DIRECCIÓN GENERAL DE AVIACIÓN CIVIL DE COSTA RICA

Guía de evaluación oral-práctica para la obtención de la licencia de Técnico de Mantenimiento de Aeronaves

Introducción:

De acuerdo con lo establecido en la norma MRAC LPTA 4.1.1.1.4 (2), la DGAC efectuará la siguiente evaluación oral-práctica al interesado en obtener la licencia TMA, para ejercer como personal certificador del mantenimiento de aeronaves.

Generalidades:

a) Se dispondrá del tiempo necesario que la evaluación y el Examinador Delegado requieran para examinar de forma adecuada al aplicante.

b) La aprobación de esta prueba debe ser con una nota igual o mayor al 80%.

c) La presente guía de preguntas y proyectos está basada en los siguientes libros:
FAA-S-8081-26 Aviation Mechanic General Practical Test Standards.
FAA-S-8081-27 Aviation Mechanic Airframe Practical Test Standards, y
FAA-S-8081-28 Aviation Mechanic Power Plant Practical Test standards.

d) Bases del examen.

1) Las preguntas de cada ejercicio oral y práctico están escritas en el idioma inglés, que es el idioma universal en el cual están escritos todos los manuales de mantenimiento de los fabricantes de aeronaves, aun de los fabricantes de países no angloparlantes. **En virtud, de que el examinando debe demostrar conocimiento en la utilización de manuales en dicha lengua, e interpretar apropiadamente las instrucciones técnicas y prácticas de mantenimiento en inglés.**
Tales manuales y documentos que forman parte del examen y el Examinador Delegado TMA debe de facilitarlos, entre otros son:

- Aircraft Maintenance Manuals-AMM
- illustrated Parts Catalogs-IPC
- Structural Repair Manuals-SRM
- Wiring Diagrams Manuals-WDM
- Air Transport Association of America (ATA), Specification 100 code
- Service Bulletins-SBs
- Airworthiness Directives –Ads
- Type Certificate-TC
- Type Certificate Data Sheet-TCDS
- Technical Standard Orders-TSO
- Parts Manufacturer Approvals-PMA
- Minimum Equipment List-MEL
- AC 43.13-1B - Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair.

2) Las pruebas serán conducidas en español por el Examinador Delegado.

3) Como una segunda opción las pruebas pueden ser efectuadas en el idioma inglés, si el Examinador Delegado TMA y el aspirante a la obtención de la licencia TMA así lo acuerdan, antes de iniciar el proceso de evaluación.

e) El Examinador Delegado deberá evaluar todos los ejercicios de cada pregunta que aparezca marcada con una X en esta guía.

f) Los exámenes prácticos constan de 120 preguntas, 80 orales que miden el nivel de conocimiento en el mantenimiento de aeronaves y 40 para medir las habilidades, las preguntas serán **previamente seleccionadas por la DGAC.**

g) Esta guía de evaluación entregada por la DGAC no debe limitar al Examinador Delegado para apoyarse en preguntas adicionales a las indicadas, e inclusive seleccionar material de apoyo (el cual deberá anexar) si así lo considera conveniente, esto con el fin de garantizarle al aplicante a la licencia TMA una mejor y adecuada evaluación.

h) Regla para el examen práctico.

El examen práctico se aprobará con al menos un 80%.
Si el aspirante no aprueba, no podrá presentarse nuevamente hasta un mes después de la fecha de realización.

Objetivos:

a) Mediante el método de evaluación oral el aplicante debe demostrar dominio y conocimiento de los temas a valorar.
b) Mediante la evaluación práctica el aplicante debe demostrar el conocimiento, la habilidad y destreza al realizar las tareas asignadas.

Demostrar:

El interesado deberá conocer, comprender, e interpretar los datos de mantenimiento de las aeronaves, (Programa de Mantenimiento, boletines de Servicios, Directivas Aprobadas entre otros.)

El interesado deberá demostrar su nivel de conocimiento y habilidad, para realizar tareas de mantenimiento en aeronaves, de forma profesional y segura.

Section I—Aviation Mechanic General.

1. Basic Electricity

Reference: FAA-H-8083-30.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Sources and/or effects of capacitance in a circuit.
b) ( ) Uses of capacitance in a circuit.
c) ( ) Sources and/or effects of inductance in a circuit.
d) ( ) Uses of inductance in a circuit.
e) ( ) Operation of basic AC and/or DC in electrical circuits.
f) ( ) Ohm's law.
g) ( ) Kirchhoff's law(s).
h) ( ) Procedures used in the measurement of voltage, current, and/or resistance.
i) ( ) Determining power used in simple circuits.
j) ( ) Troubleshooting, and/or repair or alteration using electrical circuit diagrams.
k) ( ) Common types of defects that may occur in an installed battery system.
l) ( ) Aircraft battery theory/operation.
m) ( ) Servicing aircraft batteries.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Install wires in an electrical connector plug.
b) ( ) Measure voltage, resistance, current, or continuity in a circuit and determine the appropriateness of the measurement.
c) ( ) Calculate and measure aircraft electrical power requirements.
d) ( ) Calculate and measure total capacitance in an electrical circuit.
e) ( ) Read and interpret aircraft electrical circuit diagrams, including solid state devices and logic functions.
f) ( ) Determine or measure for open electrical circuits.
g) ( ) Interpret electrical system shorts.
h) ( ) Measure electrical system voltages.
i) ( ) Measure electrical system component resistance.
j) ( ) Compute voltage of electrical circuits.
k) ( ) Measure resistance, current, and/or voltage in an electrical circuit.
l) ( ) Calculate and measure total inductance in an electrical circuit.

2. Aircraft Drawings

Reference: FAA-H-8083-30.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Characteristics and/or uses of any of the various types of drawings/blueprints and/or system schematics.
b) ( ) The meaning of any of the lines and symbols commonly used in aircraft sketches/drawings/blueprints.
c) ( ) Using charts or graphs.
d) ( ) Troubleshooting an aircraft system or component(s) using drawings/blueprints and/or system schematics.
e) ( ) Inspection of an aircraft system or component(s) using drawings/blueprints and/or system schematics. 11 FAA-S-8081-26A.
f) ( ) Repair or alteration of an aircraft system or component(s) using drawings/blueprints and/or schematics.
g) ( ) Use of drawings/blueprints in component fabrication.
h) ( ) Terms used in conjunction with aircraft drawings/blueprints and/or system schematics.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Characteristics and/or uses of any of the various types of drawings/blueprints and/or system schematics.
b) ( ) Identify lines and symbols.
c) ( ) Interpret dimensions.
d) ( ) Use installation diagrams and/or schematics.
e) ( ) Draw a sketch of a major repair or alteration.
f) ( ) Use blueprint information.
g) ( ) Use graphs and charts.
h) ( ) Identify blueprint changes.
i) ( ) Determine material requirements from a drawing.

3. Weight and Balance

Reference: FAA-H-8083-30

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Purpose(s) of weighing or reweighing.
b) ( ) General preparations for weighing, with emphasis on aircraft preparation and/or weighing area considerations.
c) ( ) General location of airplane center of gravity (CG) in relation to the center of lift for most fixed main airfoils.
d) ( ) Definitions of any of the following: datum, arm, moment (positive or negative), or moment index.
e) ( ) Meaning and/or application of any terms/nomenclature associated with weight and balance other than those mentioned in element “d” above, including but not limited to any of the following: tare, ballast and residual fuel/oil. FAA-S-8081-26A 12.
f) ( ) Procedures for finding any of the following: datum, arm, moment (positive or negative), or moment index.
g) ( ) Purpose and/or application of mean aerodynamic chord (MAC).
h) ( ) Adverse loading considerations.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Compute the empty weight and empty weight CG of an aircraft.
b) ( ) Check aircraft weighing scales for calibration.
c) ( ) Establish new weight and balance data for an aircraft after an equipment change.
d) ( ) Compute forward and aft loaded CG.
e) ( ) Prepare an aircraft for weighing.
f) ( ) Determine a location for permanent ballast to bring an aircraft back into balance.
g) ( ) Make a maintenance record entry for a weight and balance change.
h) ( ) Compute the amount of fuel needed for minimum fuel for weight and balance computations.

4 Fluid Lines and Fittings

References: AC 43.13-1B; FAA-H-8083-30.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Tubing materials.
b) ( ) Tubing materials application.
c) ( ) Tubing sizes.
d) ( ) Flexible hose material.
e) ( ) Flexible hose materials application.
f) ( ) Flexible hose sizes.
g) ( ) Flexible hose identification.
h) ( ) AN, MS, and/or AC plumbing fittings.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Make a replacement fluid line (aluminum or stainless steel)
b) ( ) Form a bead on tubing.
c) ( ) Fabricate a flare on tubing.
d) ( ) Fabricate and install fittings on a flexible hose.
e) ( ) Identify defects in metal tubing.
f) ( ) Repair a section of tubing.
g) ( ) Install and secure a fluid line with clamps.
h) ( ) Identify fluid and air lines that may be installed on aircraft.

5. Materials and Processes

Reference: FAA-H-8083-30.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Any of the metals commonly used in aircraft and their general application.
b) ( ) Composites and other nonmetallic components and their general application.
c) ( ) Heat-treated parts precautions, using DD or "icebox" rivets.
d) ( ) Typical wood materials and fabric coverings.
e) ( ) Visible characteristics of acceptable and/or unacceptable welds.
f) ( ) Precision measurement and precision measurement tools.
g) ( ) Using inspection techniques/methods, including any of the following: visual, metallic ring test, dye/fluorescent penetrant, magnetic particle, and/or eddy current.
h) ( ) Identification, selection, installation, and/or use of aircraft hardware.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Perform a visual inspection of various welds.
b) ( ) Perform magnetic particle inspection of a steel part.
c) ( ) Identify different kinds of aircraft materials and hardware by using manufacturer’s markings.
d) ( ) Select and install aircraft bolts.
e) ( ) Perform dye penetrant inspection of an aircraft part.
f) ( ) Make precision measurements with an instrument that has a Vernier micrometer scale.
g) ( ) Check the alignment of a shaft.
h) ( ) Safety wires a turnbuckle, using an approved method.

6. Ground Operation and Servicing

Reference: FAA-H-8083-30.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) General procedures for towing aircraft.
b) ( ) Air Traffic Control (ATC) considerations/requirements for towing aircraft on or across active runways.
c) ( ) General procedures for starting, ground operating, and/or taxiing a reciprocating engine powered aircraft.
d) ( ) General procedures for starting, ground operating, and/or taxiing a turbine engine powered aircraft.
e) ( ) The hazards associated with starting, ground operating, and/or taxiing aircraft and procedures for FAA-S-8081-26A 16 preventing, minimizing or otherwise managing any of them.
f) ( ) Procedures for refueling and/or defueling aircraft.
g) ( ) Oxygen system safety practices/precautions.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Start and operate an aircraft reciprocating engine.
b) ( ) Start and operate an aircraft turbine engine.
c) ( ) Prepare an aircraft for engine starting.
d) ( ) Tie down and secure an aircraft for outside storage.
e) ( ) Connect a tow bar to an aircraft and prepare for towing.
f) ( ) Use appropriate hand signals for the movement of aircraft.
g) ( ) Show the procedure for clearing a liquid lock in a reciprocating engine.

7. Cleaning and Corrosion Control

Reference: FAA-H-8083-30.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Aircraft preparation for washing, and general aircraft cleaning (washing) procedures.
b) ( ) Post cleaning (washing) procedures.
c) ( ) Corrosion theory.
d) ( ) Types/effects of corrosion.
e) ( ) Conditions that cause corrosion.
f) ( ) Corrosion prone areas in aircraft.
g) ( ) Corrosion preventive maintenance procedures.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Clean aluminum and/or magnesium parts with caustic cleaners.
b) ( ) Identify approved cleaning agents.
c) ( ) Clean assigned area of aircraft.
d) ( ) Identify different types of corrosion.
e) ( ) Remove corrosion from an aluminum alloy.
f) ( ) Apply protective coating to a metallic material.
g) ( ) Remove iron oxide.

8. Mathematics

Reference: FAA-H-8083-30.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Areas of various geometrical shapes.
b) ( ) Volumes of various geometrical shapes.
c) ( ) Definitions/descriptions of geometrical terms, including but not limited to any of the following: polygon, pi, diameter, radius, and hypotenuse.
d) ( ) Ratio problems, including examples of where or how they may be used in relation to aircraft maintenance or system(s) operation.
e) ( ) Proportion problems, including examples of where or how they may be used in relation to aircraft maintenance or system(s) operation.
f) ( ) Percentage problems, including examples of where or how they may be used in relation to aircraft maintenance or system(s) operation.
g) ( ) Algebraic operations, including examples of where or how they may be used in relation to aircraft maintenance.
h) ( ) Conditions or areas where metric conversion may be necessary.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Determine the square root of given numbers.
b) ( ) Locate the instructions for determining square root.
c) ( ) Locate formulas to determine area and/or volume.
d) ( ) Compute the volume of a cylinder.
e) ( ) Compute the area of a wing.
f) ( ) Calculate the volume of a baggage compartment.
g) ( ) Convert fractional numbers to decimal equivalents.
h) ( ) Compare two numerical values using ratios.
i) ( ) Compute compression ratio
j) ( ) Add, subtract, multiply, and/or divide positive and negative numbers.
k) ( ) Compute the least common denominator of two or more fractions.
l) ( ) Compute the torque value change when using a torque wrench with an extension.

9. Maintenance Forms and Records

References: 14 CFR parts 1, 43, and 91; FAA-H-8083-30.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Writing descriptions of work performed and approval for return to service after minor repairs or minor alterations Volumes of various geometrical shapes.
b) ( ) The content, form, and disposition of aircraft maintenance records reflecting approval for return to service after a 100-hour inspection.
c) ( ) The content, form, and disposition of aircraft maintenance records reflecting disapproval for return to service after a 100-hour inspection.

d) ( ) The recording content, form, and disposition requirements for certificated aviation mechanics (without an Inspection Authorization) that perform major repairs and/or major alterations.

e) ( ) The inoperative instruments or equipment provisions of 14 CFR part 91. f. the definition/explanation of any of the terms used in relation to aircraft maintenance, such as overhaul(ed), rebuilt, time in service, maintenance, FAA-S-8081-26A 20 preventive maintenance, inspection, major alteration, major repair, minor alteration, and minor repair.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Inspect an aircraft and prepare a condition report.
b) ( ) Make a logbook entry for a repair or alteration.
c) ( ) Write a 100-hour inspection aircraft record entry.
d) ( ) Write an AD compliance aircraft record entry.
e) ( ) Complete an FAA Form 337.
f) ( ) Determine aircraft airworthiness by examining maintenance record entries.
g) ( ) Examine a FAA Form 337 for potential errors.
h) ( ) Prepare a master AD list for a specific airframe, engine and/or propeller and determine applicability by make, model, and serial number.

10. Maintenance Publications

Reference: FAA-H-8083-30.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) How a mechanic makes use of Type Certificate Data Sheets (TCDS) and/or Aircraft Specifications in conducting maintenance or inspections.

b) ( ) Aircraft maintenance manuals and associated publications including any of the following types of publications and how they are used: service bulletin, maintenance manual, overhaul manual, structural repair manual, or instructions for continued airworthiness.

c) ( ) The requirements of 14 CFR part 43, sections 43.13, 43.15, or 43.16 in the performance of maintenance. 23 FAA-S-8081-26A.

d) ( ) Airworthiness Directives (AD), including purpose and/or AD categories and/or ADs issued to other than aircraft.

e) ( ) In what form individuals may receive FAA published AD summaries and/or how they may be obtained.

f) ( ) The AD identification numbering system.

g) ( ) FAA Advisory Circulars (ACs) including any of the following: significance of the AC numbering system, one or more examples of ACs issued to provide information in designated subject areas, and one or more examples of ACs issued to show a method acceptable to the FAA complying with the CFRs.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Locate applicable FAA aircraft specifications and/or FAA type certificate data sheet for assigned aircraft or component.
b) ( ) Locate the CG range of assigned aircraft using aircraft specifications and type certificate data sheets.
c) ( ) Locate aircraft flight control travel limits.
d) ( ) Locate manufacturer's service instructions.
e) ( ) Determine applicability of an AD.
f) ( ) Inspect aircraft for compliance with applicable Ad´s.
g) ( ) Check a technical standard order (TSO) part of the proper TSO marking.

Section 2—Aviation Mechanic Airframe

1. Sheet Metal and Non-Metallic Structures

References: AC 43.13-1B; FAA-H-8083-30; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Inspection/testing of sheet metal structures.
b) ( ) Types of sheet metal defects.
c) ( ) Selection of sheet metal.
d) ( ) Layout, and/or forming of sheet metal.
e) ( ) Selection of rivets.
f) ( ) Rivet layout.
g) ( ) Rivet installation.
h) ( ) Inspection/testing of composite structures.
i) ( ) Types of composite structure defects.
j) ( ) Composite structure fiber, core, and/or matrix materials.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Prepare and install a patch for damage to an aircraft or component.
b) ( ) Make a drawing of a repair and determine the number of rivets and size required for the repair.
c) ( ) Remove a patch that was installed with rivets.
d) ( ) Trim and form a piece of sheet metal to fit into a prepared area.
e) ( ) Fabricate a complex aluminum part in accordance with a drawing.
f) ( ) Determine a rivet pattern for a specific repair given pitch, gauge, and edge distance.
g) ( ) Install special fasteners of at least 2 different types.
h) ( ) Perform metallic ring test on bonded structure.
i) ( ) Countersink holes in sheet metal to .010 tolerance.
j) ( ) Inspect composite, plastic, or glass-laminated.

2. Aircraft Covering

References: AC 43.13-1B; FAA-H-8083-31

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Factors used in determining the proper type covering material.
b) ( ) Types of approved aircraft covering material.
c) ( ) Seams commonly used.
d) ( ) Covering textile terms.
e) ( ) Structure surface preparation.
f) ( ) Covering methods commonly used.
g) ( ) Covering means of attachment.
h) ( ) Areas on aircraft covering most susceptible to deterioration.
i) ( ) Aircraft covering preservation/restoration
j) ( ) Inspection of aircraft covering.
k) ( ) Covering repair techniques and practices.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Identify types of material used in aircraft covering
b) ( ) Locate repair instructions for fabric or fiberglass.
c) ( ) Describe needed repairs for a damaged fabric.
d) ( ) Locate instructions for repairing a sewn fabric tear.
e) ( ) Locate instructions for a splice lacing cord.
f) ( ) Locate instructions for the repair of a wing trailing edge fabric damage.
g) ( ) Locate the general requirements for making doped and lapped seams.
h) ( ) Determine the classification of a repair on a fabric-covered surface.

3. Aircraft Finishes

References: AC 43.13-1B; FAA-H-8083-31; 14 CFR part 45.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Protection of airframe structures.
b) ( ) Primer materials.
c) ( ) Topcoat materials.
d) ( ) Surface preparation for a desired finishing material.
e) ( ) Effects of ambient conditions on finishing materials.
f) ( ) Effects of improper surface preparation on finishing materials.
g) ( ) Regulatory requirements for registration markings.
h) ( ) Inspection of aircraft finishes.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Determine location and/or size requirements for aircraft registration numbers.
b) ( ) Prepare composite surface for painting.
c) ( ) Identify finishing materials and thinners.
d) ( ) Layout and mask an aircraft identification marking (“N" number).
e) ( ) Apply dope by brush to a fabric surface.
f) ( ) Apply dope with a spray gun.
g) ( ) Prepare metal surface for painting.
h) ( ) Spray paint metal surfaces.

4. Welding

References: AC 43.13-1B; FAA-H-8083-30; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Flame welding gasses.
b) ( ) Storage/handling of welding gasses.
c) ( ) Flame welding practices and techniques.
d) ( ) Inert-gas welding practices and techniques.
e) ( ) Purpose and types of shielding gasses.
f) ( ) Characteristics of acceptable welds.
g) ( ) Characteristics of unacceptable welds.
h) ( ) Types of steel tubing welding repairs.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Solder aircraft wire and connectors.
b) ( ) Select torch tips.
c) ( ) Select welding rods.
d) ( ) Adjust oxyacetylene flame to neutral appearance.
e) ( ) Perform a silver solder joint.
f) ( ) Braze a lap joint.
g) ( ) Locate the method of cleaning magnesium in preparation for welding.
h) ( ) Fabricate a weld patch (diamond patch).

5. Assembly and Rigging

References: AC 43.13-1B; FAA-H-8083-30; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Control cable..
b) ( ) Control cable maintenance.
c) ( ) Cable connectors.
d) ( ) Cable guides.
e) ( ) Control stops.
f) ( ) Push pull tubes.
g) ( ) Torque tubes.
h) ( ) Bell cranks.
i) ( ) Flutter and flight control balance.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Locate the procedures needed to rig a helicopter.
b) ( ) Locate causes of vertical vibration in a two blade helicopter rotor system.
c) ( ) Locate helicopter rotor blade tracking procedures.
d) ( ) Identify fixed-wing aircraft rigging adjustment locations.
e) ( ) Identify control surfaces that provide movement about an aircraft's axes.
f) ( ) Locate leveling methods and procedures.
g) ( ) Verify alignment of an empennage.
h) ( ) Verify alignment of landing gear.

6. Airframe Inspection

References: AC 43.13-1B; FAA-H-8083-30; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) One or more required inspections under 14 CFR part 91.
b) ( ) Maintenance requirements under 14 CFR part 43.
c) ( ) Inspection requirements under 14 CFR part 43.
d) ( ) Requirements for complying with airworthiness directives.
e) ( ) Compliance with service letters, instructions for continued airworthiness, and/or bulletins.
f) ( ) Compliance with service letters, instructions for continued airworthiness, and/or bulletins.
g) ( ) Maintenance record requirements under 14 CFR part 43.
h) ( ) Maintenance record requirements under 14 CFR part 91.2.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Check a given aircraft for airworthiness directive compliance.
b) ( ) Perform a portion of a 100-hour/annual inspection in accordance with Part 43, Appendix D.
c) ( ) Enter results of a 100-hour inspection in maintenance records.
d) ( ) Perform a portion of the conformity inspection on an engine, airframe, or propeller.
e) ( ) Determine when the next annual and/or 100-hour inspection is required on a specific aircraft.
f) ( ) Determine if a particular repetitive airworthiness directive has been accomplished.
g) ( ) Provide a checklist for conducting a 100-hour inspection.

7. Aircraft Landing Gear Systems

References: AC 43.13-1B; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) landing gear strut servicing/lubrication.
b) ( ) Landing gear steering systems.
c) ( ) Landing gear retraction/extension systems.
d) ( ) Landing gear inspection.
e) ( ) Brake assembly inspection.
f) ( ) Wheel and tire construction g. tire mounting.
g) ( ) Wheel and tire inspection.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Service landing gear air/oil shock strut.
b) ( ) Bleed air from a hydraulic brake system.
c) ( ) Troubleshoot hydraulic brake systems.
d) ( ) Remove, inspect, service, and/or reinstall a wheel assembly.
e) ( ) Demount, inspect, and/or reinstall a tire on a wheel.
f) ( ) Remove, inspect, and/or install a wheel brake assembly.
g) ( ) Inspect a tire for defects.

8. Hydraulic and Pneumatic Power Systems

References: AC 43.13-1B; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Hydraulic and/or pneumatic system, and/or system component(s) function/operation.
b) ( ) Servicing, function, and/or operation of accumulators.
c) ( ) Types of hydraulic/pneumatic seals and/or fluid/seal compatibility.
d) ( ) Hydraulic/pneumatic seal maintenance procedures.
e) ( ) Types of hydraulic/pneumatic filters and/or filter operation.
f) ( ) Filter maintenance procedures.
g) ( ) Pressure regulators and valves.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Identify different types of hydraulic fluids.
b) ( ) Identify different packing seals.
c) ( ) Install seals in a hydraulic component.
d) ( ) Remove and install a selector valve.
e) ( ) Check a pressure regulator and adjust as necessary.
f) ( ) Remove, clean, and install a hydraulic system filter.
g) ( ) Service a hydraulic system accumulator.
h) ( ) Service a hydraulic system reservoir.

9. Cabin Atmosphere Control Systems

References: AC 43.13-1B; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Exhaust heat exchanger and/or system component(s) function, operation, and/or inspection procedures.
b) ( ) Combustion heater and/or system component(s) function, operation, and/or inspection procedures.
c) ( ) Vapor-cycle system and/or system component(s) operation, servicing and/or inspection procedures.
d) ( ) Air-cycle system and/or system component(s) operation and/or inspection procedures.
e) ( ) Cabin pressurization and/or system component(s) operation and/or inspection procedures.
f) ( ) Types of oxygen systems and/or oxygen system component(s) operation.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Locate procedures for troubleshooting a non-operational surface combustion heater.
b) ( ) Locate the procedures for protecting a Freon system from contamination during replacement of a component.
c) ( ) Locate sources of contamination in a Freon system.
d) ( ) Locate the procedures for checking a combustion heater fuel system for leaks.
e) ( ) Identify and describe the units in a Freon system in relation to each other.
f) ( ) Locate the servicing procedures for a vapor-cycle air conditioning system.

10. Aircraft Instrument Systems

References: AC 43.13-1B; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Magnetic compass operation.
b) ( ) Magnetic compass swinging procedures.
c) ( ) Gyroscopic instrument(s) purpose and operation.
d) ( ) Vacuum/pressure and/or electrically operated instrument system operation.
e) ( ) Vacuum/pressure and/or electricity operated instrument system maintenance procedures.
f) ( ) Pitot and/or static instruments purpose and operation.
g) ( ) Pitot and/or static system operation.
h) ( ) 14 CFR parts 43 and/or 91 requirements for static system checks.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Remove and install instruments.
b) ( ) Install range marks on an instrument glass.
c) ( ) Determine barometric pressure using an altimeter.
d) ( ) Check pitot-static heat for proper operation.
e) ( ) Check for proper indication of a manifold pressure gage.
f) ( ) Perform a pitot-static system leak test.
g) ( ) Apply instrument glass slippage marks.
h) ( ) Locate instructions for the inspection of a magnetic compass.

11. Communication and Navigation Systems

References: AC 43.13-1B; 14 CFR part 91; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) 14 CFR part 91 Emergency locator transmitter (ELT) maintenance requirements.
b) ( ) 14 CFR part 91 ELT record keeping requirements.
c) ( ) checking/inspecting coaxial cable.
d) ( ) Coaxial cable installation and/or routing requirements.
e) ( ) Communication and/or navigation systems commonly used.
f) ( ) Proper installation of a com/nav radio in an existing radio rack.
g) ( ) Means of identification of commonly used communication and/or navigation antennas.
h) ( ) Autopilot system basic components and/or sensing elements.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Locate operating instructions for an autopilot system.
b) ( ) Locate autopilot inspection procedures.
c) ( ) List autopilot major components.
d) ( ) Locate and identify navigation and/or communication antennas.
e) ( ) Check very high frequency (VHF) communications for operation.
f) ( ) Inspect a coaxial cable installation for security.
g) ( ) Check an emergency locator transmitter for operation.
h) ( ) Inspect ELT batteries for expiration date.

12. Aircraft Fuel Systems

References: AC 43.13-1B; FAA-H-8083-30; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Fuel system strainer service.
b) ( ) Construction characteristics of one or more types of fuel tanks.
c) ( ) Fuel tank maintenance procedures.
d) ( ) Fuel line routing/installation requirements.
e) ( ) Hazards associated with fuel system maintenance.
f) ( ) Types, characteristics, and/or operation of fuel systems and/or components thereof.
g) ( ) Characteristics, and/or operation of fuel jettison systems and/or components thereof.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Inspect a metal fuel tank.
b) ( ) Inspect a bladder fuel tank.
c) ( ) Inspect an integral fuel tank.
d) ( ) Check manually operated fuel valves for proper operation and/or leaks.
e) ( ) Troubleshoot a fuel valve problem.
f) ( ) Drain fuel system sumps.
g) ( ) Service a fuel system strainer.
h) ( ) Locate instructions for the calibration of a direct reading fuel indicating system.
i) ( ) Inspect a remote indicating fuel quantity system.

13. Aircraft Electrical Systems

References: AC 43.13-1B; FAA-H-8083-30; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Factors to consider when selecting wire size for an aircraft circuit.
b) ( ) Routing and/or installation of electric wire or wire bundles.
c) ( ) Wire splicing.
d) ( ) Use of derating factors in switch selection.
e) ( ) Requirements for circuit protection devices.
f) ( ) Voltage regulator—purpose and operating characteristics.
g) ( ) Lighting and/or lighting system components.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Select and install the appropriate type of wiring in a given electrical circuit.
b) ( ) Select and install the appropriate type of electrical switches in a given circuit.
c) ( ) Secure wire bundles.
d) ( ) Select and install fuses and/or circuit protectors in a given aircraft electrical system.
e) ( ) Determine an electrical load in a given aircraft system.
f) ( ) Install bonding jumpers.
g) ( ) Splice electrical wire.
h) ( ) Check output voltage of a direct current (DC) generator.

14. Position and Warning System

References: AC 43.13-1B; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Anti-skid system basic components.
b) ( ) Anti-skid system operating characteristics.
c) ( ) Takeoff warning system basic components.
d) ( ) Takeoff warning system function and operation.
e) ( ) Control-surface trim indicating system basic components and/or operating characteristics.
f) ( ) Landing gear position indicators.
g) ( ) Flap position indicators.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Identify landing gear position system components.
b) ( ) Troubleshoot landing gear position and/or warning systems.
c) ( ) Identify landing gear warning system components.
d) ( ) Locate procedures for checking operation of an anti-skid warning system.
e) ( ) Locate troubleshooting procedures for an anti-skid system.
f) ( ) Locate troubleshooting procedures for a takeoff warning system.
g) ( ) Inspect landing gear position indicating system.
h) ( ) Repair landing gear position indicating systems.

15. Ice and Rain Control Systems

References: AC 43.13-1B; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Aircraft icing causes/effects.
b) ( ) Ice detection systems.
c) ( ) Anti-ice and/or deice areas.
d) ( ) Anti-ice and/or deice methods commonly used.
e) ( ) Checking and/or troubleshooting a pitot-static anti-ice system.
f) ( ) Anti-icing and/or de-icing system components/operation.
g) ( ) Anti-icing and/or de-icing system maintenance.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Inspect a pneumatic deicer boot.
b) ( ) Perform operational check of pneumatic deicer boot system to determine sequence and timing.
c) ( ) Clean a pneumatic deicer boot.
d) ( ) Check an electrically heated pitot tube system.
e) ( ) Locate procedures for troubleshooting an electrically heated pitot system.
f) ( ) Check an electrically heated water drain system.
g) ( ) Inspect thermal anti-ice systems.

16. Fire Protection Systems

References: AC 43.13-1B; FAA-H-8083-31.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Fire and/or smoke detection system(s) or system components.
b) ( ) Fire extinguishing system(s) and/or system components.
c) ( ) Fire and/or smoke detection system operating characteristics.
d) ( ) Fire extinguishing system operating characteristics.
e) ( ) Determining proper container pressure for an installed fire extinguisher system.
f) ( ) Maintenance procedures for fire detection and/or extinguishing system(s) and/or system component(s).
g) ( ) Inspecting and/or checking a fire detection/overheat system.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Locate inspection procedures for carbon monoxide detectors.
b) ( ) Locate procedures for checking a smoke detection system.
c) ( ) Locate the procedures for inspecting a thermal switch fire detection system.
d) ( ) Inspect, check, troubleshoot, and/or repair a fire detection system.
e) ( ) Inspect a thermos couple fire warning system.
f) ( ) Check a continuous loop fire detection system.
g) ( ) Inspect a continuous loop fire detection system.

Section 3—Aviation Mechanic MOTOR

1. Reciprocating Engines

References: 14 CFR part 43; AC 43.13-1B; FAA-H-8083-32.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Reciprocating engine theory of operation.
b) ( ) Basic radial engine design, components, and/or operation.
c) ( ) Firing order of a reciprocating engine.
d) ( ) Probable cause and removal of a hydraulic lock.
e) ( ) Valve adjustment on a radial engine.
f) ( ) Purpose of master and/or articulating rods.
g) ( ) Checks necessary to verify proper operation of a reciprocating engine.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Inspect a cylinder.
b) ( ) Remove and replace a stud.
c) ( ) Dimensionally inspect a crankshaft.
d) ( ) Install piston and/or knuckle pin(s).
e) ( ) Install cylinder assembly on an engine.
f) ( ) Identify the parts of a cylinder.
g) ( ) Identify the parts of a crankshaft.

2. Turbine Engines

References: 14 CFR part 43; AC 43.13-1B; FAA-H-8083-32.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Turbine engine theory of operation.
b) ( ) Checks necessary to verify proper operation.
c) ( ) Turbine engine troubleshooting procedures.
d) ( ) Procedures required after the installation of a turbine engine.
e) ( ) Causes for turbine engine performance loss.
f) ( ) Purpose/function/operation of various turbine engine components.
g) ( ) Turbine engine maintenance procedures.
h)

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Identify characteristics of different turbine compressors.
b) ( ) Identify types of turbine blades.
c) ( ) Identify major components of turbine engines.
d) ( ) Identify airflow direction and pressure changes in turbojet engines.
e) ( ) Remove and install a combustion case and liner.
f) ( ) Remove and install a fuel nozzle in a turbine engine.
g) ( ) Inspect combustion liners.

Note: Subject area 14. Auxiliary Power Units may be tested at the same time as subject area 2. Turbine Engines. No further testing of auxiliary power units is required.

3. Engine Inspection

References: 14 CFR part 43; AC 43.13-1B; FAA-H-8083-32.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) The use of a type certificate data sheet (TCDS) to identify engine accessories.
b) ( ) Requirements for the installation or modification in accordance with a supplemental type certificate (STC).
c) ( ) Procedures for accomplishing a 100-hour inspection in accordance with the manufacturer's instruction.
d) ( ) Compliance with airworthiness directives.
e) ( ) Changes to an inspection program due to a change or modification required by airworthiness directive or service bulletin.
f) ( ) Determination of life limited parts.
g) ( ) Inspection required after a potentially damaging event, including but not limited to any of the following: sudden stoppage, over speed, or over temperature.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Inspect an engine for compliance with applicable ADs.
b) ( ) Identify an engine by type without reference material other than the data plate.
c) ( ) Determine engine conformity with engine specifications or type certificate data sheet.
d) ( ) Construct a checklist for a 100-hour inspection on an engine.
e) ( ) Perform a portion of the 100-hour inspection on an engine.
f) ( ) Check engine controls for freedom of operation.

g) ( ) Inspect an engine for fluid leaks after performance of maintenance.

4. Engine Instrument Systems

References: AC 43.13-1B; FAA-H-8083-32.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Troubleshoot a fuel flow and/or low fuel pressure indicating system.
b) ( ) The operation of a fuel flow indicating system and where it is connected to the engine.
c) ( ) The operation of a temperature indicating system.
d) ( ) The operation of a pressure indicating system.
e) ( ) The operation of an revolutions per minute (RPM) indicating system.
f) ( ) Required checks to verify proper operation of a temperature indicating system.
g) ( ) Required checks to verify proper operation of a pressure indicating system.
h) ( ) Required checks to verify proper operation of an RPM

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Remove, inspect, and/or install a fuel-flow transmitter.
b) ( ) Remove, inspect, and/or install fuel flow gage.
c) ( ) Identify various components installed on an engine.
d) ( ) Check fuel flow transmitter power supply.
e) ( ) Troubleshoot a fuel-flow system.
f) ( ) Inspect tachometer markings for accuracy.
g) ( ) Perform resistance measurements of thermocouple indication system.

5. Engine Fire Protection Systems

References: AC 43.13-1B; FAA-H-8083-32.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Checks to verify proper operation of an engine fire detection and/or extinguishing system.
b) ( ) Troubleshoots an engine fire detection and/or extinguishing system.
c) ( ) Inspection requirements for an engine fire extinguisher squib and safety practices/precautions.
d) ( ) Components and/or operation of an engine fire detection and/or extinguishing system.
e) ( ) Engine fire detection and/or extinguishing system maintenance procedures.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Identify fire detection sensing units.
b) ( ) Inspect fire detection continuous loop system.
c) ( ) Inspect fire detection thermal switch or thermocouple system.
d) ( ) Check and/or inspect a fire detection warning system.
e) ( ) Locate troubleshooting information for a fire detection system.

6. Engine Electrical Systems

References: AC 43.13-1B; FAA-H-8083-32.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Generator rating and performance data location.
b) ( ) Operation of a turbine engine starter-generator.
c) ( ) The procedure for locating the correct electrical cable/wire size needed to fabricate a replacement cable/wire.
d) ( ) Installation practices for wires running close to exhaust stacks or heating ducts.
e) ( ) Operation of engine electrical system components.
f) ( ) Types of and/or components of direct current (DC) motors.
g) ( ) Inspection and/or replacement of starter-generator brushes.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Use publications to determine replacement part numbers.
b) ( ) Replace an engine-driven generator or alternator.
c) ( ) Service an engine-driven DC generator in accordance with manufacturer's instructions.
d) ( ) Parallel a dual-generator electrical system.
e) ( ) Inspect an engine-driven generator or alternator.
f) ( ) Troubleshoot a voltage regulator in an aircraft electrical generating system.
g) ( ) Repair an engine direct-drive electric starter.

7. Lubrication Systems

References: AC 43.13-1B; FAA-H-8083-32.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Differences between straight mineral oil, ashless dispersant oil, and synthetic oil.
b) ( ) Types of oil used for different climates.
c) ( ) Functions of an engine oil.
d) ( ) Identification and selection of proper lubricants.
e) ( ) Servicing of the lubrication system.
f) ( ) The reasons for changing engine lubricating oil at specified intervals.
g) ( ) The purpose and operation of an oil/air separator.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Determine the correct type of oil for a specific engine.
b) ( ) Identify turbine engine oil filter bypass indicator.
c) ( ) Determine approved oils for different climatic temperatures.
d) ( ) Locate and describe procedures for changing turbine engine oil.
e) ( ) Inspect oil cooler and/or oil lines for leaks.
f) ( ) Inspect an oil filter or screen.
g) ( ) Check engine oil pressure.

8. Ignition and Starting Systems

References: AC 43.13-1B; FAA-H-8083-32.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Troubleshooting a reciprocating and/or turbine engine ignition system.
b) ( ) Replacement of an exciter box and safety concerns if the box is damaged.
c) ( ) Troubleshooting a starter system.
d) ( ) Checking a starter system for proper operation.
e) ( ) The operation of a pneumatic starting system.
f) ( ) Reasons for the starter dropout function of a starter generator or pneumatic starter.
g) ( ) The purpose of a shear section in a starter output shaft.
h) ( ) Purpose of checking a p-lead for proper ground.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Disassemble, identify components, and reassemble a magneto.
b) ( ) Inspect magneto breaker points.
c) ( ) Set internal timing of a magneto.
d) ( ) Test high-tension leads.
e) ( ) Remove and install an ignition harness.
f) ( ) Check a magneto on a test bench.
g) ( ) Check serviceability of condensers.

9. Fuel Metering Systems

References: AC 43.13-1B; FAA-H-8083-32.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Troubleshooting an engine that indicates high exhaust gas temperature (EGT) for a particular engine pressure ratio (EPR).
b) ( ) Purpose of an acceleration check after a trim check.
c) ( ) Reasons an engine would require a trim check.
d) ( ) Purpose of the part power stop on some engines when accomplishing engine trim procedure.
e) ( ) Procedure required to adjust (trim) a fuel control unit (FCU).
f) ( ) Possible reasons for fuel running out of a carburetor throttle body.
g) ( ) Indications that would result if the mixture is improperly adjusted.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Remove, inspect, and install a turbine engine fuel nozzle.
b) ( ) Identify carburetor components.
c) ( ) Interpret diagram showing fuel and air flow through float-type and/or pressure type carburetor.
d) ( ) Remove and/or install a main metering jet in a carburetor.
e) ( ) Service a carburetor fuel inlet screen.
f) ( ) Identify carburetor air-bleed system.
g) ( ) Identify the main discharge nozzle in a pressure carburetor.
h) ( ) Remove and/or install the accelerating pump in a float-type carburetor.

10. Engine Fuel Systems

References: AC 43.13-1B; FAA-H-8083-32

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Inspection requirements for an engine fuel system.
b) ( ) Checks of fuel systems to verify proper operation.
c) ( ) Troubleshooting an engine fuel system.
d) ( ) Procedure for inspection of an engine driven fuel pump for leaks and security.
e) ( ) Function and/or operation of one or more types of fuel pumps.
f) ( ) Function and/or operation of one or more types of fuel valves.
g) ( ) Function and/or operation of engine fuel filters.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Identify components of an engine fuel system.
b) ( ) Remove and/or install an engine-driven fuel pump.
c) ( ) Check a remotely operated fuel valve.
d) ( ) Rig a remotely operated fuel valve.
e) ( ) Inspect a main fuel filter assembly for leaks.
f) ( ) Check fuel boost pumps for correct pressure.
g) ( ) Remove and/or install a fuel boost pump.

11. Induction and Engine Airflow Systems

References: AC 43.13-1B; FAA-H-8083-32.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Inspection procedures for engine ice control systems and/or carburetor air intake and induction manifolds.
b) ( ) Operation of an alternate air valve, both automatic and manual heat systems.
c) ( ) Troubleshooting ice control systems.
d) ( ) Explain how a carburetor heat system operates and the procedure to verify proper operation.
e) ( ) Effect(s) on an aircraft engine if the carburetor heat control is improperly adjusted.
f) ( ) Causes and effects of induction system ice.
g) ( ) Function and operation of one or more types of supercharging systems and components.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Inspect a carburetor preheat system.
b) ( ) Check a carburetor heater box shutter for full travel.
c) ( ) Check carburetor heat.
d) ( ) Identify probable location of induction ice.
e) ( ) Identify turbine engine air intake ice protected areas.
f) ( ) Service an induction air filter.
g) ( ) Inspect a turbocharger for exhaust leaks and security.

11. Engine Cooling Systems

References: AC 43.13-1B; FAA-H-8083-32.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Required inspection on an engine cooling system.
b) ( ) Operation of cowl flaps, and how cooling is accomplished.
c) ( ) How turbine engine cooling is accomplished.
d) ( ) Cooling of engine bearings and other parts on turbine engines.
e) ( ) The importance of proper engine baffle and seal installation.
f) ( ) The operation of a heat exchanger.
g) ( ) The function and operation of an augmenter cooling system.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Repair cylinder head baffle.
b) ( ) Inspect cylinder head baffle plates.
c) ( ) Check cowl flap travel.
d) ( ) Inspect cylinder cooling fin.
e) ( ) Repair cylinder cooling fin.
f) ( ) Identify location of turbine engine insulation blankets.
g) ( ) Identify turbine engine cooling airflow.

12. Engine Exhaust and Reverser Systems

References: AC 43.13-1B; FAA-H-8083-32.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Exhaust leak indications and/or methods of detection.
b) ( ) Thrust reverser system operation and components.
c) ( ) Differences between a cascade and a mechanical blockage door thrust reverser.
d) ( ) Hazards of exhaust system failure.
e) ( ) Effects of using improper materials to mark on exhaust system components.
f) ( ) Function and operation of various exhaust system components.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Identify the type of exhaust system on a particular aircraft.
b) ( ) Inspect exhaust system components.
c) ( ) Repair exhaust system components.
d) ( ) Clean exhaust system components.
e) ( ) Inspect reciprocating engine exhaust system.
f) ( ) Inspect exhaust system internal baffles or diffusers.
g) ( ) Remove and install exhaust ducts.

13. Propellers

References: AC 43.13-1B; FAA-H-8083-32.

Objectives:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Propeller theory of operation.
b) ( ) Checks necessary to verify proper operation of propeller systems.
c) ( ) Procedures for proper application of propeller lubricants.
d) ( ) Installation or removal of a propeller.
e) ( ) Measurement of blade angle with a propeller protractor.
f) ( ) Repairs classified as major repairs on an aluminum propeller.
g) ( ) Reference data for reducing the diameter of a type certificated propeller.

B) Determine that, the applicant can demonstrate skill to perform a minimum, one of the following items:

a) ( ) Perform propeller lubrication.
b) ( ) Locate the procedures for balancing a fixed-pitch propeller.
c) ( ) Remove, inspect, and/or install a propeller governor.
d) ( ) Remove and/or install a propeller.
e) ( ) Check track of a propeller.
f) ( ) Adjust a propeller governor.
g) ( ) Determine propeller blade pitch angle.

14. Turbine Powered Auxiliary Power Units

References: AC 43.13-1B; FAA-H-8083-32.

Objective:

A) Determine that, the applicant exhibits knowledge in a minimum, two of the following items:

a) ( ) Inspection to ensure proper operation of turbine driven auxiliary power unit.
b) ( ) Replacement procedure for an igniter plug.
c) ( ) Servicing an auxiliary power unit.
d) ( ) Troubleshooting an auxiliary power unit.
e) ( ) Function and operation of auxiliary power unit(s).

Note: Subject area 14. Auxiliary Power Units may be tested at the same time as subject area 2. Turbine Engines. No further testing of auxiliary power units is required.

DIRECCIÓN GENERAL DE AVIACIÓN CIVIL DE COSTA RICA

Nota obtenida_____ %

Resultado

☐Pericia Satisfactoria ☐Pericia No Satisfactoria

Observaciones:

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Datos del Postulante	
Nombre:	Cédula o pasaporte vigente:
Firma:	Fecha inicio:
Firma:	Fecha fin:

Datos del Examinador Designado de TMA	
Nombre:	Cédula o pasaporte vigente:
Firma:	Fecha inicio:
Firma:	Fecha vencimiento designación del examinador:

Supervisor AIR / DAGC si aplica	
Nombre:	Fecha/Firma