



Civil Aviation Safety Authority
of Papua New Guinea

Advisory Circular

AC61-8

Pilot Licences and Ratings – Flight Instructor Ratings and Authorisations

Issue 2

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GENERAL

Civil Aviation Safety Authority Advisory Circulars (AC) contain information about standards, practices and procedures that the Director has found to be an Acceptable Means of Compliance (AMC) with the associated rule.

An AMC is not intended to be the only means of compliance with a rule, and consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices or procedures are found to be acceptable, they will be added to the appropriate Advisory Circular.

This Advisory Circular also includes Explanatory Material (EM) where it has been shown that further explanation is required. Explanatory Material must not be regarded as an acceptable means of compliance.

PURPOSE

This Advisory Circular provides methods, acceptable to the Director, for showing compliance with the flight instructor ratings and authorisations requirements of Rule Part 61 and explanatory material to assist in showing compliance.

RELATED CAR

This AC relates specifically to Civil Aviation Rule Part 61 Subpart H

CHANGE NOTICE

This AC replaces Issue 1 dated 1 April 2015.

APPROVAL

This AC has been approved for publication by the Director of Civil Aviation

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INTRODUCTION

This advisory circular supports Rule Part 61 Subpart H.

Subpart H – Flight Instructor Ratings

Rule 61.303 Eligibility requirements

- (a) Rule 61.303 requires an applicant for a flight instructor rating to have flight time experience acceptable to the Director. Attainment of the experience requirements detailed in Appendix I of this subpart advisory circular is acceptable.
- (b) Rule 61.303 requires an applicant for a flight instructor rating to have satisfactorily completed an approved course with examination in the practice and theory of flight instruction. This requirement would be met by meeting the requirements detailed in Appendix II of this subpart advisory circular at an organisation certificated under Civil Aviation Rule Part 141 to offer that course.
- (c) Rule 61.303 requires an applicant for a flight instructor rating to have passed specified written or oral examinations. Attainment of the written syllabuses detailed in Appendix III of this subpart advisory circular would meet these requirements.
- (d) Rule 61.303 requires an applicant for a flight instructor rating to demonstrate competency in flight instruction to a flight examiner. Attainment of the flight test syllabuses detailed in Appendix IV of this subpart advisory circular would meet these requirements.

Rule 61.305 Privileges and limitations

- (a) Rule 61.305 requires the holder of a basic flight instructor rating to be under the supervision of the holder of a flight instructor rating with supervision authorisation. This requirement would be met by the supervising flight instructor:
 1. accepting supervisory responsibility by signing a certificate, and
 2. on a regular basis both monitoring pre-flight briefings given by the basic flight instructor to students and flying with the students, and
 3. overseeing, advising, helping, and guiding the basic flight instructor, and
 4. if not satisfied with the basic flight instructor's briefings or flight instructional standards, reporting such deficiencies to the flight instructor and to the Director, and
 5. in accordance with Rule 61.305, for at least the first 6 months and for at least the first 100 hours of instructional flying, directly supervising the basic flight instructor by being on the same airfield, at the same time, and being directly responsible for the actions of that person.
- (b) In meeting the requirements of 61.305, the following wording, which may be in the form of a stick-on label or a rubber stamp, would be acceptable:

I hereby certify that, in accordance with Civil Aviation Rule 61.305, basic flight instructor.....is under my supervision, and for at least the first 6 consecutive months and for at least the first 100 hours of instructional flying, is under my direct supervision.

Signed DateInstructor Category Licence number

Rule 61.307 Currency requirements

Rules 61.307(c) states that flight instructors shall not give flight instruction unless they have demonstrated competency in accordance with the appropriate flight instructor flight test syllabus. In accordance with the concepts of Rule 61.41, instructors who do not meet the requirements for their rating, but who meet the requirements for a lower category rating, may exercise the privileges of that lower category of flight instructor rating.

Appendix I Flight Instructor Rating Experience and Training Course Requirements

Agricultural aircraft operations instruction authorisation

Total flight experience: At least 2000 productive hours experience as an agricultural pilot. This time is to include at least the minimum flight time requirements that follow.

To instruct in topdressing: 100 hours of topdressing operations experience in the appropriate category of aircraft.

To instruct in spraying: 100 hours of spraying operations experience in the appropriate category of aircraft.

Instructor Rating Flying Training course: The techniques of basic flying instruction comprising 25 hours dual flight time, of which 10 hours are to be in the appropriate category of aircraft. All 25 hours are to be given by a senior flight instructor. This should not include aerobatics, spinning, night or multi-engined aeroplane instruction, which may be done in addition to the 25-hour requirement.

Appendix II Flight Instructor Instructional Techniques Syllabus

General

This course is to include at least 12 hours of classroom tuition, and is to include the topics that follow.

Learning theory: Definition of learning, understanding, types of understanding, factors affecting understanding, positive and negative transfer, positive and negative motivation, and factors which aid or hinder the learning process.

Instructional techniques: Effective communication, teaching methods, lecture, theory and skill lessons, questioning technique, guided discussion, briefing, and application of learning and teaching principles to airborne instruction.

The assessment of learning: Elements of written, oral and performance testing to assist instruction, recording of assessments.

Aids to instruction: Types of aids, how to use teaching aids.

Behavioural objectives

Lesson planning

The lesson: Conducting the period and the pre-flight briefing.

The instructor: Role and qualities.

[This course is to be—

- (a) taught by the holder of a relevant teacher's Diploma, or equivalent as determined by the New Zealand Qualification Authority; or*
- (b) conducted by the holder of an aviation training organisation certificate issued under Part 141, where the certificate authorises the holder to conduct that training]*

Appendix III Flight Instructor Oral Examination Syllabuses

General

All applicants for flight instructor ratings are examined orally in the theory and practice of flight instruction as follows.

Techniques of applied instruction: Assessment of student performance in those subjects in which ground instruction is given, the learning process, elements of effective teaching, student evaluation and testing, training philosophies, training programme development, lesson planning, classroom instructional techniques, use of training aids, analysis and correction of student errors, human performance and limitations relevant to flight instruction, and hazards involved in simulating system failures and malfunctions in the aircraft.

Agricultural flight instructor authorisations

This is in addition to the oral examination syllabus for all applicants, and it concentrates on the appropriate part of the syllabus for topdressing or spraying instructors as required. Some items in the syllabus are annotated as (A) or (H) only, as appropriate to the aircraft category of the rating.

Legislation: Civil aviation rules, advisory circulars and any other legislation relating to agricultural aviation.

Ground equipment: Knowledge of mixing and measuring gear, safety bars (A), grills (A), filters, crowbars (A), windsock or other means of wind indication, first aid kit, fire extinguishers, refueling from drums, chamois filters, and pumps.

Ground personnel: Responsibility for briefing ground personnel, signals for communications, drills of vital actions in emergencies.

Materials to be applied: Inspection and knowledge of materials, precautions and antidotes, gloves, breathing apparatus, hygiene, effects on field personnel, protection of persons and property, effects of wind, temperature, humidity, flow quantities and densities, droplet size, application rates, application techniques (H), computing of application rates (A), care and storage, corrosion, disposing of containers, and decontamination.

The aircraft: Flight manual and graphs, agricultural overload, emergency equipment and jettison (its use and effect), the fitting and use of ancillary equipment, for example seeders, spray gear, and their effect on performance, weight and balance, jettison and so on, calibration of application equipment, and inspections and maintenance in the field.

Landing site and operation: Importance of briefing, importance of flight inspection before landing, obstructions, wind indications, overshoot, side slope and width, nature of surface, ground effect, dust, stones, effect of sun especially on sloping strips, presence of stock, fencing, presence of third party risk, effect of altitude, temperature, slope, wind, wind gradient, and turbulence, climb out, cross-wind take-off and landing, techniques for landing sites, and positioning of loader and other equipment to minimise obstruction.

Low flying, spraying or sowing: Briefing and familiarisation with area before operations, obstructions (particularly wires), trees (especially dead trees and deciduous trees when bare), sun and shadow, blind valleys and care when flying into rising ground, spatial disorientation, effect of loss of translation (H), RPM control (H), flying through rotor wash (H), power settling (H), wind gradient and turbulence especially while turning (A), desirable application height, contour flying, avoidance of obstacles (A), stalls (A), and use of flaps (A), fuel management, avoidance of houses and schools, protection of persons in dropping area, susceptible crops, stock concentrations, catchment areas, and boundaries (A).

Planning of operation: Safety, effectiveness and economics.

Emergencies: Power failure — forced landings.

Plus for aeroplanes only:

Effects of surface on acceleration and braking, soft or hard dirt, long and short grass, clover, dew, frost, snow, and thaw, application of aircraft performance requirements, blind strips and likelihood of encroachment on airstrip while loading or refueling, and special attention to stock ground handling.

All flight instructor ratings

This is in addition to the oral examination syllabus for all applicants. Some items in the syllabus are annotated as (A) or (H) only, as appropriate to the aircraft category of the rating.

Principles of flight for aeroplanes: Mechanics, air and airflow, air resistance, aerofoils, lift and drag, thrust, level flight, gliding, climbing, performance, manoeuvres, stability and control.

General aerodynamics and performance for helicopters: Aerodynamics of flight, loads and load factors, function of the controls, helicopter components and their functions, introduction to the helicopter flight manual, weight and balance, helicopter performance, hazards of helicopter flight, precautionary measures and critical conditions, helicopter flight manoeuvres, night operations, and operation in confined areas.

Meteorology: Interpretation of meteorological forecasts and reports.

Cross-country navigation techniques: Flight planning, in-flight procedures, air traffic control procedures and meteorological minima applicable to the aerodrome of the test and aerodromes within a 300 nm (A) and 200 nm (H) radius at that aerodrome, and meteorological minima for special VFR.

Appendix IV Flight Instructor Rating Flight Test Syllabuses

All flight instructor ratings — Aeroplane

Intercommunication equipment of an approved type is to be provided for use during the flight test.

Briefings: The flight test will be preceded by a demonstration of a comprehensive pre-flight briefing and followed by a post-flight briefing by the applicant.

Normal flight manoeuvres: Familiarisation with the aeroplane, preparation for flight and action after flight, air experience, effect of controls, taxiing, straight and level flight, climbing, descending, medium turns, take-off and climb, approach and landing, advanced turning, and low flying.

Emergency manoeuvres: Drills, stalling, forced landings.

Spinning: Optional for basic instructors, compulsory for senior supervisors

First solo: Oral discussion. Supervising instructor authorisations only.

Navigation: Pilot navigation including VFR cross-country navigation, use of navigation aids where applicable.

Instrument flight: Including the use of ADF and VOR for tracking purposes for basic instructors and including instrument approach procedures for seniors and instrument authorisations.

Aerobatics: Optional but compulsory for ??.

Night flying: Optional for ?, compulsory for ?.

Multi-engined aeroplane: Optional.

Flight Instructor Rating — Aeroplane

Intercommunication equipment of an approved type is to be provided for use during the flight test.

Pre-flight: Check of aeroplane, internal and external, knowledge of release to service, certificate of airworthiness and flight manual including load sheet and performance aspects, and cockpit drills or check lists.

Normal flight manoeuvres: Taxiing, take-off and landing (including cross-wind); turning - climbing, level, medium, steep and descending; use of flap, side-slipping, and operation into minimum length fields in accordance with performance charts, and overshoot procedure.

Emergency manoeuvres: Recovery from stalls entered from both level and banked attitudes, and where applicable with wheels and flaps up, and with wheels or flaps (or both) down, spinning and recovery (where applicable), action in the event of fire, forced landing without power, engine failure during or after take-off, flight with one or more engines inoperative (during or after take-off), approach, landing and overshoot (where applicable), management of engine and propeller controls, including feathering and unfeathering (where applicable), and management of fuel, hydraulic, pneumatic, and electric systems.

Instrument flying: In accordance with the flight test requirements specified for the instrument rating.

Water handling, if applicable: Taxiing upwind, downwind and cross-wind, mooring and slipping, ramp and beach techniques, use of standard buoy, anchoring and weighing anchor.

All flight instructor ratings —Helicopter

Briefings: The flight test will be preceded by a demonstration of a comprehensive pre-flight briefing and followed by a post-flight briefing by the applicant.

Normal flight manoeuvres: Familiarisation with the helicopter, preparation for flight and action after flight, air experience, effect of controls, engine start-up, taxiing on the surface (if helicopter equipped), air taxiing, check lists, adherence to air traffic clearance, straight and level flight, climbing and descending, turning with constant IAS, take-offs, approaches and landings, normal and cross-wind including vertical landing from a hover, hovering upwind, downwind, and cross- wind, hover patterns with constant and with changing headings, hovering turns on the spot, 180 degrees and 360 degrees left and right, minimum power take-offs, zero speed and roll-on landings, confined area operations to include maximum performance take-offs, and shallow, and steep approaches, quick stops into wind, into wind cross-wind and downwind into wind, settling with power (vortex ring state) and recovery (at altitude), and sloping ground landings and take-offs.

Emergency procedures: Autorotative approaches with power recovery to the hover, engine failure in the hover and during hover taxiing, recovery from low RPM at altitude and in a hover, and ground resonance (where applicable).

First solo requirements: Oral. For supervising instructors.

Low flying: For agricultural and supervising

Instrument flying: For instrument and supervising.

Night flying: Including circuits, for all instructors

Navigation: VFR cross-country navigation by day for all.

Single-engine operation: (where applicable).

Mountainous terrain flying: for all instructors as applicable.

Attached loads: Carriage to MCTOW, oral discussion and briefing, for all helicopter instructors

Sling loads: Carriage to MCTOW.

Spraying operations: For Agricultural instructors only. Spray turns, simulated spraying operations, management of spraying systems, and management of underslung hopper controls.

Multi-engined: Where applicable for all instructors.

Intercommunication equipment of an approved type is to be provided for use during the flight test.