The PPL(G) Syllabus

2009 Edition

Revision A
1/6/2009

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) holder (or above) will be granted a credit of up to 10 hours towards the training. An existing PPL(H) holder (or above) will be granted a credit of up to 20 hours towards the training. In both these cases 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 12 months of the application for a licence.

LASORS

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 "LASORS" 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 should 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.

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Part 1 - The Flying Elements

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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: Zero airspeed 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 front 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

- Terminology:
  - Roll, Pitch, Yaw
  - Fly by horizon
  - Altitude, Attitude, Airmanship
- Stick = Speed, Throttle(Power) = Height, Pedals = Balance
- Student/Instructor handover
- Clock code
- Understanding the instruments
- Visual Reference Points (especially side-by-side)

Specific Flying Objectives

Specific Flying Objective	Completed
Seating position and control movement 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.	Trained Consolidated Proved
Instructor/Student handover Understand and use the `I have control - You have control` technique to ensure that there is no ambiguity who is flying the Gyro.	Trained Consolidated Proved
Relaxed Flying Demonstrate a sufficiently relaxed manner when flying and to be able to talk to and listen to the instructor in flight.	Trained Consolidated Proved
Reference to the instruments Understand how to interpret the instruments in the Gyro. Get the balance correct between flying with reference to the horizon and scanning the instruments.	Trained Consolidated Proved
Maintain a good lookout 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.	Trained Consolidated Proved

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

- Positioning of the Gyro before start
- Blade Flap
- Prestart Checklist
- Startup Checklist
- Use of controls when taxying
- Runway 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 taxying.	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

- Understanding stick back pressure on turning
- Understanding Balance
- Understanding Trim
- Understanding power and pitch relationship

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

- Terminology:
  - Headwind/Into Wind
  - Tailwind/Downwind
  - Crosswind
  - Lift/Sink
  - Drift/Crabbing
  - Track/Heading
  - Airspeed/Groundspeed
- Picking ground track objects
- Wind signals

Specific Flying Objectives

Specific Flying Objective	Completed
Maintain a track in a headwind at constant altitude 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.	Trained Consolidated Proved
Maintain a track in a tailwind at constant altitude 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.	Trained Consolidated Proved
Maintain a track in a crosswind from the right at constant altitude 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.	Trained Consolidated Proved
Maintain a track in a crosswind from the left at constant altitude 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.	Trained Consolidated Proved

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
Change heading by 360 deg to the right at constant altitude 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.	Trained Consolidated Proved
Change heading by 360 deg to the left at constant altitude 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.	Trained Consolidated Proved

Ex 2d: Climb and descend - straight

Objective

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

Brief

- Relationship between power and pitch
- Simultaneous adjustment
- Importance of lookout

Specific Flying Objectives

Specific Flying Objective	Completed
Full power climb and level out. Constant speed 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.	Trained Consolidated Proved
Low power descend and level out. Constant speed 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.	Trained Consolidated Proved
Full power climb into a low power descent 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.	Trained Consolidated Proved
Low power descent into a full power climb 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.	Trained Consolidated Proved

Ex 2e: Climb and descend whilst turning

Objective

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

Brief

- Increase in drag in the turn

Specific Flying Objectives

Specific Flying Objective	Completed
Climbing, initiating a 360 turn in the climb and then straight 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.	Trained Consolidated Proved
Descending, initiating a 360 turn in the descent and then straight 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.	Trained Consolidated Proved
Level 360 turn and then climb during the turn to level out in the turn 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.	Trained Consolidated Proved
Level 360 turn and then descend during the turn to level out in the turn 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.	Trained Consolidated Proved

Ex 2f: Fly the circuit pattern

Objective

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

Brief

- Terminology:
  - Climbout, Crosswind, Downwind, Base Leg, Final Approach, Deadside, Overhead
- Downwind checks - LIFES (or equivalent)
  - Location, Lookout, Landing Lights
  - Instruments (Height, Speed)
  - Fuel Sufficient, Fuel Pump On
  - Engine Temperatures and Pressures
  - Security, Harness and Helmets
- Check "Clear Final"
- Go-around

Specific Flying Objectives

Specific Flying Objective	Completed
Circuit pattern, left hand 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.	Trained Consolidated Proved
Circuit pattern, right hand 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.	Trained Consolidated Proved

Ex 2g: Upper Air Work Consolidation

Objective

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

Brief

- LIFE checks (or equivalent)
  - Location, Lookout
  - Instruments (Height, Speed)
  - Fuel
  - Engine Temperatures and Pressures

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.	Trained Consolidated 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.	Trained Consolidated 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
- 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
Taxy with stick forward including turning at each end of the runway With the rotors turning at a suitable speed, taxy 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
Prerotating whilst taxying with stick forward Whilst taxying with the rotors turning, engage the prerotator whilst moving forward to prevent blade sailing, ensuring that the Gyro remains in a straight line and at a controlled speed, anticipating the changes in torque.	Trained Consolidated Proved
Taxy with stick backward, maintaining rotor speed In suitable wind conditions, backtrack the length of the runway with the still fully back to maintain a safe rotor speed, with due care and attention to the avoidance of blade sailing.	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

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
Landings with headwind or light crosswind 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.	Trained Consolidated Proved
Landings with medium crosswind from the right 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.	Trained Consolidated Proved
Landings with medium crosswind from the left 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.	Trained Consolidated Proved
Landings into wind, in a crosswind 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.	Trained Consolidated Proved

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

- Power reduction when airborne
- Stick=Drift
- Direction=Pedals
- Fly to 2ft

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

- Recap of takeoff and landing
- Downwind checks eg. LIFES
  - Lookout/Location/Lights
  - Instruments (Height/Speed)
  - Fuel, Fuel Pump
  - Engine Temperatures & Pressures
  - Security Harness/Helmet
- Any appropriate downwind checks can be used

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

- Simply a standard glide approach
- Importance of suitable speed

Specific Flying Objectives

Specific Flying Objective	Completed
Engine failure landings on approach 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.	Trained Consolidated Proved
Engine failure landings on approach - S turns 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.	Trained Consolidated Proved
Engine failure landings on approach - speed reduction 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.	Trained Consolidated Proved
Engine failure landings on downwind leg 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.	Trained Consolidated Proved
Engine failure landings from overhead the airfield 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.	Trained Consolidated Proved

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

- Always turn into wind
- Watch for wires and other traffic
- Go around at a suitable height

Specific Flying Objectives

Specific Flying Objective	Completed
Engine failures on climb out 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.	Trained Consolidated Proved
Engine failures on crosswind leg 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.	Trained Consolidated Proved
Engine failures on downwind leg 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.	Trained Consolidated Proved

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

- Do not over-control
- Careful movement of stick forward

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.	Trained Consolidated 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 manouevre, chop the power and land ahead. If there is not a suitable length of runway remaining - go-around at a suitable height.	Trained Consolidated Proved

Ex 4d: Emergencies

Objective

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

Brief

- Trim Failure
- Throttle Cable Failure
- Fire

Specific Flying Objectives

Specific Flying Objective	Completed
Limited power flying and landing 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.	Trained Consolidated Proved
Simulated throttle cable break (if appropriate) 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.	Trained Consolidated Proved
Simulated trim failure - full rear trim (if appropriate) 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.	Trained Consolidated Proved
Simulated trim failure - full forward trim (if appropriate) 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.	Trained Consolidated Proved
Simulated fire in the air 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.	Trained Consolidated Proved
Simulated fire on the ground Whilst taxying, simulate an engine fire and TALK THROUGH ONLY any actions to take. Repeat the exercise with an electrical fire.	Trained Consolidated Proved

Ex 4e: Recognising and recovery from unusual attitudes

Objective

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

Brief

- Remove the power
- Centre the stick
- Wait for the Gyro to settle

Specific Flying Objectives

Specific Flying Objective	Completed
Recovery from rapid stick back movement This exercise must only be done with an instructor. 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.	Trained Consolidated Proved
Recovery from slow speed descending turn This exercise must only be done with an instructor. 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 dive. Recognise this unusual attitude and recover safely.	Trained Consolidated Proved
Recovery from steep nose down attitude This exercise must only be done with an instructor. Fly straight and level, chop the power and reduce airspeed to almost zero. Lower the nose to a steep nose down attitude and let the airspeed increase. Recognise this unusual attitude and recover safely.	Trained Consolidated Proved
Recovery from a nose down attitude with power and speed close to VNE This exercise must only be done with an instructor. 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.	Trained Consolidated Proved

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
- Different power requirements
- Take off technique
- Ballast

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.	Trained Consolidated 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 uncertainly in the landing.	

Ex 5c: Solo consolidation

Objective

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

Brief

- 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.	Trained Consolidated 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.	Trained Consolidated 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.	Trained Consolidated 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

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.	Trained Consolidated Proved
Immediate departure takeoff Prerotate at the hold point BEFORE entering the runway. When ready to take off, taxy 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.	Trained Consolidated Proved

Ex 6b: Advanced Landings

Objective

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

Brief

- Technique for landing on soft/uneven 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 10 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, chop the power and using any technique previously taught, maintaining a suitable speed at all times land within 10 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

- 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.	Trained Consolidated Proved
Slow flight just above the runway - hover taxi Fly a normal approach and continue as if to land. At a height of a few feet above the runway as the speed reduces close to the minimum speed possible without height loss for the Gyro, apply power to fly along the runway a few feet above the ground in a hover taxi. Maintain the Gyro pointing in the direction of travel at all times. Land before the end of the runway. IT IS VITAL THAT YOU DO NOT FLY WITHIN THE `NO FLY` AREA OF THE HEIGHT/VELOCITY CURVE FOR THE GYRO	Trained Consolidated 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 Va, the fastest safe manoeuvering 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: Zero airspeed descents

Objective

To be able to fly at a zero airspeed.

Brief

- Airflow over the rudder
- Recovery technique with power
- Recovery technique without power
- Importance of not over-pitching

Specific Flying Objectives

Specific Flying Objective	Completed
Zero airspeed descent, recovery with power 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.	Trained Consolidated Proved
Zero airspeed descent, recovery without power 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 a suitable airspeed is obtained, level the Gyro and apply standard cruise power. Ensure you are not in a nose down attitude when applying power.	Trained Consolidated Proved

Ex 6f: Advanced Turns

Objective

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

Brief

- Use of power in the turns
- Reminder of use of pedals and balance indicator in the turn

Specific Flying Objectives

Specific Flying Objective	Completed
Turn around a point on the ground to the right at constant altitude 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.	Trained Consolidated Proved
Turn around a point on the ground to the left at constant altitude 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.	Trained Consolidated Proved
Figures of 8 around 2 points on the ground at constant attitude 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.	Trained Consolidated Proved
Figures of 8 level, then whilst turning - climb to level. Constant speed 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.	Trained Consolidated Proved

Figures of 8 level, then whilst turning - descend to level. Constant speed 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 whilst maintaining the figure of 8 pattern. At the end of the descent continue on the figure of 8 pattern at level altitude.	Trained Consolidated Proved
Figures of 8 climbing, then descending, then climbing. Constant speed 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.	Trained Consolidated Proved
Steep turns to the left 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.	Trained Consolidated Proved
Steep turns to the right 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.	Trained Consolidated Proved

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

- Always know where the wind is
- Fly higher when flying downwind
- Wires/masts/cables
- Do not break Rule 5 (500ft rule)

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.	Trained Consolidated 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
- Consideration for the wind

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.	Trained Consolidated 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 an airfield conforming to the circuit pattern and with consideration for other traffic.

Brief

- Setting QFE on the Altimeter
- Downwind checks
- 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.	Trained Consolidated 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.	Trained Consolidated 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

- Selection of field
- Slope/Surface/Surround/Size/Shape/Stock

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.	Trained Consolidated Proved

Ex 7c: Emergency field landing

Objective

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

Brief

- Minimum speed for landing
- Minimum height for final approach

Specific Flying Objectives

Specific Flying Objective	Completed
Idle power flying, best range speed Fly to be directly above a specific point on the ground at a specific speed flying into wind. Chop the power and fly at a constant speed. From the descent angle agree with your instructor the point at which you would be starting the roundout. Repeat the exercise at a number of different speeds. Work out the speed which will give you the best range for the current configuration of Gyro.	Trained Consolidated Proved
Emergency field landing From a height above the ground of at least 1000 ft, chop the 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.	Trained Consolidated 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

- Navigation exam
- Meteorology exam
- Human Performance and Limitations exam
- Preflight planning
- Destination airfield planning
- Enroute planning
- NOTAMS
- Obtaining and interpreting weather forcasts
- Use of the UK AIP and flight guides

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

- Getting a Qualifying Cross Country form signed
- If you land in a field - do not take off again
- Contact instructor on landing

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.	
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.	

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

- Nothing in the exercise should be new
- Accuracy of flying is very important

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.	Trained Consolidated 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.	Trained Consolidated 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.	Trained Consolidated Proved
Passenger safety brief Perform a safety brief for passengers. In particular exiting the Gyro in an emergency.	Trained Consolidated 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
- Selection of exercises for the skills test
- Passenger Safety Brief
- 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	
Taxying	
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	

The PPL(G) Syllabus

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
- Windsock
- 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 Stabilser
- 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 Temperate
- 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