

PilotRules Flight Academy · Flight Standards Manual · Rev. 1 · Effective 1 August 2026 · Uncontrolled if printed

PILOT**RULES**

Flight Standards Manual

PilotRules Flight Academy · Southeast Aerial Systems

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Table of contents

1. Introduction & revision control
2. Section A — Company documents
3. Section B — Operational points of contact
4. Section C — Currency & qualification
5. Section D — Cadet handling & service
6. Section E — Paperwork & forms
7. Section F — Check-in & check-out procedures
8. Section G — Flight schedule
9. Section H — Irregular operations & maintenance
10. Section I — Use of aircraft equipment
11. Section J — Crew resource management
12. Section K — Radio usage & required calls
13. Section L — Preflight & postflight
14. Section M — Aircraft servicing
15. Section N — Flight operations
16. Appendix 1 — Cessna 172 standard operating procedures
17. Appendix 2 — Piper Seminole standard operating procedures
18. Appendix 3 — Pilatus PC-12

FRONT MATTER **Introduction & revision control**

Purpose

This Flight Standards Manual (FSM) establishes the standard operating procedures under which PilotRules Flight Academy, operated by Southeast Aerial Systems, conducts flight training and associated ground operations. It is written for two audiences at once: the Instructor Pilot (IP) who must teach and enforce a single standard, and the cadet who must be able to look up that standard without ambiguity. Where the General Operations Manual (GOM) describes what the organization is and how it is governed, the FSM describes how a normal day is flown.

The FSM consolidates material that would otherwise be scattered across syllabus notes, flight room briefings, bulletin board postings, and individual instructor preference. Any procedure that an IP expects a cadet to perform on a checkride, a stage check, or a routine sortie should be traceable to this document, to the aircraft Pilot's Operating Handbook (POH) or Airplane Flight Manual (AFM), or to a regulation. If a procedure cannot be traced to one of those three sources, it is personal technique and must be identified as such when it is taught.

Standardization is not an end in itself. Its purpose is to reduce the workload of the crew by making the next action predictable, to make deviations visible early, and to allow any IP to fly with any cadet on any day without a private negotiation about how the airplane will be operated.

Applicability

This manual applies to all flight operations conducted in academy aircraft, including 14 CFR Part 141 course flights, Part 61 supplemental instruction, maintenance repositioning flights, checkrides, stage checks, proficiency flights, and demonstration flights. It applies to IPs, cadets, ground instructors, check instructors, and any pilot operating an academy aircraft in any capacity. Ground personnel are bound by the servicing, marshalling, and ramp provisions of Section M.

Precedence of documents

The FSM is subordinate to higher authority. In descending order of precedence:

1. The Federal Aviation Regulations (14 CFR) and, where operations touch them, other applicable federal regulations.
2. Airworthiness Directives, the aircraft POH/AFM including all supplements, and the placarded limitations of the specific airframe.
3. The Minimum Equipment List (MEL) for the affected aircraft, where one is issued.
4. The General Operations Manual.
5. Operational Bulletins issued since the current revision of this manual.
6. This Flight Standards Manual.
7. The Training Procedures Manual and the syllabus for the course being flown.

8. The Aeronautical Information Manual (AIM) and advisory material, which is treated as recommended practice unless this manual adopts it as mandatory.

Where two controlling documents conflict, the **most restrictive** provision applies. A crew may always be more conservative than this manual requires. A crew may never be less conservative than this manual requires without the prior approval of the Chief Instructor, and that approval must be recorded.

NOTE

The most-restrictive rule is not an invitation to invent limits in flight. It resolves conflicts between published documents. Ad hoc personal minimums are encouraged in preflight planning and are recorded on the risk assessment; they are not a substitute for a published limit.

Definitions used throughout this manual

- **PIC (Pilot in Command)** — the pilot designated as having final authority and responsibility for the operation and safety of the flight, consistent with 14 CFR §91.3. On a dual training sortie the IP is the PIC unless the cadet meets the requirements to act as PIC and has been briefed and assigned that role before engine start. The PIC designation is fixed for the flight and is recorded on the load manifest.
- **SIC (Second in Command)** — a qualified pilot occupying a required or designated second control seat who is not the PIC. In academy aircraft the SIC role is a crew-coordination assignment for training purposes and does not by itself entitle the occupant to log SIC time; logging is governed by §61.51.
- **PF (Pilot Flying)** — the pilot manipulating the controls or managing the autoflight system, responsible for flight path, airspeed, configuration commands, and the decision to continue or go around.
- **PM (Pilot Monitoring)** — the pilot not flying, responsible for checklists, radios, navigation setup, monitoring the flight path against the plan, and making the required deviation callouts. The PM's monitoring duty is a primary duty, not a residual one.
- **Duty period** — the elapsed time from show time until formal release, including briefing, ground instruction, flight, debrief, and administrative time. The standard duty day is 0600 to 1800, a maximum of twelve hours, followed by a minimum of twelve hours of crew rest.
- **Show time** — the time at which a cadet or IP must be physically present in the flight room, in uniform, with required equipment, prepared for the formal brief. Show time is not the time at which one arrives on the property.
- **Formal release** — the verbal release of cadets from the flight room by the IP holding the duty, normally at 1800. Cadets remain accountable and remain in the flight room until formal release regardless of whether their own sortie has flown.
- **Sortie** — a single scheduled flight event with a syllabus identifier, a briefed objective, and a grade sheet.
- **Chair-flying** — the rehearsal of a profile from memory, in sequence, with hand motions and verbalized callouts, away from the aircraft.

PF and PM are used in preference to "student" and "instructor" whenever the subject is crew coordination, because the roles swap. An IP who takes the controls to demonstrate becomes the PF and the cadet becomes the PM, and both are expected to perform the corresponding duties.

Revision control

The FSM is a controlled document. The Chief Instructor is the document owner and the only person authorized to approve a change to its content. The electronic copy published on the academy website is the sole controlled copy. Any printed copy is uncontrolled from the moment it leaves the printer and must be verified against the electronic copy before use, which is why every page carries the uncontrolled-copy statement.

Revisions are issued as whole-number revisions (Rev. 1, Rev. 2) and are effective on the date printed on the cover. Changed text within a revision is marked with a vertical change bar in the margin of the print layout and is summarized in the revision highlights that accompany the release notice. Editorial corrections that do not change meaning — spelling, cross-reference numbering, table formatting — are made without a change bar and are noted only as editorial in the release notice.

List of effective pages

Each revision is accompanied by a List of Effective Pages (LEP) that records every page of the manual with its revision number and date. The LEP is the tool by which any holder can confirm that the copy in hand is complete and current: if a page in hand does not match the revision shown on the LEP, that page is out of date and must not be relied upon. Because this manual is published electronically as a continuous document, the LEP is generated at the time of printing and is reproduced on the release notice for the revision. IPs conducting stage checks are expected to confirm LEP currency at the start of any check event that references manual content.

Operational Bulletins

An Operational Bulletin (OB) is the mechanism for changing a procedure between revisions. Bulletins are used when a change cannot wait for the next revision cycle: a new limitation, an airspace change, a maintenance restriction, a lesson learned from a safety report, or a seasonal procedure. Bulletins are numbered sequentially within the calendar year, are posted in the flight room and distributed electronically, and take precedence over the conflicting text of this manual.

Every IP and cadet is responsible for reading each bulletin and acknowledging it before the next flight. Acknowledgement is recorded by the Registrar. An IP may not dispatch a sortie with an unacknowledged bulletin outstanding. Bulletins remain in force until they are cancelled, superseded, or incorporated into the next revision of the manual, at which point they are withdrawn from the flight room board.

Suggesting a change

Any cadet, IP, or staff member may propose a change to this manual. The process is deliberately simple so that it is used:

1. Submit the proposal in writing on the change request form available in the flight room or through the academy portal. State the section and paragraph affected, the text as written, the text as proposed, and the reason.
2. The Chief Instructor logs the request and assigns it for review, normally to the Assistant Chief Instructor or a Check Instructor with relevant type experience.
3. The reviewer returns a recommendation to adopt, adopt with modification, defer to the next revision, or decline with reasons.
4. The Chief Instructor issues the decision to the originator. Adopted changes are released as an Operational Bulletin if urgent, or held for the next revision if not.

A proposal is never declined on the grounds that the originator is junior. Cadets fly the syllabus more recently and more literally than anyone else in the organization and are frequently the first to notice that a written procedure does not match what the airplane actually does. Safety-related proposals may also be submitted anonymously through the Safety Management System reporting channel described in Section B.

SECTION A Company documents

A.1 Required library

Every IP and every cadet must hold, and keep current, a complete set of the documents listed below. "Hold" means immediate access — either a current electronic copy on the Electronic Flight Bag (EFB) with offline availability, or a printed copy verified against the current List of Effective Pages. A document that requires an internet connection to open is not considered held.

REQUIRED DOCUMENT SET BY ROLE

DOCUMENT	CONTENTS	IP	CADET	OWNER
General Operations Manual (GOM)	Organizational authority, duty and rest, operational control, weather minimums, risk assessment, emergency response	REQUIRED	REQUIRED	Director of Operations
Flight Standards Manual (FSM)	Standard operating procedures, callouts, crew coordination, type SOPs	REQUIRED	REQUIRED	Chief Instructor
Training Procedures Manual (TPM)	Syllabus administration, grading, stage checks, remediation, records	REQUIRED	REFERENCE	Chief Instructor
Safety Management System (SMS) manual	Hazard reporting, risk register, investigation, safety promotion	REQUIRED	REQUIRED	Director of Safety
Maintenance & MEL manual	Discrepancy handling, deferral authority, inspection status, return to service	REQUIRED	REFERENCE	Maintenance Controller
POH / AFM with supplements	Limitations, normal and emergency procedures, performance, weight and balance	REQUIRED	REQUIRED	Maintenance Controller
Aircraft-specific MEL	Permitted deferrals, provisos, repair intervals for the assigned tail	REQUIRED	REFERENCE	Maintenance Controller
Current syllabus volume	Lesson objectives, completion standards, hour allocations	REQUIRED	REQUIRED	Chief Instructor
Airport & local area procedures supplement	Practice areas, noise abatement, pattern entries, reporting points	REQUIRED	REQUIRED	Director of Operations

Cadets in the PC-12 turbine program additionally hold the PC-12 Training Program volume and the applicable AFM supplements for the specific serial number and avionics configuration they are scheduled to fly. A /45 and a /47 are not interchangeable for limitations purposes.

A.2 Manual currency is a personal responsibility

The academy publishes; the individual maintains. When a revision or Operational Bulletin is released, each holder must update their copy and record the acknowledgement before the next flight. This is not a

paperwork exercise. Every mishap review that has ever examined a procedural error has asked the question "which revision was the crew operating to," and the answer must be available.

Before the first sortie of each duty day the IP confirms that both crewmembers are current on all bulletins. If either is not, the crew is not dispatched until the reading is complete. Five minutes in the flight room is cheaper than a deviation.

CAUTION

A cached PDF on a tablet is not automatically current. Electronic documents must be synchronized, not merely present. Verify the revision number on the cover page against the flight room board before relying on any electronic manual.

A.3 Electronic Flight Bag

The EFB is the primary means of carrying charts, manuals, and performance data. Each pilot is responsible for their own device. The following applies to every flight:

- The device must be charged to at least 80 percent at show time and must have a functioning means of in-flight charging or a charged external battery sufficient for the planned sortie plus one hour.
- Chart data — enroute, terminal procedures, airport diagrams, and obstacle data — must be within its current effective cycle for the entire duration of the flight. A cycle that expires at midnight during a night cross-country is not current for the return leg.
- The device must be secured in a mount or stowed. A loose tablet is a projectile in turbulence and an obstruction during an evacuation.
- The device must be set so that it does not sleep, dim to unreadability, or display notifications during flight. Notification suppression is mandatory below 10,000 ft and at all times during the sterile cockpit phases defined in Section J.
- Thermal shutdown is the most common EFB failure in the summer months. Do not leave the device on the glareshield during preflight.

A.4 The paper backup rule

A single EFB is a single point of failure for navigation information. Accordingly:

- **Two independent sources are required for every flight beyond the local practice area.** Two EFBs on the same aircraft power source do not count as independent unless at least one is operating on internal battery.
- Solo cadets must carry a printed navigation log and a printed copy of the departure, destination, and alternate airport diagrams and approach charts appropriate to the flight, regardless of EFB status. This requirement is not waivable by an IP.
- The flight room maintains a current printed set of local terminal procedures and the local area supplement. Any crew may draw from it, and it must be returned before formal release.

- If the sole EFB fails in flight, the crew reverts to the paper backup, advises ATC if the failure affects the ability to accept a clearance, and lands at the nearest suitable airport if the remaining information is inadequate for the intended flight. The failure is recorded on the discrepancy log as an equipment squawk even though the device is personal property, so that trends are visible.

Preflight action required by §91.103 is not satisfied by the intention to look something up later on a tablet. The information relevant to the flight must be reviewed before departure and must remain available after a device failure.

SECTION B Operational points of contact

B.1 Principle

Every operational problem has one office that owns it. Calling the right office first shortens the problem; calling the wrong office first turns a ten-minute delay into an hour. This section states who owns what. It does not replace the emergency response procedure in the GOM, which governs any accident, serious incident, injury, or aircraft overdue event and which is initiated by calling the Director of Safety and the Wing Commander/Commandant regardless of anything written here.

B.2 Who owns what

- **Operations Support Squadron (OSS) / Director of Operations** — scheduling, dispatch, the daily detail sheet, aircraft and IP assignment, delays, cancellations, aircraft swaps, cross-country release, overnight authorization, and all changes to the published schedule. The OSS duty desk is staffed from 0530 until the last aircraft is secured. If the situation affects when or whether an airplane moves, the OSS owns it.
- **Maintenance Controller** — all airworthiness questions, discrepancy assessment, MEL deferral decisions, return to service, and coordination of away-from-base maintenance. Only the Maintenance Controller may decide that a discrepancy is deferrable, and only maintenance personnel may return an aircraft to service.
- **Chief Instructor** — training standards, syllabus interpretation, grading disputes, waivers to this manual, currency lapses, remediation decisions, and the qualification status of any IP or cadet. The Assistant Chief Instructor acts with the Chief Instructor's authority in their absence.
- **Check Instructor** — stage checks, progress checks, and end-of-course checks, qualified in accordance with 14 CFR §141.37. A Check Instructor may also be tasked to evaluate a procedural question that has become a standardization dispute.
- **Director of Safety** — hazard reports, near-miss reports, wildlife strikes, any event that could have resulted in damage or injury, and the confidential reporting channel. The Director of Safety does not schedule aircraft and does not assign blame; the office exists to collect information.
- **Quartermaster** — headsets, kneeboards, publications, uniforms, oxygen bottles, survival equipment, tie-downs, chocks, tow bars, and the accountability of all issued property.
- **Registrar** — enrollment records, training folders, bulletin acknowledgements, certificate and medical copies, graduation certificates, and record retention.
- **Director of Student Operations (DSO)** — cadet welfare, billeting, absence, illness, personal hardship, discipline, and any circumstance affecting a cadet's fitness to fly that is not purely medical.
- **PT Instructor** — the physical training program, PT test administration, and injury-related PT waivers.

B.3 Escalation table

Use the first call listed. If the first call is unreachable within five minutes, use the backup and tell the backup that the first call did not answer. Do not stop escalating because the first attempt failed.

ESCALATION MATRIX — FIRST CALL AND BACKUP BY SITUATION

SITUATION	FIRST CALL	BACKUP	ALSO NOTIFY
Aircraft squawk discovered on preflight	Maintenance Controller	OSS duty desk	—
Squawk discovered away from base	Maintenance Controller	Director of Operations	OSS duty desk
Schedule slip, delay, or cancellation	OSS duty desk	Director of Operations	Assigned IP
Cadet late or absent at show time	DSO	OSS duty desk	Assigned IP
Cadet unfit to fly (illness, fatigue, stress)	DSO	Chief Instructor	OSS duty desk
IP currency or qualification question	Chief Instructor	Assistant Chief Instructor	Registrar
Grading dispute or syllabus interpretation	Assistant Chief Instructor	Chief Instructor	—
Request to deviate from this manual	Chief Instructor	Assistant Chief Instructor	Director of Safety
Near-miss, TCAS resolution advisory, runway incursion	Director of Safety	Chief Instructor	Director of Operations
Wildlife or bird strike	Maintenance Controller	Director of Safety	OSS duty desk
Diversion or unscheduled landing	OSS duty desk	Director of Operations	Maintenance Controller if mechanical
Accident, serious incident, or injury	Director of Safety	Wing Commander/Commandant	Director of Operations
Overdue aircraft	OSS duty desk	Director of Operations	Director of Safety
Lost, damaged, or unserviceable issued equipment	Quartermaster	OSS duty desk	—
Missing or incorrect training record	Registrar	Chief Instructor	—
Fuel discrepancy or suspected misfuelling	Maintenance Controller	Director of Safety	OSS duty desk

B.4 How to make the call

Operational calls are made in a fixed order so that the receiving office can act immediately: identify yourself and the aircraft, state the location, state the problem, state what you have already done, and state what you need. Example: "OSS, this is Cadet Rivera, N-number four-two-one Papa Romeo, on the ramp at Monroe. Right main tire is worn to the cord. Aircraft is chocked and shut down, Maintenance Controller notified. Requesting disposition for the two remaining sorties on this tail."

Do not editorialize, and do not speculate about cause on an operational call. Facts first. Analysis belongs in the debrief and in the safety report.

NOTE

Safety reports are non-punitive. The Director of Safety receives reports for the purpose of identifying hazards, not for discipline. Deliberate violation and reckless operation remain matters for the Chief Instructor and the Wing Commander/Commandant, but honest error reported honestly is not punished.

SECTION C Currency & qualification

C.1 The two-layer standard

Currency has two layers at this academy: the regulatory layer, which is the minimum the FAA permits, and the company layer, which is what the academy requires. The company layer is always equal to or more restrictive than the regulatory layer. A pilot who meets the regulation but not the company requirement is not qualified to fly academy aircraft.

Currency is tracked by the Registrar and displayed on the qualification board in the flight room. The board is a convenience, not a defense. Each pilot remains personally responsible for confirming their own currency before every flight, and each PIC is responsible for confirming the currency of the other crewmember.

C.2 Instructor Pilot currency and recurrent requirements

IP CURRENCY REQUIREMENTS

ITEM	REGULATORY BASIS	COMPANY INTERVAL	APPROVED BY
Flight instructor certificate renewal	§61.197	24 calendar months	Registrar verifies
Flight review or equivalent	§61.56	24 calendar months	Check Instructor
Takeoffs and landings (day)	§61.57(a)	3 in preceding 90 days, per category and class	Self-verified
Takeoffs and landings (night)	§61.57(b)	3 to a full stop in preceding 90 days	Self-verified
Instrument experience	§61.57(c)	6 approaches, holding, intercepting and tracking, in preceding 6 calendar months	Self-verified
Company standardization ride	Company	12 calendar months, one per category and class instructed	Check Instructor
Recurrent ground training	Company	12 calendar months — regulations, SMS, weather, human factors	Chief Instructor
Emergency procedure evaluation	Company	6 calendar months, oral and simulated	Check Instructor
Type-specific line check (PC-12)	Company	12 calendar months	Check Instructor
Medical certificate	§61.23	Valid for the privileges exercised	Registrar verifies

An IP who has not instructed in a given make and model within the preceding 60 days flies one reacquaintance sortie with a Check Instructor or with the Assistant Chief Instructor before instructing in that type. The sortie is short, covers normal and abnormal procedures, and is logged on the IP's qualification record.

Instructor duty is limited in accordance with §61.195(a): no IP may provide more than eight hours of flight instruction in any period of 24 consecutive hours. The academy applies a further company limit of six flight-instruction hours per duty day and a maximum of three consecutive flight sorties without a one-hour break. Simulator instruction counts toward the company limit at half value.

C.3 Cadet solo currency

Solo flight is a privilege granted sortie by sortie. The following must all be satisfied before a cadet flies solo:

- A current solo endorsement for the make and model, issued within the preceding 90 days in accordance with §61.87(n), and the aircraft-specific endorsement required by §61.87(b) and (c).
- A current cross-country endorsement and route-specific endorsement where the flight leaves the local area, in accordance with §61.93.
- Company recency: at least one dual sortie in the same make and model within the preceding 14 days, and at least three takeoffs and landings in the same make and model within the preceding 15 days.
- A day-of-flight authorization from the assigned IP after a face-to-face brief covering weather, aircraft status, the profile, and the abort criteria.
- Weather at or above the solo minimums published in the GOM and within the solo wind limits in Section N of this manual.

A cadet whose dual recency has lapsed beyond 14 days flies a dual refamiliarization sortie before the next solo. A cadet whose solo endorsement has lapsed beyond 90 days may not fly solo until re-endorsed, and re-endorsement requires a demonstration sortie, not a signature.

CAUTION

A solo endorsement is not a blanket release. The IP who authorizes a specific solo sortie is accountable for that sortie. If the IP is not satisfied with the cadet's preparation, weather assessment, or state of mind on the day, the authorization is withheld and the sortie does not fly. No explanation beyond that is required.

C.4 Night and instrument currency

Night currency under §61.57(b) requires three takeoffs and landings to a full stop within the preceding 90 days, accomplished during the period beginning one hour after sunset and ending one hour before sunrise. Touch-and-go landings do not count. Cadets carrying passengers at night, including other cadets on an authorized sortie, must satisfy this in the same category, class, and type where a type rating is required.

Instrument currency under §61.57(c) requires, within the preceding six calendar months, six instrument approaches, holding procedures and tasks, and intercepting and tracking courses through the use of

navigational electronic systems. The academy requires that at least two of the six be flown in the aircraft rather than a training device, and that at least one be a non-precision approach flown to minimums.

Once a pilot is outside the six-month window they may regain currency by flying the required tasks with a safety pilot within the following six months. Beyond twelve months from the last currency, an instrument proficiency check is required in accordance with §61.57(d). The academy shortens this: any IP who falls more than three calendar months past the currency window completes an instrument proficiency check with a Check Instructor before instructing instrument sorties, regardless of the regulatory grace period.

C.5 Medical currency

Medical certificate validity is governed by §61.23 and by the class of certificate required for the privileges being exercised. IPs receiving compensation for instruction must hold at least a valid third-class medical, and those exercising commercial privileges must hold at least a second-class. Cadets must hold a medical appropriate to their stage of training, and no cadet may fly solo without a current medical certificate and student pilot certificate in their possession.

Independent of certificate expiry, §61.53 prohibits acting as a required crewmember while having a known medical deficiency that would make the pilot unable to meet the requirements of the medical certificate. This includes temporary conditions: upper respiratory infection, medication with a sedating effect, recent blood donation, recent dental anesthesia, and diving within 24 hours. A crewmember who is unsure whether a condition is disqualifying does not fly and consults the DSO and the Chief Instructor.

Any change in medical status — a new diagnosis, a new prescription, a hospitalization, a special issuance condition — must be reported to the Registrar and the Chief Instructor before the next flight.

C.6 When currency lapses

A lapse is not a disciplinary matter. Concealing a lapse is. The procedure is:

1. The pilot removes themselves from the schedule immediately and notifies the OSS duty desk and the Registrar.
2. The Registrar records the lapse and the date it was identified.
3. The Chief Instructor determines the requalification requirement, which will be at minimum the regulatory recency task and may include a standardization ride or ground evaluation depending on the duration of the lapse.
4. The requalification event is flown with a Check Instructor, or with an IP designated by the Chief Instructor where the lapse is short and purely administrative.
5. The Chief Instructor — and only the Chief Instructor or, in their absence, the Assistant Chief Instructor — approves the return to duty in writing. The Registrar updates the qualification board.

C.7 The grace provision

Where a company-imposed interval (not a regulatory one) expires and the pilot has a scheduled requalification event within the following 30 days that cannot be advanced for reasons outside their control, the Chief Instructor may grant a written grace extension of up to 30 days. The grace provision has strict boundaries:

- It may never be applied to a regulatory requirement. There is no such thing as a grace period on §61.57 or on a medical certificate.
- It may not be applied to the emergency procedure evaluation or to any type-specific line check.
- It may be granted once per item per twelve-month period. A second consecutive grace request is denied and the pilot is removed from the schedule.
- It must be recorded in the pilot's qualification file with the reason and the expiry date, and it must be visible on the flight room qualification board.

Cadets are not eligible for grace extensions of any kind. A cadet who is out of currency flies the required sortie before continuing the syllabus.

SECTION D Cadet handling & service

D.1 Flight room conduct

The flight room is the operational center of the academy and is run as a duty space, not a lounge. The following standards apply from show time until formal release:

- Cadets are in the correct uniform, groomed to standard, with name tag visible and required equipment present.
- The formal brief (stand-up) begins precisely at the published time. Cadets are seated and silent one minute prior. Latecomers do not enter during the brief; they report to the duty IP afterward.
- Cadets stand when addressed by the duty IP during stand-up, answer with the emergency procedure (EP) of the day when called, and sit only when released.
- Personal electronic devices are stowed during briefs and debriefs. Devices are permitted for study, weather, and flight planning at other times.
- Food and drink are permitted only at the designated table and never near publications, charts, or issued equipment.
- Chair-flying is expected, not merely tolerated. A cadet with a gap in the schedule is chair-flying the next profile, studying the EP of the day, or preparing the next brief.
- Volume is kept low enough that a radio call, a phone from the OSS desk, or an IP's name being called can be heard from anywhere in the room.

Cadets remain in the flight room until formal release at 1800. A cadet whose sortie cancels does not go home; the duty day is the duty day. Departure before formal release requires the permission of the duty IP and is recorded.

D.2 Accountability and the flight leader

Each daily flight is assigned a cadet flight leader on a rotating basis. The flight leader is the accountability link between the cadets and the duty IP and holds real responsibility:

- Takes accountability at show time and reports strength to the duty IP: assigned, present, absent, and the reason for each absence.
- Maintains accountability throughout the day. Any cadet leaving the flight room area — for a sortie, a medical appointment, a meal, or PT — signs out with the flight leader and signs back in.
- Distributes the daily detail sheet, posts changes as the OSS issues them, and ensures every cadet has read the current Operational Bulletins.
- Reports the flight room condition — cleanliness, publications returned, equipment accounted for — to the duty IP before formal release.
- Escalates immediately, without waiting, any cadet who is unaccounted for, ill, injured, or visibly unfit to fly.

The flight leader role is a graded leadership event. Failure to maintain accountability is treated as a leadership deficiency and is addressed by the DSO.

D.3 Boarding and securing the aircraft

Cadets do not approach an aircraft unescorted unless specifically authorized for a solo sortie. Movement on the ramp is at a walk, on the marked pedestrian routes, with head up. The following sequence applies to every boarding:

1. The PIC approaches first and confirms the area is clear, the aircraft is chocked, and no servicing is in progress.
2. Loose items are stowed before anyone sits down. Nothing is placed on a seat "for a moment."
3. Occupants board in the order that avoids climbing over another person: in the C172, right seat first through the right door, left seat last.
4. Seats are adjusted and locked, and the lock is physically verified by pushing and pulling on the seat before the belt is fastened. A seat that slides on rotation is one of the most consequential failures possible in a light single.
5. Belts and shoulder harnesses are fastened and adjusted for every occupant. The PIC visually confirms each one.
6. Doors and windows are latched and the latch is verified by the occupant nearest it and confirmed aloud.
7. A passenger and occupant briefing is given by the PIC before engine start, covering belts, doors and exits, the fire extinguisher, the survival kit, sterile cockpit periods, and what to do in the event of an evacuation.

On shutdown, the sequence reverses: nothing is unfastened until the propeller has stopped and the master is off, and no one leaves the aircraft until the PIC releases them. The aircraft is chocked, control locks installed, and the aircraft secured in accordance with Section L before the crew departs the ramp.

D.4 Baggage and personal equipment

Weight and balance is computed for what is actually aboard. The following limits apply in addition to any POH/AFM limit, and the POH/AFM limit always governs where it is more restrictive:

PERSONAL EQUIPMENT ALLOWANCE BY SORTIE TYPE

SORTIE TYPE	PER-PERSON ALLOWANCE	STOWAGE
Local pattern or practice area	15 lb	Flight bag secured in baggage area or restrained
Local cross-country, same-day return	25 lb	Baggage compartment, net secured
Overnight cross-country	40 lb	Baggage compartment, net secured, weighed before loading
PC-12 program sortie	50 lb	Aft cabin baggage area, restrained to placarded limit

All baggage above 10 lb is physically weighed, not estimated. The weight used on the load manifest must be the weight measured. Nothing is carried loose in the cabin: an unrestrained flight bag becomes a control obstruction in turbulence and a hazard in a rejected takeoff. Nothing is stowed against a control cable run, behind a seat rail, or in a location that blocks an exit.

D.5 Portable oxygen and compressed gas cylinders

Portable oxygen is carried only when authorized in writing by the Director of Operations for a specific sortie, and only cylinders issued and inspected by the Quartermaster may be carried. Personal or commercially purchased cylinders are prohibited. Where oxygen is carried:

- The cylinder is secured in an approved bracket or restraint, never loose and never wedged.
- The cylinder, regulator, and mask are clean and free of any oil, grease, or petroleum product. Oxygen and hydrocarbon contamination is a fire hazard.
- The pressure is checked and recorded before departure, and the quantity is verified as adequate for the planned duration plus reserve.
- No smoking, no open flame, and no electronic vaping device is permitted aboard at any time; this is absolute and is not limited to oxygen flights.
- Oxygen use requirements follow §91.211: above 12,500 ft MSL cabin pressure altitude the required minimum flight crew must use supplemental oxygen for that portion of the flight at those altitudes of more than 30 minutes duration; above 14,000 ft it must be used at all times; above 15,000 ft it must be provided to each occupant.

Other compressed gas cylinders, including personal medical devices, require prior approval from the Director of Operations and the Maintenance Controller. Camping stoves, fuel canisters, and aerosols are prohibited without exception.

D.6 Prohibited items

The following may not be carried aboard any academy aircraft under any circumstance:

- Firearms, ammunition, and edged weapons other than a folding utility knife carried by a crewmember.
- Flammable liquids, aerosols, camping fuel, lighter fluid, and paints.
- Matches, lighters other than one personal lighter carried on the person, and any smoking or vaping device in use.
- Loose lithium battery packs above 100 Wh; devices with installed batteries are permitted and are stowed where they remain accessible in flight.
- Alcohol in any quantity. Consumption within eight hours of a duty period is prohibited by §91.17 and by company policy the interval is twelve hours.
- Mercury in any form, including thermometers and barometers, because of its corrosive effect on aluminum structure.

- Pets, other than a service animal handled under D.7.

WARNING

A lithium battery thermal runaway in a light aircraft cabin cannot be fully extinguished with the onboard extinguisher. If a device overheats, smokes, or swells in flight, isolate it from other combustibles, douse it with a non-flammable liquid if available, do not attempt to pick it up with bare hands, declare an emergency, and land at the nearest suitable airport.

D.7 Service animals

A trained service animal accompanying a person with a disability may be carried with the prior approval of the Director of Operations, arranged at least 48 hours before the flight so that weight and balance and seating can be planned. The animal must be harnessed or leashed and under the handler's control at all times, must be positioned so that it does not obstruct a control, a rudder pedal, or an exit, and must not occupy a seat. Emotional support animals and comfort animals are not service animals for this purpose and are handled as pets, which are prohibited under D.6. The PIC may decline carriage if the animal's behavior on the ramp indicates it will not remain controlled in flight, and that decision is not subject to negotiation at the aircraft.

SECTION E Paperwork & forms

E.1 Principle

Records exist so that the organization can answer, months later, what happened on a given day. Every form in this section has a legal, safety, or training purpose, and every one of them is completed at the time of the event, not reconstructed afterward. A form completed from memory at the end of the week is worthless as evidence and worse than useless as a safety record.

Entries are made in ink or in the electronic system of record, never in pencil. An error is corrected by a single line through the entry, the correct information alongside, and the initials of the person making the correction. Entries are never erased, obliterated, or overwritten.

E.2 Form register

STANDARD FORMS — PURPOSE, RESPONSIBILITY, ROUTING, AND RETENTION

FORM	PURPOSE	COMPLETED BY	WHERE IT GOES	RETENTION
Flight time & duty record (FSM-1)	Records show time, block out/off/on/in times, flight time, instruction time, and formal release; establishes the duty period and the start of crew rest	PIC, verified by the PM	OSS duty desk at end of sortie; consolidated daily by the Director of Operations	3 years
Aircraft discrepancy log (FSM-2)	Records every discrepancy, deferral, and corrective action for the airframe; carried in the aircraft	Discovering pilot; corrective action by maintenance	Remains with the aircraft; completed pages to the Maintenance Controller	Per §91.417 — 1 year or until the work is repeated or superseded
Weight & balance load manifest (FSM-3)	Documents actual loading, computed weight and center of gravity, fuel aboard, and crew assignment; signature constitutes acceptance of the aircraft	PIC, computed and cross-checked by the PM	Copy left at the OSS duty desk before departure; original carried aboard	1 year
Training grade sheet (FSM-4)	Records the syllabus lesson, maneuvers attempted, grades against completion standards, deficiencies, and the next-sortie recommendation	Instructing IP, reviewed with the cadet at debrief and signed by both	Cadet training folder held by the Registrar	Per §141.101 — at least 1 year from graduation or termination; company standard is 3 years

FORM	PURPOSE	COMPLETED BY	WHERE IT GOES	RETENTION
Preflight risk assessment (FSM-5)	Scores pilot, aircraft, environment, and external pressure factors; establishes whether the sortie requires additional approval	PIC, with the cadet participating	OSS duty desk with the load manifest copy	1 year
Solo authorization slip (FSM-6)	Documents the day-of-flight authorization, weather at authorization, profile, and abort criteria	Authorizing IP	Cadet training folder, copy to the OSS duty desk	3 years
Fuel & servicing record (FSM-7)	Records fuel grade, quantity uplifted, oil added, oxygen serviced, and the servicing agent	Pilot supervising the servicing	Maintenance Controller	1 year
Hazard / safety report (FSM-8)	Reports any hazard, near miss, deviation, or event with safety significance; may be submitted anonymously	Any person	Director of Safety directly	5 years, de-identified after investigation closes
Bulletin acknowledgement roster (FSM-9)	Records that each IP and cadet has read each Operational Bulletin	Individual signs; flight leader collects	Registrar	Until two revisions after the bulletin is incorporated

E.3 The flight time and duty record

FSM-1 is opened at show time and closed at formal release. It is the source document from which duty and rest compliance is audited, and it is the document that establishes when the twelve-hour crew rest period begins. Block times are recorded as the aircraft actually moves — out of the chocks, off the runway surface, on the runway surface, in the chocks — and are not rounded to make the arithmetic convenient. Flight time is derived from off and on; block time from out and in.

The record is signed by the PIC. Where a cadet acts as PIC, the supervising IP countersigns. A record with a missing signature is returned by the OSS duty desk for completion before the crew is released, not the following morning.

E.4 The discrepancy log

Every aircraft carries a discrepancy log. Any condition that is or may be a discrepancy is written in it before the crew leaves the aircraft. The entry states what was observed, when, and under what conditions — not a diagnosis. "Right brake pedal travels to the floor with reduced braking, noted during taxi in, ambient 34 °C" is a usable entry. "Brakes bad" is not.

An open discrepancy grounds the aircraft until the Maintenance Controller assesses it. Only maintenance personnel may sign a corrective action or an MEL deferral, and only after that signature may the aircraft be

dispatched. A pilot may never clear their own squawk, and a pilot may never fly an aircraft with an open discrepancy on the basis that the condition seemed acceptable. Operation with inoperative equipment is governed by §91.213 and by the aircraft MEL where one is issued.

E.5 The load manifest

FSM-3 is completed before every flight, including local pattern sorties. It records each occupant by seat with actual weight, baggage by location with actual weight, fuel by tank, the resulting takeoff and landing weight, and the center of gravity at both conditions plotted against the envelope. Standard passenger weights are not used; academy aircraft are small enough that estimation error is a real limitation problem.

The PIC signs the manifest. That signature has a second meaning stated in Section L: it constitutes the PIC's formal acceptance of the aircraft as airworthy and correctly loaded. A copy is left at the OSS duty desk before departure so that, in the event the aircraft does not arrive, the organization knows exactly who and what is aboard.

E.6 The training grade sheet

FSM-4 is completed by the IP during the debrief, in the cadet's presence, and signed by both. Grades are assigned against the published completion standards for the lesson, not against the IP's impression. Each unsatisfactory item carries a written cause and a specific corrective action for the next sortie. A grade sheet that records only grades and no diagnosis has failed its purpose.

Grade sheets are filed in the cadet's training folder by the Registrar the same day. Records required under §141.101 must be current and available for inspection at all times, and a folder that lags behind the flying is a certificate finding waiting to be written.

E.7 Where paperwork is filed

All flight paperwork is turned in before formal release. The routing is fixed: FSM-1, FSM-3, and FSM-5 to the OSS duty desk; FSM-2 pages and FSM-7 to the Maintenance Controller; FSM-4 and FSM-6 to the Registrar; FSM-8 directly to the Director of Safety, bypassing every other office. A cadet is not released while their paperwork is outstanding, and an IP who releases a cadet with outstanding paperwork owns the deficiency.

NOTE

Pilot logbook entries under §61.51 are the individual's own responsibility and are separate from company forms. The company record and the personal logbook must agree. Where they disagree, the company record is the reference and the logbook is corrected.

SECTION F Check-in & check-out procedures

F.1 Show time

The standard show time is 0600. Show time means present in the flight room, in uniform, equipped, and ready to work — not arriving in the parking lot, not signing in at the gate. Cadets and IPs plan their arrival to allow for traffic, gate delays, and equipment draw. The academy does not adjust the schedule for a cadet's commute.

Required equipment at show time: headset, kneeboard, current charts on the EFB with charged device, paper backup where required by Section A, logbook, certificates and medical, a serviceable pen, and the current syllabus volume. A cadet who arrives without required equipment is present but not ready, and is handled as late under F.6.

F.2 The 0600 muster and formal brief

The duty day opens with the formal brief, conducted standing, run by the duty IP, and structured identically every day so that nothing is missed:

FORMAL BRIEF (STAND-UP) SEQUENCE

TIME	ITEM	LED BY
0600	Accountability report by flight leader; strength, absences, and reasons	Flight leader
0603	Weather: current, forecast, TAF trend, winds aloft, hazards, and the resulting go/no-go picture for each profile	Duty weather cadet
0610	NOTAMs, airspace, TFRs, field condition, and runway status	Duty IP
0615	Aircraft status board: tails available, tails in maintenance, MEL deferrals in force, fuel state	OSS representative
0620	Emergency procedure (EP) of the day — one cadet called at random, briefed cold, from memory, with the corresponding memory items recited verbatim	Duty IP
0630	Operational Bulletins, safety item of the day, and standardization emphasis item	Duty IP
0640	Detail sheet: sortie assignments, tail numbers, IPs, brief times, takeoff times	OSS representative
0650	Commander's or Chief Instructor's remarks when present; questions; release to individual briefs	Duty IP

The EP of the day is not theater. A cadet who cannot brief the EP is not scheduled to fly that day until they can, and the deficiency is recorded. Memory items are recited verbatim because in the airplane there will be no time to paraphrase.

F.3 Flight assignments

Individual sortie assignments come from the daily detail sheet published by the OSS. Once released from the formal brief, each crew proceeds to the individual brief at the time shown on the detail sheet. The individual brief is conducted by the IP and covers the lesson objective, the profile in sequence, the completion standards, the weather as it applies to this sortie, aircraft status and any deferrals, the risk assessment, abort criteria, the emergency plan for the departure, and the division of PF and PM duties.

The individual brief begins on time. A brief that starts late compresses the preflight, and a compressed preflight is where items are missed. If the brief cannot start on time, the IP notifies the OSS and the takeoff time slips; the brief is not shortened.

F.4 Reserve and standby

The OSS assigns one IP and two cadets to reserve each duty day. Reserve personnel:

- Show at the normal time, attend the formal brief, and remain in the flight room throughout.
- Are pre-briefed on the two most likely profiles they may be called to fly, and have those profiles planned and chair-flown by 0800.
- Must be able to be at the aircraft, briefed and ready, within 30 minutes of being called.
- Are subject to the same duty period as everyone else. Reserve time counts against the twelve-hour duty day from show time, whether or not a sortie is flown.
- Use unassigned time for ground instruction, simulator sessions, or study — reserve is not free time.

Reserve is released only at formal release, or earlier by the Director of Operations when the last sortie of the day is airborne and no further recovery is anticipated.

F.5 End-of-shift check-out

No one leaves before formal release, and formal release is not automatic. The check-out sequence is:

1. All aircraft are secured in accordance with Section L, and the securing is confirmed by the last crew off each tail.
2. All paperwork is turned in per Section E.7. The OSS duty desk confirms nothing is outstanding.
3. All issued equipment is returned to the Quartermaster or accounted for as signed out overnight.
4. Discrepancies are logged and the Maintenance Controller is briefed on anything that affects the following day's schedule.
5. The flight leader reports the flight room condition and final accountability to the duty IP.
6. The duty IP publishes the next day's show time and any changes, confirms every cadet has read the day's bulletins, and gives the formal release — normally at 1800.

Crew rest begins at formal release. The twelve-hour minimum rest period is measured from that moment, and the next show time is set accordingly. An IP or cadet who cannot obtain twelve hours of rest before the next show time notifies the OSS duty desk that evening, not the following morning.

F.6 Lateness

A person is late if they are not present, in uniform, and equipped at the published show time. There is no grace period and no distinction between one minute and thirty. The standard is chosen deliberately: a crew that treats show time as approximate will treat a takeoff time, a fuel reserve, and a decision altitude the same way.

CONSEQUENCES OF LATENESS

OCCURRENCE	CONSEQUENCE	RECORDED BY
First	Verbal counseling by the duty IP; sortie may fly at the IP's discretion if the preflight sequence is not compressed	Duty IP, verbal entry
Second within 30 days	Sortie cancelled and graded as a non-completion; written counseling; interview with the DSO	DSO, written entry in the training folder
Third within 30 days	Removal from the flying schedule pending review by the Chief Instructor; formal remediation plan	Chief Instructor
Any lateness by an IP	Reported to the Chief Instructor; the affected sortie slips and the reason is recorded on the detail sheet	Director of Operations

A cadet who knows they will be late calls the OSS duty desk and the flight leader before show time. Doing so does not make them on time, but it allows the OSS to reallocate the aircraft and it is treated as a materially different act from simply failing to appear. A cadet who is unaccounted for at show time and has not called triggers a welfare check by the DSO after fifteen minutes.

SECTION G Flight schedule

G.1 How the detail sheet is built

The Operations Support Squadron builds the following day's schedule during the afternoon of the current day and publishes the daily detail sheet no later than 1700. Construction follows a fixed priority order so that scheduling decisions are predictable and can be explained:

1. Checkrides, stage checks, and end-of-course checks — these are date-constrained and drive graduation timelines.
2. Cadets in danger of exceeding a syllabus currency window or a stage timeline.
3. Progression sorties in syllabus order, weighted toward cadets furthest behind the planned curve.
4. Solo sorties, which are scheduled into the most benign weather and traffic windows available.
5. Proficiency, remediation, and re-fly sorties.
6. Maintenance repositioning and functional check flights, coordinated with the Maintenance Controller.

The detail sheet shows, for each sortie: the sortie number, syllabus lesson identifier, cadet, IP, tail number, brief time, takeoff time, planned duration, and the practice area or route. It also shows the reserve assignments, the duty IP, the flight leader, and the aircraft status board.

G.2 Publication and changes

The detail sheet is published to the flight room board and distributed electronically. It is the authoritative schedule from the moment it is published. Changes after publication are issued as numbered amendments, posted on the board by the flight leader, and briefed at the next formal brief or announced in the flight room if the change is same-day.

No crew flies on the basis of a verbal change alone. If an amendment has not been posted, the crew calls the OSS duty desk and has it posted before proceeding. Verbal-only changes are how two crews arrive at the same airplane.

G.3 Departure times and slip policy

The published takeoff time is a commitment. Crews plan the brief and preflight to make it. The following slip policy governs when a sortie no longer holds its slot:

SLIP POLICY

SLIP FROM PUBLISHED TAKEOFF TIME	ACTION	AUTHORITY
Up to 15 minutes	Crew proceeds; notify OSS duty desk with the reason	PIC
15 to 30 minutes	OSS reassesses the aircraft turn and the following sortie; may reassign the tail	OSS duty desk
More than 30 minutes	Sortie is re-slotted or cancelled; the profile may be shortened only with Chief Instructor concurrence	Director of Operations

SLIP FROM PUBLISHED TAKEOFF TIME	ACTION	AUTHORITY
Any slip that would push landing past 1730	Sortie cancelled or profile reduced to remain inside the duty day	Director of Operations

CAUTION

A slip is never recovered by compressing the preflight, abbreviating the brief, or accepting a shortcut in the checklist. If the time cannot be made by working efficiently, the sortie slips. Schedule pressure is the single most commonly cited contributing factor in training mishap reports, and it is defeated in the flight room, not in the cockpit.

G.4 Delays

Delays are categorized on the detail sheet so that patterns are visible: maintenance, weather, crew, air traffic, or administrative. The category is assigned by the OSS duty desk from the facts reported by the crew, not chosen by the crew. Delay data is reviewed monthly by the Director of Operations and reported to the Wing Commander/Commandant.

When a delay occurs, the crew's obligation is to report it immediately with an honest estimate of the recovery time. An optimistic estimate that fails is worse than a realistic one, because the OSS makes reallocation decisions based on what it is told.

G.5 Weather holds and use of flight-room time

A weather hold is declared by the duty IP in consultation with the OSS duty desk when conditions are below the applicable minimums or are forecast to be within the sortie window. During a hold, cadets do not disperse. Flight-room time during a hold is structured and is graded as academic time:

- Chair-flying the assigned profile in full, in sequence, with verbalized callouts and hand motions.
- Emergency procedure drill: memory items recited cold, then the checklist run challenge–response with a partner.
- Weather self-brief practice: each cadet independently builds the go/no-go picture and defends it to the duty IP.
- Performance and weight and balance problems for the held sortie, worked to the actual conditions.
- Systems study, oral examination practice, and syllabus reading ahead.
- Simulator sessions where devices are available and an IP can supervise.

The hold is reviewed at least every 30 minutes against the current observation and the latest forecast. The duty IP announces each review to the flight room even when the answer is unchanged, so that no cadet is guessing. When the hold is lifted, briefs resume from the top of the affected block; sorties are not launched with a brief that was interrupted three hours earlier.

G.6 Requesting a schedule change

A cadet requests a schedule change through the following route, and only through it:

1. Submit the request in writing to the flight leader before 1400 on the day before the affected sortie, stating the sortie, the reason, and the proposed alternative.
2. The flight leader consolidates requests and delivers them to the OSS duty desk before 1500.
3. The OSS assesses against the build priority in G.1 and either accommodates the request in the next day's build or declines it.
4. The decision is shown on the published detail sheet. The cadet is not separately notified; reading the detail sheet is the cadet's responsibility.

Requests made directly to an IP are redirected to the flight leader. An IP has no authority to change the published schedule and may not trade sorties, tails, or times with another IP without the OSS duty desk making the change. Requests for reasons of medical appointment, family emergency, or hardship go through the DSO, who coordinates with the OSS on the cadet's behalf and who may authorize a same-day change.

Repeated requests to avoid a particular sortie, a particular IP, or a particular weather condition are treated as a training issue rather than a scheduling one and are referred to the Chief Instructor.

SECTION H Irregular operations & maintenance

H.1 General

An irregular operation is any departure from the planned sortie: a diversion, an unscheduled landing, an aircraft swap, a maintenance-driven change, or an early return. The governing principle is that the crew flies the airplane first, communicates second, and coordinates third. No coordination requirement in this section takes priority over aircraft control, and no crew is ever expected to delay a landing in order to make a phone call.

H.2 Diversions

Divert when the destination is no longer a safe or legal option: weather below minimums, a field closure, an unexpected fuel state, an aircraft condition, or a crew condition. The decision is the PIC's alone and is made early. A diversion decided with adequate fuel and daylight is a routine event; the same diversion decided twenty minutes later is an emergency.

1. Fly the aircraft. Establish a heading toward the diversion field and a safe altitude before doing anything else.
2. Advise ATC and request the clearance or, at a non-towered field, broadcast intentions on CTAF.
3. Reassess fuel against the new destination plus the reserve required by §91.151 for VFR or §91.167 for IFR. If the reserve will be broken, declare minimum fuel; if it is already broken or the landing is in doubt, declare an emergency.
4. Brief the approach and the field: runway, length, surface, lighting, services, and the go-around plan.
5. Once established and workload permits, notify the OSS duty desk with the field, the reason, the fuel state, souls on board, and the estimated time on the ground.

After landing, the crew does not depart the diversion field without the authorization of the Director of Operations. The temptation to press home after the weather "looks better" is the classic second error of a diversion, and it is removed by requiring an outside authority to release the flight.

H.3 Unscheduled landings

An unscheduled landing includes a precautionary landing, a return to the departure field, or a landing at any field not on the filed or briefed route. The reporting requirement is the same as for a diversion. In addition:

- If the landing was precautionary for a suspected aircraft condition, the aircraft is not flown again until the Maintenance Controller has assessed it, regardless of whether the condition has apparently cleared.
- If the landing involved an abnormal or emergency procedure, an off-airport touchdown, or any damage, the Director of Safety is notified immediately and the aircraft is not moved except to clear the runway or remove a hazard. Reporting obligations under 49 CFR Part 830 are assessed by the Director of Safety.

- A discrepancy entry is made in the log for every unscheduled landing with a mechanical cause, and a hazard report is filed for every unscheduled landing regardless of cause.

H.4 Aircraft swaps

An aircraft swap is authorized only by the OSS duty desk. When a swap is directed, the crew treats the new aircraft as an entirely new sortie:

1. Confirm the new tail number in writing on the amended detail sheet. Never accept a swap by radio or corridor conversation.
2. Recompute weight and balance and performance for the new aircraft. Empty weights and equipment fits differ between tails of the same model.
3. Review the new aircraft's discrepancy log in full, including any MEL deferrals in force and their provisos. A deferred item may change the profile that can be flown.
4. Complete a full preflight inspection. A swap is not an occasion for an abbreviated walk-around.
5. Move and re-secure all personal and issued equipment; confirm nothing is left in the original aircraft.
6. Issue a new load manifest for the new tail and file the superseded one marked as cancelled.
7. Re-brief the emergency plan for the departure with the new aircraft's performance figures.

H.5 Dropping off and picking up an aircraft from maintenance

Repositioning flights to and from a maintenance facility are flown by an IP, never by a cadet solo, and require Director of Operations authorization on the detail sheet.

Dropping off. Before departure the IP confirms with the Maintenance Controller that the facility is expecting the aircraft and that the work scope is agreed in writing. The discrepancy log accompanies the aircraft with all open items clearly written. On arrival the IP briefs the receiving facility verbally on each squawk, walks the aircraft with their representative, notes any pre-existing cosmetic damage with photographs, records the Hobbs and tach readings, and confirms the handover with the Maintenance Controller before leaving. Loose equipment, headsets, and publications are removed and returned to the Quartermaster.

Picking up. An aircraft is collected only after the Maintenance Controller confirms that the approved return-to-service entry has been made and that the work performed matches the work ordered. Before flight the collecting IP:

- Reads the maintenance release and the logbook entries for the work performed, and confirms every open squawk is either signed off or properly deferred.
- Verifies inspection status: annual, 100-hour, ELT battery and inspection per §91.207, transponder and static system per §91.411 and §91.413, and ADS-B function per §91.225.
- Confirms all required documents are aboard and that the weight and balance data reflects any equipment change.

- Performs a full preflight with particular attention to the area worked on — fasteners, panels, safety wire, control continuity, correct sense of any control or trim that was disturbed, and the absence of tools or rags.
- Performs an extended run-up and, where the work affected flight controls, engine, or propeller, flies the first leg in day VMC within gliding distance of the field until systems are confirmed normal.

WARNING

The first flight after maintenance is statistically the highest-risk flight an aircraft makes. Control reversal, disconnected linkages, unsecured panels, and contaminated fuel systems have all been found on post-maintenance checks. Verify control sense physically — free, correct, and full travel with the ailerons and elevator observed from outside if the control system was disturbed.

H.6 A squawk away from base

A cadet who discovers a discrepancy away from base — solo or with an IP — follows a fixed sequence and does not improvise:

1. Secure the aircraft. Shut down, chock, and do not attempt to troubleshoot or repair anything.
2. Write the discrepancy in the log immediately, while the observation is fresh, in the observational language required by Section E.4.
3. Call the Maintenance Controller. Describe what was observed, when, at what power setting or phase of flight, and what the instrument indications were.
4. Call the OSS duty desk with the location, the aircraft state, and the disposition given by the Maintenance Controller.
5. Do not fly the aircraft again until the Maintenance Controller expressly clears it and a return-to-service entry exists where one is required. A cadet may never accept a verbal assurance from a line service technician or a passing pilot as authority to fly.
6. Arrange transport or overnight accommodation through the OSS duty desk and the DSO. Never sleep in the aircraft, and never attempt to press home to avoid the inconvenience of an overnight.

No cadet has ever been disciplined at this academy for grounding an airplane. Cadets have been disciplined for flying one they should not have.

H.7 Control locks

Control locks and gust locks are installed whenever an aircraft is left unattended on the ramp, without exception, including during a short turn and including when a crew steps away for fuel. The removal of the control lock is a specific, verbalized item on the before-start checklist, and control freedom and correct sense is verified again on the before-takeoff checklist.

- Locks are the standard issue items from the Quartermaster with the red streamer attached. Improvised locks, seat belts wrapped through the yoke, or bungee arrangements are prohibited.

- The lock is stowed in the same, briefed location every flight so that its presence in the cockpit is obvious.
- Where a lock incorporates a throttle or ignition interlock, it is used as designed; the interlock exists precisely to prevent a start with the lock installed.
- External surface locks and pitot covers are removed and counted during the walk-around, and the count is stated aloud: "three locks off, pitot cover off, three streamers stowed."

CAUTION

Attempting to take off with a control lock installed has ended in fatal accidents in aircraft far more capable than these. The defense is the verbalized count and the physical control check, both performed every flight even when the crew is certain the lock was never installed.

SECTION I Use of aircraft equipment

I.1 Philosophy

Installed equipment is used as designed, in accordance with the POH/AFM and its supplements. Equipment is never disabled, pulled, muted, or ignored to make a training profile more convenient, and no annunciation is ever treated as spurious in flight. An annunciation the crew believes to be false is still handled as real until the aircraft is on the ground and maintenance has assessed it.

I.2 Master caution and warning discipline

Caution and warning systems are designed to move the crew's attention quickly and to keep it there until the condition is resolved. The standard response to any master caution or master warning is:

1. The pilot who sees it calls it: "Master caution, [annunciation]." Silence is not an acceptable response to an illuminated light.
2. The PF continues to fly and states "I have the aircraft" if there is any doubt about who is flying.
3. The PM identifies the specific annunciator, reads it aloud, and cancels the master only after the specific caption has been identified. Cancelling the master before reading the caption discards the information.
4. The PM runs the applicable checklist. Memory items, where they exist, are executed first, from memory, and are then confirmed against the checklist.
5. The crew reassesses the plan: continue, return, or divert. That reassessment is verbalized, not assumed.

Recurring or intermittent cautions are logged with the exact conditions under which they appeared. An intermittent annunciation is a discrepancy and grounds the aircraft in the same way a steady one does.

I.3 Traffic advisory systems

Academy aircraft are equipped with traffic advisory capability derived from ADS-B In and, in the PC-12, an installed traffic system. Traffic displays supplement visual scan; they do not replace it, and they do not show every aircraft. Non-equipped traffic and traffic outside the reception geometry will not appear.

- A traffic advisory (TA) is announced by the crewmember who sees it, using clock position, relative altitude, and range: "Traffic, ten o'clock, five hundred low, two miles."
- The other pilot acknowledges and attempts visual acquisition. "Looking" then "Tally" or "No joy."
- Maneuvering in response to a TA alone is limited to gentle adjustment and only when the traffic is visually acquired or when the geometry is clearly converging. Aggressive maneuvering on an unacquired advisory has caused loss of control and has caused collisions with third aircraft.
- Right of way rules under §91.113 continue to apply, and the requirement to see and avoid under §91.113(b) is unaffected by any installed system.

Where a resolution advisory (RA) capability is installed, the RA is followed immediately and precisely. The PF disconnects the autopilot, flies the commanded vertical response smoothly to the edge of the green

band without overshooting, and holds it until "clear of conflict." The PM announces the RA aloud, monitors compliance, and advises ATC of the deviation. An ATC clearance is not a reason to disregard an RA; §91.123 does not require compliance with a clearance in an emergency, and an RA is an emergency for this purpose. The event is reported to the Director of Safety the same day.

I.4 Terrain awareness

Terrain awareness and warning capability (EGPWS/TAWS) is installed in the PC-12 and provided by the installed avionics in the training singles and the Seminole. Terrain displays are situational aids. The alerting function is not.

WARNING

Any terrain warning — "PULL UP," "TERRAIN TERRAIN PULL UP," or an equivalent hard alert — requires an immediate, maximum-performance climb without analysis, without waiting for visual confirmation, and without regard to the flight plan or the ATC clearance. Disconnect the autopilot, apply maximum available power, level the wings, and rotate smoothly to the pitch attitude that achieves the best climb performance while respecting stall warning. Do not attempt to out-climb terrain in a turn unless terrain is positively visible and a turn is unambiguously the better escape. Maintain the escape maneuver until the alert ceases and terrain clearance is assured. Advise ATC afterward, not first.

Cautionary terrain alerts — "CAUTION TERRAIN," "TOO LOW TERRAIN," "SINK RATE," "DON'T SINK" — require an immediate correction to the flight path and a verbalized assessment of why the alert occurred. A cautionary alert that is not understood is escalated to the escape maneuver. Nuisance alerts in the training area, such as those triggered by legitimate low-level maneuvering, are anticipated and briefed before the sortie; they are never used as a reason to become complacent about the alert tone.

Terrain inhibit functions, where installed, are used only in accordance with the AFM and only in the specific circumstances it permits. Inhibiting terrain alerting for crew convenience is prohibited.

I.5 Autopilot

The autopilot is a workload management tool and is used deliberately, with both pilots aware of the mode, the target, and who is monitoring it. Mode changes are announced and confirmed: the PF states the change, the PM verifies it on the flight mode annunciator and calls the annunciated mode. An unannounced mode change is the origin of most automation surprises.

AUTOPILOT ENGAGEMENT LIMITS

PHASE	MINIMUM ENGAGEMENT ALTITUDE	NOTE
After takeoff	1,000 ft AGL	Or the AFM minimum, whichever is higher
Enroute and terminal maneuvering	1,000 ft AGL	Company standard
Precision approach	Disconnect by 500 ft HAT	Manual flight from 500 ft to landing
Non-precision approach	Disconnect by MDA	Or upon commencing the visual segment

PHASE	MINIMUM ENGAGEMENT ALTITUDE	NOTE
Circling	Not permitted	Circling is flown manually throughout
Go-around	Disconnect immediately	Re-engage above 1,000 ft AGL once stable

The AFM limitation always governs where it is more restrictive than this table. The autopilot is disconnected using the primary disconnect on the control wheel; the crew must be able to disconnect by feel, and disconnect by circuit breaker is an abnormal procedure, not a technique. Cadets in the primary phase hand-fly all sorties; autopilot use is introduced in the instrument phase and is taught as a monitored system, not as a rest period.

NOTE

Automation is monitored by the same standard as a pilot: if it is not doing what was intended, it is corrected or removed. The sequence is click, click, fly — disconnect the autopilot, disconnect the flight director, and hand-fly. A crew that is troubleshooting the automation while the aircraft departs the intended flight path has inverted its priorities.

1.6 Weather avoidance equipment

Datalink weather is a strategic tool with a latency that can exceed several minutes. It is used for route-scale decisions — deviating around a line, choosing an alternate, deciding not to depart — and never for tactical penetration of a convective area. The displayed radar image does not show where the cell is now; it shows where it was.

- Maintain at least 20 nm of lateral separation from any observed thunderstorm cell, and do not attempt to fly between two cells separated by less than 40 nm.
- Do not fly beneath a thunderstorm at any altitude, and do not attempt to top a building cumulus in any academy aircraft.
- Where onboard weather radar is installed on the PC-12, it is operated in accordance with the AFM, with attenuation and tilt management taught as a specific lesson. Radar is not operated on the ground with personnel forward of the antenna.
- Stormscope or lightning detection, where installed, indicates electrical activity and therefore turbulence and convection; it is used in combination with datalink imagery, not as a substitute for it.
- Icing equipment on the PC-12 is used within the AFM envelope only. The training singles and the Seminole are not approved for flight into known icing and will not be dispatched into forecast structural icing conditions.

SECTION J Crew resource management

J.1 Purpose

Crew resource management is the disciplined use of all available resources — the other pilot, the aircraft systems, air traffic control, dispatch, published information, and time itself — to achieve a safe and effective flight. At a training academy CRM has a second purpose: the cadet is learning the habits they will carry into a crew cockpit, and habits formed in a Cessna 172 do not disappear on the first day in a turbine airplane. Accordingly, CRM is graded on every sortie, including solo preparation and debrief.

J.2 Authority of the pilot in command

The PIC is directly responsible for, and is the final authority as to, the operation of the aircraft, consistent with §91.3. That authority is not diminished by the presence of a more senior person on board, by a published schedule, by an ATC instruction, or by the expectations of the training program. In an in-flight emergency requiring immediate action the PIC may deviate from any rule of Part 91 to the extent required to meet that emergency, and must be prepared to submit a written report if requested.

Authority carries a corresponding obligation. A PIC who does not invite input, who does not brief intentions, or who responds to a challenge with irritation has not exercised authority — they have suppressed the crew's second set of eyes. The correct exercise of authority sounds like this: state the plan, state the reasoning, invite disagreement, listen to it, decide, and explain the decision.

On dual sorties the IP is normally the PIC and is always responsible for the safety of the flight, but the IP's teaching role does not permit the cadet's monitoring duty to lapse. A cadet who sees something wrong is required to say so, and an IP who discourages that is failing at the primary task.

J.3 Communication breakdowns

The following failures appear repeatedly in training and line operations. IPs are expected to name them when they occur, in the moment, and to debrief them by name:

- **Assumed transfer.** Both pilots believe the other is flying, or neither does. Defeated by the positive three-way exchange in J.5.
- **Ambiguous phrasing.** "Are we okay on fuel?" is not a question with an actionable answer. "We have 14 gallons, 45 minutes at current burn, destination is 30 minutes out" is.
- **Silent disagreement.** One pilot believes the other is wrong and says nothing, usually because of rank, experience, or a desire not to appear difficult. This is the most dangerous failure in the list.
- **Task saturation and tunneling.** One pilot fixates on a problem — a stuck frequency, an unfamiliar approach plate — and stops flying or stops monitoring. Defeated by the PM explicitly calling "you are the flying pilot, look up."
- **Expectation bias.** Hearing the clearance that was anticipated rather than the one that was issued. Defeated by disciplined readback and by both pilots writing the clearance.

- **Deference cascade.** A junior pilot's doubt is dismissed once and is never raised again. Defeated by the two-challenge rule.

J.4 Assertiveness and the two-challenge rule

Every crewmember, regardless of seniority, is obligated to speak when they observe an unsafe condition or an unexplained deviation. The academy uses a structured escalation so that speaking up does not depend on personality:

1. **Advise.** State the observation factually. "Airspeed is 15 knots below target."
2. **Question.** If no correction follows, question the intent. "Confirm you intend to continue at this speed?"
3. **Challenge.** State the concern and the required action. "I am not comfortable. We need to add power now."
4. **Take.** If the flight path is unsafe and the challenges have not produced a correction, take the controls with the positive exchange: "I have the aircraft."

The **two-challenge rule** is the hard floor: if a crewmember challenges twice regarding a safety-critical condition and does not receive a satisfactory response — meaning either a correction or an explanation that resolves the concern — that crewmember assumes the other pilot is incapacitated, distracted, or in error, and takes control of the aircraft. This applies to a cadet challenging an IP. It is stated in the manual explicitly so that no cadet can be told afterward that they overstepped.

An IP whose cadet invokes the two-challenge rule debriefs the event without defensiveness, and the event is reported to the Director of Safety. If the cadet was mistaken, the debrief covers why; the act of taking control on a genuine belief of danger is never itself the deficiency.

J.5 Exchange of flight controls

The exchange of flight controls is a formal, three-part verbal procedure. It is used every time, on the ground and in the air, without exception, and it is graded on every sortie.

POSITIVE THREE-WAY EXCHANGE OF CONTROLS

STEP	ACTION
1. Pilot taking control	"I have the aircraft." Hands are placed on the controls only as the call is made.
2. Pilot giving control	"You have the aircraft." Hands and feet are physically removed from the controls, visibly.
3. Pilot taking control	"I have the aircraft." Confirms positive control and, where applicable, states the flight parameters being held.

Supporting rules:

- The exchange is not complete until the third call. Until then, the original PF retains control.

- Hands are never placed on the controls before the first call. A pilot who guards the controls without announcing it has created exactly the ambiguity this procedure exists to prevent.
- The same procedure applies to radios and to any single-resource task: "You have the radios," "I have the radios."
- In an emergency the exchange is still made. It takes two seconds and there is no situation urgent enough to justify skipping it.
- The IP announces "I have the aircraft" when taking control for a demonstration or an intervention, and returns control the same way when the demonstration ends.

J.6 Sterile cockpit

The sterile cockpit is in force during all ground movement, from takeoff roll to 3,000 ft AGL, from 3,000 ft AGL to landing and until clear of the runway, and at any other time either pilot calls "sterile." During sterile periods conversation is restricted to the operation of the aircraft: checklists, callouts, clearances, and safety-of-flight items only.

The sterile cockpit at a training academy requires a specific accommodation: instruction is operationally necessary and is permitted during sterile periods, but it is limited to what the cadet needs in that moment to fly the airplane. Discussion of the previous maneuver, of grading, of the syllabus, or of anything that can wait belongs in the debrief. An IP who is critiquing a stall recovery during the takeoff roll has violated the sterile cockpit as surely as one discussing the weekend.

Either crewmember may call "sterile" at any time and the call is honored immediately without discussion. Non-essential EFB manipulation, photography, and personal device use are prohibited during sterile periods.

J.7 Crew briefings

Briefings are scripted so that they are complete, so that they are short, and so that the listener knows what is coming next. The scripts below are the standard. They are delivered from memory once learned, and they are delivered aloud even when the crew has flown the same profile ten times. A briefing that is abbreviated because "we both know it" defeats the purpose, which is to build a shared mental model on this flight, with this aircraft, in these conditions.

Taxi briefing — delivered before the aircraft moves

- "Airport diagram is displayed and oriented; we are parked at [location]."
- "Our taxi route is [runway] via [taxiways], expecting [hold short point]."
- "Hot spots on this field are [location and hazard]."
- "We will cross [runway] — that crossing requires a specific clearance and I will read it back with our call sign."
- "Construction, closures, and NOTAMs affecting the movement area: [items]."

- "Taxi speed will be at a walking pace in the ramp and no faster than 20 knots on the taxiway, slowing to walking pace in turns."
- "Sterile cockpit is in effect from now until we are clear of the runway after landing."
- "PM will call all hold short lines and will confirm the runway identification before we cross the hold line."
- "If either of us becomes uncertain of our position, we stop the aircraft and ask. We do not guess and we do not keep rolling."
- "Questions?"

Takeoff briefing — delivered before entering the runway

- "This will be a [normal / short field / soft field / crosswind] takeoff from runway [number], [length] feet available."
- "Aircraft is [type], [weight] pounds, center of gravity within limits, flaps set [setting], trim set for takeoff."
- "Winds are [direction and speed], crosswind component [value], within our limit of [value]."
- "Density altitude is [value]; computed ground roll [distance], distance over fifty feet [distance], against [runway length] available."
- "Rotate speed [value], initial climb speed [value], best angle [value], best glide [value]."
- "I am the pilot flying. You are the pilot monitoring. You will call airspeed alive, rotate, and positive rate."
- "Any malfunction before rotation: I will call ABORT, close the throttle, apply maximum braking, and maintain centerline. You will confirm throttle closed and stand by to assist."
- "Engine failure after rotation with runway remaining: I will land straight ahead on the remaining runway."
- "Engine failure after rotation with no runway remaining, below [turnback altitude]: I will lower the nose to best glide and land within [arc] degrees either side of the nose. Our planned forced-landing areas on this departure are [locations]. We will not attempt a turn back to the field."
- "Engine failure above [turnback altitude] with the field in a position to make it: I will state my intention before turning."
- "Any other malfunction after takeoff: fly the aircraft, climb to a safe altitude, then run the checklist. I will call for the checklist by name."
- "Departure procedure is [instruction], initial altitude [value], first heading [value], first frequency [value]."
- "Terrain and obstacles on this departure: [items]."
- "Questions?"

Approach briefing — delivered before the descent, or by 10 nm from the initial fix

- "This is the [approach name] to runway [number] at [airport], from the chart dated [date], and I have verified it is current."

- "Weather is [ceiling, visibility, wind, altimeter]; the runway is [length and surface] and braking is reported [condition]."
- "Primary navigation source is [source], identified and set. Standby source is [source]."
- "Initial approach fix is [fix] at [altitude]; the transition is [route]."
- "Final approach course [value], final approach fix [fix] at [altitude], and the glidepath is [angle]."
- "Step-down fixes are [fix and altitude], and the minimum safe altitude in this sector is [value]."
- "Minimums are [DA or MDA] with a height above touchdown of [value] and visibility of [value]. Below that altitude I will continue only with the required visual references and the required flight visibility, in accordance with §91.175."
- "Target speeds: [value] to the final approach fix, [value] on final, VREF [value], and landing configuration will be set by [point]."
- "Stabilized approach gate is 1,000 feet HAT in instrument conditions and 500 feet HAT in visual conditions. If we are not stabilized at the gate, we go around."
- "Missed approach is [climb instruction] to [altitude], then [route] to [fix], hold [description]. I will call GO AROUND, apply power, pitch for [attitude], and call for flaps and gear. You will confirm positive rate, retract on my command, and advise ATC."
- "Our alternate is [airport] with [fuel] remaining on arrival; the divert decision point is [fix or fuel state]."
- "Any of your callouts — deviation, unstable, or go around — will be acted on immediately, without discussion."
- "Questions?"

NOTE

Threat and error management is the framework behind all three briefings. A *threat* is a condition outside the crew's control that increases operational complexity — weather, terrain, an unfamiliar field, a compressed schedule, fatigue, or a new cadet. An *error* is a crew action or inaction that leads away from the intended state. An *undesired aircraft state* is the result when an error is not caught. The purpose of a briefing is to name the threats before they arrive, to distribute the monitoring so that errors are trapped early, and to define in advance what the crew will do if an undesired state develops. Every brief should therefore answer three questions: what will be hard about this flight, who is watching for it, and what is the escape.

SECTION K Radio usage & required calls

K.1 General discipline

Radio work is a graded skill from the first sortie. Transmissions are planned before the microphone is keyed, delivered at a measured pace, and structured in the standard order: who you are calling, who you are, where you are, what you want. Listening before transmitting is mandatory; stepping on another aircraft's call, particularly a position report at a non-towered field, removes information the whole traffic pattern needs.

Phraseology follows the AIM. Non-standard phraseology, informal abbreviations, and conversational filler are not used. Cadets are taught that brevity is a product of preparation, not of speed: a transmission delivered quickly and unintelligibly must be repeated and consumes more frequency time than one delivered clearly.

K.2 Frequency monitoring

- The CTAF is monitored from at least 10 nm out when inbound to a non-towered field, and from engine start until clear of the airport environment when departing one.
- The company frequency is monitored on the second radio at all times within the local area. When the second radio is required for an approach or for ATIS, the company frequency is dropped and the crew states aloud that it has been dropped and when it will be restored.
- 121.5 MHz is monitored on the second radio when it is otherwise free, in particular on cross-country legs.
- The last assigned ATC frequency is retained until the handoff is complete and two-way communication is established with the next controller. A frequency is never changed before the readback of the change.

K.3 Required company calls

Four company calls are required on every sortie. They are the mechanism by which the OSS knows where every aircraft is and by which an overdue aircraft is detected. They are short, they use a fixed format, and they are made on the company frequency or by telephone where the frequency is out of range.

REQUIRED COMPANY CALLS

CALL	MADE WHEN	FORMAT
OUT	Aircraft begins to move under its own power	"Ops, [tail], out at [time], [souls] souls, [fuel] on board, sortie [number]."
OFF	Airborne	"Ops, [tail], off at [time], estimating [destination or return] at [time]."
ON	Main wheels on the landing surface	"Ops, [tail], on at [time] at [airport]."
IN	Parked, engine shut down, chocks in	"Ops, [tail], in at [time], [fuel] remaining, [squawks / no squawks]."

Additional company calls are required when the flight changes in a way the OSS must know about: a diversion decision, an unscheduled landing, a delay on the ground exceeding 30 minutes, a change to the planned route or practice area, and any abnormal condition. A crew that becomes unable to make the ON call within 30 minutes of the estimated arrival triggers overdue aircraft action by the OSS duty desk.

NOTE

Company calls are never made at the expense of aircraft control, an ATC frequency, or a CTAF position report. If the workload does not permit the OFF call at the moment of liftoff, it is made when workload permits, and the actual off time is reported. The time reported is always the time the event occurred, never the time of the call.

K.4 Position reporting at non-towered fields

Self-announce transmissions at non-towered airports follow the format: airport name, aircraft type and call sign, position and intention, airport name again. Repeating the airport name at the end prevents a pilot on a shared frequency from acting on a call intended for a different field, which is a routine hazard where several nearby airports share a CTAF.

The academy standard reporting points are:

- Ten miles out, with position by cardinal direction and altitude, and intentions.
- Entering the downwind, with the runway stated.
- Turning base.
- Turning final, with the runway stated.
- Clear of the active runway.
- Taxiing onto the runway for departure, with the runway stated and the direction of departure.
- Departing the pattern, with the direction of departure.

Pattern entry, direction of turns, and traffic pattern altitude comply with §91.126 and §91.127 and with any published local procedure. Straight-in approaches to a non-towered field are permitted only when the traffic pattern is confirmed clear by both radio and visual observation, are announced from at least 10 nm, and are never flown by a solo cadet. An aircraft already established in the pattern has the priority; a straight-in arrival yields.

CAUTION

A radio call is not a clearance and does not confer right of way. Non-radio aircraft operate legally at non-towered fields. The absence of traffic on the frequency is not evidence of the absence of traffic in the pattern.

K.5 Readback discipline and hearback error

Every clearance, instruction, runway assignment, altitude, heading, frequency, altimeter setting, and hold short instruction is read back in full, with the aircraft call sign. Read back what was received, not what was

expected. A readback that consists of the call sign alone, of "roger," or of "wilco" is not a readback and is not acceptable for any of the items listed above.

Runway hold short instructions and runway crossing clearances are always read back verbatim with the runway number and the call sign, by regulation and by company policy, and no aircraft crosses a hold line until that readback has been made and acknowledged.

A **hearback error** occurs when the pilot reads back incorrectly and the controller does not catch it. The controller is then operating on one understanding and the crew on another. The defense is at the crew's end:

- Both pilots listen to every clearance. The PM writes it down; the PF listens independently and confirms.
- The PM sets the received altitude in the altitude preselect or states it aloud while pointing at the altimeter bug, and the PF confirms the setting matches what they heard.
- Where the two pilots heard different things, the crew asks ATC to say again. Resolving a disagreement between two pilots by picking the more confident one is not a procedure.
- Any clearance that is unexpected, that conflicts with the briefed plan, or that does not make sense is queried before it is complied with. Controllers issue amended clearances constantly and will not be offended by a request to confirm.
- Similar call signs on frequency are a known trap. When a similar call sign is detected, the crew states it to ATC and uses the full call sign on every subsequent transmission.

SECTION L Preflight & postflight

L.1 Acceptance of the aircraft

Every flight begins with an acceptance inspection. The concept is deliberate: the aircraft is not "the company's problem," it is the PIC's aircraft from the moment they accept it until the moment they hand it back. Acceptance comprises three elements, all completed before the manifest is signed:

1. **Records.** The discrepancy log is reviewed in full, not just the last page. Open items, deferrals, and their provisos are read and understood. Inspection status is confirmed current: annual or 100-hour, ELT per §91.207, transponder and static system per §91.411 and §91.413, and ADS-B per §91.225.
2. **Documents.** Airworthiness certificate, registration, POH/AFM with supplements, and current weight and balance data are aboard, in accordance with §91.9 and §91.203. Placards are present and legible.
3. **Physical inspection.** The full walk-around from the POH is performed in the published sequence, without shortcuts, by the pilot who will act as PIC. On a dual sortie the cadet performs it and the IP independently verifies the critical items: fuel quantity and grade, fuel sample, oil quantity, control continuity and freedom, tires and brakes, and the removal of all locks and covers.

LIMITATION

Signing the weight and balance load manifest constitutes the PIC's formal acceptance of the aircraft as airworthy, correctly serviced, and correctly loaded for the intended flight. After that signature, responsibility for the airworthiness determination required by §91.7(a) rests entirely with the PIC. Do not sign the manifest until the records, documents, and physical inspection are complete.

L.2 Required items aboard

ITEMS REQUIRED ABOARD EVERY ACADEMY AIRCRAFT

ITEM	BASIS	VERIFIED BY
Airworthiness certificate, displayed	§91.203	PIC on acceptance
Registration certificate	§91.203	PIC on acceptance
POH/AFM with all supplements	§91.9	PIC on acceptance
Current weight and balance data	§91.9	PIC on acceptance
Aircraft radio station license (international only)	47 CFR Part 87	OSS before release
Instruments and equipment for the operation	§91.205	PIC on acceptance
Emergency locator transmitter, in date	§91.207	Maintenance Controller; PIC verifies entry
Aircraft discrepancy log (FSM-2)	Company	PIC on acceptance
MEL, where issued for the tail	§91.213	PIC on acceptance

ITEM	BASIS	VERIFIED BY
Fire extinguisher, charged and secured, inspection current	Company	PIC on walk-around
First aid kit, sealed and in date	Company	PIC on walk-around
Survival kit and signalling device for cross-country	Company	PIC before departure
Fuel sampler cup	Company	PIC on walk-around
Tow bar, chocks, and control lock with streamer	Company	PIC on walk-around
Flashlight with spare batteries (night operations)	Company	PIC before departure
Two independent chart sources per Section A.4	Company	PIC before departure

L.3 Weather briefing standard

Preflight action under §91.103 requires the PIC to become familiar with all available information concerning the flight. At this academy that standard is met by a documented self-brief covering, at minimum: current surface observations for the departure, destination, and alternate; the terminal forecasts for the period of the flight plus one hour either side; area forecasts and graphical forecast products; winds and temperatures aloft for the planned altitudes; AIRMETs, SIGMETs, convective SIGMETs, and center weather advisories; PIREPs along the route; icing and turbulence products where relevant; radar and satellite imagery; sunrise and sunset times; and all applicable NOTAMs and TFRs.

Approved sources are the FAA-approved weather briefing services, the National Weather Service aviation products, and datalink products from an approved vendor. Consumer weather applications and general-purpose forecast websites are not approved sources for a preflight briefing and may not be cited on the risk assessment.

The briefing is not complete until the crew can state the go/no-go picture in one sentence and can name the specific condition that would cause the sortie to be cancelled or diverted. A cadet who can recite the METAR but cannot say what would make them turn around has not briefed the weather.

L.4 Fuel planning

Fuel is planned to the greater of the regulatory requirement and the company requirement. VFR reserves under §91.151 are 30 minutes by day and 45 minutes by night at normal cruise consumption. IFR reserves under §91.167 require fuel to the destination, then to the alternate where one is required, then 45 minutes at normal cruise. The company minimum landing fuel for all operations is one hour at normal cruise consumption, and no sortie is planned to land with less. Fuel on board is verified visually against the gauges and against the fuel receipt; the gauge alone is never the sole source.

L.5 Postflight inspection

The postflight inspection is performed by the PIC after every flight, before the crew leaves the aircraft. It is not an abbreviated walk-around and it is not delegated to line service. Its purpose is to find, while the

evidence is fresh, anything that occurred during the flight.

- Walk the aircraft in the same sequence every time. Look for new damage, dents, skin wrinkles, popped rivets, and paint disturbance.
- Inspect the propeller leading edges and blade tips for nicks and erosion, and the spinner for cracks.
- Check the tires for flat spots and cord exposure, the brakes for leaks, and the wheel wells and gear legs for hydraulic fluid.
- Check for fluid on the belly, at the cowl seams, and beneath the engine. Note the color and location of anything found.
- Inspect the leading edges, radome, and windscreen for bird strike evidence. Any strike is reported per Section B.3 whether or not damage is apparent.
- Verify all antennas, static wicks, and fairings are present and secure.
- Record the Hobbs and tach readings and the fuel remaining.

Anything found is written in the discrepancy log before the crew departs the ramp. The value of a postflight is entirely destroyed if the finding is carried in someone's head to the flight room.

L.6 Securing the aircraft

1. Park in the assigned spot, aligned, with adequate clearance from adjacent aircraft and obstacles.
2. Chock the main wheels fore and aft. Chocks are placed before the tie-downs are considered.
3. Install the control lock and any external gust locks, and confirm the streamers are visible.
4. Tie down all three points with the standard knot; ropes are snug, not slack, and not so tight as to preload the structure.
5. Install pitot cover, static covers where applicable, engine inlet plugs where used, and the windscreen cover for extended parking.
6. Set the parking brake off after chocking, in accordance with the POH, to avoid brake damage from thermal expansion.
7. Master off, magnetos off and key removed, avionics off, fuel selector as required by the POH.
8. Remove all personal equipment, trash, and issued items. Leave the cockpit cleaner than it was found.
9. Lock the doors and return the key to the OSS duty desk key board.
10. Report the aircraft secured to the OSS duty desk with the fuel state and any squawks.

L.7 Same-day logging

All flight time is logged the same day, before formal release. Logging follows §61.51, which sets out what may be logged and by whom: a pilot may log as pilot in command time during which they are the sole manipulator of the controls of an aircraft for which they are rated, or time during which they act as pilot in command with more than one pilot required, and a flight instructor may log as pilot in command time

during which they are acting as an authorized instructor. Dual instruction received is logged with the instructor's signature and certificate number and expiration date.

Entries are made in the personal logbook and in the company record, and the two must agree. Instrument time is logged as actual or simulated with the approach identified by type and airport. Night time is logged against the definition in §1.1 — the time between the end of evening civil twilight and the beginning of morning civil twilight — while night takeoff and landing currency under §61.57(b) uses the different one-hour-after-sunset to one-hour-before-sunrise window. Cadets are taught the distinction explicitly, because conflating the two is one of the most common logbook errors found at checkride.

CAUTION

A logbook is a legal record. Entries reconstructed weeks later from memory are inaccurate, and an inaccurate logbook has ended checkrides and careers. Log on the day, from the flight time record, every time.

SECTION M Aircraft servicing

M.1 Supervision

All servicing of academy aircraft is supervised by a qualified pilot or by maintenance personnel. A cadet may supervise fueling of a piston single after completing the servicing qualification with the Quartermaster and the Maintenance Controller. A cadet may not supervise turbine fueling, oxygen servicing, or deicing under any circumstance. The person supervising is present at the aircraft for the entire operation; leaving a fueler unattended is prohibited.

M.2 Fuel grades by type

APPROVED FUEL BY AIRCRAFT TYPE

AIRCRAFT	APPROVED FUEL	COLOR	NOZZLE	NEVER USE
Cessna 172	100LL aviation gasoline	Blue	Small-diameter avgas nozzle	Jet-A, diesel, automotive gasoline
Piper Seminole	100LL aviation gasoline	Blue	Small-diameter avgas nozzle	Jet-A, diesel, automotive gasoline
Pilatus PC-12/45 and /47	Jet-A or Jet-A1 with approved additive per AFM	Clear to straw	Large-diameter turbine nozzle	100LL, automotive fuel

WARNING

Misfuelling is a fatal error and it has killed crews in every category of aircraft. A piston engine fuelled with Jet-A will start, will run on residual avgas, and will fail catastrophically during or shortly after takeoff. The supervising pilot must physically read the placard on the fuel truck or pump, physically read the nozzle, confirm the grade aloud with the fueler before a drop is delivered, watch the entire uplift, and sample every tank after fueling. Jet-A in a piston sample smells of kerosene, feels oily between the fingers, evaporates slowly, and leaves a residue. If there is any doubt whatsoever about the grade delivered, the aircraft is grounded and the Maintenance Controller is called. Never resolve a fuel doubt by starting the engine.

Additional fueling requirements:

- The aircraft is not fueled with any person on board and with no engine running.
- The master switch is off and all electrical equipment is off during fueling.
- The quantity uplifted is recorded on FSM-7 with the grade, the truck or pump identifier, and the fueler's name.
- Fuel caps are checked secure by the supervising pilot personally after fueling, and the security of each cap is confirmed again on the walk-around.
- Every tank is sampled after fueling and after any period in which the aircraft has sat with a change in temperature sufficient to condense water. Sample until the fuel is clear, bright, and free of water and sediment.

- Fuel quantity is verified visually at the filler neck against the gauge indication. The gauge is never the sole determination of fuel aboard.

M.3 Grounding and bonding

Static electricity generated by fuel flowing through a hose is sufficient to ignite fuel vapor. Grounding and bonding is mandatory and is completed before the fuel cap is opened:

1. Connect the fuel truck or pump ground cable to the earthing point.
2. Bond the truck or pump to the aircraft using the bonding cable at a designated bonding point — exhaust stack, landing gear leg, or the designated grounding lug. Never bond to a painted surface, an antenna, a static wick, or a control surface.
3. Bond the nozzle to the aircraft before removing the fuel cap.
4. Leave all bonds in place until the cap is replaced and secured.
5. Disconnect in the reverse order.

Fueling is suspended when lightning is observed within 5 nm, and the crew and fueller withdraw from the ramp. Fueling does not resume until 15 minutes after the last observed strike within that radius.

M.4 Oil servicing

Oil is checked before every flight and after every flight. Oil is added only by a qualified person using the grade specified in the POH for the ambient temperature range, from a sealed container, and the quantity added is recorded on FSM-7 and in the discrepancy log.

OIL QUANTITY STANDARDS

AIRCRAFT	MINIMUM FOR DISPATCH	NORMAL OPERATING RANGE	ACTION IF BELOW MINIMUM
Cessna 172	6 qt	6 to 8 qt; 7 qt for extended cross-country	Add to 7 qt and log; if consumption trend is abnormal, call Maintenance Controller
Piper Seminole (each engine)	6 qt	6 to 8 qt per engine, balanced within 1 qt	Add to 7 qt per engine and log; a difference greater than 2 qt between engines is a squawk
Pilatus PC-12	Per AFM dipstick range for the time since shutdown	Per AFM	Turbine oil servicing by maintenance personnel only

Turbine oil and piston oil are never interchanged and the containers are stored separately. Any oil consumption exceeding the trend established for the airframe is reported to the Maintenance Controller even if the quantity remains above the dispatch minimum, because a change in consumption rate is the useful signal, not the absolute quantity.

M.5 Oxygen servicing

Oxygen servicing is performed by maintenance personnel only, is authorized by the Maintenance Controller, and is never performed by a pilot or cadet. Aviator's breathing oxygen is the only permitted product; medical and industrial oxygen contain moisture that can freeze in a regulator at altitude. During any oxygen servicing operation:

- The area is clear of ignition sources, and no fueling occurs simultaneously.
- All hands, tools, fittings, and clothing are free of oil, grease, and petroleum products.
- Valves are opened slowly. Rapid pressurization generates adiabatic heating that can ignite contaminants.
- The system pressure after servicing is recorded on FSM-7 and against the ambient temperature, as indicated pressure varies with temperature.
- Portable cylinder inspection and hydrostatic test dates are verified by the Quartermaster before issue.

M.6 Deicing and contamination

LIMITATION

No academy aircraft may take off with frost, ice, or snow adhering to the wings, control surfaces, propeller, windshield, or powerplant installation. This is a clean-aircraft requirement and it admits no exceptions for a thin layer, for frost that "will blow off," or for a short flight. Polished frost is not permitted.

Contamination is removed by an approved method before flight. For the training singles and the Seminole this normally means hanging the aircraft, allowing the sun to remove frost, or using approved deicing fluid applied by trained personnel. Hot water, scrapers, brooms, and improvised tools are prohibited: they damage surfaces, they leave water that refreezes in control gaps, and they have caused control restrictions.

Where deicing fluid is applied, the Maintenance Controller authorizes the operation, the fluid type and mix are recorded, and the crew is given the application time so that holdover time can be assessed. The training singles and the Seminole are not approved for flight into known icing conditions and are not dispatched into forecast structural icing. The PC-12 is operated in icing conditions only within the AFM envelope, with all ice protection systems serviceable, and only by IPs qualified for icing operations. A pretakeoff contamination check is performed within five minutes of takeoff whenever any deicing has been applied or any precipitation is falling.

M.7 Authorization summary

WHO MAY AUTHORIZE EACH SERVICING OPERATION

OPERATION	MAY BE PERFORMED BY	AUTHORIZED BY	CADET INVOLVEMENT
Piston fueling (100LL)	Qualified fueler, supervised by pilot or qualified cadet	PIC	MAY SUPERVISE

OPERATION	MAY BE PERFORMED BY	AUTHORIZED BY	CADET INVOLVEMENT
Turbine fueling (Jet-A)	Qualified fueler, supervised by IP or maintenance	PIC, IP only	OBSERVE ONLY
Oil addition, piston	Pilot or maintenance	PIC	MAY PERFORM
Oil servicing, turbine	Maintenance personnel only	Maintenance Controller	PROHIBITED
Oxygen servicing	Maintenance personnel only	Maintenance Controller	PROHIBITED
Deicing fluid application	Trained deicing personnel	Maintenance Controller	PROHIBITED
Tire inflation and brake servicing	Maintenance personnel only	Maintenance Controller	PROHIBITED
Battery charging or external power	Maintenance or trained line personnel	Maintenance Controller	OBSERVE ONLY

SECTION N Flight operations

This section is the operational core of the manual. It defines how academy aircraft are flown from start to shutdown. Where a POH/AFM figure differs from a figure in this section, the POH/AFM governs; where this section is more restrictive than the POH/AFM, this section governs.

N.1 Starting

The start is a briefed, disciplined event, not a reflex. Before any start:

- The before-start checklist is completed to the line, challenge–response, with the control lock removal specifically verbalized.
- The area forward, aft, and around the propeller arc is visually checked clear by the PF, who then opens the window or door and calls "CLEAR PROP," waits two seconds, and observes a response or continued clearance before engaging the starter.
- The beacon is on before the start and remains on until shutdown. The beacon is the signal to everyone on the ramp that the aircraft is live.
- Brakes are held and the aircraft is chocked for the first start of the day.
- Starter engagement is limited to the POH duration with the specified cooling interval between attempts. Exceeding starter duty cycle is a squawk.
- Oil pressure must rise into the green within the POH time limit — 30 seconds in normal temperatures, 60 seconds in cold weather for the piston fleet. If it does not, the engine is shut down immediately and the discrepancy is logged.
- For the PC-12, the start is monitored against the AFM ITT and Ng limits with a hand on the condition lever throughout, ready for an immediate abort on a hot or hung start.

After start, the ammeter or load indication, the suction or vacuum indication where fitted, and all engine parameters are checked in the green before the avionics are brought online.

N.2 Use of aircraft lights

Lights are used to be seen. The academy standard exceeds the regulatory minimum in §91.209 deliberately.

EXTERIOR LIGHTING STANDARD

LIGHT	WHEN ON
Beacon / anti-collision	Before engine start until after engine shutdown, day and night, every flight
Navigation / position lights	Sunset to sunrise, and any time the aircraft is moving in reduced visibility; company standard is on for all flights
Strobes	On when entering a runway, off when taxiing in visibility that reflects the strobe back into the cockpit, off in cloud where it induces vertigo

LIGHT	WHEN ON
Landing light	On when entering a runway, on for all operations below 10,000 ft in the terminal area, on for the entire traffic pattern, on for all night operations
Taxi light	On whenever the aircraft is taxiing; off when stopped and holding, as a signal to other traffic that the aircraft is not moving
Recognition / pulse lights, where fitted	On below 10,000 ft, and in the practice area at all times
Interior and instrument lighting	Set for night operations before taxi; a flashlight is immediately accessible

The taxi light convention — on when moving, off when stopped — is used at all times because it gives other aircraft and vehicles an unambiguous indication of the aircraft's state at a hold short line.

N.3 Taxi and taxi speed

The taxi briefing in Section J.7 is delivered before the aircraft moves. During taxi:

- Maximum taxi speed is a normal walking pace in the ramp and congested areas, and 20 kt maximum on open taxiways. Speed in any turn is a walking pace.
- Speed is controlled with power, not by riding the brakes. Brakes are checked for effectiveness immediately after the aircraft begins to roll, and the PF calls "brakes checked."
- Flight controls are positioned for the wind throughout: into the wind when the wind is forward of the wingline, dive away from the wind when it is aft. The PM may be asked to state the correct control position as a teaching item.
- The PM confirms every hold short line aloud and identifies the runway by number before the aircraft approaches the line.
- No aircraft crosses a hold short line without a specific clearance at a towered field, or without a complete visual and radio check plus a self-announced call at a non-towered field.
- If either pilot becomes uncertain of the aircraft's position, the aircraft is stopped and ATC or the chart is consulted. Position uncertainty is resolved stationary.
- The taxi checklist and the before-takeoff checklist are not performed while the aircraft is moving through a complex area; the crew stops in a safe location to complete them if necessary.

N.4 Crosswind and maximum wind limits

The limits below are company limits. They are more restrictive than the maximum demonstrated crosswind for each type, which is a certification data point rather than a limitation. Where a POH figure is more restrictive than the table, the POH governs.

CROSSWIND COMPONENT LIMITS BY TYPE, CONFIGURATION, AND PILOT STATUS (KNOTS)

AIRCRAFT	FLAP SETTING	MAX DEMO XW	DUAL WITH IP	CADET SOLO
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AIRCRAFT	FLAP SETTING	MAX DEMO XW	DUAL WITH IP	CADET SOLO
Cessna 172	Flaps 0 or 10	15	15	10
Cessna 172	Flaps 20	15	12	8
Cessna 172	Flaps 30	15	10	6
Piper Seminole	Flaps 0	17	17	Not authorized
Piper Seminole	Flaps 10 or 25	17	15	Not authorized
Piper Seminole	Single-engine	17	10	Not authorized
Pilatus PC-12	Flaps 15	30	25	Not authorized
Pilatus PC-12	Flaps 30 or 40	30	20	Not authorized

MAXIMUM TOTAL WIND AND ADDITIONAL WIND LIMITS (KNOTS)

CONDITION	CESSNA 172 SOLO	CESSNA 172 DUAL	PIPER SEMINOLE	PILATUS PC-12
Maximum steady surface wind	20	30	35	40
Maximum gust factor (peak minus steady)	8	12	15	15
Maximum tailwind component for takeoff or landing	0	5	5	10
Maximum wind for taxi without wing walker	25	30	35	40
Maximum wind, contaminated or wet runway	Not authorized	20	25	30

Crosswind component is computed from the reported wind and the runway heading and is recorded on the risk assessment. When the reported wind is variable, the most adverse direction within the variable range is used. When a gust is reported, the crosswind is computed against the gust, not the steady state.

N.5 Takeoff

The takeoff briefing in Section J.7 is delivered before entering the runway. Entering the runway is a discrete event: the crew stops at the hold line, completes the lineup items, confirms the approach path is clear visually, confirms the runway identification against the chart and the compass, and only then crosses the line.

- Power is applied smoothly to the takeoff setting. Engine instruments are checked in the green and the PM calls "power set, engine instruments green."
- The PM calls "airspeed alive" as the indicator moves off the peg, then "sixty knots" or the applicable check speed to confirm the two airspeed indications agree.
- The PF maintains centerline with rudder and applies the crosswind aileron correction, reducing it progressively as the ailerons become effective.

- The PM calls "rotate" at VR. The PF rotates smoothly to the initial climb attitude, avoiding both a lazy rotation that extends the ground roll and an abrupt one that risks a tail strike or a premature liftoff.
- The PM calls "positive rate" when the altimeter and the vertical speed indication both show a sustained climb. Gear retraction, where applicable, occurs only on the PF's command after this call.
- Any abnormality before rotation results in the PF calling "ABORT" and executing the rejected takeoff. The decision belongs to the PF, but either pilot may call an unsafe condition.

N.6 Climb and cruise

Initial climb is flown at the briefed speed until obstacle clearance is assured, then at VY or at the cruise climb speed appropriate to the sortie. Engine temperatures are monitored continuously in the climb; the piston fleet is climbed at a speed that provides adequate cooling, and cylinder head temperature approaching the limit is corrected by lowering the nose before it is corrected by reducing power.

Cruise is established with the power set, the mixture leaned per the POH, the fuel selector positioned and the tank-switching interval briefed, and the cruise checklist complete. A cruise check is performed at least every 30 minutes covering engine instruments, fuel state against the plan, position against the flight plan, weather ahead, and the alternate still being viable. The PM logs the fuel state at each check.

N.7 Cruise altitude selection

Cruise altitude is selected for terrain and obstacle clearance first, then for the availability of a glide to a suitable landing area in the single-engine fleet, then for winds and turbulence, then for fuel efficiency. Hemispheric rules under §91.159 for VFR and §91.179 for IFR are applied above 3,000 ft AGL. VFR cruising altitudes are flown at the appropriate odd or even thousand plus 500 ft, and the crew states the applicable altitude aloud when establishing cruise.

The academy minimum cruise altitude for cross-country flight in a single-engine aircraft is 3,000 ft AGL by day and 5,000 ft AGL by night, terrain permitting, so that a forced landing has options. Below those altitudes the crew must be able to state the intended forced-landing area continuously.

N.8 Altitude callouts

The PM makes altitude callouts on every flight. They are not optional and they are not suspended because the PF has the altitude selected on the autopilot.

STANDARD ALTITUDE CALLOUTS

CONDITION	PM CALL AND PF RESPONSE
1,000 ft prior to any assigned or level-off altitude, climbing or descending	PM: "One thousand to level-off, [altitude]." PF: "[Altitude], checked."
100 ft prior to any assigned or level-off altitude	PM: "One hundred to go." PF: "Checked."
Level at the assigned altitude	PM: "Level [altitude], altimeter [setting]." PF: "Checked."

CONDITION	PM CALL AND PF RESPONSE
Transition altitude or level, climbing or descending	PM: "Altimeters, [setting]." Both reset and cross-check; PF: "Set and cross-checked."
1,000 ft above field elevation, descending on approach	PM: "One thousand, [stable / not stable]." PF: "Checked" or "Go around."
500 ft above field elevation, descending on approach	PM: "Five hundred, [stable / not stable]." PF: "Checked" or "Go around."
Approaching minimums on an instrument approach	PM: "Approaching minimums." PF: "Checked."
At minimums	PM: "Minimums, [runway in sight / no contact]." PF: "Landing" or "Go around."

N.9 Airspeed discipline

Target airspeeds are briefed and are flown. Airspeed is the parameter that most directly determines whether an aircraft is safe, and it is the parameter most often allowed to drift while the crew attends to something else.

- The PF states the target speed when establishing each phase: "Target ninety knots."
- Speeds are flown to ± 5 kt in cruise and climb, and to $+10/-5$ kt on final approach with the low side being the hard limit. Never slower than the target on final.
- Maneuvering speed V_A is respected in turbulence and is reduced with weight; the crew computes it for the actual weight rather than quoting the maximum-weight figure.
- Flap and gear limiting speeds are treated as limits, not targets. Configuration changes are commanded by the PF, verified by the PM against the speed, and the PM refuses a configuration command that would exceed a limit: "Speed one hundred fifteen, above flap limit, standing by."
- Stall warning at any time other than the intended touchdown flare or a deliberate training maneuver is an undesired aircraft state. The response is immediate: reduce angle of attack, add power, level the wings, and announce it.

N.10 Holding and procedure turns

Holding is flown to the standard pattern unless a non-standard pattern is depicted or assigned: right turns, one-minute legs at or below 14,000 ft, standard rate turns not exceeding 30° of bank or 3° per second, whichever requires the lesser bank. The entry is determined before reaching the fix using the 70° sector rule, is briefed aloud by the PF, and is confirmed by the PM.

Holding speeds comply with the AIM maximums for the altitude band. Where the aircraft cannot maintain the assigned holding pattern within protected airspace because of wind, the crew advises ATC. Timing begins abeam the fix or wings level, whichever occurs later, and the outbound leg is adjusted for wind so that the inbound leg is the required duration.

Procedure turns are flown within the published distance and on the depicted side of the course. The barbed arrow shows the required side; flying the turn on the wrong side places the aircraft outside protected airspace. Where a hold-in-lieu of procedure turn is depicted, the crew flies the hold pattern entry and may not simply turn inbound. No procedure turn is flown where NoPT is annotated, where radar vectors to final are being provided, or where the crew is established on a published arrival segment that does not require it.

N.11 Descents and planned descent rates

Descents are planned, not improvised. The crew computes the top of descent before beginning it and briefs the descent profile as part of the approach briefing.

- Standard planning is a 3° path, which is approximately 300 ft per nautical mile, and requires a descent rate in feet per minute of roughly five times the groundspeed in knots.
- The distance required in nautical miles is approximately the altitude to lose in thousands of feet multiplied by three, plus an allowance for deceleration.
- Maximum planned descent rate below 3,000 ft AGL is 1,000 fpm. Below 1,000 ft AGL the maximum is 1,000 fpm and any rate exceeding 1,000 fpm below that altitude requires an immediate go-around.
- Piston engines are descended with attention to shock cooling: reduce power in stages, maintain cylinder head temperature within the POH cooling rate, and use airspeed rather than a large power reduction to achieve the descent where practical.
- The PM monitors the descent against the plan and calls any deviation from the computed path exceeding 200 ft.

N.12 The stabilized approach

The stabilized approach concept is the single most effective defense against approach and landing accidents, which account for the largest share of all accidents in every category of operation. An approach is stabilized when all of the following are simultaneously true: the aircraft is on the correct lateral and vertical path; the aircraft is at the target airspeed; the aircraft is in the final landing configuration; power is stabilized at a setting appropriate for the configuration and path; the rate of descent is not more than 1,000 fpm; the aircraft is in trim; and all checklists and briefings are complete.

LIMITATION

The approach must be stabilized — on the correct lateral and vertical path, at the target airspeed, in the final landing configuration, with power stabilized and descent rate not exceeding 1,000 fpm — by

1,000 FT HAT IN INSTRUMENT METEOROLOGICAL CONDITIONS

and by

500 FT HAT IN VISUAL METEOROLOGICAL CONDITIONS

. If the approach is not stabilized at the applicable gate, or if it becomes unstabilized at any point below the gate, an

IMMEDIATE GO-AROUND IS MANDATORY

. No exceptions. No attempt to recover the approach below the gate is authorized, and no IP may authorize continuation.

The PM makes the gate call — "One thousand, stable" or "One thousand, not stable" — from the actual state of the aircraft, not from an expectation that it is about to become stable. "Almost stable" does not exist. The PF's only permitted responses are "Checked" when the call is stable and "Go around" when it is not.

A go-around from the gate is graded as a correct decision and is never graded as a failure of the approach. IPs are specifically instructed to praise the go-around in debrief. The behavior the academy is building is the reflex to abandon a bad approach, and that reflex is destroyed by any suggestion that going around was an inconvenience.

N.13 Deviation callouts

The PM calls every deviation exceeding the tolerances below. The PF acknowledges every call and corrects. A deviation that is called twice without correction is a go-around.

MANDATORY DEVIATION CALLOUTS — CONDITION, PM CALL, PF RESPONSE

CONDITION	PM CALL & PF RESPONSE
Airspeed more than 10 kt above or below target	PM: "Airspeed, [value] high" or "Airspeed, [value] low." PF: "Correcting" and adjusts power and attitude to regain target.
Altitude more than 100 ft from assigned or from the profile	PM: "Altitude, [value] high" or "Altitude, [value] low." PF: "Correcting" and returns to the assigned altitude.
Glideslope or glidepath deviation more than 1 dot	PM: "Glideslope, one dot high" or "Glideslope, one dot low." PF: "Correcting" and adjusts vertical path.
Localizer or final approach course deviation more than ½ dot	PM: "Localizer, half a dot left" or "Localizer, half a dot right." PF: "Correcting" and re-intercepts course.
Rate of descent exceeding 1,000 fpm below 1,000 ft AGL	PM: "Sink rate." PF: "Correcting" and reduces the rate immediately, or calls "Go around."
Any deviation called twice without correction	PM: "Unstable — go around." PF: "Going around" and executes the go-around immediately.

CONDITION	PM CALL & PF RESPONSE
Bank angle exceeding 30° below 1,000 ft AGL	PM: "Bank angle." PF: "Correcting" and rolls to wings level or a normal bank.
Configuration not matching the briefed profile point	PM: "Configuration — [item]." PF: confirms and calls for the correct configuration.

N.14 The go-around

The go-around is the standard escape from every approach that is not working. It is briefed on every approach and it is flown as a maneuver, not as a surprise.

- Any crewmember may call a go-around at any time, and the PF executes it immediately and without discussion. The reason is debriefed on the ground, never in the air. There is no circumstance in which the PF may query, delay, or decline a go-around call.
- The call is the single phrase "Go around," and the PF responds "Going around" while simultaneously applying power.
- The sequence is power, pitch, configuration, in that order. Maximum available power, pitch to the go-around attitude, flaps to the go-around setting on the PF's command, positive rate confirmed by the PM, gear up on the PF's command, then flaps clean at a safe altitude and speed.
- The PM confirms "positive rate," reads the configuration changes as they are made, advises ATC once the aircraft is climbing and controlled, and sets up for the missed approach or the next attempt.
- A go-around initiated after touchdown — a bailed landing — is flown only if the remaining runway is adequate; otherwise the landing is continued and maximum braking is applied.
- Fuel state is reassessed before a second approach is attempted. Two go-arounds at the same field require a diversion decision unless conditions have demonstrably improved.

N.15 VREF and landing callouts

VREF is computed for the actual landing weight and configuration from the POH/AFM and is stated in the approach briefing. Gust additive is half the gust factor, applied to VREF, and is never more than 10 kt total additive; the additive is bled off in the flare.

LANDING PHASE CALLOUTS

POINT	CALL AND RESPONSE
Final configuration set	PF: "Landing flaps, VREF [value] plus [additive]." PM: "Flaps [setting], speed checks."
500 ft HAT, visual conditions	PM: "Five hundred, stable" or "not stable." PF: "Checked" or "Go around."
Runway environment in sight	PM: "Runway in sight, [clock position]." PF: "Landing."
100 ft above touchdown	PM: "One hundred."

POINT	CALL AND RESPONSE
50 ft above touchdown	PM: "Fifty."
Speed at or below VREF minus 5 in the flare	PM: "Speed." PF: adds power or goes around.
Touchdown	PM: "Down." PF: maintains centerline and begins the rollout sequence.

N.16 Landing and rollout

The landing is flown to a defined touchdown zone. In the training singles that zone is the first third of the runway and no further than 1,000 ft beyond the threshold on a runway of typical length; a touchdown beyond the zone is a go-around, decided before the flare, not after.

- Crosswind landings are flown with the wing-low sideslip method to touchdown, with the upwind main touching first, the aircraft aligned with the centerline, and no drift at touchdown. Crabbing to touchdown is not taught in the training fleet.
- After touchdown the aileron is progressively increased into the wind and the elevator is positioned per the POH to hold the nosewheel light or to plant it as appropriate to the type.
- Directional control is maintained with rudder, then with differential braking only if the rudder is insufficient. Braking begins after the nosewheel is on the ground and the aircraft is tracking straight.
- No configuration change — flaps, cowl flaps, trim — is made during the landing roll. Retracting flaps on rollout is how gear-up landings happen in retractable aircraft, and the prohibition is applied to the whole fleet so that the habit is uniform.
- The aircraft is decelerated to a safe taxi speed before the turnoff, and the turnoff is made at a walking pace.
- The after-landing checklist is run only after the aircraft is completely clear of the runway and stopped or taxiing in a safe area, never while crossing the hold line.

N.17 Parking

The aircraft is taxied to the assigned spot at a walking pace with the taxi light on. Marshalling signals, where a marshaller is present, are followed; where a signal is not understood the aircraft is stopped. The aircraft is aligned in the spot with adequate clearance from adjacent aircraft, wing walkers are used in any congested area or in winds above the limits in N.4, and the parking brake is set only long enough for the chocks to be placed. Shutdown follows the POH sequence exactly, with the mixture or condition lever used as the primary shutdown means and the magnetos or ignition confirmed off and the key removed. Nothing is unfastened in the cabin until the propeller has stopped.

N.18 End of shift

The last crew on each tail secures the aircraft in accordance with Section L.6, completes the postflight, writes any discrepancy, and reports the aircraft secured to the OSS duty desk with the fuel state. All paperwork is routed per Section E.7. Equipment is returned to the Quartermaster. Crews then return to the

flight room and remain until formal release, which normally occurs at 1800 and which begins the twelve-hour crew rest period.

Any crew that has not landed by 1700 notifies the OSS duty desk with an estimate. Any crew that will land after 1800 requires the Director of Operations' concurrence and the duty period extension is recorded on FSM-1, with the following day's show time adjusted to preserve the minimum twelve hours of rest.

APPENDIX 1 Cessna 172 standard operating procedures

1.1 Checklist philosophy

The Cessna 172 is operated using the **flow-then-checklist** method. The pilot performs a memorized physical flow through the cockpit in a fixed geographic pattern — left to right, top to bottom, or panel to console depending on the phase — setting each item to its required position. The checklist is then read as a verification that the flow was complete. The checklist is not a to-do list to be worked through item by item in flight; it is a confirmation that work already done was done correctly.

Checklists are run **challenge-response**. The PM challenges by reading the item; the PF confirms the item by physically touching or pointing to the control and stating the response. Both pilots look at the item being verified. A checklist read while neither pilot looks at anything has verified nothing.

Exception: emergency checklist memory items are performed from memory, immediately, without reference to the card, and are then confirmed against the printed checklist when the aircraft is under control and time permits.

1.2 Division of duties

DIVISION OF DUTIES, C172

PILOT FLYING	PILOT MONITORING
Flies the aircraft; controls flight path, airspeed, and attitude	Monitors the flight path and calls deviations per Section N.13
Commands all configuration changes by name	Makes the configuration change and confirms it aloud
Commands checklists by name	Reads the checklist and records completion
Sets and confirms the primary navigation source	Sets radios and navigation aids as directed and confirms them
Communicates with ATC in the terminal environment where workload permits	Communicates with ATC enroute and makes company calls
Makes the go/no-go and continue/go-around decisions	Makes the gate calls and may call a go-around at any time
Handles the aircraft in an emergency and directs the response	Runs the checklist, times, navigates, and communicates in an emergency

1.3 Target speeds and configuration

CESSNA 172 TARGET SPEEDS (KIAS, AT OR NEAR MAXIMUM GROSS WEIGHT)

PHASE	CONFIGURATION	TARGET SPEED	NOTE
Rotate	Flaps 0	55	Normal takeoff
Short field rotate	Flaps 10	51	Then VX to clear the obstacle

PHASE	CONFIGURATION	TARGET SPEED	NOTE
Best angle of climb, VX	Flaps 0	62	Obstacle clearance only
Best rate of climb, VY	Flaps 0	74	Standard initial climb
Cruise climb	Flaps 0	80	Better cooling and visibility over the nose
Best glide	Flaps 0	68	Reduce for weight below gross
Maneuvering, VA at 2,550 lb	Flaps 0	105	Reduces with weight
Downwind	Flaps 0 to 10	90	Pattern altitude, power set
Base	Flaps 20	80	Descending, trimmed
Final	Flaps 30	65	VREF, plus half the gust factor
Short field final	Flaps 30	61	Precise speed control essential
Go-around initial	Flaps 20 then 10	60	Then VY once climbing
Maximum flap extension, VFE 10°	—	110	Limitation
Maximum flap extension, VFE beyond 10°	—	85	Limitation

Figures are the academy standard for the C172S at or near gross weight and are superseded by the POH for the specific airframe and by any airframe-specific supplement. Speeds are reduced for weight in accordance with the POH where a reduction is published.

1.4 Standard callouts

C172 STANDARD CALLOUTS BY PHASE

EVENT	CALL AND RESPONSE
Power set on takeoff roll	PF: "Full power set." PM: "Power set, engine instruments green."
Airspeed indicating	PM: "Airspeed alive."
Rotation speed	PM: "Rotate."
Climb established	PM: "Positive rate." PF: "Climb power, best rate."
400 ft AGL	PM: "Four hundred." PF: "Flaps up, after-takeoff checklist."
1,000 ft AGL	PM: "One thousand, [obstacles clear]." PF: "Cruise climb."
Abeam the touchdown point, downwind	PF: "Abeam, power fifteen hundred, flaps ten." PM: "Flaps ten, speed checks."
Turning base	PF: "Base, flaps twenty, eighty knots." PM: "Flaps twenty."

EVENT	CALL AND RESPONSE
Turning final	PF: "Final, flaps thirty, sixty-five knots, landing checklist." PM: "Flaps thirty, landing checklist complete."
500 ft on final	PM: "Five hundred, stable" or "not stable." PF: "Checked" or "Go around."
Over the threshold	PM: "Fifty, threshold."
Touchdown	PM: "Down." PF: "Centerline, braking."
Clear of the runway	PF: "Clear of the active, after-landing checklist."

1.5 Traffic pattern profile

STANDARD TRAFFIC PATTERN, C172

LEG	ALTITUDE	POWER	FLAPS	SPEED
Upwind / initial climb	Climbing to TPA	Full	Up by 400 ft	74
Crosswind (turn at 700 ft AGL minimum)	Climbing	Full	Up	74
Downwind	TPA, normally 1,000 ft AGL	2,300 RPM	Up	90
Abeam the touchdown point	TPA	1,500 RPM	10°	85
Base (turn at 45° past the touchdown point)	Descending, 500 ft AGL at midpoint	1,500 RPM	20°	80
Final	3° path to the touchdown zone	As required	30°	65

Pattern turns do not exceed 30° of bank. The downwind is flown at a distance from which the runway can be reached with the engine at idle — approximately half to three-quarters of a mile — so that an engine failure in the pattern is survivable. Cadets are taught to judge that distance by the sight picture of the runway relative to the wing strut, and are then required to demonstrate the power-off approach from abeam.

1.6 Rejected takeoff

The takeoff is rejected for any of the following before rotation: an engine indication outside limits, an unexpected sound or vibration, a loss of directional control, an airspeed indication that fails to agree or fails to develop, a door or window opening, an occupant emergency, a runway incursion, or any condition that gives either pilot reason to doubt that the aircraft will fly. After rotation the takeoff is not rejected; the aircraft is flown.

1. PF calls "ABORT, ABORT" and closes the throttle fully.
2. Apply maximum braking consistent with directional control, holding the yoke aft to increase weight on the mains.
3. Maintain centerline with rudder; use differential braking only as required.

4. PM confirms throttle closed, advises ATC or broadcasts on CTAF, and stands by.
5. Bring the aircraft to a full stop, clear the runway if able, and assess before making any further decision.
6. If the aircraft will not stop on the remaining runway, mixture idle cutoff, fuel selector off, master off, and steer between obstacles.

1.7 Go-around

1. PF: "Going around" — full power applied smoothly.
2. Carburetor heat off where fitted; pitch to the go-around attitude for 60 KIAS.
3. Flaps to 20° immediately on the PF's command.
4. Establish a positive rate of climb; PM calls "**Positive rate.**"
5. Flaps to 10°, accelerate to VY.
6. Flaps up at a safe altitude, not below 300 ft AGL, and only after the aircraft is climbing at VY.
7. PM advises ATC or broadcasts on CTAF; the crew re-enters the pattern or flies the missed approach.

CAUTION

Retracting full flaps in one movement at low speed in the C172 produces a pronounced sink. Flap retraction is staged — 30 to 20, 20 to 10, then clean — with the aircraft accelerating and climbing between each stage.

1.8 Engine failure after takeoff

MEMORY ITEMS — ENGINE FAILURE AFTER TAKEOFF, C172

1. Pitch — lower the nose immediately to best glide, 68 KIAS.
2. Landing area — select, straight ahead, within 30° either side of the nose.
3. Flaps — as required for the landing area.
4. Mixture — idle cutoff.
5. Fuel selector — off.
6. Ignition — off.
7. Master — off (after flaps are set).
8. Doors — unlatch before touchdown.
9. Touchdown — wings level, minimum speed, full stall attitude.

WARNING

Do not attempt to turn back to the departure runway following an engine failure at low altitude. The turn-back requires a course reversal of more than 180 degrees, is flown with a steep bank at low airspeed with the nose low, and consumes far more altitude than pilots estimate. The academy turn-back altitude for the C172 is 1,000 ft AGL, and even above that altitude a turn back is attempted only when the pilot has briefed it, has the field in sight, and has assessed the wind. Below 1,000 ft AGL, land ahead.

Above 1,000 ft AGL with time available, the engine failure is handled with the restart flow first — fuel selector both, mixture rich, carburetor heat on, ignition both, primer in and locked, master and alternator checked — while continuously flying best glide toward the chosen landing area. The landing area is selected before the restart attempt, never after it fails.

APPENDIX 2 Piper Seminole standard operating procedures

2.1 The multi-engine principle

A light twin with one engine failed is not a twin with half the performance; it is an aircraft with a large asymmetric yawing moment, a drag penalty, and a single-engine climb performance that may be negative at high weight, high altitude, or high temperature. The second engine buys options, not immunity. Every procedure in this appendix exists to convert an engine failure from a control problem into a performance problem, and then to manage the performance problem honestly.

2.2 Critical speeds

PIPER SEMINOLE PA-44-180 CRITICAL SPEEDS (KIAS)

SPEED	VALUE	DEFINITION AND SIGNIFICANCE
V_{MC}	56	Minimum control speed with the critical engine inoperative. Below this speed, directional control cannot be maintained with the operating engine at takeoff power. Marked by the red radial line.
V_{SSE}	82	Safe intentional one-engine-inoperative speed. The minimum speed at which an engine may be intentionally rendered inoperative for training. Never demonstrate an engine cut below this speed.
V_{XSE}	82	Best angle of climb, single engine. Used only to clear an obstacle; provides the most altitude per unit of horizontal distance.
V_{YSE}	88	Best rate of climb, single engine. The blue radial line. The speed that yields the best climb — or the least rate of descent — with one engine inoperative.
V_R	75	Rotation speed for a normal takeoff.
V_{SO}	55	Stall speed, landing configuration, at maximum gross weight.
V_A	135	Maneuvering speed at maximum gross weight; reduces with weight.
V_{FE}	111	Maximum flap extension speed.
V_{LO} / V_{LE}	140	Maximum landing gear operating and extended speed.
V_{NO}	169	Maximum structural cruising speed; top of the green arc.
V_{NE}	202	Never exceed speed; the red line.

Figures are the academy standard for the PA-44-180 at maximum gross weight and are superseded by the POH for the specific airframe. Cadets must be able to recite all of these cold at any time; they are examined at the formal brief as EP of the day material.

2.3 Engine failure below V_{YSE}

MEMORY ITEMS — ENGINE FAILURE BELOW V_{YSE} (88 KIAS)

1. Both throttles — closed.
2. Land straight ahead — do not attempt to continue the takeoff.
3. Maintain directional control with rudder and braking.
4. Both mixtures — idle cutoff.
5. Both fuel selectors — off.
6. Both magnetos — off.
7. Master — off.
8. Evacuate.

Below V_{YSE} the aircraft cannot climb on one engine and may not be controllable at all as speed decays toward V_{MC} . The only correct action is to close both throttles and land. Attempting to continue the takeoff below blue line is the classic light-twin fatal accident, and it is fatal because the pilot traded a survivable off-airport landing under control for a V_{MC} rollover.

2.4 Engine failure above V_{YSE}

MEMORY ITEMS — ENGINE FAILURE ABOVE V_{YSE} (88 KIAS) WITH GEAR RETRACTED

1. Maintain directional control — rudder into the operating engine, 3 to 5 degrees of bank toward the operating engine.
2. Airspeed — V_{YSE} , 88 KIAS, blue line.
3. Mixtures — full rich.
4. Propellers — full forward.
5. Throttles — full forward.
6. Flaps — up.
7. Gear — up.
8. Identify — "dead foot, dead engine."
9. Verify — retard the throttle of the suspected failed engine; no change in performance confirms.
10. Feather — the propeller of the failed engine.
11. Declare an emergency and land as soon as practical.

WARNING

The verify step is never skipped and never rushed. Feathering the operating engine converts a manageable single-engine situation into a glider. Retard the throttle slowly, observe the result, and only feather after the identification is positively confirmed. Below 500 ft AGL the verify step is performed but the crew must accept that a landing is likely regardless; the priority is control and a survivable touchdown, not a feathered propeller.

The 3 to 5 degrees of bank toward the operating engine is not optional. Wings-level flight with an asymmetric thrust condition requires a substantial sideslip, which increases drag, raises V_{MC} , and can cost the entire single-engine climb capability. The correct picture is the ball approximately one-half width toward the operating engine with a small bank angle. Cadets are taught to fly to the bank angle and the rudder pressure, not to the ball alone.

2.5 Single-engine approach and landing

SINGLE-ENGINE APPROACH PROFILE, PA-44-180

POINT	CONFIGURATION	SPEED	NOTES
Downwind or intercepting final	Gear up, flaps up	88	V_{YSE} ; propeller feathered; landing assured before any configuration change
Landing assured	Gear down	88	Gear is extended only when the runway can be made with the gear down and no further climb required
Final, landing assured	Flaps 10°	88	Small increments only
Short final, runway made	Flaps 25°	85	Only if the runway is unquestionably made
Threshold	Landing configuration	80	Do not allow the speed below 85 until the landing is assured

The governing rule is that the approach is flown at V_{YSE} in the clean configuration until the landing is guaranteed, and configuration is then added in increments that can be tolerated. Every configuration change increases drag and reduces the aircraft's ability to recover the approach. The single-engine approach is flown slightly high and slightly fast rather than low and slow, because altitude and speed can be dissipated and cannot be regenerated.

2.6 Driftdown and the driftdown decision

Following an engine failure at altitude, the aircraft will not maintain its cruising level. The **driftdown** is the controlled descent at V_{YSE} with maximum continuous power on the operating engine, the failed propeller feathered, and the aircraft cleanly configured, flown to the single-engine service ceiling for the actual weight and conditions.

The **driftdown decision** is the crew's determination of where the aircraft will be when it reaches that ceiling, and whether that place is acceptable. It is made immediately after the engine is secured and it consists of four questions:

1. What is the single-engine service ceiling at the current weight, altitude, and temperature? In the Seminole at typical training weights this is frequently below 5,000 ft density altitude, and can be at or near sea level on a hot day at gross weight.
2. What terrain, obstacles, and minimum safe altitudes lie along the intended track between here and each candidate airport?
3. Given the driftdown rate and the groundspeed, which airports are reachable before the aircraft descends below the minimum safe altitude for the route to them?
4. Of the reachable airports, which has the best combination of runway length, approach available, weather, and services?

The decision is made once, promptly, and is announced. Reducing weight is not an option in this aircraft, so the only variables available to the crew are heading and the choice of destination. A driftdown flown toward rising terrain because it was the original destination is a decision, and it is the wrong one. The crew declares an emergency, advises ATC of the inability to maintain altitude, and requests direct routing and terrain information.

2.7 Single-engine go-around

WARNING

A single-engine go-around in the Piper Seminole is prohibited. Once the aircraft is configured for landing with an engine inoperative and the descent below approach minimums or below 500 ft AGL has begun, the aircraft does not have the performance to arrest the descent, retract the gear and flaps, accelerate to V_{YSE} , and climb. Attempting it places the aircraft in the low-speed, high-power, high-drag condition in which V_{MC} loss of control occurs.

THE LANDING WILL BE COMPLETED.

If the runway is not going to work, that determination is made high and early, while the aircraft is still clean and at V_{YSE} , and a different runway or a different airport is selected then. Once committed, land — on the remaining runway, on the overrun, or off the end under control, but land.

This prohibition drives the entire single-engine approach profile in 2.5. Because there is no go-around available, the crew must be certain of the landing before any configuration change, and must fly the approach with a margin that makes the landing certain. IPs demonstrate a simulated single-engine go-around only at a safe altitude with both engines available, never on an actual approach, and the demonstration is used to show the cadet how little performance is there.

APPENDIX 3 Pilatus PC-12

3.1 Governing document

Procedures for the Pilatus PC-12/45 and PC-12/47 are published in full in the PC-12 Training Program. That volume contains the flows, the expanded checklists, the standard callouts, the limitations, the performance data, and the memory items for the type, together with the ground and simulator syllabus, and it is the controlling document for all PC-12 operations. This appendix does not duplicate it and must not be used as a substitute for it. Nothing in this appendix modifies the AFM, which governs absolutely.

PC-12 operations are conducted only by pilots who hold a current PC-12 qualification, who have completed the type ground school and simulator program, and who are within their twelve-month line check. The /45 and the /47 differ in maximum weights, performance, and in some avionics configurations; a pilot qualified on one is not automatically qualified on the other, and the applicable AFM supplement for the specific serial number and configuration must be aboard and reviewed.

3.2 Crew concept

The PC-12 is certificated for single-pilot operation, and it is operated at this academy as a two-crew aircraft throughout the training program. The PF and PM roles defined in the front matter of this manual apply without modification: the PF flies and commands, the PM checklists, monitors, communicates, and calls deviations. The single-pilot certification is treated as an authorization, not as a reason to reduce crew discipline. A cadet transitioning to the PC-12 must arrive with the crew habits built in the C172 and the Seminole, because the turbine environment is faster and less forgiving of ambiguity, not more.

Task allocation is briefed before every sortie and reallocated explicitly if it changes in flight. Automation modes are announced by the PF and verified aloud by the PM against the flight mode annunciator, as required by Section I.5. Sterile cockpit discipline under Section J.6 applies with particular emphasis: the PC-12 accelerates and climbs quickly enough that a distraction of a few seconds produces a significant deviation.

3.3 Confirmation protocol for critical controls

Turbine aircraft contain controls that will end the flight if operated on the wrong system or at the wrong time — the condition lever, the fuel cutoff, the emergency power lever, fuel pumps and crossfeed, the propeller controls, generator and battery switches, and any fire handle or extinguisher control. The academy applies a mandatory three-part confirmation protocol to every one of these, in normal operations and in emergencies alike.

CONFIRMATION PROTOCOL FOR CRITICAL CONTROLS

STEP	ACTION
1. Acting pilot states and touches	States the intended action in full and places a hand on the control without moving it : "Confirm — condition lever, number one, to fuel cutoff."

STEP	ACTION
2. Other pilot verifies	Looks directly at the control, verifies it is the correct one for the intended action, and calls " Confirmed. " If it is not correct, calls " Stop " and identifies the correct control.
3. Acting pilot moves	Only after "Confirmed" is the control moved. The acting pilot states the completed action: "Condition lever, number one, fuel cutoff."

The protocol is never abbreviated because the situation is urgent. It costs approximately three seconds, and the failures it prevents — shutting down a functioning system, cutting off the wrong fuel supply, discharging an extinguisher into the wrong bay — are unrecoverable. An acting pilot who moves a critical control before hearing "Confirmed" has committed a standardization deviation and it is debriefed as such.

3.4 Emergency checklist discipline

PC-12 emergency and abnormal checklists are run **challenge–response–response**. The PM challenges by reading the item; the acting pilot responds by identifying and stating the control and its required position; the PM responds again by verifying the action was taken and stating the resulting condition. The third element is the part most often lost under stress, and it is the part that catches the error.

Memory items applicable to the type are published in the PC-12 Training Program and are executed from memory, immediately, before any checklist is opened. They are then confirmed against the printed checklist once the aircraft is under control. Memory items are examined at the formal brief as EP of the day material and must be recited verbatim.

NOTE

The order of priority in every PC-12 abnormal or emergency is unchanged from the rest of the fleet: **aviate**, **navigate**, **communicate**, and only then **administrate**. No checklist is opened until the aircraft is under control on a safe flight path. The PF's first job in a turbine emergency is exactly the same as it was on the first sortie in a Cessna 172 — fly the airplane.