all Areas of Operation and Tasks that apply to the category and class of the aircraft brought to the test.



# How do I use the ACS?

Evaluator's Plan of Action must include:

- *At least* one Knowledge Element
- *At least* one Risk Management Element
- *All* Skill Elements from required Tasks
- All subjects missed on the knowledge test
  - The evaluator may use Task Elements from missed knowledge test subjects to meet the minimum requirement for one Knowledge and one Risk management element.
  - The evaluator has the discretion to select additional elements if the knowledge test report or the applicant's response to questions indicates weakness in a given Task.



# How do I use the ACS?

## I. Preflight Preparation

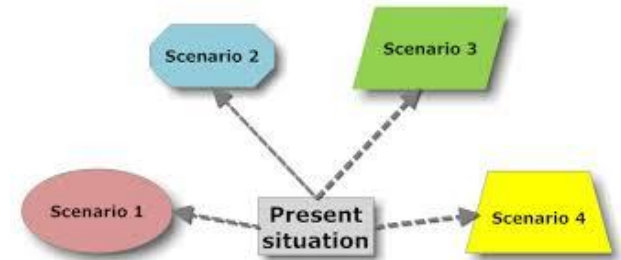
If the Task includes sub-elements, the evaluator may select an appropriate sub-element to assess.

<b>Task</b>	<i>Task F. Performance and Limitations</i>
<b>References</b>	FAA-H-8083-1, FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with operating an aircraft safely within the parameters of its performance capabilities and limitations.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.F.K1</i>	Elements related to performance and limitations by explaining the use of charts, tables, and data to determine performance.
<i>PA.I.F.K2</i>	Factors affecting performance to include:
<i>PA.I.F.K2a</i>	a. Atmospheric conditions
<i>PA.I.F.K2b</i>	b. Pilot technique
<i>PA.I.F.K2c</i>	c. Aircraft condition
<i>PA.I.F.K2d</i>	d. Airport environment
<i>PA.I.F.K2e</i>	e. Loading
<i>PA.I.F.K2f</i>	f. Weight and balance
<i>PA.I.F.K3</i>	Aerodynamics.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.I.F.R1</i>	Inaccurate use of manufacturer's performance charts, tables and data.
<i>PA.I.F.R2</i>	Exceeding aircraft limitations.
<i>PA.I.F.R3</i>	Possible differences between actual aircraft performance and published aircraft performance data.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.I.F.S1</i>	Compute the weight and balance, correct out-of-center of gravity (CG) loading errors and determine if the weight and balance remains within limits during all phases of flight.
<i>PA.I.F.S2</i>	Demonstrate use of the appropriate aircraft manufacturer's approved performance charts, tables and data.



# How do I use the ACS?

As with the PTS, the evaluator's Plan of Action should combine Tasks and Task Elements to create an efficient, scenario-based test.



*The ACS should not make either the oral portion or the flight portion of the practical test any longer than it was with the PTS.*





# Using ACS Codes

## I. Preflight Preparation

<b>Task</b>	<i>Task D. Cross-Country Flight Planning</i>
<b>References</b>	14 CFR part 91; FAA-H-8083-2, FAA-H-8083-25; Navigation Charts; Chart Supplements; AIM; NOTAMS
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with cross-country flights and VFR flight planning.
<b>Knowledge</b>	The applicant demonstrates understanding of:
<i>PA.I.D.K1</i>	Route planning, to include consideration of special use airspace and selection of appropriate navigation/communication systems and facilities.
<i>PA.I.D.K2</i>	Altitude selection accounting for terrain and obstacles, glide distance of aircraft, VFR cruising altitudes, and the effect of wind.
<i>PA.I.D.K3</i>	Calculating:
<i>PA.I.D.K3a</i>	a. Time, climb and descent rates, course, distance, heading, true airspeed, and groundspeed
<i>PA.I.D.K3b</i>	b. Estimated time of arrival to include conversion to universal coordinated time (UTC)
<i>PA.I.D.K3c</i>	c. Fuel requirements, to include reserve
<i>PA.I.D.K4</i>	Elements of a VFR flight plan.
<i>PA.I.D.K5</i>	Procedures for activating and closing a VFR flight plan.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
<i>PA.I.D.R1</i>	Pilot.
<i>PA.I.D.R2</i>	Aircraft.
<i>PA.I.D.R3</i>	Environment (e.g., weather, airports, airspace, terrain, obstacles).
<i>PA.I.D.R4</i>	External pressures.
<i>PA.I.D.R5</i>	Limitations of air traffic control (ATC) services.
<i>PA.I.D.R6</i>	Improper fuel planning.
<b>Skills</b>	The applicant demonstrates the ability to:
<i>PA.I.D.S1</i>	Prepare, present and explain a cross-country flight plan assigned by the evaluator including a risk analysis based on real-time weather, to the first fuel stop.
<i>PA.I.D.S2</i>	Apply pertinent information from appropriate and current aeronautical charts, chart supplements; NOTAMS relative to airport, runway and taxiway closures; and other flight publications.
<i>PA.I.D.S3</i>	Create a navigation log and simulate filing a VFR flight plan.
<i>PA.I.D.S4</i>	Recalculate fuel reserves based on a scenario provided by the evaluator.

## ACS coding system

The ACS assigns a unique code to each element of knowledge, risk management, & skill

**PA** = Private Pilot Airplane  
(*applicable ACS*)

**I** = Preflight Preparation  
(*Area of Operation*)


**D** = Cross-Country  
Flight Planning  
(*Task*)

**K4** = Elements of a  
VFR Flight Plan  
(*Task Element*)



# Using ACS Codes

## Current State



### Computer Test Report

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U.S. DEPARTMENT OF TRANSPORTATION  
Federal Aviation Administration  
Airman Knowledge Test Report

NAME: John Doe  
APPLICANT ID: 12345678 EXAM ID: 50010220140465201  
EXAM: Private Pilot Airplane (PAR)  
EXAM DATE: 01/02/2014 EXAM SITE: LAS72403  
SCORE: 90 GRADE: PASS TAKE: 1


Learning statement codes listed below represent incorrectly answered questions. Learning statement codes and their associated statements can be found at [www.faa.gov/training\\_testing/testing/airmen](http://www.faa.gov/training_testing/testing/airmen).

Reference material associated with the learning statement codes can be found in the appropriate knowledge test guide at [www.faa.gov/training\\_testing/testing/airmen/test\\_guides](http://www.faa.gov/training_testing/testing/airmen/test_guides).

A single code may represent more than one incorrect response.

PLT064 PLT141 PLT077 PLT161 PLT414

## Future State



### Computer Test Report

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U.S. DEPARTMENT OF TRANSPORTATION  
Federal Aviation Administration  
Airman Knowledge Test Report

NAME: John Doe  
APPLICANT ID: 12345678 EXAM ID: 50010220140465201  
EXAM: Private Pilot Airplane (PAR)  
EXAM DATE: 01/02/2014 EXAM SITE: LAS72403  
SCORE: 90 GRADE: PASS TAKE: 1

Airman certification codes listed below represent incorrectly answered questions. Airman certification codes and their associated statements can be found at [www.faa.gov/training\\_testing/testing/airmen](http://www.faa.gov/training_testing/testing/airmen).

Reference material associated with the airman certification codes can be found in the appropriate airman certification standard at [www.faa.gov/training\\_testing/testing/airmen/test\\_guides](http://www.faa.gov/training_testing/testing/airmen/test_guides).

A single code may represent more than one incorrect response.

PA.I.D.K4 PA.III.A.K3 PA.II.D.K2 PA.I.E.K2 **PA.III.B.K4** PA.I.E.K1



# Using ACS Codes

*There is no one-to-one correlation between LSC (PLT) codes, which are anchored in a variety of reference documents, and ACS codes, which are unique to ACS task elements. It is thus not possible to provide a cross-reference, but instructors and evaluators can still benefit from the ACS coding system. Here's how:*

- Use the Learning Statement Code Reference Guide to associate the missed knowledge PLT code(s) on the Airman Knowledge Test Report with a subject area. For example:
  - PLT003 Calculate aircraft performance – CG
- Perform a word search in the ACS, and use the results to retrain/retest the applicant's knowledge in the context of specific Tasks.

## I. Preflight Preparation

Task	Task F. Performance and Limitations
References	FAA-H-8083-1, FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; POH/AFM
Objective	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with operating an aircraft safely within the parameters of its performance capabilities and limitations.
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PA.I.F.K2	Factors affecting performance to include:
PA.I.F.K2a	a. Atmospheric conditions
PA.I.F.K2b	b. Pilot technique
PA.I.F.K2c	c. Aircraft condition
PA.I.F.K2d	d. Airport environment
PA.I.F.K2e	e. Loading
PA.I.F.K2f	f. Weight and balance
PA.I.F.K3	Aerodynamics.
Risk Management	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
PA.I.F.R1	Inaccurate use of manufacturer's performance charts, tables and data.
PA.I.F.R2	Exceeding aircraft limitations.
PA.I.F.R3	Possible differences between actual aircraft performance and published aircraft performance data.
Skills	The applicant demonstrates the ability to:
PA.I.F.S1	Compute the weight and balance, correct out-of-center of gravity (CG) loading errors and determine if the weight and balance remains within limits during all phases of flight.
PA.I.F.S2	Demonstrate use of the appropriate aircraft manufacturer's approved performance charts, tables and data.



# What's Next for the ACS?

In development:

- Airline Transport Pilot (Airplane)
- Instructor (Airplane)
- Aircraft Mechanic Certificate with Airframe and/or Powerplant ratings

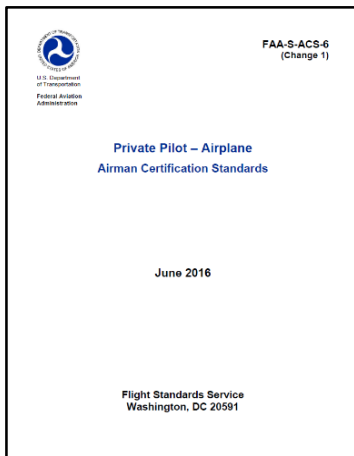
*FAA & ACS Working Group members will jointly determine priority for development of ACS in additional categories/classes and certificates/ratings.*



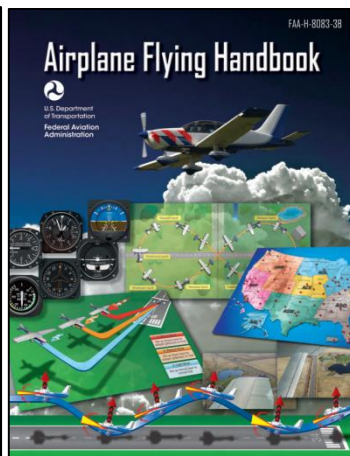
Federal Aviation  
Administration

# What's Next for the ACS?

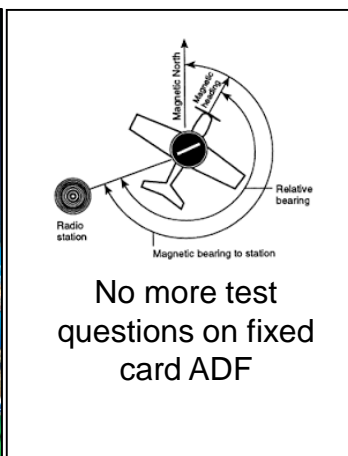
## Changes to Regulations, Policies, Procedures



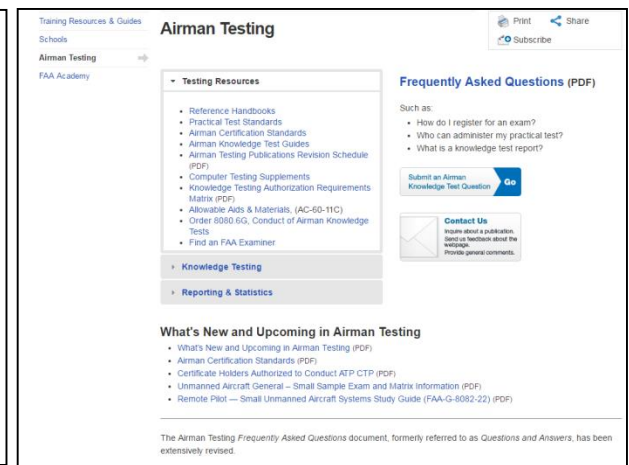
Standards



Guidance



Test questions



Public data

## Other Certificates / Ratings



Federal Aviation  
Administration

# Thanks to Aviation Community Partners!

## Current and Past Aviation Community Participants

AOPA	CAPA	King Schools	Redbird Simulations
Airlines for America (A4A)	ERAU	Liberty University	RACCA
ALPA	FAA	Mary Schu Aviation	Robert Stewart, CFI
AnywhereEducation Inc.	FedEx Express	NATA	Savvy Aircraft Maintenance
AABI	Flight Safety International	NAFI	Satcom Direct (Mariellen Couppee)
Aviation Research Training & Services	GAMA	NBAA	SAFE
ASA	Gleim	Navy Technologies	Sportys Academy
ATEC	Florida Institute of Technology	Oxford Flying Club	UAA
CAE	Florida State College	Paul Alp, CFI	UND
Cessna Pilot Centers	Jeppesen	Polk State College	



# Resources

- **Airman Testing Web Page**
  - [http://www.faa.gov/training\\_testing/testing/](http://www.faa.gov/training_testing/testing/)
  - [http://www.faa.gov/training\\_testing/testing/acs/](http://www.faa.gov/training_testing/testing/acs/)
- **FAASafety.gov – ALC-449**
  - [www.faasafety.gov](http://www.faasafety.gov)
- **ACS Focus Team**
  - [9-AVS-ACS-Focus-Team@FAA.gov](mailto:9-AVS-ACS-Focus-Team@FAA.gov)
- **Safety Alert for Operators – 16010\***
  - [https://www.faa.gov/other\\_visit/aviation\\_industry/airline\\_operators/airline\\_safety/safo/all\\_safos/](https://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo/all_safos/)
  - \*We are developing an updated SAFO to replace SAFO 16010 – expected publication summer 2017.

