



**CLASS RATING INSTRUCTOR
FOR SINGLE PILOT
SINGLE ENGINE AEROPLANES**

TRAINING SYLLABUS

FIRST EDITION

YEAR 2006

ANDREWSFIELD AVIATION LIMITED

SYLLABUS

The syllabus is divided into three sections as follows:-

Section One Ground Training

Section Two Long and Pre flight Briefings

Section Three Flight Exercises

ANDREWSFIELD AVIATION LIMITED

SINGLE PILOT AIRCRAFT CLASS RATING INSTRUCTOR COURSE

Training objectives

The course is designed to give aeroplane licence holders with more than 300 hours as pilot of aeroplanes adequate training in teaching and learning theory and also ground and flying instructional techniques based on established teaching methods, in order for them to instruct for any single pilot, single engine aircraft class rating that the applicant is qualified.

On completion of the course the applicant will be required to take a skill test, which if successful will permit the issue of a SPA CRI.

Course Description

The training for the SPA CRI comprises of theoretical knowledge and flight training conducted at an approved FTO and by an Instructor authorised to give Instruction for the issue of a CRI .

Pre Course Requirements

Before undertaking the SPA CRI course a applicant must be the holder of a PPL/CPL/ATPL with at least 300 hours of flight time, and completed at least 30 hours as Pilot in Command on the applicable type or class of aeroplane prior to commencing the course.

Hold a class one or two Medical

Have a current Single Engine piston class rating.

Summary of Minimum training hours

The Course is intended to train the applicant to instruct a person already qualified on SPA aircraft. The training will be a minimum of 3 hours flight training and a minimum of 25 hours Teaching and Learning training. The associated long and pre flight briefs will be a minimum of 7 hours.

The Skill Test will be in addition to these hours.

Theoretical Knowledge training

The ground training will consist of classroom lectures, long briefings and pre-flight briefings and directed private study.

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SINGLE PILOT AIRCRAFT CLASS RATING INSTRUCTOR GROUND COURSE

TEACHING AND LEARNING

25 hours

The Learning Process

**Motivation
Perception and understanding
Memory and its application
Habits and transfer
Obstacles to learning
Incentives to learning
Learning methods
Rates of learning**

The Teaching Process

**Elements of effective teaching
Planning of instructional activity
Teaching methods
Teaching from the 'known' to the 'unknown'
Use of 'lesson plans'**

Training Philosophies

**Value of a structured (approved) course of training
Importance of a planned syllabus
Integration of theoretical knowledge and flight instruction**

Techniques of Applied Instruction

(a) Theoretical knowledge – classroom instruction techniques:

**Use of training aids
Group lectures
Individual briefings
Student participation/discussion**

(b) Flight – Airborne instruction techniques:

**The flight/cockpit environment
Techniques of applied instruction
Post-flight and inflight judgment and decision making**

Student Evaluating and Testing

(a) Assessment of student performance:

The function of progress tests
Recall of knowledge
Translation of knowledge into understanding
Development of understanding into actions
The need to evaluate rate of progress

(b) Analysis of student errors:

Establish the reason for errors
Tackle major faults first, minor faults second
Avoidance of over criticism
The need for clear concise communication

SINGLE ENGINE SINGLE PILOT CLASS RATING INSTRUCTOR

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SECTION TWO

LONG AND PRE FLIGHT BRIEFINGS

LONG BRIEFING: LB1 - AEROPLANES AND ENGINE SYSTEMS

Duration: 1&1/2 hours

Aim: To give the candidate a thorough understanding of teaching all systems relevant to the aeroplane type.

Briefing content:

- 1 Aeroplane systems (normal operation);
 - Fuel
 - Electrical
 - Flight control (primary and secondary)
 - Hydraulic
 - Flight instruments
 - Avionics
 - Braking
 - De-icing (if appropriate)
 - Oxygen (if appropriate)
 - Cabin air-conditioning and pressurisation (if appropriate)
 - Others

- 2 Engine systems (normal operation);
 - Fuel
 - Oil
 - Starter
 - Ignition
 - Propeller
 - Mixture
 - Turbochargers (if appropriate)

- 3 Limitations;
 - Airframe
 - Load factors
 - Speeds
 - Engine
 - RPM, temperatures and pressures

- 4 Emergency procedures;
 - Refer to Flight Manual for the aeroplane type

Knowledge standard: The applicant must have a sound knowledge of teaching airframe and engine systems and their operation in normal and emergency conditions.

LONG BRIEFING: LB2 - VARIABLE PITCH PROPELLERS (If Applicable to aircraft type)

Duration: 1 hour

Aim: To give the candidate sufficient knowledge to teach the principles of variable pitch propellers.

Briefing content:

- 1 Variable pitch propellers;
 - Principles
 - Constant speed units
 - Synchronisation
 - Handling (type related)

- 2 Feathering;
 - Principles and purpose
 - Feathering mechanisms
 - Handling and limitations (type related)

Knowledge standard: The candidate must have a sound understanding of teaching VP propellers systems for the aeroplane type.

LONG BRIEFING: LB3 – TAIL WHEEL AIRCRAFT (If applicable to type)

Duration: 1 hour

Aim: To give the candidate a sound knowledge of the differences handling a Tail wheel aircraft.

Briefing contents:

- Taxiing
 - Steering and Brakes
 - Position of controls
 - Differential Braking
 - Castoring tail wheel
 - Nose Weaving
 - Effects of wind
- 2 The Take Off;
- Torque
 - Slipstream
 - Asymmetric Blade Effect
 - Propeller Precession
 - Cross Wind
 - Tendency to Swing
- 3 The Side slipping Approach if aircraft not fitted with flap or has poor forward visibility.
- Crosswind approach
- 4 Landing
- Controlling a Bounce/Balloon
 - The Ground loop
 - The go around
 - Flapless landing
 - Glide approach
 - Performance landing
 - The Wheeler Landing

Knowledge standard: The candidate must be able to demonstrate a thorough understanding of the principles involved in operating a tail wheel aircraft in normal flight.

LONG BRIEFING: LB4 - WEIGHT AND BALANCE

Duration: 0.5 hour

Aim: To give the candidate sufficient knowledge to teach mass and balance calculations for the aircraft type.

Briefing content:

- 1 Revision of weight and balance principles;
- 2 Application of principles to aeroplane type calculation;
- 3 Practice sample calculations using the Flight Manual data.

Knowledge standard: The candidate must be able to teach mass and balance calculations for the aircraft type.

SECTION TWO (CONTINUED)

PRE-FLIGHT BRIEFINGS

Pre Flight Briefing 1- PFB1-General Flying

Duration 1 hour

Aim To give sufficient knowledge to enable candidate to teach general flying in the appropriate aircraft type.

(i)

General Flying

- Aircraft Familiarisation
- Including
- Cockpit Familiarisation
- Checklist procedures
- Engine start
- Engine fire on ground
- Taxiing and use of Brakes

(ii)

Take Off and Climb

- Checklist procedures
- Normal Take off and cross wind take off
- Under carriage retraction (if applicable)
- After takeoff checks
- Normal climb, climbing turns
- Throttle and (VP prop controls if applicable)

(iii)

Cruise

- Level off
- Use of trim (electric trim if applicable)
- Effect of flaps
- Cruise Checks
- Normal Turns

Pre Flight Briefing 1 PFB1 – General Flying - continued

(iv)

Engine handling

- Temperature and pressure gauges
- Throttle
- Mixture Control
- Carburetor Heat Control
- Alternate Air Control
- Propeller Control
- Turbo Charging

(v)

Descending

- Descent checks
- Descending turns
- Mixture control
- Carburetor Heat control

Knowledge standard: The candidate must be able to brief on General flying in the appropriate aircraft type.

Pre Flight Briefing 2 – PFB2- General Handling and Circuits

Duration 1 hour

Aim: To give candidate sufficient knowledge to teach general handling and circuit procedures in appropriate types of aircraft

Taxiing

(Procedures for Tail Wheel Aircraft if applicable)

Normal Take Off

Performance Take Off

Climb Vy and Vx

Steep Turns (45 degrees of bank) including appropriate checks

Stalling

- Appropriate Checks
- Clean Configuration Power Off
- Approach Configuration power on
- Landing configuration power on

Circuits

- Normal Approach and landing
- Flapless Approach and landing
- Glide Approach and landing
- Performance Landing
- Go Around

Ground Handling (for Tail Wheel Aircraft)

Knowledge standard: The candidate should be competent at briefing general handling and circuit procedures appropriate to aircraft type.

Pre Flight Briefing 3 -PFB3- Emergencies

Duration 1 hour

Aim. To give the candidate sufficient knowledge to brief emergency procedures in the appropriate aircraft type.

Emergencies

- Engine failure before and after Take Off
- Alternator failure
- Door opening in flight
- Engine failure in flight
- Engine Fire in flight
- Electrical Fire in Flight
- Engine Fire on ground
- Hydraulic failure
- Engine /Airframe Icing
- Others as per flight Manual

Knowledge standard: The candidate must able to brief the emergency procedures appropriate to the aircraft type.

SECTION THREE

FLIGHT EXERCISES

The flight training consists of 3 hours of dual instruction.
The outline syllabus is as follows:-

Flight Number	Description	Duration
F1	Aircraft and flight familiarisation	1 hr
F2	General handling and circuits	1 hr
F3	Emergencies in flight	1 hr

Following is a detailed breakdown of the training flights.

FLIGHT NUMBER F1 - AIRCRAFT AND FLIGHT FAMILIARISATION

Duration: 1 hour

Aim: To give the candidate sufficient knowledge teach the handling characteristics of the aircraft in normal flight.

Air exercise:

1. Pre-flight preparation and aircraft inspection
2. Start-up and taxiing;
 - cockpit familiarisation
 - checklist procedures
 - engine start
 - taxiing use of brakes and controls with relation to the wind
3. Take-off and climb;
 - checklist procedures
 - normal take-off/cross-wind take-off
 - after take-off checks
 - normal climb, climbing turns
 - throttle and VP (variable pitch) propeller controls (If applicable)
4. Cruise;
 - level off
 - use of trim
 - effect of flaps, undercarriage (if applicable)
 - normal turns
 - cruise checks
5. Engine handling;
 - engine temperatures and pressures
 - Throttle and propeller control
 - mixture control
 - Carburetor de icing
6. Descending;
 - descent checks
 - normal descent and descending turns
 - mixture control
 - carburetor icing
7. Demonstration normal circuit;
 - checklist procedures
 - approach
 - normal landing.

Skill standard: The candidate must be able to teach the normal checklist procedures and the handling of the aircraft competently.

FLIGHT NUMBER F2 - GENERAL HANDLING AND CIRCUITS

Duration: 1 hour

Aim: To give the candidate sufficient knowledge to teach aircraft general and engine handling and practical circuit procedures.

Air exercise:

1. Start-up and taxi
2. Normal take-off and climb
3. Performance Take Off
4. Stalling;
 - checks
 - clean configuration - power off
 - approach configuration - power off
 - approach configuration - power on
5. Steep Turns
6. Circuit procedures;
 - normal configuration
 - flapless approach and landing
 - performance landing
 - go-around
 - Glide Approach

Skill standard: The candidate must be able to demonstrate and teach general handling and circuit procedures competently.

FLIGHT NUMBER F3 EMERGENCIES

Duration: 1 hour

Aim: To give the candidate sufficient knowledge to teach the aircraft handling in the event of an emergency

Air exercise:

1. Normal take-off and climb
 - Engine Failure on and after Take Off
 - Instrument Indications
 - Undercarriage procedures

2. In-flight emergencies;
 - hydraulic
 - electric
 - airframe and engine icing
 - others as per flight manual
 - Propeller Overspeed (if applicable)
 - Engine Failure
 - Engine Fire

3. Undercarriage emergency procedures.

Skill standard: The candidate must be able to teach confidently the aircraft emergency procedures in flight and on the ground .

BIBLIOGRAPHY

The following is suggested for study covering ground and flight elements of the Single Pilot Aircraft Class Rating Instructor course:

LASORS

R Campbell The Flying Instructors manual

Trevor Thom The Air Pilots Manual One

The Flying Instructors Patter Manual

JAR FCL

R Campbell Teaching and Learning

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CLASS RATING INSTRUCTOR / SINGLE PILOT AIRCRAFT

AIR EXERCISE TRAINING RECORD

STUDENT.....

INSTRUCTOR.....

Date.....

Aircraft.....Type.....

Exercise.....No.....

Briefing Time.....

Flight Time

From.....To.....

Total Time.....

Remarks :-