



AOPA
Guide and
Syllabus of
Instruction

THE
STANDARD
AEROBATIC
CERTIFICATE
COURSE

PUBLISHED BY

CAMPBELL CONSULTANTS
HATHERLOW
MERROW COMMON ROAD
GUILDFORD
SURREY, GU4 7BJ

FIRST REVISED EDITION
© Campbell Consultants
OCTOBER 2007

INTENTIONALLY LEFT BLANK

**APPROVED AOPA SYLLABUS
STANDARD AEROBATIC CERTIFICATE COURSE**

1st Revised Edition 2007

| AMENDMENT LIST No. | DATE INCORPORATED | SIGNATURE |
|--------------------|-------------------|-----------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

INTENTIONALLY LEFT BLANK



FOREWORD

This Syllabus and Guide, produced by the Aircraft Owners and Pilots Association, in collaboration with the British Aerobatic Association, is issued with the approval of the BLAC Board of Management and AOPA Instructor Committee for courses leading to the issue of the AOPA Standard Aerobatic Certificate

Applicant's Name:

Address:

.....

Date Training Commenced

INTRODUCTION

This Syllabus and Guide to the AOPA Standard Aerobatic Course covers the learning of the aerobatic manoeuvres required to take part in Standard Class events organised by the British Aerobatic Association (BAeA). However, it is appreciated that some pilots will wish to progress to more advanced manoeuvres, and the more specialised areas of competition and display aerobatics. Further training will be required before undertaking these more advanced manoeuvres.

The purpose of this publication is to give guidance to pilots who wish to obtain the AOPA Standard Aerobatic Certificate. The information it contains will also be needed by those Registered Training Facilities and Flying Training Organisations and the instructors who intend to supervise this training.

A copy of the syllabus must be held by the pilot undergoing the aerobatic training, and should be used as a record to ensure that all parts of the course have been satisfactorily completed prior to application for the Certificate. A signature block is incorporated after each relevant section for the instructor to sign when it has been completed.

FLYING TRAINING

The course consists of a minimum of six hours dual flying with an instructor who is qualified to give aerobatic instruction. (Pilots who already have some aerobatic experience may qualify for a reduction in the flying hour requirement of this course).

AOPA recommends that pilots undertaking the Aerobatics course do not practice aerobatics solo until they have been trained and proved competent in spin recognition and recovery.

THEORETICAL KNOWLEDGE TRAINING

The theoretical knowledge section of the course will consist of a minimum of six hours. Three hours of briefings/lectures must be given by a person qualified to instruct in aerobatic flying and the remaining hours may be carried out through self study under supervision.

Note: Due to the content of the course and the minimum number of flying hours required, it is particularly important that adequate theoretical knowledge instruction be given to the candidate prior to the instruction in the air.

COURSE OBJECTIVES

AOPA and the BAeA have designed this syllabus of instruction in order to encourage those pilots who wish to become proficient in the Standard aerobatic manoeuvres to undertake the right training through a properly structured formal course.

Satisfactory completion of the course will enable the candidate to obtain the recognized AOPA Standard Aerobatic Certificate.

PROCEDURE TO OBTAIN THE CERTIFICATE

A candidate may commence the course at any time after qualifying for the AOPA Basic Aerobatic Certificate. There are no minimum pre-entry hour or time requirements to enter the course of training.

The course of training is reflected in the syllabus contents shown on the following pages and upon completing the course candidates will be required to have their competence assessed in the air. The application forms for the issue of the certificate must be completed by the candidate and the instructor(s) conducting the course.

The air test must be given by an instructor registered with AOPA for this purpose and it should be noted that this flight additional to the 6 hours required for the course.

Payment for the test has to be arranged between the candidate and the instructor giving the test, but a fee of £15 will have to be paid to AOPA to cover costs of administering the issue of the certificate. However, if the candidate is a pilot member of AOPA, this fee will be reduced to £10.

The application form consists of pages 11 and 12 of this syllabus. When the test has been satisfactorily completed, these pages should be removed and completed by the candidate, instructor and the person conducting the flight test section. Following this, the completed form, together with the appropriate fee, should be sent to the Administrative Secretary, AOPA, 50a Cambridge Street, London, SW1V 4QQ. Provided that the necessary requirements are met the candidate will be issued with the AOPA Standard Aerobatic Certificate.

ENVIRONMENTAL CONSIDERATIONS

Repetitive aerobatics can cause considerable annoyance to people living or working beneath. Instructors and candidates should be aware that this can lead to complaints, which in turn may lead to enforcement action and operating restrictions. AOPA is committed to defending the rights of General Aviation pilots, and can do so only if all concerned take into account the needs of other people. In this respect, pilots are advised to abide by the advice in the leaflet 'More Considerate Flying' produced by the General Aviation Awareness Council.

Recoveries from all manoeuvres must be completed by a minimum of 1,000 feet above the surface, and a maximum height must also be observed of 500 feet below the base of regulated airspace. Greater margins are likely to be wise until adequate experience has been gained.

EXEMPTIONS

A candidate who already has reasonable aerobatic experience and who wishes to obtain an AOPA Standard Aerobatic Certificate may apply for a flight competency test with any qualified instructor who is registered with AOPA for the purpose of conducting such tests. A satisfactory standard of performance on this test will be accepted as meeting the requirements for the issue of the Certificate. An application form completed by the candidate and signed by the instructor must be sent to AOPA together with the appropriate fee before the Certificate can be issued.

Important Note: The aerobatic manoeuvres covered in this syllabus must only be undertaken if the Owner's/Flight Manual/Pilot's Operating Handbook specifically states that these manoeuvres are permitted on the aeroplane type.

PRIMARY REFERENCE MATERIAL

The Air Navigation Order

| | | |
|----------|--------------------------|-------------------------|
| LASORS - | Safety Sense Leaflet 19 | Aerobatics |
| | Handling Sense Leaflet 2 | Stall/spin awareness |
| | Handling Sense Leaflet 3 | Safety in Spin Training |

Owner's/Flight Manual/Pilot's Operating Handbook – for specific type

“**Basic Aerobatics**”, Campbell and Tempest, 1984; Granada Technical Books,
ISBN 0-246-11705-2

“**Better Aerobatics**”, Alan Cassidy, 2003; Freestyle Aviation Books, ISBN 0-9544814-0-2

www.aopa.co.uk

www.aerobatics.org.uk

STANDARD SYLLABUS (STAGE TWO)

THEORETICAL KNOWLEDGE INSTRUCTION

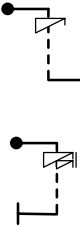
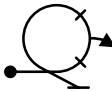
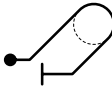
| SUBJECTS | Instructor's Name and Signature |
|--|--|
| TECHNICAL SUBJECTS Kinetic and potential energy Energy management Stalling and spinning – principles of flight | |
| AIRCRAFT - SPECIFIC CHARACTERISTICS Aileron design and adverse yaw P-factor and slipstream effects Propeller gyroscopics Weight, balance and inertia G limitations | |
| EMERGENCY DRILLS Use of parachutes. Aircraft abandonment | |
| ARESTI Notation for Standard aerobatic manoeuvres Aresti System (Condensed) (http://www.arestisystem.com) | |
| SEQUENCE APPRECIATION Height analysis Sequence learning and preparation Effects of headwind and crosswind on figures | |

FLIGHT TRAINING

LONG BRIEFINGS

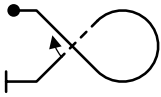
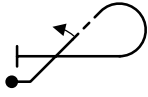

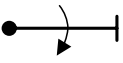


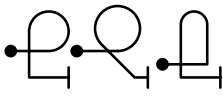
| MANOEUVRE | Instructor's Name and Signature |
|---|---------------------------------|
| Precision recoveries from intentional spins Rotational changes during recovery Effects of relative wind on recovery attitude | |
| Climbing and descending at 45° attitudes Flying vertical lines up and down Effect of different trim settings Difference between attitude and flight path | |
| Hesitation Loops (P-Loops, Q-Loops and Humpty-Bumps) (Restricted to aircraft with full aerobatic clearance to +6/-3G) | |
| Figures combining part loops with half rolls. | |
| Hesitation Rolls | |

FLIGHT EXERCISES

| MANOEUVRE | Symbol | Instructor's Name and Signature |
|---|---|---------------------------------|
| <p>Airmanship – Considerations as applicable to the flight exercise.</p> <p>Basic Aerobatics – revision</p> <ul style="list-style-type: none"> Loops Rolls using aileron Stall turns Half-Loop, Half-Roll | | |
| <p>Spins entered from level deceleration</p> <p>Spins entered after a climbing 45° line</p> <p>Precision spin recoveries including 1, 1¼ and 1½ turns.</p> |  | |
| <p>Recoveries from mis-handled vertical lines, including inadvertent spins.</p> <p>Torque and gyroscopics at low speed.</p> | | |
| <p>Combination of Half Barrel Roll up and Half Loop down (Quarter Clover rolling upwards)</p> |  | |
| <p>Precision Wingovers (Lazy Eights)</p> |  | |

STANDARD AEROBATIC MANOEUVRES

The sequence in which these are taught does not necessarily have to follow the order in which they are listed in the syllabus. In all cases, safe entry parameters, height and speed, must be considered.

| MANOEUVRE | Symbol | Instructor's Name and Signature |
|---|--|---------------------------------|
| Half Cuban Eight (rolling on down line) entered from descending 45° line |  | |
| Half Reverse Cuban Eight (rolling on up line) Ditto followed by climbing 45° line |  | |
| Half Roll and Half Loop down (Split-S) |  | |
| Two-Point Roll |  | |
| Four-Point Roll |  | |
| Stall Turn with 1/4 roll down |  | |
| Hesitation Loops (P, Q and Humpty) |  | |

Combinations of Aerobatic Manoeuvres

| | |
|---|--|
| 1½-turn Spin followed by Stall Turn | |
| Half Reverse Cuban followed by Half Cuban | |
| Split-S followed by Four-Point Roll | |
| Other combinations | |

APPLICATION FOR THE STANDARD AOPA AEROBATIC CERTIFICATE

Candidate's Name in full (BLOCK CAPITALS)

Address

AOPA Membership No. (if applicable)

Work Telephone No:..... Home Telephone No:

Pilot's Licence No.:..... Total Flying Hrs:..... Hrs in Command

THIS FORM SHOULD BE ACCOMPANIED BY THE ADMINISTRATION FEE OF £15 (£10 FOR AN AOPA MEMBER). DO NOT SEND YOUR FLYING LOG BOOK UNLESS REQUESTED.

To be completed by the Instructor who has given the training.

Name of Training Organisation:

Address:

..... Telephone No.:

I certify that the above named candidate has received a minimum of 6 hours flight instruction and 6 hours theoretical knowledge training in accordance with the requirements of the AOPA Syllabus for the Standard Aerobatic Certificate and has reached the skill level required for a Competency Test.

Instructor's Name..... Signature.....

Aircraft Type:.....

FLIGHT COMPETENCY TEST

Instructor's Name (BLOCK CAPITALS)

Signature Date

I certify that the above named candidate has successfully completed the Flight Competency Test for the AOPA Standard Aerobatic Certificate.

AOPA Office use only

| | YES | NO | |
|-----------------------|--------------------------|--------------------------|------------------|
| Fee received | <input type="checkbox"/> | <input type="checkbox"/> | |
| Log Book required | <input type="checkbox"/> | <input type="checkbox"/> | Letter sent..... |
| Recommended for issue | <input type="checkbox"/> | <input type="checkbox"/> | |

Signed Date

AOPA STANDARD AEROBATIC CERTIFICATE COMPETENCY TEST FORM

| General Handling & Manoeuvres | Pass | Fail | Comments & Queries for Debriefing |
|---|------|------|--------------------------------------|
| Engine/airframe – knowledge of limitations and safety aspects | | | |
| Pre-flight Procedures | | | |
| Climbing and Descending 45° lines | | | |
| Precision Spin from level deceleration or after climbing line | | | |
| Quarter Clover rolling upwards or Wingover | | | |
| Half Cuban Eight | | | |
| Half Reverse Cuban Eight | | | |
| Recovery from mis-handled stall turn | | | |
| Stall turn with ¼ roll down | | | |
| Split-S | | | |
| Two-point Roll | | | |
| Four-Point Roll | | | |
| Hesitation Loop | | | |
| Standard Sequence – recommended 8 to 10 Figures§ | | | |
| Overall Airmanship | | | |

FINAL ASSESSMENT

PASS

FAIL

§Ideally this will be the current BAeA Standard Known sequence, see: <http://www.aerobatics.org.uk/sequences/sequence.htm>