

Syllabus for the UK PPL(G)

2009 Edition

Rev C (2014)

Recognised by the UK Civil Aviation Authority

Nothing in this syllabus supersedes any legislation, rules, regulations or procedures contained in any operational document issued by Her Majesty's Stationery Office, the Civil Aviation Authority, the manufacturers of aircraft, engines and systems, or by the operators of aircraft throughout the world.

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Changes from Rev A

Page 39: Advanced landings. Precision landing distance changed from 10 metres to 25 metres with power and from 10 metres to 100 metres without power

Briefing bullet points in many exercises updated

Changes from Rev B

Page 3 : Credit of hours of PPL(A) and PPL(H) changed to 15. References to LASORS replaced with references to Standards Document 44. Exams valid for 24 months.

Page 6 : Ex 6e title changed to read Vertical Descents

Page 16 : Added the specific flying objective to turn onto a heading

Page 22 : Remove the specific flying objectives to prerotate whilst taxiing and backtracking with the stick back

Page 23 : Added the specific flying objective to take off whilst emulating poor performance characteristics.
Added the specific flying objective to abort take offs

Page 32 : Remove the unusual attitude to recover from a steep nose down attitude without power. Added the unusual attitudes of recovery from a high speed spiral descent, added a zero airspeed rotation to the right when there is loss of rudder authority, added the brief to discuss a tail slide.

Page 39 : The precision for a powered approach is now -0/+100 metres. The precision for a simulated power failure to the runway is now +/-100 metres. The engine to be reduced to idle from above 500ft AGL.

Page 40 : Remove the specific flying objective of a slow speed hover taxi at a few feet above the runway surface

Page 42 : Replaced zero airspeed descents to vertical descents and ensuring positive airflow is maintained at all times. Clarified the specific objective to recover with power has the aim to recover with the minimum height loss and the specific objective to recover without power has the aim to establish and maintain a safe flying speed for landing – power is only applied after the exercise is complete

Page 50 : Emergency field landing, removed the specific flying objective to determine the best range speed (this is not really an objective) and added the specific flying objective to include a restart procedure and (practice) MAYDAY call.

Introduction

The PPL(G) syllabus (2009 edition) is a statement of the scope of the training required for a student to apply for a licence to fly Gyros in the UK.

The syllabus is split into 2 parts:

- Part 1 contains the flying elements of the training
- Part 2 contains the theoretical elements of the training.

The purpose of this syllabus is to provide a consistent standard of training for all student pilots throughout the UK and to give a clear method of recording progress.

This syllabus replaces the 1998 revision. The scope of the training has not changed significantly, what this edition provides is a greater clarity into the standards expected of a student at each stage of the training. It also reflects the change in legislation that a student must complete a 2-seat training course, to the standard of being able to fly solo, before being allowed to fly in a single seat aircraft.

Each part of this syllabus has been subdivided into elements. These elements are designed to flow in a logical order and are at a suitable level of details to make it easy for a student and an instructor to record progress.

The CAA will issue the student with a licence to fly a Gyro and carry passengers when they are satisfied that:

- the student has completed all the elements of the syllabus satisfactorily
- the student has flown at least the minimum number of hours required under the supervision of a CAA approved instructor.

Part 1 - The flying elements

There are 8 sections in the flying syllabus:

- 1: Basic Flying
- 2: Upper Air Work
- 3: Rotor management, take off and landing
- 4: Emergencies
- 5: Solo Flying
- 6: Advanced Flying
- 7: Cross Country Flying
- 8: General Flying Test

In general a student would be proficient in a section before starting training in the next section.

Each flying section is subdivided into **exercises**. An exercise is a `bite size` step in the training which will be covered in one or more training flights.

For example, the section on Upper Airwork contains an exercise called:

Ex 2b: Increase and decrease speed at constant altitude

There is no prescribed order for exercises, the order may vary depending upon the weather, the instructor's preference and the student's learning ability. Although sections 6 and 7 appear in the syllabus after solo flying, it is likely that many of these exercises will be taught before solo flying and then revisited after solo flying as the student will have a greater capacity for concentrating on them having consolidated a few hours solo.

Each exercise has a **brief** which explains some of the vital content of the exercise. The details of the brief will be explained by your instructor.

Each exercise also has one or more **Specific Flying Objectives**. A specific flying objective is a skill that a pilot must be able to perform competently and consistently. This syllabus contains a standard for that skill level.

For example, the exercise above has a specific flying objective:

From straight and level flight at a constant speed in trim, increase speed by a suitable amount (say 20mph) and re-trim, maintaining balance and constant altitude at all times.

The flying elements of the syllabus are examined in a **General Flying Test (GFT)** by a CAA approved examiner. The general flying test consists of the student being able to demonstrate competency of a number of the specific flying objectives already performed during the course. It also involves a demonstration of the safe operation of the Gyro on the ground and the safety of passengers.

Part 2 - The theoretical elements

There are 6 theoretical sections to the syllabus:

- Airfield Procedures
- Aviation Law, Flight Rules and Procedures
- Gyroplane Technical
- Meteorology
- Human Performance and Limitations
- Navigation

With the exception of Airfield Procedures, the theoretical elements of the syllabus are examined by multiple choice paper.

Airfield Procedures has no examination as the content will be specific to your airfield. Your instructor must be satisfied that you understand and comply with these procedures at all times. You must seek out airfield procedures for any other airfield that you fly from.

There will be an oral exam with questions relating to the specific type of Gyro that you use for your General Flying Test. This is usually done immediately before the GFT.

In addition a student should sit the standard Radio Telephony Exam in order to legally use the radio in flight.

Minimum Flying Hours

A student must complete a minimum of 40 hours of instruction of which at least 10 hours must be flown solo and at least 3 hours must be solo flown outside the locality of the home airfield and training area (cross country).

An existing NPPL or PPL(A) or PPL(H) holder (or above) will be granted a credit of up to 15 hours towards the training. The minimum solo hours and solo navigation hours given above must still be done.

Single Seat Training

A student must be suitably trained on a dual seat Gyro before attempting flying exercises in a single seat Gyro, however there are certain non-flying exercises eg Rotor Start/Stop that can be trained in parallel with dual seat training. Training on a single seat Gyro may be interspersed with dual seat training at the discretion of the instructor. A student must be at solo standard in a dual seat machine before flying in a single seat machine.

Completion of Theory Exams

Air Law must be completed before flying solo.

Navigation, Meteorology and Human Performance and Limitations must be completed before flying solo cross country.

All exams must be taken within 24 months of the application for a licence.

Standards Document 44

The information given above is correct at the date of this publication however it may be superseded by the CAA at any time. Please refer to the CAA publication Standards Document 44 for the latest licencing requirements.

Recording of Student Progress

An instructor will maintain his own training notes relating to the exercises performed and standards achieved during training with a student however it is vital that both an instructor and the student have confidence that what has been **taught** during the training has actually been learned **and retained** by the student.

A student must therefore be able to perform every Specific Flying Objective in this syllabus competently before applying for the General Flying Test. There are 3 stages to learning that may be noted in this syllabus to record progress.

- Firstly, when the student has been initially **taught** to fly an objective, the **instructor** should sign and date when it has been taught.
- Secondly, on a different flight, when the student has **consolidated** the objective and is confident that he/she can demonstrate consistently the objective to the standard set out in this syllabus, the **student** should sign and date the objective.
- Thirdly, when the instructor is satisfied that the student has **proved** him/herself demonstrating the exercise on demand to the required standard, the **instructor** should sign and date the objective.

At the end of this syllabus there is a certificate of completion that both the student and the instructor should sign to confirm that student has been able to demonstrate all the exercises competently and consistently during the training. This will be checked by the examiner prior to the General Flying Test.

Pilot's Operating Handbook, Aviation Law and Good Practice

Nothing in this document overrides the requirement to operate the aircraft within the limitations of the Pilots Operating Handbook (POH), the aircraft's Permit to Fly, Aviation Law and good aviation practice.

Syllabus for the PPL(G)

2009 Edition Rev C

Part 1 - The Flying Elements

The PPL(G) Syllabus 2009 Edition

Section 1: Basic Flying

- Ex 1a: Air Experience Flight
- Ex 1b: Effects of controls
- Ex 1c: Startup, Taxi and Shutdown
- Ex 1d: Basic Flying Consolidation

Section 2: Upper Air Work

- Ex 2a: Fly a straight track at constant altitude
- Ex 2b: Increase and decrease speed at constant altitude
- Ex 2c: Medium turns at constant altitude
- Ex 2d: Climb and descend - straight
- Ex 2e: Climb and descend whilst turning
- Ex 2f: Fly the circuit pattern
- Ex 2g: Upper Air Work Consolidation

Section 3: Rotor Management, take offs and landings

- Ex 3a: Rotor management
- Ex 3b: Take-offs
- Ex 3c: Landings
- Ex 3d: Hops
- Ex 3e: Circuit Consolidation

Section 4: Emergencies

- Ex 4a: Engine failures to touchdown at the airfield
- Ex 4b: Engine failure in the circuit, unable to reach the airfield
- Ex 4c: Engine failure on take off
- Ex 4d: Emergencies
- Ex 4e: Recognising and recovery from unusual attitudes

Section 5: Solo Flying

- Ex 5a: Presolo - check
- Ex 5b: First solo
- Ex 5c: Solo consolidation

Section 6: Advanced Flying

- Ex 6a: Advanced take offs
- Ex 6b: Advanced Landings
- Ex 6c: Slow Flight
- Ex 6d: Fast Flight
- Ex 6e: Vertical descents
- Ex 6f: Advanced Turns
- Ex 6g: Low flying
- Ex 6h: Advanced Rotor Management

Section 7: Cross country flying

Ex 7a: Join the circuit at unfamiliar airfields

Ex 7b: Precautionary Field landings

Ex 7c: Emergency field landing

Ex 7d: Navigation

Ex 7e: Qualifying Cross country

Section 8: General flying test

Ex 8a: Pre-GFT check

Ex 8b: General Flying Test

Section 1: Basic Flying

`Basic Flying` is an introduction to flying Gyros. It contains the necessary elementary skills to control a Gyro holding a steady height and a steady speed, in a relaxed and controlled manner.

The aim of this section is to be comfortable in the air and understand the flying controls, to control the Gyro on the ground and in the air.

There are 4 basic flight exercises:

Ex 1a: Air Experience Flight

To introduce and become accustomed to the Gyro, the sensation of flying and to sample the aspect of the ground from the air.

Ex 1b: Effects of controls

To be able to understand the basic requirements of safe flying and the elementary use of the controls in the air.

Ex 1c: Startup, Taxi and Shutdown

To be able to safely start, taxi, prerotate and stop a Gyro and understand the use of the controls on the ground.

Ex 1d: Basic Flying Consolidation

To be able to fly a Gyro at a steady height and speed, making gentle turns in a controlled manner, in balance and in trim.

Ex 1a: Air Experience Flight

Objective

To introduce and become accustomed to the Gyro, the sensation of flying and to sample the aspect of the ground from the air.

Brief

- General understanding of a Gyro
- Safety Brief
- Operating the Gyro from the pilot's seat (If applicable)
- No big movements of the stick

Specific Flying Objectives

Specific Flying Objective	Completed
Instructor led flight with hands-on experience Fly in a Gyro with the instructor doing the flying to experience the sensation of Gyro flying. Have the opportunity to take the controls whilst in flight.	

Ex 1b: Effects of controls

Objective

To be able to understand the basic requirements of safe flying and the elementary use of the controls in the air.

Brief

- The controls: Stick, Throttle and Pedals
- Reducing the stick pressure: flying in trim
- Basic Terminology
- Student/Instructor handover
- Lookout for other traffic
- Understanding the instruments

Specific Flying Objectives

Specific Flying Objective	Completed
<p>Seating position and control movement</p> <p>Having a comfortable seating position, using a cushion where necessary ensuring that all the controls can be reached without stretching. The correct way to move the controls, in particular the correct grip of the stick.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Instructor/Student handover</p> <p>Understand and use the `I have control - You have control` technique to ensure that there is no ambiguity who is flying the Gyro.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Relaxed Flying</p> <p>Demonstrate a sufficiently relaxed manner when flying and to be able to talk to and listen to the instructor in flight.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Reference to the instruments</p> <p>Understand how to interpret the instruments in the Gyro. Get the balance correct between flying with reference to the horizon and scanning the instruments.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Maintain a good lookout</p> <p>Fly whilst maintaining a good lookout, spotting other aircraft and be able to use the `clock code` to pinpoint other aircraft. The importance of not assuming the instructor has seen everything.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>

Ex 1c: Startup, Taxi and Shutdown

Objective

To be able to safely start, taxi, prerotate and stop a Gyro and understand the use of the controls on the ground.

Brief

- The Anatomy of an airfield
- Handling a Gyro on the ground, Blade Flap
- Prestart Checklist, Startup Checklist
- Use of controls when Taxiing
- Runway Checklist
- Pre-rotating
- Post Flight Checklist

Specific Flying Objectives

Specific Flying Objective	Completed
Prestart procedure Correct positioning of the Gyro prior to start with consideration to other people and aircraft in the vicinity. Check essential elements before starting the engine.	Trained Consolidated Proved
Startup procedure Start the engine of the Gyro with due consideration for safety and check for satisfactory performance of an engine before flying. Particular care to be taken to avoid risk to bystanders.	Trained Consolidated Proved
Taxi procedure (rotors stationary) Move the Gyro on the ground in a controlled manner, turning left and right, keeping an appropriate speed with care and attention to obstacles on the ground. Be able to stop in an emergency. Be able to shut down the engine in an emergency.	Trained Consolidated Proved
Prerotate procedure Perform appropriate checks before take-off and prerotate in a safe and controlled manner, handing over control to the instructor for take-off.	Trained Consolidated Proved
Rotor brake application procedure Understand how to manoeuvre a Gyro on the ground after landing and apply the rotor brake (if fitted) to stop the rotors. Align the rotors fore and aft if possible when Taxiing.	Trained Consolidated Proved
Shut down and park procedure Correctly manoeuvre a Gyro back to the apron and park with due consideration to people and other traffic. Correct shutting down of the engine and post flight procedures.	Trained Consolidated Proved

Ex 1d: Basic Flying Consolidation

Objective

To be able to fly a Gyro at a steady height and speed, making gentle turns in a controlled manner, in balance and in trim.

Brief

- The Primary, Secondary and Tertiary effects of controls
- Understanding power and pitch relationship
- Understanding stick back pressure on turning
- Understanding Balance
- Understanding Trim
- Understanding Stick Forces
- Pilot Induced Oscillation

Specific Flying Objectives

Specific Flying Objective	Completed
Hold a steady speed Fly consistently at a steady speed suitable for general training. Speed should be held steady +/- 10mph. Pitch adjusted without over-controlling.	Trained Consolidated Proved
Hold a steady height Fly consistently at a constant altitude suitable for general training. Altitude should be held steady +/- 100 ft. Power adjusted without over-controlling.	Trained Consolidated Proved
Fly in Balance Fly consistently with the airflow in balance around the Gyro including gentle turns. Understand the factors that influence balance. Balance should be adjusted without over-controlling.	Trained Consolidated Proved
Fly in Trim Where in-flight adjustable trim is fitted, trim to be adjusted for near `hands-off` flight consistently and whenever speed is altered. Trim to be adjusted in the correct direction and for an appropriate duration without over-controlling.	Trained Consolidated Proved
Airmanship Understand `Airmanship`, maintaining a good lookout for other traffic, being able to have a general sense of direction and recognise local features to navigate back to the airfield. Have due consideration for other people and traffic whilst in the air and whilst on the ground.	Trained Consolidated Proved

Section 2: Upper Air Work

`Upper Airwork` adds finesse to flying Gyros whilst in the air. This includes changing speed, changing height and changing direction in a controlled manner.

The aim of this section is to be able to fly a Gyro accurately whilst in the air, it excludes being able to take-off and land.

Ex 2a: Fly a straight track at constant altitude

To be able to fly in a straight line over the ground irrespective of where the wind is coming from and remain at a constant altitude.

Ex 2b: Increase and decrease speed at constant altitude

To be able to change speed significantly whilst remaining at a constant altitude.

Ex 2c: Medium turns at constant altitude

To be able to change direction significantly at a constant speed whilst remaining at a constant altitude.

Ex 2d: Climb and descend - straight

To be able to change height significantly at a suitable speed and constant direction.

Ex 2e: Climb and descend whilst turning

To be able to change height significantly at a constant speed whilst changing direction.

Ex 2f: Fly the circuit pattern

To be able to fly an accurate circuit pattern for the airfield.

Ex 2g: Upper Air Work Consolidation

To be able to perform all the upper airwork exercises competently and confidently.

Ex 2a: Fly a straight track at constant altitude

Objective

To be able to fly in a straight line over the ground irrespective of where the wind is coming from and remain at a constant altitude.

Brief

- Wind Direction Terminology
- Picking ground track objects
- Wind signals

Specific Flying Objectives

Specific Flying Objective	Completed
<p>Maintain a track in a headwind at constant altitude</p> <p>Fly in a straight line over the ground directly into wind, in balance and in trim whilst maintaining a height +/- 100ft, a speed +/- 10mph. Recognising `into wind` from ground speed and other wind signals.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Maintain a track in a tailwind at constant altitude</p> <p>Fly in a straight line over the ground downwind, in balance and in trim whilst maintaining a height +/- 100ft, a speed +/- 10mph. Recognising `tail wind` from ground speed and other wind signals.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Maintain a track in a crosswind from the right at constant altitude</p> <p>Fly in a straight line over the ground with a medium strength (say 15mph) wind coming from the right. Maintain a suitable crab angle to compensate for drift.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Maintain a track in a crosswind from the left at constant altitude</p> <p>Fly in a straight line over the ground with a medium strength (say 15mph) wind coming from the left. Maintain a suitable crab angle to compensate for drift.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>

Ex 2b: Increase and decrease speed at constant altitude

Objective

To be able to change speed significantly whilst remaining at a constant altitude.

Brief

- Relationship between power and pitch
- Simultaneous adjustment
- Reminder of balance changes with power and airspeed
- Remember to re-trim

Specific Flying Objectives

Specific Flying Objective	Completed
Significant increase in speed at constant altitude From straight and level flight at a constant speed in trim, increase speed by a suitable amount (say 20mph) and re-trim, maintaining balance and constant altitude at all times.	Trained Consolidated Proved
Significant decrease in speed at constant altitude From straight and level flight at a constant speed in trim, decrease speed by a suitable amount (say 20mph) and re-trim, maintaining balance and constant altitude at all times.	Trained Consolidated Proved

Ex 2c: Medium turns at constant altitude

Objective

To be able to change direction significantly at a constant speed whilst remaining at a constant altitude.

Brief

- Rotor thrust direction
- Loss of either speed or height
- Importance of lookout
- Don't look at the compass whilst turning

Specific Flying Objectives

Specific Flying Objective	Completed
<p>Change heading by 360 deg to the right at constant altitude</p> <p>From straight and level flight, change direction to the right keeping a constant bank angle and in balance. Maintain level flight +/- 100ft. During the turn speed to be constant +/- 10mph. Maintain a good lookout at all times, especially before the turn commences. Note speed in turn generally slower than speed at entry.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Change heading by 360 deg to the left at constant altitude</p> <p>From straight and level flight, change direction to the left keeping a constant bank angle and in balance. Maintain level flight +/- 100ft. During the turn speed to be constant +/- 10mph. Maintain a good lookout at all times, especially before the turn commences. Note speed in turn generally slower than speed at entry.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Turn onto a heading</p> <p>From straight and level flight, change direction to the left and/or the right keeping a constant bank angle and in balance. Exit the turn to a given compass heading. Maintain level flight +/- 100ft. During the turn speed to be constant +/- 10mph. Maintain a good lookout at all times, especially before the turn commences.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>

Ex 2d: Climb and descend - straight

Objective

To be able to change height significantly at a suitable speed and constant direction.

Brief

- Climbing Terminology
- Relationship between power and pitch
- Simultaneous adjustment
- Importance of lookout
- The cruise climb and descent
- The zoom climb and descent

Specific Flying Objectives

Specific Flying Objective	Completed
<p>Full power climb and level out. Constant speed</p> <p>From straight and level flight climb on full power to a given altitude at least 300ft above the starting altitude maintaining a constant speed and direction and maintaining balance at all times. Fly at a constant altitude after levelling out.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Low power descend and level out. Constant speed</p> <p>From straight and level flight descend on idle power to a given altitude at least 300ft below the starting altitude maintaining a constant speed and direction and maintaining balance at all times. Fly at a constant altitude after levelling out.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Full power climb into a low power descent</p> <p>From straight and level flight climb on full power to a given altitude at least 300ft above the starting altitude maintaining a constant speed and direction and maintaining balance at all times. As soon as the given height is reached, immediately descend on idle power levelling out at the original altitude.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Low power descent into a full power climb</p> <p>From straight and level flight descend on low power to a given altitude at least 300ft below the starting altitude maintaining a constant speed and direction and maintaining balance at all times. As soon as the given height is reached, immediately climb on full power levelling out at the original altitude.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>

Ex 2e: Climb and descend whilst turning

Objective

To be able to change height significantly at a constant speed whilst changing direction.

Brief

- The relationship between bank angle and rate of climb

Specific Flying Objectives

Specific Flying Objective	Completed
<p>Climbing, initiating a 360 turn in the climb and then straight</p> <p>From straight and level flight, climb on full power on a constant heading, after 100ft of climb initiate a 360 deg turn to the left whilst maintaining a (reduced) climb. After 360 deg continue climbing on the original heading. Maintain speed and balance at all times. Repeat the exercise turning to the right.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Descending, initiating a 360 turn in the descent and then straight</p> <p>From straight and level flight, descend on low power on a constant heading, after 100ft of descent initiate a 360 deg turn to the left whilst maintaining an increased descent. After 360 deg continue descending on the original heading. Maintain speed and balance at all times. Repeat the exercise turning to the right.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Level 360 turn and then climb during the turn to level out in the turn</p> <p>From a constant bank angle turn to the left at a constant speed and altitude, climb on full power whilst maintaining speed and bank angle. After 360 deg continue turning at level altitude. Maintain balance at all times. Repeat the exercise whilst turning to the right.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Level 360 turn and then descend during the turn to level out in the turn</p> <p>From a constant bank angle turn to the left at a constant speed and altitude, descend on low power whilst maintaining speed and bank angle. After 360 deg continue turning at level altitude. Maintain balance at all times. Repeat the exercise whilst turning to the right.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>

Ex 2f: Fly the circuit pattern

Objective

To be able to fly an accurate circuit pattern for the airfield.

Brief

- Circuit Terminology
- Downwind checks - LIFES (or equivalent)
- Check "Clear Final"
- Check "Clear Runway"
- Go-around

Specific Flying Objectives

Specific Flying Objective	Completed
<p>Circuit pattern, left hand</p> <p>Fly a left hand circuit pattern using full power on climb out, levelling out to circuit height +/- 50ft flying at a constant speed +/- 5mph, descending on the approach at near idle power, using an initial descent point aiming at the numbers at the start of runway. Maintain balance at all times. Perform Downwind checks and check Final. Initiate a go-around at an appropriate height, alternatively the instructor may perform the landings and the take-offs.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Circuit pattern, right hand</p> <p>Fly a right hand circuit pattern using full power on climb out, levelling out to circuit height +/- 50ft flying at a constant speed +/- 5mph, descending on the approach at near idle power, using an initial descent point aiming at the numbers at the start of runway. Maintain balance at all times. Perform Downwind checks and check Final. Initiate a go-around at an appropriate height, alternatively the instructor may perform the landings and the take-offs.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>

Ex 2g: Upper Air Work Consolidation

Objective

To be able to perform all the upper airwork exercises competently and confidently.

Brief

- LIFER checks (or equivalent)
- Adjusting the altimeter when away from the airfield
- Joining the circuit at the home airfield
- Using the radio

Specific Flying Objectives

Specific Flying Objective	Completed
Perform LIFE checks (or equivalent) at regular intervals whilst flying Whilst flying away from the airfield in the cruise perform LIFE checks (or equivalent) at regular intervals (say every 10 mins) to ensure safe flying.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved
Join the circuit at the home airfield Understand the different ways to join the circuit at your home airfield(s). Fly each of the appropriate joins depending upon circuit traffic and the direction of joining.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Section 3: Rotor Management, take offs and landings

`Rotor Management` is about understanding how to control rotors safely on the ground, especially whilst they are speeding up before take off and slowing down after landing.

The aim of this section is to be able to take off and land a Gyro safely.

Ex 3a: Rotor management

To be able to control the rotors during their speed buildup and slowdown in a controlled manner whilst on the ground.

Ex 3b: Take-offs

To be able to take off from the runway in a safe and controlled manner.

Ex 3c: Landings

To be able to land on the runway in a safe and controlled manner.

Ex 3d: Hops

To be able to take off from the runway, fly level a few feet above the runway and land in a safe and controlled manner.

Ex 3e: Circuit Consolidation

To be able to fly an accurate circuit pattern, complete with take off and landings.

Ex 3a: Rotor management

Objective

To be able to control the rotors during their speed buildup and slowdown in a controlled manner whilst on the ground.

Brief

- Blade Sailing, Bumpy Ground
- Retreating Blade Stall
- Rotor Thrust/Rotor Drag
- Stick position when on the ground

Specific Flying Objectives

Specific Flying Objective	Completed
Increasing power safely, with due attention to rotor speed, anticipating the front wheel lifting From a position at the start of the runway, with the rotors prerotated to the manufacturers recommended RPM, apply power and move forward, keeping the Gyro in a straight line and build rotor speed, with due care and attention to avoiding blade sailing. Be able to consistently anticipate when the nosewheel is about to lift.	Trained Consolidated Proved
Wheel Balance Move down the runway with the main wheels touching the ground at all times, with the nosewheel lifted a few inches above the ground. Keep the Gyro in full control at all times, without lifting off or over-controlling.	Trained Consolidated Proved
Taxi with stick forward including turning at each end of the runway With the rotors turning at a suitable speed, Taxi in both directions on the runway turning 180 deg at each end with the stick fully forward and in a position suitable for the current wind speed and direction.	Trained Consolidated Proved

Ex 3b: Take-offs

Objective

To be able to take off from the runway in a safe and controlled manner.

Brief

- Alignment
- Prerotate
- Rotorspeed Build up
- Lift Off
- Airspeed Buildup
- Climb out

Specific Flying Objectives

Specific Flying Objective	Completed
Take-offs with headwind or light crosswind With a headwind or light crosswind, take off in a straight line keeping the Gyro controlled at all times, without over-controlling.	Trained Consolidated Proved
Take-offs with medium crosswind from the right With medium wind conditions (say 10-15mph), crosswind from the right, take off keeping the Gyro in a straight line down the runway.	Trained Consolidated Proved
Take-offs with medium crosswind from the left With medium wind conditions (say 10-15mph), crosswind from the left, take off keeping the Gyro in a straight line down the runway.	Trained Consolidated Proved
Take-offs with limited performance Emulating poor performance characteristics (hot temperature, high humidity, low air pressure) with limited power available during take off, understand the need and demonstrate the ability to abort the take off at or before a predetermined safe abort point.	Trained Consolidated Proved
Aborting take offs Before every take off, think about aborting during the take off process should anything not be normal. Abort take offs at any point in the take off process.	Trained Consolidated Proved

Ex 3c: Landings

Objective

To be able to land on the runway in a safe and controlled manner.

Brief

- Initial Descent Point, Approach, Roundout, Float, Flare

Specific Flying Objectives

Specific Flying Objective	Completed
<p>Landings with headwind or light crosswind</p> <p>With a headwind or light crosswind, land in straight line. The touchdown to be on the main wheels with a very small rate of descent at the time of touchdown. The Gyro must be pointing accurately in the direction of travel. After touchdown use the rotor drag to bring the Gyro to a complete halt in the shortest possible time.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Landings with medium crosswind from the right</p> <p>With medium wind conditions (say 10-15mph) crosswind from the right, land in straight line avoiding any tendency to drift. The touchdown to be on the main wheels with a very small rate of descent at the time of touchdown. The Gyro must be pointing accurately in the direction of travel. After touchdown use the rotor drag to bring the Gyro to a complete halt in the shortest possible time.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Landings with medium crosswind from the left</p> <p>With medium wind conditions (say 10-15mph) crosswind from the left, land in straight line avoiding any tendency to drift. The touchdown to be on the main wheels with a very small rate of descent at the time of touchdown. The Gyro must be pointing accurately in the direction of travel. After touchdown use the rotor drag to bring the Gyro to a complete halt in the shortest possible time.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Landings into wind, in a crosswind</p> <p>With medium wind conditions (say 10-15mph) crosswind, land directly into wind at an angle up to 30 deg on a runway. The touchdown to be on the main wheels with a very small rate of descent at the time of touchdown. The Gyro must be pointing accurately in the direction of travel. After touchdown use the rotor drag to bring the Gyro to a complete halt in the shortest possible time.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>

Ex 3d: Hops

Objective

To be able to take off from the runway, fly level a few feet above the runway and land in a safe and controlled manner.

Brief

- The three phases of a hop
- Taking off
- Flying a low hop
- Landing from a low hop
- The height-velocity diagram for a Gyro
- The power curve
- Flying a high hop
- Landing from a high hop

Specific Flying Objectives

Specific Flying Objective	Completed
Low hops From a stationary position at the start of a runway, take off and fly level a few feet above the ground at a steady speed close to the minimum drag speed for the Gyro, keeping straight along the length of the runway. Land the Gyro at the end of the runway.	Trained Consolidated Proved
High hops From a stationary position at the start of a runway, take off and fly at about 100ft above the ground at a steady speed close to the minimum drag speed for the Gyro, keeping straight along the length of the runway. Land the Gyro at the end of the runway.	Trained Consolidated Proved

Ex 3e: Circuit Consolidation

Objective

To be able to fly an accurate circuit pattern, complete with take off and landings.

Brief

- Adjusting power during an approach
- Landing with idle power
- Correcting from a balloon
- Reacting to an impromptu go-around
- Flying the approach in a crosswind in balance
- Landing directly into wind

Specific Flying Objectives

Specific Flying Objective	Completed
Landing without power close to a selected point Take off, fly an accurate circuit and land with idle power, coming to a full stop without applying the wheel brake. The landing must be smooth with no tendency to drift.	Trained Consolidated Proved
Landings with power close to a selected point Take off, fly an accurate circuit and land with low power, coming to a full stop without applying the wheel brake. The landing must be smooth with no tendency to drift.	Trained Consolidated Proved
Recognising and correct action of a go-around Take off, fly an accurate circuit and continue as if to land. During the final stages of the float apply power to go-around without touching the runway. The go-around must be smooth with no significant changes in direction, over-controlling or loss of balance.	Trained Consolidated Proved

Section 4: Emergencies

`Emergencies` is dealing with unexpected events including safe operation of a Gyro and landing in the event of an engine failure.

The aim of this section is to be instinctive about coping with an emergency situation.

Ex 4a: Engine failures to touchdown at the airfield

To be able to land on the runway in the event of an engine failure close to the runway.

Ex 4b: Engine failure in the circuit, unable to reach the airfield

To be able to land in a safe area in the event of an engine failure when in the circuit but not close to the runway.

Ex 4c: Engine failure on take off

To be able to land ahead on the runway in the event of an engine failure on take off.

Ex 4d: Emergencies

To be able to take corrective action in the event of emergency situations.

Ex 4e: Recognising and recovery from unusual attitudes

To be able to recognise unusual attitudes and safely recover from them.

Ex 4a: Engine failures to touchdown at the airfield

Objective

To be able to land on the runway in the event of an engine failure close to the runway.

Brief

- Landing ahead from a glide approach
- Shortening the approach distance using S-turns
- Shortening the approach distance using speed reduction

Specific Flying Objectives

Specific Flying Objective	Completed
<p>Engine failure landings on approach</p> <p>Perform a normal circuit. At a point on final approach where you can safely reach the runway, chop the power to idle and land straight ahead. Apply power only to go-around if necessary.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Engine failure landings on approach - S turns</p> <p>Perform a normal circuit, continue on final approach past the normal initial descent point. Chop the power to idle, perform S-turns and land at the usual touchdown point on the runway.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Engine failure landings on approach - speed reduction</p> <p>Perform a normal circuit, continue on final approach past the normal initial descent point. Chop the power to idle, reduce airspeed to a minimum suitable airspeed for the Gyro that still gives rudder authority and descend until the normal glide approach is re-established or the minimum safe height. Increase speed to a safe landing speed and touchdown on the runway.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Engine failure landings on downwind leg</p> <p>Perform a normal circuit (or a tight circuit if suitable). At a point past the midpoint on the downwind leg, chop the power. Perform a 180deg turn and land.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Engine failure landings from overhead the airfield</p> <p>Fly overhead the airfield at a height roughly equal to double the circuit height (as a guide). Chop the power and position the Gyro directly to a position suitable for landing on the runway. Perform an idle power landing. Ensure that no other circuit traffic will be affected by this manoeuvre.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>

Ex 4b: Engine failure in the circuit, unable to reach the airfield

Objective

To be able to land in a safe area in the event of an engine failure when in the circuit but not close to the runway.

Brief

- The procedure for simulated engine failures in the circuit
- Simulated engine failure on climb-out
- Simulated engine failure on the crosswind leg
- Simulated engine failure on the downwind leg
- Simulated engine failure on base leg or final approach

Specific Flying Objectives

Specific Flying Objective	Completed
<p>Engine failures on climb out</p> <p>Perform a normal circuit, at a suitable point on the climb-out (say at least 300ft) chop the power and approach for landing ahead. DO NOT ATTEMPT TO TURN BACK TO THE RUNWAY. Go around at a suitable height.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Engine failures on crosswind leg</p> <p>Perform a normal circuit, at a suitable point on the crosswind leg chop the power and approach for landing into wind. DO NOT ATTEMPT TO TURN BACK TO THE RUNWAY. Go around at a suitable height.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Engine failures on downwind leg</p> <p>Perform a normal circuit, at a suitable point before the midpoint of the downwind leg chop the power and take decisive action about where to land, If suitable for landing then touchdown otherwise go-around at a suitable height.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>

Ex 4c: Engine failure on take off

Objective

To be able to land ahead on the runway in the event of an engine failure on take off.

Brief

- A reminder of the height-velocity curve
- The high loss of airspeed with an engine failure in a nose high attitude
- Engine failure during the speed build-up phase
- Engine failure during the early climb-out

Specific Flying Objectives

Specific Flying Objective	Completed
Engine failure during speed build up Perform a normal take off, as the airspeed is increasing with the Gyro flying level a few feet above the ground, chop the power and land ahead. The Gyro must not significantly go out of balance or drift during the exercise.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved
Engine failure during early climb out Perform a normal take off, soon after the climb-out is started, having achieved a suitable climb-out speed and safe height for the manoeuvre, chop the power and land ahead. If there is not a suitable length of runway remaining - go-around at a suitable height.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Ex 4d: Emergencies

Objective

To be able to take corrective action in the event of emergency situations.

Brief

- Partial Engine Failure, Trim Failure
- Throttle Cable Failure, Fire, Control Failure

Specific Flying Objectives

Specific Flying Objective	Completed
<p>Limited power flying and landing</p> <p>Take off as if to fly a normal circuit, at about 200ft on the climbout reduce power to about 3/4 of full power (simulating an engine cylinder failure). Take appropriate action to land safely on the ground.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Simulated throttle cable break (if appropriate for the Gyro)</p> <p>Take off as if to fly a normal circuit, at about 200ft on the climbout apply full power (possibly simulating a throttle cable break). Take appropriate action and land back on the runway. You only have 2 power settings - full power or idle power.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Simulated trim failure - full rear trim (if appropriate for the Gyro)</p> <p>Take off as if to fly a normal circuit, at about 200ft on the climbout apply full trim backwards. Continue to fly the circuit with this excessive back pressure and land normally. If there is any doubt that a satisfactory landing can be achieved, go-around and land with a normal trim setting.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Simulated trim failure - full forward trim (if appropriate for the Gyro)</p> <p>Take off as if to fly a normal circuit, at about 200ft on the climbout apply full forward trim. Continue to fly the circuit with this excessive forward pressure and land normally. If there is any doubt that a satisfactory landing can be achieved, go-around and land with a normal trim setting.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Simulated fire in the air</p> <p>Take off as if to fly a normal circuit, or fly away from the airfield. Simulate an engine fire and TALK THROUGH ONLY any actions to take. Repeat the exercise with an electrical fire.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Simulated fire on the ground</p> <p>Whilst Taxiing, simulate an engine fire and TALK THROUGH ONLY any actions to take. Repeat the exercise with an electrical fire.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>

Ex 4e: Recognising and recovery from unusual attitudes

Objective

To be able to recognise unusual attitudes and safely recover from them.

Brief

- These exercises must only be done with an instructor
- HASEL checks
- The standard recovery technique
- Discussion of a tail slide

Specific Flying Objectives

Specific Flying Objective	Completed
<p>Recovery from rapid stick back movement and nose high attitude Fly straight and level. Without adjusting power lower the nose to increase to a significant speed appropriate for the exercise and pull back on the stick to climb in a nose high attitude. Recognise this unusual attitude and recover safely.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Recovery from a nose low attitude with power and speed close to VNE Fly straight and level with cruise power. Gently lower the nose significantly and let the speed build close the VNE. Recognise this unusual attitude and recover safely.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Recovery from slow speed descending turn Fly straight and level. Without adjusting power gradually bring the stick back to reduce speed, apply some pedal and stick in the same direction to enter a slow spiral descent. Recognise this unusual attitude and recover safely.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Recovery from high speed descending turn Fly straight and level. Without adjusting power introduce roll left and/or right without applying back pressure on the stick. The aircraft will enter a high speed spiral descent. Recognise this unusual attitude and recover safely before speed reaches VNE.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Recovery from a zero airspeed flat spin (demo by instructor) With power at idle, reduce airspeed to zero to induce a loss of airflow over the rudder. Allow the aircraft to develop a rotation to the right. Recover by adding power or by increasing airspeed.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>

Section 5: Solo Flying

At this stage you will have the competence to fly accurately and deal with emergency situations. The aim of this section is to build confidence to fly a Gyro on your own and consolidate all your training, within the general locality of an airfield.

Ex 5a: Presolo - check

To be assessed for readiness for a first solo.

Ex 5b: First solo

To perform a first solo flight.

Ex 5c: Solo consolidation

To consolidate solo flying and obtain consistency and accuracy of flying in solo circumstances.

Ex 5a: Presolo - check

Objective

To be assessed for readiness for a first solo.

Brief

- Exercises signed off
- Air Law exam
- A signed medical form
- Ballast
- The characteristics of solo flight
- Two techniques to make solo flight feel familiar

Specific Flying Objectives

Specific Flying Objective	Completed
Perform take offs and landing competently and consistently With ALL of the previous exercises signed off, perform a suitable number consecutive take offs and landings flown with accurate circuits. At least one of the circuits must include a self initiated go-around either due to the recognition of a possible unsatisfactory landing or the simulation of a runway intrusion.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Ex 5b: First solo

Objective

To perform a first solo flight.

Brief

- Mental Attitude
- Weather Conditions

Specific Flying Objectives

Specific Flying Objective	Completed
First solo Perform at least one circuit being the only occupant of the Gyro, landing safely. Perform go-arounds if there is any uncertainty in the landing.	Trained Consolidated Proved

Ex 5c: Solo consolidation

Objective

To consolidate solo flying and obtain consistency and accuracy of flying in solo circumstances.

Brief

- Making the decision to go flying
- Only fly according to the brief except if flight safety is compromised

Specific Flying Objectives

Specific Flying Objective	Completed
Solo circuit consolidation As the only occupant in the Gyro, fly accurate circuits, coming to a full stop landing before each take-off.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved
Solo local area consolidation As the only occupant in the Gyro, fly around the local area as briefed previously by your instructor. Rejoin the circuit and land.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved
Solo consolidation of flying skills As the only occupant in the Gyro, fly to a suitable area as briefed by your instructor and consolidate your flying skills of all exercises signed off to date. Pay particular attention to maintaining a given height and speed during an exercise and flying in balance and in trim. MAINTAIN A SUITABLE LOOKOUT AT ALL TIMES when concentrating on an exercise.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Section 6: Advanced Flying

`Advanced flying` is about being able to understand and fly a Gyro within the majority of the range of its flight envelope. The aim of this section is to be able to fly more accurate landings, with and without power, flying at a slow and fast airspeed and flying safely at a relatively low level. It is about flying and thinking like a Gyro pilot.

ALL OF THESE EXERCISES ARE DUAL EXERCISES. These exercises may be done pre-solo as determined by your instructor, however it is good practice to consolidate these exercises after some solo work when the workload capacity of the student will be more suitable for these types of exercises.

Ex 6a: Advanced take offs

To be able to perform takeoffs in the shortest possible distance eg. when the ground surface is poor or the circuit is busy.

Ex 6b: Advanced Landings

To be able to land within close proximity to a given point, with and without power.

Ex 6c: Slow Flight

To be able to fly at the slowest speed possible without losing height.

Ex 6d: Fast Flight

To be able to fly at the fastest speed possible in a controlled and accurate manner.

Ex 6e: Zero airspeed descents

To be able to fly at a zero airspeed.

Ex 6f: Advanced Turns

To be able to turn the gyro safely at its maximum allowable bank angle.

Ex 6g: Low flying

To be able to fly the gyro accurately at low level and understand the importance and consequence of the effect of the wind, navigation and radio signals.

Ex 6h: Advanced Rotor Management

To be able to accelerate the rotors from a slow rotational speed to flying speed in a safe manner.

Ex 6a: Advanced take offs

Objective

To be able to perform takeoffs in the shortest possible distance eg. when the ground surface is poor or the circuit is busy.

Brief

- Technique for minimum ground distance
- Performance criteria for take-off distance
- Immediate departure take-off
- Taking off from a slope

Specific Flying Objectives

Specific Flying Objective	Completed
Performance Take-off, shortest ground run Prerotate to the maximum permitted by the manufacturer and after prerotation apply full power keeping the stick full back for as long as it is safe to do so, becoming airborne in the shortest possible distance. As the airspeed will be lower, ensure correct airspeed is obtained before starting to climb out.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved
Immediate departure takeoff Prerotate at the hold point BEFORE entering the runway. When ready to take off, Taxi to the runway with the rotors spinning and start rolling as soon as the Gyro is lined up without stopping. This is a necessary exercise when operating from busy airfields.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Ex 6b: Advanced Landings

Objective

To be able to land within close proximity to a given point, with and without power.

Brief

- The danger of fixating on the landing area
- Spot landings with power
- Spot landings without power
- Technique for landing on soft/uneven ground
- Landing on sloping ground

Specific Flying Objectives

Specific Flying Objective	Completed
Spot landings with power Perform a standard circuit with an aim to touchdown and stop at a predetermined point on the runway. Using power to adjust the glideslope, maintaining a suitable speed at all times land within -0/+100 metres of the predetermined point.	Trained Consolidated Proved
Spot landings without power Perform a standard circuit with an aim to touchdown and stop at a predetermined point on the runway. At a suitable point on the approach and above 500ft AGL, reduce the power to idle and using any technique previously taught, maintaining a suitable speed at all times land within +/-100 metres of the predetermined point. Apply power only in a go-around situation.	Trained Consolidated Proved

Ex 6c: Slow Flight

Objective

To be able to fly at the slowest speed possible without losing height.

Brief

- The power curve
- A "Hover"?
- Technique for flying slowly
- The hover taxi
- The dangers of flying behind the power curve

Specific Flying Objectives

Specific Flying Objective	Completed
Slow flight at altitude Fly straight and level at a safe height for this exercise. Gradually reduce speed, adjusting power as required to stay level, and fly the aircraft at the slowest speed possible for the Gyro without losing height. At the end of the exercise increase speed to a suitable cruise speed. Maintain balance at all times.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Ex 6d: Fast Flight

Objective

To be able to fly at the fastest speed possible in a controlled and accurate manner.

Brief

- Control responsiveness
- Understanding V_a , the fastest safe manoeuvring speed

Specific Flying Objectives

Specific Flying Objective	Completed
Fast flight at altitude Whilst in a normal cruise flight, increase speed close to the VNE speed for the Gyro. Note the increased responsiveness. Fly for a few minutes at this speed performing gentle turns.	Trained Consolidated Proved

Ex 6e: Vertical descents

Objective

To be able to descend above a fixed point on the ground when the windspeed exceeds the minimum speed for safe level flight of the gyroplane.

Brief

- The need for airflow over the rudder
- The technique for establishing a vertical descent
- Recovery technique with power
- Recovery technique without power
- Importance of not over-pitching

Specific Flying Objectives

Specific Flying Objective	Completed
Descend over a point on the ground, recovery with power to achieve minimum further height loss. Starting from a normal cruise flying into wind, reduce power close to idle and reduce speed to the minimum speed allowed whilst maintaining enough airflow for rudder authority. Maintain the aircraft in balance and prevent any drift. At a height no less than 500ft recover by applying power. Ensure you are not in a nose down attitude when applying power. The aim of the exercise is to recover with minimum height loss.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved
Descend over a point on the ground, recover without power to a safe flying speed for landing Starting from a normal cruise flying into wind, reduce power close to idle and reduce speed to the minimum speed allowed whilst maintaining enough airflow for rudder authority. Maintain the aircraft in balance and prevent any drift. At a height no less than 500ft recover by lowering the nose. When an airspeed suitable for landing is achieved, maintain this airspeed until the instructor says the exercise is complete at which time add power and recover to the cruise.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Ex 6f: Advanced Turns

Objective

To be able to turn the gyro safely at its maximum allowable bank angle.

Brief

- Slipping and skidding turns
- The technique for a high bank angle turn
- Turning around a point on the ground

Specific Flying Objectives

Specific Flying Objective	Completed
<p>Turn around a point on the ground to the right at constant altitude</p> <p>In a wind of at least 10mph, fly 360 deg turns to the right around a point on the ground keeping a constant distance from that point on the ground at all times and a constant altitude, changing the bank angle as appropriate to compensate for drift.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Turn around a point on the ground to the left at constant altitude</p> <p>In a wind of at least 10mph, fly 360 deg turns to the left around a point on the ground keeping a constant distance from that point on the ground at all times and a constant altitude, changing the bank angle as appropriate to compensate for drift.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Figures of 8 around 2 points on the ground at constant attitude</p> <p>In a wind of at least 10mph, fly figures of 8 around two points on the ground about 100m apart keeping a constant distance from the points on the ground at all times and a constant altitude, changing the bank angle as appropriate to compensate for drift.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Figures of 8 level, then whilst turning - climb to level. Constant speed</p> <p>Perform figures of 8 at a constant speed and height around 2 points approx 100metres apart. Initiate a full power climb to a given altitude at least 400ft above the starting altitude whilst maintaining the figure of 8 pattern. At the end of the climb continue on the figure of 8 pattern at level altitude.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Figures of 8 level, then whilst turning - descend to level. Constant speed</p> <p>Perform figures of 8 at a constant speed and height around 2 points approx 100metres apart. Initiate a low power descent to a given altitude at least 400ft below the starting altitude</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>

<p>whilst maintaining the figure of 8 pattern. At the end of the descent continue on the figure of 8 pattern at level altitude.</p>	
<p>Figures of 8 climbing, then descending, then climbing. Constant speed</p> <p>Perform figures of 8 at a constant speed and height around 2 points approx 100metres apart. Initiate a full power climb to a given altitude at least 400ft above the starting altitude whilst maintaining the figure of 8 pattern. At the end of the climb immediately initiate a low power descent whilst maintaining the figure of 8 pattern. At the end of the figure of 8 pattern immediately initiate a full power climb and repeat the exercise.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Steep turns to the left</p> <p>Fly at a suitable cruise height and speed. Make a 180 degree to the left at a bank angle of approximately 60 degrees, using increased power to maintain height. Ensure the Gyro is in balance at all times.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>
<p>Steep turns to the right</p> <p>Fly at a suitable cruise height and speed. Make a 180 degree to the right at a bank angle of approximately 60 degrees, using increased power to maintain height. Ensure the Gyro is in balance at all times.</p>	<p>Trained</p> <p>Consolidated</p> <p>Proved</p>

Ex 6g: Low flying

Objective

To be able to fly the gyro accurately at low level and understand the importance and consequence of the effect of the wind, navigation and radio signals.

Brief

- The legal issues of low flying
- The influence of the wind on low flying
- Terrain, wires, masts and cables
- The effect on radio communications
- Always think about an engine failure

Specific Flying Objectives

Specific Flying Objective	Completed
Low flying at safe height and speed Fly at a suitable safe height along a given track over the ground keeping a good lookout for masts and other obstacles. Ensure correct balance at all times. Keep attention on the wind speed and direction and be prepared for an engine failure at all times. Ensure a safe flying speed at all times.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Ex 6h: Advanced Rotor Management

Objective

To be able to accelerate the rotors from a slow rotational speed to flying speed in a safe manner.

Brief

- Blade sailing and retreating blade stall
- The technique for increasing rotor rpm

Specific Flying Objectives

Specific Flying Objective	Completed
Slow rotor buildup From a position at the start of the runway, prerotate until the rotors are turning at a relatively slow speed. Using slow application of power and correct use of the stick use airflow to increase the rotor RPM to flying speed. Be particularly aware of blade sailing at all times. The initial rotor RPM should be at the lowest level which allows rotor speed to be increased without the use of the prerotator.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Section 7: Cross country flying

Up until this point, the majority of your training will be in close proximity of the training airfield. `Cross Country Flying` is about flying between airfields without getting lost and safely flying in different classes of airspace, with consideration for other air traffic. The aim of this section is to give you the skills and confidence to tour with your Gyro.

Ex 7a: Join the circuit at unfamiliar airfields

To be able to join the circuit an airfield conforming to the circuit pattern and with consideration for other traffic.

Ex 7b: Precautionary Field landings

To be able to correctly select an appropriate field for landing and approach this field for landing.

Ex 7c: Emergency field landing

To be able to land in a field in the event of an engine failure.

Ex 7d: Navigation

To be able to safely navigate between two airfields without losing knowledge of the current position and land at different airfield.

Ex 7e: Qualifying Cross country

To perform the required cross country solo navigation exercises.

Ex 7a: Join the circuit at unfamiliar airfields

Objective

To be able to join the circuit at an airfield conforming to the circuit pattern and with consideration for other traffic.

Brief

- Preparation for landing at an unfamiliar airfield
- The overhead join
- Radio calls

Specific Flying Objectives

Specific Flying Objective	Completed
Joining overhead From an exercise away from an airfield, return to an airfield correctly joining overhead, descending deadside and crosswind taking into account other traffic in the area. Perform downwind checks and check final.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved
Joining downwind / base leg From an exercise away from an airfield, join on the downwind leg taking account of other traffic in the area. Perform correct downwind checks and check final. Repeat the exercise joining on the base leg.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Ex 7b: Precautionary Field landings

Objective

To be able to correctly select an appropriate field for landing and approach this field for landing.

Brief

- How to select a suitable field
- Inspecting a field
- The landing

Specific Flying Objectives

Specific Flying Objective	Completed
Precautionary field landing From a general cruise speed and height select a suitable field for landing. Ensure there are no wires or obstructions in the vicinity of the field, perform a number of passes over the field to check the field's suitability for landing. Approach the field and land if you have permission, otherwise perform a go-around at an appropriate height.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Ex 7c: Emergency field landing

Objective

To be able to land in a field in the event of an engine failure.

Brief

- The technique for a field landing
- The restart procedure
- Declaring a 'Mayday' or 'Pan Pan' radio call

Specific Flying Objectives

Specific Flying Objective	Completed
Emergency field landing From a height above the ground of at least 1000ft, reduce engine power to idle. Select a suitable field for landing and fly an approach to land approximately 1/3 of the way into the field. Go around at a suitable height. This exercise is about setting up a correct approach.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved
Engine restart procedure and MAYDAY call From a height above the ground of at least 1500ft, reduce engine power to idle. After selecting a suitable field for landing demonstrate the restart procedure and MAYDAY call. Set up an approach for a forced landing and include forced landing checks.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Ex 7d: Navigation

Objective

To be able to safely navigate between two airfields without losing knowledge of the current position and land at different airfield.

Brief

- Pre-flight planning
- Flying the route
- Weather deterioration
- Unsure of position
- When you arrive

Specific Flying Objectives

Specific Flying Objective	Completed
Enroute navigation Plan and fly a route between a number of cross country turning points without getting lost and without the aid of a GPS unit. You should fly this exercise over unfamiliar territory. This exercise can be flown dual or solo.	Trained Consolidated Proved
Unfamiliar airfield circuits joins Plan and fly to an unfamiliar airfield correctly joining the circuit and land. If the airfield uses radio you must give appropriate radio calls. Obtain prior permission for landing (PPR) before flying. This exercise can be flown dual or solo.	Trained Consolidated Proved
Landing and take off on alternative surface Fly and land on a different landing surface from the one that you have used for your training. If you are used to grass, this exercise must be to a runway with a tarmac surface. If you are used to tarmac, this exercise must be to a runway with a grass surface. This exercise can be flown dual or solo.	Trained Consolidated Proved
Solo Cross country navigation Practice navigation in unfamiliar territory whilst solo.	Trained Consolidated Proved

Ex 7e: Qualifying Cross country

Objective

To perform the required cross country solo navigation exercises.

Brief

- Pre-requisites for cross country
- Plan the exercise
- The rules for a qualifying cross country flight

Specific Flying Objectives

Specific Flying Objective	Completed
Qualifying Cross Country No 1 Solo navigation with a landing at an airfield not less than 25 nm from the home airfield.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved
Qualifying Cross Country No 2 Solo navigation with a landing at an airfield not less than 25 nm from the airfield used for take off and different from the airfield and/or route in the first qualifying flight. This does not have to be a separate flight but can be an extension of Qualifying Cross Country No 1.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Section 8: General flying test

The `General Flying Test` is a flying exam, conducted by a CAA approved examiner to demonstrate safe handling of a Gyro. The aim of this test is to prove your competence at flying so that you will be entitled to the privilege to carry friends and family as passengers.

Ex 8a: Pre-GFT check

To prepare for the general flying test.

Ex 8b: General Flying Test

To show an examiner that you are safe and competent at flying a gyro and responsible to carry passengers.

Ex 8a: Pre-GFT check

Objective

To prepare for the general flying test.

Brief

- See brief for General Flying Test

Specific Flying Objectives

Specific Flying Objective	Completed
Flying Skills Check To repeat all the exercises signed off in this syllabus in preparation for the General Flying test.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved
Gyro daily inspection check Perform the routine daily inspection check of the Gyro, ideally using a checklist. Be able to answer questions on the components of a Gyro and possible component failures that may occur.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved
Performance considerations for the type of Gyro Answer questions relating to the type of Gyro being used for the test. Specifically weights and payloads, fuel weight and consumptions and min/max speeds, especially in turbulence.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved
Passenger safety brief Perform a safety brief for passengers. In particular exiting the Gyro in an emergency.	<input type="checkbox"/> Trained <input type="checkbox"/> Consolidated <input type="checkbox"/> Proved

Ex 8b: General Flying Test

Objective

To show an examiner that you are safe and competent at flying a gyro and responsible to carry passengers.

Brief

- Daily Inspection
- Performance Considerations for Gyro type
- Passenger Safety Brief
- Selection of exercises for the skills test
- Nothing in the test should be new

Specific Flying Objectives

Specific Flying Objective	Completed
Gyro daily inspection check.	
Performance considerations for the type of Gyro.	
Passenger safety brief.	
Starting procedure : running up.	
Taxiing.	
Take-off and landing.	
Straight and level flying at pre-determined power settings and airspeeds, including at the lowest possible speed to maintain level flight.	
Climbing and descending turns.	
Recovery at a safe altitude from a point where forward speed has been reduced below the minimum speed for the maintenance of level flight by application of power.	
as above but recovery without application of power.	
Go-around from a baulked approach.	
Flight into and out of a restricted landing area, the landing to achieve the lowest possible touch-down speed consistent with safety.	
A power-off approach and landing, to touch down as near as possible to a selected point.	
Shut down procedure.	

Syllabus for the PPL(G)

2009 Edition

Part 2 - The Theory Elements

The PPL(G) Syllabus - The Theory Elements

Airfield Procedures

Every airfield should have their own local procedures. This section lists what procedures should be in place. For the safety of yourself and others, ensure that you have made yourself familiar with all these items during the early part of your training. There is no written examination for this topic.

Aviation Law, Flight Rules and Procedures

There are `rules of the air` for flying in the same way that there is a `highway code` for driving. Some of this relates to collision avoidance of other aircraft, all of it relates to your legal obligations as a pilot and the rules must be obeyed by law.

Gyroplane Technical

Understanding the terminology associated with Gyro flying should be important to every Gyro pilot. It is vital that you have a basic understanding of how and why a Gyro flies, as this will give you some element of knowledge in the event that something goes wrong whilst you are flying.

Meteorology

The weather plays a major role in flying. Weather is predictable and it is vital that, as a pilot, you can predict what is likely to happen during the course of your flight. Understanding the weather is a significant safety factor in flying.

Human Performance and Limitations

As a pilot, you have limitations. If you fly when you are outside these limitations there is a high chance of danger to you and your passengers. It is vital that you know about these limitations, recognise your own personal limitations and only fly within these limitations.

Navigation

Much of the fun of Gyros is visiting other places and other airfields. It is essential that you can navigate whilst in the air, both to avoid getting lost, but also to avoid putting yourself, your passengers and other aircraft in danger.

Airfield Procedures

Every airfield should have their own local procedures. This section lists what procedures should be in place. For the safety of yourself and others, ensure that you have made yourself familiar with all these items during the early part of your training. There is no written examination for this topic.

Airfield Procedures

- Standing Orders
- Booking In/Out
- Windssock
- Signals Square
- Manoeuvring areas

Safety

- Fire Extinguishers - location
- First Aid Kit - location
- Telephone - location
- Fuel Storage - suitable containers
- Smoking - nowhere near buildings or aircraft
- What to do in the event of an accident
- Refuelling
- Safety of onlookers

Flight Authorisation

- Preflight planning
- Aircraft documentation - service checks
- Certificate of Maintenance
- Air Traffic Units
- Personal Equipment (phone)
- Booking out
- Solo authorisation by instructor
- Daily Inspection

After flight

- Booking In
- Reporting Defects
- Personal Flying Logbooks
- Aircraft logbooks

Aviation Law, Flight Rules and Procedures

There are `rules of the air` for flying in the same way that there is a `highway code` for driving. Some of this relates to collision avoidance of other aircraft, all of it relates to your legal obligations as a pilot and the rules must be obeyed by law.

Aircraft Documents

- Registration Certificate
- Permit to fly
- Engine/Airframe/Prop Logbook
- Pilot operators handbook
- Maintenance Schedule
- Certificate of Maintenance
- Insurance Requirements

Aircraft Permit

- Limitations
- Revalidation
- Before flight checks
- Modifications

Personnel Licencing

- Privileges of a licence
- Revalidation period
- Medical requirements
- 90 day rule

Signalling

- Signals Square
- Marshaller Signals
- Light Signals

Flying Restrictions

- Charity
- Performing at an event
- Rule 5
- Events with more than 1000 people
- VFR Rules

Collision Avoidance

- Feature following
- Who has right of way in the air
- Who has right of way on landings
- Who has priority (different types of aircraft)

Flying

- Reportable accidents
- Alcohol limits
- When to use QFE/QNH/Flight Levels
- Danger Areas and restricted areas

Gyroplane Technical

Understanding the terminology associated with Gyro flying should be important to every Gyro pilot. It is vital that you have a basic understanding of how and why a Gyro flies, as this will give you some element of knowledge in the event that something goes wrong whilst you are flying.

Components of a Gyro

- Rotor
- Hub Bar
- Teeter Tower
- Teeter Block
- Teeter Bolt
- Roll Bolt
- Pitch Bolt
- Teeter Stops
- Mast
- Trim Spring
- Keel
- Main Wheels
- Nose Wheel
- Main Wheel Spar
- Empennage
- Rudder
- Horizontal Stabiliser
- Vertical Stabiliser
- Nacelle
- Prerotator Gear
- Bendix Gear
- Prerotator Shaft

Controls

- How the stick works
- How the pedals work
- How the throttle works

Instruments

- ASI
- Altimeter
- Rotor RPM Gauge
- Engine RPM Gauge
- Oil Pressure

- Engine Temperature
- Engine Exhaust Gas Temperature

Electrical System

- Magnetos
- Master Switch
- Lights

Engine

- Fuel
- Oil
- Carb Icing

The forces acting on a Gyro

- Lift, weight, thrust and Drag

The rotor system

- Components of a rotor
- Autorotation and the forces on a rotor
- Disk loading on rotor rpm
- Dissymmetry of lift
- Flapping to Equality
- Reverse Flow
- Retreating blade stall
- Reducing stress on rotors

Stability

- The function of the empennage
- The need for pedal pressure when increasing power
- Centre of gravity calculation
- Propeller thrust and stability
- Rotor thrust and stability

Safety

- Height / Velocity diagram
- The Hang check

Meteorology

The weather plays a major role in flying. Weather is predictable and it is vital that, as a pilot, you can predict what is likely to happen during the course of your flight. Understanding the weather is a significant safety factor in flying.

Air Density

- What is air density
- How air density affects Gyro flying performance
- Factors affecting air density

ISA Definitions

- Pressure changes with height
- Temperature changes with height
- Lapse rates and stability
- Temperature Inversion

Air masses

- Air masses in the northern hemisphere
- Weather characteristics in air masses

Understanding synoptic charts

- Isobars
- Working out the wind direction from synoptic charts
- Warm fronts
- Cold fronts
- Occluded fronts

Wind

- Changes with height
- Wind gradient
- Turbulence over obstacles
- Wake Turbulence

Wind and hills

- Rotor turbulence
- Wave
- Orographic fog / cloud

Convection

- Sea Breeze
- Thermals
- Katabatic winds
- Anabatic winds

Fog

- Dew point
- Radiation fog
- Advection fog

Icing

- Different types of icing
- Factors affecting icing
- Consequences of icing on a Gyro

Cloud types

- Safe flying cloud types
- Clouds to be avoided
- Calculation of cloud base
- Rain & Squalls

Thunderstorms

- Conditions that cause thunderstorms
- How can you see thunderstorms approaching
- How far should you stay away from thunderstorms

Obtaining weather information

- TAFS
- METARS
- AIRMET
- 214
- 215
- When can you contact the met office

Flight planning and the weather

- Flying into weather

Human Performance and Limitations

As a pilot, you have limitations. If you fly when you are outside these limitations there is a high chance of danger to you and your passengers. It is vital that you know about these limitations, recognise your own personal limitations and only fly within these limitations.

Hypoxia

- Oxygen
- Signs and symptoms
- When it takes effect
- The effect of smoking

Hyperventilation

- Signs and symptoms
- Differences from Hypoxia

Flying with colds and flu

- What it effects

Scuba Diving

- The effects of decompression
- Recommended times between diving and flying

Stress

- Effects of stress on flying

Alcohol

- Effects of alcohol
- Elimination time
- Allowable volume

Lookout

- How to scan the horizon
- Collision times from flying speeds
- Flying with instructors / experience pilots

Air sickness

- Recognising the symptoms
- Medication
- Sickness in the air

IMSAFE

- Fit for flying

Navigation

Much of the fun of Gyros is visiting other places and other airfields. It is essential that you can navigate whilst in the air, both to avoid getting lost, but also to avoid putting yourself, your passengers and other aircraft in danger.

Reading aeronautical charts

- Understanding the 1/4mil map
- Understanding the 1/2mil map
- Limitations of maps
- Classification of airspace
- Danger and Restricted areas
- MATZ Transits
- Recognisable features

The route plan

- Working out a sensible route
- The route plan document
- Marking up a map
- Safety Altitude
- Flying speed

Calculating headings

- Using the whizz wheel
- Triangle of velocities
- Magnetic Variation and Isogonals
- Compass Deviation

Preparation for flight

- Fuel Consumption
- PPR
- Radio Frequencies

During flight

- Setting QFE / QNH
- Regional Pressure Settings
- Reading a map in flight

Certificate of Completion

Name of Student:

Date of birth:

Address:

The above student has been trained on all the elements of this syllabus.

The above student has had time and opportunity to consolidate this training and feels confident that he/she understands all of the exercises.

After the period of consolidation, all of the specific flying objectives have been demonstrated to the standard given in this syllabus.

Instructor

Name

Signed

Date

Licence No

Student

Signed

Date