



# **Standard Operating Procedures**

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## CHAPTER ONE—Preface



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## Section 1—Operational Philosophy

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### Operational Philosophy

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All activities of the Canterbury Aero Club shall be governed by the over-arching operational philosophy, which is to conduct all flight training operations in a safe, comprehensive and timely manner in accordance with recognised industry best practice.

Safety shall always be the paramount consideration in both the design of procedures and execution of flight-training operations.

Every student, instructor or other employee is required to carry out their activities in a way that promotes operational excellence by vigilant adherence to the relevant policies and procedures.

These standard operating policies are for Dual/Solo flight training for the Canterbury Aero Club. Private hire is in accordance with club rates and by laws.



## Section 2—Introduction

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### SOP Layout

This document is divided into three chapters.

#### Chapter 1 Preface

The *Preface* is split into three sections.

Section 1, *Operational Philosophy*, contains the overriding operational philosophy that governs all flight training operations within the Organisation.

Section 2, *Introduction*, explains the content of this document.

Section 3, *Deviations from SOPs*, contains policies for activities that take place outside SOPs and company procedures.

#### Chapter 2 Normal Operations

The *Normal Operations* chapter is split into twelve sections.

Section 1, *General Flight Management*, contains the overall flight management philosophy followed, in alphabetical order, by policies that are not phase-of-flight specific.

Sections 2 through 11 contain policies that are phase-of-flight specific. They, and their subsections, are arranged in phase-of-flight order.

Section 12, *Adverse Environments*, contains policies for normal operations that occur in adverse environmental conditions.

#### Chapter 3 Non-Normal Operations

The *Non-Normal Operations* chapter is split into two sections.

Section 1, *Pilot Responsibility for Handling a Malfunction*, defines the responsibilities incumbent upon the PIC when an aircraft system malfunctions.

Section 2, *Decision Making*, contains policies regarding in-flight decisions necessitated by aircraft system malfunctions or other emergency situations.

### The Three Ps: Philosophy, Policy and Procedure

The abbreviation ‘SOP’ is generally understood to mean ‘Standard Operating Procedures’. However, this document more accurately sets down standard operating *philosophies and policies*, as understood in the hierarchical context described below.

- **Philosophies** express an over-arching view of how management determines their organisation will conduct the business of flight training, including flight operations. Philosophies are common across the organisation.
- **Policies** are broad specifications of the manner in which management expects flight operations to be carried out. Policies must be consistent with philosophies, but are more specific. Policies are common across the organisation.

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- **Procedures** set down the detailed tasks to be conducted by the crew in the execution of flight operations. Procedures must be consistent with operational policies and philosophies, but they will not necessarily be common across the organisation. Procedures may differ between aircraft types and between flight training organisations.

**Procedures** are not contained in the SOPs document. Procedures are published in the operating manuals.

Standard operating philosophies and policies (SOPs) in conjunction with normal procedures reduce the burden of planning and promote confidence and precision in flight operations. They enhance safety and efficiency by providing guidance and a model of operation that crew are expected to follow.

**Note:** Whenever this document refers to “SOPs” it applies specifically to the content of this document. The phrase ‘company procedures’ refers to the operational procedures.

**Note:** Whenever this document refers to "the PF", it applies to the student flying. "The PM" applies to the second student, when carried. "The FI" refers to the flight instructor, who will also be executing the duties of a PM. The PF, PM and FI collectively constitute the “crew”.

**Note:** The PF shall be expected to carry out the duties of the PIC, even during dual flights, as they shall be developing and exercising the judgement required of a flight commander. Notwithstanding the above, on dual flights the instructor remains ultimately and legally responsible for the safety and continuation or termination of the flight.

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## SOP Evolution—A Process of Continuous Improvement

While SOPs are essentially designed to ensure operational consistency, they must also remain relevant within an ever-changing operational environment. Robust, relevant SOPs are the product of a living process of challenge and reassessment. When crew identify the need for change in any SOP they have a responsibility to bring this to the attention of their CFI. All suggestions received will be considered by the SOPs Committee, and any required changes promulgated in the document-change process. Consequently, crew can have confidence that the resulting procedures provide relevant, safe and effective operational guidance.

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## SOP Amendments and Updates

Amendments to this document will be issued on a quarterly basis, after each meeting of the SOPs Committee. It is each pilot’s responsibility to ensure that their SOPs document is current, and that they have read and understand any amendments issued.

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## SOP Applicability

The CAC management is responsible for ensuring that company procedures comply with the philosophies and policies contained in this document.

## SOP Advisories

The following levels of written advisories are used throughout the SOPs.

- WARNING:** An operating procedure, technique or condition that may result in injury or loss of life if not carefully observed or followed.
- CAUTION:** An operating procedure, technique or condition that may result in damage to equipment if not carefully observed or followed.
- Note:** An operating procedure, technique or condition considered essential to emphasise. Information contained in notes may also be safety related.

## SOP Definitions

Approach with Vertical Guidance (APV)	An instrument approach that utilises lateral and vertical guidance, but does not meet the requirements established for precision approach and landing operations. RNAV (GNSS) with a DA(H) specified on the approach charts are examples of APVs.
confirm	To verbally agree.
Crew member	Means a person carried by an aircraft who is— (1) assigned by the operator— (i) as a flight crew member or flight attendant to perform a duty associated with the operation of the flight; or (ii) to perform a duty associated with the operation of the aircraft during flight time; or (2) carried for the sole purpose of— (i) undergoing or giving instruction in the control and navigation of the aircraft; or (ii) undergoing instruction as a flight engineer or flight attendant; or (3) authorised by the Director to exercise a function associated with the operation of the aircraft during flight time; or (4) a flight examiner.
cross-country flight	A flight that extends more than 25 nm in a straight line from the home-base airfield.
Decision Altitude (DA)	A specified altitude in the precision approach, or approach with vertical guidance, at which a missed approach must be initiated if the required visual reference to continue the approach has not been established. DA is referenced to mean sea level.
Decision Height (DH)	A specified height in the precision approach, or approach with vertical guidance, at which a missed approach must be initiated if the required visual reference to continue the approach has not been established. DH is referenced to the threshold elevation.
despatch	After engine start and taxi commenced.
glidepath	The published vertical path on an instrument approach procedure.
Instrument Landing System (ILS)	Instrument Landing System approaches referenced to ground-based navaids for lateral and vertical guidance.
may	Describes the application of an optional procedure.
minimum action altitude	The earliest altitude at which checklist recall items may be commenced in the event of an emergency. It is the higher of the altitude at which the aircraft is in controlled flight or 400 ft AAL. No action to handle an emergency will be taken until this altitude is reached.

## Standard Operating Procedures—Preface

Minimum Descent Altitude (MDA)	A specified altitude in a non-precision approach below which descent may not be made without visual reference.
normal procedures	Procedures performed from memory that follow a panel-scan pattern. They are designed to minimise crew workload, and are consistent with the flight-deck technology of the aircraft.
off blocks	Doors closed and brakes released
on blocks	Park brakes set, engine(s) shut down and shutdown checklist complete.
Passenger	In relation to an aircraft, means any person carried by the aircraft, other than a crew member.
Pilot Flying (PF)	The pilot controlling the aircraft, either directly by hand-flying, or through the autopilot.
Pilot Monitoring (PM)	The pilot not controlling the aircraft, but monitoring the actions of the pilot flying, and the flightpath of the aircraft.
QFE	The ambient atmospheric pressure at aerodrome level. QFE is set when the altimeter reads zero on the ground. When the altimeter sub-scale is set to QFE, the altimeter indicates height above aerodrome level. Air New Zealand aircraft are not permitted to operate with QFE set.
QNH	The aerodrome level pressure reduced to mean sea level in accordance with the ICAO Standard Atmosphere. When the altimeter sub-scale is set to QNH, the altimeter indicates altitude (height above mean sea level).
raw data monitoring	Action taken by a pilot to monitor an aircraft's tracking and altitude relationship to the required ground-based navigation aids.
shall	Describes the application of a mandatory procedure.
should	Describes the application of a recommended procedure
Solo	Student under supervision flying as PIC with no instructor on board pre or post licence
Standard Instrument Departure (SID)	A designated published departure route that provides a transition from the airport to the en-route phase.
Standard Terminal Arrival Route (STAR)	A published arrival procedure that provides a transition from the en-route structure to an outer fix or instrument approach fix/arrival waypoint in the terminal area.
supplementary procedures	Normal procedures that are accomplished as required, rather than routinely.
take-off	Aircraft aligned on the runway, brakes released and thrust lever advanced above idle in order to achieve flight.
technical log	May also be referred to as a defect log. A record of all aircraft defects, the corrective action taken to remedy them, or their deferral by qualified engineering personnel.
verify	Visually check

## SOP Abbreviations

AAL	Above Aerodrome Level
ADEP	Aerodrome of Departure
ADES	Aerodrome of Destination
AFM	Aircraft Flight Manual
AGL	Above Ground Level
APV	Approach with Vertical Guidance
ATC	Air Traffic Control
ATIS	Automatic Terminal Information System
ATS	Air Traffic Services
CAA	(New Zealand) Civil Aviation Authority
CAR	(New Zealand) Civil Aviation Rules
CDI	Course Deviation Indicator
CFI	Chief Flying Instructor
CFIT	Controlled Flight Into Terrain
CPL	Commercial Pilot Licence
CRM	Crew Resource Management
DA	Decision Altitude
DDG	Despatch Deviation Guide
DH	Decision Height
DME	Distance Measuring Equipment
ECT	Evening Civil Twilight
EFATO	Engine Failure After Take-off
ELT	Emergency Locator Transmitter
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
FAF	Final Approach Fix
FCOM	Flight Crew Operating Manual
FLWOP	Forced Landing Without Power
FMS	Flight Management System
ft	feet
FTO	Flight Training Organisation
FZL	Freezing Level
G/S	Glideslope
GNSS	Global Navigation Satellite Systems
GPS	Global Positioning System
HASELL	[mnemonic] Height, Airframe, Security, Engine, Location, Lookout
IAF	Initial Approach Fix
IFR	Instrument Flight Rules

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ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
KDPs	Key Decision Points
LOC	Localiser
MAP	Missed Approach Point
MDA	Minimum Descent Altitude
ME	Multi Engine
MEIR	Multi-Engine Instrument Rating
MEL	Minimum Equipment List
MSA	Minimum Safe Altitude
navaid	navigation aid
NDB	Non-Directional Beacon
NORDO	No Radio
NOTAM	Notice to Airmen
NPA	Non-Precision Approach
NZAIP	New Zealand Aviation Information Publication
NZCAR	New Zealand Civil Aviation Rules
OAT	Outside Air Temperature
OEI	One-Engine inoperative
OOR	Operations Occurrence Report
PAPI	Precision Approach Path Indicators
PED	Personal Electronic Devices
PF	Pilot Flying
PIC	Pilot In Command
PIREP	Pilot Report
PM	Pilot Monitoring
PNR	Point of No Return
PPL	Private Pilot Licence
QRH	Quick Reference Handbook
RAIM	Receiver Autonomous Integrity Monitoring
RNAV	Area Navigation
ROC	Rate of Climb
ROD	Rate of Descent
RPM	Revolutions Per Minute
SAR	Search And Rescue
SARTIME	Search and Rescue Time
SE	Single Engine
SEIR	Single-Engine Instrument Rating
SID	Standard Instrument Departure

## Standard Operating Procedures—Preface

SOP	Standard Operating Procedures (or policies, or philosophies)
STA	Scheduled Time of Arrival
STAR	Standard Terminal Arrival Route
STD	Scheduled Time of Departure
TAA	Terminal Advisory Altitude
TAWS	Terrain Avoidance Warning Systems
TEM	Threat and Error Management
TOC	Top of Climb
TOD	Top of Descent
V1	Decision speed (ME aircraft)
V2	Take-off safety speed (ME aircraft)
VASIS	Visual Approach Slope Indicator System
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VMCA	Single-engine Minimum Control speed in the Air (ME aircraft)
VNAV	Vertical navigation
VOR	Very High Frequency Omni-directional Range
VR	Rotate speed
VYSE	Best rate of climb speed, single engine (ME aircraft)



## Section 3—Operations Outside SOPs

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### Use of Non-standard Procedures

#### Non-standard Procedures Prohibited

The use of non-standard procedures during normal operations is prohibited. No crew member may experiment on any flight with any change to procedures without the express prior authority of their CFI, or designated delegate.

Any crewmember who observes a non-standard procedure shall immediately call this deviation to the attention of the person executing the non-standard procedure.

#### Non-standard Procedures Permitted

Deliberate deviations from company procedures are only permitted if following company procedures would *create a direct threat to the safety of the flight*. It is expected that the need for such deviations will be rare and most likely relate to non-normal situations. As long as a decision to deviate is made in good faith, in the best interests of flight safety **and** is appropriately reported, crews can expect the Just Culture Policy to apply.

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### Situations not Covered by Company Procedures

It is the Canterbury Aero Club's aim to achieve a high degree of standardisation that discourages unsafe practices, carelessness and the development of personal preferences, but not so highly standardised that operational flexibility and the application of sound professional judgement and airmanship are discouraged. It is not possible, or necessarily desirable, to prescribe procedural solutions for every situation; therefore, it must be recognised that company procedures will not provide the answer to every problem encountered in flight operations. The Canterbury Aero Club requires its crew to exercise professional judgement and good airmanship when deciding the appropriate course of action in situations not covered by standard procedures.

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### Reporting and Just Culture Policy

#### Policy Purpose

The Canterbury Aero Club is committed to providing good and safe working conditions for all employees; and good and safe training conditions for all students. To maintain a safe environment, the organisation must proactively manage all forms of risk.

To effectively manage risk the Canterbury Aero Club needs to cultivate an environment that is both open and responsive. Being open means employees and students feel free to notify management when they see issues of concern. Being responsive means management learn from incidents and take remedial action to prevent them from reoccurring.



## **Policy Implementation**

It is essential that issues are brought to management's attention as soon as possible. This includes any accident, incident, occurrence, breach of law or policy or significant concern that may pose a risk to anyone.

Crew can confidently report any of these issues because they will not face disciplinary action even if they have made an honest mistake or misjudgement (subject to the exceptions noted below).

Management will treat very seriously any attempt to victimise any crew member who has, in good faith, reported an area of concern. In such cases, disciplinary action may occur. To minimise the likelihood of victimisation, management will always try to keep information confidential, although this must be balanced with any need to conduct an adequate investigation.

## **Policy Exceptions**

Crewmembers who act irresponsibly in any of the following ways will not be protected by this policy and may be subject to disciplinary action:

- premeditated or intentional harm to people, equipment or property
- actions or decisions involving a reckless disregard toward the safety or security of students, employees and the public
- failure to report safety, security and environmental incidents or risk exposures as required by SOPs and/or company policies
- false representations or acting in bad faith
- self-reporting in an attempt to avoid disciplinary action.



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## **CHAPTER TWO—Normal Operations**

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## Section 1—General Flight Management

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### Flight Management Philosophy

At the very early stages of flight training, the instructor will take primary responsibility for flight management. As a student progresses through their training they will be expected to take on more and more responsibility for flight management, and the instructor will actively monitor the student's performance. Extraneous activities that detract from these primary tasks are discouraged.

The proper execution of any flight demands constant situational awareness, frequent cross-checking, and sharing of information, therefore monitoring is a primary task and core skill of every pilot. Inadequate monitoring occurs not only during periods of high workload, but also during low-workload periods, when complacency and boredom may affect monitoring performance. All crew are expected to recognise threats to effective monitoring (such as both pilots being involved with the same task) and manage those threats accordingly. All pilots shall endeavour to improve their monitoring skills through practice.

Each crewmember shall continuously monitor and cross-check aircraft performance (flight path and systems). In accordance with the principles of good CRM, any observed deviation from expected performance shall be brought to the attention of the PF in a positive but respectful manner until the situation is resolved.

The best resolutions to operational problems result from a full and accurate assessment of the situation at hand. It is incumbent upon all crew to ensure that any problem is clearly defined and communicated (to others on board, the relevant ATS unit, or personnel on the ground). This ensures that everyone involved in developing a solution to the problem is aware of all of the relevant factors.

Once a course of action has been decided upon and implemented, its impact on the situation should be evaluated and, if necessary, the course of action reviewed.

The responsibility for the initiation, continuation, diversion or termination of any flight is vested in the PIC.

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### Accident and Incident Reporting

It is the PIC's responsibility to be familiar with the provisions of CAR Part 12, and to report qualifying accidents or incidents in accordance with the organisation's quality management system.

Any incident (which may or may not require reporting under Part 12) that may require an occurrence report (report CAC-SMM-001) shall be reported to the CFI (or other applicable person) as soon as possible. If possible, an occurrence report shall be submitted before the PIC leaves the Canterbury Aero Club's premises.

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## Aircraft Control

Operation of the aircraft must be under the direct control of one crew member at all times - either manually or through the autopilot. This requirement must be satisfied before conducting any other activity. There must be no element of doubt as to who is controlling the aircraft.

To transfer control, crew shall use the following calls.

- To give control, the PF calls, **“You have control”**. The other pilot accepts this transfer by calling, **“I have control,”** before assuming PF duties.
- To take control, the FI or PM calls, **“I have control”**. The other pilot accepts this transfer by calling, **“You have control,”** before relinquishing PF duties.

When demonstrating a manoeuvre the FI may use the phrase, **“Follow me through.”** This phrase requires the student to lightly rest their hands and feet on the flight controls to feel—but not influence—their movement.

**WARNING:** Any uncertainty regarding control of the aircraft shall be immediately questioned and satisfactorily resolved.

## Instrument Currency Flights

If the flight involves instrument flight training for currency, the PF undertaking practice (although ‘under the hood’) is the PIC. The PM is the safety pilot and is responsible for lookout, airspace, terrain, weather and separation monitoring. The safety pilot must hold at least a current PPL and type rating on the aircraft being flown.

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## Altimetry

### Altimeter Setting

All altimeters shall be set to the appropriate aerodrome or area QNH. Use of QFE is not permitted, unless for the purposes of competitive flying in which case QFE may be used.

For all approaches, barometric altitude must be used to determine arrival at the MDA or DA as per the approach plate, or company minima, whichever is most limiting.

### Altitude Alerter/Reminder

The SOP is based on the policy that descent profile management during an instrument approach will rely on pilot monitoring and not on the altitude alerter. This is in keeping with the philosophy that automation should reduce workload and enhance situational awareness. For example, manipulating the altitude alerter during an instrument approach increases pilot workload and causes unnecessary distractions, particularly when a mid-altitude is captured during an instrument approach.

### IFR Operations

All IFR operations shall make use of an altitude alerter/reminder system. The PF shall set the altitude alerter/reminder and verbally verify any change.

The alerter/reminder shall be set as follows:

Phase of flight	Altitude Alerter/Reminder Setting
Departure	<ul style="list-style-type: none"><li>• ATC cleared altitude (controlled airspace); or</li><li>• SID limiting altitude; or</li></ul>

	<ul style="list-style-type: none"> <li>Flight-planned altitude (uncontrolled airspace)</li> </ul>
Climb and Cruise	<ul style="list-style-type: none"> <li>ATC cleared altitude (controlled airspace); or</li> <li>Flight-planned altitude (uncontrolled airspace)</li> </ul>
Descent using V/S or VNAV mode	The higher of: <ul style="list-style-type: none"> <li>ATC cleared altitude (controlled airspace); or</li> <li>The controlling DME or TAA step altitude, or 25nm MSA; or</li> <li>STAR limiting altitude; or</li> <li>Approach commencement altitude (uncontrolled airspace)</li> </ul>
Descent on an RNAV STAR in VNAV mode	<ul style="list-style-type: none"> <li>ATC cleared altitude.</li> </ul> Intermediate RNAV STAR altitude restrictions need not be set providing the VNAV is annunciated and the aircraft remains on the STAR
<p style="text-align: center;"><b>WARNING</b></p> <p>If the use of another descent mode becomes necessary, the altitude alerter shall be set to the applicable intermediate STAR altitude restriction, or clearance limit, whichever is higher.</p>	
Descent on an RNAV (GNSS) ARRIVAL in VNAV mode	<ul style="list-style-type: none"> <li>For RNAV (GNSS) ARRIVAL procedures set step altitude, or ATC cleared altitude whichever is higher.</li> <li>For RNAV (GNSS) ARRIVAL procedures with manually programmed vertical waypoints set ATC cleared altitude</li> </ul>
<p style="text-align: center;"><b>WARNING</b></p> <ol style="list-style-type: none"> <li>RNAV (GNSS) ARRIVAL procedures have no pre-programmed vertical waypoints. Exercise care when programming the VNAV to ensure that any limiting altitudes are not infringed.</li> <li>If the use of another descent mode becomes necessary, the altitude alerter shall be set to the applicable intermediate ARRIVAL altitude restriction, or clearance altitude, whichever is higher.</li> </ol>	
Approach	<ul style="list-style-type: none"> <li>Cleared for the approach, and assured that no limiting altitudes will be infringed, set the altitude alerter to set MDA or DA</li> <li>For aircraft equipped with an altimeter bug, at 1000 ft above MDA or DA, set the missed approach altitude.</li> <li>For aircraft not equipped with an altimeter bug, set missed approach altitude immediately once established on the missed approach.</li> </ul>
Conditional clearances	ATC cleared altitude <b>only</b> when conditions have been met.

## VFR Operations

Where an altitude alerter/reminder is used for VFR operations, the PF shall set the altitude alerter/reminder and verbally verify any change.

The alerter/reminder shall be set to the ATC-assigned altitude, or the pilot-nominated altitude.

## ATC Clearances

Good airmanship demands accurate understanding and implementation of ATC clearances. Any doubt or uncertainty must be resolved. An operationally unsuitable clearance should be challenged or declined.

On all cross-country flights, ATC clearances shall be recorded (in appropriate shorthand) before being read back.

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## Automation

### Philosophy

Automation is the replacement of the human function, either manipulative or cognitive, with a machine function. The sole purpose of automation is to aid pilots in doing their job.

Pilots are the most complex, capable and flexible components of the air transport system, and are best suited to determine the optimal use of resources in any given situation. They shall be proficient in operating their aircraft in all levels of automation, and must have the skills needed to move from one level of automation to another.

In flight training, a balance should be found between the use of automation and the development of “hand-flying skills”. Likewise, automation shall not be used in a manner that compromises flight safety. Pilots learning to fly shall develop the use of automation skills appropriate to the level of their training.

### Automation Policy

Timely and efficient use of the appropriate level of automation will allow other matters requiring attention to be dealt with more effectively. Improperly planned or executed use of automation detracts from primary flight management tasks. The following guidelines will assist pilots to make the best use of automated systems.

- Ensure all crew members (including an examiner where applicable) are aware of the current status of automated systems. Programming actions and changes to automation status should be verbalised, even on solo flights. This habit helps keep all crew members ‘in the loop’, and is an important habit to develop for a multi-pilot airline career.
- Plan ahead—programming of the automation should occur during low-workload periods of flight. Significant flight-path modification in automated systems should not take place in a situation that detracts from primary flight duties.
- Flight crew should disengage the automatics or change the level of automation in use when programming demands create work overload.
- All automated systems are “dumb, dutiful and inflexible”. Pilots shall continually evaluate the automatics and what they are doing. Be prepared to make changes.

**CAUTION:** At no stage shall manipulation of automatic systems be allowed to interfere with the safe and accurate operation of the aircraft.

### Use of Automation

Where available, automation may be used as follows:

Flight Activities	Level of Automation use Permitted
Up to first solo	Not permitted
Basic instrument flying	Heading and altitude modes only
Basic VFR navigation	Heading and altitude modes only
Advanced VFR navigation	Heading, altitude, vertical speed, level change and navigation modes
Basic instrument rating exercises	Heading, altitude, vertical speed, level change and navigation modes
Advanced instrument rating exercises	Approach and vertical navigation modes
Multi-engine instrument rating	All modes as appropriate

Students may only use automated functions that they have been taught and approved to use by their FI. Students are not permitted to self-teach the use of automated functions.

**Note:** The autopilot shall not be engaged in the climb below 500 ft AAL. The autopilot shall not remain engaged lower than MDA+100 ft or DA.

**Note:** Where available, a flight director should be used during IFR operations.

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## Briefings

### Pre-flight

Before every dual flight-training exercise or assessment, an instructor shall brief the student on the content of the exercise. The briefing shall include at least:

- the principles of flight, where applicable
- engine handling
- identification of threats specific to the flight, and the ways in which they will be mitigated (TEM)
- human factors considerations
- details of the air exercise, and the parameters for successful execution of that exercise
- questioning by the instructor to ensure the student's understanding of the information covered is sufficient
- the opportunity for the student to clarify any areas of uncertainty.

The briefing shall be delivered with enough time prior to the flight for the student to adequately assimilate—and therefore be able to apply—the tasks required of them in the flight. For some exercises, this may mean that the comprehensive pre-flight briefing is delivered a day before the flight. In this instance, a short 'refresher' brief should be carried out immediately before the flight.

Where an exercise is carried out under the scenario-based training model, the pre-flight brief will be carried out as a crew and should include:

- Departure time
- Boarding time
- Customer and passenger requirements
- Flight lesson objective
- Route options
- General overview of current and forecast weather
- NOTAM, Supplements, Navdata Alerts, Jeppesen Notices
- Destination airfields and suitable alternates on route.
- Flight planning
- Fuel requirements
- Weight and balance
- Additional equipment requirements
- Maintenance status of the aircraft (deferred defects)
- Pre-flight
- Inbound arrival time and shutdown fuel load for the aircraft's preceding flight.
- Any other questions.



For basic training/currency flights some or all of the above can be omitted, however there must be a basic discussion about the goals to be achieved prior to flight.

### **Passenger**

Prior to start on any flight carrying passengers, the PF shall brief all passengers on the safety and emergency procedures applicable to the aircraft and the planned flight, unless the PIC determines that all of the passengers are familiar with the contents of the briefing

### **In-flight**

On all flights, take-off/departure and approach/landing briefs shall be delivered by the PF or the FI. (Normally it will be the PF delivering the briefing; however, at the very early stages of flight training, the FI will fulfil this role.)

In-flight pre-exercise briefings shall be delivered where required by normal procedures. The intent of such briefings is to ensure all crew members have a clear understanding of the exercise, and their role in its execution.

### **Post-flight**

After all training flights, dual or solo, a post-flight debrief shall take place.

Self-analysis of performance is an important tool in enhancing flight safety, and the student shall first be given the opportunity to debrief the instructor on their own performance. The instructor will then debrief the student in a constructive manner, making clear both the elements of the flight where the student met the expected performance criteria, and anywhere the student did not. The instructor shall make clear to the student the actions required of them to meet the performance criteria on the next flight.

The contents of the debrief shall be recorded by the instructor and shared with the student.

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## **Cellphones**

On all flights, a cellphone with an adequately charged battery shall be carried as an emergency back-up form of communication. If the phone is on a pre-pay plan, it shall have adequate credit at departure.

During IFR flights, all cellphones shall be switched off prior to engine start and shall remain off for the duration of the flight.

During VFR flights:

- when a flight-following system requires cellphone use, the cellphone shall be left on.
- carried out on aircraft where cellphone transmissions interfere with its automated systems, all cellphones shall remain off from engine start to after engine stop.

Where cellphones are used on VFR flights, they shall only be used for the purposes of flight following or emergency communications. They shall **not** be used if the lookout/situational awareness would be compromised.

**CAUTION:** All cellphones shall not be used when on the apron.

All cellphones shall be switched off within 20m of any fuel pump.

Cellphones shall not be used on refuelling aprons.
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## Checklists

All flights shall make use of a normal checklist that remains on board the aircraft at all times.

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## Circuit-breakers

Deliberate shutdown of serviceable equipment by opening of circuit-breakers is not permitted, except as required by checklist procedures.

Resetting of tripped circuit-breakers is not recommended unless, in the judgement of the PIC, the situation resulting from the circuit-breaker trip has a significant adverse effect on safety. In this instance, the circuit-breaker may be reset once, after a two-minute cooling period. A ground reset of a tripped circuit-breaker by a crewmember should only be accomplished after a senior instructor has determined that a reset is safe.

Circuit breaker resets must be noted in the aircrafts observation booklet post flight. The observation must also be written in the Reception Observation Book.

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## Collision Avoidance

To mitigate the risk of mid-air collision all pilots shall:

- maintain a comprehensive visual and listening watch when operating in terminal or other busy airspace
- make full use of all on-board systems (as installed) to enhance situational awareness
- advise ATC if sight of another aircraft is lost in situations where the pilot is responsible for separation from that traffic.

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## Critical Phases of Flight

The critical phases of flight are defined as:

- all operations from off blocks to TOC
- Flight below 500 feet AGL
- within 1000 ft of any level-off
- approaching or commencing descent until on blocks
- all operations within the aerodrome control zone or traffic circuit
- at any time when on an instrument approach, arrival or departure.

No crew shall perform any activities during a critical phase of flight except those duties required for the safe operation of the aircraft. Paperwork and non-operational conversation should be kept to a minimum.

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## Flight Following

### All Flights



All flights will be monitored by a flight following system in order to ensure the most expeditious intervention by emergency services should an incident or accident occur

The PIC is responsible for monitoring their SARTIME, and updating it with the relevant authority in a timely manner to avoid the initiation of unnecessary SAR action.

Pilots will be liable for the costs associated with SAR action if they have failed to notify the organisation (for locally followed flights) or ATS (for flights with filed flight plans) of any changes to an ETA, or have failed to advise the termination of their flight plan.

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## First Aid Kits

All training aircraft shall carry a first-aid kit that is sealed to prevent contamination of the contents.

The PIC shall record the opening of a first aid kit and the item used on the applicable record so the item may be replaced before the next flight. First aid kits shall be opened for genuine reasons only.

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## Flight-deck Housekeeping

### Loose Items

Every effort should be made to ensure that the flight deck is kept tidy for all phases of flight. Loose articles and documents or equipment not correctly stowed constitute a potential hazard. Crew must avoid placing loose articles (such as clipboards and manuals) where inadvertent movement could interfere with flight or engine controls, or control panels.

No item shall be placed in a position where it may scratch a window or windscreen.

### FOD

Small articles that may fall through gaps in the aircraft interior must **never** be placed in a position from **which they could fall into a gap. The loss of any item on the flight deck must be recorded in the Technical Log.**

No small metal objects (such as stainless steel pens or paperclips) shall be allowed on the flight deck. These items, if lost, may cause electrical shorts or jam controls.

During the pre flight check the cabin shall be thoroughly inspected and cleared of any loose objects (checklist item).

At the completion of the flight, the cabin shall be thoroughly inspected and cleared of any loose objects.

Items found in the aircraft shall be placed in the “FOD” box to raise awareness.

### Fluids

The presence of fluids on the flight deck is a hazard, and has the potential for serious damage.

No open fluid containers (cups, glasses, open cans) are permitted on the flight deck. ‘Sipper’ style water bottles are permitted provided they have a means by which they can be sealed when not in use.

If a fluid spillage occurs on or near electrical equipment, a Technical Log entry and occurrence report are required.



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## Hand Swinging

Hand swinging a propeller to start an engine on any aircraft may only be undertaken by specifically trained personnel approved by the CFI or designated deputy.

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## In-flight Monitoring

### Weather Monitoring

The PIC is responsible for monitoring weather information during flight, including reported and forecast weather at the destination, and any destination alternate(s) as applicable.

### Fuel Monitoring

The PIC is responsible for in-flight fuel monitoring on all flights.

Any changes to the fuel system configuration shall be verbalised.

The following should be taken into account when monitoring fuel in flight:

- fuel imbalance remains within limits. Do not carry out fuel balancing during critical phases of flight.
- fuel used relates to planned burn and fuel remaining
- fuel reserves are maintained where possible
- fuel feed configuration.



All solo training cross country flights shall depart with full tanks.

On all flights, a fuel log is to be maintained. This log shall record, at regular intervals, the time and fuel state.

Every fuel log shall record a “dry tanks” time, and an “only reserves remaining” time.

At the end of each solo training flight, the PF shall establish the amount of fuel remaining. This shall be compared to the fuel log, and the significant discrepancies reported to an instructor if they cannot be explained.

CAC uses the terminology “land-by time” as the “only reserves remaining” time. Total fuel endurance for each tank shall be recorded on the fuel management sheet and this shall meet the requirement of recording a “dry tanks” time.

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## Life Jackets

Life jackets shall be worn by all occupants in aircraft operating:

- in a low flying zone over water that presents a drowning hazard in the event of a ditching
- over water outside of gliding distance from land including over lakes.

Life jackets shall be put on prior to boarding to avoid the life jacket being put on over the top of the safety harness. The PF shall brief all passengers on when and how to use life jackets as part of the pre-start passenger brief.

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## Lighting

### Cockpit Lighting

Cockpit lighting should be set at a level that maximises clarity and provides good external visibility. During daylight and in other high-ambient-light conditions, warning lights shall be selected to bright (where applicable).

If flights are scheduled to return after ECT, the PF shall check cockpit lighting for serviceability during the pre-flight.

Landing at night the cockpit lighting should be dimmed to the minimum acceptable level to ensure the maximum visual cues are available from external references.

Panel and instrument lights should be switched off at shutdown.

### Exterior Lights

At all times exterior lighting should be employed in a manner that maximises the aircraft’s visibility. During night operations, exterior lighting should also be employed in a manner that maximises the pilot’s ability to discern their surroundings—but not in such a manner that it presents a hazard to other pilots.

### Taxi or Landing Light

The taxi or landing light should be used for taxiing at night when required, with care taken not to point directly at other aircraft. The taxi or landing light should be switched off at any time it could present a hazard to other pilots—provided a greater hazard is not created by doing so. If so, stop, turn the light off, and wait until it is safe to turn the light on again and proceed.

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## Navigation

### Navigation Philosophy

At all times, whether conducting IFR or VFR operations, pilots must know where they are and where they are going by referring to the appropriate charts and NZAIP documents. If, at any time, uncertainty exists as to the aircraft's position or track, steps must immediately be taken to resolve that uncertainty.

### Disparity Between Navigation Systems

If a significant disparity between IFR navigation-system sources is noticed, a close check shall be kept on navigation performance. If any doubt exists as to the accuracy of navigation, ATC (or other traffic in uncontrolled airspace) shall be notified.

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## On-Time Performance (OTP)

### Departure OTP

The Canterbury Aero Club shall measure and record OTP statistics and produce a weekly OTP report. A club member shall report at least 20 minutes before a flight in accordance with the Flying By-Laws.

Where the club member fails to appear at the flight office at or before the appointed time, the booking may be cancelled and the aircraft allotted to some other person.

In the event of a 'no-show' without reasonable notice and reason (e.g. a medical certificate) students may be liable for the full cost of the booking.

### Arrival OTP

All crew members shall work together to ensure flights arrive on time. The PIC will be held responsible for late arrivals.

No student or instructor shall fly when fatigued.

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## Operating Minima

No dual flight shall take place in weather conditions that compromise the intended learning outcomes of the lesson.

All VFR flights shall comply with club by-laws, the Canterbury Aero Club Operation Procedures Manual and the CAA Rules regarding minimum altitudes, wind and visibility

### IFR Minima

All IFR training flights shall depart only when:



- weather conditions at the aerodrome of departure are at or above landing minima; or
- weather conditions at a suitable aerodrome within 25 nm are at or above landing minima, and the aircraft is capable of flying at or above MSA to that aerodrome on one engine.

Prior to carrying out any flight in IMC in single-engine aircraft the PIC shall verify the base of the cloud is at least 1000 ft AGL for the majority of the planned route.

### **VFR ECT Restrictions**

All day VFR solo flights where the PIC does not hold current night privileges must land no later than 30 minutes prior to the published ECT.

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## **Passengers on Training Flights**

Unless specifically authorised by the CFI or designated delegate, passengers (including other students) are not to be carried on any solo training flights, including cross-countries.

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## **Radios**

### **Deployment of Radios**

In aircraft equipped with two VHF radios:

- The left (number 1) radio shall be used for communication with ATC and all air-to-air frequencies.
- The right (number 2) radio shall be used for listening to ATIS, for company communications or for monitoring other relevant traffic frequencies where required. When it is not deployed for this purpose, it shall be used to monitor the emergency frequency 121.50.

For aircraft with one com box, pilots should remain on the appropriate FISCOM frequency unless operating at an aerodrome, in the vicinity of an aerodrome, in a Mandatory Broadcast Zone or in a Common Frequency Zone.

### **Radio Calls**

Radio calls should be made by the PF in the air and on the ground, except when:

- Student is in the early phase of flight training
- the PM is acting as safety pilot during simulated instrument flying
- the flight is being conducted two-pilot IFR, when the PM shall make the radio calls
- the instructor advises ATC/other traffic of simulated EFATO, or other simulated single-engine operations in multi-engine aircraft.

Passengers are not permitted to use the radios unless in an emergency situation.

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## Building Situational Awareness

To aid in the establishment of good situational awareness, in all lessons—especially prior to first solo—the instructor shall place particular emphasis on teaching the student to monitor all radio transmissions, and deduce the position and intended path of all transmitting traffic. Other cockpit conversation should cease every time a radio transmission occurs.

After first solo, the habit of listening and analysing radio calls should become automatic and crew are expected to carry on this skill while conducting other tasks (other than talking).

## NORDO Flights

No flight is to be carried out without fully functioning radios without the specific approval of the CFI or designated deputy.

Except for ferry flights for repair purposes, NORDO cross-country flights are prohibited.

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## Refuelling

Refuelling shall not be carried out with any person on board the aircraft, embarking or disembarking.

A static line shall be attached to the aircraft any time it is being refuelled.

Smoking, naked flames, and operating cellphones or other transmitting devices, motor vehicles and flash equipment are prohibited within 20 m of refuelling equipment, including both ground and aircraft tank vents and filling stations.

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## Seats

### Occupancy

No pilot shall fly from the right-hand seat unless specifically authorised by the CFI or designated deputy.

No instructor shall act as PF on a single-pilot IFR flight from the right-hand seat.

### Use of Harness

Crew are required to have their seat belts fastened when occupying a pilot seat any time the engine is running and the aircraft is moving below 1000°.

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## Security of Objects

Turbulence can be encountered on any flight regardless of forecasts, and therefore all baggage and documents shall be stowed and tied down in the appropriate place.

All documents such as flight logs and maps shall be stowed for take-off and landing; pilot laps shall be clear. A securely attached kneeboard is acceptable so long as flight control movement is not restricted.



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## Standard Calls VFR

CAC trains recreational pilots for PPL/CPL. Licensing in the VFR single pilot environment.

Standard calls are not required however the following must be briefed as applicable by the PF:

- Taxi brief
- Departure brief
- Emergency T/O brief
- ABRIEFS
- HERO brief for diversions on a cross country

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## Standard Calls IFR

In a two-pilot airline environment, standard calls are a fundamental aspect of CRM. Proper adherence to standard calls is an essential part of a well-managed flight deck. These calls provide both crew members with the required information about aircraft systems and about the participation of the other crew member. The absence of a standard call at the appropriate time may indicate a malfunction of an aircraft system or indication, or be a sign of incapacitation in the other pilot.

The flight training carried out at The Canterbury Aero Club is focused on preparing students for a career as an airline pilot. While students are trained in a single-pilot environment, they are required to make standard calls as if they were the PM (and, in some cases, respond as if they were the PF) in a two-pilot environment to foster familiarity with standard call discipline.

The following matrices indicate the minimum calls that shall be made at The Canterbury Aero Club. Individual organisations may also require other calls in addition to the list below.

**Note:** Text in square brackets [] is not to be spoken by the pilot making the call; it serves only to describe the information required for the immediately preceding underlined space ‘\_\_\_\_\_’. For example, “\_\_\_\_\_ [distance] DME, \_\_\_\_\_ [charted altitude]” on the ILS 23L at Auckland becomes, “5 DME, 1630 ft”

**Note:** “SE” refers to single-engine aircraft only. “ME” refers to multi-engine aircraft only.

Condition / Location		Call made by PF
<b>All phases of flight</b>	Adjusting QNH	“_____ [QNH] set”
	Setting altitude alerter / reminder	“_____ [altitude] feet set” “_____ [altitude] confirmed”
<b>Take-off</b>	First airspeed indication	“Airspeed active”
	V <sub>r</sub>	“Rotate”
	Positive climb on altimeter	“Positive climb.” “Gear up.” (Retractable-gear aircraft only)
<b>Climb</b>	1000 ft prior to level-off	“1000 to go”
	200 ft prior to level-off	“200 to go”
<b>Instrument Departure</b>	First movement of CDI	“CDI active”
	Above MSA or distance step	“Above MSA”
<b>Descent</b>	1000 ft prior to level-off	“1000 to go”
	200 ft prior to level-off	“200 to go”
<b>Instrument Approach (not circling)</b>	Crossing IAF	“Initial approach fix, _____ [minimum charted altitude] feet”
	First positive movement of the CDI	“CDI active”
	First positive inward movement of the localiser	“Localiser active”
	First positive movement of the glideslope or other glidepath indicator	“Glidepath active”
	Glidepath intercept	“Glidepath intercept at _____ [distance] DME, _____ [altitude] feet” or “Glidepath intercept at _____ [name of navaid or waypoint] _____ [altitude] feet”
	Glidepath check point	“_____ [distance] DME, _____ [charted altitude]” or “_____ [name of navaid or waypoint] _____ [charted altitude]”
	FAF (RNAV approaches)	“Approach mode active”
	1000 ft above MDA or DA	“1000 to go”
	500ft above MDA or DA	“500. Stable.” or “500. Go-around.”
	100 ft above MDA or DA	“100 to go.”
	DA or MDA	“Minimums. Continue.” or “Minimums. Go-around.”
	MAP	“Missed approach point. Continue.” or “Missed approach point. Go-around.”



	Autopilot disengaged	“Disengaged”
	Visual on an instrument approach and continuing visually	“Visual. ____ [rate of descent]”
<b>Visual Approach and Circling Approach</b>	300 ft AAL	“300. Stable” or “300. Go-around.”

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## Survival Kits

All flights planned over mountainous (or otherwise inhospitable) terrain shall carry an appropriately equipped survival kit.

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## Terrain

### Terrain Clearance

The PIC is responsible for ensuring that adequate terrain clearance is maintained at all times, even when under radar control. All pilots are responsible for monitoring terrain clearance.

All descent clearance altitudes on IFR flights should be cross-checked against sector MSAs or approach plates.

Terrain clearance is considered ‘adequate’ when it complies with all regulatory requirements and takes into account any additional considerations such as mechanical turbulence or mountain-wave activity.

As per The Flying By-Laws, when flying, the minimum height at which fleet aircraft shall be flown is 1,000 feet above ground level, unless:

- For the purpose of Take-off or landing
- Accompanied by an instructor, or
- Forced lower by weather conditions beyond the pilot’s control, in which case the pilot must divert or return, to an area of improved weather, or
- Instructed to fly below 1,000 feet above ground level by Air Traffic Control

All flights shall abide by rule 6.5b in the CAC Flying By-Laws

### Terrain Avoidance

To mitigate the risk of controlled flight into terrain, the following policies apply:

- All aircraft are to be operated in accordance with the Approach Procedures Policy and Stable Approach Policy.

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## Technical Log / Defect Log

All aircraft shall have a logbook (technical log or defect log) within which it is the PIC's responsibility to record any aircraft defect noticed during flight.

Prior to commencing a flight, it is the PIC's responsibility to ensure that any recorded defects are rectified or deferred by an appropriately qualified person.

No crew member is to carry out any repair, however minor, to any aircraft or equipment without proper authority obtained from a senior instructor or engineer.

Any defect entered in the aircraft Technical Log or observation entered into the Observation Book should also be entered into the Maintenance Book.

Defected aircraft must have the satchel containing the Technical Log and keys placed into the Maintenance satchel.

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## Use of Airfields

Pilots shall only use airfields in accordance with the by-laws

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## Windscreens and Windows

It is important that aircraft windscreens and windows are kept clean to ensure the pilot has the best possible opportunity see and avoid potential threats to safe flight.

When cleaning windscreens, remove any jewellery or watches that could scratch the windscreen.

No item shall be placed in a position where it may scratch a window or windscreen.

Avoid touching an aircraft window with any hard objects sewn into clothing e.g. Zips or metal buttons.

Do not use the windscreens or canopies to support your/the passengers weight

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## Section 2—Pre-flight

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### Flight Planning

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The PIC is responsible for planning all flights in accordance with and taking heed of:

- all relevant NZCAR
- company fuel policy
- company or manufacturer's performance data
- all relevant operating manuals, including DDG/MEL provisions
- current flight guides, charts and plates
- all relevant NOTAMs
- all relevant weather information
- all relevant RAIM predictions and Jeppesen Notices and Navdata Alerts
- any other conditions specific to the flight that may require special flight-planning consideration (eg running in a new engine)
- Any relevant threats
- NTPs

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### Loadsheets

The PIC is responsible for ensuring that the aircraft is loaded within any limitations contained in the relevant operating manuals; and will remain within those limits throughout the flight.

On all solo flights the pilot shall complete a loadsheet and leave a copy at the base in accordance with company procedure, or with a suitable person on the ground when away from home base.

Where the flight is dual instructional, it is the PIC's responsibility to ensure that it is flown within the operating limitations of the aircraft

Loadsheets are to be completed and sent either to the loadsheet's email or attached physically, and indicated on the flight authorisation form.

Refer Volume 8, Operations Procedures manual.

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### Flight Authorisation

All flights shall be authorised by an appropriately qualified instructor.

Before authorising any flight, the instructor shall be entirely satisfied that

- the PF complies with all Part 61 requirements
- the PF's flight planning is correct and adequate
- the PF has gathered, read and understood all applicable NOTAMs

Standard Operating Procedures — Normal Procedures

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- the fuel on board (and planned refuelling stops) are adequate
- the aircraft is loaded within limits
- all requirements in Chapter Two, Section 1, *Operating Minima* are met
- the weather conditions are within the capabilities of the PF (and the instructor, if a dual flight)
- the student is competent to carry out all in-flight procedures (e.g. arrival or departure procedures) required on the flight
- the flight will depart with enough time to return within ECT limits, where applicable
- flight following procedures are in place
- no Pre-PPL Cross Country student can be authorised to fly solo out of NZCH, unless specifically authorised by the CFI or Delegate.
- solo cross country flights shall be briefed by the student's regular training instructor and signed out (or authorised) by either the instructor, or an 'A' category instructor or 'B' category instructor if required.

Landings at, or take-offs from, unpublished aerodromes or other places are prohibited unless specifically authorised by the CFI or delegated deputy.

A student shall not conduct any exercise that they have not been specifically authorised to do.

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## Take-off Performance

For all flights, the PIC shall confirm that the aircraft will comply, in all respects, with the required take-off performance criteria on the runway to be used in the prevailing meteorological conditions using either the Group Rating system, or flight manual performance data in combination with AC 91-3.

For operations off the Runways the Instructor may, on dual flights, at their discretion determine that it is safe to use the runways considering the following factors:

- Wind conditions
- Aircraft weight
- Aircraft has reached 75% take off speed within half of the take off distance available
- Surface condition
- QNH
- Temperature

Instructors refer to Volume 8 Operations Procedures Manual

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## Documents and Items to be Carried

The PIC is responsible for ensuring that the documents and publications prescribed in the NZCAR are carried on all flights.

In addition to those documents and items required to be carried by NZCAR 91.111 and 91.221, all aircraft shall have on board

- the normal and non-normal checklists.

Standard Operating Procedures — Normal Procedures

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- Normal Checklists (2)
- Non-Normal Checklist
- Club Standard Operating Procedures (SOPs)

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## Release to Service

The PF shall ensure that the aircraft's required maintenance inspections are current. The Technical Log or defect record must be checked prior to each departure to ensure that:

- all reported defects are certified as either closed or deferred by authorised personnel. This certifies that the aircraft is fit for Release to Service
- all deferred defects are acceptable for flight as per Part 91.619 or the MEL. A defect that affects airworthiness and cannot be deferred in accordance with Part 91.619 the MEL is required to be rectified before further flight.

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## Exterior Inspection

Before every flight, a thorough exterior inspection shall be carried out by the PF in accordance with operating manuals. Any item that is deficient, or about which there is uncertainty, must be rectified or resolved before flight.

During spring, particular care must be taken to ensure that birds have not dragged nesting materials into the aircraft fuselage, which could present a fire hazard or restrict control-cable movement.

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## Clock Setting

Prior to each flight, the PF shall confirm that the primary timepiece on board is accurate to within one minute of the time reported by an ATS unit, or other company-authorised time source.

## Section 3—Start

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### Passenger Brief

The passenger brief shall cover at least the following items:

- instructions on when it is appropriate, and not appropriate, to converse with the PF
- the location of on-board emergency equipment
- basic instructions for use of on-board emergency equipment
- to keep hands and feet away from the controls
- how to exit the aircraft
- that smoking is prohibited
- that seat belts must remain fastened at all times
- to point out any other aircraft seen.

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### Engine Start

Before Start Checklist shall be completed after all before start procedures are complete and before engine start.

Selecting the Nav lights and Beacon (if equipped) on prior to engine start meets the requirement of having anti-collision lights illuminated. Strobe lights (flashing white) should only be selected on during runway entry or when crossing a runway. Some aircraft use the term anti-collision lights for strobe lights.

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### ATC Clearance

The ATC clearance must be recorded, and the following checked against this clearance:

- navigation-aid configuration, if applicable
- entered FMS flight plan, if applicable
- altitude alerter/reminder
- transponder code.



## Section 4—Taxi

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### Ground Manoeuvring

At a controlled aerodrome, the taxi clearance shall be recorded. Any changes from what has been briefed shall be reviewed.

The PF shall have access to an airport chart at all times when manoeuvring on the ground.

The PF shall confirm the aircraft's position with reference to airport signage while taxiing. If any uncertainty regarding the aircraft's position arises, the PF shall stop the aircraft and advise ATC (or other traffic, at an uncontrolled aerodrome). The taxi shall not be resumed until the uncertainty is rectified.

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### Taxi Speed

Taxi speed should not exceed a fast walking pace, unless operationally required (backtracking on an active runway). Speed should be controlled with power. Avoid riding the brakes to control speed.

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### Engine Run-Ups

A full engine run-up is required before the first flight of the day and after any full crew change.

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### Taxiing Across a Runway

Due to the serious nature of a runway incursion, the crew shall take extra care when crossing runways. All crew shall look out and observe both ends of the runway while crossing and extra care should be taken at night when aircraft lights can blend into the runway lights.

Select strobe lights ON prior to runway entry and OFF when clear.

**WARNING:** A taxi clearance beyond a runway is not a clearance to cross.

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## Take-off Briefing Policy

The take-off briefing is required before every take-off. The take off briefing should consist of the departure brief, performance brief and emergency brief

Normally, the emergency briefing will take place immediately prior to take-off. It is described in Chapter Two, Section 5, *Take-off and Climb*.

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## Performance Briefing

The performance briefing covers the take-off configuration and speeds. The PF shall state whether the take-off will be:

- a normal take-off; or
- a short field take-off; or
- a take-off that differs in any other way from a normal take-off.

## T-CTWO Departure Briefing

A preparation phase is required prior to the briefing being delivered. The preparation for departure requires that all operating manual procedures are complete, including a comprehensive brief of departure procedures, and that any questions about the preparation phase have been resolved.

The departure briefing identifies threats for departure and confirms the planned operation of the aircraft. It follows the mnemonic T-CTWO. The T-CTWO brief is not a comprehensive departure brief—that occurs in the preparation phase—but rather a reconfirmation of only the critical pieces of information.

### VFR

#### **Threats:**

Relevant threats identified by all crew members, each with an appropriate mitigation strategy

#### **Charts:**

Departure Chart Title *or*  
Circuit Leg *or*  
Departing Left/Right on track

Limiting Altitude

#### **Terrain:**

Visual Terrain Clearance

#### **Weather:**

Significant Weather *or*  
Nil Significant Weather

#### **Operational**

Relevant NOTAMs & MEL items *or*  
Nil Operational

### IFR

#### **Threats:**

Relevant threats identified by all crew members, each with an appropriate mitigation strategy

#### **Charts:**

SID Title *or*  
Visual Departure

Limiting Altitude

#### **Terrain:**

First leg MSA *or*  
Visual Terrain Clearance

#### **Weather:**

Significant Weather *or*  
Nil Significant Weather

#### **Operational**

Relevant NOTAMs & MEL items *or*  
Nil Operational

Before Take-off checklist shall be completed after T-CTWO

## Runway Entry

Prior to entering an active runway, the crew shall confirm they are lining up on the correct runway.

## Section 5—Take-off and Climb

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### Emergency Briefing

The emergency briefing covers contingency procedures in the event of an engine failure (or other non-normal event) during take-off. The briefing differs depending on whether the aircraft is single- or multi-engine. It shall be committed to memory and delivered by the PF prior to the first take-off.

Any specified procedures that are relevant to an emergency during take-off shall be briefed.

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### Runway Occupancy

Line up and start the take-off roll promptly (or immediately when cleared, at a controlled aerodrome).

Do not hold on a runway unless specifically instructed or cleared to do so.

Line-up checklist shall be completed to minimise delay on the runway.

Notwithstanding the above, some operational requirements or procedures require stopping. In such cases time spent on the runway should be kept to a minimum.

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### Turns After Take-off

All turns after take off are to be conducted above 500` AGL unless required operationally

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### Flight Log Entries

On departure, the PF should note the set heading time. However, no action to calculate down-track ETAs or update the flight log shall be undertaken until all departure procedures are complete.



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## Climb Performance

During an IFR departure, the PF is responsible for ensuring the climb performance is satisfactory to achieve the requirements of the SID. If it is not, ATC (or other traffic in uncontrolled airspace) shall be advised, and an alternative course of action that ensures terrain clearance shall be initiated.

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## IMC Considerations

Flight in icing conditions is not permitted in aircraft not equipped with de-icing equipment.

For IFR flights, a decision should be made during the climb to continue climbing, level-off or descend to a more appropriate altitude to ensure safe operation and passenger comfort.

During the climb the PF should monitor the OAT to determine the freezing level and decide if the cruising altitude will be clear of icing.

The cruising altitude should be reviewed with consideration to passenger comfort. Flight in IMC usually results in turbulence and therefore wherever possible cruise should be planned above the cloud tops.

## Section 6—Cruise

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### VFR Flight Above Cloud

Prior to VFR flight above cloud, the PF shall ensure:

- flight above the cloud is at least as safe as flight below
- the base of the cloud is at least 1000 ft AGL
- VFR navigation can be maintained at all times
- the forecast and actual conditions at the destination will enable a descent to land in VMC.

With the exception of an emergency, no solo flight shall be carried out above more than scattered cloud.
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### Situational Awareness

In addition to core flying tasks, at all times during the cruise the PF shall maintain situational awareness by continually assessing:

- actions to be taken in the event of an engine failure and/or failure of other essential aircraft systems
- the effect on the flight of en-route meteorological conditions (as per Chapter Two, Section 1, *In-flight Monitoring*)
- actual fuel remaining versus expected fuel remaining (as per Chapter Two, Section 1, *In-flight Monitoring*)
- position relative to:
  - MSA and terrain
  - expected ETA at each way point on cross-country flights
  - airspace boundaries
  - other traffic
  - top-of-descent point.

A navigation flight log shall be kept on all cross-country flights.

## Section 7—Training Manoeuvres

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### Aerobatics

No pilot shall carry out aerobatic manoeuvres without specific authorisation for that flight from an appropriately qualified instructor.

No pilot shall reset the g-meter (where fitted) at the end of a flight. The reading on the g-meter shall be noted, and the g-meter reset, at the beginning of each flight.

No pilot shall fly aerobatics solo below 3000' AGL initially with or without passengers. Once an aerobatic rating is signed off, no aerobatics below 1500' AGL solo or 3000' AGL with passengers.

No deviating from manoeuvres prescribed during authorisation is permitted.

---

### Low Flying

Low flying is deemed to be flight at or below 500 ft AGL.

No pilot shall operate an aircraft below 500 ft AGL unless:

- it is during take-off and landing from an approved runway
- it is during authorised exercises in an approved low flying zone and
- the flight is dual; or
- the PF is the holder of at least a PPL and the PF is authorised by an appropriate instructor.

Pilots are to avoid flying over livestock, milking sheds and other buildings when low flying.

No passengers shall be on board the aircraft when low flying practice is carried out.

Students undergoing C-Cat training may be authorised to operate in a Low Flying Zone; but must not operate below 200' AGL.

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### Night Flying

Before undertaking any solo night flying, a student shall be competent in crosswind take-offs and landings.

Before night solo, students must have completed the PPL Cross Country syllabus and have completed the night dual requirements.



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## **Maximum Rate Turns**

No student shall practice maximum-rate turns solo below 1500 ft AGL.

No passengers shall be on board the aircraft when solo maximum-rate turn practice is carried out, unless specifically authorised by the CFI or designated deputy.



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## Section 8—Descent and Approach

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### Descent Using VNAV

In aircraft equipped with a vertical navigation FMS function, it may only be used for descent when the VNAV descent profile has been appropriately verified. The VNAV descent shall be monitored by the PF.

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### Descent for RNAV Approach

Many RNAV approaches do not have an RNAV arrival procedure associated with them, therefore the PF must ensure adequate terrain separation is achieved. Tracking to the IAF or IF shall be achieved:

- under radar terrain, provided the PF confirms with ATC
- by remaining on a published track until within 25 nm from the destination airfield, then descending to remain above the 25 nm MSA published on the approach plate
- by remaining on the published track until within the TAA sectors, then descending in accordance with the TAA steps
- by remaining on the published track until within the area covered by a VORSEC chart, then descending in accordance with the VOR steps.

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### High Rates of Descent

In the latter stages of descent, pilots should avoid use of high rates of descent in order to minimise risks associated with high terrain-closure rates. Any corrections to profile should be made early in the descent.

If, due to unforeseen circumstances (eg a runway change) a late-notice change in profile is required, the PF should verbalise any decision to use high rates of descent, re-emphasising relevant terrain and the descent-clearance limit.

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### Approach Briefing Policy

Before every approach, visual or instrument, the PF shall give an approach briefing (ABRIEFS).

The approach briefing shall be completed prior to TOD.

A preparation phase is required prior to the briefing being delivered. The preparation phase requires that:

- ATIS / AWIB received
- all operating manual procedures are complete, including a comprehensive approach procedures brief
- the applicable entries in the FMS (where installed) have been made and checked (IFR only)
- navigation aids are discussed (IFR only)
- any questions about the preparation phase have been resolved.

---

## T-CTWO Approach Briefing

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The approach briefing identifies threats for the arrival and confirms the planned operation of the aircraft. It follows the mnemonic T-CTWO. The T-CTWO brief is not a comprehensive approach brief—that occurs in the preparation phase—but rather a reconfirmation of only the critical pieces of information.

### **VFR**

#### **Threats:**

Relevant threats identified by all crew members, each with an appropriate mitigation strategy

#### **Charts:**

Arrival Chart Title *or*  
Overhead Join *or*  
Circuit Leg

Stable Gate / KDP 5 Altitude

#### **Terrain:**

Visual Terrain Clearance

#### **Weather:**

Significant Weather *or*  
Nil Significant Weather

#### **Operational**

Relevant NOTAMs and MEL items  
Fuel State  
Alternate and Divert Time

### **IFR**

#### **Threats:**

Relevant threats identified by all crew members, each with an appropriate mitigation strategy

#### **Charts:**

STAR and Approach Title  
Altitude Check Points  
Stable Gate / KDP 5  
Approach Minima  
Missed Approach Altitude  
Vertical Profile (from FMS)

#### **Terrain:**

25nm Sector Altitudes *or*  
Visual Terrain Clearance

#### **Weather:**

Significant Weather *or*  
Nil Significant Weather

#### **Operational**

Relevant NOTAMs and MEL items  
Fuel State  
Alternate and Divert Time

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## IFR Holding

Prior to entering a holding pattern, the PF should brief the hold, including:

- entry type (direct, parallel or offset)
- inbound track
- direction
- minimum holding altitude.

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## IFR Approach Procedures Policy

### All Approaches

All approaches shall be flown:

- in accordance with the relevant operating manual procedure
- at a constant, prescribed angle to DA or MDA
- in accordance with the stable approach policy.

All of these requirements are designed to mitigate the risk of CFIT.

### Instrument Approaches

An instrument approach shall not be commenced, nor a landing approach continued, below 1000 ft AAL with any unresolved discrepancies or operational issues.

#### Non-ILS Approaches

When flying a non-ILS instrument approach the QNH shall be reconfirmed prior to commencing the approach.

#### Approaches Flown on FMS Data

All instrument approaches flown with reference to FMS data shall:

- be monitored to raw data, except GNSS approaches
- be checked to ensure they conform to the charted procedure before use
- not be modified between (and including) the FAF and MAP.

#### Circling Approaches

All visual manoeuvring on circling approaches shall occur at or above the published approach minima until the aircraft is established on the landing profile (i.e. is in a position to commence a constant descent down a 3° slope to the threshold).

Throughout the visual manoeuvring on a circling approach, visual reference must be maintained at all times. “Visual reference” means the PF can see at least one of:

- the landing threshold

- the approach lights
- any marking identifiable with the approach end of the runway.

If visual reference is lost during the circle-to-land manoeuvre from an instrument approach, the missed approach specified for that instrument approach procedure must be followed.

The PF should make a climbing turn toward the landing runway and, approaching overhead the aerodrome, establish the aircraft in accordance with the published missed approach procedure. Immediately notify ATC (or other traffic in uncontrolled airspace).

### Landing off an Instrument Approach

Each Instrument Rating student shall demonstrate to an instructor a satisfactory full-stop landing from a simulated instrument approach to minima (i.e. removal of the hood at MDA or DA) on an NPA and an ILS. To be satisfactory, the landing must be accomplished by normal manoeuvres and occur on the touchdown markers.

---

## IFR Navigation Guidance on Approach

Before using any ground-based navigation aid for an approach the PF shall verify that the correct station is tuned and pointing logically.

### Navigation Guidance Status

Prior to commencing an instrument approach promulgated on a ground-based navaid, the PF shall ascertain the status of that navaid, and whether or not it is available for the approach. Notification of navigation aid status (by NOTAM or ATIS) may indicate the aid as being:

- unserviceable
- on test
- unmonitored
- operating, but ground-checked only—awaiting flight check.

The following table indicates the circumstances under which a ground-based navaid may be used for approach purposes when it is other than fully functional.

Navigation Aid Status	G/S or LOC	VOR or NDB
Unserviceable	Do not use	Do not use
On test	Do not use	Do not use
Unmonitored / Pilot monitored	Do not use	Do not use
Operating, but ground-checked only—awaiting flight check	Do not use	May be used

### Instrument Approach Monitoring

All instrument approaches should be continually monitored for reasonableness by means of altitude and distance checks: three times distance to touchdown should approximate altitude (AAL). ROD should be approximately half the groundspeed times 10 (e.g. at 100 kt, 500 ft/min) for a 3° slope.

**WARNING:** Ground-based radio navigation aids may transmit erroneous information that may not cause a warning on the aircraft equipment displays. All ground radio navigation indications must be cross-checked for reasonableness during use.

**WARNING:** If, at any time during an instrument approach procedure in IMC, uncertainty exists as to the aircraft's position, a missed approach shall be immediately commenced.

**WARNING:** If, during a GNSS approach, RAIM becomes unavailable, a missed approach shall be immediately commenced.

---

## Stable Approach Policy

A significant number of approach and landing accidents result from unstable approaches. Fixation on completing the landing may tempt crews to continue an approach beyond the point at which executing a go-around would be the best course of action. A decision to go-around is an indication of good judgement, rather than an admission of poor performance.

The configuration and stable-gate criteria are minimums—not targets. Good practice and airmanship will normally result in the aircraft being configured and stable earlier than these requirements.

To minimise the risks presented by unstable approaches, the following procedures apply.

IFR stable gate

- for straight-in approaches is MDA + 500 ft or DA + 500 ft
- for circling approaches is 300 ft AAL

## Stable Approach Criteria—Normal Approaches

An approach is considered stabilised when all of the following criteria are met:

- the aircraft speed is no more than 10kts above or 5kts below target airspeed
  - On correct flight path laterally and vertically
- WARNING:** A go-around shall be carried out if an approach is unstable at, or becomes unstable below, the stable gate.

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## IFR Approach Deviation Actions

As with standard calls, in a two-pilot airline environment approach deviation calls are a fundamental aspect of CRM on a well-managed flight deck. These calls alert the flight crew to an undesirable aircraft state in the critical approach phase, and provide go-around triggers at or below the stable approach gates.

The IFR flight training carried out at the CAC is focused on preparing students for a career as an airline pilot. While students are trained in a single-pilot environment, they are required to make approach deviation calls as if they were the PM and respond as if they were the PF in a two-pilot environment to foster familiarity with approach-deviation-call discipline.

The appropriate call shall be made when one of the parameters in the table below is exceeded:

- after passing the FAF on an instrument approach

- when at or below 1000 ft AAL on a visual approach.

Appropriate corrective action shall be taken.

Any planned or anticipated deviation from the parameters in the tables below shall be specifically briefed (e.g. PAPI indications where the PAPI are set for large aircraft, or momentary airspeed deviations due wind gusts).

**WARNING:** For all approaches, if a deviation exists below the stable approach gates the aircraft is unstable and a go-around is mandatory.

### Approach Deviation Actions

Parameter		Call	Action
Descent Rate	>700 fpm	“Sink rate”	Reduce descent rate
Lateral Path	> 5° (NDB, VOR) > half-scale deflection (ILS, LOC, GNSS)	“Track”	Correct flight path
Heading Change	> 30°	“Heading”	Regain track and minimise heading changes
Vertical Path	>1 dot (ILS, GNSS)	“Glidepath”	Correct flight path
VASIS/PAPI	>1 light high or low	“VASIS” or “PAPI”	Correct flight path
Airspeed	>-5 kt / +10 kt from target speed	“Speed”	Correct speed

Notes      The “track” call must be made any time after the aircraft is established on the inbound track.

## Section 9—Landing

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### Landing Performance Calculations

A landing performance calculation shall be completed for all landings where the group rating of the runway is below the group rating of the aircraft. The calculation shall be made in accordance with AC91-3.

Regardless of group rating, a landing performance calculation shall be completed for all landings where landing distance is expected to be significantly increased as a result of:

- environmental conditions (e.g. tailwind, wet or contaminated runway)
- aircraft weight
- aircraft configuration
- elevation.

### Touch-and-go Landings

The group rating system only applies to full-stop landings, so consideration should be given to the extra runway required to safely carry out a touch-and-go landing.

Solo touch and Go landings at NZCH on Grass 02/20 are restricted to those who hold a CPL and must be approved by a Senior B Instructor

For operations off the runways the Instructor may, on dual flights, at their discretion determine that it is safe to use the runways considering the following factors:

- Touchdown Zone (as per the SOPs)
- Wind conditions
- Surface condition
- QNH
- Temperature
- Weight

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### Asymmetric Landings

Touch-and-go landings are not permitted off an asymmetric approach.

Aircraft may elect to execute a touch-and-go landing from an asymmetric approach with a subsequent take-off provided that:

- Upon the re-application of power to both engines, the PM observes engine and oil temperature, pressure, manifold pressure and RPM indications are normal.
- Any abnormal engine indications shall require that the PM make an 'abnormal engine' call and then the call "abort take-off".
- The PF shall close the throttles and bring the aircraft to a stop.
- Appropriate radio calls to traffic or to ATS are made in the event of an aborted take-off.

NOTE: When an asymmetric approach for any landing is made, and the throttles come together on short finals, the instructor shall indicate verbally to the PF, "you have both throttles".

---

## Approach Path Guidance Lights

The PF shall maintain the profile with the assistance of PAPI or other approach path guidance lighting when available and appropriate. In some operational circumstances (such as short-field landings and wake turbulence avoidance) an approach higher than the PAPI profile may be appropriate.

At airfields where the lights are set for a significantly larger aircraft type, a three-red indication from 500 ft AGL is acceptable.

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## Touchdown Zone

The PF shall nominate a touchdown point for every landing—usually the 300 m markers on large runways. The touchdown point shall be within the first third of the runway, unless specific airfield requirements dictate otherwise.

The PF shall also identify the last-acceptable-touchdown point for every landing. This is a physical point on the runway at the far end of the touchdown zone by which, if landing has not occurred, a go around is mandatory.

**WARNING:** A pilot who identifies that continuing a landing would compromise safety shall call “Go around” and the PF shall initiate the manoeuvre.

---

## After Landing Procedure

After landing, vacate the runway at a normal taxi speed as soon as safely possible and state taxiway position to ATC or aerodrome traffic, as applicable.

The after-landing checklist shall not be initiated until the aircraft is clear of the runway.



## Section 10—Parking

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### Parking and Securing Aircraft

Parking and securing aircraft shall be carried out in accordance with company operating manuals and in accordance with club by laws 7.7

All rubbish shall be removed from the aircraft at the end of every flight. Ensure the area immediately around the aircraft is clear of equipment and other obstructions.

Whenever an aircraft is parked away from home base, always use the light aircraft park as designated on the Airport Ground Movements chart, or ask ATC or local pilots for the most appropriate parking position.

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### Keys

Keys shall never be left in the ignition of an unattended aircraft. This ensures that no magnetos are accidentally left live.

Some IAANZ aircraft do not have a key start.
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## Section 11—Adverse Environments

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### Operations in Adverse Environments

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Pilots shall use all available information to detect and avoid, or minimise the effects of, any adverse weather (or other environmental condition) that may constitute a hazard to the aircraft or its occupants. Deviations from track shall take place in accordance with NZAIP procedures.

The PIC shall report all hazardous flight conditions to ATC (or other traffic when in uncontrolled airspace).

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### Cold Weather Operations

Whenever ice is present on parked aircraft, or active frost conditions exist, cold weather procedures shall apply. Refer to the applicable operating manual for specific procedures.

Active frost conditions exist when aircraft surfaces are at or below freezing, and at or below the dew point, and frost is actually forming.

**WARNING: Training aircraft are not equipped with anti-ice systems. Flight in known icing conditions is prohibited.**

#### Pre-flight De-icing

It is the PIC's responsibility to ensure the aircraft is completely free of ice before flight and, in the prevailing conditions, will remain so for the duration of the flight.

#### In-flight Icing

If ice begins accumulating on the aircraft during flight, exit icing conditions as quickly as possible. A 180° descending turn may provide the shortest distance out of the icing conditions, terrain permitting.

The pre-flight check should ensure that the following should be free from ice, snow and frost:

- All external surfaces
- Engine inlets, cowlings and propellers
- Landing gear assemblies
- Drains, pitot and static vents
- Fuel tank vents



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## Severe Weather Operations

### Weather Avoidance

All reasonable precautions shall be taken to avoid areas of anticipated severe turbulence or lightning identified visually, by PIREP or by onboard equipment.

**CAUTION:** ATC radar systems do not show adverse weather. Do not accept ATC directions that increase the probability of severe weather encounters.

### Thunderstorm, Frontal and Line-squall Activity

No pilot shall take off or land when thunderstorm activity or severe frontal or line-squall conditions that cannot be avoided exist in the vicinity of the airport.

### Turbulence Penetration and Reporting

If turbulence is encountered or expected, operate the aircraft in accordance with the applicable operating manual and aircraft handling technique. Ensure seat belts are firmly fastened and loose items are secured.

#### Turbulence Technical Log Entries

If the turbulence is assessed as severe, the PF shall contact a senior instructor (or engineer, as applicable) as soon as practicable. A verbal discussion must take place to determine if maintenance action is required.

Severe turbulence is defined as “any turbulence that causes large, abrupt changes in altitude and/or attitude. It usually causes large variations in indicated airspeed. The aircraft may become momentarily out of control.” Under severe turbulence, aircraft occupants are forced violently against seat belts or shoulder straps. Unsecured objects are tossed about.

If it is considered necessary to carry out a turbulence check, a Technical Log stating such a check is required shall be raised.

An occurrence report shall also be submitted, citing the Technical Log reference number.

### Lightning Strike

Static discharges occur most frequently in shower-type clouds where the temperature is close to freezing. Discharges are often preceded by St Elmo’s fire, sharp increases in radio static and raised ozone levels. Make full use of preceding aircraft reports or ATC to avoid areas where strikes are probable.

#### Crew Action

Imminent static discharges may sometimes be avoided by changing altitude, heading, or by reducing airspeed. When in an area where considerable lightning is occurring or when static discharge is probable, select cockpit lighting to maximum brilliance.

Avoid looking out of the cockpit to minimise the risk of temporary blindness. Make full use of the autopilot (where available).

In the event of a lightning strike, confirm that the aircraft systems are functioning correctly. Check:

- circuit-breakers
- instrument panels
- navigation aids
- radios.



### Lightning Strike Technical Log Entries

A lightning strike must be reported in the Technical Log and contain the following information:

- strike area (as accurately as possible)
- estimate of force (heavy, slight)
- any avionics aberrations. (If the avionics appear to be operating normally, a statement to this effect should be made.)
- standby and main compass headings (within 10° or not)

An occurrence report shall also be submitted, citing the Technical Log reference number.

Where applicable, carry out inspection as per manufacturers requirements.
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## **Other Adverse Environment Operations**

### **Wake Turbulence**

The PIC is responsible for ensuring there is sufficient separation from preceding aircraft to avoid the adverse effects of wake turbulence.

Pilots shall not request reduced wake turbulence separation.

All wake turbulence encounters are to be reported by occurrence report.

### **Laser Illumination Hazard**

A growing flight safety threat involves laser pointers directed at aircraft on approach. Laser light can distract pilots and damage eyes; and as these incidents occur during critical stages of flight they can be considered a major threat to aircraft operations.

The effects of laser illumination can vary from startle to temporary blindness (one minute) through to permanent eye damage in extreme cases.

The following are methods for pilots to mitigate the effects of laser illumination:

- look away from the beam or shield eyes from the light
- execute a missed approach if light is severe enough
- engage autopilot or transfer control to the instructor (if dual) and the instructor is unaffected
- increase brightness of the interior lights and instrument panel
- avoid rubbing eyes after laser exposure to prevent further damage to the eye.

After any laser illumination event, notify ATC (or other traffic) and the police as soon as practicable and provide a location of the source if possible.

All laser illumination incidents require an occurrence report. A CAA Laser Beam Exposure Questionnaire (CAA800) should be filled out and filed.



## **Volcanic Ash**

Flight in areas of known volcanic activity must be avoided. This is particularly important during hours of darkness or daytime IMC when volcanic ash or dust may not be visible.

Volcanic ash may extend for several hundred miles. If volcanic ash is encountered, exit as quickly as possible. A 180° turn may provide the shortest distance out of the ash.

### **Volcanic Activity Report**

Pilots observing volcanic activity must file a Volcanic Activity Report (CAA010). The information in section 1, items 1 to 8, should be passed to the appropriate ATS unit. The remainder may be filled out post-flight.



## Standard Operating Procedures — Normal Operations

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## **CHAPTER THREE—Non-normal Operations**

## Section 1—Pilot Responsibility for Handling a Malfunction

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### Prioritising

In a multi-crew environment, the responsibilities for handling a malfunction are split between the PF and the PM, and any supplementary crew. In a single-pilot environment, all of the responsibility rests on the shoulders of the PF, which makes a safe, methodical and unhurried approach to any non-normal situation vital to its successful outcome.

The PF's primary responsibility is to fly the aircraft. Upon noticing a failure, the PF shall announce that failure and continue to fly the aircraft. Once the immediate actions required to ensure the safety of the aircraft (and flight path) are complete, further remedial actions (e.g. reference to QRH checklists) shall not take place until the aircraft is not in a terrain-critical situation and the PF has the opportunity to make an unhurried analysis of the problem.

### Multiple Malfunctions

It is not possible to develop procedures for all events—especially those involving multiple failures, when the pilot may have to combine elements of more than one procedure and/or exercise judgement to determine the safest course of action.

In a two-crew environment in situations where dual QRH checklists are required the PF will carry out the actions associated with the responsibility of flying the aircraft (e.g. engine fire recall items), while directing the PM to carry out the engine failure checklist. In the training environment, the single pilot will have to prioritise these multiple actions, focusing first on those most urgently required to ensure the safety of the aircraft.

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### System Response and Failure Identification

During the accomplishment of procedures, it is a pilot's responsibility to ensure proper system response. If an improper indication is noted, first verify that the system controls are properly positioned. Then, if necessary, check the appropriate circuit-breaker(s) and system light(s). These are normal crew actions and are not listed in the procedures unless there is a specific requirement.

It is essential that a system malfunction be correctly identified and that the correct non-normal procedure for that malfunction followed. All actions are performed in a deliberate, systematic manner once the aircraft's flight path and configuration are correctly established.

**WARNING:** Flight path control shall never be compromised.



## Heavy or Hard Landing

Aircraft maintenance manuals leave the assessment as to whether a landing was heavy or hard up to the pilot's judgement. If a student or instructor thinks a landing may have been heavy or hard, a Technical Log entry shall be made to that effect. Include the following details in the log entry as applicable:

- hard touchdown on the main gear only
  - hard touchdown on nose gear only (high pitch rate)
  - hard touchdown on nose and main gear
  - straight, drifting and/or wing low
  - any other information such as noise that could be related to structural damage.
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## Emergency Landing

If the PIC is able, they shall ensure that the aircraft's ELT is switched on unless they can confirm that assistance is on the way. Pilots are advised that an activated ELT may be heard loudly on all frequencies in the transmitting aircraft. This could make radio calls difficult, if not impossible.

If practical, all aircraft occupants should remain with the aircraft to make use of whatever shelter it provides and whatever attention it may attract from rescue services.

Any aircraft disabled as a result of an accident shall not be moved until the proper authority has been obtained, unless it is likely to cause a further incident or accident.

Where third-party damage has occurred as a result of an accident or incident, liability for that damage must not be admitted by any party until a member of The Canterbury Aero Club's senior management team has been properly notified of the circumstances. Prior admission may prejudice the legal position of either the pilot or the organisation, which may then be unable to assist with any following damage or liability claim.

The names and addresses of witnesses or passengers should be recorded and supplied to The Canterbury Aero Club.

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| <ul style="list-style-type: none"><li>• Where possible, photographs of the aircraft and surroundings relevant to the incident should be taken</li><li>• If able, and without compromising the outcome, the pilot shall notify ATC or other party, and activate the alert button on the Spidertracks unit</li><li>• Students shall have CAC and National Briefing Office phone numbers saved on their phones for emergency situations</li><li>• After contacting emergency services, the Club shall be notified</li></ul> |
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Ground staff are to follow the procedures laid out in the Emergency Response Plan Manual, Volume 10.

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## EFATO Practice

All EFATO practice:

- shall only be carried out in day VMC
- shall be dual only
- shall never be initiated below 300 ft AGL
- in controlled airspace shall be preceded by a request to ATC.



## Standard Operating Procedures — Non-normal Operations

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In multi-engine aircraft, the gear warning horn should be silenced by use of an appropriate power setting.

Descent below 200 ft AGL shall not take place unless re-landing on the runway.

No passengers shall be on board the aircraft when EFATO practice is carried out.

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## Engine Failure Practice (Multi-engine Aircraft)

All engine failure practice in multi-engine aircraft shall be dual day VMC only.

The single-engine service ceiling shall be ascertained before departure.

A full engine shutdown and feather shall not be carried out below 2500 ft AGL. This exercise shall be carried out in a position that will enable the aircraft to return to a suitable aerodrome and land safely on one engine. Maintaining safe terrain clearance VMC in the prevailing weather conditions must be a paramount consideration when choosing a location for this exercise.

In multi-engine aircraft, the gear warning horn should be silenced by use of an appropriate power setting.

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## FLWOP Practice

All FLWOP practice shall be carried out in accordance with CAR 91.311(a)(2), CAR 91.311(d)(1)(ii) and CAA Legal Information Bulletin Number 1. The go-around shall be commenced not lower the prescribed limits below.

Pilots are required to remain clear of people, buildings and stock, when practising FLWOPs, and conduct the exercise in a manner that avoids causing unnecessary nuisance to people or animals on the ground.

No passengers shall be on board the aircraft when FLWOP practice is carried out.

- Solo students shall commence the go around no lower than 1000' AGL
- C Category flight instructors shall commence the go around no lower than 300' AGL
- B Category flight instructors shall commence the go around no lower than 200' AGL
- A Category flight instructors – No height restriction

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## Rejected Take-off Practice

All rejected-take-off practice:

- shall only be carried out in daylight
- shall be dual only
- shall be preceded by notification to ATC or traffic, as applicable.

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## Stalling Practice

Stalling practice is to be completed by 2000 ft AGL when dual, and 2500ft AGL when solo. The PF shall begin the stalling exercise at an altitude sufficient to ensure the recovery is complete by the specified altitudes.

No passengers shall be on board the aircraft when stalling practice is carried out.

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## VMCA Practice

All VMCA practice shall be dual only.

All VMCA practice shall be completed by 2000 ft AGL. The recovery shall be initiated at the first sign of loss of directional control, VMCA, or the activation of the stall warning—whichever occurs first.

No passengers shall be on board the aircraft when VMCA practice is carried out.

The recovery shall be initiated if the aircraft deviates more than 5 degrees from the initial heading, if the aircraft's VMCA is reached, if the stall warning occurs or, in the case of the student being in control, if instructed to do so by the flight instructor.

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## Flight Data Recorders

In aircraft where flight-data recording equipment is installed, pilots are not permitted to remove the storage media at any time unless specifically instructed to do so by the CFI.

Information is recorded for the purpose of both safety and maintenance investigations, should it be required. It may also be used for training purposes, e.g. re-creating a cross-country flight.

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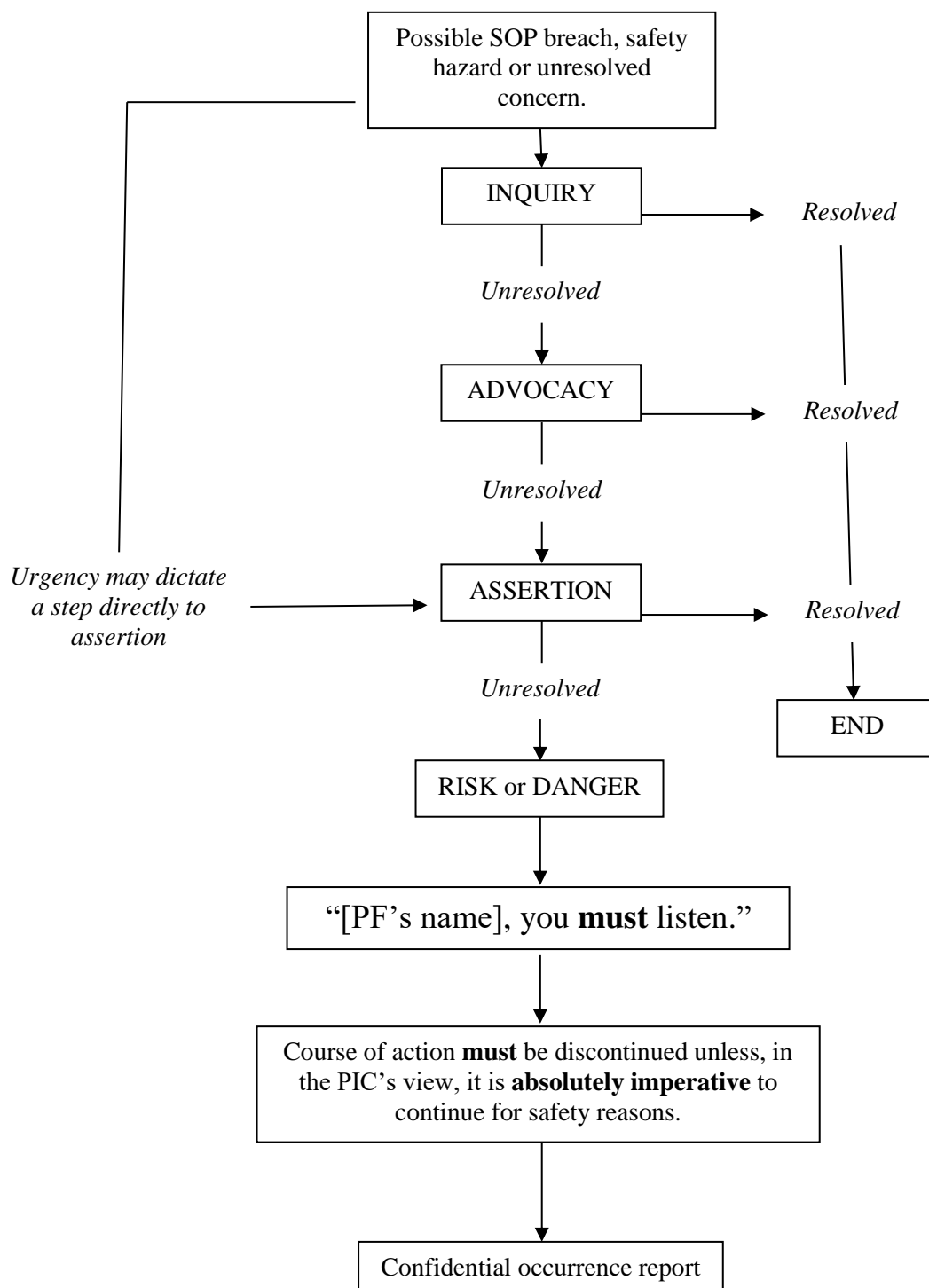
## Emergency Talk

In a situation where there are two pilots on an aircraft (such as a dual flight, or an instrument currency flight with two post-PPL students), and the PM deems the PF's actions to be either potentially extremely unsafe or non-standard and can foresee a possible incident or accident, they must be able to take avoiding action.

Good communication techniques of inquiry (asking a question about the current course of action), advocacy (suggesting an alternative course of action) and assertion (forcefully stating an alternative course of action) will resolve the situation in most cases. However, when this is not the case, the use of the phrase, "[PF's name], you must listen," obliges the PF to cease the course of action and reassess—unless, in the PIC's view, it is absolutely imperative to continue.

The following flow chart illustrates the escalating phases of communication that shall be used when the PM is concerned about the continued safe operation of the aircraft.

Standard Operating Procedures — Non-normal Operations



## Section 2—Decision Making

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### Aircraft Handling

Specific non-normal handling procedures are prescribed in the applicable company and aircraft operating manuals.

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### Lost Procedures

If at any time a pilot becomes unsure of their position, they should resist the temptation to continue the flight without resolving the uncertainty. Applying a methodical and unhurried approach to regaining positional awareness is essential.

Lost procedures shall be carried out in accordance with the CAC Cross Country training programme.

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### Diversion Procedures

If, during a cross-country flight, a technical issue arises that may affect the future despatch of the aircraft, consult with the CFI (or delegate), if possible, as to the preferred destination.

Non-normal procedures, when appropriate, contain information that crews need to consider when making decisions concerning the continuation or termination of the flight. While such decisions can only be made by the PIC after consideration of all relevant factors, there are some conditions that always require a landing at the nearest (in time) suitable airport at which a safe landing can be made. These conditions include, but are not limited to:

- failures leading to QRH advice “Plan to land at the nearest suitable airfield”
- engine fire or failure
- any on-board fire or smoke that cannot be immediately and positively determined to be eliminated or extinguished
- any other condition determined by the pilot to present a significant adverse effect on safety if the flight is continued
- where regulations require an early landing.

In each case, it is the responsibility of the PIC to assess the conditions and execute sound judgement to determine the safest course of action. It should be stressed that for persistent smoke, or a fire that cannot be positively confirmed to be completely extinguished, the earliest possible descent, landing, and evacuation should be accomplished.

If a smoke, fire or fumes situation becomes uncontrollable, the flight crew should consider an immediate landing. Immediate landing implies immediate diversion to a runway. However, in a severe situation, the flight crew should consider an overweight landing, a tailwind landing, an off-airport landing, or a ditching.

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## Engine Shutdown

In multi-engine aircraft, a procedure that prescribes an engine shutdown must be evaluated by the PIC to ascertain whether an actual shutdown or operation at reduced thrust is the safest course of action. Consideration must be given to the probable effects of leaving the engine running at minimum required thrust.

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## Engine In-flight Restart after Engine Shutdown

In multi-engine aircraft, in-flight restart of an engine intentionally shut down for other than training purposes should only be attempted if the PIC considers the action to be necessary to preserve the safety of the aircraft.

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## Overweight Landing

Occasionally situations arise that require an aircraft to return to the take-off airport or divert to another airport. In such cases the aircraft may arrive at the airport above the maximum landing weight. The PF must decide whether to land overweight or reduce weight to the maximum landing weight by burning fuel.

A landing made above the maximum structural landing weight is permitted in the following situations:

- when the PF has reason to doubt the continued airworthiness of the aircraft
- any time when an expeditious landing would reduce the exposure to any hazard that could degrade or compromise safety
- when a pilot or passenger is seriously ill or injured and requires immediate medical attention.

Prior to commencing an overweight landing the PF shall consider:

- the runway and weather conditions
- aircraft performance (approach speed and landing distance).

Every attempt should be made to make the landing as smooth as possible on a long runway.

A landing over maximum structural landing weight requires the submission of an occurrence report and completion of a Technical Log.

After shutdown contact shall be made with engineering staff to discuss the following items. If away from base engineering may allow the aircraft to return to base.

- The weight at touchdown
- Whether the aircraft was straight, drifting and/or wing low at touchdown
- Whether the landing was smooth, firm or hard
- Any other information such as noise that could be related to structural damage.

