

## **PART 2 – Operations Manual**

- (1) General
- (2) Technical
- (3) Route
- (4) Personnel Training

**1. General**

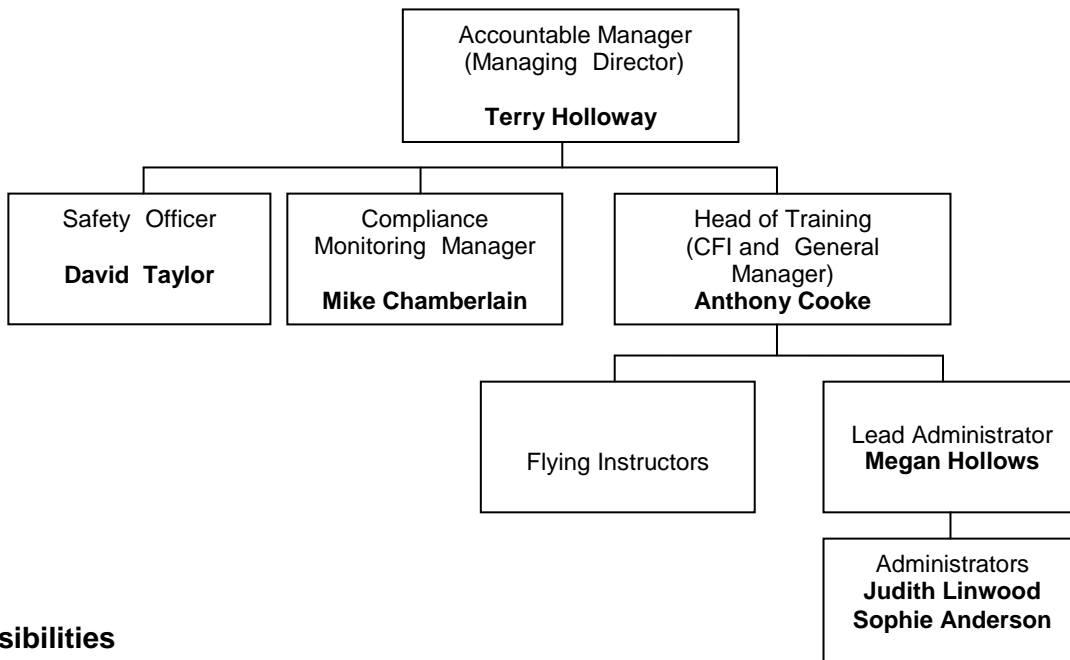
**1.1.1. List & Description of the Operations Manual**

Part	Title	Contents
1	General	General information describing the organisation and structure of the ATO.
2	Technical	Information related to the servicing and maintenance of the ATO's aircraft and to normal, abnormal and emergency handling procedures
3	Route	Instructions relating to flight planning, performance and loading of the ATO's aircraft
4	Personnel Training	Information regarding the induction, refresher and induction training of ATO staff and evaluation of instructional standards

**1.2. Administration**

**1.2.1. ATO Structure**

**ORGANISATION CHART CAMBRIDGE AERO CLUB**



**1.3. Responsibilities**

**1.3.1. Accountable Manager**

The Accountable Manager is responsible to the Board of Directors, CAC for:

- Establishing and maintaining an effective management system
- Ensuring that the organisation has sufficient qualified personnel for the planned tasks and activities
- Promoting the highest degree of safety awareness throughout the organisation
- Ensuring that all activities can be financed

**1.3.2. Head of Training (HT)**

The HT is responsible to the Accountable Manager for:

- Ensuring that the training provided is in compliance with Part-FCL.
- Ensuring the satisfactory integration of flight or synthetic flight training with theoretical knowledge training.
- Supervising the progress of individual students
- Fostering the highest degree of safety awareness throughout the organisation
- Liaison with the competent authority.
- Compliance with Part-ORA

### **1.3.3. Safety Manager**

The Safety Manager is responsible to the Accountable Manager for:

- Acting as the focal point for safety issues.
- The development, administration and maintenance of an effective safety management system
- Facilitating hazard identification, risk analysis and management
- Monitoring the implementation of actions taken to mitigate risk
- Providing periodic reports to the Accountable Manager on safety performance
- Ensuring the maintenance of safety management documentation
- Ensuring that safety management training is available and that it meets acceptable standards
- Providing advice on safety matters
- Ensuring the initiation and follow-up of internal occurrence/accident investigations

### **1.3.4. Compliance Monitoring Manager**

The Compliance Monitoring Manager is responsible to the Accountable Manager for:

- Monitoring the compliance of the organisation with all applicable regulatory requirements
- Monitoring the compliance of the organisation with the provisions of the Operations, Training and Safety Management Manuals
- Ensuring that the compliance monitoring programme is properly implemented, maintained and continually reviewed and improved
- Ensuring that audits are conducted by suitably trained and independent personnel

## **1.4. Student Discipline**

- Each student has the responsibility to be fully acquainted and to comply with the provisions of the ATO Operations and Training Manuals. If a student displays an irresponsible attitude or demonstrates a clear and distinct lack of aptitude or any other behaviour not consistent with the qualities required of a pilot, suspension from training may be considered.
- In particular, termination of training is likely in the event of:
- A deliberate and unjustifiable breach of Regulation 216/2008 or its implementing rules.
- Repeated failure to comply with the provisions of the ATO Operations and Training Manuals
- Any behaviour or attitude that endangers flight safety

- The Head of Training will decide on one of the following courses of action:
  - (1) The issue of a formal verbal warning (A further disciplinary verbal warning will result in the termination of training)
  - (2) Formally advise student of concerns and possible termination
  - (3) Immediate termination of training

**1.4.1. Alcohol**

No pilot shall fly in a CAC aircraft if he/she has consumed any alcohol within eight hours prior to take off. Or within 8 hours of start of duty in the case of Staff Pilots.

**1.4.2. Drugs**

Recreational drug use is not compatible with aviation safety and any student found to be indulging in such drug use is liable to immediate suspension from training.

No pilot is to fly a CAC aircraft if he has taken any medication, whether prescribed or not, unless approval has been given by an Aero-Medical Examiner (AME)

**1.4.3. Reporting and Documentation**

Details of a student’s suspension shall be recorded in the trainee training file. A trainee must be advised in writing of any intention to suspend or terminate his training.

**1.5. Approval and Authorisation of flights**

**1.5.1. Flight Authorisation**

Approval of flights In accordance with FCL.020, a student pilot shall not fly solo unless authorised to do so and supervised by a flight instructor.

All flights in CAC aircraft are to be authorised in writing on the authorisation sheet and are to include full details of the intended flight and the limits of the authorisation.

Students on solo cross-country flights are to carry with them evidence of their authorisation.

Powers of authorisation for flights in ATO aircraft are delegated to flight instructors as follows:

Appointment	Authorising Powers
Head of Training	All flights
Chief Flying Instructor	All flights
Flight Instructors (Unrestricted)	All training flights and student solo flights including land-away flights to airfields approved by the Company
Flight Instructors (Restricted)	As for unrestricted flight instructors but excluding first solo flight by day and night, and first solo cross country by day and by night.

**1.5.2. Deviating from an Authorisation**

The nature and limitations of the Flight Authorisation must be adhered to during the subsequent flight, except in case of emergency, or other extenuating circumstances.

In such circumstances the pilot shall, as soon as possible after the flight has ended, inform the instructor who authorised the flight of the details of the subsequent excursion from his authorisation.

**1.6. Preparation of Flying Programme**

The Cambridge Aero Club flying program is to be prepared by the administration team, written on the flight operations board prior to the days flying. Each lesson is to be allocated a time slot and Instructor. The Duty Instructor is appointed for the day,

who will know the content of each lesson planned to take place and qualifications of all Flight Instructors present.

#### **1.6.1. Restriction on Numbers of Aircraft in Poor Weather**

In the event of poor weather flying operations the number of aircraft permitted in the circuit may be limited with the advice of Cambridge ATC. The Duty Instructor will be responsible for communicating this event and supervising aircraft operating out in the local training area if the event should occur.

#### **1.7. Nomination of Pilot-in-Command of Aircraft**

CAC does not allow mutual flying for students.

#### **1.8. Responsibilities of Pilot in Command**

The pilot in command must take all reasonable steps to

- maintain familiarity with relevant national and international aviation legislation and agreed aviation practices and procedures;
- maintain familiarity with such provisions of the ATO Operations Manual as are necessary to fulfil his function.

##### **1.8.1. Specific Responsibilities**

The pilot in command shall:

- (a) be responsible for the safe operation of the aircraft and the safety of its occupants and cargo during flight;
- (b) have authority to give all commands he deems necessary for the purpose of securing the safety of the aircraft and of persons or property carried therein, and all persons carried in the aircraft shall obey such commands;
- (c) have authority to disembark any person, or any part of the cargo, which in his opinion, may represent a potential hazard to the safety of the aircraft or its occupants;
- (d) not allow a person to be carried in the aircraft who appears to be under the influence of alcohol or drugs to the extent that the safety of the aircraft or its occupants is likely to be endangered;
- (e) ensure that all passengers are fully briefed on:
  - i. use of the seat belt or harness;
  - ii. the location and operation of emergency exits;
  - iii. the method of locating and jettisoning windows;
  - iv. the method of opening and emergency jettisoning of cabin doors;
  - v. the method of deploying life rafts and their subsequent operation (as appropriate);
  - vi. the method and use of life jackets (as appropriate)
  - vii. deployment and use of the radio beacon (as applicable);
  - viii. other type specific safety features;
  - ix. the need to read the passenger briefing card;
  - x. the prohibited use of portable electronic equipment such as mobile phones, laptop PCs etc.
- (f) ensure that all operational procedures and checklists are complied with, in accordance with the Operations Manual;
- (g) ensure that the weather forecast and reports for the proposed operating area and flight duration indicate that the flight may be conducted without infringing Company Operating Minima;

- (h) decide whether or not to accept an aircraft with unserviceabilities in accordance with the list of allowable deficiencies.
- (i) take all reasonable steps to ensure that the aircraft, and any required equipment is serviceable;
- (j) in the absence of a qualified engineer, ensure that aircraft refuelling is supervised with particular attention being paid to:
  - i. the correct grade and amount of fuel;
  - ii. fuel water checks;
  - iii. fire safety precautions;
  - iv. checking filler caps for security and correct replacement after refuelling;
- (k) take all reasonable steps to ensure that the aircraft weight and balance is within the calculated limits for the operating conditions;
- (l) confirm that the aircraft's performance will enable it to complete safely the proposed flight;
- (m) not permit any pilot to perform any activity during take-off, initial climb, final approach and landing except those duties required for the safe operation of the aircraft;
- (n) take all responsible steps to ensure that before take-off and before landing the flight crew are properly secured in their allocated seats;
- (o) take all reasonable steps to ensure that whenever the aircraft is taxiing, taking off or landing, or whenever he considers it advisable (e.g. in turbulent conditions), all passengers are properly secured in their seats, and all cabin baggage is stowed in the approved stowage;
- (p) ensure that the pre-flight inspection has been carried out.

#### **1.8.2. Deviation from procedures in Emergencies**

The pilot-in-command shall, in an emergency situation that requires immediate decision and action, take any action he considers necessary under the circumstances. In such cases he may deviate from rules, operational procedures, and methods in the interest of safety.

#### **1.8.3. Responsibilities In Respect of Third Party Maintenance**

In the event that third party maintenance of an Aero Club aircraft is required away from base, the PIC is first to contact the Head of Training or his nominated deputy for authorisation. Any costs incurred for maintenance that has not been properly authorised will be wholly the responsibility of the PIC.

The PIC must ensure that, in the event of third party maintenance being required while away from base, the procedures referred to in the Technical Log are complied with.

### **1.9. Carriage of passengers**

Subject to the approval of the Head of Training and the privileges of his licence, a person may fly as PIC of a Company aircraft carrying passengers provided that the following conditions are complied with:

- (a) He shall not act as pilot-in-command of a aircraft carrying passengers unless within the preceding 90 days he has made 3 circuits, each to include take-offs and landings, as the sole manipulator of the controls in an aeroplane of the same type to be flown.
- (b) Passengers may not be carried on student solo flights
- (c) Passengers may not be carried on dual instructional flights with the following exceptions:

- i. Another student on the same course of training may be carried if there is a training benefit to be gained.
- ii. CAA inspectors may be carried on any dual instructional flight.
- iii. Passengers may be carried on trial lessons provided that they have a clear and direct interest in the flight (e.g. parents, partner, etc.) and no remuneration of any kind is given in respect of their carriage.

#### 1.10. Aircraft documentation

It is the responsibility of all pilots to check the aircraft technical log prior to engine start in order to establish that the aircraft is serviceable for the proposed flight.

- (a) The Daily 'A' Check may be conducted only by a licensed pilot or engineer. The person conducting the check is to certify its completion by inserting his signature and CAA reference number (or other authorisation reference) in the relevant boxes, along with the date and time that the check was completed.
- (b) The PIC of the aircraft is to sign the 'Pilots Acceptance Column' certifying that he is satisfied with the pre-flight inspection and fuel/oil states for the intended flight.
- (c) On completion of the flight, the PIC is responsible for entering the flying time, and any un-serviceability as soon as practicable after landing.
- (d) Flight time is defined in accordance with FCL.010
- (e) Any defect recorded in the technical log shall be cleared or deferred by a licensed engineer, or other authorised person, prior to the next flight.
- (f) Care must be taken at all times to ensure that the technical log is completed accurately, legibly and in full.

##### 1.10.1. Documents to be carried in Flight

- (a) The following documents are to be carried on each flight as originals or copies unless otherwise specified:
  - i. Pilots Operating Handbook or Flight Manual
  - ii. Certificate of Airworthiness (original)
  - iii. Airworthiness Review Certificate
  - iv. Certificate of Registration (original)
  - v. Noise Certificate, if applicable
  - vi. List of specific approvals, if applicable
  - vii. Aircraft Radio Licence, if applicable
  - viii. Certificate of third party liability insurance
  - ix. Aircraft Technical Log
  - x. Details of the filed ATS flight plan
  - xi. Current and suitable aeronautical charts for the route of the proposed flight
  - xii. Procedures and visual signals information for use by intercepting and intercepted aircraft
  - xiii. The MEL (if applicable)
- (b) In the case of flights intended to take off and land at the same aerodrome and remaining within UK airspace, items iv to ix above may be retained at the aerodrome.

#### 1.11. Retention of Documents

Technical Logs shall be maintained for the life of the aircraft plus 2 years. Completed Technical Logs will be archived by month and year.

Copies of Technical logs of non-ATO aircraft used for approved training shall be retained for a period of 3 years. When such aircraft are used only for short periods, copies of the relevant technical log pages are to be retained with the associated training record(s) for audit purposes.

## **1.12. Flight Crew Qualification Records**

The Chief Flying Instructor is responsible for maintaining an up-to-date record of the validity of staff and student licences ratings and certificates. He is to insure that personnel are not permitted to fly if a required qualification is not valid.

### **1.12.1. Currency of Licences and Ratings**

All pilots are to be in possession of a valid pilot licence and medical certificate before acting as pilot in command of an ATO aircraft. Student pilots shall hold a valid medical certificate. In order to be valid:

- The licence and medical certificate must be signed by the holder.
- The medical certificate expiry date must not have been exceeded.
- The licence must contain a valid Certificate of Revalidation for the aircraft type or class to be flown.
- The licence must contain a valid Language Proficiency Rating.
- For flight under IFR, the licence must contain a valid instrument rating.
- If the flight involves flight at night, the licence must contain a night rating or a night qualification (unless the pilot is undergoing training for a night qualification).

A pilot who holds a licence issued by another ICAO State shall ensure that the licence is valid in all respects demanded by that State. This includes a medical certificate valid in the state of licence issue.

## **1.13. Revalidation**

It is the responsibility of each instructor to ensure that all licences, ratings and certificates necessary for the conduct of their duties remain valid at all times.

## **1.14. Flight Duty Period and Flight Time Limitations (Flight Instructors)**

### **1.14.1. Flight Duty Period**

- Maximum daily flight duty period should not exceed 11 hours, and if more than 5 hours of Flying are proposed the maximum day should be reduced to 10 hours. The subsequent rest period should be a minimum of 12 hours before reporting for duty for the next day period.
- Maximum weekly flight duty period will not exceed 7 days consecutively, in which case 2 consecutive days off will follow. In addition, within any 14 day consecutive days there should be at least 2 consecutive days off.
- Maximum monthly flight duty period: The minimum number of continuous days off in any calendar month must be at least 2, and over three months there should be an average minimum of 8 days off in any 28 consecutive days.

### **1.14.2. Flight Time Limitations**

- (a) The maximum daily flying hours/instructional hours will be 5 hours.
- (b) Maximum monthly flying hours/instructional hours will be 100 hours flying in any 28 consecutive days
- (c) Maximum annual flying hours/instructional hours must not exceed 900 hours in any 12 month period.



**1.15. Flight Duty Period and Flight Time Limitations (Students)****1.15.1. Flight Duty Period**

- (a) Any Student on a full time course will be advised by the CAC Manager as to the optimum total flight duty period, depending on the particular course being undertaken and ability of the student. In all cases this is not to exceed 10 hours.
- (b) Students are to have at least 1 day off in 7.

**1.15.2. Flight Time Limitations**

Students are advised not to fly more than 3 lessons per day, and should not in any case fly solo if having already completed 4 hours flying in any one day.

**1.16. Rest Periods (Flight Instructors)**

- (a) Minimum rest between duty periods shall be 2 consecutive days off after 7 consecutive duty days.
- (b) Minimum rest periods per week/month are 2 consecutive days off in 14 days, an average minimum of 8 days off in 28 days.

**1.17. Rest Periods (Students)**

- (a) Following a flight, students should have at minimum of 30 minutes rest before any subsequent flight if the preceding flight was of more than 2 hours duration.
- (b) Minimum rest between consecutive duty periods is to be 11 hours.

**1.18. Pilots' Log Books**

- (a) All pilots are to maintain their personal logbooks in accordance with the provisions of AMC1 FCL.050
- (b) In particular, pilots are to ensure that the following particulars are recorded in their current log book:
  - The name and address of the holder.
  - Particulars of the holders licence (if any) to act as a member of the flight crew of an aircraft.
  - The name and address of the holder's employer (if any).
- (c) On completion of a course of training, the Chief Flying Instructor is to inspect each trainee's logbook and certify that it contains an accurate record of the flights carried out.

**1.19. Flight Planning (General)**

Prior to each flight, the pilot-in-command is responsible for the proper planning of the flight. In particular, the PIC is to take into account:

- Current meteorological reports and forecasts
- Weather minima
- NOTAMs
- Aerodrome information
- Current charts and amendments
- Aircraft mass and balance

**1.20. Safety Responsibilities**

The Safety Manager is responsible for monitoring the standards of flight safety within the ATO, and for ensuring that all information affecting flight safety is disseminated immediately to all flying personnel.

Notwithstanding the above, all personnel have a personal responsibility towards flight safety. Anyone who discovers a factor affecting flight safety, or who wishes or discuss any matter affecting safety, should contact the Safety Manager.

#### 1.20.1. Safety Equipment

All pilots are to ensure that they are familiar with the use of the fire extinguishers fitted to the ATO's aircraft.

Prior to each flight pilots are to ensure that the fire extinguisher and first aid kit have been inspected within the preceding 12 months.

#### 1.20.2. Radio Listening Watch

Pilots are to ensure that a listening watch is maintained on a suitable radio frequency throughout the flight. In normal circumstances, pilots are to be in receipt of at least a Basic Service at all times.

#### 1.20.3. Accidents and Incidents

Any pilot involved in an accident or incident in an ATO aircraft is to complete an internal ASR form, a copy of which is at Appendix 2 to this Part. Once completed, the report is to be passed to the Safety Manager.

The Safety Manager is to investigate any incident or occurrence involving School aircraft or any other operational matter. This in no way absolves the School or aircraft PIC from their duty, under the Air Navigation Order, to report accidents or incidents.

The object of an internal investigation of an accident or incident is as follows.

- To find out what happened.
- To find out why it happened.
- To recommend measures to prevent it happening again.

It is not the purpose of an investigation to find a scapegoat or to allocate blame.

#### 1.20.4. Definition of an accident

The following is the ICAO definition of 'accident' and also the UK definition of 'reportable accident'.

*An occurrence associated with the operation of an aircraft that takes place between the time when any person boards the aircraft with the intention of flight and such time as all persons have disembarked there from, in which:*

*Any person suffers death or serious injury while in or upon the aircraft or by direct contact with any part of the aircraft (including any part which has become detached from the aircraft) or by direct exposure to jet blast, except when the death or serious injury is from natural causes, is self-inflicted or is inflicted by other persons or when the death or serious injury is suffered by a stowaway hiding outside the areas normally available in flight to the passengers and members of the crew of the aircraft, or*

*The aircraft incurs damage or structural failure, other than:*

*Engine failure or damage, when the damage is limited to the engine, its cowling or accessories;*

*Damage limited to propellers, wing tips, antennae, tyres, brakes, fairings, small dents or punctured holes in the aircraft skin, which adversely affects its structural strength, performance or flight characteristics and which would normally require major repair or replacement of the affected component, or*

*The aircraft is missing or is completely inaccessible or*

*Significant damage is caused to property of the Company or any third party.*

**1.20.5. Definition of a serious injury**

Serious injury means an injury that is sustained by a person in a reportable accident and which:

- i. Requires his stay in hospital for more than 48 hours commencing within seven days from the date on which the injury was received.
- ii. Results in a fracture of any bone (except fracture of fingers/toes/nose).
- iii. Involves lacerations that cause nerve, muscle or tendon damage or severe haemorrhage or involves injury to any internal organ.
- iv. Involves second or third degree burns affecting more than five per cent of the body surface.
- v. Involves verified exposure to infectious substances or injurious radiation.

**1.20.6. Reporting procedures**

Following an accident, it is the responsibility of the pilot concerned to ensure that the appropriate reporting procedures are followed.

The following sequence must be observed.

- Inform the ATO immediately and by the quickest means possible - the person receiving the call will inform the HT.
- Inform the competent authority as soon as possible - in the UK this is the Chief Inspector, Air Accident Investigation, Department of Transport.
- Inform the local police as soon as possible - see Civil Aviation (Investigation of Accidents) Regulations 1996.

The accident report form should be completed as soon as possible, and submitted to the responsible authority (with a copy to the HT) within 72 hours. This form will be supplied by the ATO.

For further information, see AIC P 55/2009 'Aircraft Accidents and Serious Incidents - Duty to Report'

**1.20.7. Incident reporting**

An 'incident' is an occurrence that has

- jeopardised the safety of passengers, crew or aircraft, but which has terminated without serious injury or damage,
- was caused by damage to, or failure of, any major component, not resulting in serious injury or damage.

Following an incident, it is the responsibility of the pilot concerned to ensure that the appropriate reporting procedures are followed.

The following sequence must be observed.

- Inform the ATO immediately and by the quickest means possible - the School will inform the HT.
- Complete an incident report form, and submit it to the HT within 3 days - the relevant form will be supplied by the ATO.

**1.20.8. Occurrence reporting**

An 'occurrence' is any incident that is not a notifiable accident.

A 'reportable occurrence' is

- any defect or malfunction of any part of an aircraft or its equipment which, if not corrected, would have endangered the aircraft, its occupants or any other person,

- failure or inadequacy of facilities or services on the ground used, or in connection with, the operation of the aircraft,
- any incident arising from the loading or carriage of passengers, cargo or fuel.

The overriding criterion to determine whether an occurrence is reportable is if it has endangered or, if uncorrected would have endangered, the aircraft, occupants or other persons.

All pilots or any persons must report such occurrences on the CAA Occurrence Report form SRG 1601 and submit it to the CAA with a copy to the CFI/HoT.

For further information, see CAP 382 'MOR Scheme'.

#### 1.20.9. **AirProx**

An airprox report shall be made whenever a pilot or controller considers that the horizontal or vertical distance between aircraft has been such that the safety of the aircraft was, or may have been, compromised.

Pilots wishing to make an airprox report should immediately inform ATC. If this is not possible, then the report should be made as soon as possible after landing, by telephone, to any UK ATCC.

A follow-up report on Form CA 1094 should then be submitted to the UK AirProx Board within seven days.

For further information, see General Aviation Safety Sense leaflet 13A and UK AIP, ENR Section 1.14.

#### 1.20.10. **Bird strike**

Any bird strikes or near miss is to be reported. Online reporting is preferred at [www.caa.co.uk/birdstrikereporting](http://www.caa.co.uk/birdstrikereporting) Where online reporting is not possible, reports may be made using Form SRG\2004 (see Chapter 5 of CAP 772 and Article 227 of the ANO 2009).

*... the commander of an aircraft shall make a report to the CAA of any birdstrike occurrence which occurs whilst the aircraft is in flight within the United Kingdom.*

*The report shall be made within such time, by such means and shall contain such information as may be prescribed ...*

*Nothing in this article shall require a person reporting any occurrence ... which he has reason to believe has been or will be reported by another person ...*

*A person shall not make any report ... if he knows or has reason to believe that the report is false in any particular.*

*... 'birdstrike occurrence' means any incident in flight in which the commander of an aircraft has reason to believe that the aircraft has been in collision with one or more than one bird.*

#### 1.20.11. **Wake vortices**

Any pilots experiencing wake vortex problems are to report the incident on Form SRG 1423. See AIC P072/2010 'Wake Turbulence'

#### 1.20.12. **General reporting**

All accidents, occurrences and airproxes involving approved training courses, including dual sorties with instructors, are to be notified to Approvals Support, CAA Licensing and Training Standards Department (Fax: 01293 573996).

In addition, all Pilots are expected to follow guidelines issued in Part 1 – Organisation Management, Section 3 Safety Management. Filing ASRs where appropriate.

## 2. Technical

### 2.21 Aircraft Descriptive Notes

Technical details of the aircraft used for training can be found in the relevant Pilots Operating Handbook or Flight Manual, which are to be considered as Annexes to this Manual as follows:

	Type	POH/FM Ref.	Revision
A	Cessna172S	172SPHUS05	Rev 5. 19 July 2004
B	Cessna172S G1000	172SPHBUS-02	Rev 2. 18 November 2010
C	Cessna182T	182TPHUS01	Rev 1. 30 April 2001
D	Extra EA200	EA-7701 Edition	Rev 3. 16 July 2008

### 2.22 Aircraft Handling

#### 2.22.1 Checklists and Pilots Operating Handbooks

- 2.22.1.1 Aircraft are to be operated in accordance with the manufacturers Pilot Operating Handbook and CAC Checklists. Where any conflict is found between the CAC checklist and the Pilot's Operating Handbook, the latter is to take precedence.
- 2.22.1.2 Any conflict between the checklist and the Pilot's Operating Handbook is to be reported to the Head of Training without delay.
- 2.22.1.3 All pilots are to be in possession of the appropriate checklist for the aircraft they are flying.
- 2.22.1.4 Pilots are to comply with the handling notes and checklist for each specific aircraft type flown.

#### 2.22.2 Limitations

- 2.22.2.1 Aircraft are to be operated within the limitations laid down in the Pilot's Operating Handbook and any relevant national legislation.
- 2.22.2.2 Should any limitation be exceeded inadvertently, the fact is to be recorded in the technical log and the Head of Training is to be informed without delay.
- 2.22.2.3 If any structural or engine operating limitation is exceeded, the aircraft is to be landed as soon as is practicable and is not to be flown again except with the permission of the Head of Training.

#### 2.22.3 Maintenance

The Cambridge Aero Club employs a Continuing Airworthiness Management Organisation (CAMO) for the 4 Cessna 172s and Extra200; this is Brinkley Aircraft Services Limited. The CAMO for the Cessna 182 is Marshall Aerospace and Defence Group Ltd. All maintenance work on Cessna172s and Cessna 182 is carried out by Marshall Business Aviation at Cambridge International Airport. Maintenance work on the Extra 200 is carried out by Brooklands Engineering at Northampton Sywell Airport and Marshall Business Aviation.

#### 2.22.4 Technical Logs

- 2.22.4.1 It is the responsibility of all pilots, including trainee pilots on solo training exercises, to check the aircraft technical log prior to engine start in order to establish that the aircraft is serviceable for the proposed flight.
- 2.22.4.2 The PIC of the aircraft is to sign the 'Captain's Acceptance' certifying that he is satisfied with the pre-flight inspection and fuel/oil states for the intended flight.

- 2.22.4.3 On completion of the flight, the PIC is responsible for entering the flying time and any un-serviceability. If a solo trainee has any doubts concerning the serviceability of the aircraft then the matter is to be discussed with an instructor.
- 2.22.4.4 Any defect recorded in the technical log is to be cleared or deferred by a licensed engineer, or other authorised person, prior to the next flight.
- 2.22.4.5 Care must be taken at all times to ensure that the technical log is completed accurately, legibly and in full.

### **2.22.5 Deferred Defects**

Any defect or suspected defect should be reported to a flying instructor and a suitable description of the defect agreed before entering it into the Technical Log. If a flying instructor is not immediately available, the pilot must hand the aircraft's keys and Technical Log to a member of the administration staff who are to ensure the aircraft is not flown again until the defect or suspected defect has been dealt with appropriately. If no defects are present at the end of the flight, pilots should enter 'NIL' in the technical Log adding their initials in the appropriate column

*The following text reflects the content of the CAA's Airworthiness Communication (AIRCOM) 2010/12 'The Management and Recording of Aircraft Defects' (available on the CAA website) and is compliant with the provisions of EASA Part-M.*

- 2.22.5.1 Any aircraft defect that seriously hazards flight safety is to be rectified before the aircraft's next flight.
- 2.22.5.2 The decision as to whether a defect seriously hazards flight safety may be taken only by authorised certifying staff as defined in EASA Part M
- 2.22.5.3 Rectification of any aircraft or operational defect that does not seriously hazard flight safety may be deferred but it must be rectified as soon as practicable after it is reported and within any time limits specified in the applicable maintenance data.
- 2.22.5.4 Any defect not rectified before flight is to be recorded on the Deferred Defect Record kept in the aircraft document folder. Rectification of aircraft defects may be deferred only by authorised certifying staff as defined in EASA Part M. Rectification of operational defects may be deferred by the pilot
- 2.22.5.5 Aircraft defects are considered to be failure or malfunction of, or damage to, an aircraft's structure, systems and associated equipment that may affect its airworthiness.
- 2.22.5.6 Operational defects are considered to be failure or malfunction of aircraft instruments, equipment or systems not required to comply with Schedule 4 and 5 of the Air Navigation Order 2009, as amended.
- 2.22.5.7 Deferred defects and the action taken to correct them must also be recorded in the relevant aircraft logbooks

## **2.23 Emergency procedures**

### **2.23.1 General**

- 2.23.1.1 In case of emergency, the procedures laid down in the relevant checklist are to be followed. Where any conflict is found between the checklist and the Pilot's Operating Handbook, the latter is to take precedence.
- 2.23.1.2 Any conflict between the checklist and the Pilot's Operating Handbook is to be reported to the Head of Training without delay.

## **2.24 Radio and radio navigation aids**

### **2.24.1 General**

All aircraft are fitted with VHF radio and basic navigational aids. No aircraft is to fly without at least one VHF radio operational.

## 2.25 Allowable deficiencies

2.25.1.1 Aircraft are to meet the minimum airworthiness requirements at all times and all equipment required by European and national legislation, appropriate to the type of flight intended, is to be fitted and working.

### 2.25.2 Aircraft with an established Minimum Equipment List

Under Part-NCO of the Air Operations Regulation an approved Minimum Equipment List is not mandatory for training aircraft. However, if an approved MEL is required under any other Part of the Regulation (e.g. if the aircraft is also used for commercial air transport), its provisions are to apply to the aircraft when used for training.

CAC aircraft are only used for Training, therefore MEL is not applicable, see section 2.25.3

### 2.25.3 Aircraft without an established MEL

For dual instructional flying in aircraft that do not have a minimum equipment list established under the Air Operations Regulation, the component or system listed in column 1 of the following tables may be inoperative prior to the flight commencing, taking account of the environmental conditions indicated in columns 2 and 3, subject to the remarks in column 4.

Allowable Deficiencies – Single-Engine Aircraft			
(1) Deficiency	Acceptable		(4) Remarks
	(2) Day	(3) Night	
Cockpit or cabin lights	✓	✓	
Strobes/Flashing beacon	✓		
Landing light/Taxi light	✓	✓	
Navigation (Position) lights	✓		
OAT gauge	✓	✓	Flight to remain clear of known icing conditions
Pitot heater	✓	✓	Flight to remain clear of known icing conditions
Cabin heating	✓	✓	
Airspeed indicator			
Altimeter	✓	✓	One may be unserviceable if two are fitted, subject to legal requirement for the flight
VSI	✓	✓	
Attitude indicator	✓		Day VMC only
Turn co-ordinator	✓	✓	VMC only. No spin/stall awareness/avoidance training permitted. No solo student flights permitted
Directional gyro	✓	✓	
VHF comms	✓	✓	Continue to destination only if no requirement for radio at destination
Intercom	✓	✓	For non-instructional flights only
Radio nav aids/GPS	✓	✓	Subject to legal requirement for the flight
Transponder	✓	✓	Subject to legal requirement for the flight.
Fuel contents gauge	✓	✓	No solo student flights permitted Visual inspection must be carried out before every flight (Fuel for the planned flight with normal reserves, plus one hour contingency fuel is the minimum departure load)



### **3 Route**

#### **3.1 Performance**

3.1.1.1 Article 87 of the Air Navigation Order 2009 places on the pilot in command of an aircraft the responsibility to ensure that having regard to the performance of the aircraft in the conditions to be expected on the intended flight, and to any obstructions at the places of departure and intended destination and on the intended route, it is capable of safely taking off, reaching and maintaining a safe height thereafter and making a safe landing at the place of intended destination.

3.1.1.2 Prior to each flight in an ATO aircraft, pilots are to ensure that the calculated performance of the aircraft is sufficient to allow the intended flight profile to be completed.

#### **3.1.2 Take-off**

The PIC should be satisfied that they comply with the performance figures laid down in the aircraft POH plus the CAA's additional safety factor of 33%

#### **3.1.3 Route**

The PIC should be satisfied that they meet the en-route climb figures laid down in the aircraft POH

#### **3.1.4 Landing**

The PIC should be satisfied that they comply with the short field landing performance figures laid down in the aircraft POH plus the CAA's additional safety factor of 43%

### **3.2 Flight planning**

#### **3.2.1 Fuel**

3.2.1.1 Prior to each flight the PIC is to ensure that sufficient fuel has been loaded to complete the intended flight profile and to allow the aircraft to land with sufficient fuel to fly for:

A) The PIC shall only commence a flight if the aeroplane carries sufficient fuel and oil for the following:

1) for visual flight rules (VFR) flights:

- (i) by day, taking off and landing at the same aerodrome/landing site and always remaining in sight of that aerodrome/landing site, to fly the intended route and thereafter for at least 10 minutes at normal cruising altitude, plus an additional 30 minutes reserve.
- (ii) By day, to fly to the aerodrome of intended landing and thereafter to fly for at least 30 minutes at normal cruising altitude, plus an additional 30 minutes reserve; or
- (iii) By night, to fly to the aerodrome of intended landing and thereafter to fly for at least 45 minutes at normal cruising altitude, plus an additional 30 minutes reserve.

2) for IFR flights:

- (i) when no alternate destination airfield is required, to fly to the aerodrome of intended landing, and thereafter fly for at least 45 minutes at normal cruising altitude, plus an additional 30 minutes; or

- (ii) when a destination alternate is required, to fly to the aerodrome of intended landing, to an alternate aerodrome and thereafter fly for at least 45 minutes at normal cruising altitudes, plus an additional 30 minutes reserve.

B) In computing the fuel required including to provide for a contingency, the following shall be taken into consideration;

- (i) Forecast Meteorological conditions;
- (ii) Anticipated ATC routings and traffic delays
- (iii) procedures for loss of pressurisation or failure of one engine whilst on route, where applicable; and
- (iv) Any other condition that may delay the landing of the aeroplane or increase fuel and/or oil consumption.

C) Nothing shall preclude amendment of a flight plan in-flight, in order to re-plan the flight to another destination, provided that all requirements can be complied with for the point where the flight is re-planned.

### 3.2.2 Oil

3.2.2.1 Before starting the engine of a CAC aircraft, the pilot is to ensure that the engine oil level exceeds the minimum stated in the Pilot's Operating Handbook /Flight Manual; or 6 Quarts minimum for Cessna172 and Extra200, whichever is the greatest, for normal operations.

### 3.2.3 Minimum Safe Altitude

#### 3.2.3.1 Minimum Safe Altitudes for Stalling and Spin training

- Recovery by 2000ft for stalling dual
- Recovery by 3000ft for stalling solo
- Recovery by 3000ft for spinning dual – no solo permitted.

#### Minimum Safe Altitude for Navigation

Before departing on a cross-country flight, pilots are to calculate a minimum safe altitude for the intended route: If, during the flight, the weather conditions are such that the minimum safe altitude cannot be maintained in VMC with good ground reference, the flight is to be terminated and the aircraft landed as soon as practicable.

3.2.3.2 Minimum safe altitude is to be calculated as follows:

- Locate the highest obstruction 5nm either side of track/turning points/destination.
- Round up to the nearest 100ft then add 500ft.

### 3.2.4 Navigation Equipment

The PIC should ensure that before departure the aircraft's navigational equipment is checked for serviceability relevant to the lesson plan and that the student ensures that they carry with them the necessary equipment (stopwatch, chart, plotter etc).

## 3.3 Loading

### 3.3.1 General

3.3.1.1 No ATO aircraft is to take-off at a mass greater than the maximum authorised Take-Off Mass (MTOM). To achieve this it may be necessary to reduce the fuel load carried (with due regard to the fuel required for the flight as detailed in the

flight planning requirements at paragraph 3.2 above) or to reduce the payload. In addition, pilots are to ensure that:

- (a) The aircraft mass will be below the Maximum Landing Mass (MLM) before the first landing or touch and go.
- (b) The crew/passenger/baggage/ballast distribution results in a C of G position within the flight envelope published in the Pilot Operating Handbook/Flight Manual.
- (c) A copy of the aircraft's latest Mass and Balance Report is held in the aircraft Technical Log or the aircraft's documents folder.

### 3.3.2 Load Sheets

3.3.2.1 It is the responsibility of the PIC to ensure that an aircraft is loaded in such a way as to meet the limitations related to all up weight and centre of gravity detailed in the appropriate flight manual or pilot's operating handbook. If any doubt exists as to the proper distribution of an aircraft's load, a load sheet is to be prepared, in accordance with the instructions in the relevant Pilot's Operating Handbook/ Flight Manual, showing both longitudinal and lateral centre of gravity.

### 3.4.1 Weather Minima (Flight Instructors/ 'DUAL')

- (a) Minimum cloud base and visibility for dual instructional flying:
  - i. In the circuit 700ft AGL/2KM visibility
  - ii. In the Local Flying Area 1000ft AGL/2KM visibility
  - iii. For cross-country flights 1500ft AGL/5KM visibility
- (b) Maximum surface wind is 30 knots, crosswind limitation of 20 knots.

**Note:** *IMC or IR rated instructors may use lower limits if suitable for the lesson and with permission from the Head of Training.*

### 3.4.2 Weather Minima, (Students/ 'SOLO')

- (a) Minimum cloud base and visibility for solo flights:
  - i. In the circuit 1200ft AGL/5KM visibility
  - ii. In the Local Flying Area 2000ft AGL/8KM visibility
  - iii. For cross-country flights 2000ft AGL/8KM visibility
- (b) Maximum surface wind is 20 knots, crosswind limitation of 10 knots.

**Note:** *Student weather limits may vary according to experience*

### 3.5 Weather Minima, (SOLO PPL holding member without IMC or IR)

- (a) Minimum cloud base and visibility for solo flights:
  - i. In the circuit 1000ft AGL/5KM visibility
  - ii. In the Local Flying Area 1500ft AGL/5KM visibility
  - iii. For cross-country flights 2000ft AGL/8KM visibility
- (b) Maximum surface wind is 25 knots, crosswind limitation of 15 knots.

**Note:** *Solo PPL weather limits may vary according to experience*

### 3.6 Training Routes/Areas

#### 3.6.1 Aerodrome Opening Hours

- (a) The published hours of operation of Cambridge International Airport can be found here: <http://cambridgeairport.com/airfield-information/>
- (b) Requirements for operations outside of published hours are found in Appendix CAC-TM-010– As prescribed by Cambridge Airport Management.

- (c) Restrictions placed on operations by the aerodrome operator are to avoid overflying Cambridge City below 2000ft.
- (d) Airfield diagram at Appendix CACTM-006

**3.6.2 Taxiing Procedures**

- (a) The Cessna172s will normally be parked on the grass parking area, Row W, or as arranged by Operations Department or ATC. The Extra200 and Cessna182 will be parked in H1 or as arranged by Ops/ATC.
- (b) After each flight the PIC is responsible for leaving the aircraft with brakes on and tied down when on the grass parking area.
- (c) All aircraft are required to radio ATC to request taxi and await further instruction before manoeuvring off the parking area.
- (d) Taxiing will comply with ATC instructions.
- (e) Taxiing should be at little more than a 'fast walking pace'

**3.6.3 Circuit procedures**

- (a) Circuit height/altitude for fixed wing standard operations is 1000ft
- (b) All pilots are required by ATC to make a 'downwind' call and a 'final' call subject to ATC. Any variation in circuit height is to be requested from ATC. If an instructor is simulating EFATO the correct call to ATC is "G-ABCD FAN STOP." This should only be undertaken when traffic and ATC workload permits.
- (c) Flight above Cambridge City is not permitted unless at 2000ft AAL or above, with regards to avoidance areas & noise complaint spots
- (d) Bad weather circuit procedures; a bad weather circuit is assumed to be at 600ft AAL or as agreed with ATC
- (e) For Student First Solo Flights (Ex14) and for the first 2hrs 30mins of student solo circuit consolidation the instructor should inform ATC with the intention before leaving the aircraft, then supervising the flight from the ATC Tower.
- (f) Circuit Diagram at Appendix CAC-TM-007

**3.6.4 VFR Circuit Departure when turning RIGHT from RW 23**

- (a) Departure route should be flown in R/W direction until clear of the city or 2000ft, whichever occurs first. Before making a right turn.
- (b) If departing the circuit in accordance with the 'book out' to ATC no RT calls are required until contacted by ATC.

**3.6.5 Noise Abatement**

- (a) Local noise abatement procedures are: avoid overflying Cambridge City below 2000ft, and avoid overflying stables at Newmarket below 2000ft.

**3.6.6 Local Flying Area**

- (a) The 'local flying area' is defined as an area extending:  
Approx 10 miles West of Cambridge,  
Approx 12 miles North of Cambridge but avoiding Lakenheath MATZ  
Approx 12 miles East of Cambridge, but avoiding Stansted CTA to the South-East  
Approx 5 miles South of Cambridge, avoiding Duxford ATZ
- (b) Aero Club traffic should obtain at least a 'basic service' at all times to be aware of any Hazards/regulated airspace.
- (c) Chart extract at Appendix CAC-TM-008

### 3.6.7 Standard Cross-country Routes

- (a) Navigational Training routes are:  
Dual Nav 1 – Cambridge> 6 Mile Bottom>East Bergholt>6 Mile Bottom>Cambridge  
Dual Nav 2 - Cambridge> Point A>Raunds>Crowland>Cambridge  
Dual Nav 3 - Cambridge> 6 Mile Bottom>Diss>Swaffham>Cambridge  
Dual Nav 4 – Cambridge> Wing>Wellingborough>Cambridge  
Solo Nav 1 - Cambridge> Point A>Spalding>Downham Market>Cambridge  
Solo Nav 2 - Cambridge> 6 Mile Bottom>Framlingham>Snetterton>Cambridge
- (b) 80nm cross country (LAPL) route(s) to include Sywell Northampton and Peterborough Conington as en-route airfields and routing to be agreed by the Duty Instructor.
- (c) 150nm cross-country (PPL(A)) route(s) to include Sywell Northampton and Peterborough Conington as en-route airfields and routing to be agreed by the Duty Instructor taking into account weather and NOTAM restrictions on the day of flight, whilst still achieving the 150nm requirement.
- (d) Chart extracts at Appendix 4 et seq A,B,C,D,E,F

### 3.6.8 Prohibited and Danger Areas

- (a) Details of prohibited and danger areas within 50nm of the base aerodrome and any alternative base aerodrome are:
- |               |                  |      |
|---------------|------------------|------|
| NORTH         | D207             | 36NM |
| NORTHEAST     | D208             | 24NM |
| SOUTHEAST     | D139             | 35NM |
| SOUTHEAST     | D156             | 36NM |
| SOUTH         | R107/158/159/160 | 38NM |
| WESTSOUTHWEST | D206             | 21NM |

### 3.6.9 Circuit Rejoin Procedures

- (a) R/T calls required – Call ATC on Approach/Radar frequencies at approximately 5NM.
- (b) Request preferred joining procedure (Overhead/deadside/downwind/base leg/straight-in).
- (c) Integration with circuit traffic as per ATC instructions.

### 3.6.10 After Flight Procedures

- (a) Follow ATC instructions through taxiing routes and to specified parking areas.
- (b) Fuelling will be carried out in the area pre-determined on the Daily Briefing Sheet or as per ATC instructions.
- (c) Securing the aircraft is the Pilot In Command's responsibility.

## 4 Personnel Training

### 4.1 Responsibilities

The Chief Flight Instructor is responsible for the supervision of all flight and synthetic instructors and the standardisation of all flight instruction. They are also responsible for maintaining appropriate records.

**4.2 Initial Training**

- (a) Before commencing instructional duties with CAC all Instructors are to sign a Contract/Agreement between themselves and CAC. This Contract or Agreement states the Instructors Obligations and those of CAC. The Instructor is to sign a declaration stating that they have read and understood the following documents:

Company organisation, procedures and standardisation

- i. CAC Operations Manual – Management & Procedures
- ii. CAC Training Manual – Including Course Syllabus
- iii. P.O.H on the aircraft types on which instruction is to be given – Cessna 172 and/or Extra200
- iv. To be conversant with maintenance procedures for CAC, including allowable defects & recording processes.
- v. Theoretical knowledge training programme
- vii. Emergency and safety training
- viii. and have received a Local area familiarisation/standardisation check with the Head of Training (CFI) or suitable deputy.

Instructors will sign to confirm that they possess the correct licences, current ratings and required medical certificate for the Instruction that they will provide. Details of the initial training are given to flight instructors before commencing instructional duties in the ATO.

- (b) Details of the initial training given to theoretical knowledge instructors before commencing instructional duties in the ATO, including a test lecture

**4.3 Refresher Training**

- (a) The CFI will conduct checks on all Instructors at least once per year and administer refresher training where required.

**4.4 Standardisation Training**

Standardisation meetings will be held at the CFIs request.

**4.5 Proficiency Checks**

Flight Instructor proficiency checks will be:

- (a) Conducted by the CFI on an annual basis and by a Flight Instructor Examiner triennially.
- (b) Results of all proficiency checks will be recorded in the Flight Instructors record sheets held with CAC.
- (c) All standardisation and refresher training will be integrated into these proficiency checks.

**4.6 Upgrading Training**

- (a) Details of upgrade training will be recorded in the Instructor's record sheet

**4.7 ATO Personnel Standards Evaluation**

- (a) In addition to Instructor Proficiency checks outlined in 4.5 above, Instructor feedback is obtained by inviting Flight Test Examiners (whom have tested CAC student pilots) to standardisation meetings, in order to give feedback on instructional technique and standardisation points.

