



Sports Flying Academy.

Flight Training Manual

Version 1.2

Released May 2017

Contents

| | |
|---|----|
| Foreword | 4 |
| Section 1- Instructors | 5 |
| 1.1 Instructor staff..... | 5 |
| 1.2 Instructors- responsibilities and duties | 5 |
| 1.3 Instructor characteristics and requirements..... | 5 |
| 1.4 Chief flying instructor –responsibility and duties..... | 6 |
| 1.5 Instructor personal presentation and behaviour | 6 |
| 1.6 Instructor dress code..... | 6 |
| 1.7 Becoming an instructor | 6 |
| 1.8 Instructor rating renewals | 6 |
| Section 2- General training requirements..... | 7 |
| 2.1 Pre-flight and post flight briefings..... | 7 |
| 2.2 Student confidentiality | 7 |
| 2.3 Pre-flight checks | 7 |
| 2.4 Use of checklists | 7 |
| 2.5 Radio calls..... | 7 |
| 2.6 Flight plans and flight following | 8 |
| 2.7 IFIS access..... | 8 |
| 2.8 Metflight access..... | 8 |
| 2.9 Aircraft Clubs booking system access..... | 8 |
| 2.10 How to process a new student..... | 8 |
| 2.11 Flight operations manual..... | 8 |
| 2.12 Student training record | 9 |
| 2.13 Solo authorisations..... | 9 |
| 2.14 Manual availability | 9 |
| 2.15 Trial Flights | 9 |
| 2.16 First lesson for new students. | 9 |
| Section 3- Pilot certificate requirements | 11 |
| 3.1 Requirements for Microlight pilot’s certificates | 11 |
| 3.2 Novice pilot certificate | 11 |
| 3.3 Intermediate pilot certificate | 12 |
| 3.4 Advanced pilot certificate | 17 |
| Section 4- Flight training syllabus..... | 19 |
| 4.1 Required texts | 19 |

| | |
|---|----|
| 4.2 Student records | 19 |
| 4.3 The flight training syllabus..... | 19 |
| 4.3.1 The Aeroplane | 19 |
| 4.3.2 Before and after flight | 19 |
| 4.3.3 Taxing an aeroplane | 19 |
| 4.3.4 The controls..... | 19 |
| 4.3.5 Straight and level flight..... | 20 |
| 4.3.6 Climbing | 20 |
| 4.3.7 Descending | 20 |
| 4.3.8 Turning..... | 20 |
| 4.3.9 Stalling | 20 |
| 4.3.10 Slow flight..... | 20 |
| 4.3.11 Spinning | 20 |
| 4.3.12 Take off and climb to downwind leg | 20 |
| 4.3.13 The circuit, powered approach and normal landing | 20 |
| 4.3.14 First solo | 21 |
| 4.3.15 Steep turns | 21 |
| 4.3.16 Low flying and ground reference manoeuvres. | 21 |
| 4.3.17 Forced landing | 21 |
| 4.3.18 Pilot navigation..... | 21 |
| 4.3.19 Mountain flying | 21 |
| 4.4 Cross country navigation exercise requirements | 21 |
| 4.4.1 Stage 1: Elementary navigation exercises | 21 |
| 4.4.2 Stage 2: Basic navigation exercises | 22 |
| 4.4.3 Stage 3: Advanced navigation exercises..... | 22 |
| 4.4.4 Cross country endorsement | 23 |

Foreword

This manual is intended as a reference guide for the Sports Flying Academy flight instructors. This manual details the flying syllabus that is to be taught to our students and provides assessment criteria on which to grade your students.

This manual is also intended to be read by students so that they understand the standard expected of them during training and during a flight test.

The Flight Test Standards detailed in this manual have been developed by the Civil Aviation Authority and are based on the Private Pilot's syllabus for part 141 organizations.

Whilst the standards in this manual exceed the requirements set out in the RNZAC syllabus, the Sports Flying Academy believes that training to a PPL standard should be the Academy's minimum standard. This will ensure that pilots trained under this system will be better, safer pilots and should they wish to cross over to general aviation flying at any time they will already possess the skills and knowledge required.

This training manual is based upon the following references;

- CAR Part 61 Pilot Licenses and Ratings.
- CAR Part 91 General Operating Flight Rules.
- Advisory Circular to Part 61, Pilot Licenses and Ratings.
- NZAIP.
- Manufacturer's Pilot Operating Handbook.
- Aircraft Flight Manuals.
- The New Zealand Flying Training Manual 5th edition January 2012 by Pilot Books
- The Flight Instructor's Guide (a NZC.A.A GAP publication).
- Sports Flying Academy. Flying operations manual.
- Sports Flying Academy Student Flight Training record.
- RNZAC's part 149 exposition.

Any feedback or queries regarding this document should be directed to the Chief Flying Instructor – Sports Flying Academy.

Section 1- Instructors

1.1 Instructor staff

The Sports Flying Academy operates a team of volunteer instructors to provide Microlight flight training to students. Please note that all instructors are volunteers and do not receive any remuneration. There are no payments made to instructors for ground instruction or trial flights.

1.2 Instructors- responsibilities and duties

Sports Flying Academy instructors report to the Chief Flying Instructor. The following details the responsibilities of instructors.

- Provides professional and courteous Microlight flight and ground training to new students in accordance with this flight training manual and syllabus and in accordance with all applicable Civil Aviation rules and regulations.
- Provides professional and courteous on-going Microlight flight and ground training to existing Academy pilots when required.
- Authorises solo flight to novice certificate holders.
- Ensures that all appropriated endorsements are made in the student's flight assessment book and logbook.
- Assist students and members with any queries
- Pulls aircraft in and out of hangar, helps in tying down aircraft, ensures aircraft are refuelled correctly and assists in Academy activities.
- Attends regular instructor meetings as required.
- Undertakes on-going flight and theory training to ensure continued proficiency and professional development.
- Performs other duties as assigned.
- Performs all duties in accordance with this manual, the Sports Flying Academy Flight Operations Manual, and all Civil Aviation rules and regulations.

1.3 Instructor characteristics and requirements.

All instructors are expected to possess the following attributes and qualifications:

- Shall hold an advanced Microlight pilot certificate.
- Shall hold a current Microlight instructors rating.
- Shall hold a current medical.
- Shall have completed at least three take off and three landings in the preceding 90 days in the Microlight that training is to be given in or similar type.
- Shall have no less than 150 hours total flight time in any aircraft which must include at least 10 hours of cross country experience.
- Shall be a paid up member of RNZAC.
- Shall have a passionate commitment to aviation in general and the desire to be a positive and active Academy volunteer.
- Shall have good interpersonal and human relations skills
- Shall have good verbal and written communication skills
- Shall have the ability to instruct, teach, tutor and understand teaching techniques.
- Shall have undertaken an instructional techniques course.
- Shall have the ability to approach problems and decisions analytically.
- Shall have the ability to reason logically and methodically.
- Shall have the ability to perform under stressful circumstances.
- Shall have excellent personal presentation.
- Shall have the ability to inspire confidence in their students and always display an air of professionalism and provide a good example to students and members.

1.4 Chief flying instructor –responsibility and duties

The Chief Flying Instructor is responsible for the flying operations at the Sports Flying Academy. The C.F.I. reports to the management team. The C.F.I. is also a volunteer position and no remuneration is received.

The C.F.I.'s responsibilities are as follows:

- Upholds the requirements and personality requirements as detailed above in the instructors section.
- Ensures flight operations are maintained in accordance with the Academy's. Flight Operations Manual, this Flight Training manual, Academy rules and all Civil Aviation rules and regulations.
- Supervisors and supports instructors as required.
- Holds regular instructor meetings.
- Prepares monthly reports for the management team.
- Investigates incidents and accidents.
- Represents the Academy when dealing with regulatory bodies, government departments and professional organisations regarding the flight operations at the Academy.

The C.F.I. has the authority to suspend and ground any student, member, instructor or aircraft if in his opinion it would be unsafe to allow that person or aircraft to fly. If that person does not agree with the decision that are able to appeal the decision by making a written application to the management team. The management team will consider the appeal and investigate the decision using a number of techniques including peer review, independent suitably qualified advice and in accordance with the disputes resolution procedure. Whilst the appeal is in progress the decision will remain in force.

1.5 Instructor personal presentation and behaviour

As an instructor you carry with you a big responsibility. Your students look up to you as a mentor and will often mimic your behaviour, flying habits and attitude to aviation and safety. If you do not set a good example at the start of the students training and continue that example throughout, then they will learn bad habits that will stay with them for their entire flying career. All instructors should conduct themselves with the upmost professionalism at all times. The effective instructor will behave with an air of competent professionalism without any hint of arrogance. You should always be approachable, non- judgmental and supportive at all times.

1.6 Instructor dress code

All Academy instructors should dress appropriately. The dress code is as follows:

- Black branded Sports Flying Academy polo shirt. (Supplied.)
- Dark long trousers.
- Flat closed shoes. Soles should be durable but not too thick as to interfere with rudder feel.
- In winter a dark pull over can be worn.
- Under no circumstances are instructors to fly in bare feet, open toe shoes including jandals and sandals or in shorts.

1.7 Becoming an instructor

Should a pilot wish to train as an instructor they are encouraged to submit an application to the Chief Flying Instructor who will arrange an assessment of their flying skills and personal characteristics. (Should there be any vacancies in the flying instructor team at that time.) Before submitting an application the applicant should read through the requirements above and ensure that they have the flying hours and personal characteristics required for the position. Please note that the assessment will be at the applicants cost. Should the C.F.I. recommend you as an instructor the application will be submitted to the management team for consideration.

1.8 Instructor rating renewals

All instructors are required to renew their instructor ratings every 12 months. Instructor ratings are to be completed by a RAANZ Flight Examiner. At present the current Flight Examiners at the Sports Flying Academy are Shaun Sutherland and Bob Foster.

Section 2- General training requirements

2.1 Pre-flight and post flight briefings

Before undertaking any training flight with a student the instructor should carry out a full pre-flight briefing of the planned lesson. Briefings should be no longer than 20 minutes to ensure that the student is not overloaded with too much information before the flight. The cockpit is not a suitable place to attempt to explain the complex theory and motor skills required for flying and a lesson without a pre-flight briefing is not effective. The student should have the entire lesson explained to them and the principles of flight detailed and understood. The student should be briefed on the criteria for the lesson being undertaken, the required standard to be achieved and the methods and techniques used to achieve that standard.

The briefing should be presented on a whiteboard, overhead projector, computer or other suitable method. The C.A.A Flight Instructors Guide and the New Zealand Flying Training Manual are the Academy's standard training manual and should be used for all briefings.

On completion of the flight the student should be debriefed. This gives the instructor the opportunity to critique the flight and the students' performance. It also gives the student the opportunity to feed back their thoughts on the flight and to ask questions.

Always ensure you complete the post flight briefing on a positive note even if the students' performance was not satisfactory. Honest criticism is required however the student should be encouraged and supported at all times. Please do not de brief students in front of other members as this may cause embarrassment to the student.

2.2 Student confidentiality

Instructors shall ensure that student confidentiality is maintained at all times. No instructor shall discuss a student or member's progress with any other person other than the instructor staff and the management team if appropriate.

2.3 Pre-flight checks

All instructors shall supervise the new student's pre-flight checks. It is not acceptable to simply tell the student to complete the pre-flight whilst you do something else. The new student shall be monitored until such time that the instructor is confident that the pre-flight checks are being completed properly and consistently. Regular assessments should be made by the instructor throughout the students training to ensure on-going compliance.

2.4 Use of checklists

All instructors should ensure that the approved checklist in the aircraft to be flown is used and followed. The student should perform all ground operations in accordance from the checklist either directly from the checklist or from memory. Airborne procedures and checklists should be performed from memory.

2.5 Radio calls

All Instructors shall ensure that students are directed in the use of the radio and transponder at the start of their training. Standard radio calls shall be made as appropriate and in accordance with the Civil Aviation rules and procedures. No non-standard radio procedures or terminology is to be used. Remember we operate in a very public forum and many people can hear your radio calls. Please ensure that your calls are precise and standard at all times. During a student's early training the stress of trying to learn a new motor skill as well as talk on the radio often overloads a student to the point where they become ineffective. Instructors are encouraged to make radio calls during these periods of high demand until the student is able to achieve a standard where they can multitask and cope with the workload. The student should be encouraged to make all radio calls themselves when on the ground or during airborne periods of lower demand.

2.6 Flight plans and flight following

The flight intention form must be completed in the hangar before flight and that should note your intentions, estimated return time, persons on board and fuel on board. The Academy also operates a Spidertracks satellite tracking and alerting system in its primary training aircraft. All flights with this system fitted to the aircraft are not required to file a flight plan or use a flight following service. Under no circumstances however should the Spidertracks system be intentionally disabled unless for a valid safety or technical reason. All flights without Spidertracks fitted to the aircraft should adhere to the following procedure. Flights within the Whangarei MBZ are not required to file a flight plan or provide a flight following service. If the flight is outside of the Whangarei MBZ then a flight plan must be filed or a trained person should be nominated to provide a flight following service. The student should be trained in the early stages of their training in the procedures involved in filing a flight plan and arranging a flight following service.

2.7 IFIS access

All students should be instructed within the first 10 hours of their training in the procedure to apply for their own IFIS login and the procedure to login and operate the IFIS flight briefing site. The site can be found online at:

<http://www.ifis.airways.co.nz/>

This is a free service.

2.8 Metflight access

The Academy has access to the Metflight Commercial web site from which aviation weather can be obtained. All students should be instructed within the first 10 hours of their training in the procedure to access and decode aviation grade Meteorological information from this site. Access to this web site is restricted to the Academy's instructors and students. For login credentials please see the Chief Flying Instructor.

2.9 Aircraft Clubs booking system access

All students should be instructed within the first 10 hours of their training in the procedure to login and setup their pilot profile for the aircraft clubs booking system. The site can be found online at <http://www.sportsflyingacademy.co> and click on the "bookings" link. This is a free service.

2.10 How to process a new student

It is important to ensure that all new students complete all the necessary paperwork in the first instance. The instructor should supply all paperwork to the student and ensure that it is correctly completed and the necessary payments received. All new students should be processed using the RNZAC system. The following details the procedure:

- Student to complete the RNZAC application for issue of certificate form A16 and submit to the instructor.
- Instructor to request Chief Flying Instructor to invoice student for the relevant fee.
- Student to complete the RNZAC Fit and proper person declaration form A17 and submit to the instructor.
- Instructor to give the RNZAC medical certificate form B16 to the student and ensure student goes to their GP for a medical. GP to complete medical certificate. Completed medical certificate to be submitted to the instructor.
- Student to supply head and shoulders picture to instructor in electronic format.
- Instructor to submit all paperwork and payments to Chief Flying Instructor for processing.

All forms can be downloaded from the Academy Webb site at www.sportflyingacademy.co (Click on the downloads link.)

2.11 Flight operations manual

All new students at the start of their training are to be issued with a copy of the Sports Flying Academy Flight operations manual. The instructor should go through this manual with the student in detail and ensure that the student understands the content fully.

2.12 Student training record

All new students at the start of their training are to be issued with a copy of the Student Training record. This document details the exercises to be taught and provides a method of grading as well as the objectives of the exercise. This manual is based on the C.A.A part 61 Private Pilot's licence requirements. The Student Training record is to be completed by the instructor preferably with the student present and can be made part of the de-brief process. These records are to be kept in the hangar office and should not leave the premises.

2.13 Solo authorisations

Junior instructors are prohibited from authorising any solo flight.

2.14 Manual availability

The Flight Operations manual, the Flight Training manual and the Student Training record are available on the Sports Flying Academy's web site in the downloads section.

2.15 Trial Flights

When completing a trial flight please ensure that the passenger indemnity form is completed before take-off. These forms are kept on the clip board outside the briefing office. Passengers under the age of 18 will require their parents or other suitable adult to also sign this form. All trial flight participants and people accompanying them are to be shown the trial flight briefing video that is available on the iPad in the briefing office. A trial flight should consist of a take-off, climb to 2500 feet or an altitude suitable for the conditions of the day. Track SE to seawards of the coast of Ruakaka. Demonstrate and medium turn to the left and then get the student to try one to the left and then to the right. Demonstrate a steep turn and if the student feels comfortable ask them to try one to the left. Tracks SE down the coast to Mangawhai with the student flying as much as possible. At Mangawhai complete 180 degree turn and track NW to Ruakaka remaining seawards of the coast. Then track inbound to Whangarei and complete one touch and go followed by a full stop landing. No trial flights to be undertaken within the low flying zone. Route can be varied at the instructor's discretion taking into account weather conditions on the day. All landings to be completed by the instructor with the student's hands off the controls.

2.16 First lesson for new students.

The first lesson for a new student can often be a confusing time with lots of new concepts presented to the candidate in a relatively short period of time. It can be quite overwhelming and it is important to monitor the student the entire lesson to ensure they are not becoming overloaded. The first lesson should take about three hours and no flying is done with the student on this day. All work is ground work only and the student should be briefed on the following subjects.

Exercise 1-The aeroplane and how does it fly.

Brief the student on the parts of an aircraft, how an aircraft fly's, the lift formula and angle of attack. Play them episodes 1 to 4 on the Sports Flying academy web site.
<http://sportsflyingacademy.co/training-videos/>

Exercise 2A – Am I fit to fly?

Brief the student on the human factors involved so they are clear on how to assess their fitness to fly.

Health and safety and operations manual

Brief the student on the Sports Flying Academy Health and safety system and Operations and Safety manual.

Exercise 2B preparation for flight and the pre-flight check.

Thoroughly instruct the student on the aircraft pre-flight check using the approved checklist in the aircraft.

Exercise 2D Post flight operations.

Brief the student on all post flight operations.

Airmanship.

What is it and the definition of airmanship.

The hangar and hangar safety.

Brief the student on the hangar, how to enter and exit, and safety in the hangar, tidiness and behaviour, apron access, flag barrier and warning signs.

Paperwork.

Brief the student on the pre-flight log in the hangar, defect log, aircraft U/S sign, aircraft paperwork, how to record air switch and hobbs times.

Refuelling.

When it should be done and procedures. Explain refuelling safety procedures.

Transponder.

Brief student on operation of the transponder and on primary and secondary RADAR principles.

Spidertracks.

Brief student on the principles of how Spidertracks works and how to operate the system.

IFIS

Brief student on IFIS and ensure they apply for login credentials.

Metflight

Brief student on Metflight and ensure their credentials work once they get their novice certificate.

Sports Flying Academy web site.

Brief student on the Sports Flying Academy website and point out features and interesting content.

RNZAC. (Flying NZ.)

Brief student on RNZAC and RNZAC's role.

Section 3- Pilot certificate requirements

3.1 Requirements for Microlight pilot's certificates

The Sports Flying Academy requires new members register with the RNZAC system of certification. The sections below detail the requirements for certificate issue.

3.2 Novice pilot certificate

Object

The object of this section is to specify:

- The requirements for issue
- The recent experience requirements
- The requirements for renewal; and
- The privileges of the Novice Pilot Certificate.

Requirements for issue

An applicant for the issue of a Novice Pilot Certificate must meet the requirements relating to age and provide a medical declaration.

Recent Experience Requirements

The holder of the Novice Pilot Certificate may not exercise the privileges of their certificate unless:

To engage in solo flight within a 10 mile radius of an airfield unless he/she is the holder of a signed and valid 90 day, max 5 hour flight time, solo authorisation form and that he/she has signed a pilot declaration.

Or hold a 90 day solo authorisation form until he/she has passed the "Air Law" examination and received either flight or ground instruction from a Microlight instructor in the following exercises:

Fixed Wing:

- Assembly and pre-flight of Microlight Aircraft;
- Ground handling;
- Taxiing;
- Effect of Controls;
- Straight and level flight;
- Climbing and descending;
- Level climbing and descending turns;
- Stall recognition and recovery;
- Take-off, circuit and landing;
- Going around again;
- Engine failure both during and after take-off;
- Forced landing without power;
- Circuit re-joining procedure
- Rules of the Air;
- Solo.

Requirements for Re-validation

An applicant for the re validation of a Novice Pilot Certificate must satisfy RNZAC that they have a current medical declaration, and have a current solo authorisation signed by an instructor. A copy of the medical certificate shall accompany the request for revalidation.

Examples of both the solo authorisation form and the pilot declaration are shown in Section 8.

Privileges of a novice pilot certificate

Fixed Wing

A Novice Pilot Certificate authorises the holder to act, under the supervision of an instructor, as pilot-in-command of a Microlight Aircraft that is not carrying a passenger for the purposes of increasing their skill in order to qualify for the issue of certificate of higher qualification; or engaging in flying practice in order to re qualify for a certificate that is no longer valid.

The holder of a Novice Pilot Certificate may only engage in solo flight in Microlight aircraft types included in the same group as the type on which he/she was trained.

The pilots' logbook shall be appropriately endorsed by an instructor.

3.3 Intermediate pilot certificate

Object

The object of this section is to specify:

- The requirements for issue;
- The recent experience requirements;
- The requirements for renewal;
- The examination syllabus;
- The night test requirements; and
- The privileges of the intermediate Pilot Certificate.

Requirements for Issue

An applicant for the issue of an intermediate Pilot Certificate must hold a valid Novice Pilot Certificate or must hold a valid Flight Crew licence in any other aircraft type category and must demonstrate to an instructor:

Their general knowledge and ability to perform competently those normal and emergency flight manoeuvres applicable to the type of Microlight Aircraft on which they are being flight tested;

Flight tests conducted on single seat Microlight aircraft must include all elements of the flight test syllabus. The applicant must be briefed by the examiner to carry out the various manoeuvres to a sequence in an area in the examiners field of view.

Prior to undertaking the flight test for an Intermediate Pilot Certificate an applicant will be required to pass a written examination in the following subjects:

- Aviation Law;
- Microlight Air Navigation;
- Meteorology;
- Aircraft Technical Knowledge - Microlight Aircraft.

When the applicant for the issue of an Intermediate Pilot Certificate is the holder of a valid Private Pilot's Licence part 61 - Aeroplane, they will only be required to:

- Complete a minimum of two hours Microlight type conversion; and
- Have their logbooks endorsed for the rating group of the aircraft they have converted to.

Prior to undertaking a flight test for an Intermediate Pilot Certificate an applicant must:

- Have completed at least 25 hours flight experience in Microlight Aircraft, and
- If having trained as a Student for the issue of a Part 61 license, have completed at least 20 hours flight time of which 10 hours must have been in Microlight Aircraft.

Recent Experience Requirements

The holder of an intermediate Pilots Certificate must carry out at least three take-offs and landings in Microlight Aircraft in each 30 day period in order to remain current before carrying passengers.

Requirements for Re-validation

An applicant for the re-validation of an Intermediate Pilot Certificate must satisfy RNZAC that they have a current medical declaration by forwarding a copy to the secretary/Administrator together with a completed, Biennial Flight Review signed by the applicant and the Instructor.

It shall be the responsibility of the pilot certificate holder to ensure the Medical certificate and Biennial flight review requirements are met before acting as pilot-in-command.

Privileges of an intermediate pilot certificate

An Intermediate Pilot Certificate authorises the holder to exercise the privileges to act, but not for remuneration, as the pilot-in-command of a Microlight Aircraft. An Intermediate Pilot Certificate permits the holder to fly within 10 NM of his/her take-off point.

Carriage of Passengers

Pilots wishing to carry passengers must have demonstrated to a Sport Aviation Corp or RNZAC instructor, competency in a two-seat Microlight Aircraft and have 35 hours PIC minimum. Holders of valid Flight Crew Licences PPL and above must have completed a type conversion and a minimum of 2 hours pilot-in-command of a Microlight.

Following the successful completion of this flight test a new certificate shall be issued.

Intermediate Pilot Certificate Syllabus

Aviation Law and Publications

Candidates are required to have a broad knowledge of the purpose and general knowledge of the following documents or groups of documents:

- Civil Aviation Rules
- NZ Aeronautical Information Publication (NZAIP Vol. 1)
- NZAIP Vol. 4
- Aeronautical Information Circulars
- NZ Aeronautical Information Publication (AIP Supplements)

Candidates are required to have a practical working knowledge of the Civil Aviation Rules and documents issued thereunder which are pertinent to the sport and recreation operation of Microlight aeroplanes under visual meteorological conditions, and which are listed hereunder:

Civil Aviation Rules

- Part 1 Definitions and Abbreviations
- Part 91 General Operating and Flight Rules
- 91.123 Flight Instruction
- 91.127 Use of Aerodromes
- 91.129 Restricted and danger areas
- 91.131 Low flying areas
- 91.133 Military operational areas
- 91.135 Conditional areas
- 91.137 Volcanic hazard areas
- 91.139 General aviation areas
- 91.141 Aerodrome traffic zones
- 91.203 Authority of the pilot-in-command
- 91.205 Crew members at stations
- 91.207 Occupation of seats and wearing of restraints
- 91.217 Pre-flight action
- 91.219 Familiarity with operating limitations and emergency equipment
- 91.221 Flying equipment and operating information
- 91.223 Operating on and in the vicinity of an aerodrome
- 91.225 Operations at aerodromes with air traffic services
- 91.227 Operating near other aircraft
- 91.229 Right-of-way rules
- 91.235 Dropping of objects
- 91.241 Compliance with ATC clearances and instructions
- 91.243 ATC light signals
- 91.245 Operations in designated and classified airspace
- 91.246 Operations in RNP designated airspace
- 91.247 Use of SSR Transponder and altitude reporting equipment
- 91.249 Aircraft call signs
- 91.301 VFR meteorological minima
- 91.303 Special VFR weather minima
- 91.307 VFR flight plan
- 91.307 Position reports
- 91.311 Minimum heights for VFR flights
- 91.311 VFR cruising altitude and flight level
- 91.315 Operating in snow and ice conditions
- Part 103 Microlight Aircraft Certification and Operating Rules
- 103.101 Registration
- 103.105 Documents to be carried
- 103.105 Placards
- 103.151 Fuel requirements
- 103.153 Minimum heights
- 103.153 Flight Criteria
- 103.159 Carriage of passengers
- 103.217 Maintenance and inspection requirements
- 103.221 Instrument and equipment requirements

Microlight Air Navigation and Flight Planning:

- Form of the Earth: Latitude and Longitude
- Direction on the earth: Navigation by compass
-

Topographical maps:

- Practical use of the maps, measuring tracks and distances, knowledge of the principal chart symbols, contour lines.
-

Operations under VFR:

- Control Areas Class C and D Control Zones C, and D, Airspace
- Uncontrolled Airspace, Class G
- Mandatory Broadcast Zones (MBZ)
-

Meteorology

- Composition of the atmosphere.
- Atmospheric pressure:
 - Unit of measure, variation with height, pressure altitude, the effects of, I.S.A.
 - Atmospheric temperature.
 - Units of measure, variation with height, density altitude, and effects of, I.S.A.
- Pressure systems and fronts:
 - Depression or low pressure, anti-cyclone or high pressure, cold and warm fronts, the general characteristics of pressure systems and fronts as they occur over NZ, horizontal pressure, isobars.
- Wind velocity, wind shear, backing and veering, sea breezes, Föhn winds, valley winds, anabatic and katabatic winds.
- Cloud classifications, effect of haze, smoke and fog on visibility, visibility, fog.
- Mechanical turbulence, terrain, convectional, local winds, slipstream, wake, the evaluation and recognition of potential areas of low-level turbulence and its potential effect on the operation of Microlight aeroplanes, mountain waves.
- Terms and abbreviations used in meteorological forecasts and reports, procedures for obtaining pre-flight meteorological information.

Aircraft Technical Knowledge – Microlight Aeroplanes

Properties of the air: Density:

- Variation of density with changes of temperature, pressure and height.

Principles of Flight:

- Meaning and significance of terms associated with aerodynamics, thrust, drag, lift, weight, aerofoils, angle of attack, centre of pressure, stalling, spinning and drag (induced, parasitic).

Propellers:

- Pitch, effect on engine performance of fine and coarse pitch propellers, reduction drives, propeller care.

Engines:

- Principles of operation and associated systems, including ignition, cooling, carburetion, fuel, oil, carburettor heat, control of engines and indications of performance, use of mixture control.

Airframe:

- Recognition of airframe defects generally with particular emphasis on landing gear, flying controls and their associated cables and push rods, wing and tail surface attachment points, bracing struts and wires and engine mounts.

Loading:

- Knowledge of the terms 'centre of gravity' and 'centre of gravity limits', the importance of centre of gravity position, knowledge of the precautions that should be taken when loading aeroplanes (e.g. security of loads), factors affecting take-off, climb and landing performance.

Airmanship

- General airmanship relating to the operation of Microlight aeroplanes

Flight Test - Intermediate Pilot Certificate

An applicant for the initial issue of an Intermediate Pilot Certificate shall pass a practical test, the syllabus for which is set out below.

The test shall include an oral general knowledge test followed immediately by a pilot competency test.

General Knowledge Test

Demonstrate:

- Aeroplane documents including knowledge of loading.
- Aeroplane inspection and pre-flight check.
- Piloting Technique Test

Demonstrate:

- Taxiing
- Take-off into wind
- Engine failure after take-off
- Straight and level
- Level, climbing and descending turns including steep level turns.
- Demonstration of the approach to the stall with power off and with partial power. Recovery in both cases to be carried out at the onset with minimum height loss (within the stalling limitations of the Microlight aeroplane type as specified by the manufacturer).
- Forced landing without power onto the field of operation from a height and position nominated by the examiner before take-off.

Demonstration of two circuits:

- Take-off into wind, circuit, overshoot from 50 feet, re-circuit. (The examiner to specify the circuit parameters).
- Carry out a precision landing (i.e. short field approach and landing).
- Precision engine-off (engine may be at idle) landing.

3.4 Advanced pilot certificate

Object

The object of this section is to specify:

- The requirement for issue;
- The recent experience requirements; (c) the requirements for renewal; and
- The privileges of the Advanced Pilot Certificate.

Requirements for Issue

An applicant seeking withdrawal of the restricted category of his/her intermediate Pilot Certificate:

- Must complete the cross-country flights as set out in the RNZAC exposition.
- Must demonstrate to a person approved for the purpose his/her general knowledge and ability to perform competently such normal and emergency flight manoeuvres as may be considered necessary for the issue of an Advanced Pilot Certificate.

Recent Experience Requirements

The holder of an Advanced Pilot Certificate must carry out at least three take-offs and landings in a Microlight Aircraft of the same type in each 30 day period in order to remain current before carrying passengers.

Requirements for Re-validation

An applicant for the re-validation of an Advanced Pilot Certificate must satisfy RNZAC that they have a current medical declaration by forwarding a copy to the Secretary/Administrator together with a completed, Biennial Flight Review signed by the applicant and the Instructor.

It shall be the responsibility of the pilot certificate holder to ensure the Medical certificate and Biennial flight review requirements are met before acting as pilot-in-command.

Privileges

An Advanced Pilot Certificate authorises the holder to exercise the privileges to act, but not for remuneration, as pilot-in-command of a Microlight Aircraft and shall be endorsed 'not for the carriage of passengers' unless the requirements below are met.

Carriage of Passengers

Pilots wishing to carry passengers must have demonstrated to a Sport Aviation Corp. or RNZAC instructor competency in a two-seat Microlight Aircraft and have 35 hours PIC minimum. Holders of valid Flight Crew Licences, PPL and above, must have completed a type conversion and a minimum of 2 hours pilot-in-command of a Microlight that has been certified as airworthy.

Advanced Pilot Certificate - Cross Country & Navigation Syllabus

General

An applicant for the issue of an Advanced Pilot certificate shall have satisfactorily completed the cross-country navigation flight training in accordance with the following syllabus. Meteorological conditions – Navigation solo flights are not to be undertaken unless the forecasts are at least 2000 foot ceiling and 16 kilometres visibility.

Exercises to be completed:

Stage 1: Elementary navigation exercises

- Experience – At least 1 hour dual flight instruction and 1 hour solo flight time.
- Pre-flight preparation – Preparation of flight plan, weather evaluation, fuel requirements, fuel management, maintenance of heading and map reading.

Stage 2: Basic navigation exercises

- Experience - At least 2 hours dual flight instruction and 2 hours solo flight time.
- Instruction - Dual flight instruction and solo practice in basic cross-country navigation.
- Pre-flight preparation – Weather evaluation, selection of routes, cruising levels, minimum safe altitudes and check points, preparation and lodging of flight plans, fuel requirements and reserves, relevant air traffic rules and procedures including entry, transit and exit lanes through controlled airspace, radio communication procedures, emergency and diversion procedures, and action on becoming unsure of position.
- In-flight procedures - Log keeping, map reading, maintenance of compass heading, elimination of track errors, revisions of ETA, position reporting and adherence to air traffic clearances.
- Dual flight instruction – To include at least one landing at a controlled or flight service aerodrome and one landing at a non-controlled aerodrome at least 25 nm from the point of departure.
- Meteorological conditions – Navigation solo flights are not to be undertaken unless the forecasts are at least 2000 foot ceiling and 16 kilometres visibility.

Stage 3: Advanced navigation exercises

- Experience - At least 2 hours dual flight instruction and 2 hours solo flight.
- Instruction – Dual flight instruction in advanced navigation including part high level and part low level navigation, preferably with one landing en-route. At least one flight is to be made into controlled airspace or an MBZ in an aircraft equipped with a two-way radio.
- Note: If the student has not qualified for flight into controlled airspace the cross country endorsement must read “not valid for controlled airspace”.
- Pre-flight Preparation – as for Stage 2.
- In-flight procedures – As for Stage 2 but with emphasis on high level map reading, estimations of distances and revisions of ETA. Introduction to emergencies such as deterioration of weather with an unscheduled landing and resulting diversion back to base at low level under simulated meteorological conditions of 600 foot cloud base and flight visibility less than 5000 metres.
- Solo advanced navigation – Following dual flight instruction, this should include a period at high level only but not necessarily over the same route and preferable with an intermediate landing en-route. This exercise should not be authorised until the supervising instructor is satisfied with the student’s ability to undertake such a flight.

Section 4- Flight training syllabus

4.1 Required texts

All instructors should have a copy of the New Zealand Flying Training manual available at <https://www.waypoints.nz/> and the C.A.A Flight instructors manual (Free online at www.sportsflyingacademy.co in the downloads section. Students should also be strongly encouraged to purchase the New Zealand Flying Training Manual as a reference for their initial and on-going flying training. All exercises detailed below make reference to the New Zealand Flying Training Manual. This manual can be purchased for around \$75.00 from Pilot Books online at <https://www.waypoints.nz/>

4.2 Student records

A record of each students training is to be kept in the Academy office and should be available to all instructors and the individual student concerned for review and completion after each flight. The Student Flight Training record should be used for this purpose.

4.3 The flight training syllabus

The following lessons shall be taught and presented to the student in the following order. Each of these exercises are numbered and can be found in the New Zealand Flight Training manual:

4.3.1 The Aeroplane

- Exercise 1- The Aeroplane

4.3.2 Before and after flight

- Exercise 2a Am I fit to fly.
- Exercise 2b Preparation for flight.
- Exercise 2c Starting, checking and stopping the engine.
- Exercise 2d Post flight actions.

4.3.3 Taxing an aeroplane

- Exercise 5 taxing and aeroplane

4.3.4 The controls

- Exercise 4a The primary effect of each flight control.
- Exercise 4b The further effect of aileron and rudder.
- Exercise 4c The art of trimming.
- Exercise 4d The effect of airspeed and slipstream.
- Exercise 4e The effects of power changes.
- Exercise 4f The effects of using flap.
- Exercise 4g The throttle and carburettor heat control. (If fitted.)
- Exercise 4h The mixture control. (If fitted)
- Exercise 4i Using the radio.
- Exercise 4j Cabin heating and ventilation

4.3.5 Straight and level flight

- Exercise 6a Flying straight and level at constant power.
- Exercise 6b Flying straight and level at a selected airspeed.
- Exercise 6c Cruising with flaps extended.

4.3.6 Climbing

- Exercise 7 Climbing.

4.3.7 Descending

- Exercise 8a The Glide.
- Exercise 8b The powered Descent.
- Exercise 8c the use of flap in the descent.
- Exercise 8d The slip.

4.3.8 Turning

- Exercise 9a The medium turn.
- Exercise 9b The climbing turn.
- Exercise 9c Descending turns.
- Exercise 9d Turning to selected headings.

4.3.9 Stalling

- Exercise 10 Stalling

4.3.10 Slow flight

- Exercise 10a Slow flight.

4.3.11 Spinning

- Exercise 11 Spinning – Exercise it to be ground taught only. Actual spinning in Academy aircraft is prohibited.

4.3.12 Take off and climb to downwind leg

- Exercise 12 Take off and climb to downwind leg.

4.3.13 The circuit, powered approach and normal landing

- Exercise 13a The circuit, powered approach and normal landing.
- Exercise 13b The Go around.
- Exercise 13c Departing and joining the circuit.
- Exercise 13d The flapless approach and landing.
- Exercise 13e The glide approach and landing.
- Exercise 13f Crosswind take-offs and landings.
- Exercise 13 g Short field operations.
- Exercise 13h Soft field operations.

4.3.14 First solo

- Exercise 14 First solo

4.3.15 Steep turns

- Exercise 15a Steep level turns.
- Exercise 15b Steep Descending turns

4.3.16 Low flying and ground reference manoeuvres.

- Exercise 16 Low flying and ground reference manoeuvres.

4.3.17 Forced landing

- Exercise 17a Forced landing without power.
- Exercise 17b The precautionary landing.
- Exercise Ditching in water.

4.3.18 Pilot navigation

- Exercise 18 Pilot navigation.

4.3.19 Mountain flying

- Exercise 21 Mountain flying

4.4 Cross country navigation exercise requirements

4.4.1 Stage 1: Elementary navigation exercises

Experience

At least 1 hour dual flight instruction and 1 hour solo flight time.

Pre-flight preparation

Preparation of flight plan, weather evaluation, fuel requirements, fuel management, maintenance of heading and map reading.

4.4.2 Stage 2: Basic navigation exercises

Experience

At least 2 hours dual flight instruction and 2 hours solo flight time.

Instruction

Dual flight instruction and solo practice in basic cross-country navigation.

Pre-flight preparation

Weather evaluation, selection of routes, cruising levels, minimum safe altitudes and check points, preparation and lodging of flight plans, fuel requirements and reserves, relevant air traffic rules and procedures including entry, transit and exit lanes through controlled airspace, radio communication procedures, emergency and diversion procedures, and action on becoming unsure of position.

In-flight procedures

Log keeping, map reading, maintenance of compass heading, elimination of track errors, revisions of ETA, position reporting and adherence to air traffic clearances.

Dual flight instruction

To include at least one landing at a controlled or flight service aerodrome and one landing at a non-controlled aerodrome at least 25 nm from the point of departure.

Meteorological conditions

Navigation solo flights are not to be undertaken unless the forecasts are at least 2000 foot ceiling and 16 kilometres visibility.

4.4.3 Stage 3: Advanced navigation exercises

Experience

At least 2 hours dual flight instruction and 2 hours solo flight.

Instruction

Dual flight instruction in advanced navigation including part high level and part low level navigation, preferably with one landing en-route. At least one flight is to be made into controlled airspace or an MBZ in an aircraft equipped with a two-way radio.

Note: If the student has not qualified for flight into controlled airspace the cross country endorsement must read "not valid for controlled airspace".

Pre-flight Preparation

Weather evaluation, selection of routes, cruising levels, minimum safe altitudes and check points, preparation and lodging of flight plans, fuel requirements and reserves, relevant air traffic rules and procedures including entry, transit and exit lanes through controlled airspace, radio communication procedures, emergency and diversion procedures, and action on becoming unsure of position.

In-flight procedures

As for Stage 2 but with emphasis on high level map reading, estimations of distances and revisions of ETA. Introduction to emergencies such as deterioration of weather with an unscheduled landing and resulting diversion back to base at low level under simulated meteorological conditions of 600 foot cloud base and flight visibility less than 5000 metres.

Solo advanced navigation

Following dual flight instruction, this should include a period at high level only but not necessarily over the same route and preferable with an intermediate landing en-route. This exercise should not be authorised until the supervising instructor is satisfied with the student's ability to undertake such a flight.

4.4.4 Cross country endorsement

Upon satisfactory completion of the syllabus of cross-country flight training, the flight instructor completing the training shall endorse the applicant's logbook in the following manner:

CROSS-COUNTRY ENDORSEMENT

I hereby certify that:

_____ has

Full Name of Applicant

Satisfactorily completed the syllabus of cross-country navigation flight training in accordance with the RNZAC exposition and is eligible to make application to have an Advanced Pilot Certificate issued.

Limitations: "not valid for controlled airspace" (Instructor to delete as applicable)

Signed: _____

Date: _____

Instructor