



Instruction N° 00387 /CCAA/DG/DSA/SDNV/NMA of 27 AVR 2011
Relative to the Licensing and Qualification of Aircraft Maintenance Technicians (AMT).

1.1 General rule relative to licensing and qualification of personnel other than flight crew members.

1.1.1 Before obtaining a license or qualification other than that for flight crew members, you must fulfil the following requirement: age; knowledge; experience; and when necessary, a physical and mental aptitude test; and fitness specified for the license or qualification.

1.1.2 The holder of a licence or qualification other than that for flight crew members will have to proof by the requirements established by the issuing service that he/she satisfies the conditions of knowledge and fitness specified for the license or qualification.

1.2 Licensing/Certification of aircraft maintenance (technicians/mechanics).

1.2.1 Basic Required conditions for licence issuance.

- You must be
 - o at least 18 years old;
 - o able to read, write, speak, and understand English and French.
- You must be holder of a "Baccalaureat" or "A' Level" degree.
- You must get 18 months of practical experience with either power plants or airframes, or 30 months of practical experience working on both at the same time. As an alternative to this experience requirement, you can graduate from a CCAA – Approved Aviation Maintenance Technician School.
- You must pass three types of tests;
 - o a written examination
 - o an oral test
 - o a practical test

Non-Cameroonians

- You must satisfy all the requirements listed for Cameroonian citizens in addition to the following:
 - o Demonstrate you need a mechanic certificate to maintain Cameroon registered civil aircrafts and you are neither a Cameroonian nor a resident alien.
 - o Show your passport.
 - o Provide a detailed statement from you employer saying what specific types of maintenance you performed on each aircraft, and how long you performed it.

- Provide a letter from the foreign airworthiness authority of the country in which you got your experience, or from an advisor of the international Civil Aviation Organization (ICAO) or Federal Aviation Administration (FAA), validating your maintenance experience.
- Provide an FAA mechanic licence/certificate with proof of work for at least 6 months within the past 24 consecutive months.
- Make sure all the documents you provide are signed and dated originals.
- Pay the fee for the document review.

1.2.1.1 Age

- You must be at least 18 years old.

1.2.1.2 Language

- You must be able to speak, write and understand English and/or French. Language requirement may be waived if you live outside of Cameroon. Certificate will be stamped "Valid outside of Cameroon only."

1.2.1.2 Knowledge

- Each applicant for a mechanic certificate or rating must, after meeting the applicable experience requirements, pass a written test covering the following three subject areas:
 - General
 - Mathematics: Arithmetic; Algebra; Geometry and Trigonometry.
 - Physics: Matter and Energy; Work, Power, Force and Motion; Gas and Fluid Mechanics; Aerodynamics; High-Speed Aerodynamics; Helicopter Aerodynamics.
 - Basic Electricity: Theory and Principles; Direct Current; Batteries; Alternation Current; Electron Control Devices; Electrical Measuring Instruments; Circuit Analysis.
 - Electrical Generators and Motors: DC Generators; Alternators; Motors.
 - Aircraft Drawings: Types of Drawings; Drawing Practices; Charts and Graphs.
 - Weight and Balance: Weighing Procedures; Shifting the CG; Helicopter Weight and Balance.
 - Aircraft Structural Materials: Metals; Non-metallic Materials.
 - Aircraft Hardware: Aircraft Rivets; Aircraft Fasteners.

- Hand Tools and Measuring Devices: Hand Tools; Measuring and Layout Tools.
 - Fluid Lines and Fittings: Rigid Fluid Lines; Flexible Fluid Lines.
 - Non-destructive Testing: Visual Inspections; Electronic Inspections.
 - Cleaning and Corrosion: Aircraft Cleaning; Types of Corrosion; Corrosion Detection; Treatment of Corrosion.
 - Ground Handling and Servicing: Shop Safety; Flight Line Safety; Servicing Aircraft.
 - Maintenance Publications, Forms, and Records: Maintenance Publications; Forms and Records.
 - Mechanic Privileges and Limitations: The Mechanic Certificate.
- Airframe
 - Aircraft Structural Assembly and Rigging: Aircraft Design and Construction; Airplane Assembly and Rigging; Fundamentals of Rotary-Wing Aircraft.
 - Sheet Metal Structure: Metallic Aircraft Construction; Sheet Metal Tools and Fasteners; Sheet Metal Fabrication; Inspection and Repair of Metallic Aircraft Structures.
 - Wood, Composite, and Transparent Plastic Structures: Aircraft Wood Structures; Composite Structures; Transparent Plastic Materials.
 - Aircraft Welding: Welding Processes; Advanced Welding and Repairs; Basic Gas Welding.
 - Aircraft Fabric Covering: Fabric Covering Process; Covering Procedures; Inspection and Repair of Fabric Covering.
 - Aircraft Painting and Finishing: Fabric Finishing Processes; Aircraft Painting Processes; Finishing Equipment and Safety.
 - Airframe Electrical Systems: Airborne Sources of Electrical Power; Aircraft Electrical Circuits; Wiring Installation; Electrical System Components.
 - Hydraulic and Pneumatic Power Systems: Principles of Hydraulic Power; Hydraulic System Components and Design; Hydraulic Power Systems; Aircraft Pneumatic Systems.
 - Aircraft Landing Gear Systems: Landing Gear Systems and Maintenance; Aircraft Brakes; Aircraft Tires and Tubes.
 - Position and Warning Systems: Antiskid Brake Control Systems; Indicating and Warning Systems.
 - Aircraft Instrument Systems: Principles of Instrument Systems; Instrument System Installation and Maintenance.

- Aircraft Avionics Systems: Avionics Fundamentals; Autopilots and Flight Directors; Installation and Maintenance of Avionics.
- Airframe, Ice and Rain Control: Airframe Ice Control Systems; Rain Control Systems.
- Cabin Atmosphere Control Systems: Flight Physiology; Oxygen and Pressurization Systems; Cabin Climate Control Systems.
- Aircraft Fuel Systems: Aviation Fuels and Fuel Systems Requirements; Fuel System Operation; Fuel System Repair, Testing, and Servicing.
- Fire Protection Systems: Fire Detection; Fire-Extinguishing Systems.
- Aircraft Airworthiness Inspection: Required Airworthiness Inspections; Inspection Guidelines and Procedures; Aircraft Maintenance Records.
- Powerplant
 - Reciprocation Engines: Design and construction; Operating Principles.
 - Reciprocation Engine Operation, Maintenance, Inspection and Overhaul: Engine Operation Maintenance and Inspection; Engine removal and Overhaul.
 - Turbine Engines: Design and Construction; Operating Principles.
 - Turbine Engine Operation, Maintenance, Inspection, and Overhaul: Engine Operation Maintenance and Inspection; Engine removal and Overhaul.
 - Induction Systems: Reciprocating Engines; Turbine Engines.
 - Fuel and Fuel Metering: Fuel Systems; Reciprocating Engine Fuel Metering; Turbine Engine Fuel Metering.
 - Ignition and Electrical Systems: Generators; Alternators; Motors and Starting Systems; Electrical System Components; Reciprocating Engine Ignition Systems; Turbine Engine Ignition Systems.
 - Lubrication Systems: Engine Lubricating Oils; Reciprocation Engines; Turbine Engines.
 - Cooling Systems: Reciprocating Engine; Turbine Engines.
 - Engine Fire Protection: Fire Detection Systems; Fire Extinguishing Systems.
 - Propellers: Propeller Principles; Fixed Pitch Propellers; Adjustable Pitch Propellers; Turboprop Propellers; Auxiliary Propeller Systems; Propeller Inspection, Maintenance and Installation.
- Human performance and limit applicable to a holder of an aircraft maintenance licence.

- Each applicant for a mechanic certificate or rating must, after meeting the applicable experience requirements, pass a written test covering the construction and maintenance of aircraft appropriate to the rating he/she seeks.
- The applicant must pass each section of the test before applying for the oral and practical tests. A report of the written test is sent to the applicant.

1.2.1.3 Experience

- You can get the experience you need to become a certified power plant or airframe mechanic in one of three ways:
 - o You can attend one of the CCAA approved Aviation Maintenance Technician Schools. You need at least a high school diploma to get in to these schools.
 - o You can work at an approved CCAA Aircraft Maintenance Organization (AMO) or an approved Part-145 AMO under the supervision of a certified mechanic for 24 months for each certificate, or 48 months for both. You must document your experience with pay receipts, a log book signed by your supervising mechanic, a notarized statement from your employer, or other proof you worked the required time.
 - o You can join one of the armed services and get training and experience in aircraft maintenance. Make sure you are in a military occupational specialty for which CCAA gives credit. You must present an official letter from your military employer certifying your length of service, the amount of time you worked in each specialties, the make and model of the aircraft or engine on which you got practical experience, and where you got the experience. You cannot count time you spent training for the specialty, only the time you spent working in the specialty.
- To obtain an Airframe and Poperplant (A&P) license, you must have acquired the following specified experience concerning inspection, repairation, and maintenance of aircrafts or components:
 - o Each applicant for a mechanic certificate or rating must present either an appropriate graduation certificate or certificate of completion from a certificated aviation maintenance technician school or documentary evidence, satisfactory to the Administrator, of --
 - at least 24 months of practical experience with the procedures, practices, materials, tools, machine tools, and equipment generally used in constructing, maintaining, or altering airframes, or powerplants appropriate to the rating sought; or
 - at least 48 months of practical experience concurrently performing the duties appropriate to both the airframe and powerplant ratings.

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- To get a repairman's certificate, you must be recommended by a repair station, commercial operator, or air carrier. You must
 - o be qualified to perform maintenance on aircraft or components.
 - o be employed on a specific job requiring special qualifications by a CCAA-certified Repair Station, commercial operator, or air carrier.
 - o be recommended for the repairman certificate by your employer.
 - o have either 24 months practical experience in the specific job or complete a formal training course acceptable to CCAA.
- With all types of on-the-job training you should set aside additional study time to prepare for the written and oral/practical tests. CCAA will give you credit for your practical experience only after we review your paperwork and you have a satisfactory interview with a CCAA Airworthiness inspector.

1.2.1.4 Training

- Recommendation – It is recommended that the candidate successfully completes a training course or training program geared towards the privileges being given.
- The ICAO instruction manual (Doc7192) Part D-1 contains indicative elements concerning training courses for aircraft maintenance licence candidates.
- Airframe and Powerplant (A&P) certificates:
 - o A&P Maintenance – 2100 clock hours.
 - o Airframe single rating certificate – 1268.75 clock hours.
 - o Powerplant single rating certificate – 1293.75 clock hours.
 - o Airframe add-on certificate – 806.26 clock hours.
 - o Powerplant add-on certificate – 831.25 clock hours.

A&P Course Title	A&P Course Description	Clock Hours
Aviation Science	Mathematics, Basic Physics, Maintenance Forms, Records and Publications	150
Aviation Basic Electricity	Basic Electricity, Materials and Processes (Eddy Current, Ultra sound, etc)	150
Aviation General Studies	Aircraft Drawings, Weight and Balance, Fluid Lines and Fittings, Ground Operations, Cleaning and Corrosion Control, Mechanic Privileges and Limits	150
Metallic Structures	Sheet Metal Structures	150
Non-Metallic Structures	Wood Structures, Aircraft Coverings, Aircraft Finishes, Non-Metallic Structures, Ice and Rain Control, Fire Protection	150
Pneudraulics/Airframe	Hydraulic and Pneumatic Power Systems, Landing Gear, Aircraft Electrical	150
Aircraft Systems	Cabin Atmosphere Control Systems,	150

	Communication and Navigation Systems, Instrument Systems	
Aircraft Controls & Inspection	Welding Assembly and Rigging, Aircraft Fuel Systems, Airframe Inspection	150
Reciprocation Engines	Reciprocation Engines	150
Powerplant Electrical	Fire Protection, Engine Instrument Systems, Engine Electrical Systems, Ignition and Starting Systems	150
Turbine Engines	Turbine Engines, Fuel Metering Systems, Engine Exhaust and Reverser Systems, Auxiliary Power Systems	150
Propeller and Engine Inspection	Propellers, Unducted Fans, Engine Inspection, Engine Exhaust Systems, Engine Cooling Systems	150
Powerplant Systems	Induction Systems, Fuel Metering Systems, Lubrication Systems, Fuel Systems	150
Powerplant Troubleshoot	Engine Troubleshooting, Engine change – General Airframe and Powerplant Subjects Review and Testing.	150

Avionics Certificate

Advance Electronics Technology 2100 clock hours

Basic Electronics Certificate 1050 clock hours

Avionics Course Title	Avionics Course Description	Clock hours
	Introduction to electronics – Technical Math, Technical Electrical Symbolizations, Verbal and Written Communications, Fundamental Electronics, DC circuits	150
	AC and Rectifier Circuits	150
	Amplifiers and Amplifier Circuits – Junction and MOS Transistors, Differential Amplifiers, Opamps	150
	Troubleshooting and repair – Reading and interpreting schematic diagrams, high reliability soldering	150
	Communication systems – AM, SSBAM, FM, PM oscillators, modulators, mixer buffers and amplifiers	150
	Analog instruments and systems OPAMP, OPAMP circuits, transducers	150
	Digital instruments and systems imbedded processors, programmable array logic, serial databus structures	150
	Standard avionics practices – CCAR's, ATA codes, Inspection procedures,	150

	cabling	
	Communication and navigation systems – ADF, VOR, NAV, HF COMM/NAV, LORAN	150
	Aircraft systems – Boeing aircraft electrical power generation, Airbus aircraft electrical power generation, aircraft heating, cooling, pressurization, instrumentation, fuel, fire protection, pneumatic, resume writing and job-search techniques	150
	Aircraft pulse systems – radar and radar systems	150
	Aircraft autopilot systems – servo and synchro, hydraulic, compass, autopilot, flight director systems	150
	Aircraft / avionics systems integration (aircarrier equipment)	150
	Advanced aircraft systems – ACARS, AIRCOM, SATCOM, MES, RS, GPS, INS, DNS, MLS, HGS, LINS, FMS, EFIS, AFDS, EICAS, ECAM, CMCS, PFDU, CFDS, TAS	150

1.2.1.5 Eligibility

- To be eligible for a mechanic certificate and associated ratings, a person must --
 - o Have passed all of the prescribed tests within a period of 24 months; and
 - o Comply with the mentioned requirements that apply to the rating he/she seeks.
 - o A certificated mechanic who applies for an additional rating must meet the requirements and, within a period of 24 months, pass the tests prescribed for the additional rating sought.

1.2.1.6 Skill Requirements

- Each applicant for a mechanic certificate or rating must pass an oral and a practical test on the rating he/she seeks. The tests cover the applicant's basic skill in performing practical projects on the subjects covered by the written test for that rating. An applicant for a powerplant rating must show his ability to make satisfactory minor repairs to, and minor alterations of, propellers.

1.2.1.7 Aircraft Mechanic Oral, Practical, & Written Tests

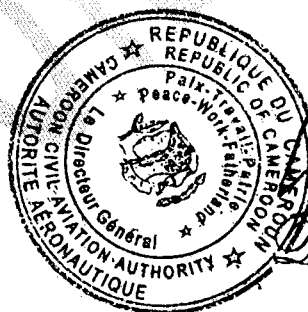
- To become an aircraft mechanic, you must take oral and practical tests as well as written tests. There is a fee for the test. A CCAA examiner gives you the oral and practical test. The oral and practical tests cover 43 technical subjects. Typically tests for one certificate--airframe or power plant--takes about 8 hours.
- To apply to take the written test, you must present your proof of experience to a CCAA inspector at the local CCAA office. There are separate tests for airframe and power plant mechanic certificates, as well as a general test covering both. If the inspector decides you meet the requirements to take one of the tests, you may make an appointment for testing.
- If you fail part of a test, you have to wait 30 days before you can take it again, unless you give a letter to the Examiner showing you've gotten additional training in the areas you failed.
- You must pass all the tests within a 24-month period. CCAA will then issue you a certificate.

1.2.1.8 Privileges of holder of license and conditions to observe when exercising his privileges.

- A certificated mechanic may not exercise the privileges of his certificate and rating unless, within the preceding 24 months --
 - o The Administrator has found that he is able to do that work; or
 - o He has, for at least 6 months --
 - Served as a mechanic under his certificate and rating;
 - Technically supervised other mechanics;
 - Supervised, in an executive capacity, the maintenance or alteration of aircraft; or
 - Been engaged in any combination of the above points.
- A certificated mechanic with a powerplant rating may approve and return to service a powerplant or propeller or any related part or appliance, after he has performed, supervised, or inspected its maintenance or alteration (excluding major repairs and major alterations). In addition, he may perform a required 100-hour inspection on a powerplant or propeller, or any part thereof, and approve and return it to service.
- A certificated mechanic may perform or supervise the maintenance, preventive maintenance or alteration of an aircraft or appliance, or a part thereof, for which he is rated (but excluding major repairs to, and major alterations of, propellers, and any repair to, or alteration of, instruments). However, he may not supervise the maintenance, preventive maintenance, or alteration of, or approve and return to service, any aircraft or appliance, or part thereof, for which he is rated unless he has satisfactorily performed the work concerned at an earlier date. If he has not so performed that work

at an earlier date, he may show his ability to do it by performing it to the satisfaction of the Administrator or under the direct supervision of a certificated and appropriately rated mechanic, or a certificated repairman, who has had previous experience in the specific operation concerned.

- A certificated mechanic may not exercise the privileges of his certificate and rating unless he/she understands the current instructions of the manufacturer, and the maintenance manuals, for the specific operation concerned.
- A certificated mechanic with an airframe rating may approve and return to service an airframe, or any related part or appliance, after he/she has performed, supervised, or inspected its maintenance or alteration (excluding major repairs and major alterations). In addition, he/she may perform a required 100-hour inspection on an airframe, or any related part or appliance, and approve and return it to service.
- Each person who holds a mechanic certificate shall keep it within the immediate area where he normally exercises the privileges of the certificate and shall present it for inspection upon the request of a CCAA Inspector or an authorized representative of the Ministry of Transport, or of any State, or local law enforcement officer.
- A certificate is of such duration as is provided in the currently effective CCAA regulations, unless suspended or revoked. An airman is not authorized to exercise privileges of any class or ratings issued in error and should return the certificate immediately for correction.
- Alteration of this certificate is subject to a fine, and/or imprisonment.



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