U.S. Department of Transportation

Federal Aviation Administration

FAA-S-ACS-1

Aviation Mechanic General, Airframe, and Powerplant

Airman Certification Standards

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Flight Standards Service
Washington, DC 20591

I. General

Subject C. Weight and Balance

Objective	*The following knowledge, risk management, and skill elements are required for weight and balance.*
Knowledge	*The applicant demonstrates understanding of:*
AM.I.C.K1	Weight and balance terminology.
AM.I.C.K2	Purpose for weighing an aircraft.
AM.I.C.K3	Weighing procedures, including the general preparations for weighing, with emphasis on aircraft weighing area considerations.
AM.I.C.K4	Procedures for calculation of the following: arm, positive or negative moment, center of gravity (CG), or moment index.
AM.I.C.K5	Purpose and application of weight and CG limits.
AM.I.C.K6	Purpose of determining CG.
AM.I.C.K7	Adverse loading considerations and how to calculate if adverse loading causes an out-of-limit condition.
AM.I.C.K8	Determine proper empty weight configuration.
AM.I.C.K9	Proper ballast placement.
AM.I.C.K10	Jacking an aircraft.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:*
AM.I.C.R1	Situations and conditions when jacking an aircraft.
AM.I.C.R2	Aircraft weighing procedures.
AM.I.C.R3	Use of scales.
AM.I.C.R4	Aerodynamic effect of CG that is forward or aft of CG limits.
AM.I.C.R5	Aerodynamic and performance effects of weight in excess of limits.
Skills	*The applicant demonstrates the ability to:*
AM.I.C.S1	Research and explain the procedures for weighing an aircraft.
AM.I.C.S2	Perform weight and balance calculations.
AM.I.C.S3	Calculate ballast weight shift and required weight location.
AM.I.C.S4	Check aircraft weighing scales for calibration.
AM.I.C.S5	Calculate weight and balance for an aircraft after an equipment change.
AM.I.C.S6	Compute forward and aft loaded CG limit.
AM.I.C.S7	Create a maintenance record for a weight and balance change.
AM.I.C.S8	Compute the empty weight and empty weight CG of an aircraft.
AM.I.C.S9	Calculate the moment of an item of equipment.
AM.I.C.S10	Identify tare items.
AM.I.C.S11	Locate weight and balance information.
AM.I.C.S12	Locate datum.
AM.I.C.S13	Locate weight and balance placarding and limitation requirements for an aircraft.
AM.I.C.S14	Revise an aircraft equipment list after equipment change.
AM.I.C.S15	Calculate the change needed to correct an out of balance condition.

I. General

Subject F. Ground Operations and Servicing

Objective	*The following knowledge, risk management, and skill elements are required for ground operations and servicing.*
Knowledge	*The applicant demonstrates understanding of:*
AM.I.F.K1	Aircraft towing procedures.
AM.I.F.K2	Aircraft securing procedures.
AM.I.F.K3	Aviation fueling/defueling procedures.
AM.I.F.K4	Airport operation area procedures and ATC communications, including runway incursion prevention.
AM.I.F.K5	Engine starting, ground operation, and aircraft taxiing procedures.
AM.I.F.K6	Types/classes of fire extinguishers and procedures.
AM.I.F.K7	Aircraft oil, hydraulic and pneumatic, and deicing servicing procedures.
AM.I.F.K8	Oxygen system servicing procedures.
AM.I.F.K9	Characteristics of aviation gasoline and turbine fuels, including basic types and means of identification.
AM.I.F.K10	Fuel additives commonly used in the field.
AM.I.F.K11	Use of approved grades/types of fuel in aircraft engines.
AM.I.F.K12	Tool and hardware use and accountability.
AM.I.F.K13	Material handling.
AM.I.F.K14	Parts protections.
AM.I.F.K15	Hazardous materials, Safety Data Sheets (SDS), and PPE.
AM.I.F.K16	Foreign object damage effects.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:*
AM.I.F.R1	Preparing to tow an aircraft.
AM.I.F.R2	Connecting external power equipment to an aircraft.
AM.I.F.R3	Fueling/defueling ungrounded aircraft or using improper equipment.
AM.I.F.R4	Misfueling and using incorrect or contaminated fuel.
AM.I.F.R5	Oxygen system servicing.
AM.I.F.R6	Engine start/run-up without using a checklist.
AM.I.F.R7	Engine starting and ground operations.
AM.I.F.R8	Engine starting and operation while troubleshooting or adjusting engine controls.
AM.I.F.R9	Ground operation of an aircraft engine with cowling removed contrary to manufacturer instructions.
AM.I.F.R10	Ground operation of aircraft in the vicinity of other aircraft or ground support equipment.
Skills	*The applicant demonstrates the ability to:*
AM.I.F.S1	Perform a foreign object damage control procedure.
AM.I.F.S2	Connect external power to an aircraft.
AM.I.F.S3	Prepare an aircraft for towing.
AM.I.F.S4	Use appropriate hand signals for the movement of aircraft.

I. General

Subject K. Inspection Concepts and Techniques

Objective	*The following knowledge, risk management, and skill elements are required for aircraft inspection concepts and techniques.*
Knowledge	*The applicant demonstrates understanding of:*
AM.I.K.K1	Measuring tools, including calipers, micrometers, and gauges.
AM.I.K.K2	Calibration and tool accuracy requirements.
AM.I.K.K3	Nondestructive Testing (NDT) procedures and methods.
AM.I.K.K4	Aircraft inspection programs (e.g., progressive, 100-hour, annual, and other FAA-approved inspections).
AM.I.K.K5	Aircraft inspection methods and tools for materials, hardware, and processes.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:*
AM.I.K.R1	Demagnetizing a component following a magnetic particle inspection.
AM.I.K.R2	Using precision measuring instruments.
AM.I.K.R3	Calibration of precision measuring equipment.
AM.I.K.R4	Selection of inspection techniques.
AM.I.K.R5	Damage prevention to aircraft components and test equipment when using an ohmmeter.
Skills	*The applicant demonstrates the ability to:*
AM.I.K.S1	Use Vernier calipers.
AM.I.K.S2	Use micrometers.
AM.I.K.S3	Use measurement gauges.
AM.I.K.S4	Perform a visual inspection.
AM.I.K.S5	Perform a dye penetrant inspection.
AM.I.K.S6	Inspect aircraft for compliance with an AD.
AM.I.K.S7	Identify NDT methods for composite, surface metal, and subsurface metal defects.
AM.I.K.S8	Perform a tap test on a composite component.

II. Airframe

Subject D. Airframe Inspection

Objective	*The following knowledge, risk management, and skill elements are required for airframe inspections.*
Knowledge	*The applicant demonstrates understanding of:*
AM.II.D.K1	Inspection requirements under 14 CFR part 91.
AM.II.D.K2	Maintenance recordkeeping requirements under 14 CFR part 43.
AM.II.D.K3	Requirements for complying with ADs.
AM.II.D.K4	Identification of life-limited parts and their replacement interval.
AM.II.D.K5	Special inspections.
AM.II.D.K6	Use of FAA-approved data.
AM.II.D.K7	Compliance with service letters, service bulletins, instructions for continued airworthiness, or ADs.
AM.II.D.K8	CFRs applicable to inspection and airworthiness.
AM.II.D.K9	Corrosion types and identification.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:*
AM.II.D.R1	Interpretation of inspection instructions, which can lead to over or under maintenance being performed.
AM.II.D.R2	Visual inspection and where to apply it.
AM.II.D.R3	Performing radiographic inspections.
AM.II.D.R4	Selection and use of checklists and other maintenance publications.
AM.II.D.R5	Maintenance record documentation.
Skills	*The applicant demonstrates the ability to:*
AM.II.D.S1	Perform an airframe inspection, including a records check.
AM.II.D.S2	Perform a portion of a 100-hour inspection in accordance with 14 CFR part 43.
AM.II.D.S3	Enter results of a 100-hour inspection in a maintenance record.
AM.II.D.S4	Determine compliance with a specific AD.
AM.II.D.S5	Provide a checklist for conducting a 100-hour inspection.
AM.II.D.S6	Determine if any additional inspections are required during a particular 100-hour inspection; (i.e., 300-hour filter replacement).
AM.II.D.S7	Inspect seat and seatbelt, including TSO markings.

II. Airframe

Subject F. Hydraulic and Pneumatic Systems

Objective	*The following knowledge, risk management, and skill elements are required for aircraft hydraulic and pneumatic systems.*
Knowledge	*The applicant demonstrates understanding of:*
AM.II.F.K1	Hydraulic system components and fluids.
AM.II.F.K2	Hydraulic system operation.
AM.II.F.K3	Hydraulic system servicing requirements.
AM.II.F.K4	Hydraulic system inspection, check, servicing, and troubleshooting.
AM.II.F.K5	Pneumatic system types and components.
AM.II.F.K6	Pneumatic system servicing requirements.
AM.II.F.K7	Servicing, function, and operation of accumulators.
AM.II.F.K8	Types of hydraulic/pneumatic seals and fluid/seal compatibility.
AM.II.F.K9	Hoses, lines, and fittings.
AM.II.F.K10	Pressure regulators, restrictors, and valves.
AM.II.F.K11	Filter maintenance procedures.
Risk Management	*The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:*
AM.II.F.R1	Relieving system pressure prior to system servicing or disassembly.
AM.II.F.R2	High pressure gases and fluids.
AM.II.F.R3	Storage and handling of hydraulic fluids.
AM.II.F.R4	Cross-contamination of hydraulic fluids.
AM.II.F.R5	Compatibility between hydraulic seals and hydraulic fluids.
Skills	*The applicant demonstrates the ability to:*
AM.II.F.S1	Identify different types of hydraulic fluids.
AM.II.F.S2	Identify different packing seals.
AM.II.F.S3	Install seals and backup rings in a hydraulic component.
AM.II.F.S4	Remove and install a selector valve.
AM.II.F.S5	Check a pressure regulator and adjust as necessary.
AM.II.F.S6	Remove, clean, inspect, and install a hydraulic system filter.
AM.II.F.S7	Service a hydraulic system accumulator.
AM.II.F.S8	Service a hydraulic system reservoir.
AM.II.F.S9	Remove, install, and perform an operational check of a hydraulic pump.
AM.II.F.S10	Locate procedures for checking pneumatic/bleed air overheat warning systems.
AM.II.F.S11	Purge air from a hydraulic system.
AM.II.F.S12	Remove and install a system pressure relief valve.
AM.II.F.S13	Inspect a hydraulic or pneumatic system for leaks.
AM.II.F.S14	Troubleshoot a hydraulic or pneumatic system for leaks.