

# Modernizing the Mechanic ACS

A Competency-Aligned, Instructionally Coherent Framework for Aviation Maintenance Training

Presented to the ATEC Regulatory Committee | 29 January 2026

by: Rhonda Cooper, A&P, M.Ed.

29 January 2026

MICROSOFT COPILOT (2026), COLLABORATIVE ACS REVISION RESEARCH SUPPORT.

# Who is the Mechanic ACS Work Group?

We are composed of volunteers who have been selected for their technical expertise to review and provide recommendations for the revision of the Aviation Mechanic Airman Certification Standards.

We have requested and received input from the Airlines for America's Maintenance Training Network and reviewed study results from Clemson University.

I would like to take this time to thank my fellow volunteers for all their hard work, inputs, and insights in making this a very thorough review.



# Aviation Mechanic ACS



Replaced the Practical Test Standards, adding task-specific knowledge and risk management elements to each subject area.

Single source set of standards for both the knowledge exam and oral and practical test.

Know

Consider

Do

II. Airframe	
Subject L. Ice and Rain Control Systems	
<b>Objective</b>	<i>The following knowledge, risk management, and skill elements are required for aircraft ice and rain control systems.</i>
<b>Knowledge</b>	<i>The applicant demonstrates understanding of:</i>
AM.II.L.K1	Aircraft icing causes/effects.
AM.II.L.K2	Ice detection systems.
AM.II.L.K3	Aircraft and powerplant anti-ice systems and components.
AM.II.L.K4	De-ice systems and components.
AM.II.L.K5	Wiper blade, chemical, and pneumatic bleed air rain control systems.
AM.II.L.K6	Anti-icing and de-icing system maintenance.
AM.II.L.K7	Environmental conditions that degrade vision.
<b>Risk Management</b>	<i>The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:</i>
AM.II.L.R1	System testing or maintenance.
AM.II.L.R2	Storage and handling of deicing fluids.
AM.II.L.R3	Selection and use of cleaning materials for heated windshields.
<b>Skills</b>	<i>The applicant demonstrates the ability to:</i>
AM.II.L.S1	Inspect and operationally check pitot-static anti-ice system.
AM.II.L.S2	Inspect and operationally check deicer boot.
AM.II.L.S3	Clean a pneumatic deicer boot.
AM.II.L.S4	Troubleshoot an electrically-heated pitot system.
AM.II.L.S5	Inspect thermal anti-ice systems.
AM.II.L.S6	Inspect and operationally check an electrically-heated windshield.
AM.II.L.S7	Locate and explain the procedures for inspecting an electrically-operated windshield wiper system.
AM.II.L.S8	Locate and explain the procedures for replacing blades on a windshield wiper system.
AM.II.L.S9	Locate and explain the procedures for inspecting a pneumatic rain removal system.

# ACS Enables Continuous Alignment

Changes: Regulations, Policies, Procedures, **Feedback**

The diagram consists of four main boxes arranged horizontally, each representing a key area of focus. Above them is a red line with arrows pointing down to each box, originating from the text 'Changes: Regulations, Policies, Procedures, Feedback'. Below them is another red line with arrows pointing down to a final text box.

- Standards:** Image of the 'Aviation Mechanic General, Airframe, Powerplant Airman Certification Standards' cover. Text: 'Standards', 'Combined certification standards for knowledge, risk management, and skill'.
- Guidance:** Image of the 'Aviation Maintenance Technician Handbook-General' cover. Text: 'Guidance', 'Rules, H-series handbooks, Advisory Circulars, other FAA information sources'.
- Testing:** Image of a satellite network over a globe. Text: 'Testing', 'Knowledge exam, oral and practical tests for issuance of certificate or rating'.
- Change Management:** Image of the 'Airman Testing' website interface. Text: 'Change Management', 'Awareness, Desire, Knowledge, Ability, Reinforcement via disciplined change management plan with associated communications strategy'.

## Standards

Combined certification standards for knowledge, risk management, and skill

## Guidance

Rules, H-series handbooks, Advisory Circulars, other FAA information sources

## Testing

Knowledge exam, oral and practical tests for issuance of certificate or rating

## Change Management

Awareness, Desire, Knowledge, Ability, Reinforcement via disciplined change management plan with associated communications strategy

Alignment as appropriate with other Certificates / Ratings

# Why This Proposal Matters

- Weak verbs (“understand,” “demonstrate”) + loss of performance levels → leads to unclear depth of knowledge
- Inconsistent risk phrasing → unsure what matters
- Subjects organized without instructional logic → harder to use as a standard
- Schools mirror ACS → fragmented teaching
- DMEs interpret items differently → inconsistent certifications
- ACS doesn’t support systems thinking → unprepared AMTs

*We are offering a revision that addresses all these observations.*

# Our Vision for ACS Modernization

## Clarity, Traceability, and Workforce Readiness

- Embed CBT principles across all subjects\*
- Integrate Bloom's Taxonomy verbs for measurable competencies
- Align with ATA codes for system logic, and auditability, and industry alignment
- Frame performance skills using real-world scenarios

\*Federal Aviation Administration. (2019). *Competency-Based Training and Assessment (CBTA)* [Conference presentation]. Royal Aeronautical Society, London.

# What We Have Accomplished

1. Reviewed *every* knowledge, risk, and skill item with *every* subject
2. Incorporated all the recommendations from the Airlines for America's Maintenance Training Network at varying degrees of cognitive and psychomotor levels for entry-level AMTs.
3. Addressed most of the recommendations proposed by the Clemson NASA study.  
*Note: Access to raw data could facilitate a more formal cross-content evaluation.*
4. A fully updated and aligned ACS.  
*Note: Including full documentation and justification of all changes.*
5. Drafted style guide to reference for future revisions, including definitions of terms.

# Knowledge Learning Objectives – Added Bloom’s Verbs

From vague → measurable:

**THE APPLICANT DEMONSTRATES  
UNDERSTANDING OF:**

“Electrostatic discharge.”



“Inoperative equipment”



**THE APPLICANT WILL BE ABLE TO:**

“Explain ESD hazards and their effects on sensitive components.”

“Explain regulatory requirements for inoperative equipment.”

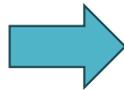


# Modernized Risk Elements

*The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:*

**Old:**

Ground operation.  
Propeller maintenance and inspections.



**New:**

Unsafe acts when working around propellers.  
Improper or incomplete propeller maintenance and inspections.

Risk items too broad.

**Standard format using hazard category.**

**Instructional cues:** To be presented in handbooks during next revision.

**We identify the hazard — not the mitigation.** This preserves performance-based assessment while giving instructors and DMEs clarity.

# Skill Tasks

## Skill items were:

- Reorganized and moved to align with their respective system-specific subject
  - “Perform a tap test on a composite component” moved from General K. Inspection Concepts and Techniques to Airframe B. Non-Metallic Structures
  - Removed duplicated or similar tasks
  - Deleted skills that demonstrate knowledge only
    - *i.e., “Determine the square root of a given number.”*
  - Clarified phrasing
- **What remains the same:**
  - No new performance requirements
  - No new examiner duties
  - **Clearer tasks, same requirements**



# Knowledge/Risk/Skill Alignment

For each subject, a K/R/S gap analysis was completed to confirm alignment.

Skill items were crossed referenced to confirm each had the appropriate knowledge learning objectives to support its demonstration.

Risks were also analyzed to confirm they aligned with knowledge and skill.

I. GENERAL								
SUBJECT: B. AIRCRAFT WEIGHT & BALANCE								
COMPETENCY	Demonstrates the ability to apply weight and balance principles by determining aircraft weight, center of gravity, and required corrections using approved data, safe practices, and regulatory standards to ensure stability, controllability, and structural integrity.							
KNOWLEDGE ID #	KNOWLEDGE [OBSERVABLE BEHAVIORS]	BLOOM'S LEVEL	SKILL ID #	SKILLS [TASK DEMONSTRATIONS]	SKILL GAP ANALYSIS	RISK ID #	RISKS	RISK GAP ANALYSIS
WB.K.001	Define standard weight and balance terminology.	Remember	—	(No direct skill task)	✗ Knowledge-only outcome	WB.R.003 WB.R.004	CG out-of-limits effects; Excess weight effects	✓ Terminology supports correct interpretation of limits and effects.
WB.K.002	Describe the purpose of weight and balance and factors that influence it.	Understand	—	(No direct skill task)	✗ Knowledge-only outcome	WB.R.003 WB.R.004	CG and weight-related aerodynamic/structural risks	✓ Conceptual understanding mitigates misloading risks.
WB.K.003	Perform aircraft weighing procedures using approved methods and safety practices.	Apply	WB.S.001	Perform aircraft weighing procedures using manufacturer instructions.	✓ Direct skill alignment	WB.R.001 WB.R.002 WB.R.003	Improper lifting; unsafe weighing; incorrect scale setup	✓ Strong alignment — weighing procedures directly mitigate these risks.
WB.K.004	Calculate arms, moments, moment indexes, and CG.	Apply	WB.S.003	Perform weight and balance calculations for a given aircraft.	✓ Strong skill alignment	WB.R.003 WB.R.004	CG out-of-limits; excess weight effects	✓ Direct mitigation — correct calculations prevent out-of-limits conditions.

# Subject Objective Revised

All subject objective statements have been replaced with meaningful subject competency statement(s).

**Old:**

*“The following knowledge, risk management, and skill elements are required for [fill in subject title] as it relates to aircraft maintenance.”*

**New:**

*“Demonstrates the ability to apply weight and balance principles by determining aircraft weight, center of gravity, and required corrections using approved data, safe practices, and regulatory standards to ensure stability, controllability, and structural integrity.”*

# Certification Subjects Order Revised

Current Order → Not in any logical order

Proposed Order → Pedagogical Order

- TBD Competency Domains for Aviation Maintenance Technicians
- H. Mathematics
- J. Physics for Aviation
- TBD Hand Tools and Measuring Devices
- E. Aircraft Materials, Hardware, and Processes
- D. Fluid Lines and Fittings
- A. Electrical Principles and Practices
- TBD Aircraft Instrumentation Fundamentals
- B. Aircraft Drawings
- C. Weight and Balance
- F. Safety, Ground Operations and Servicing
- G. Cleaning and Corrosion Control
- L. Human Factors
- I. Regulations, Maintenance Forms, Records, and Publications
- K. Inspection and Troubleshooting Concepts and Techniques

- A. Metallic Structures
- B. Non-Metallic Structures
- C. Flight Controls
- E. Landing Gear Systems
- F. Hydraulic Systems
- TBD. Pneumatic Systems
- J. Aircraft Fuel Systems
- O. Water and Waste Systems
- TBD. Windows
- K. Aircraft Electrical Systems
- H. Aircraft Instrument Systems
- I. Communications Systems
- TBD. Navigation Systems
- G. Environmental Systems
- L. Ice and Rain Control Systems
- M. Airframe Fire Protection Systems
- N. Rotorcraft Fundamentals

- A. Reciprocating Engines (includes Specialty and Light-Sport Engines – radial, rotary/Wankel, diesel)
  1. Core Knowledge and Skills
  2. Induction & Fuel Metering Systems
  3. Cooling Systems
  4. Lubrication Systems
  5. Exhaust Systems
- B. Turbine Engines
  1. Core Knowledge & Skills
  2. Air Systems
  3. Fuel & Fuel Metering
  4. Lubrication Systems
  5. Exhaust & Reverser Systems
- C. Engine Instrument Systems
- D. Engine Fire Protection Systems
- E. Engine Electrical Systems
- F. Ignition & Starting Systems
- G. Propellers

**Airframe and Engine Inspection ACS:** Core knowledge, risks, and skills have been incorporated into Generals, while system specific inspection knowledge, risks, skills have been moved to their appropriate system ACS.

# A New ACS - Competency Domains for Aircraft Mechanics

## Why Competency Domains?

Competencies answer the question:

“What kind of technician are we trying to produce?”

They provide:

- A shared performance philosophy

- A unifying framework across all subjects

- Alignment with ICAO CBTA

- A foundation for consistent interpretation

- Competencies aren't a subject — they're the lens.**

**Technical Task Performance:** *Perform maintenance, inspection, and operational tasks to the required standard using correct methods, tools, and safety precautions.*

**Use of Approved Data and Procedures:** *Locate, interpret, and apply current, approved maintenance data and procedures accurately and without deviation.*

**Regulatory and Airworthiness Responsibility:** *Apply regulatory requirements and airworthiness responsibilities to determine the status of an aircraft and document maintenance actions appropriately.*

**Troubleshooting and Technical Decision-Making:** *Diagnose malfunctions using logical troubleshooting methods, interpret results, and select appropriate corrective actions or escalation paths.*

**Safety and Risk Management in Maintenance:** *Identify hazards, assess risks, and implement effective controls to maintain a safe maintenance environment.*

**Human Factors and Situational Awareness:** *Recognize and manage human performance limitations and operational influences to maintain situational awareness and prevent errors.*

**Communication and Coordination:**

*Communicate maintenance information clearly and accurately, both orally and in writing, to ensure continuity of work and operational safety.*

**Task Planning and Work Management:** *Plan, prioritize, and organize maintenance tasks and resources effectively, adjusting as needed to maintain control of work-in-progress.*

**Use of Tools, Equipment, and Digital Systems:** *Select, operate, and maintain tools, test equipment, and digital systems safely and effectively, recognizing limitations and required controls.*

**Quality, Error Management, and Continuous Improvement:** *Prevent, detect, and report errors or non-conformities and contribute to corrective actions and continuous improvement efforts.*

**Professionalism and Ethical Responsibility:** *Demonstrate integrity, accountability, and ethical judgment in all maintenance activities, upholding the standards of the aviation maintenance profession.*

# How Competency Domains Fit Into the ACS

## Competency Domains:

Do **not** add requirements

Do **not** introduce new tasks

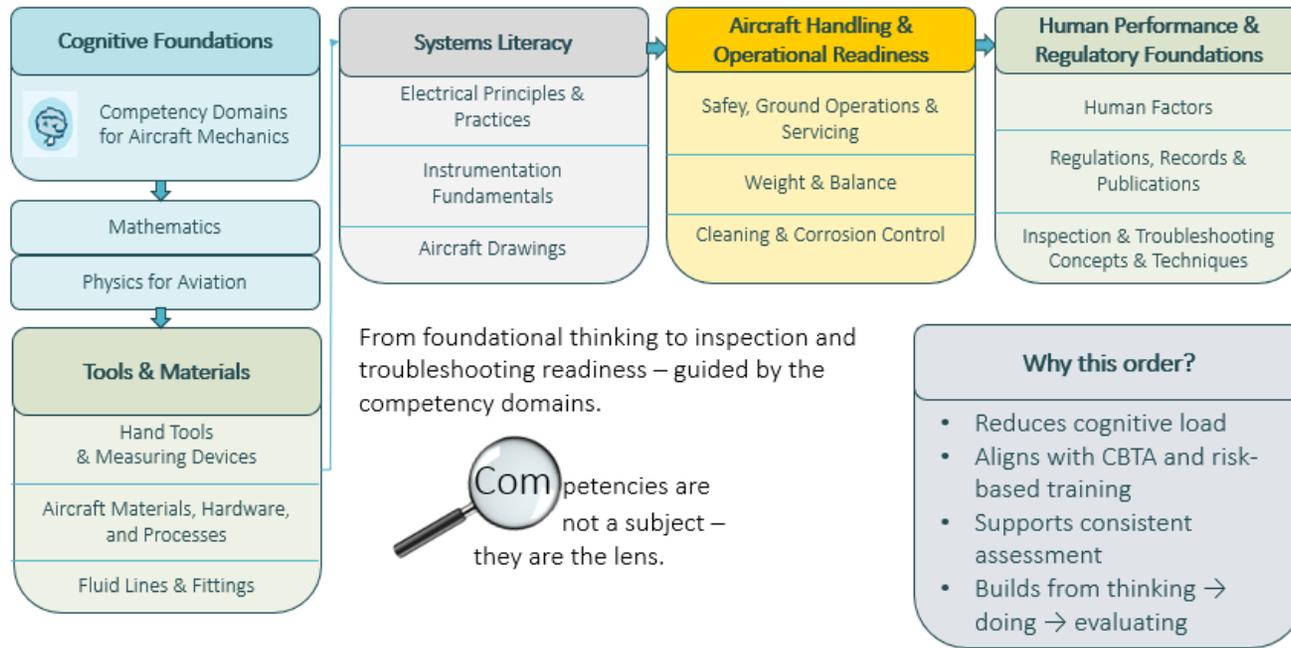
Are **not** assessed directly

Provide the **interpretive framework** for all ACS items

They help instructors, schools, and examiners understand the *intent* behind knowledge, risk, and skill items.

**They unify the ACS without changing certification.**

# Pedagogical Flow of General Subjects



## Key message:

“This is not a curriculum — it’s a clearer way to understand how the ACS subjects relate to each other.”

# Why is Proposal Revision Important

## Benefits All Stakeholders

### **FAA**

Stronger national consistency  
Clearer, more defensible standards  
Alignment with ICAO CBTA

### **Industry**

Better workforce readiness

### **Schools**

Easier curriculum alignment  
Clearer cognitive and performance targets

### **Applicants**

Reduced ambiguity  
Clearer path to success

### **DMEs**

Fewer gray areas  
Clearer expectations  
More consistent interpretation

# Path to Approval

Working group review

FAA acceptance

Public comment

Revision cycle

Implementation guidance

**We've done the heavy lifting — now we need your support.**

# Closing Message

“This revision honors the FAA’s intent, supports the industry’s needs, and prepares the next generation of technicians for a complex, integrated aviation environment.

We are not fundamentally changing the ACS — we are making it clearer, safer, and more usable for everyone.”

# Questions

29 January 2026  
MICROSOFT COPILOT (2026), COLLABORATIVE ACS REVISION SUPPORT.

# Contact Information

## Contact Information:

Rhonda Cooper, A&P, M.Ed.

Email | [rcooper@cmailbox.com](mailto:rcooper@cmailbox.com)

Mobile | 602-818-7480