Gliding Australia Training Manual

Trainer Guide

Unit 3

Pre-Flight Preparation

AIM

The aim of this unit is to:

- develop the skills and knowledge required to obtain and interpret required pre-flight information; and

- to perform the outside and cockpit pre take-off checks.

A basic understanding of the parachute is also required if these are used.

The student must be able to apply standard checks reliably and thoroughly, by rote or by reference to a checklist, without undue delay.

PREREQUISITE UNITS

There are no prerequisite units for this GPC unit.

COMPLEMENTARY UNITS

There are no complementary units for this GPC unit.

COMPETENCY ELEMENTS AND PERFORMANCE STANDARDS

ELEMENT	PERFORMANCE STANDARDS

1. Access required information before flight.	● **Describe:**
	
	  ○ The information available from:
	     ● Airfield Procedures and radio requirements.
	     ● The Maintenance Release.
	     ● Glider Placards.
	     ● Meteorological resources.
	  ○ How this information applies to the flight.

2. Use the aircraft documentation.	● **Describe:**
	
	  ○ the Weight and Balance requirement for the flight given the flight crew weights.
	
	● **For a powered sailplane calculate:**
	
	  ○ Take-off and landing performance.
	  ○ Forward and cross wind limits.
	  ○ Take-off distance.
	
	● **Demonstrate:**
	
	  ○ application of ballast as required for the current aircrew configuration for a safe flight. This will be different in most types.

3. Inspect the aircraft	● **Describe:**
	
	  ○ the difference between a pre-flight and a daily inspection (DI).
	
	● **Demonstrate:**
	
	  ○ a pre-flight inspection, explaining key observations.

4. Identify and operate basic instruments	● **Describe:**
	
	  ○ Basic instruments:
	     ● ASI, Altimeter, Variometer, Radio, FLARM.
	  ○ Need for looking outside the cockpit and not fixated on instruments.
	
	● **Demonstrate:**
	
	  ○ Switching on and off the glider's electrical system.
	  ○ Setting the altimeter.
	  ○ Switching on the radio and setting volume / squelch.
	  ○ Operating / avoiding the Press-to Transmit (PTT) switch.

5. Confirm Cockpit Safety	● **Describe:**
	
	  o The canopy operation & canopy jettison system.
	  o Ventilation controls and their operation.
	
	● **Demonstrate:**
	
	  o Entering and exiting the cockpit safely.
	  o Adjusting the seating position to give adequate lookout and easy access to all controls.
	  o Fitting, adjusting and unfastening the seat harness.
	  o How to hold the control column avoiding the PTT.
	  o Handover/Takeover of control procedures.

6. Conduct Pre-Flight Checks	● **Describe:**
	
	  o The need for a sterile environment during pre-launch checks.
	  o The action to take if a check is interrupted.
	
	● **Demonstrate:**
	
	  o Completion of pre-flight checks accurately, audibly and in a timely manner.
	  o Conduct of the pre-boarding checklist using the approved GFA checklist.
	  o Application of a sterile launch point environment.
	  o Calculation and fitting of ballast and adjustment of seating.
	  o Conduct of the in-cockpit Pre-Flight Check using the approved GFA checklist.
	  o Required in-cockpit adjustments.
	  o Prioritisation of critical safety tasks including airspace cleared for launch.

7. Prepare and fit the Parachute (when required)	● **Describe:**
	
	  o The steps to deploy the parachute in an emergency.
	  o How to deploy the parachute.
	
	● **Demonstrate:**
	
	  o How to confirm serviceability of the parachute.
	  o Identification and adjustment of all straps to fit the parachute securely.
	  o Adjustment of straps to correct tension.

KEY MESSAGES

- Be familiar with pre-flight briefing material.

- A sterile environment is required when checks are conducted. If the external or pre-flight checks are interrupted or distraction occurs, start again.

- Follow approved checklists and call all checks out loud.

LESSON PLANNING AND CONDUCT

Notes:

1. If the pilot uses English as a Second Language (ESL) then limitations in language skill and translation will often become evident, as it requires precise and technical use of language. The Club CFI and Training Panel should be advised of any communication difficulties or impediments to understanding. The student may need to be coached in aviation English and to fly with trainers with second language familiarity. The importance of slow, concise, clear post-flight debriefings with these students is much higher than for English speakers. (We sometimes have the reverse experience when flying overseas – remember those insights.)

2. Safety is paramount so ensure that the student knows that these set procedures are very important not only for themselves but for others as well.

Classroom Briefing

Pre- Flight information

- o Explain to the student how to obtain basic weather and aeronautical information before flying to determine which runway to use and ensure that the weather and other conditions are suitable for our type of operation.
- o Describe the local airfield layout, training areas, airspace boundaries, circuit directions and safe landing areas in case of launch failures. Briefly introduce the radio calls to be given.

Pre-flight inspection

- o Describe the difference between the DI and the pre-flight inspection.
- o Verify that the aircraft is approved for flight via reference to the maintenance release.
- o Complete an internal and external check of aircraft.
- o Identify all defects or damage to aircraft.
- o Report to, and seek advice from, qualified personnel to determine the action required in relation to any identified defects or damage.

The following elements should be delivered and assessed in a parked glider prior to any flight exercise.

Aircraft documentation

- o Show and explain the use of the Maintenance Release.
- o Show where to find crosswind limit information for the aircraft.
- o Show and explain the Aircraft Placards for airspeed limits, weight and weak-link requirements.
- o For powered sailplanes how to find take-off performance and calculate take-off distance.

Cockpit Safety

- o Wearing and operation of a parachute (if required).
- o Entering and exiting the cockpit safely (with the parachute if fitted).

- o Demonstrate adjusting seating position to give adequate lookout and effective access to all controls.
- o Demonstrate operation of the harness:
  - Fastening, securing, and releasing.
  - Ensuring all straps secure pre-flight and not unfastened until post flight.
  - Harness waist straps fitted low on hips.
  - Shoulder straps fitting firmly.
- o Identify canopy release and operation (including how to lift, close and secure), canopy jettison procedure.
- o Identify ventilation controls and their operation.
- o Demonstrate how to hold the control column avoiding the PTT. Use a relaxed grip, 2-3 fingers and thumb, rest arm on leg if possible.
- o Demonstrate the transfer of control procedures and their importance:
  - "You have control" / "Your Aircraft".
  - "I have Control" / "My Aircraft".

Basic Instruments

- o Identify each basic instrument (ASI, Altimeter, Variometer, Radio) and its purpose.
- o Identify other instruments where fitted (FLARM, G meter) and its purpose.
- o Brief student not to adjust anything until trained in its operation.
- o Demonstrate the process for:
  - Switching on electrical power
  - Setting the altimeter
  - Turning on radio and selecting frequencies and squelch level.
  - Operating the PTT switch.
- o Describe how to avoid inadvertent operation of the Press-to-Transmit (PTT).
- o Ensure regular scan with eyes out the cockpit as much as possible NOT on the instruments.

Pre-boarding Checks

- o Identify checks that can only be conducted outside the aircraft using the standard checklist.
- o Demonstrate how to calculate and fit required ballast.
- o Demonstrate ABCD checks.

Pre-Take Off Checks

- o Explain that the reason for this check is to ensure the glider and crew are in all respects ready for flight and that the use of a standard check ensures that nothing is omitted.
- o Emphasise that the checks are important ways to mitigate threats & errors.
- o The student should normally participate in the pre-boarding and cockpit checks before every flight and when able to perform the checks without assistance they should be made to recite them aloud from the checklist so that the trainer knows that the check has been completed satisfactorily.
- o This also gives valuable insights into the student's assessment of conditions, launch failure options and contingency planning.
- o As proficiency is gained in learning the cockpit check, introduce the Limitations Placards to the student. These placards cover the limiting speeds and weight and balance of the glider.

- o Errors in completing these checks are often associated with the following:
  - Haste - rushing the checks may reduce diligence and cause key items to be missed.
  - Poor launch point discipline (also referred to as launch point hygiene) may cause distractions, hence errors and omissions.
  - Poor cockpit discipline and focus (also referred to as cockpit hygiene or sterile cockpit) may cause distractions, leading to errors and omissions.
  - Student and trainer fatigue may cause loss of concentration, lapses and errors.
  - Misunderstanding or misreading placards and calculation charts.
  - Cockpit clutter or poor harness fitting may impede access and freedom of movement.
- o Describe the Golden Rule: Practice a sterile environment that is – "if a check is interrupted, restart the check at the beginning." Note also that calling checks out loud is a habit we wish to instil even when flying solo. Proper verification is more likely when the check is recited clearly.
- o Ensure that critical safety checks required, such as Airspace Clear For Launch, are conducted effectively.

Parachute Familiarisation

It is preferable that this section is carried out by an experienced "Jumper" if the Club has one. Explain that it is quite normal for pilots to wear parachutes and the reason why.

- o Using one of the Club's parachutes and manual (where available) explain each part of the parachute. It then should be worn by the student with the trainer assisting in ensuring the correct fitting.
- o It should be emphasised in which direction to pull the "D" ring and its location in an emergency.
- o Always get into and out of the glider wearing the parachute.

For powered sailplanes

- o The checklist and run-up requirements are more extensive and complex, so more time must be allowed.
- o Each powered sailplane is different so the trainer must be current on type and ensure the student has a sound understanding of the engine and propeller operation before starting.
- o Higher noise levels when engine running will necessitate a headset or earphones.

PRE-FLIGHT BRIEFING

This is a big subject so adequate time should be taken. Normal ground instruction should not exceed 40 minutes periods to obtain maximum retention by the student. It's recommended that these sections are broken down as follows:

- o **Pre-flight briefing**: providing the student has seen the Club's morning operations briefing then up to a 40-minute period should follow enlarging on the weather, NOTAM and airfield information.
- o **Parachute Introduction**: 40-minute period should cover this section. May be carried out as a class briefing where multiple students are present. Can be trained by a suitable competent member.
- o **Pre-Take off checks**: Carried out in the glider with the trainer alongside the student indicating controls and switches. The student should be given some time in the cockpit by themselves to practice the checklist if an aircraft is available.

This may be carried out over a series of flights with repetition to support the learning.

FLIGHT EXERCISES

There are no flight exercises for this GPC Unit.

COMMON PROBLEMS

Problem	Probable Cause
● Student is slow or misses key checklist items.	Lack of knowledge or recollection. Encourage the use of written checklist cards (ensuring they do not become FOD). Student makes assumptions to cover lack of knowledge.
● Student misses key check items.	Student forgets or misplaced check items. Encourage use of mnemonics and/or written checklists.

THREAT AND ERROR MANAGEMENT

Common Threats and Errors include:

- Student's lack of knowledge - emphasise the need to seek advice rather than assume.
- Being rushed by others into completing checks quickly.
- Whilst the student should not waste time, the efficiency of the checks is paramount - so use checklists.
- Distractions in the launch point area and poor launch point discipline.
- Identification of and access to controls.
- Failure to confirm clear visibility from cockpit.

TRAINING MATERIALS AND REFERENCES

- GPC Pilot Guide Unit 3.
- GFA MOSP Part 2 Operations Appendix 1. GFA standard checks.
- NAIPS Internet Service.
- Bureau of Meteorology, Windy weather Website.