



Australian Pacific Aviation

APA Flight Training Guide



Guidance notes on the procedures for learning to fly with **Australian Pacific Aviation**
at **Heck Field**, Jacobs Well, Queensland



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Introduction

These notes have been prepared for new pilots learning to fly with the Australian Pacific Aviation (APA) the only RA-Aus approved flying school at Heck Field, Jacobs Well, Queensland.

These notes supplement the text books and other material recommended to new students who are learning to fly with Australian Pacific Aviation. While every care has been taken to ensure the accuracy of the contents, the notes do not replace the relevant aviation rules and regulations. As the rules and regulations frequently change, you are advised to check the current rules and regulations before acting on the contents of these notes.

APA started operating out of Heck Field in 2006 and is the only approved flying school at Heck Field. The flying school offers flight training from ab-initio to full pilot certificate and endorsements. The flying school also offers Flight Reviews and general refresher training.

Nick Sigley is the Chief Flying Instructor and owner of APA. Nick has a commercial pilot licence, instrument and instructor rating. Nick has over 6,000 hours of flight experience and has a reputation for providing excellent flight training. Nick recently retired from the Board of RA-Aus to concentrate on the flying school. Nick has one part time instructor assisting him.

Bill Ginn is the junior part time instructor. Bill is a retired Cathay Pacific Boeing 747 Captain who is a professional electrical engineer, university lecturer in computer science, aviation and safety, and instructor pilot. Bill has over 12,000 hours flying experience and has considerable experience in bush flying in Australia and Papua New Guinea. Bill runs pilot theory courses for student pilots as well as refresher courses for existing pilots.

Change Record

Changes to this edition of the manual are shown with yellow highlighter. Previous changes have been incorporated into this edition.



General disclaimer

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Learning to Fly

The following table outlines the two routes that you can follow to become a nonprofessional pilot:

	Recreation Path	Private Pilot Path
Administered by	Recreation Aviation Australia (RA-Aus) - under the authority given to it by the Civil Aviation Safety Authority (CASA)	CASA
Training provided by	RA-Aus approved flying schools	CASA approved flying schools
Type of license	Pilot Certificate	Pilot Licence
Aircraft you can fly	RA-Aus registered aircraft only	VH registered aircraft only
Medical	Driver's license equivalent	Class 2 Aircrew Medical

Flying experience gained while learning to fly recreation aircraft can be counted towards a Private Pilot Licence (PPL) and holders of a PPL can get flying experience credit towards a pilot certificate.

rd's a pilot certificate.

The reason why most people learn to fly via the Recreation route is the lower cost of training and also the lower cost to own or hire an aircraft fly once you have your pilot certificate.

As a Pilot Certificate holder, there are restrictions placed on the types of aircraft and types of flying you can engage in. These restrictions are outlined later in this document. Most people flying for recreation purposes find that the restrictions do not limit the type of flying that they wish to pursue. For example, you can fly a recreation aircraft almost anywhere in Australia with a Pilot Certificate, but not in controlled airspace. A PPL holder with appropriate training can fly in controlled airspace.

Fun and Recreation

Most people learn to fly an aeroplane because of the pleasure obtained by safely operating a machine that leaves the ground and that can go anywhere. Once you master the basic flying skills you can progress to navigating your way around the country. No other form of transport provides the perspective and opportunities provided by flying in a light aircraft.



Hire and Reward

Flying for recreation with either a PPL or Pilot certificate means you pay the cost of the aircraft and any associated fees such as landing fees. You are not allowed to receive remuneration for flying a recreation aircraft unless you are a flying instructor operating within an approved flying school.

Getting started on your journey to the freedom of flight

Some suggested steps to achieve your goal are:

Step	Outcome	Est. Cost
Trial Instruction Flight	Assess your interest in learning to fly	\$250
Join Australian Pacific Aviation	Access to training and aircraft hire	\$0
Join RA-Aus	Covered by insurance and also are eligible to learn to fly RA-Aus registered aircraft	\$180
Join Jacobs Well Sports Flying Club	Eligible to use the airfield and Club's facilities as a student pilot	\$150

Stages of training

The stages of training that you will progress through on the journey to having the “freedom of the skies” include:

- Successfully manipulate the controls under supervision
- Go solo in the circuit area
- Go solo in the training area
- Carry a passenger with you within 25nm of departure
- Carry a passenger on a cross country more than 25nm from departure

After additional training, you may also add endorsements to your Pilot Certificate such as retractable undercarriage, constant speed propellers, high speed or instructor rating. These endorsements are listed in detail in the RA-Aus Operations Manual.



Preparing for a Flight Lesson

Having taken the decision to learn to fly, you need to start thinking like an aviator. Aviators think about the fun that they are going to have when they go flying, but they also think about safety issues. Thinking about safety means thinking about the risks and thinking about how to minimize the risks.

We are taught from a very early age to “stop (and think), look and listen” before crossing a road. This is safety training. I doubt that there are many adults who don’t automatically use these basic steps to minimize the risk of crossing a road.

Aviation has its own set of safety rules that you will learn to perform automatically before you go flying and while you are flying. Eventually these safety rules will become part of your subconscious thinking in just the same way as the rules for crossing a road.

Aviation has a different set of risks than most other activities that we engage in during everyday life. You need to learn what these risks are and how to minimize them. Unlike jumping in a car and going somewhere, before we jump in a plane and takeoff, we need to carefully consider risk factors such as your health, the weather, the airfields and other traffic.

This applies when you are flying solo or when you are with an instructor. Learn not to rely on your instructor. Safety is everyone’s responsibility. From day one, start thinking safety and even if you are with an instructor, treat safety as if you were flying solo.

Some important safety considerations are outlined below.

Health

The minimum health requirements to be pilot in command of an RA-Aus aircraft are given in Section 2.01 of the RA-Aus Operations Manual. Basically you are required to be medically fit to the standard required to drive a car. This is a self-assessment process if you have a current driver’s license.

If you don’t have a current driver’s licence, you will need to get a medical certificate from a doctor stating that you satisfy the medical requirements for the issue of an Australian driver’s licence.

If you develop any form of illness, you are required to consult a doctor before driving or flying.



Be very wary of flying with a cold. A cold will affect your ability to think clearly and also affect your ability to manipulate controls correctly. A cold may also affect your sense of balance, oxygen supply to your body and you may have trouble clearing your ears which can be very painful. Before every flight, consider your “margin of safety”. Any illness will affect your margin of safety.

Apart from driver’s licence medical standard, there are legal restrictions on flying under the influence of drugs, including alcohol.

Drug	Consideration
Alcohol	The requirement is for a blood alcohol limit of less than 0.02.
Drugs	Drug limits set out according to the Australian standard for urine and saliva testing.

Note these limits apply from the moment you engage in an aviation activity, including flight preparation or aircraft maintenance of any kind and refueling.

Be warned, CASA conducts random drugs testing of anyone engaging in aviation activities. While CASA is the “policeman” in aviation, the other “policemen” come in the form of lawyers and insurance companies. If you fail to comply with the regulations, CASA may fine you or take your licence/pilot certificate off you, but the lawyers and insurance companies have may have a much bigger “stick” if you end up in Court.

A good personal rule is not to drink alcohol within 24 hours of engaging in aviation and if you are taking any medication, seek the advice from your doctor before flying.

Be aware that smokers can experience the effects of loss of oxygen (hypoxia) at a very low altitude. Smoking and flying are not good companions.

Physiological

Flying safely means concentrating on the task. To concentrate on the task you need to be nourished, rested and have completed the toilet business.

To get the most out of your lesson, you need to be at the appointed location at least 30 minutes before the scheduled time of the lesson. During those 30 minutes, visit the toilet, have something to drink, check the flying school notice book and review the previous lesson.



Once you have completed a few lessons you will be expected to check the documentation, prepare the aircraft and checking the amount of fuel in the tanks before the start of a lesson.

If you arrive at the time when the flight lesson is to start, you won't have time to have a drink or read the notice board or visit the toilet and you will feel rushed and uncomfortable during the lesson. This will affect your learning. It also reduces your margin of safety.

Arrive early and be well prepared for the flight lesson.

The Pilot Toolbox

You also need basic equipment and documentation for every flight. This can be thought of as a set of "tools" for the job. The table below lists some basic "tools" that you need when you are going flying. You will develop your own list of "tools", but this is a good starting point. This list covers what you need for the early part of your training. When you start your cross country training you will also need navigation equipment.

Toolbox

Tools	Description
Glasses	If you wear glasses make sure you have sunglasses as well as normal glasses. Carry a second set of glasses. Carry glasses that enable you to read in flight as well as see distant objects. Clear vision is vital in aviation.
Hat	You need to wear a hat in the aircraft to reduce the glare on your eyes as well as protect your skin from the sun. A "baseball" hat is a good choice as it provides protection of your face and allows you to put on a headset.
Pen	Carry a "one handed pen". Ask your instructor if you are unsure of what a one handed pen is.
Notebook	Carry small notebook with you, preferably one that can fit in your shirt pocket. This notebook can be used for taking notes during the lesson, recording details for your logbook (date, aircraft, instructor, lesson topic) and information pertinent to your flight (fuel on board, departure time, engine hour meter reading). The notebook is also useful for revising limits for the aircraft (airspeeds, power settings, radio calls etc.) as you drive to the airport for your lesson.
Map	You need a current map of the area where you will be operating. The most useful map is Visual Terminal Chart for Brisbane and the Gold Coast. There should be a



Tools	Description
	map in the aircraft, but you will need your own copy to review at home and make notes on during your training.
Mud Map	A mud map is a sheet of paper on which you write information relevant to the area where you will be operating. For example, if you go out to the training area, it is a good idea to have a sketch of the area where you will be operating, relevant radio frequencies that you will use, details of any airfields that you might need in an emergency (altitude of the field, runway directions, CTAF frequency etc.). As your instructor to draw a sample mud map for you. As you gain experience, you will develop your own list of things to put on the mud map.
Sick Bag	Even the most experienced pilots may have started their flying training feeling nauseous. While there may be a sick bag in the aircraft, carry your own. Even if you don't need it, you may need to give it to your passenger.
Clothing	<p>You need to be comfortable in the aircraft so wear appropriate clothing. In particular a shirt with 2 pockets is a good idea as it provides good storage for bits of paper, pens, rulers, calculators, snack bar etc.</p> <p>If you are sensitive to the sun, wear long pants and long sleeve shirts.</p> <p>Wear shoes when traveling in any aircraft. If there is an accident, you may have to use your feet to get out of the aircraft and that might involve kicking holes in plastic windows, or walking over sharp or hot objects.</p>
Weather	<p>Before every flight, check the weather. Bring a forecast with you to the lesson and be prepared to give your instructor a briefing on the forecast weather.</p> <p>An aviation weather forecast can be obtained from NAIPS, a facility on the Airservices Australia website. National Aeronautical Information Processing System (NAIPS) is a multi-function, computerized, aeronautical information system.</p> <p>The Airservices Australia website is at http://www.airservices.com.au . Select the "Pilot Briefing" button on the top right corner of the page.</p> <p>If you don't have a log in password, you can select the "register for User ID and Password" option below the log in fields.</p> <p>Anyone can have a User ID and Password and every pilot needs one. It takes about 3 days for Airservices Australia to send you a User ID and password.</p> <p>Ask your instructor if you have problems getting into the NAIPs.</p>



Tools	Description
	<p>Once logged into NAIPS you can obtain weather information as well as a range of other information services provided by Airservices Australia.</p>
NOTAM	<p>A NOTAM is a notice issued by CASA to aviators and covers items such as the status of airfields, navigation facilities as well as changes to airspace and rules.</p> <p>NOTAM are available from the NAIPS website as described in the Weather item above.</p> <p>Bring a printout of NOTAM relevant to your flight to every lesson. Your instructor will help you understand the hieroglyphics used in NOTAM.</p>



Flight Lesson Format

A flight lesson consists of a pre-flight briefing, flight training and debriefing.

Arrive at the airfield about 30 minutes before the start of a lesson. This gives you time to attend to your physiological needs, review the aircraft documentation and carry out a daily inspection of the aircraft before the start of the flight briefing.

Pre-flight briefing (average 15 minutes)

Pre-flight briefings take place in the classroom and are usually given to one or more students who are up to the same stage of training. The briefing will cover the following basic topics:

- Aim of the lesson
- Revision of previous lesson
- Revision of theory behind the lesson learning modules
- How to achieve the desired outcome of each learning module
- How the lesson will be conducted (who does what, when and where)
- Safety considerations

The preflight briefings will be longer than 15 minutes for the first few lessons. As you become more experienced the pre-flight briefing time will reduce to about 15 minutes.

When booking a lesson, your instructor will nominate a lesson start time that takes into account the length of briefing needed for the lesson. The start time for the lesson is the start of the briefing, not the time when you arrive at the airfield.

The preflight briefing is not a substitute for ground school or self-study. The pre-flight briefing does not cover enough theory for you to be able to pass the theory exams. Details of ground school options are given later in this manual.

During the pre-flight briefing you can expect to be asked questions from the previous flight and any homework that was set during the previous lesson.





Flight Exercise (45 to 70 minutes)

The flight exercise starts when the engine starts. The instruction fee is calculated on the engine operating hours.

The air exercise is where you accumulate knowledge about operating the aircraft and the environment in which you fly. You will keep adding skills and knowledge required for solo and the pilot certificate check flight as you progress through your training.

It takes time to adjust to the new environment so be patient with yourself. The only critic in the aircraft is yourself. Your instructor's role is to help you get to the required level of competence in a safe manner.

Flight debriefing (5-10 minutes)

The flight debriefing session will briefly review the flight exercise and outline what the next lesson will cover.

Homework

You will learn much quicker if during the evening after the lesson you review what you did right, what you did wrong and what you would have preferred to do. This is an essential part of your learning and will enable you to progress quickly through your training.

Theory Examinations

Preflight briefings cover about 20% of the required knowledge you need to pass the theory examinations. The other 80% of the knowledge you need can be obtained by self-study or by enrolling in a ground school course.

Self-Study

You can learn the theory by reading a text book. It takes time to learn that way and you need to be used to self-study.

The alternative is to enroll in a theory course such as the one described below.



FlySafe Ground School

FlySafe is an aviation training organization run by Bill Ginn. Bill developed the pilot theory course over a number of years teaching aviation subjects to pilots at Griffith University, Airline Academy of Australia and Australian Pacific Aviation.

The course is delivered on-line using audio visual presentations and revision quizzes. The modules are done in your own time. Weekly on-line tutorial sessions and fortnightly classroom sessions provide the face to face teaching that is so important in aviation.

FlySafe Ground School

Key feature	Description
Location	Self-study at home and fortnightly Pilot Shed meetings at the Jacobs Well Sports Flying Club.
Fee includes	On-line access to course notes, on-line tutorial questions, examination supervision and review, fortnightly Sunday morning revision sessions in the FlySafe hangar and weekly on-line group discussion.
Fee exclusion	The fee does not cover meals or any equipment
Instructors	All instructors are RA-Aus approved theory and flight instructors who are or were former commercial pilots with extensive experience in aviation
Effort Required	The course requires about 60 hours of your time. Most people spread this over about 15 weeks, studying roughly 4 hours a week and attending the fortnightly revision classes.
Examinations	Students can sit the RA-Aus examinations after achieving about 90% in the on-line quizzes.
Dates	The course runs continuously and you can enroll at any time.
Enrolment	Send an email to bill.flysafe@gmail.com to request an enrolment form

The modules and time allocated in the course are given in the table below.



FlySafe Theory Course Contents

Module	Estimated Study Time	Description
Air Law	4 hours	Covers licensing, rules of the air, signals, procedures and documents
Aerodynamics	8 hours	Lift model, aircraft design features
Engines and propellers	8 hours	Types of engines, engine operation, fuel, oil, maintenance, propeller design and operation
Aircraft Systems	8 hours	Electrical, brakes, flight controls, electronics
Aircraft Radio	4 hours	Radio theory, standard radio calls
Meteorology	12 hours	Weather systems, weather phenomena, forecasts
Navigation	12 hours	Charts, regulations, visual navigation techniques, GPS
Human Factors	8 hours	Physiology, psychology, drugs, threat and error management
Total	60 hours	



Theory Examinations

RA-Aus Examinations

Before you can be issued with a Pilot Certificate, you need to pass examinations in the following subjects as detailed in Section 3.05 of the RA-Aus Operations Manual:

- Air Law
- Radio Operator Certificate
- Basic Aeronautical Knowledge
- Human Factors

If you wish to fly further than 50 nm from the airfield you will need a cross country endorsement. A pass in the Navigation/Meteorology examination is required for the cross country endorsement.

FlySafe Quizzes

A set of quizzes have been prepared to help you prepare for each phase of your flight training. These on-line quizzes are available on the FlySafe website and are free of charge to APA student pilots

These Quizzes are open book and cover the topics shown below. The quizzes are intended to provide guided learning covering the aircraft and practical issues related to flying. You should aim for 100% in these quizzes. If you can't find an answer, ask your instructor for advice.

Quiz	When	Covers
Aircraft technical	Before first solo in the aircraft	Vital technical information about the aircraft and systems
Pre Solo	Before flying solo	Practical aspects of flying solo in the circuit
Pre Area Solo	Before flying solo in the training area	Practical aspects of flying away from the airfield circuit area.
Pre Navigation Solo	Before your first solo navigation exercise	Practical aspects of flying to another airfield



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Completing these quizzes will save you time and training costs. The flight progress checks and your pilot certificate flight test will include questions from the quizzes. If you don't know the answer to the questions you could fail your flight test, so be prepared by completing the on-line quizzes.

PPL Exams

You will have to pass theory exams set by a general aviation flying school and the CASA PPL if you intend to obtain your private pilot licence. You will be well prepared to sit the examinations set by the general aviation flying and CASA if you complete the FlySafe ground school.

Integrating flight training and ground school

Most people prefer to combine the flight training with the theory training. You will find it easier to understand the theory concepts if you apply them through flight training.

The most efficient part-time learning programme is to study the theory course over a 15 week period and have at least one flight training session per week. Any less than 1 week per fortnight is inefficient as you tend to forget what you did in the last flight lesson if it was more than 2 weeks ago.

You should complete all the theory exams by the time you reach the practical standard required for the pilot certificate flight test.



Flight Procedures

Flying an aeroplane is a high-risk activity unless you are self-disciplined and follow procedures that have been shown to reduce the risk associated with flying. Aviation accident statistics show that lack of self-discipline is an important contributor to aircraft accidents.

Following proven procedures such as checklists will help you fly the aircraft safely. Your instructor will help you put such procedures into effect.

Checklists

Checklists come in two forms, ones that are read from a piece of paper and others that must be memorized. A simple example of a read out checklist is the before start checklist. An example of a memory item checklist is the “engine failure in flight” checklist. You have plenty of time to get the before start checklist out and read it, but you may not have time to get a written checklist out if the engine fails just after takeoff.

Written checklists also come in two versions. One type is like a recipe where you follow the instructions one at a time. The other is used as a check after you have done everything to see that you have done everything you should do. The recipe version is used when you are learning a procedure. The “do and check” check list is used when you can perform the procedure from memory.

Checklists should be read as a challenge and response. For example, the before start checklist contains the following item:

Preflight inspection – complete

You should at all times read out the first part of the check “**Preflight Inspection**”, pause while you consider the response. Ask yourself “did I complete that task?” if so, give the correct response “**complete**” when you are sure that you have completed the action.

If you haven’t completed the action, stop the checklist, and go and do whatever it is the checklist asks you to do.

You can get your passenger if you have one, to read each checklist item and wait for your response or you can do it yourself.

This challenge and response process should be carried out for all written checklists.



Checklists may contain several sections. Each section should be completed before proceeding to the next section.

Read out the checklist section title before you start the checklist so that your mind is focused on the items that the section refers to. For example:

“Before start checklist”

When you finish each section of the checklist, terminate that part of the checklist with the title of the section and the word “complete”. For example:

“Before start checklist complete”

The word “complete” confirms in your mind that you have in fact completed that part of the checklist. It is easy to forget to do a checklist when there are multiple checklists and interruptions that are common when flying.

Memory Checklists

Most in flight checklists are done from memory. “In flight” in this case includes the moment you enter the runway for takeoff, so the lineup checklist is really a memory item checklist.

The method of memorizing these checklists is much the same as learning any string of words such as poetry, language or even jokes.

Write the memory item checklists of a piece of paper and carry it in your pocket. Don’t leave it in your pocket for your wife or mother to read and wash, pull it out anytime you have a spare moment and revise the checklist. You will be surprised how short a time it takes to memorize the checklists.

While you are memorizing the checklists, think about what controls you are manipulating as well as the situation that requires the checklist and how you are going to deal with the situation.

For example, if you are memorizing the engine failure after takeoff checklist, think of yourself in the aircraft with the engine at full power, maintaining the track and correct pitch, monitoring the instruments and looking out for other traffic, in other words you are busy and there is that nice loud hum from the engine. Now think about an abrupt change of engine noise, the nose dropping and speed falling off rapidly.

Ask yourself what are you going to do first (fly the aircraft) and when will you get around to doing the engine failure checklist?



If you think through the scenario and see how the checklist fits into the scenario, then you will be much more prepared and able to recall the checklist should the unfortunate event happen.

If you just memorize the checklist without mentally fitting it into the scenario, the chances are you will not be able to recall the checklist when the fertilizer hits the fan.



Pre-Departure Checklist Sequence

Checklist	Type	Description
<i>Flight Preparation</i>	Memory	Review weather and route details. Check self and equipment needed for flight. Complete your flight plan. Inspect maintenance documentation and flight records. Check your own recency. Complete these tasks before the briefing and proceeding to the aircraft.
Before External inspection checklist See attachment	Do then read out	Done before you do an exterior inspection of the aircraft. This checklist ensures that the aircraft is safe for carrying out an external preflight inspection. Items on this checklist include turning the ignition switches off, undoing control locks, putting the brakes on and inspecting the aircraft interior and safety equipment.
<i>Preflight Inspection</i>	Memory	Conduct a preflight exterior inspection. When complete sign the daily inspection record.
<i>Passenger Briefing</i>	Memory	The passenger briefing starts outside the aircraft explaining to the passenger relevant safety issues. Show your passenger: <ul style="list-style-type: none"> • Entry and exit procedures • How to put the safety harness on and off • How to operate the door latch Enter the aircraft yourself and discuss the following: <ul style="list-style-type: none"> • Keeping clear of all the controls • Use of headsets
Cockpit Preparation Checklist	Do then Read	Prepares the cockpit for flight. Setup the instruments, set the fuel and prepare your passenger for flight.
Start Checklist	Do then read	Prepares the engine for starting.
<i>Start the engine</i>		
After Start Checklist	Do then Read	Cleans up the aircraft after the start procedure
<i>Taxi the aircraft to the holding point</i>		
Before Takeoff Checklist	Do then Read	Prepares the aircraft for flight. Recheck the trim, flight controls, hatches and harness. Also test the engine ignition and idle ability. Set the fuel and flap for takeoff. Finally a before takeoff self briefing covering safety and procedural issues for the takeoff.
<i>Review lineup, climb, cruise and landing procedures</i>		



Airborne Checklist Sequence

Checklist	Type	Description
<i>After takeoff</i>	Memory	BEF – Brakes on then off, Engine parameters OK, Flaps up at 300'
<i>Approach</i>	Memory (see details below)	FIRAB: Approaching the airfield, at about 3nm, set the fuel for landing, check the aircraft instruments, set the altimeter subscale for local QNH, brief yourself on the airfield and circuit joining plan, make a radio call.
<i>Landing</i>	Memory see details below)	BEFH: Brakes off, Engine parameters OK, Fuel fullest tank selected, Hatches and Harness secure Downwind, set up the aircraft and passengers for landing

After Landing Checklist

Checklist	Type	Description
After Landing Checklist	Do then Read	After the parking brake is set, complete the after landing checklist.

Modifying a Checklist

There will be times when you will want to modify part of a checklist. For example, the Before Takeoff Checklist states

Fuel.....Right Tank ON

However, it would be safer to select the left tank if the right tank is nearly empty but the left is nearly full (if they are both nearly empty then you might want to reconsider the flight).

The method of dealing with changes to the checklist is to state

“Fuel, *non standard* left tank ON, right tank OFF”

By making that statement it will clarify in your mind what you are doing and also let the instructor know what you are doing.



Scan Checklist (Memory) - LAI - Lookout, Attitude, Instruments

As mentioned above, flying requires self discipline. It also requires spare capacity to perform tasks in addition to the normal flying activities. Some flying tasks need to become second nature as is the case when you drive a car or ride a bicycle.

You are discouraged from distractions such as chatting, playing loud music, eating or drinking when you start learning to drive a car,. However, as you gain experience a lot of the driving tasks become second nature so that you have some spare capacity to do other non essential tasks.

We use acronyms to help memorize the steps needed to achieve a task. One of the first you will learn is the LAI acronym.

The LAI Scan	
Lookout	<p>Scan the sky ahead and to either side. This is done by looking to one side of the windshield scanning across to the other side, then scanning over the top of the windshield for aircraft above you. Most text books have a good description of the scanning process.</p> <p>Be aware that our eyes tend to focus at approximately 1m when you look at a featureless horizon. This means you will not see an aircraft on a collision course unless you actively make yourself focus in the distance.</p> <p>Also be aware that in order for you to see an object, especially a small object, you need to stop your eye scanning and focus in that direction. So the scan of the outside world is a series of motions of the eye stopping regularly to “look” in the distance for an object. The recommended text books describe this process in more detail</p>
Attitude	<p>Look at the position of the engine cowling with the horizon to see if the wings are level (straight and level flight) or at the correct angle (turning) and the correct pitch is set for the phase of flight that you are engaged in.</p>
Instruments	<p>Scan the appropriate instruments. Normally this will be the airspeed indicator and altimeter. Skidding or slipping can be detected by the movement of the nose relative to some distant object, or by looking at the skid indicator.</p>

Your instructor will demonstrate the LAI scan and also be checking to see if are also using the LAI scan. Don't forget to listen to the radio as well while you are doing the LAI scan.



In Flight Periodic Checklist - FEEL – Fuel, Electrical, Engine, Location

This mental checklist is performed every 15 minutes or so. If you perform this checklist on the ¼ hour points of the clock then you won't forget to do it.

FEEL Check	
Fuel	<p>Check the fuel gauges and the fuel totalizer if fitted. Check for quantity and whether the fuel is in balance (equal amount in each tank). When you check the gauges for quantity, do a mental check for how much longer the engine will run on that amount of fuel. Deduct a minimum reserve of say 45 minutes to get the latest time by which you need to be on the ground.</p> <p>Consider turning one fuel tank off and leaving the other one on if the fuel is not balanced,. Think very carefully before you do this and never do it in the circuit area or at low level where you won't have time to recover should you accidentally turn both tanks off (you won't be the first to experience the silence that follows turning both tanks off in flight).</p>
Electrical	<p>The engine of the training aircraft won't stop, if the electrical system fails, but you will lose your communications, navigation, engine and fuel indicating systems.</p> <p>You need to know how to detect an electrical failure and what to do if it happens to you.</p> <p>The procedure for dealing with an electrical failure is discussed in the aircraft handbook. You should be familiar with that procedure and follow it should you detect and electrical failure.</p>
Engine	<p>Most pilots regard the engine as a failure about to happen. If you complete a flight without an engine failure then that is a bonus for the day. So be prepared and know what to look for if an engine is showing signs of distress.</p> <p>Your scan should include the most important engine parameters such as oil pressure, oil temperature and cylinder head temperature as well as any other parameters mentioned in the aircraft Flight Manual.</p>
Location	<p>This is often referred to as “situation awareness”. Situation Awareness includes where you are, where are you going and where can you go if something goes wrong. As you gain experience, you will build a mental model of your “patch”, or the area where you operate. You will learn to recognize the landscape and</p>



FEEL Check

features so that you are mentally aware of where you are and where the airfields or landing areas are should you need to make a hasty return to terra firma.



Non-Normal Maneuver Checklist - HASELL, height, aircraft, safety, engine, lookout and location

This checklist is performed any time you are going to carry out a non normal maneuver such as steep turns or stalls.

HASELL check	
Height	Check that you have sufficient height above the terrain. For a stall you should be at least 3,500' above the ground below you, clear of cloud and in a designated training area.
Aircraft	Check the aircraft configuration for the activity. If you are doing steep turns with flap down, prepare the aircraft by lowering the flaps at a safe speed.
Safety	Check for loose items the aircraft, check that everything is secure including your seatbelt/harness.
Engine	Check the engine parameters including the fuel configuration and quantity.
Lookout	Carry out a scan of the sky and perform a turn of the aircraft through 360 degrees to check what traffic or obstacles are in front of you, what is likely to be behind and underneath you when you perform the planned activity.
Location	<p>Check that you are in a safe location for the planned activity and you know where you can go if you have a problem such as an engine failure.</p> <p>Although not specifically mentioned as an item, you would normally make a radio call to let other traffic know where you are and your intentions.</p>



Approach Checklist - FIRAB – fuel, instruments, radio, altimeter, briefing

This checklist is performed each time you return to the circuit area from a cross country or training session in the training area. It is normally done about 10 nm from the airfield and helps you prepare for the landing. If you are landing at an uncontrolled airfield it is a good idea to do this checklist at the 10 nm inbound radio call.

FIRAB Checklist	
Fuel	Check the quantity and balance. Select the fuel configuration as described in the Flight Manual for landing the aircraft.
Instruments	Check the engine instruments as per the Flight Manual
Radio	Make an inbound radio call at 10nm from the field or as otherwise specified for that airfield.
Altimeter	Set the current QNH on your altimeter for the destination airfield. Procedures for obtaining the QNH will be discussed in the briefings.
Briefing	This is an important mental preparation for landing. When with an instructor you will say what your intentions are for joining the circuit and carrying out the approach and landing. This briefing will include the airfield status, any charts or airfield maps you will be using, the wind direction, characteristics of the runway or strip to be used, special procedures to be used (e.g. right circuits) and expected traffic.



Landing Checklist - BEFH

The following mental checklist is appropriate to a simple aircraft such as the Foxbat. If you fly a more complex aircraft then you should use a landing checklist that is appropriate to the aircraft and environment where you operate.

The checklist is normally done as soon as the aircraft is stabilized downwind.

BEFH Checklist	
Brakes	Check that the brakes are off and that there is brake pressure if you apply force on the brake pedal/handle. If there isn't any force on the pedal/handle this may indicate that you have a problem with the brake system and should take appropriate steps to deal with this (see the Flight Manual).
Engine	Look at each of the engine instruments to see if the temperatures and pressures are within limits. If not then you should carry out any non normal checklists and consider landing as soon as possible
Fuel	Check that you have selected the tank with most fuel. If the fuel level in both tanks is less than about $\frac{1}{4}$, select both tanks ON. If the aircraft has an electric fuel pump, turn it on for landing.
Hatches and harness	Do a thorough check of the doors and windows to make sure they are closed. Do an even more thorough check of your passenger and your own seatbelts/harness to make sure it is tight and secure

Handing over control Procedure

It doesn't matter if you are flying a two crew Boeing 747 or a two crew Foxbat, it has to be absolutely clear at all times who is flying the aircraft and who is responsible for deciding what needs to be done.

A ship cannot safely proceed with two captains or no captains, there has to be one captain. Ask any cook about how many cooks can be in charge of the kitchen at the same time. The same rule applies to flying an aircraft.



Your early flying training will be with an instructor who will initially fly the aircraft and then hand-over control to you. The standard calls for this activity are:

Instructor: ***You have control***

The student then places his hands on the controls ready to take control of the aircraft

Student: ***I have control***

The instructor removes his hands from the controls and the student then controls the aircraft.

This process of handing over and taking over removes any doubt about who is flying the aircraft. The roles are reversed if the student is handing back control to the instructor. The handing over of control is usually preceded by a simple courteous warning such as “***would you please take control!***” or “***when ready you have control!***”. The response would be “***I have control!***”.

When you have control, you are responsible for all aspects of managing the flight. This includes calling for checklists as required (assuming your passenger is a participating crew member such as an instructor), navigating the aircraft, avoiding traffic and monitoring the status of the aircraft (fuel, engine temperatures and pressures).

You can expect some variation on the words used, but the sequence and actions remain the same. The most common alternative to “***you have control!***” is “***your aircraft!***” and “***my aircraft!***”.



Flight Training Program

Pilot Certificate Minimum Experience

The minimum hours of flight training required by RA-Aus for the issue of a pilot certificate is 15 hours dual instruction and 5 hours solo under supervision instruction.

Normal Progression

Very few students starting with no prior aviation experience are able to reach the required standard in 20 flying hours. The normal time to reach the required standard is about 30 flying hours.

Your rate of progress will depend on

- How often you have a lesson
- How much theory you have learned
- How well prepared you are for each flight
- How kind the elements are to you on the day.

Your instructor will consider many factors when deciding if you are ready to fly solo. He or she will only allow you to go solo if he thinks it is safe to do so.

A rough idea of the lesson sequence and times for a perfect student and perfect conditions is shown below.



Code	Description	Briefing hrs:min		Flight Time hrs:min			Accumulated Experience		
		Lon g	Pre- Flight	Dual	Sol o	Groun d	Dual	Sol o	
PC1	Air Experience		0:20	0:30					
PC 2	Effect of Controls	0:45	0:15	0:50		1:00	0:50		
PC 3	Straight and Level	0:45	0:15	0:50		2:00	1:40		
PC 4	Medium Level Turns	0:45	0:15	0:50		3:00	2:30		
PC 5	Climb and descend	0:45	0:15	1:00		4:00	3:30		
PC 6	Descending 2	0:45	0:15	1:00		5:00	4:30		
PC 7	Stalling clean, turn, spin recovery	0:45	0:15	1:00		6:00	5:30		
PC 8	Stalling flap, approach, departure		0:15	1:00		6:15	6:30		
PC 9	Circuits and Go Around	0:45	0:15	1:00		7:15	7:30		
PC 10	Circuits + RTO + EFATO		0:20	1:00		7:35	8:30		
	Pre Solo Exam	6:00				13:35			
PC 10	Circuits Flapless and Glide		0:20	1:00		13:55	9:30		
	*BAK Exam	12:00				25:55			
	*Air Law Exam	3:00				28:55			
PC 11	Pre Solo Check		0:15	1:00	:20	26:10	10:30	:20	
PC 12	Circuits Revision		0:15	:50	:45	26:25	11:20	1:05	
PC 13	Crosswind T/O and Land		0:15	1:00	1:00	26:40	12:20	2:05	
PC 14	Steep Turns + STOL		0:15	1:00	:45	26:55	13:20	2:50	
PC 15	Precautionary Landing	0:45	0:15	1:00	1:00	27:55	14:20	3:50	
PC 16	Pre Test Revision		0:15	:40	1:10	28:10	15:00	5:00	
PC 17	Certificate Test		0:15	1:00		28:25	16:00	5:00	



Flight Test

You will be given a flight test at the following stages of your training:

- Before going solo
- Before going solo in the area
- Before going solo on a cross country
- For the issue of a pilot certificate
- For the issue of an endorsement

The purpose of the flight test is to check that you are competent to safely carry out the subsequent flight phase. The flight test will examine your:

- Flight management skills
Flight management skills include:
 - Preparation for flight
 - Use of checklists
 - Monitoring engine and fuel
 - Care of your passenger
 - Consideration for others
 - Error detection and correction
- Situation awareness
Situation awareness includes knowing:
 - where you are at all times
 - where your alternate airfields are
 - where other traffic is and where they are going
 - what alternatives you have should something go wrong
 - what weather events are likely to occur
 - what weather events are occurring
- Awareness of the rules and regulations
Rules and regulations include:
 - RA-Aus Operations Manual
 - Civil Aviation Regulations
 - APA procedures
- Underpinning knowledge
Underpinning knowledge includes:



-
- Aircraft limitations
 - Aircraft operating envelope
 - Ability to recover from unusual situations
 - Theoretical understanding of flight
- Flying skills
 - Flying skills include:
 - Smoothness of control inputs
 - Judgment of height and distance
 - Keeping the aircraft balanced
 - Care of the airframe and motor
 - Accurate speed control
 - Accurate altitude control
 - Correct radio phrases and timing
 - Maintaining a margin of safety
 - Use of correct techniques
 - Stabilized approaches to land

Passing or Failing a Flight Test

APA's approach to a flight test is to determine if you are competent in each of the areas assessed. If deficiencies are detected in any of the areas examined in a flight test, you will be informed of the deficiencies and offered further training.

The examiner will take into account factors such as nervousness and the weather, however you will be required to demonstrate the required level of proficiency.

You will make mistakes on a flight test as well as when you are flying. An essential skill for pilots is the ability to detect your errors and make appropriate corrections.

Typical errors on a flight test are getting too high or too fast on approach. Your examiner will be watching to see what you do to correct the situation. Going around is a normal flight maneuver so don't hesitate to go around if you are unlikely to achieve a safe landing.



Jacobs Well Sports Flying Club (JWSFC)

Do I have to join the Jacobs Well Sports Flying Club?

Members of the Jacobs Well Sports Flying Club are covered by Public liability insurance that is required by the owners of Heck Field. Also, members of the JWSFC operate under the general guidance of the Chief Flying Instructor of the only flying school approved to operate from Heck Field.

The Landowners have final say in who operates from Heck Field. The Landowners have authorized Nic Sigley and Bill Ginn to approve members of the JWSFC on an individual basis to use Heck Field.



Australian Pacific Aviation Administration

Instructor

You will normally fly with an assigned instructor up until your pilot certificate test.

You may ask the Chief Pilot to for a different instructor if that would suit you better.

Booking or Changing a Lesson

You can book your flying lesson through the Chief Flying Instructor (CFI) Nick Sigley.

If you are running late for a lesson, please contact your assigned instructor directly.

If you wish to change a lesson time or day, please contact your assigned instructor.

Contacts

Position	Person	Tel. Number	For
Chief Flying Instructor	Nick Sigley	0421821654	Lesson Bookings and Amendments
Instructor	Bill Ginn	0431136747 07 55461891	Lesson Bookings and Amendments
Instructor			
Website	info@flyapa.com.au		



Paying Flying Lesson Fees

There are four ways you can pay for a lesson:

Payment Method	Details
Credit Card	Preferred method
Cheque	Made out to Australian Pacific Aviation
Direct Credit	BSB 638-060 Account 11962089 Reference: Your surname plus the date of the lesson. For example, Bill Ginn's lesson on June 23, 2010 would use the reference ginn23062010
Cash	Pay to either the CFI or your instructor who will issue you with a receipt.

Paying Theory Course Fees

The theory course is provided by a partner organization Idavant Pty Ltd trading as FlySafe and managed by Senior Instructor Bill Ginn. Please contact Bill at bill.flysafe@gmail.com to enroll in the theory course.

Please pay the fee for the theory course into the following bank account using your surname and initials as the reference on the deposit.

Bank: Westpac

Name: Idavant Pty Ltd

BSB: 032-085

Account: 15-4864

Please send an email to Bill letting him know that the payment has been made. Bill will then enroll you in the on-line course and provide you with information on dates of revision classes.



Progressing to a Private Pilot License

What are the benefits of a PPL compared with an RA-Aus Pilot Certificate?

A simple comparison of the privileges of a PPL and RA-Aus Pilot Certificate are shown in Table 3. While a PPL holder clearly has more privileges than a Pilot Certificate holder, most holders of a PPL fly either solo or with one other passenger, fly visually and rarely go more than 100nm from departure.

Most recreation pilots (PPL is a recreation type of license) can achieve their flying goals by flying an RA-Aus aircraft at a fraction of the cost of flying a normal VH registered aircraft.

Privilege/Requirement	PPL	RA-Aus
Medical	Aviation Medical Standard	Driver's license standard
Aerobatics	Allowed	Not allowed
Instrument flight	Allowed if qualified and aircraft approved	Not allowed
Fly above 10,000'	Allowed if aircraft equipped with oxygen	Not allowed
Fly aircraft with a maximum takeoff weight of more than 600kg	Allowed	Not allowed (under review by CASA and RA-Aus)
Fly an aircraft with more than 2 seats	Allowed	Not allowed
Fly in controlled airspace	Allowed	Not allowed (under review by CASA and RA-Aus)

Fortunately a lot of the training done for a Pilot Certificate can be credited to a PPL. Under the current regulations, all the flying training and even the PPL test can be done in an RA-Aus registered aircraft. The examiner for a PPL however must be a CASA Approved Testing Officer.

When can I transfer to a PPL?

You can transfer to a PPL training school at any time. Your Australian Pacific Aviation training records will be provided to you to show the PPL training school what training you have completed. The PPL training school will review your progress and take over training from where you were up to at APA.



Private Hire of APA Aircraft

APA's aircraft are available for hire to qualified pilots who have satisfactorily demonstrated their flying skills and knowledge to one of APA's flight instructors and completed the technical quiz.

Some guidelines on what is required is shown below:

Qualification	Previous Experience	Check Requirements
Pilot Certificate	Flight training at APA 3 takeoffs and 3 landings within the last 90 days and a check ride within the past 12 months	No check flight
Pilot Certificate No Cross Country Endorsement	No previous check flight with APA	Check flight Complete the Pre Area, Pre Solo and aircraft quiz.
Pilot Certificate with Cross Country Endorsement	No previous check flight with APA	Check flight Complete the Pre Area Solo quiz and Pre Solo, aircraft and Cross Country quiz

See details of Flight Checks in a previous section.

Conversion to RA-Aus

The RA-Aus Operations Manual contains details of flight training and experience requirements for qualified pilots who wish to obtain an RA-Aus pilot certificate. In addition to those requirements, APA may require you to complete additional training as outlined below.

Previous Experience	Additional Training
Non-Australian PPL or higher license	Complete the Pre Solo, Pre Solo Area and Pre Solo Cross Country Quiz
PPL or higher license and less than 30 hours pilot in command within the past 12 months	Complete the Pre Area Solo and Pre Solo Cross Country Quiz



Flight Test

The flight test for the conversion to RA-Aus license will be the same as the flight test for the initial issue of a Pilot Certificate for pilots with no prior pilot qualifications (see previous section).

You will be expected to follow APA's procedures and checklists for the flight test.

References

RA-Aus Theory Website

An excellent reference for details about your pilot certificate as well as general aviation technical knowledge is available on the RA-Aus website at:

<http://www.auf.asn.au>

This website is the most comprehensive free on-line source of theory and practical advice on flying recreation aircraft. The technical and theory sections of this website covers the syllabus of the RA-Aus theory examinations.

Recommended Text books

PPL/CPL Kit, Aviation Theory Centre

Covers most of what you need to know about flying light aircraft

PPL Theory, Jim Davies

BAK and PPL Book, Bob Tait



Attachment A – Foxbat Expanded Checklist

The following is an expanded checklist that is used for the APA A22 Foxbat training aircraft. The checklist in the aircraft is a condensed version without the notes given below. The same format is used for all APA aircraft checklists.

Memory Items in Boxes

The items in the shaded boxes are for review then should be done from memory.

Before External Inspection Checklist

Carry out this checklist before you start your exterior inspection.

Ignition OFF

If the ignition switches are in the ON position, then engine might start when you manually turn the propeller during the engine inspection

Control locks Removed

This allows you to move the control surfaces for inspection during the exterior inspection

Parachute Lock In place

Park brake ON

Safety Equipment... Checked

Safety equipment includes seat belts, emergency beacon and First Aid Kit; it is also a good idea to check that there is nothing in the aircraft that will interfere with the controls.

Cockpit Preparation Checklist

Carry out this checklist when you and your passenger are strapped into the aircraft and ready to go. This checklist prepares the aircraft for engine start. A separate checklist the “Start Checklist” prepares the engine for starting.

Announce: **Cockpit Preparation Checklist**

That lets the other person know you are starting your checks.

Pre-flight inspection - Complete

Think before you respond to this checklist item. Did you check the fuel quantity and water content? Did you inspect all of the aircraft exterior?

Parachute Lock OFF

this allows the parachute to fire, so be careful not to pull the handle

Harness Secure

Tighten the lap strap first, then the shoulder harness



- Headset** **ON**
Leave on ear free of the headset so you can hear the other person
- Passenger brief** **Complete**
The passenger brief is detailed in the Flight Training Guide.
- Cockpit Scan** **Complete**
The scan starts at the most rearward part of the panels where there are controls and placards. The most rearward panel is the fuel taps, then the panel between the seats, then the instrument panel.
- Start at the rear and work your way forward. Note the position of each switch, control or indicator. Read each placard (your instructor might cover one up and ask you what it says). Verify the position of switches and the readings of instruments (eg. Fuel gauges should read zero with no power). Set the QNH on your altimeter. Record the engine hours from the hour meter.
- The check of the fuses is to check that they are in place. There is no way to check that the fuses are serviceable other than if electrical equipment does not operate when the power is turned on.
- Controls** **full & free**
This is carried out for two reasons. The most important is to make sure that nothing is interfering with the free movement of the control stick. The other reason is to show the passenger how far the control stick moves and to remind them to remain clear of the control stick at all times.
- Radios** **OFF**
In theory the radios have internal protection that prevents the radio from being damaged when power spikes occur such as during the engine start. However you can't be sure that the radio won't be damaged so as a precaution, turn the radio off either by the radio switch or the Avionics Master switch if fitted.
- Battery master** **ON**
This connects the battery to the aircraft electrical system. You should observe that the generator warning light is illuminated and the fuel gauges become active.
- Fuel Selector** **Right ON**



The standard fuel selector configuration is the left selector OFF and the right selector ON. The reason for this is explained in the aircraft Flight Manual.

However if the left fuel tank has significantly more fuel than the right tank, then select the left fuel selector ON and announce “**non standard, Left ON, Right OFF**” That way everyone knows the situation.

Fuel quantity Check Qty

Do a cross check with the fuel quantity measured using the dipstick during the exterior inspection with the quantity indicated and the calibration chart.

If there is a major error between the indicated quantity and the dip stick measured quantity then investigate the problem. If it is the fuel gauge, then note that it is unserviceable (record the dip stick quantity and indicator quantity) and write the fault up in the maintenance log at the end of the flight.

Elevator trim Set 4th bar

Move the elevator indicator to the rear, then reposition it to the 4th bar from the top. The position of the elevator trim for takeoff will depend on the aircraft rigging. The 4th bar is set on 7711 at the time of writing this manual. Check the aircraft flight manual for the current elevator trim setting.

Cockpit Preparation Checklist complete

At the completion of the checklist, announce “Before Flight Checklist complete”. That way you and your instructor are both clear that the checklist has been completed. If you get interrupted during a checklist, it is a good idea to go back to the start of the checklist.

Before Start checklist

This is a checklist to prepare the aircraft for engine starting.

Announce “**Before Start Checklist**”.

Throttle Closed

Check that it is closed. Your passenger might have moved it while strapping into the aircraft.

Strobe/Anti Colln Lights. ON



If the aircraft does not have an anti-collision light, consider turning on the strobe lights. Either light will give a warning to people that you are about to start the engine.

Magnetos Both ON
Check the direction of the switches. Each aircraft is slightly different. Make sure you have the switches in the correct ON position.

Choke
Cars don't have chokes these days. However if it is the first flight for the day then you will need to use the choke.

If Cold Engine..... ON

If Warm Engine.... OFF

Review Start Procedure

The following should be reviewed before you start the engine. After the review you will need to remember what is in this review part of the checklist.

Starter..... 10 sec Max
If you run the starter for more than 10 seconds it may suffer permanent damage

Oil Press rising..... Within 10sec
Oil pressure should rise within about 2 seconds, but allow 10 seconds before shutting down the engine.

Engine Fire Review
Turn the checklist over and read the Engine Fire on Ground checklist. It could happen so be familiar with the Engine Fire on Ground checklist.

Hazards..... Lookout
This is the time to look for children, adults, dogs, cats birds or anything that might get frightened when they hear the noise of the engine. Look all around you before you consider starting the engine.

Warning CLEAR PROP



Keep your door unlatched up to this point so that you can make a nice loud call to warn people that you are starting the engine. Hopefully children, cats, dogs and chickens will understand what you are saying as well.

- Doors** **latched**
Ask your passenger to move their leg so that you can see that their door is latched.
- Engine** **Start**
Position your left hand on the throttle, right hand on the starter switch, eyes on the oil pressure gauge and review where your right hand will move after the engine to slowly turn off the choke.

Announce **“Before Start Checklist complete”**.

After start checklist

- Announce **“After Start Checklist”**.
This checklist is to check that the engine is operating normally and prepare the aircraft for taxiing.
- Throttle** **2200 RPM**
If the RPM is lower than 2200 RPM then the engine won't run smoothly.
- Oil pressure** **2 bar/30psi +**
The oil pressure should be in the green band on the instrument.
- Radios** **ON**
This will activate the intercom and turn the radio on. Put your headset fully on and check your passenger's headset for fit and microphone position. Adjust the radio volume to near maximum to be sure of hearing other aircraft transmissions.

Check that the correct frequency is set. The top frequency displayed should be the frequency you are going to use (126.7 MHz at Heck Field).

When you are satisfied the engine is running correctly and the radios is working, announce **“After Start Checklist complete”**.



Taxi review

The following items should be reviewed to refresh your memory of what to check when taxiing the aircraft.

Oil temperature Min30°C taxi

This temperature is the minimum temperature to increase the RPM above 2200 RPM. If the aircraft will roll with 2200 RPM then you may taxi the aircraft using this power setting until the oil temperature is above 30C.

Compass Turning OK

When you turn the aircraft, quickly glance at the compass to see if it is moving. When the turn is complete, check that the compass is indicating the correct direction.

Turn/slip Moving OK

If a turn and slip indicator is fitted, check that a turn is showing when the aircraft is turning. If only a slip indicator is fitted, check that the ball is freely able to roll from side to side.

Brakes Check

Before going too far, slow the aircraft down using the brakes. If the brakes have failed, now is the time to sort the problem out, not when you are trying to make an emergency stop.

Before Takeoff Checklist

This checklist is done at the holding point just before takeoff.

Announce the checklist title "**Before Takeoff Checklist**".

Brakes ON

Make sure the brakes are firmly on. You will be doing an engine run up and only the brakes will hold the aircraft from running forward.

Fuel Right tank ON

This is your last chance to check that you have the fullest tank selected and that at least one selector valve is in the ON position. Use the same "Non Standard" call as discussed in the Before Start Checklist.

Trim Set 3rd bar

This is a recheck of the position of the trim indicator. It could have been moved during the taxi phase if the trim switches are on top of the control stick and were accidentally pressed during taxi. The indicator will be dimly lit if the landing lights are on.



Flaps	Flap 1 This is the standard flap setting. If you elect to use either Flap up or Flap 2 then announce “Non Standard Flap”. This clarifies the situation for you and the instructor.
Controls	Full & free
Doors	Latched On a hot day you might have taxied to the holding point with one door open. This is a reminder to close and lock it.
Harnesses	Secure Tighten the lap strap first, then the shoulder straps. It is essential that the straps are as tight as you can make them. If you can’t reach any of the flight or fuel controls with the straps tight then you should not be flying the aircraft. Consider using cushions or other means to position yourself correctly.
Engine Oil temp.....	min 50°C 50C is the minimum temperature for the engine to be run up to the required ignition check RPM. If the temperature is below 50C, wait for it to warm up before doing the engine ignition check.
Ignition Check Review	Review the procedure then do it from memory.
Hazards	Check Look behind you as well as all around you. Position the aircraft so that you won’t damage or blow dust over the aircraft behind you.
Engine RPM	3,000 RPM
Max Drop/Diff....	200/120 Try and remember the RPM drop when you select one ignition is OFF as you will need to compare it with the drop when the second ignition is checked.
Idle RPM.....	1,650 RPM Check that the engine will idle smoothly when the throttle is set to the minimum idle position. It might spoil your day if on approach to land you pull the throttle back to minimum and the engine stalls.
Engine	2200 RPM
Oil temp	max 130°C



Oil temperature on these engines will normally be in the lower yellow caution zone or lower part of the green zone on the gauge. If the oil temperature is at the top of the green zone or anywhere near 130C then there is a problem with the engine.

Takeoff Briefing..... Complete

The purpose of the takeoff briefing is to remind you and explain to your instructor if you are dual what you are planning to do if everything goes according to plan and what you will do if it “all turns to fertilizer”. The takeoff briefing should include:

- wind direction and strength
- identify any hazards
- identify the type of takeoff (standard, crosswind, short field, flapless etc.)
- where you expect to get airborne and the takeoff safety speed
- the position of the controls for takeoff if other than normal such as for a crosswind
- what you will do if the engine fails below 500’ agl
- What you will do if the engine fails above 500’ agl
- minimum height required after an engine failure before you can return to the airfield

The Takeoff briefing should be done immediately before taxiing onto the runway and taking off.

When the checklist is complete announce “**Before Takeoff Checklist Complete**”.

Other checklists

Once the aircraft is in the air you may not have time to read checklists and will generally have to rely on memory. Emergency checklists as well as the following “normal” checklists should be memorized:



Line up review

This is a checklist to remind you of memory items you should know before taking off. There is no need to read this out during a flight test.

Transponder **'ALT'**

If fitted, the transponder should be set to code 1200 unless otherwise instructed by ATC. The transponder in the ALT mode will transmit the aircraft altitude to the radar controller.

Windsock **Check wind**

Check the wind direction and speed. Be aware that the crosswind component for the Foxbat is 14 kts. A 30 kt wind at 30deg off the centre line will give you a 15 kt crosswind.

Decision point **Select**

This is a point where you will decide if the engine is producing the power that you expect during takeoff. If the engine isn't producing the required power, then depending on the runway length, you should consider aborting the takeoff.

Take off review

Engine **Min 5200 rpm**

The maximum takeoff RPM will vary depending on the propeller fitted to the aircraft.

Liftoff **45kt**

This is a speed based on 1.2 times the stall speed at maximum takeoff weight. When a normally loaded aircraft reaches this airspeed it will fly if the nose is raised to the horizon.

Climb review

Best climb speed **55kts with flap**

Engine **Max 5800 - 2 min**

Landing checklist review

You should also review the options if you need to return to the field after takeoff.

Brakes **Check pressure**

Engine..... **Check Ts & Ps**

Fuel **On & sufficient**

Check the quantity in each tank, select the tank with the most fuel.

Hatches/Harness ... **Secure**



Shut down checklist

Announce the title of the checklist **Shutdown Checklist**

This checklist cleans up the aircraft after it has reached its parking position and the parking brake is ON.

Flaps **UP**
Elevator trim **Set 4th Bar**
Radio **Off**
Transponder **Off**
Engine **1800 rpm**

This part of the checklist is intended to check that both ignition systems are working. Turn one off, if the engine continues running turn it back on then turn the other one off. If the engine keeps running then set the throttle to idle and turn both ignition switches off.

Ignition check ... **Left ON Right OFF**
Both ON
Left OFF Right ON
Both OFF

This is a test to see if both ignition system are still working.

Ignition **Both OFF**

Lights/strobes **OFF**
Battery master **OFF**
Fuel **Left OFF**

This is the standard fuel configuration. Right tank ON, left tank OFF. If there is a significant imbalance where the right tanks is nearly empty and the left has at least ½ a tank, then announce “Non Standard, Left ON, Right OFF”.

Parachute Lock..... **ON**

Announce “**Shutdown Checklist Complete**”.

Before you leave the aircraft, record engine hours, install control locks, remove your belongings and dip the fuel tanks. Record flight details in the aircraft booking sheet.



**Fly the Aircraft First
Then Navigate
Then Communicate**