1. Table of Contents – Training, Powered Parachutes (PP)

2. Powered Parachutes Code of Practice

1. Scope and Authority

1.1 The document is intended to give general guidance and, unless otherwise stated, its contents are not mandatory. However it should be noted that where disputes arise which could lead to legal action, non-compliance may be detrimental.

2. Mandatory Requirements

2.1 All PP pilots must comply with the requirements of CAA Rule Part 91 Part 103 and all relevant Air Law.

3. Sport Aviation Corp Requirements

3.1 In addition to mandatory requirements, SAC may introduce regulations from time to time.

3.2 Pilots holding SAC Flight Certificates shall maintain membership of SAC and keep up to date with existing and new regulations and guidance.

3.3 If you are not a member of SAC you should join and obtain a rating. If you become involved in legal action in the future, proof of your skills and knowledge via your pilot rating may well be an advantage.

4. Taking Off - General

4.1 Wherever possible, PP's should take off from a recognised and/or non-public area. One possibility is an existing microlight airfield with the owners permission.

4.2 When pilots take off from existing microlight areas they should familiarise themselves with, and comply with, local rules, particularly those relating to noise sensitive areas and numbers of movements per day.

4.3 If the PP takes off from other areas the following procedures should be taken:

(a) Permission should be obtained from the owner of the land.

(b) The area should be secure from the possibility of animals and/or spectators being in an area of danger.

(b) Any spectators should be properly marshalled and any dogs should be firmly attached to a lead. (They have been known to chase the PP when it starts to move.).

(d) The take-off area should be closely inspected for possible trips and holes (to at least expected take-off distance plus 50%.)

(e) Any neighbours should be informed of your future activities.

(f) Do not take off from existing hang gliding or paragliding club sites unless you have permission from the club.

5. Flying General

5.1 If you regularly take off from one place, vary your flight path to avoid annoying the general public. In particular, powered paragliders flying against the wind will remain in view and earshot for a long period of time. If they fly higher to make less noise they may fly slower due to the wind gradient. If you are not making much headway it may be better to land and get a lift back to base.

Note: German research has shown that an aircraft is a greater source of annoyance if it can be seen.

6. Flying - Hang Gliding and Powered Parachutes Sites

6.1 It will be very tempting to buzz your mates who are grounded on a nil wind day. Don't.

6.2 A number of Hang Gliding and Paragliding Clubs have introduced rules that generally exclude PP's. Most such sites were negotiated with landowners on the basis of the activity being silent. Unless you actually know that powered machines are welcome on a particular site, treat all such sites as (Prior Permission Required), just as you should if planning to visit alternative airfields or strips. The general rule to be followed is use your common sense and stay away.

7. Flying - Livestock

7.1 Good manners and common sense should mean that livestock is not disturbed. However, you should particularly avoid bird sanctuaries and riding stables. If you are taking-off from a field you should check that there are no horse riders in the vicinity. If there are - wait.

8. Landing

8.1 For a variety of reasons you may decide to "land-out". If you are landing on private land you must find the landowner and tell him/her of your arrival. Courtesy takes five minutes of your time and invariably results in a pleasant experience.

9. Conclusion

9.1 Any breach of common sense or good manners is a breach of this Code of Practice.

9.2 Dangerous or inconsiderate use of a PP may contribute to the imposition of restrictive legislation. Please do not contribute to this risk.

3. Powered Parachute Ground School Training Syllabus

1 Equipment

1.1 The Canopy

(a) Daily checks and pre-flight checks.
The student will demonstrate daily and pre-flight checks and demonstrate knowledge of the materials and methods used in the construction of the canopy.

(b) Maintenance
The student will demonstrate his knowledge of the need for regular inspections and maintenance of his canopy, the harness and the emergency parachute including emergency parachute re-packing.

1.2 Clothing

The student will demonstrate knowledge of the need for appropriate clothing including helmet, gloves, flying suit etc. No scarves - jacket drawstrings – long hair!

1.3 Instruments

The student will demonstrate the use of an altimeter and a compass and will be able to demonstrate his knowledge of the circumstances in which these should be used.

1.4 The Power Unit

(a) Configuration
The student will demonstrate an understanding of all the component parts of the motor unit and their inter-relationships. Particular emphasis will relate to:-

(i) care and balance of propellers;
(ii) safety cages and the importance of maintaining them in good condition;
(iii) fuel taps; ignition switches, emergency engine stopping;
(iv) spark plug and lead;
(v) the risk of damage to the motor unit and, in particular, the throttle cable during transit;

(vi) correctly rigging the motor to the chute with safety straps in accordance with the manufacturers recommendations;
(vii) vibrations, their effects and methods of preventing its consequences.

(c) Mixing Fuel

The student will demonstrate an understanding of:

(i) mixing fuel;
(ii) different mixtures for running in and for subsequent periods;
(iii) the need to keep an engine time log book;
(iv) the difference between synthetic and other oils;
(v) reasons why petrochemicals and the construction materials of paragliders don't mix.

(d) Safety

The student will gain an understanding of:

(i) the need to operate safely and what can go wrong;
(ii) ways of protecting him/her self and others during running in periods. An appreciation of the power generated by the propeller at full engine speed is essential;
(iii) safety procedures associated with helpers starting the motor unit;
(iv) procedures in the event of fire;
(v) general fitness, eyesight, the effect of drugs, alcohol, etc.

(e) Starting Procedures

The student will gain an understanding of starting procedures, including:

(i) clearing the area and clear prop.
(ii) checking the motor unit to ensure that everything is in its proper place, e.g. plug lead;
(iii) check the fuel tank contents.
(iv) fuel tap;
(v) choke (where fitted);
(vi pull handle, etc.
(vii) demonstrate an understanding of the warm-up of the motor for correct running.

2. Weather

2.1 General Weather

The student will demonstrate a general understanding of weather patterns, and associated wind direction and strength.

2.2 Weather Patterns and forecasts

The student will demonstrate an understanding of how weather systems affect flying conditions. An understanding of the following will be demonstrated.

(a) Forecasts
(b) Cloud recognition
(c) High and low pressure systems and fronts.
(d) Unstable weather, turbulence & gust fronts.
(e) Stable weather, effect on visibility and inversions.
(f) Stable/unstable conditions

2.3 Local Weather

The student will demonstrate an understanding of how the following affect flying conditions.

(a) Airflow on and around hills. catabatic flow
(b) Wind gradient.
(c) Turbulence, venturi effect and gusts
(d) Sea-breezes
(e) Thermal cumulus cloud development
(f) Standing waves and their effect.

2.4 Weather in Cross Country Situations

The student will demonstrate an awareness that powered paragliders can fly in locations and maintain height where gliders are not able to do so. The need to maintain an awareness of overall wind direction and its effect in valley situations will be discussed and wind gradient in different topographical situations considered.

The student will demonstrate the ability to assess suitable flying weather.

3. Theory

3.1 Theory of Flight - General

The student will demonstrate a knowledge of.-

(a) Principles of flight including drag, airflow over the wing, angle of attack, wing loading, glide angle & sink speed.

(b) Effect of brakes on angle of attack and speed. The effects of flying too slowly (the stall).

(c) Air speed - wind speed - ground speed

3.2 Theory of Flight - Powered Parachute

The student will demonstrate a knowledge of:

(a) Lift, Thrust Weight and Drag and the effect of power on angles of attack.
(b) Forces in turns and the effect on stall speed.
(c) Climbing and diving turns.
(d) Reduction drives.
(e) Propeller theory.
(f) Torque effects and how these can be controlled.
(g) Hang points - the effect of altering.
(h) The effect of speed systems on a powered paraglider under power on and power off situations.
(i) The effects of weight on flying speed, stall speed/flare and the need for weight checks.
(j) The effect of flying too slowly.
(k) Emergency and safety procedures.

3.3 Airmanship

The student will demonstrate a knowledge of.-

(a) Dangers- power lines, trees, water.
(b) Turbulence and its consequences.
(c) Flying with others, anticipation..
(d) The emergency parachute.
(e) The choice of safe field including climb-out clearance ground conditions, turbulence generators, obstructions and overshoot areas, including landing out behaviour.
(f) Assessment of conditions for flight.

(g) Safe areas for onlookers.
(h) Noise nuisance and congested areas.
(i) Emergency stopping and take-off abort.
(j) Techniques for avoiding and recovering from where appropriate tucks, stalls and spins and sudden power loss.
(k) Methods of navigation. Planning a 30 km (total) flight either as an out and return flight with a pre-declared turn point or as a flight to a pre-declared goal.
(l) Emergency and safety procedures.

3.4 Air Law

The student will demonstrate a thorough knowledge of air law and regulations applicable to powered parachutes including:

(a) collision avoidance rules.
(b) landing rules.
(c) night (definition of MCT and ECT)
(d) flying over substantially populated areas
(e) low flying rules
(f) visual flight rules.
(g) Prohibited ,Restricted and Danger Areas
(h) NOTAMs
(i) incident reports.
(j) Air Charts
(k) thermalling rules
(l) air space
(m) restrictions and hazards
(n) aerodrome rules signals and symbols.

4. Practical

4.1 Pre-Motorised Flights

Prior to flying with a motor unit the student will carry out the following tasks on a parachutes: -

(a) Demonstrate an effective Parachute Landing Fall (PLF) not wearing back pack or paraglider)
(b) Correctly carry out pre and post-flight routines.
(c) Demonstrate the ability to plan a flight and execute the plan.
(d) Demonstrate safe airspeed control.

(e) Complete four appropriate controlled landings in a designated area.
(f) Consistently demonstrate clean take-offs, good flares and accurate landing into wind.
(g) Demonstrate an S-turn flight plan so that a safe landing can be made as if the tow line had failed to release (Tow).
(h) Demonstrate safe and effective turn control of the aircraft.
(i) (Tow) Complete a minimum of 3 flights and attain self release from a safe height for a standard school circuit on each occasion.
(j) (Hill) Complete a minimum of 5 flights with at least 200 ft. ground clearance.
(k) Demonstrate emergency collapses (on the ground).
(l) Demonstrate competence at forward and reverse launching and canopy control.
(m) Experience take-offs in winds less than and greater than 8 kph.
(n) Demonstrate Big Ears
(o) Demonstrate safety and emergency procedures.

4.2 Motor Unit - Ground Work

(a) Demonstrate pre-take off control of aircraft
(b) Demonstrate simulated post landing control of aircraft.
(c) Demonstrate competence at parking aircraft safely.
(d) Demonstrate knowledge of the following:
  (i) Clearing the fuel supply of bubbles.
  (ii) Clear prop.
  (iii) Kill switch and emergency engine stopping.
(e) Correctly carry out pre-and post flight routines.
(f) Demonstrate launch abort.
(g) Demonstrate safety and emergency procedures.

4.3 Powered Flight

Note: These flights must be directly supervised by a SAC Instructor Certificate holder. They must not be undertaken until Actions 4.1 and 4.2 have been completed.

(a) Demonstrate consistently good launch technique.
(b) Carry out three consecutive powered flights from a flat site with at least 100ft. ground clearance, with unassisted take-off runs, smooth 90 degree left and right turns including good airspeed and throttle control and finish with stand-up power off landings including full deflation of the canopy between flights.

(c) Complete three landings within 20m of a defined spot in winds of less than 8 kph.
(d) Complete three landings within 20m of a defined spot in winds of more than 16 kph.
(e) Minimum of 10 flights logged (including full deflation and inflation of canopy between flights)
(f) Demonstrate the safe and effective use of big ears.
(g) Carry out an accurate power-off landing to the satisfaction of the Instructor from at least 500ft.
(h) Demonstrate an ability to fly co-ordinated 360 degree. turns in both directions.
(i) Complete a 30 km (total) flight to a declared goal. The route may be via a declared turn point or may be flown as a triangle via declared turn points.
(j) Display the ability to fly safety with others, maintaining a good Look Out, complying with the Rules of the Air and exhibiting good Airmanship, and demonstrate an ability to manoeuvre Powered Parachutes safely, considerately and in accordance with air traffic rules.
(k) Must have successfully flown powered parachutes as pilot in command on at least 8 separate days within the previous 9 months.
(l) Must have a minimum of 5 hours logged airtime as pilot in command on parachutes of which 3 hours must be on powered parachutes.
(m) Satisfy the Instructor that the pilot has the correct attitude to continue a flying career both safely and competently.

(n) Pass the SAC "Power" written exam.